

ECONOMIC POLICY COMMITTEE
SOCIAL PROTECTION COMMITTEE

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Joint Paper on Pensions 2019

Acknowledgements

This joint paper, prepared by the Economic Policy Committee (EPC) and Social Protection Committee (SPC), takes a holistic view on the pension systems of EU Member States, bringing together the analysis of the regular Ageing Reports of the Economic Policy Committee and the Pension Adequacy Reports of the Social Protection Committee.

This joint paper is a follow-up to the joint report on pensions by the EPC and SPC 2010.

In developing the joint paper, it was thoroughly discussed in the EPC's Working Group on Ageing Populations and Sustainability and in the Social Protection Committee.

The joint paper was adopted by the EPC on 20 November 2019 and by the SPC on 28 November 2019.

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Executive Summary

The last decade has witnessed an intensification of pension reform activity across the EU. The main focus of the reforms has been on enhancing the fiscal sustainability of public pensions against the background of demographic ageing.

The most common approach to addressing pension challenges has centred on raising retirement ages. To achieve this, Member States have increased statutory pension ages, restricted access to early retirement, revised contributory requirements and strengthened (dis)incentives to encourage later retirement. Flexible retirement pathways, aimed at facilitating longer working lives and discouraging early retirement, have become increasingly widespread. Many of the reforms included the introduction of automatic adjustment mechanisms, directly linking key pension parameters such as pension age or benefits to demographic change.

Recent reforms also indicate a trend towards the phasing out of special pensions that grant preferential treatment to certain groups of the population. Some reforms have improved access to pension systems for people in types of work other than permanent, full-time employment but significant gaps remain.

Some reforms also addressed the role of supplementary or private pensions in old-age income provision. In several northern and western Member States, existing occupational pension schemes have matured and become an increasingly important source of retirement income. In other countries, particularly in central and eastern Europe, the introduction of funded pensions was not always successful.

Pension reforms in conjunction with structural changes in the labour market, such as rising economic activity of women, increases in educational attainment levels and improvements in health, have contributed to a gradual increase in the employment of older workers and the effective retirement age. Nevertheless, significant cross-country and gender differences remain.

As result of the reforms so far, in 2070, public pension expenditure relative to GDP is expected to stand at about the same level in the EU as in 2016, but the patterns differ across Member States and time periods. Sixteen Member States are expected to see pension expenditure increase in the long term. The retirement of baby boomers will drive a generally strong increase of expenditure in the EU.

However, the pension reform process has not been easy. Several recent reforms have run into resistance at the political or social level, and some of them were watered down or even reversed. In some cases reforms were challenged on a constitutional basis.

Reforms have resulted in stabilised long-term pension expenditure projections at EU level, in part due to average pension benefits decreasing relative to average wages. Breaking down the projections by factor, the demographic component is the biggest upward driver. On the other hand, reform-related factors, the increase in retirement ages and the decrease in the pension benefit ratio (i.e. relative pension levels), exert downward pressure on future expenditure. The decrease of the benefit ratio can raise the question of pension adequacy.

Together with the financial sustainability objective, there is a growing recognition of the need for adequacy safeguards. Member States have taken steps in the last few years to recognise the merit of long careers and to improve the protection of pensioners at the lower end of the income distribution.

Today, older Europeans are generally less exposed to the risk of poverty and material deprivation than younger people. However, old-age poverty risks increase later in retirement, as needs increase and the value of pension benefits is eroded. The current poverty prevention and income replacement capacities of pension systems vary significantly across countries.

In the future, the income replacement capacity of pension benefits after a similar career is expected to fall relative to wages in most Member States reflecting current policies and population ageing, unless further labour market and pension measures are implemented. The projected increases in effective retirement ages are substantial. However, on average in the EU, this increase would still be less than half of the projected gains in life expectancy in the coming 50 years. This raises questions about maintaining pension social fairness¹ and solidarity between different generations of contributors and pensioners, as well as between socio-economic groups, genders and types of work. Women and workers in non-standard and self-employment remain under-protected, undermining both the adequacy and the contribution base of pension systems. These groups, as well as lower income earners in general, also have less access to supplementary pension schemes.

Achieving pensions that are fiscally sustainable, financially adequate and socially fair requires additional measures, which need to take into account the national specificities. Reforms need to be carefully prepared and rolled out, striving to achieve broad political and societal acceptance of the reform rationale. A holistic assessment of the fiscal sustainability and adequacy impacts and of the relevant policy areas is called for.

Enabling more people to work and to do so longer requires profound changes in the labour markets, including equal opportunities for women and men, enhancing the employability of older workers, combatting discrimination and adapting workplaces, as well as sustained public health system improvements. Beyond higher participation rates, labour productivity gains and correspondent wage growth are indispensable to mitigate the shrinking of working-age population.

Pension systems could support longer working lives by adjusting pension ages or career requirements automatically to reflect life expectancy gains, limiting early retirement to objectively warranted cases and generalising the right to work beyond pensionable age and flexible retirement.

At the same time, reforms need to carefully consider the redistribution and fairness logic of pension systems, taking into account the increasing demographic burden on future generations of workers, fair treatment of workers who enter the labour market early, the redistributive capacity across income groups, the protection of family-related career breaks and phasing out preferential pension schemes. Minimum income guarantees remain an important safety net for those who reach old age without sufficient income or means.

In an evolving world of labour relations, the ability of pension systems to cover different types of economic activity will be crucial to safeguard the adequacy and contribution base of pension systems. Achieving this can involve extending access to pension schemes to more types of workers as well as mandating, nudging or incentivising them to save for retirement. Adjusting accrual conditions to diverse work patterns and improving transferability and transparency of pension rights are important for pension systems to remain relevant for a diverse, professionally mobile workforce.

Member States can seek to boost old-age income by complementing statutory pensions with high-quality, safe and cost-effective supplementary schemes. Policies to facilitate the participation in such schemes depend on the specifics of the national pension system and need to consider the fiscal cost and distributive effect of the measures.

¹ Social fairness is intended in its wider meaning of ‘just’, ‘equitable’, as opposed to the more specific and technical meaning of ‘actuarial fairness’.

Adequate pension indexation and the availability of services to the older population, chiefly health and long-term care, are major tools to support the living standards throughout retirement and manage the impact of informal care. In all cases, benefits and services need to be financed in a sustainable manner.

As changes in the economy and the world of work could affect the contribution base of pensions, potentially jeopardising their sustainability and adequacy, Member States may need to reconsider how their social protection systems are resourced, including looking at new sources of financing.

INTRODUCTION

Adequacy and sustainability are two halves of the pension policy equation: to provide current and future pensioners with decent living standards, pension systems need to be set up in a financially viable way. Population ageing is disrupting the equilibrium of pension systems, forcing policy-makers to find a new balance. Enacting the necessary reforms to achieve this dual objective is far from straightforward. National pension systems are deeply embedded in the country's social fabric and central to preserving fairness between and within generations. Political and social acceptance of reforms is hard to achieve but vital to avoid policy reversals over time.

The social and fiscal magnitude of pension systems makes them one of the most important areas of public policies and highly relevant for the sustainability of public finances. The adequacy of pensions is of central importance for retired people who rely on pensions as their main source of income. This group is a significant and growing part of the EU population (about 124 million or a quarter of the total), with public pension expenditure accounting for nearly 12% of Member States' GDP, while financing schemes are increasingly under pressure.

The fiscal sustainability of public pensions is monitored inter alia through the change in the pension expenditure-to-GDP ratio and its contribution to the fiscal sustainability gap. As the median age steadily rises across Member States, the contributions by a relatively smaller group of people at working age serve to pay for a growing group of retirees living ever longer, unless further policy measures are taken, including new sources of financing. Since around 2010, the number of retirees has been increasing fast, as baby boomers have started retiring and life expectancy continues to rise. The consequences for public expenditure vary significantly across Member States. This variation reflects the extent to which Member States are exposed to ageing as well as the extent to which they have anticipated those demographic changes through reforms of their pension systems. In addition, new adequacy challenges from growing groups at risk (e.g. non-standard workers) can increase social pressure towards higher spending, possibly weakening sustainability.

The adequacy of pensions is measured by (i) their ability to prevent poverty, (ii) the degree to which they replace previous income from work and (iii) their capacity to do both elements during the entire retirement duration. Some 17.3 million or 18.2% of older people (aged 65 and over) in the EU remained at risk of poverty or social exclusion in 2016, 1.9 million less than in 2008. Currently pensions allow most retired Europeans to enjoy living standards that are close to those of the working-age population, however the situation differs across countries, and most recent reforms will likely result in lower income replacement levels for future pensioners.

In the past decade, a number of Member States have carried out reforms aimed at containing the long-term pension expenditure, by raising pensionable ages to reflect longevity gains, closing early retirement pathways and adjusting pension benefits (e.g. automatic balancing mechanisms). Projections show that these reforms, on average, have helped to stabilise long-term pension costs but will result in lower adequacy. Some countries are still to address the sustainability challenges, especially when taking into account the projected increase of other age-related expenditure. At the same time, some of the earlier reforms are already experiencing pushbacks and, in some cases, are being reversed or watered down. Part I provides an overview of the main reforms enacted in the Member States over the past decade.

Pensions are a national competence of Member States. The EU provides a legal framework covering some aspects of pension systems, such as protection of pension rights in case of cross-border mobility², gender equality³ and the single market for supplementary pension funds⁴. However, the Treaty on the Functioning of the European Union (TFEU) stipulates that EU legislative action may not affect the fundamental principles or financial equilibrium of national social protection systems. Therefore, the EU supports Member States' efforts to ensure sustainable and adequate pensions by non-legislative means such as the European Semester coordination exercise, the European Pillar of Social Rights and the open method of coordination in the area of pensions⁵, which called for adequate retirement income for all, financial sustainability and transparency. As part of the open coordination, the EU establishes medium- and long-term scenarios on fiscal sustainability and pension adequacy. The EU fiscal framework – the Stability and Growth Pact – requires that fiscal sustainability is ensured, including taking into account the budgetary impact of population ageing.

Pensions have featured prominently in the European Semester exercise since its beginnings, with around half of Member States usually receiving a pension-related Country-Specific Recommendation (CSR). In the first half of the decade, in the wake of the economic crisis that also brought into focus long-term pension challenges, the main thrust of pension CSRs was clearly on the fiscal sustainability of pension systems. While sustainability concerns remain, in recent Semesters adequacy concerns are flagged in a growing number of CSRs, often alongside the sustainability aspect. In the 2019 Semester, 16 Member States received a pension CSR; among these, 13 highlighted sustainability and 6 adequacy or fairness. The 2018 Annual Growth Survey observed that most Member States had reformed their pension systems but more efforts were needed to complement enacted reforms, and called on Member states to ensure the sustainability and adequacy of pension systems for all.

Principle 15 of the European Pillar of Social Rights states that both workers and the self-employed in retirement have the right to a pension commensurate to their contributions and ensuring an adequate income. It states explicitly the principle of equal opportunities between women and men in the acquisition of pension rights. The right to resources that ensure living in dignity is also stipulated.

Every three years, the Ageing Report of the Economic Policy Committee and the Commission and the Pension Adequacy Report of the Social Protection Committee⁶ and the Commission provide an in-depth analysis of the sustainability of ageing-related expenditure and the adequacy of old-age income respectively. The scope of the two reports is somewhat different: the Ageing Report focuses on macro-level projections of public pension, health care, long-term care and education expenditure; while the Pension Adequacy Report mainly analyses pension adequacy for various population groups, covering both public and non-public schemes. Notwithstanding the differences in the overall scope of analysis, important aspects of both reports are complementary and compatible⁷.

The conclusions of the 2018 editions of the Pension Adequacy Report and the Ageing Report, endorsed by the respective Council formations, stressed the complementarity of adequacy and sustainability analysis at the EU level and called for a holistic reflection. This joint paper delivers on this ambition by bringing together the key observations from both strands of work and putting forward a comprehensive overview of recent reforms, long-term perspectives and policy implications for achieving adequate and sustainable pensions.

² Regulation (EC) No 883/2004, Directive 2014/50/EU.

³ Directives 79/7/EEC, 2006/54/EC.

⁴ Directive (EU) 2016/2341.

⁵ <https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=LEGISSUM:c10140&from=EN>

⁶ This supported, *inter alia*, a proposal to the Council on access to social protection, SWD(2018) 70.

⁷ The Pension Adequacy Report uses the underlying assumptions of the Ageing Report for its projections.

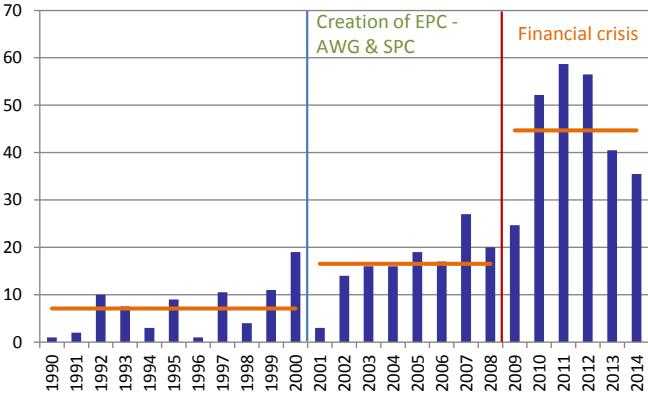
Pension systems are complex and diverse. This makes it difficult to report on details in a unified manner across the Member States. In addition, this analysis is based on projections that, while jointly discussed and accepted, present some degree of uncertainty, for instance as regards migration. The indicators below need be interpreted with this caveat in mind.

Part I. A panoramic view of pension reform in the EU since 2010

Introduction

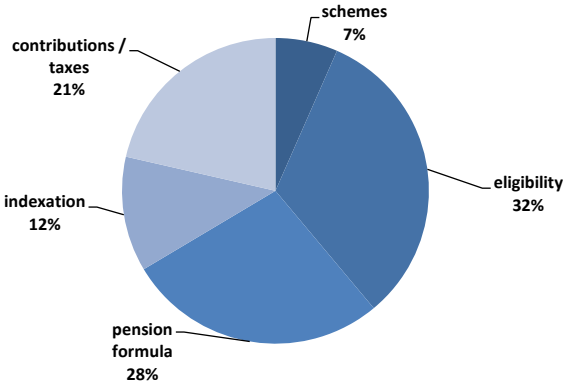
Most EU Member States have carried out gradual and substantial pension reforms over the last decades, mainly to enhance the fiscal sustainability of public pensions.⁸ The intensity of pension reforms has been particularly strong since 2010 (see Figure 1).⁹ These reforms generally comprised a wide-range of measures (see Figure 2).

Figure 1: Number of pension reform measures in the EU



Source: Carone et al. (2016), Commission services.

Figure 2: Breakdown of pension reform measures in the EU



Source: Carone et al. (2016), Commission services.

⁸ Projected increases in pension expenditure can pose significant challenges to fiscal sustainability. See Carone et al. (2014) for a coherent framework for assessing fiscal sustainability challenges.

⁹ Further pension reforms have been made since 2014. See the 2018 AR and the 2018 PAR for details on reform measures, and the section ‘Pension reforms reversals’ below for reforms adopted after December 2017.

Most Member States modified substantially their pension system rules and parameters (e.g. pension eligibility (ages), number of schemes, pension formula, indexation, social contributions/taxes). Pension reforms are often implemented gradually over long periods. Several Member States additionally adopted more systemic reforms, by strongly supporting the introduction of new pillars or radically changing the nature of their public pension schemes. Moreover, the great recession that hit the European Union in 2008-09 prompted an acceleration of sustainability-enhancing pension reforms in many countries, through the adoption of additional measures, also with sometimes short-term impacts on pension expenditure. In some cases, partial or full reversals of past systemic reforms were also observed.

The pension reform dynamic in Member States started to shift around 2015, with greater focus on adequacy safeguards, in particular targeted at low-income pensioners. This shift reflects the recognition that sustainability reforms should be accompanied by measures to safeguard pension adequacy.

Towards higher retirement ages and other pension reforms

Over the last decades, the most common measure adopted to address pension sustainability challenges in the EU has consisted of raising retirement ages. Indeed, nearly all Member States have increased the level of early and statutory retirement ages. Overall in the EU, the statutory retirement age has for men increased by 0.6 years and by as much as 1.4 years for women between 2010 and 2016.¹⁰ In some cases (e.g. Greece, Italy, Slovenia), particularly large increases have been legislated since 2010 (see Table 1: Statutory and early retirement ages (in bracket) and incentives to postpone retirement). Looking forward, only Luxembourg and Sweden have not legislated (further) rises of pension ages according to the 2018 Ageing Report. In Austria and Slovenia future increases only apply to women in order to harmonise pension age between genders. Ten countries adopted rules that link the statutory retirement age to life expectancy, including Denmark, Greece, Italy and Slovakia. Given projected life expectancy increases, the retirement age in these countries is expected to increase. However, despite this common upward trend, an important dispersion of pension ages might persist in the long run: for example, in 2070, the statutory retirement age should be as high as 74 in Denmark (for both men and women) against 60 for women in Poland. A comparison of the results reported in the 2015 and 2018 Ageing Reports shows a significant upward revision (by close to one year) of the projected increase of the average statutory retirement age can be observed.

¹⁰ Unweighted average.

Table 1: Statutory and early retirement ages (in bracket) and incentives to postpone retirement

	Statutory retirement age (early retirement age)										Incentives	
	MALE					FEMALE					Penalty	Bonus
	2010	2016	2030	2050	2070	2010	2016	2030	2050	2070		
BE	65	65 (62)	67 (63)	67 (63)	67 (63)	65	65 (62)	67 (63)	67 (63)	67 (63)		
BG	63	63.8 (62.8)	65 (64)	65 (64)	65 (64)	60	60.8 (59.8)	63.3 (62.3)	65 (64)	65 (64)	X	X
CZ	62.2	63.1 (60)	65 (60)	65 (60)	65 (60)	58.7	60.5 (57.5)	64.7 (60)	65 (60)	65 (60)	X	X
DK*	65	65 (61.5)	68 (65)	71.5 (68.5)	74 (71)	65	65 (61.5)	68 (65)	71.5 (68.5)	74 (71)		
DE	65	65.5 (63)	67 (63)	67 (63)	67 (63)	65	65.5 (63)	67 (63)	67 (63)	67 (63)	X	X
EE	63	63 (60)	65 (62)	65 (62)	65 (62)	61	63 (60)	65 (62)	65 (62)	65 (62)	X	X
IE	66	66 (66)	68 (68)	68 (68)	68 (68)	66	66 (66)	68 (68)	68 (68)	68 (68)		
EL*	65	67 (62)	68.7 (63.7)	70.5 (65.5)	72.6 (67.6)	60	67 (62)	68.7 (63.7)	70.5 (65.5)	72.6 (67.6)	X	
ES	65	65.3 (63)	67 (63)	67 (63)	67 (63)	65	65.3 (63)	67 (63)	67 (63)	67 (63)	X	X
FR	65	66.3 (61.3)	67 (62)	67 (62)	67 (62)	65	66.3 (61.3)	67 (62)	67 (62)	67 (62)	X	X
HR	65	65 (60)	65 (60)	67 (62)	67 (62)	60	61.5 (56.5)	65 (60)	67 (62)	67 (62)	X	X
IT*	65.3	66.6 (63.6)	67.9 (64.9)	69.6 (66.6)	71.1 (68.1)	60.3	66.6 (63.6)	67.9 (64.9)	69.6 (66.6)	71.1 (68.1)		
CY*	65	65 (65)	66 (66)	68 (68)	70 (70)	65	65 (65)	66 (66)	68 (68)	70 (70)	X	X
LV	62	62.8 (60.8)	65 (63)	65 (63)	65 (63)	62	62.8 (60.8)	65 (63)	65 (63)	65 (63)	X	
LT	62.5	63.3 (58.3)	65 (60)	65 (60)	65 (60)	60	61.7 (56.7)	65 (60)	65 (60)	65 (60)	X	X
LU	65	65 (57)	65 (57)	65 (57)	65 (57)	65	65 (57)	65 (57)	65 (57)	65 (57)		
HU	62	63 (63)	65 (65)	65 (65)	65 (65)	62	63 (63)	65 (65)	65 (65)	65 (65)		X
MT	61	62 (61)	65 (61)	65 (61)	65 (61)	60	62 (61)	65 (61)	65 (61)	65 (61)		X
NL*	65	65.5 (65.5)	68 (68)	70.5 (70.5)	72.5 (72.5)	65	65.5 (65.5)	68 (68)	70.5 (70.5)	72.5 (72.5)		
AT	65	65 (60)	65 (60)	65 (60)	65 (60)	60	60 (55)	63.5 (60)	65 (60)	65 (60)	X	X
PL	65	65 (65)	65 (65)	65 (65)	65 (65)	60	60 (60)	60 (60)	60 (60)	60 (60)		
PT*	65	66.2 (60)	67.2 (60)	68.3 (60)	69.3 (60)	65	66.2 (60)	67.2 (60)	68.3 (60)	69.3 (60)	X	X
RO	64	65 (60)	65 (60)	65 (60)	65 (60)	59	60.4 (55.4)	63 (58)	63 (58)	63 (58)		
SI	63	65 (59.3)	65 (60)	65 (60)	65 (60)	61	63 (59)	65 (60)	65 (60)	65 (60)	X	X
SK*	62	62 (60)	64.2 (62.2)	66.8 (64.8)	69.1 (67.1)	57.9	60.2 (58.2)	64.2 (62.2)	66.8 (64.8)	69.1 (67.1)	X	X
FI*	63	66 (63)	67.1 (64.1)	69.2 (66.2)	71 (68)	63	66 (63)	67.1 (64.1)	69.2 (66.2)	71 (68)	X	X
SE	67	67 (61)	67 (61)	67 (61)	67 (61)	67	67 (61)	67 (61)	67 (61)	67 (61)		
UK	65	65.4 (65.4)	66 (66)	67.3 (67.3)	68 (68)	60	63.1 (63.1)	66 (66)	67.3 (67.3)	68 (68)		X
NO	67	67 (62)	67 (62)	67 (62)	67 (62)	67	67 (62)	67 (62)	67 (62)	67 (62)		
EU	64.3	64.8	66.1	66.8	67.4	62.4	63.7	65.7	66.6	67.2		

Notes:

BG - The latest pension reform included a provision to further link retirement ages to life expectancy as of 2037.

CZ - Statutory retirement age depends on the number of children. Values for women with 2 children are shown.

DK – Increase in the retirement age subject to Parliamentary decision. There are also incentives to postpone retirement.

IT - In 2016, female SRA refers to public sector employees (for the female self-employed and female private sector employees they are, respectively, 66.1 and, 65.6, both aligned to other workers as of 2018). In bracket the minimum age for early retirement under the NDC system (a minimum amount of pension of 2.8 times the old-age allowance is also required). Early retirement is also allowed regardless of age, with a contribution requirement of 42.8 years (41.8 for female) in 2016, indexed to changes in life expectancy (44.2 in 2030, 45.8 in 2050 and 47.3 in 2070; one year less for females).

LV - The legislation provides allows the possibility to retire 2 years before the normal retirement age (SRA) for people whose insurance record is at least 30 years and who do not combine work with pre-retirement pension. The amount of early retirement pension (before SRA) is 50% of the pension amount calculated. The full pension is restored after reaching SRA.

PT - Early retirement due to long contributory period suspended in the social security scheme in 2012. Since January 2015 early-retirement is possible for workers aged 60 or more and 40 or more years of contributory career. The pension benefit is reduced by 0.5% for each month of anticipation to statutory retirement age (penalty) and multiplied by the sustainability factor. If the contributory career is higher than 40 years, for each year above the 40 years the statutory retirement age is reduced by 4 months.

SE - Retirement age flexible from age of 61 without an upper limit. Under the Employment Protection Act, an employee is entitled to stay in employment until his / her 67th birthday.

SK – The Slovakian authorities have introduced a cap on the retirement age (see Box 1 below for details).

*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 Eurostat population projections.

Actuarial equivalence is not considered as a penalty/bonus.

Source: 2018 Ageing Report, EPC.

As the effective exit age from the labour market tends to be lower than the statutory retirement age, most Member States also introduced different measures in order to change the **incentives to retire**:

- Pathways to early retirement have been restricted or closed to new entrants (including disability pensions) in most European countries (e.g. Spain, France, Netherlands, Austria, Romania, Finland, Sweden)¹¹;
- The number of years of contributions required to receive a (full) pension have also been increased. The average actual contributory period for new pensions estimated at around 34 years on average at the EU level in 2010 is projected to increase by 4 years to around 38 years in 2070¹²;
- The introduction of bonuses and penalties that apply to people retiring respectively after and before the normal pension age is frequently observed (such incentives currently exist in 18 EU countries - see Ageing Report 2018);
- There has been an increase in flexible retirement rules aimed at facilitating longer working lives and smoothing transition into retirement, including through easing the conditions to cumulate pension and wage (e.g. Czech Republic, Spain, Romania, UK). In total, already 20 Member States allow cumulating an old-age pension with work income, in most cases without any restrictions. Some countries have introduced flexibility. This is for example the case in Sweden, where the retirement age is flexible¹³.

Automatic adjustment mechanisms

One of the most important features of pension reforms carried out over the last two decades to safeguard the long-term fiscal sustainability — whether or not countries engaged in a systemic change – has been the introduction of mechanisms aimed at automatically adjusting the key pension parameters (pension age, benefits, and financing resources) to demographic changes. Indeed, since the mid-1990s, half of the EU Member States have adopted either **automatic balancing mechanisms**, **sustainability factors** (i.e. a direct link between pension benefits and life expectancy) and/or **automatic links between retirement age and life expectancy**. The shift from defined benefits to defined contributions¹⁴, which automatically adjust benefit levels to life expectancy, can be seen as part of this trend. The introduction of such mechanisms has accelerated since 2010 (see Table 2: Automatic adjustment mechanisms) and, all-in-all by 2018 half of the EU Member States had introduced them.

¹¹ Many of which were introduced in the 1970s in response to rising unemployment (e.g. specific early retirement schemes, use of unemployment or sickness insurance schemes for older workers).

¹² 2018 Ageing Report.

¹³ Although laws on employment protection stipulate that an individual is entitled to stay in employment until his/her 67th birthday, but not after that.

¹⁴ In defined contribution systems, often "notional", monthly pension payments are computed depending on cumulated contribution payment and life expectancy so that the expected total cost of one's pension matches total contributions.

Table 2: Automatic adjustment mechanisms

Country	Automatic balancing mechanism	Sustainability factor (benefit link to life expectancy)	Retirement age linked to life expectancy	Legislated
Italy		X	X	1995 & 2010
Latvia		X		1996
Sweden	X	X		1998 & 2001
Poland		X		1999
France*		X		2003
Germany	X			2004
Finland		X	X	2005 & 2015
Portugal**		X	X	2007 & 2013
Greece***			X	2010
Denmark****			X	2011
Spain	X	X		2011 & 2013
Netherlands			X	2012
Cyprus			X	2012
Slovak Republic			X	2012
Lithuania	X			2016

Note: In all the NDC system the benefit is linked to life expectancy through the annuity factor.

* Pension benefits evolve in line with life expectancy, through the coefficient of 'proratisation'; it has been legislated until 2035 and not thereafter.

** Only two thirds of the increase in life expectancy is reflected in the retirement age.

*** An automatic balancing mechanism is applied in auxiliary pension system.

**** Subject to parliamentary decision.

In Malta, the Social Security Act (Article 64b) mandate the tabling of a report in the House of Representatives on a five-yearly intervals to review the financial state of the pensions system and to prepare recommendations with a view of achieving further adequacy, sustainability and social solidarity in such manner that a stable proportion is kept between the contribution periods and the periods of time during which it is expected that the pension will be paid.

Since the finalisation of the 2018 Ageing Report, Estonia introduced a link between the retirement age and the average life expectancy, which will become operational as of 2027.

The Slovak Republic has introduced a cap on the retirement age and the future retirement age will be directly determined by the law (see Box 1 below for details).

Source: 2018 Ageing Report, EPC, Commission services.

Automatic balancing mechanisms adjust benefits' indexation and/or social contributions when needed. As examples, in Sweden since 1998 (reduced indexation in case the pension system would show a deficit in the medium term¹⁵), in Germany since 2004 (the contribution rate is automatically adjusted so that the statutory pension scheme is in balance, and pension indexation is reduced through a contribution rate factor and the sustainability factor), in Spain since 2013 (reduced indexation when the pension system is in financial disequilibrium, substituted by full CPI indexation in 2018-2020 and under reconsideration for the years beyond 2020) and in Lithuania since 2016 (suspension of basic pension and pension point value indexation if the pension system is in deficit).

The **sustainability factors** (i.e. a factor that changes the size of the pension benefit depending on expected demographic changes, usually life expectancy at the time of retirement) was the first to be introduced (8 countries – although not fully automatic in France and Denmark).

Finally, 8 countries have introduced an **automatic link between retirement ages and life expectancy**: Italy, Greece, Denmark, and more recently Slovakia, Cyprus, the Netherlands, Portugal and Finland. These countries are the ones projecting the highest increases in retirement age over the long run¹⁶ (especially for men; for women, harmonisation trends imply sometimes steep increases even in countries without such an automatic link). Few countries have introduced simultaneously two automatic adjustment mechanisms (e.g. Italy, Sweden, Portugal, Spain (from 2023) and Finland).

¹⁵ This may be due to e.g. low returns on the pension fund assets or low wage (GDP) growth.

¹⁶ In accordance with Eurostat's 2017 life expectancy projections.

Phasing out special pensions

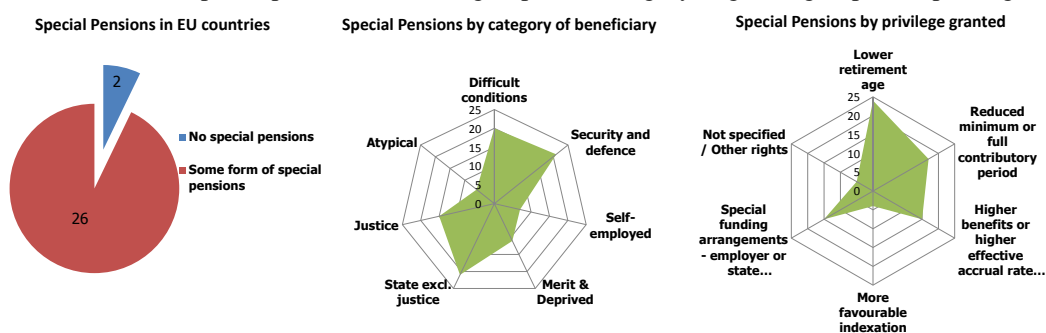
Pension systems establish a set of criteria for pension eligibility. For old-age earnings-related pensions granted under the social security system, these criteria commonly include age, residence¹⁷ and contributory record. Sometimes additional criteria such as occupational activity or a special status¹⁸ may also give access to special pensions.

A pension scheme is considered to constitute a ‘special pension’ if it is simultaneously: i) allocated based on occupational activity or special status; ii) publicly funded; and, iii) deemed more advantageous than the general scheme. Advantages compared to the general scheme are defined as one or more of the following: i) contributory period counted more favourably, ii) pensionable earnings defined more favourably, higher effective accrual rate or equivalent, iii) more favourable indexation rule, iv) lower retirement age, v) higher state funding, vi) other benefits compared to the main scheme (e.g. health hazard compensations, free public transport, tax exemptions, obligation of the employer to contribute to the third pension pillar).

Special pensions are common in EU countries, alongside the general pension systems. In 2016, some form of special pensions seemed to be present in all EU countries except the Netherlands and Sweden (see Figure 3).¹⁹

Figure 3: Presence and type of special pensions, EU countries

(number of countries with special pensions, rewarding a specific category or granting a specific privilege)



Note: See Box II.1.2 in the 2018 Ageing Report for the definition of the different pension categories.

Source: 2018 Ageing Report.

Recent reforms indicate, however, a trend towards the abolishment of such special pensions, in particular for security and defence workers and for state employees. While the scale of special pension schemes appears sizeable, the extent to which these schemes are undergoing reforms is significant too. Based on the available information, 21 Member States operating special schemes have undergone or announced some type of reform to these systems (see Figure 4).

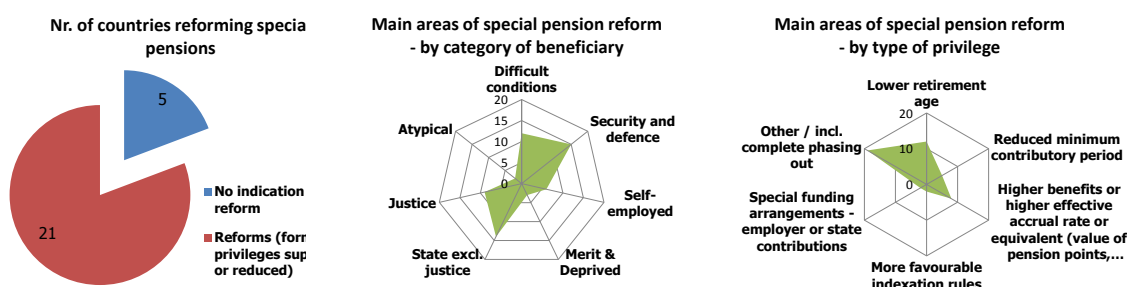
¹⁷ This is the case in the Netherlands.

¹⁸ This status would correspond to merits accrued during one's career serving public interest (e.g. war veterans, former political prisoners) or due to a situation of deprivation or victimhood arguably ensuing from circumstances outside the subject's control (e.g. victims of nuclear disasters, political repression, families of children with disability, long-term unemployed not reaching the retirement age).

¹⁹ Cyprus did not report on special pensions and is reported as one of the two countries with no special pensions in Figure 3.

Figure 4: Special pension reforms, EU countries

(number of EU countries considering or undergoing reforms, by beneficiary and by privilege type)



Source: 2018 Ageing Report.

Reform efforts are generally aimed at a variety of amendments including the complete phasing out of some schemes or reducing existing privileges, in particular in terms of a lower retirement age, higher benefits or higher effective accrual rate.

Multi-pillar pension systems and supplementary pensions

Pension systems across the EU remain very diverse. It is more common in northern and western Member States to have systems with different types of pension schemes, or pillars, to provide old-age income. Additional pension savings can supplement public pension benefits.

Different taxonomies of pension schemes exist. Table 3 provides an overview of the main types of pension schemes and the way they are classified in the Pension Adequacy Report and the Ageing Report.

Table 3. Classification of pension schemes in the PAR and the Ageing Report

Type of pension scheme	PAR classification		AR classification	
<ul style="list-style-type: none"> • Legislation-based • Pay-as-you-go 	Statutory	Public	Public	
<ul style="list-style-type: none"> • Legislation-based • Funded 		Statutory funded	(Mandatory)* individual	
<ul style="list-style-type: none"> • Employment-based • Funded (mostly) 	Supplementary	Occupational	Occupational	
<ul style="list-style-type: none"> • Based on a private contract • Funded 		Personal	Individual	

Note: * Most but not all legislation-based funded schemes are mandatory

The relative importance of supplementary pensions in old-age income provision vis-à-vis public pensions varies significantly across Member States. High or medium supplementary pension coverage is mostly found in northern and western Member States characterised by a pivotal role of social partners in pension policies and developed financial markets.

In the Netherlands, Denmark and Sweden occupational pension schemes are mandatory for most jobholders. Meanwhile coverage remains low to non-existent in the south and east of the EU, pointing to underlying social and institutional factors, such as preference for non-funded instruments or insufficient capacity of social partners.

Table 4: Coverage of supplementary pensions by type, 2016, % of population aged 15-64

	Occupational pensions	Personal pensions
Austria	15	23.8
Belgium	59.6	38
Bulgaria	0.2	12.9
Croatia	1.1	9.3
Cyprus	39.1	..
Czech Republic	n/a	52.6
Denmark	63.4	18
Estonia	n/a	12.3
Finland	6.6	19
France	24.5	5.7
Germany	57	33.8
Greece	1.3	..
Hungary	..	18.4
Ireland	35	12
Italy	9.2	11.5
Latvia	1	17.1
Lithuania	..	2.8
Luxembourg	5.1	..
Malta	..	1.1
Netherlands	88.0	28.3
Poland	1.6	~10
Portugal	3.7	4.5
Romania	n/a	3.3
Slovakia	n/a	26.3
Slovenia	36.5	1.4
Spain	3.3	15.7
Sweden	~70	24
UK	43 (total)	

Source: 2018 Pension Adequacy Report.

Since the 1990s, the role of supplementary pensions, starting with occupational pension plans, has, with a few exceptions, increased in Europe, but with major regional differences. Only in the cases of the Netherlands (44%), Denmark (30%), Sweden (24%) and Ireland (19%) private pension expenditure represented a significant share of total pension spending in 2016. Within a generation, the coverage of occupational pensions has expanded significantly across a number of western European Member States (e.g. Sweden, Denmark, France, Belgium), where the share of working people aged 50+ with an occupational pension entitlement is much higher than the share of current retirees with an occupational benefit, according to SHARE data.

Recent reforms in several countries aim at reinforcing the efforts to boost the coverage and savings in supplementary pension plans. The UK gradually introduced auto-enrolment into occupational pensions starting in 2012 and Poland has followed suit. Other countries are trying to make the provision of occupational pensions more attractive and less burdensome for employers (e.g. Germany) or introduce regulatory measures to strengthen the functioning of supplementary pensions and bring confidence to members (e.g. Ireland). Not all shifts towards multi-pillar pension systems were successful. In some countries, funded pensions did not supplement public pensions, but were used to partially replace public pensions, at the expense of reducing the latter's benefits.

Within the context of the AWG pension projections, private pension expenditures are reported on a voluntary basis by Member States.

Broadening pension coverage by adjusting pension systems to the increasing diversity of forms of work

In recent years, one of the key reform features has been an improvement in statutory and effective access to retirement for the self-employed and workers in diverse forms of work. This has taken place through several routes: granting legal access to previously excluded categories or making statutory access compulsory for the self-employed (e.g. Lithuania, Romania), harmonising and improving the transferability of entitlements between old-age schemes related to different categories of workers (e.g. France, Greece, Italy, Poland).

Nevertheless, significant gaps remain and workers in non-standard and self-employment still can be excluded from pension schemes or accrue less pension rights than those with full-time open-ended employment contracts²⁰.

Pension reform reversals

The legality of some reforms was challenged in national courts and there have been reversals, with some reforms declared unconstitutional. These often related to adjusting benefits of people who had accrued pension contributions.

With the median age continuing to rise in the EU and the increasing share of older people in the overall population, the adequacy of pensions becomes more important. The challenge for the pension system is to ensure a decent standard of living for older people. As a result, some Member States might need to revise the allocation of public expenditure for this purpose, ensuring at the same time fiscal sustainability.

Moreover, there could be resistance among the population to increasing the retirement age to better balance the part of life spent as a pensioner with that spent working. Indeed, in some Member States, there is pressure building on whether previous sustainability-enhancing pension reforms should be reversed or delayed²¹.

²⁰ 2018 Pension Adequacy Report.

²¹ Pension reforms have recently taken place in Italy, Greece, Croatia, Romania, Slovakia and Lithuania and are being discussed in France, Germany, Spain, Sweden. In most of these countries, reform measures could increase future pension spending, pointing to upside risks to the long-term projections. Some countries have put in place reforms in order to increase incomes.

Indeed, in the period 2015-2018, two countries had reversed previous reforms which entailed a future increase of the retirement age (Poland and the Czech Republic²²). Since then, additional reforms have been carried out in several Member States (see Box 1). This could eventually result in changes to pension policy as governments possibly accommodate eligibility or generosity criteria, leading to upward pressure on pension spending.

At the same time, reform reversals lowering pensionable ages could have a strong detrimental effect on pension adequacy, if people retire before having earned sufficient pension entitlements. The legal possibility to continue working beyond the pensionable age may not offer a credible solution, as the effective retirement age tends to lag behind pensionable age.

In some cases, nominal risks for fiscal sustainability are considered by Member States as limited, as the exceptions from previously established law are enforced only on temporary basis. Examples include: opening the possibility for early retirement for 3 years (Italy), ad hoc (more favourable) pension indexation for one or two years (Spain). Such measures are based on legislative provisions establishing a temporary validity. However, some of them could be extended or modified as some governments are reconsidering their designs. It is therefore of some interest to assess the impact of such measures in case such provisions would end up being permanent rather than temporary.

Box 1: Overview of main reforms since 2018 Ageing and Pension Adequacy Reports

The cut-off date for the pension reforms that were included in the 2018 Ageing Report was 1 December 2017. However, since then several Member States have legislated additional reforms that can be expected to change public expenditure projections. Below an overview is provided of those countries, with a brief description of the key measures. Other countries, e.g. France, are currently preparing reform packages that might bear a significant impact.

Germany (November 2018, November 2019)

The 2018 ‘*Rentenpaket*’ stipulates that, until 2025, the standard pension benefit level will not fall below 48% of the average wage and that pension contributions cannot rise above 20% or fall below 18.6%. Low-wage earners will benefit from an increase in the earnings threshold above which full social security contributions start. In November 2019, Germany’s Federal Government agreed upon a draft concept for the introduction of a basic pension (‘*Grundrente*’) for long-term insured persons. The non-contributory supplementary period taken into account for the calculation of reduced earning capacity pensions is extended to the age of 65 years and 8 months. Thereafter it will be raised in line with the standard retirement age, i.e. a gradual rise to 67 years in 2031.

Spain (December 2018)

The government decided two time-limited deviations from the 2013 pension reform. First, the annual revaluation mechanism was suspended in 2018-2019, thus indexing pensions to consumer prices rather than to the lower ‘index for pension revaluation’ of 0.25% per year. The Draft Budgetary Plan 2020 sent to the European Commission in October 2019 plans indexing pensions to consumer prices in 2020 (0.9%). Second, the entry into force of the sustainability factor linking the initial pension benefit to the change in life expectancy was postponed from 2019 to 2023. In addition, the more generous conditions for partial retirement in the industrial sector, initially foreseen to end in 2018, was extended until 2022.

²² More recently, Croatia has also announced a planned reform reversal.

Romania (December 2018)

The reform altered the main pension parameters. First, there will be a rise in the pension point value as a result of permanent indexation on the basis of wages and prices, as compared to convergence to price indexation before. Second, the formula will use a shorter contributory period to determine new pensions. Third, the correction index for new pensions, which partly linked the first pension to wages, will be abolished. This last element mitigates the expenditure increasing impact of the other measures. Following the reform, women can opt to retire at the age 63 or at the standard retirement age, which is determined according to their date of birth. All reform elements will in force by 1 September 2021.

Estonia (December 2018)

As of 2021, it will become possible to retire 5 years instead of 3 years early and take half the pension payment or stop pension payments for a desired time with actuarial neutrality applying. Aside from earnings, also the career length will be taken into account in the pension formula. As of 2027, the retirement age will be linked to the average life expectancy of 65-year olds, with a maximum increase of 3 months per year.

Croatia (December 2018)

The supplement for those retirees with savings in both the first and the second pillars who want to return all their savings to the first pillar, was extended to people born after 1961. The convergence of statutory and early retirement ages for women to the standard regime is accelerated with full convergence in 2027 compared to 2030 before. Thereafter, the statutory retirement age will rise to 67 by 2038, i.e. 5 years earlier than previously planned. In addition, pension bonuses and penalties were increased, pensioners will be able to work part-time without losing benefits and the list of arduous and hazardous professions was streamlined. In September 2019, the Croatian government announced its intention to annul the increase in the statutory retirement age to 67 and the early-retirement age to 61 and to lower again the penalty rate.

Lithuania (June 2018)

Legislation adopted in June 2018 introduced some changes to the quasi-mandatory funded scheme as of 1 January 2019. New sources of financing: contributors' private contributions (3% of wage) and the State's contribution (1.5% of the national average wage) result in a total contribution rate of 4.5%, compared to 6% (2/2/2% by employee, employer and State each) before the reform. Auto-enrolment to the system: all employees below 40 years are enrolled with the right to opt-out within the specified period; the auto-enrolment procedure is repeated every 3 year. Transitional measures (January–June, 2019): temporary possibility to opt-out from the funded scheme, to suspend contributions but remain in the pension fund until the pensionable age (with the possibility to renew contributions at any time later), to terminate the contract and transfer all assets to the public scheme. The financing of the general part of social insurance pensions was shifted to general taxes. For this reason, the pension insurance contribution rate was decreased while the income tax rate was increased.

Italy (January 2019)

A new experimental scheme allows early retirement for workers who during the period 2019-2021 attain the following requirements: at least 62 year of age and at least 38 years of contributions. However, private sector workers that qualify to retire with the new requirements may, de facto, retire after 3 months ("shifting retirement windows regime"). Likewise, public sector workers that qualify to retire with the new rules may, de facto, retire after 6 months ("shifting retirement windows regime").

For the existing early retirement scheme, based only on accrued contributions, the minimum contributory period is kept constant at the level of 2018 (42 years and 10 months for men and 41 years and 10 months for women) and unlinked from gains in life expectancy until 2026. Also in this case, the actual pension treatment starts 3 months after the accrual of such contribution requirements (“shifting retirement windows regime”). The experimental regime ‘*Opzione donna*’ was extended, allowing female workers aged at least 58 and having 35 years of social security contributions to retire early. However, the actual pension treatment starts 12 months after the accrual of such requirements. Pension benefits are reduced as they are fully calculated according to Notional Defined the notional defined contribution regime.

Slovakia (March, September, October 2019)

A constitutional amendment adopted by the Slovak Parliament caps retirement ages, thus undoing the automatic adjustments of retirement ages to gains in life expectancy. This cap would be at 64 years for men and women without children, with half a year reduction for women for each of the first three children. The conversion of this amendment into legislation is still pending. In September 2019, the Slovak Parliament passed another change to the future retirement age, which will be directly determined by the law (no automatic increase based on life expectancy). In October 2019, the Slovak Parliament approved an increase of the minimum pension with starting level of 33% of the average wage.

Greece (May 2019)

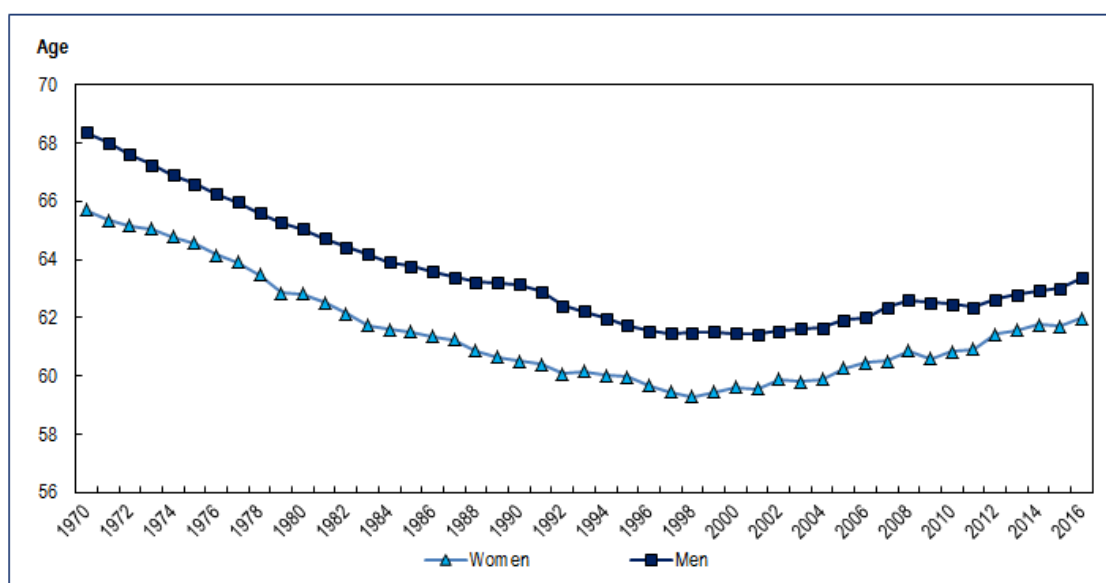
Government measures, introduced up to May 2019, concern the abolition of the reduction in the main and auxiliary pensions that was introduced in 2016; a reduction in contribution rates for the main pension of self-employed and farmers; and granting a minimum survivor’s pension amount under specific conditions. The survivor’s pension was also reinstated at 70% of the deceased’s pension benefit and the age limit was abolished. Finally, a 13th pension was reintroduced, though with specific eligibility criteria.

Labour market policies supporting longer working lives

Since the beginning of the millennium, **the average effective age of labour market exit has again been increasing, after a long decline** (

Figure 5). The recent increase has been stronger among women. This narrowed the gender gap in the effective labour market exit age to about 1 year in 2016. Several factors are likely to have contributed to this. The structural rise in labour force participation and employment rates for women would be one. The overall increase in educational achievement levels (which impact employability, adaptability, age of entry into the workforce, etc.) is another. The very significant growth in the share of service sector and public employment since the 1970s (at the cost of manufacture and primary occupations), as well as improvements in average health, should be counted among likely drivers of the change. However, as the Pension Adequacy Report 2018 has shown, the most important factors in the rise in older people employment are policy changes concerning work and retirement conditions near retirement ages, nudging people to stay longer in the labour market.

Figure 5: Average effective labour market exit age, EU-28 by gender, 1970-2016, years



Source: 2018 Pension Adequacy Report.

Between 2008 and 2018 employment in the EU has increased by 7.5 million to almost 230 million. Older workers (aged 55-64) accounted for the lion share of this increase, increasing by 12.2 million. This rise was due partly to an increase in the older population, by 7.6 million, partly by an increase in the employment rate; the 55-64 employment rate increased by 13.3 p.p. to reach 58.7%; in this perspective, the number of older employees has increased more as a result of higher employment rates than a larger older population.

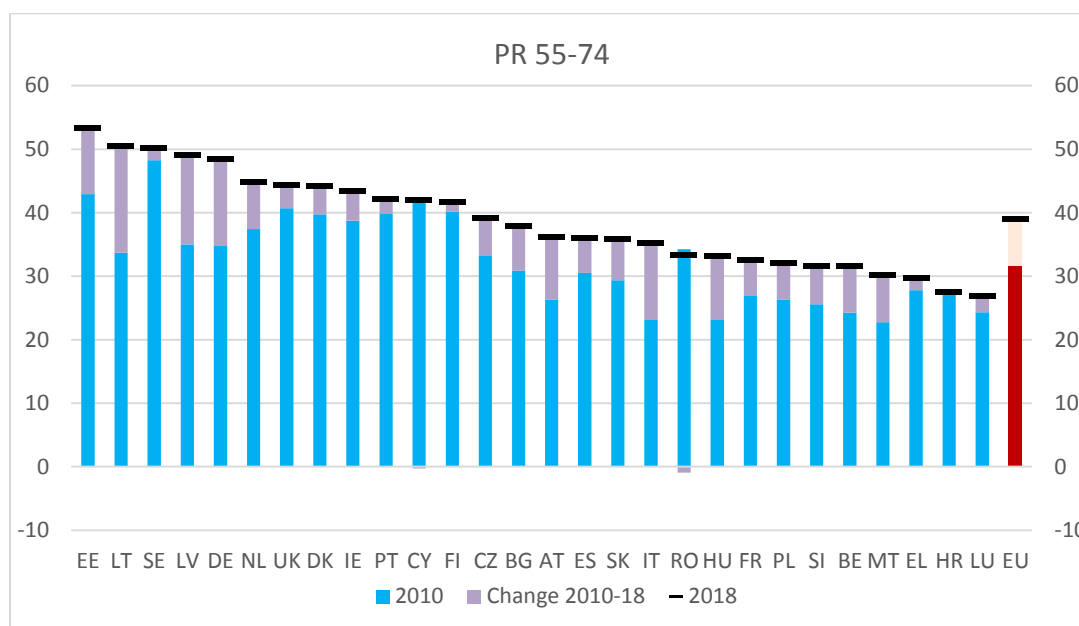
Older worker employment continued growing during the crisis, and especially among older women. In the last few years the employment of younger people also rose. For instance, from 2016 to 2018, when total employment rose by almost 6 million, half of this increase was due to the increase among older workers. Unemployment among older people (5.2% among those aged 55-64 in 2018) is low compared to the rest of the working-age population, although 60% of these are long-term unemployed, a much higher proportion than among those aged less than 55.

Significant progress has been made with increasing older workers' participation rates (age group 55-74) in the EU over the last decade, rising from 31.6% in 2010 to 39.1% in 2018. For the age group 55-64 the rise was even higher, at 12.4 pps, reaching 61.9% in 2018 (see the Annex for details). Increases by more than 9 pps (age group 55-74) were recorded in Germany, Estonia, Italy, Latvia, Lithuania, Hungary and Austria.

Nonetheless, a number of Member States (Luxembourg, Croatia, Greece Malta, Belgium, Slovenia and Poland) remained 7 pps or more below the EU average participation rate in 2018. Increasing the employment rate of older people (by 10 pps compared to the baseline for the age group 55-74) would significantly decrease the public pension expenditure ratio in a number of countries (e.g. by more than 0.5 pps of GDP in Belgium, Slovenia, Austria and Portugal).²³

²³ See Section II.1.8 'Sensitivity tests', Graph II.1.22 in the 2018 Ageing Report.

Figure 6: Participation rates (% of population aged 55-74), EU Member States



Source: Eurostat, Labour Force Survey.

Reinforcing adequacy safeguards

The pension reform dynamic in Member States shifted somewhat around 2015, partially reflecting improved economic and budgetary conditions and a growing recognition of the need to accompany sustainability-enhancing reforms with adequacy-focused safeguards. To some extent, this change in the reform dynamic reflects the fact that most Member States have already adopted and are implementing (mostly gradual) pensionable age increases in reaction to the ageing of their population, and an increased emphasis on adequacy-focused reforms alongside the economic recovery, such as reinforcing minimum guarantees and (re-)introducing favourable indexation mechanisms. In some cases, the shift was the direct effect of the lifting of crisis-induced temporary measures, such as indexation.

Depending on the overall pension system design, old-age minimum benefits can take the form of either universal basic pensions or contributory minimum pensions. In addition to these, almost all Member States provide targeted social assistance for older people in need. Several Member States have sought to improve the protection of low-income pensioners by introducing basic pensions (Greece) or raising/improving minimum and/or basic pensions (e.g. Austria, Belgium, Bulgaria, Cyprus, Ireland, Lithuania, Malta, Poland, Romania, Slovakia, Slovenia and Spain) and/or targeted additional benefits (Czech Republic, Estonia, Italy, Lithuania and Sweden). Other measures, such as additional safeguards for pensioners with long careers, have been introduced by Austria, Belgium, Latvia, Malta and Portugal.

Moreover, several countries have removed the freeze on indexation or have introduced new indexation mechanisms (e.g. Bulgaria, Cyprus, Lithuania, Portugal and Italy). Latvia, Malta and Romania have raised the non-taxable minimum amounts, which should benefit the recipients of lower pensions.

Part II: Long-term pension perspectives

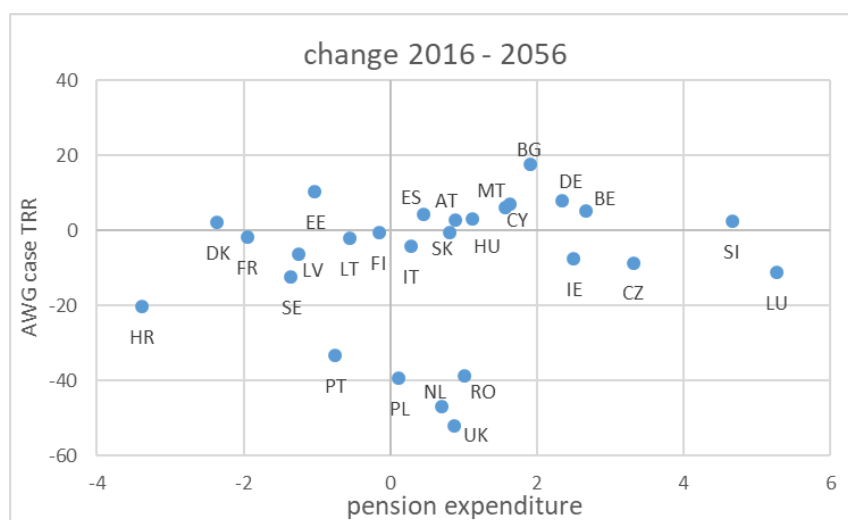
This section brings together the long-term analyses undertaken in the 2018 Ageing Report and the 2018 Adequacy Report. It shows the current, medium- and long-term outlook for pension sustainability and adequacy, assessing pensions from a fiscal and a social point of view, respectively. In addition, the resilience of pension systems to a variety of demographic and macroeconomic shocks is considered. Finally, the impact of the changing world of work and trends with respect to gender gaps are highlighted.

Balancing adequacy and sustainability

In the next few decades population ageing will continue to put pressure on the sustainability of pension systems. Many reforms in the past decade have addressed this challenge and, as a result, expenditure projections have stabilised at EU level, but mostly at the cost of lower benefits (Figure A.1 in the Annex shows the public pension benefit ratio in 2016 and 2070).

Figure 7 brings together fiscal sustainability and the income maintenance aspect of adequacy in a medium-term scenario. The horizontal axis shows the change in total public pension expenditure from 2016 to 2056 from the Ageing Report, while the vertical axis displays the change in income replacement level, as measured by the theoretical replacement rate²⁴ from the Adequacy Report.²⁵ For this comparison, the career case is that of a man (wage-earner) working the average working life duration projected in the Ageing Report²⁶ ending at the pensionable age.

Figure 7²⁷: Public pension expenditure and theoretical replacement rates (pps change from 2016 to 2056)



Sources: Ageing Report and Pension Adequacy Report. Greece: TRR not available.

²⁴ The ratio of the initial pension benefit of a private sector employee working uninterruptedly for 40 years on an average salary until the standard pensionable age to the pre-retirement labour income.

²⁵ The difference in coverage of pensions in the Ageing Report and Pension Adequacy Report need to be borne in mind when interpreting this graph.

²⁶ Computed as the difference between the average exit age from and entry age into the labour market.

²⁷ The Pension Adequacy Report and the Ageing Report look at different, though generally comparative or complementary indicators, to assess current and future pension adequacy. The Adequacy Report takes a broader scope than the Ageing Report, though, as the former considers both statutory and supplementary schemes in its analysis, whereas the latter's principal focus lies with public pensions.

As one would expect, in most countries rising public spending goes together with higher replacement rates and vice versa, though this is not always the case. Member States in the upper right quadrant combine rising public pension spending with higher benefits. Conversely, countries in the lower left quadrant will spend less on public pension schemes but at the cost of reduced benefits, in particular Croatia and Portugal. Two countries in the upper-left, Estonia and, to a lesser extent, Denmark, combine expenditure reduction with higher benefits. A number of countries in the lower-right see a reduction in benefits in spite of rising expenditure. Deviations in the lower-right quadrant are to some extent due to non-public pensions; these are not included in the expenditure projections, but are partially included in the replacement rate projections.

A. FISCAL SUSTAINABILITY

In 2070, at the end of the projection period of the 2018 Ageing Report, public pension expenditure (relative to GDP)²⁸ is expected to stand at about the same level in the EU as in 2016 (see Table 5). This EU average conceals differing patterns across Member States and time. Sixteen Member States are expected to see a pension expenditure increase by 2070. Luxembourg is one extreme with an increase of almost 9 pps of GDP. Additional spending ranges between 2 and 4 pps of GDP in the cases of Slovenia, Belgium, Malta, the Czech Republic, Germany and Cyprus. In contrast, Portugal, Latvia, France, Croatia and Greece would see pension spending fall by at least 2 pps of GDP by 2070.

Table 5: Change in gross public pension expenditure: total and breakdown per period (pps of GDP)

pps. of GDP	2016-70	2016-20	2020-30	2030-40	2040-50	2050-60	2060-70
LU	+8.9	-0.1	+1.2	+1.4	+1.4	+3.0	+2.0
SI	+3.9	+0.0	+1.1	+2.1	+1.4	-0.4	-0.3
BE	+2.9	+0.5	+1.2	+0.7	+0.1	+0.2	+0.2
MT	+2.9	-0.2	-0.8	+0.3	+1.3	+1.8	+0.4
CZ	+2.8	-0.1	+0.1	+1.0	+1.7	+0.8	-0.7
DE	+2.4	+0.3	+1.1	+0.5	+0.2	+0.4	-0.1
CY	+2.3	+0.0	+0.7	+0.6	-0.2	+0.7	+0.5
UK	+1.7	-0.1	+0.3	+0.6	-0.3	+0.6	+0.5
IE	+1.6	+0.1	+0.7	+0.9	+0.7	-0.2	-0.6
HU	+1.5	-0.7	-0.6	+1.0	+1.2	+0.5	+0.1
BG	+1.4	-0.5	-0.0	+0.8	+1.2	+0.5	-0.6
SK	+1.2	-0.3	-0.6	+0.2	+1.0	+1.1	-0.1
RO	+0.7	-0.7	-0.6	+1.1	+1.0	+0.3	-0.2
FI	+0.6	+0.4	+1.0	-0.9	-0.7	+0.3	+0.4
NL	+0.6	-0.3	+0.5	+1.0	-0.4	-0.3	-0.0
AT	+0.5	+0.1	+0.5	+0.5	-0.3	+0.2	-0.4
PL	-1.0	-0.1	-0.1	-0.1	+0.3	-0.1	-0.9
SE	-1.2	-0.5	-0.5	-0.4	-0.2	+0.4	-0.0
ES	-1.5	+0.1	+0.3	+1.4	-0.1	-2.5	-0.7
LT	-1.7	+0.1	+0.1	-0.1	-0.5	-0.5	-0.8
IT	-1.7	+0.0	+1.6	+1.4	-1.4	-2.2	-1.2
EE	-1.8	-0.4	-0.6	-0.1	-0.0	-0.1	-0.6
DK	-1.9	-0.7	-0.7	-0.4	-0.4	-0.2	+0.5
PT	-2.2	+0.1	+0.7	+0.4	-1.1	-1.7	-0.6
LV	-2.6	-0.6	-0.6	+0.1	-0.2	-0.4	-0.9
FR	-3.3	-0.1	+0.5	-0.4	-1.3	-1.2	-0.8
HR	-3.8	-0.2	-0.4	-1.6	-0.9	-0.4	-0.2
EL	-6.6	-3.9	-1.4	+0.8	-0.3	-1.0	-0.9
EU	-0.2	-0.1	+0.5	+0.4	-0.4	-0.4	-0.3

Source: 2018 Ageing Report.

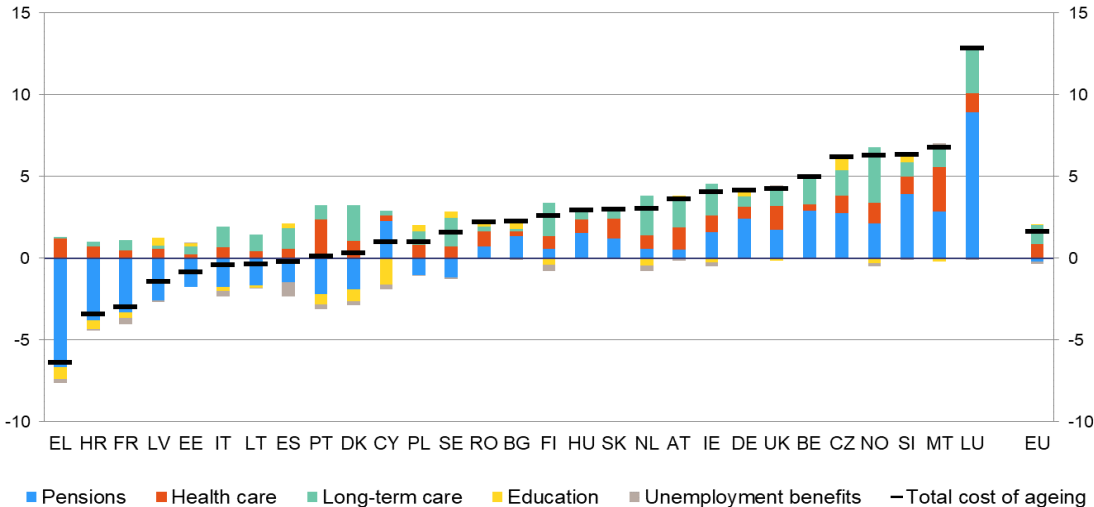
²⁸ To ensure cross-country comparability, the AWG applies a broad definition of public pensions, covering minimum, old-age, early retirement, disability and survivors' pensions.

Breaking the expenditure changes down by decade provides a picture of the pattern of overall changes. The main driver of the generally strong increase in the next decades will be the retirement of the baby boomers. In the already ageing countries, the next two decades will see a very large influx; after that, the flow of workers into retirement should return to pre-2010 values. Thus, among EU-15 Member States, the bulk of the expenditure increase is generally projected during the next two decades. In contrast, for Member States that joined the EU after 2000, later baby boomer will increase pension expenditure rather in the second half of the projection period, giving those countries more time to anticipate higher expenditure pressures. In several Member States pension expenditure grew already significantly during the decade prior to 2016 as demographic ageing has already swollen the number of retirees.

Several of the Member States that in 2016-2070 would see a relatively limited (e.g. Finland, the Netherlands, Austria) or even negative (e.g. Spain, Italy, Portugal) change in public expenditure, are nevertheless expected to face considerable spending pressures in the period up to 2040; as a result of retiring baby boomers. Such strong frontloading of ageing costs might involve medium-term sustainability risks, depending on those Member States' overall fiscal position in the coming decades. Italy, the Member State with the highest projected increase in pension spending in 2020-2030 and the second highest in 2030-2040, is a case in point: pension expenditure would peak in 2040, at a level 3.1 pps of GDP above the 2016 reference point, even before accounting for the recent measures that favoured early retirement on a temporary basis (see Box 1). The decrease over the medium and long term reflects the phase-in of the notional defined contribution regime as well as the link of pension requirements to changes in life expectancy.

Pension spending is only one of several age-related expenditure items that, in combination with government debt levels and other government expenditure, affect the overall long-term sustainability of public finances in the absence of higher revenues. Aside from pensions, the Ageing Report provides long-term projections for health care, long-term care, education and unemployment benefits. Looking at total ageing costs reveals a more unfavourable picture given the expected rise in health care and long-term care spending. Both are set to increase in all Member States and this increase would often exceed the rise in pension expenditure (see Figure 8).

Figure 8: Projected change in age-related expenditure by expenditure component: 2016-2070 (pps of GDP)



Source: 2018 Ageing Report.

Ensuring the sustainability of pensions

The sustainability of public pension systems can be assessed as whether on current policies they would pose serious risks to the sustainability of public finances.²⁹ The horizontal assessment framework developed by the Commission services (DG ECFIN) helps establish whether to ensure fiscal sustainability a large adjustment is required relative to current policies.³⁰ It looks at risks to fiscal sustainability over the medium and long run, based on comprehensive fiscal sustainability analysis and sustainability indicators. In operational terms, this can be articulated in two steps:

- Identify the extent to which there is an important overall fiscal sustainability challenge
- Verify to what extent the pension expenditure contributes to it.

In practice, this means that Member States with a medium or high fiscal risk and a relatively high contribution of pension spending to this risk need to reform their pension systems. Figure 9 and Figure 10 show the fiscal sustainability risks over the medium and long term on the basis of the S1 and S2 indicators³¹ and the extent to which pension expenditure is behind this. Most EU member States with a high or medium risk in the medium term (Figure 9) are projected to see pension spending increase³² in the next 15 years. In the long term (Figure 10), projected increases in pension expenditure contribute to fiscal sustainability risks in 11 countries³³. In the cases of Germany, Bulgaria and Cyprus the impact of the projected increase in pension expenditure is offset by the fiscal outlook.

²⁹ For details about the sustainability analysis and risk classifications, see European Commission (2019), 'Fiscal Sustainability Report 2018', European Economy, Institutional papers, No 94.

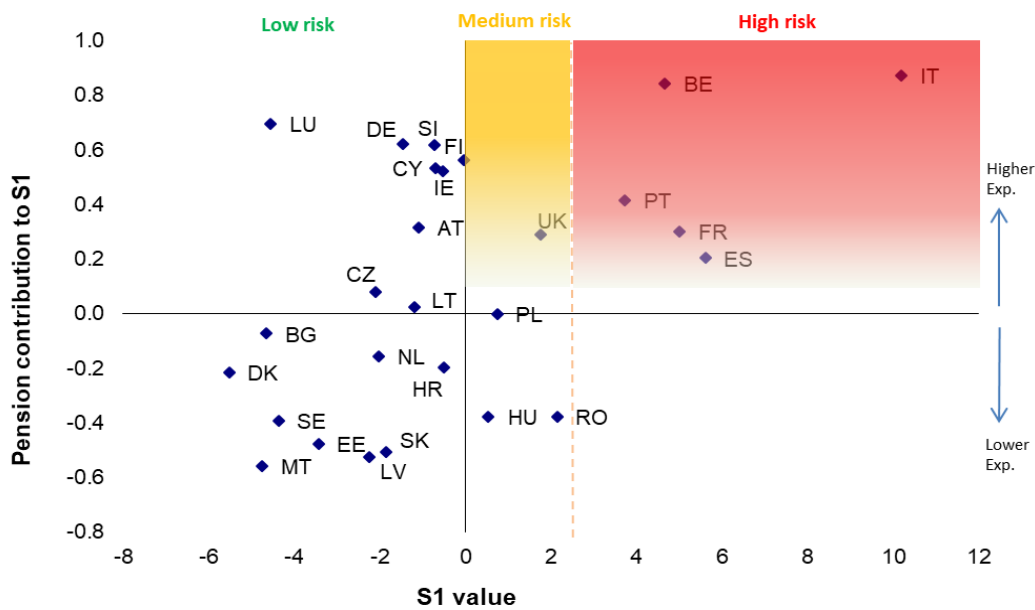
³⁰ The horizontal assessment framework has been discussed by the EPC on annual basis in the context of the European Semester and is described in Carone, G., Eckefeldt, P., Schwierz, C., Giamboni, L., Aarnout, M. (2014), 'Identifying fiscal sustainability challenges in the areas of pension, health care and long-term care policies', European Economy, Occasional papers, No 201.

³¹ Note that, aside from the S1 and S2 indicators, the Commission's final fiscal sustainability risk classifications also take into account the results from debt sustainability analyses. The latter determine the overall classification for a number of Member States. For more information, see 2018 Fiscal Sustainability Report.

³² Belgium, Spain, France, Italy, Portugal and the UK.

³³ Belgium, Czech Republic, Ireland, Luxembourg, Hungary, Malta, Austria, Romania, Slovenia, Slovakia & the UK.

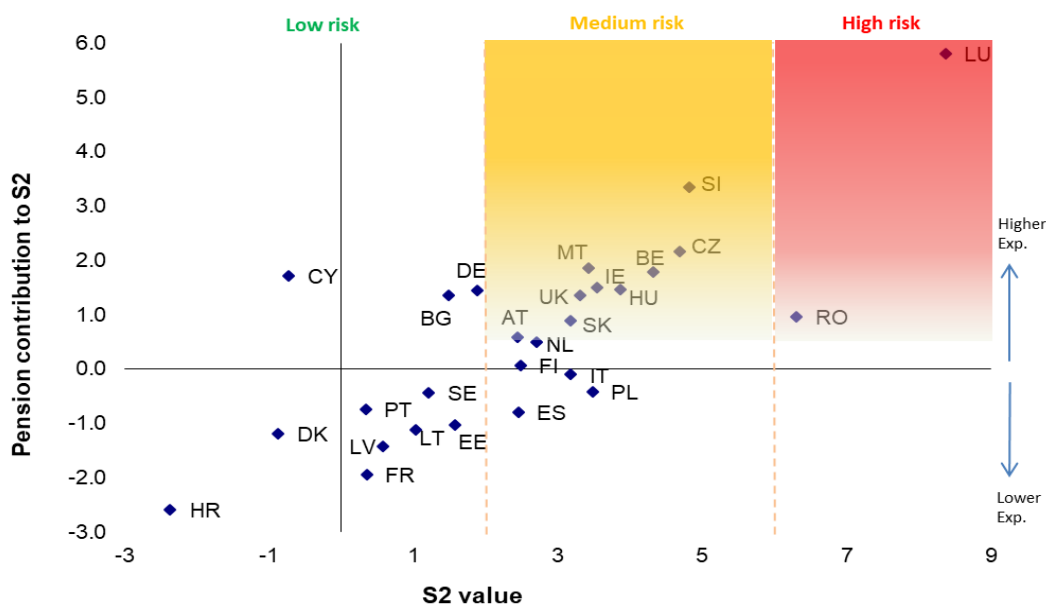
Figure 9: Pension spending challenges over the medium term (S1 indicator)



Source: European Commission, 2018 Ageing Report, 2019 Commission spring forecast.

Note: The medium-term sustainability indicator S1 shows the additional adjustment required, in terms of improvement in the government structural primary balance over 5 years, to reach a 60% public debt-to-GDP ratio by 2033, including financing for future additional expenditure arising from an ageing population. Greece is not included in Figure 9. Pension expenditure in Greece is projected to decline by 2033, by 5.2 pps of GDP according to the 2018 Ageing Report.

Figure 10: Pension spending challenges over the long term (S2 indicator)



Source: European Commission, 2018 Ageing Report, 2019 Commission spring forecast.

Note: The long-term sustainability indicator S2 shows the upfront adjustment to the current government structural primary balance required to stabilise the debt-to-GDP ratio over the infinite horizon, including financing for future additional expenditure arising from an ageing population. Greece is not included in Figure 10. Pension expenditure in Greece is projected to decline by 2070, by 6.6 pps of GDP according to the 2018 Ageing Report.

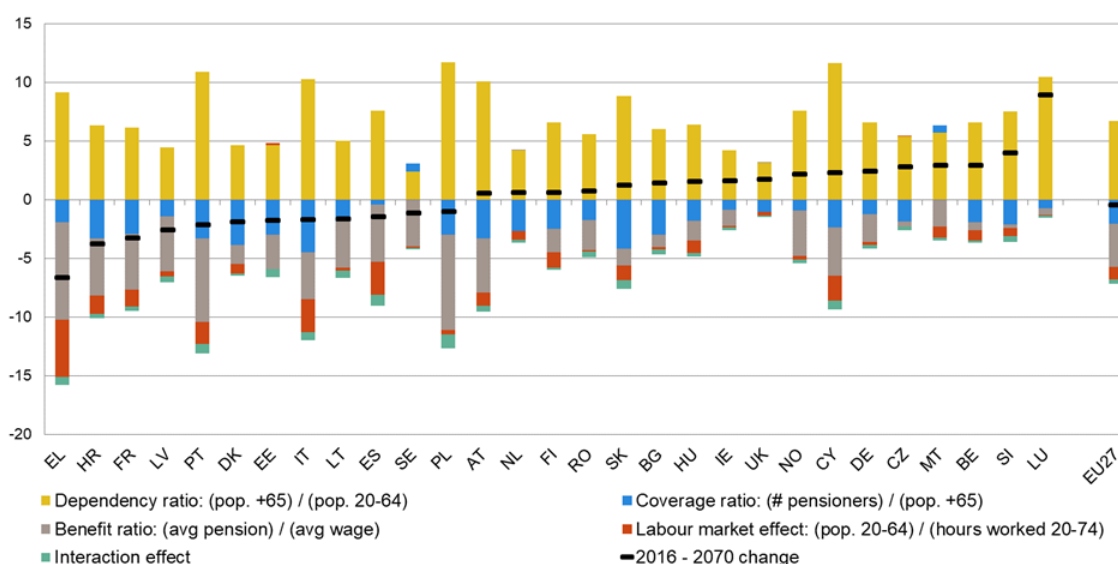
Factors shaping pension expenditure

Breaking the projections down per driver reveals the factors affecting the evolution of pension expenditure, focusing on the most important drivers. The **demographic component**, captured by the dependency ratio, pushes up pension expenditure for all Member States (see Figure 11), though to a varying degree. Population ageing by itself would lead to an increase in pension spending by almost 7 pps of GDP on average in the EU by 2070, with double digit increases in Portugal, Italy, Poland, Austria and Cyprus as the number of beneficiaries relative to that of potential contributors rises.

In contrast, **reform-related factors**, such as the projected reductions in the average pension relative to the average wage (the benefit ratio) and the ratio of total pensioners to the population above 65 (the coverage ratio) are expected to reduce pension expenditure, with some minor exceptions.³⁴ These factors reflect the extent to which Member States have taken measures to restrict early retirement, raise the statutory retirement age or revise the pension benefit formula, e.g. altering valorisation and indexation parameters.

As fewer people below the age of 65 will be entitled to pension benefits, the resulting lower **coverage ratio** would reduce the pension bill by 2.1 pps of GDP on average in the EU by 2070. The expenditure-reducing effect exceeds 3 pps in the cases of Croatia, Portugal, Denmark, Italy, Austria and Slovakia. Reductions in the **benefit ratio** are expected to add to the downward push: public pension expenditure would decrease by 3.3 pps of GDP by 2070 in the EU as pension benefits would rise more slowly than the average wage. The largest impact from this component would be in Greece, Poland and Portugal, at more than 7 pps of GDP. For those countries with the largest overall increase in pension expenditure between now and 2070 (led by Luxembourg, Slovenia, Belgium, Malta and the Czech Republic), the pension benefit ratio has a relatively small downward impact.

Figure 11. Contribution to change in gross public pension expenditure 2016-2070 (pps of GDP)



Note: For the exact definitions of the drivers of pension expenditure, see Box II.1.3 in the 2018 Ageing Report.

Source: 2018 Ageing Report.

³⁴ The contribution of other factors is smaller for most countries, e.g. the labour market effect is -1 pps of GDP for the EU as a whole in 2016-2070 with large differences between Member States, ranging from almost -5 pps (Greece) to almost zero. See 2018 Ageing Report, Part II, Section 1.6 for details.

Resilience of pension systems to shocks

Sustainability requires a balance between (increases in) government revenue and expenditure. Pension revenue comes chiefly from contributions (and taxes), and these are related to wages. While the proportion of work income paid into tax and contributions tends to be stable, wage growth facilitated by productivity gains is thus a major factor in sustainability.

In order to test the long-term expenditure projections' responsiveness to changes in key underlying assumptions, the Ageing Report includes a number of sensitivity scenarios, favourable as well as unfavourable. Changes in both demographic (life expectancy, migration flows, fertility) and macroeconomic variables (employment rate, productivity) were simulated (see Table 6). The report concluded that, depending on the magnitude of the assumptions, downward risks mainly stem from the possibility of lower-than-assumed fertility rates and productivity growth. The countries with the highest pension expenditure increase in the baseline projections are generally the most exposed to the unfavourable scenarios. Among the favourable scenarios, the most benign one would be higher-than-anticipated productivity growth, for instance because of better absorption of technological progress or a higher average level of education; this would result in higher wages and thus higher pensions.

The introduction of an automatic link between, on the one hand, early and statutory retirement ages and, on the other hand, gains in life expectancy was simulated for those Member States which currently do not feature such mechanism. Its potential impact is considerable, reducing pension expenditure by between 1 pp and 2.5 pps of GDP relative to the no-policy-change baseline in Austria, Luxemburg, Hungary, the Czech Republic, France, Slovenia, Bulgaria, Romania, Malta and Belgium (last column of Table 6).

Table 6: Impact of alternative scenarios on gross public pension expenditure in 2016-2070 (deviation from baseline, pps of GDP)

	baseline 2016-2070 (%GDP)	impact of unfavourable scenarios (pps. of GDP)						impact of favourable scenarios (pps. of GDP)				
		Higher life expectancy	Lower migration	Lower fertility	Lower empl. 20- 64	Lower TFP growth	TFP risk scenario	Higher migration	Higher empl. 20-64	Higher empl. 55-74	Higher TFP growth	Link to life expectancy
		LU	8.9	0.5	2.0	2.4	0.1	1.3	0.6	-1.4	-0.1	-0.2
SI	3.9	0.9	0.7	2.5	0.4	0.6	0.3	-0.6	-0.3	-0.6	-0.6	-1.3
BE	2.9	0.8	0.6	2.0	0.4	2.1	1.1	-0.6	-0.4	-1.4	-1.8	-1.1
MT	2.9	0.5	0.7	1.8	0.0	0.9	0.5	-0.8	-0.3	-0.6	-0.7	-1.2
CZ	2.8	0.7	0.3	1.8	0.4	0.6	0.3	-0.3	-0.3	0.3	-0.5	-1.6
DE	2.4	0.3	0.5	1.2	0.1	0.1	0.1	-0.4	-0.2	-0.4	-0.1	-0.7
CY	2.3	-0.2	1.3	1.5	0.1	0.6	0.3	-0.9	-0.1	-0.3	-0.5	0.0
NO	2.1	0.2	0.7	1.8	0.4	0.0	0.0	-0.6	-0.3	-0.7	0.0	-1.1
UK	1.7	0.5	0.5	1.6	0.3	0.5	0.4	-0.5	-0.3	-0.5	-0.4	-0.6
IE	1.6	0.3	0.2	1.0	0.2	0.2	0.0	-0.1	-0.2	-0.4	-0.2	-0.5
HU	1.5	0.6	0.3	1.8	0.3	1.1	0.6	-0.2	-0.2	-0.6	-0.9	-1.6
BG	1.4	0.7	0.0	2.3	0.1	0.6	0.3	0.0	-0.1	-0.6	-0.5	-1.3
SK	1.2	0.2	0.2	1.6	0.0	0.9	0.5	-0.2	-0.1	-0.6	-0.8	0.0
RO	0.7	0.4	-0.1	1.9	0.1	0.9	0.5	0.1	-0.1	-0.5	-0.9	-1.3
FI	0.6	0.2	0.5	1.9	0.2	1.1	0.6	-0.4	-0.2	-1.1	-1.0	0.0
NL	0.6	0.0	0.4	1.1	0.2	0.0	0.0	-0.4	-0.2	-0.2	0.0	0.0
AT	0.5	0.7	1.1	1.3	0.3	0.4	0.3	-1.3	-0.4	-0.7	-0.3	-2.4
EU*	-0.2	0.3	0.4	1.3	0.2	0.8	0.4	-0.4	-0.2	-0.4	-0.7	-0.8
EA	-0.4	0.3	0.4	1.3	0.2	0.9	0.4	-0.4	-0.2	-0.4	-0.7	-0.8
EU27	-0.5	0.3	0.4	1.3	0.2	0.8	0.4	-0.4	-0.2	-0.4	-0.7	-0.8
PL	-1.0	0.3	0.1	1.6	-0.1	0.9	0.5	-0.1	0.1	0.0	-0.7	-0.4
SE	-1.2	0.3	0.3	1.1	0.2	0.0	0.0	-0.3	-0.2	-0.3	0.0	-0.7
ES	-1.5	0.0	0.1	0.1	0.0	0.1	0.1	-0.2	0.0	-0.7	-0.4	-0.6
LT	-1.7	0.3	0.6	0.0	0.0	0.1	0.0	-0.6	0.0	0.0	-0.1	-0.1
IT	-1.7	0.1	0.5	1.2	0.0	1.3	0.6	-0.4	0.0	0.3	-1.1	0.0
EE	-1.8	0.4	-0.1	0.2	0.0	0.3	0.3	0.1	0.0	0.0	-0.3	0.0
DK	-1.9	0.1	0.2	1.1	0.2	-0.1	-0.1	-0.2	-0.2	-0.5	0.1	0.0
PT	-2.2	0.4	0.4	1.7	0.3	2.2	1.0	-0.4	-0.2	-0.6	-1.7	-0.4
LV	-2.6	0.1	0.0	0.4	0.0	0.2	0.2	0.0	0.0	0.1	-0.2	-0.2
FR	-3.3	0.5	0.5	1.9	0.2	1.9	0.9	-0.4	-0.3	-0.4	-1.5	-1.6
HR	-3.8	0.5	0.2	1.2	0.2	0.5	0.2	-0.2	-0.2	-0.6	-0.4	-0.9
EL	-6.6	0.0	0.3	1.3	0.0	1.4	1.0	-0.3	0.0	-0.1	-1.1	0.0

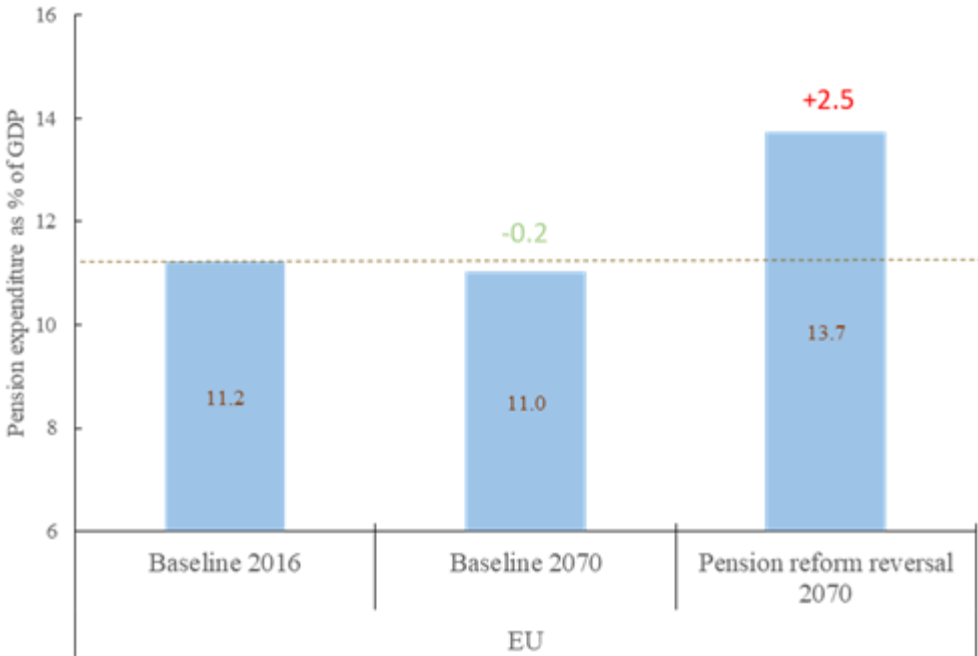
Source: 2018 Ageing Report (see pp. 46-48 for details on the design of the sensitivity tests).

Possible impact of pension reform reversals

To illustrate the impact on pension expenditure of a partial reversal of past pension reforms for the EU as a whole, a scenario was developed in the Fiscal Sustainability Report 2018 according to which: i) the fall in the benefit ratio is smaller (assumed to be half of the relative decline in the no-policy change baseline scenario); and, ii) the fall in the coverage ratio is smaller, representing a less pronounced increase in pensionable age/effective retirement age (assumed to be half of the decline in the no-policy change baseline scenario).³⁵

A pension reform reversal scenario points to a significant increase to future pension expenditure and to a maintenance or even improvement of the level of pensions. For the European Union, this scenario suggests an additional increase of 2.5 pps of GDP by 2070, as opposed to an estimated reduction of 0.2 pps of GDP in the baseline scenario of the 2018 Ageing Report, i.e. assuming no-policy change (see Figure 12).

Figure 12: Pension reform reversal scenario



Source: Fiscal Sustainability Report (2018).

³⁵ For the benefit ratio effect, this is approximately equal to a fall of 5.5 pps, compared with 11 pps in the baseline scenario over the period 2016-2070. For the coverage ratio effect, this is approximately equal to a fall by 11 pps, compared with 23 pps in the baseline scenario over the period 2016-2070. See Fiscal Sustainability Report 2018 for details.

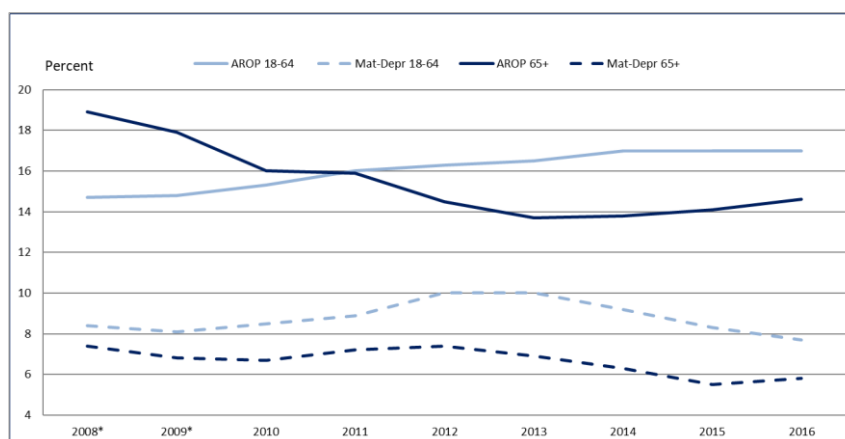
B. Adequacy

Pension adequacy refers to the degree to which national pension systems in the EU protect against old-age poverty and ensure income maintenance for increasing lengths of retirement periods. Recent pension reforms to improve sustainability and adequacy have given rise to concerns about maintaining the fairness of pension systems, as indicated below.

Old-age poverty

Relative income poverty (at-risk-of-poverty rate, defined as the share of population below 60% of median income) was lower in the older population (aged 65+) than among those at working age in most Member States in 2018³⁶. However, there were many exceptions. High at-risk-of-poverty rates have their roots in low overall old-age income, in particular in the Baltic countries, Malta and Bulgaria. In Italy, Romania and Croatia also inequality plays a prominent role. Since 2008, income inequality³⁷ among those aged 65+ has remained stable in the EU, with an increase in 14 Member States. The 2018 Pension Adequacy Report found that the risk of poverty or social exclusion in old age (65+) decreased in the EU by about 5 pps since 2008; almost one in five (18.2%) of older people remained at risk of poverty or social exclusion in 2016 although both monetary poverty and material deprivation have been decreasing (see Figure 13)³⁸.

Figure 13. At-Risk-Of-Poverty and Material deprivation, EU, by age group, 2008-2016



Source: 2018 Pension Adequacy Report.

A main tool to reduce old-age poverty are minimum income provisions. The recourse to such benefits has declined slightly in the past years, possibly thanks to better labour market outcomes. Their role as an old-age safety net nonetheless remains vital, particularly for older women, who remain the main beneficiaries of minimum income schemes, even though they also have become less dependent on them. This also indicates that labour market policies are essential to prevent old-age poverty.

³⁶ For five missing countries, the 2017 values were assessed.

³⁷ Computed as the income quintile ratio S80/S20.

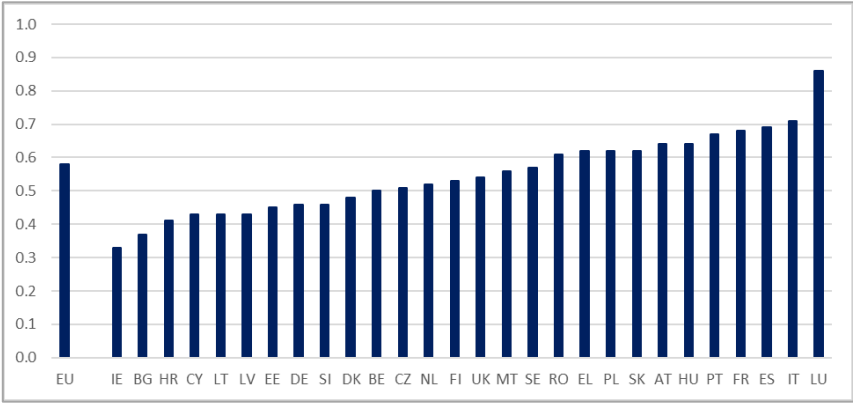
³⁸ At-risk-of-poverty-or-social-exclusion indicator for people aged 65+ denotes older people who are at-risk-of-poverty or suffer from severe material deprivation. 'At-risk-of-poverty' rate is the percentage of population with income after social transfers below 60% of a country's median equivalised income; i.e. this indicator describes relative income poverty. Severe material deprivation means not being able to afford several basic necessities.

The projected decline in the minimum pension benefit ratio is much smaller than for higher pensions in most countries because minimum pensions are indexed to wages rather than prices.³⁹ In other words, risks relating to minimum pensions being too low in the future are contained, due to the assumption of a higher indexation of minimum pensions compared with the general pension scheme. Poverty risks increase with age. As needs grow, pension value is eroded and more pensioners, predominantly women, are left single. More than half of all older people at risk of poverty or social exclusion in the EU are aged 75 and over.

Income maintenance

Income maintenance describes the capacity of pension systems to help people maintain their living standards after retiring and is typically measured by comparing income from pension with income from work. The current income maintenance capacity of pension systems can be illustrated by the Aggregate Replacement Ratio⁴⁰. The ratio varies massively across Member States, averaging 0.58 in the EU in 2017 (see Figure 14).

Figure 14. Aggregate Replacement Ratio, 2017



Source: Eurostat.

The income replacement capacity of future benefits will be decrease for most Member States as the effect of recent reforms comes into force over the next decades. There are two measures to illustrate this, namely a typical-profile approach from the Pension Adequacy Report and an aggregate approach from the Ageing Report estimates (see discussion on expenditure drivers above).

In order to assess future income maintenance capacity of pension systems, the Pension Adequacy Report calculates ‘theoretical replacement rates’. These compare pension income in the first year after retirement with earnings immediately before retirement for specific career profiles. The pension benefits for a private sector employee working uninterruptedly for 40 years until the statutory retirement age on an average salary will decrease between 2016 and 2056 in 19 of the 27 countries computed (see Figure 15)⁴¹. Careers are also projected to extend, but even accounting for such career length increases, pensions compared to work income will be lower.

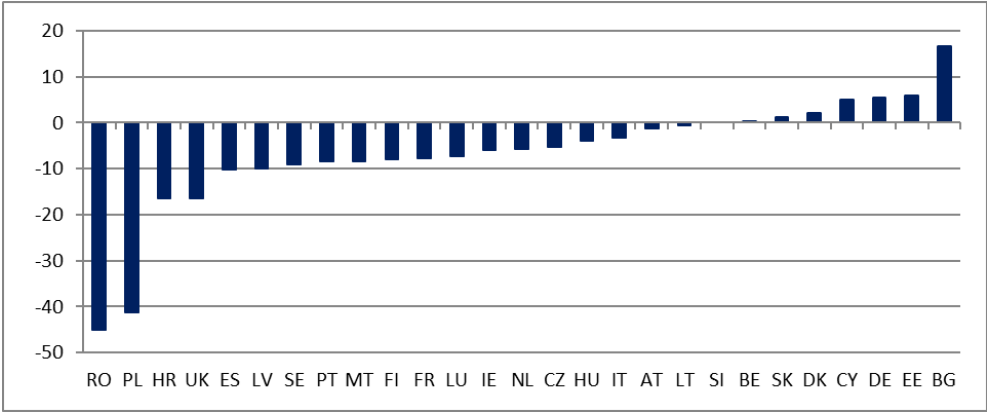
³⁹ After a maximum of 10 years, full wage indexation is assumed in the 2018 Ageing Report projections for minimum pensions. Wages are projected to grow faster than prices.

⁴⁰ The aggregate replacement ratio is gross median individual pension income of the population aged 65–74 relative to gross median individual earnings from work of the population aged 50–59, excluding other social benefits.

⁴¹ The 2018 Pension Adequacy report includes projections of other career cases, considering different incomes, gender, career breaks, and career durations.

This means that the reduction in the benefits relative to work income expected due to reforms will have a large impact on pension adequacy unless there are substantially larger efforts towards longer careers.

Figure 15. Net theoretical replacement rate, base case, men, average earner, pps change, 2016-2056



Source: 2018 Pension Adequacy Report; no data for Greece.

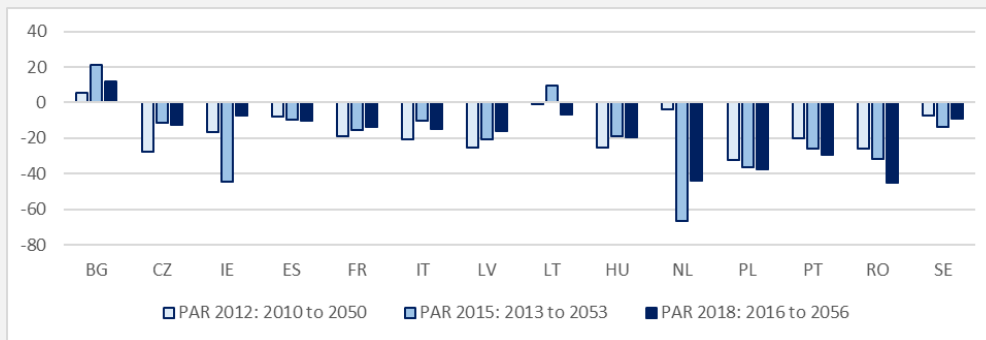
The main findings of the Pension Adequacy Report, pointing to decreasing benefits (relative to work income) for a given career, are consistent with those in the Ageing Report, with the public pensions benefit ratio in the EU projected to decrease from 44% in 2016 to 33% in 2070. In addition, the current gender gap in pensions, at 35.2% in the EU, is likely to persist, as the upward convergence in career length of women is slow. The high importance of this problem requires more attention and solutions for women in the medium term.

Depending on country-specific situations, effective labour market policies are necessary to raise productivity and wages and support longer careers. These policies may vary from investing in early education to improving access to lifelong learning, as well as improving health conditions to promoting active ageing and age management in the workplace.

Box 2: Evolution of Pension Adequacy Projections

The 2018 vintage of the Pension Adequacy Report was its third edition. Earlier issues were published in 2012 and 2015. Theoretical Replacement Rates were projected 40 years into the future, and compared to the levels in 2010, 2013 and 2016 respectively. The common career profile is that of a man working 40 years between the ages of 25 and 65; not all countries are shown in **Error! Reference source not found.** While most countries show moderate adjustments, there have been large changes in the projected drop in Ireland and the Netherlands. These are due to reforms decided since 2011.

Figure 16 . Theoretical Replacement Rate, 40-year career ending at age 65, 40-year change



Source: Pension Adequacy Report 2012, 2015, 2018.

Note: 40-year career and retirement at 65 was used as 'base case' for projections in the 2012 Pension Adequacy Report. As a result of reforms adopted since, in several countries it will no longer be possible to retire at 65 with a 40 year career, hence the values for these countries are missing.

Pension duration

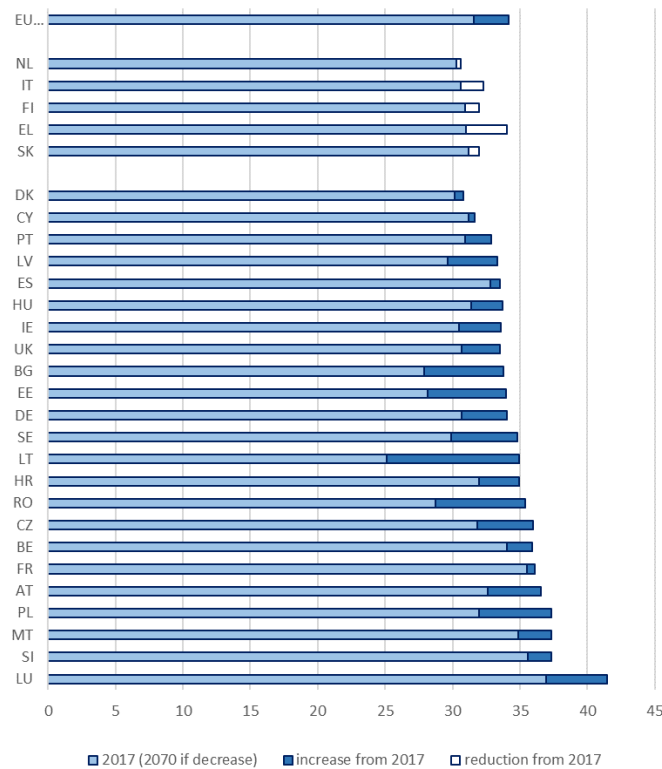
Pension duration can be analysed either by looking at the duration of pension payment, i.e. the share of life after drawing the first pension, or the duration of retirement, i.e. the share of life after leaving the labour market⁴². The challenge resides in ensuring income maintenance and poverty protection over a retirement period of time that would be extending under rising life expectancy. People need to have sufficient time while working to save and prepare for an extended time while in retirement.

This relationship is illustrated in Figure 17 as the life expectancy at the effective age of exit from the labour market, presented as a share of adult life. Currently, it varies from about a quarter in Lithuania to over a third in Luxembourg. It is projected to increase as life expectancy will outpace effective retirement ages in most EU Member States.

As indicated above, on the basis of currently legislated policies, pension expenditure in the EU in the long term is projected to stabilise at the current ratio to GDP; the demographic impact is matched by benefit and coverage reductions planned in recent reforms. This will reduce pension adequacy. The main measure to reduce coverage has been the increase in statutory retirement ages, which effectively reduces the duration of pension payments.

⁴² The two differ as people might start receiving pension payments before they completely leave the labour market; the opposite also occurs.

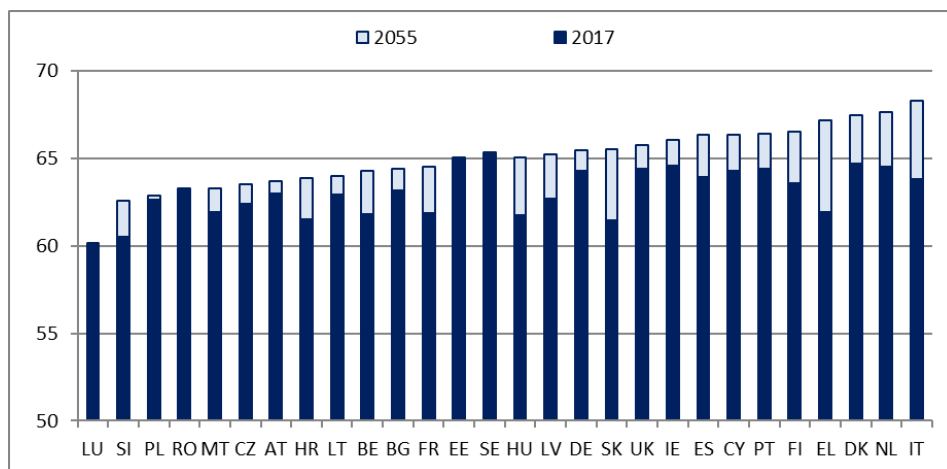
Figure 17. Percentage of adult life spent in retirement, 2017 and 2070



Source: 2018 Ageing Report.

The projected increases in labour market exit age are substantial (see Figure 18), especially in countries where the pensionable age is legislated to rise more. However, these are still projected to rise slower than pensionable ages, leading to an increase in the number of people who will need a bridging income between the end of their working life and the time when they start receiving a pension.

Figure 18. Average exit ages from the labour market, 2017 and 2055



Source: 2018 Ageing Report and Pension Adequacy Report.

Social fairness of pensions

Pension social fairness and solidarity, including the income redistribution function of pension systems, is of key interest to citizens. Rising retirement ages, pension insecurity and pension level discrepancies have been the object of public debate and causes for public discontent and political opposition. Some countries implemented policy reversals as a result. As recent reforms will soon start to come into effect, their impacts will become more tangible to citizens and concerns related to adequacy and fairness should be expected to spread. Intergenerational solidarity and fairness in pensions relate to the rules that apply to different generations of contributors and pensioners and determine how risks and resources are shared between these generations (e.g. the burden imposed by population ageing). Intra-generational aspects of fairness include fairness between socio-economic groups with different income levels, different labour market entry and exit ages and different life expectancy, between men and women and between different forms of work.

Most public pension systems in the EU are primarily funded by social security contributions, even though all of them also rely, to varying extent, on government tax transfers. Workers who pay into pension systems count on commensurate benefits after they retire. Reducing benefits to prevent rises in expenditure due to population ageing may result in treatment considered unfair since current workers may find themselves expecting lower benefits than current pensioners for similar contributions, warranting a debate about fair sharing of the burden imposed by demographic change.

Some of the recent reforms have reduced higher pensions more than lower ones, thereby prioritising addressing old-age poverty and protection of people at the lower end of income distribution.

Some people start to work at a younger age and accumulate a long working and contributing career by the statutory retirement age. As recent reforms restrict early retirement options, they may feel unfairly compelled to very long contribution periods before they are entitled to a pension. As these workers have lower educational attainment levels, their life expectancy at retirement is generally lower as well. Reforms that raise retirement ages for all workers increase this disparity: workers who enter the labour market early, after attaining a low education level, would find themselves compelled to work longer, thereby further shortening a retirement time that was already cut short by their lower life expectancy. Such fairness considerations may thus need to be taken into account when designing future reforms aiming at adapting pension systems to rising life expectancy. Pensions are not fully proportional to work income. Low earners usually have a higher income replacement rate than high earners, especially net pensions compared to net incomes, signalling an equalisation mechanism in pension systems that is reinforced by the tax system. The net theoretical replacement rate (see Income maintenance above) for a low earner is on average around 20 pps higher than for a high earner, slightly reducing the previous income difference⁴³. However, this measure does not take into account differences in paid contributions, average career lengths and retirement durations. A full assessment of all these aspects would be needed to analyse the pensions' role in levelling incomes.

⁴³ According to the TRR methodology, low earner is someone earning 66% of the national average income throughout their career. High earner is someone whose earnings start at the national average and increase to twice the national average before retirement. Thus, the difference in their work earnings before retirement is 3:1; the difference between their first pensions is around 2.5:1 on average.

Population groups under-protected by pension systems

Limited access to pension systems for parts of the population affects not only the adequacy of pensions systems but their sustainability as well, by narrowing their contribution base. This concerns primarily women, workers in non-standard jobs and the self-employed. These groups are less likely to accrue adequate pensions and have a higher risk of falling back on tax-financed minimum benefits. Furthermore, poverty risks increase as people get even older, and thus are higher for those aged 75 and above.

In all Member States, women, who live longer than men and constitute the majority of pensioners, have higher poverty rates and lower pensions than men. The gender pension gap, although lower for new retirees, remains persistently high in most Member States (35.2% EU average in 2017), reflecting gaps in pay, career length and work intensity. Only Estonia, Denmark and Slovakia had a pension gender gap of less than 10% in 2017. As a result, older women have to resort to minimum income benefits more often than men.

Social protection, including pensions, has traditionally been geared to workers in full-time, open-ended job contracts, which today account for only 60% of the EU labour market. Businesses increasingly favour new forms of employment and contracts, a process speeded up by digitalisation. The Recommendation on access to social protection⁴⁴ notes that, with growing numbers of people in self-employment and non-standard jobs, such as temporary work, part-time work, and casual employment, ever larger parts of the workforce are left without sufficient access to social protection. Compared to people with permanent, full-time contracts, they generally face less favourable retirement conditions, with respect to both access to and level of retirement benefits. Such barriers risk extending labour income gaps into retirement. On average, retired self-employed receive lower pensions and face higher risks of income poverty than retired employees, though they also dispose of higher assets as they, often forcedly, build their savings outside the pension system.

Poverty risks in old age increase with age as the value of pensions gradually decreases⁴⁵, even as needs tend to be higher for older pensioners. More than half of the older people exposed to risk of poverty or social exclusion are aged 75 or over, and these are more often single and with limiting disabilities. Adequate indexation of benefits and access to health and long-term care services are vital measures to maintain the living standards of the oldest members of society.

Supplementary pensions

When assessing the overall retirement income, one needs to factor in supplementary pension schemes, either occupational or personal. While benefit ratios from public pensions are often projected to decrease, many countries also have supplementary pension schemes. The total benefit ratio including such non-public pensions is on average 10.5 pps higher in 2070 than the public benefit ratio alone (for countries where they are reported).⁴⁶

⁴⁴ Proposal for a Council Recommendation on access to social protection for workers and the self-employed, Political agreement, SOC 775 EMPL 583, <http://data.consilium.europa.eu/doc/document/ST-15394-2018-INIT/en/pdf>.

⁴⁵ Insufficient indexing is the main cause. Other factors affect the relative pension adequacy at older ages.

⁴⁶ Private pension projections are available for nine Member States in the 2018 Ageing Report (DK, EE, HR, LV, LT, NL, PT, RO and SE).

The capacity of supplementary pensions to strengthen the income maintenance function of pension systems depends on several factors: the coverage of population; amount of savings in the schemes (which in turn depends on contributions paid and the performance of the accumulated assets); pay-out options, and whether these supplement or substitute public pensions.

The contribution of supplementary pensions to adequate old-age incomes varies significantly, depending on the coverage and role of supplementary pensions (see Part I). When accounting for mature occupational schemes in Denmark and the Netherlands, the countries where such schemes are the most prevalent, the average pension income amounted to around 60% of the average wage in 2016 and would remain around that level in 2070 according to the 2018 Ageing Report. In contrast, some countries such as Estonia, Croatia, Latvia and Romania have chosen to convert part of their statutory pension systems into individual funded schemes, financed from social security contributions. The resulting decline in the public pension benefit ratio would only partially be offset by the individual entitlements and overall adequacy would remain a concern considering the unfavourable starting point.

Even in countries with highly developed supplementary pensions, access to such schemes is not equally distributed, which may contribute to income inequality in old age. Women on average have lower take-up of supplementary pensions and smaller savings than men, while people in non-standard and self-employment are enrolled less often than those with full-time, open-ended job contracts. People with lower incomes have less access to supplementary pensions than higher income groups and overwhelmingly rely on public pensions for their old-age income. Participation in supplementary retirement saving is also undermined by the current low rates of return on financial markets.

Part III. Policy challenges and policy implications for adequate and sustainable pensions

The impressive post-war achievement of rising longevity needs to be closely integrated in pension policy. Population ageing, once considered a feature of the distant future, has started to manifest itself. Low fertility rates and large cohorts of retiring baby boomers compound the impact of continual gains in longevity on the worker-retiree balance. Strong swings in the latter can severely destabilise pay-as-you-go pension systems, the typical setup of public pension schemes in EU Member States.

In the past decade, clear progress has been made in the EU to mitigate the fiscal implications of population ageing. Effective retirement ages have risen, for instance, and pension systems have often been enhanced by automatic adjustment mechanisms. Progress is uneven though, with several Member States still projected to see strong expenditure increases under the central scenario, putting at risk fiscal sustainability. Moreover, there are signs of reform fatigue and even reform reversals due to societal and/or political unacceptance of changes or stemming from constitutional court rulings. At the same time, failure to adjust pension systems and labour markets to the ageing of population also jeopardises adequacy, for instance, by pushing people into retirement before they have accrued sufficient pension rights.

Achieving fiscally sustainable, financially adequate and fair pensions thus requires additional measures. No one-size-fits-all solution stands available in a Union composed of 28 Member States and as many national pension systems. Attaining the main objectives of pension systems – poverty prevention, insurance, consumption smoothing and redistribution – while ensuring sustainability, requires different approaches in different countries. Member States should decide what their adequacy objectives are, and take the measures needed to ensure the sustainability of the system, which is a matter of policy preferences. These measures can be taken both on the expenditure and on the revenue side.

An indispensable trait of a well-functioning pension system is that citizens trust it will provide them with stable retirement incomes. Big systemic shocks are to be avoided, with reforms to be explained and rolled-out gradually, allowing people to anticipate their impact. By ensuring a broad understanding in society and achieving the support of social partners and the civil society about the need and the goals of reforms under preparation and by aiming for cross-party political agreement on the main objectives, the stop-and-go policies or reform reversals observed in some Member States can be avoided. While reaching out can be challenging and time-consuming due to the often sensitive nature of pension reforms, it is a necessary pre-condition to ensure that reforms are broadly accepted and lasting.

In its conclusions of 25 May 2018 on the 2018 Ageing Report and of 21 June 2018 on the 2018 Pension Adequacy Report, the Council stressed the importance of a holistic view to bring together the fiscal sustainability and the adequacy of pensions systems.

When looking into future sustainability and adequacy of pension systems, several main axes of analysis deserve attention. Some of these have already been studied in detail in the recent Ageing and Pension Adequacy Reports, while others require more attention in future editions.

Changes in the labour markets and policies to boost employment and reduce equality gaps

Creating the conditions for more people to work and to do so for a longer period would absorb part of the rise in longevity and mitigate the effect of a shrinking working-age population on the contributory base and the labour market. In parallel, more complete and longer careers allow for the build-up of more pension rights, thus lifting old-age income.

Allowing the uptake of work by more people and extending those working lives require important changes in the labour markets. Reducing the pension inequalities between men and women depends on equal opportunities at working age, such as equal sharing of caring responsibilities, labour market participation and career opportunities, work intensity, career breaks and equal pay. Ensuring affordable and adequate child-care facilities for young families or avoiding that career interruptions for family reasons lead to an excessive loss of pension rights. Measures to enable older people to continue working include life-long learning initiatives aimed at maintaining and expanding skills (i.e. continuing education and training), pushing back against age-related discrimination on the labour market, adaptations in the workplace and flexible working arrangements. A more heterogeneous workforce is an asset, but requires adapted workplaces.

Active labour market policies targeted at older workers, improvements in public health and adjusting working conditions to older workers are indispensable to enable longer working lives across the workforce. Finally, pension age increases should be accompanied by policies to train older people, in order to keep them in the labour market and to minimize the risk that the lower pension expenditure is replaced by additional unemployment insurance expenditure.

However, it is challenging to increase strongly employment among the shrinking group of 20-65 years old, especially in Member States that already achieve high working-age participation rates. Indeed, the main growth engine over time will be labour productivity growth, which is assumed to pick up from the current levels in the baseline projections. A stagnation or even a further slowdown of productivity growth would impact wage growth and increase the budgetary impact of population ageing. Factors such as a sustained push towards higher educational attainment and technical skills or the upgrade of transport, energy and telecommunication networks increase the overall economy's absorption capacity of new technologies, thereby sustaining productivity increases, which should translate into wage growth.

Pension systems that support longer working lives

The *leitmotiv* should be that living longer and, for the better part, healthier lives implies retiring later as well. Deviations from the latter can be based on deviations from the former: people exposed to hazardous or extremely demanding conditions throughout their career.

Adjusting statutory and early retirement ages or required contribution periods to reflect gains in life expectancy might significantly curb the budgetary impact of population ageing, regardless of the national pension system setup. Linking age or career requirements to life expectancy is often preferable to linking solely retirement benefits to longevity as the latter mechanism might negatively affect pension adequacy.

Moreover, higher legal retirement ages encourage longer working lives, thereby staving off labour and skill shortages. Increases in the statutory age and restricting early retirement should be smoothed from year to year and known sufficiently in advance so that people can plan for their professional life and retirement.

Aside from linking retirement ages to longevity gains, effective retirement ages could also be raised by limiting early retirement possibilities. Early retirement should be distinguished from lower pension ages for workers with sufficiently long careers, which can help ensure fair pensions for those entering the labour market early (see below).

The right to work beyond the statutory retirement age could be generalised. The same holds for enhancing flexible retirement pathways, such as combining part-time work and part-time retirement, which might help alleviate emerging labour market shortages, build additional pension rights and smoothen the transition from work to inactivity.

Redistribution, fairness and protection against old-age poverty risks

Pensions, along with taxation, help ensure that retirement income is distributed more equally than income during working life, resulting in higher replacement rates for lower-income earners and lower poverty rate of people aged 65 and over than that of people in working age. However, income inequality and depth of poverty in old age are increasing in most Member States. As the European pension systems are adjusted to the ageing of population, reforms need to carefully consider the **redistribution and fairness logic** of pension systems. In particular, they need to answer the question whether the current way of using pension resources is optimal or there are better ways to ensure its functions of consumption smoothing, redistribution and poverty prevention.

In the future, unless alternative sources of financing are found, a decreasing working age population and an increasing share of pensioners risks imposing a double burden on future workers: higher contribution rates when they work and lower pensions when they retire. Moreover, pension systems have to ensure pension fairness and redistribution across income levels, since a shift of funding from social security contributions to taxation and the change in progressivity rules put limits to the redistributive capacity of pension systems and questions their fairness across different income classes. Reforms also have to take into account fairness between early and late career starts: a common pensionable age that does not differentiate for career duration may see early starters contribute for proportionately longer periods than people with late careers starts and receive (often lower) pension benefits for a shorter time given socioeconomic disparities. To achieve fairness between men and women, pension systems should protect family-related career breaks in a way that also encourages equal sharing of family responsibilities between men and women. Finally, pension systems must ensure fairness between different forms of work (see below).

Most Member States have special pension schemes that benefit a wide variety of groups, both in terms of access to retirement and the size of pension benefits. Aside from raising fairness concerns, such deviations from the standard scheme often carry considerable budgetary costs. Moreover, shielding certain privileged groups from the overall objectives of working longer and strengthening contributory principles, risks eroding popular support for necessary reforms. In this regard, policymakers should aim to lead by example.

While education, labour market and pension policies should strive to ensure that as many men and women as possible have the abilities and opportunities to earn adequate retirement income, some members of the society reach old age without sufficient income or means. Social protection systems should address the needs of older people and provide resources that ensure living in dignity, as the European Pillar of Social Rights stipulates. The overall ability of pension systems to prevent old-age poverty depends on several factors. Some ensure this through high overall pension levels; others through more equal distribution, including through sufficient minimum guarantees. The lowest poverty rates are achieved by combining sufficiently generous benefits and well-distributed pensions. Old-age minimum income benefits remain an important safety net for people at the lower end of income distribution. In all cases, these benefits need to be financed sustainably, and consideration could be given to reviewing financing options.

Increasing coverage in a changing world of work

The longer careers need to be accompanied by sufficient contributions to the pension system, taking account of the challenges this raises in view of the changing world of work. People in self-employment and jobs other than permanent full-time contracts currently face significant obstacles to participate in pension saving, contributing to a risk of poverty and financial distress in old age. In view of the evolving world of labour relations, the ability of pension systems to cover different types of economic activity will be crucial to safeguard adequate old-age incomes and their contribution base.

First, pension systems can grant the possibility of enrolling in pension schemes to those who currently have no access at all. In some cases, this may involve revising or revoking access criteria, such as income thresholds. Second, where access exists but is voluntary, the following options for boosting coverage can be considered, listed by degree of compulsion:

- 1) upgrading voluntary enrolment to mandatory and reducing possibilities for exemption;
- 2) changing voluntary enrolment from opt-in to opt-out;
- 3) providing additional incentives to join pension insurance;
- 4) raising pension awareness.

With a view to improving pension accrual conditions, Member States can adapt the rules of pension schemes, insofar as these are tailored to workers in regular employment, to reflect diverse work patterns that allow non-standard workers and the self-employed to build up adequate entitlements more easily. For instance, to allow all workers, including temporary and agency workers, to accumulate and preserve pension rights for each day worked, Member States may allow people to contribute from the day they start working, shortening length requirements for contribution periods to be counted towards pension rights and considering interrupted contribution periods.

Transferability and transparency of pension rights are important elements of improving pension outcomes for persons with diverse careers. Statutory pension systems can streamline pension insurance throughout career changes, by crediting all contributions paid by/for an individual to a single account, irrespective of the economic status or the type or duration of contract under which they were paid. Better transparency and easy access to information on the rights accrued in different jobs can help people manage their careers, notably through the development of web-based individual accounts.

Complement solid public pay-as-you-go pensions with supplementary schemes

One of the avenues that Member States may pursue to maintain adequate old-age incomes is to complement statutory pensions by facilitating access to high-quality, safe and cost-effective supplementary schemes. Supplementary pensions, by their very definition, complement statutory pensions, and their role should be seen as part of the broader pension mix in the respective national system. The development potential of supplementary pensions in a country depends on such factors as the role of social partners in pension policies, the saving propensity of households and the development of financial markets. Reforms aimed at promoting supplementary pension saving should carefully consider the fiscal cost and distributive effect, taking into account variations by income, gender and type of work (see Part II), and avoid substitution of public pensions.

Those Member States that wish to develop supplementary pension saving can resort to several policy options. The most powerful approach is compulsion through collective agreements, i.e. obliging employers to provide occupational pension schemes and making enrolment mandatory for eligible employees. Auto-enrolment requires employers to offer occupational pensions to their employees, who are enrolled in the scheme unless they opt out. Collective bargaining at the level of sector or enterprise is the key way in which occupational pensions have developed as part of the pay package. Besides financial incentives, the state can facilitate this through an appropriate regulatory framework for social dialogue. Finally, financial incentives are a key tool by which states promote complementary pension saving, however they have a net fiscal cost; their impact differs across income groups. Tax incentives encourage participation in and contributions to retirement savings plans, but they are more attractive to high-income individuals. Direct subsidies, which can take the form of matching contributions or flat-rate subsidies, can be effective in boosting the coverage of supplementary pensions, including among individuals with lower-medium high income, but less effective in promoting saving amounts.

The contribution of complementary savings to retirement incomes can also be improved by enhancing the transparency and design of schemes, including existing schemes, at various stages of the saving cycle. Management costs and fees can have a significant impact on the net returns for supplementary pension savers and require careful regulation.

The design of the pay-out phase also affects the contribution of supplementary pensions to old-age income adequacy. At retirement, savings may be converted into annuities, withdrawn gradually or as a lump sum, or a combination of these. Where supplementary pensions play a key role in old-age income replacement, well-designed annuities that offer protection against the longevity risk by ensuring continuous pay-out for the rest of life are important to ensure adequate and safe income.

Impact of services on old-age living standards

Pension indexation and the availability of services for the elderly are major components of adequacy and sustainability. Staving off poverty in old age is about mitigating risks associated with longevity, illness and limiting disabilities while continuing to benefit from essential services such as adequate housing and transport. Providing accessible and affordable quality services to those who need them is an effective way of reducing poverty risks and ensuring that, even if average pension benefits are low, people can count on spending their old age in dignity.

The availability of care services impacts not only the living standards of care recipients, but also the careers – and future pension entitlements – of family members and other informal carers, predominantly women.

At the same time, the provision of such services is becoming an increasingly important item of public expenditure. Their impact on the sustainability of public finances should be carefully considered, taking into account both the budgetary cost and the potential employment gains.

New sources of financing

Against the background of changes in the economy and world of work, characterised by a decreasing share of labour income and, in some countries, wage developments that do not follow productivity developments, Member States may need to re-consider how their social protection systems are financed. A decreasing base of social contributions that might result from these labour market trends can have important long-term impacts on the sustainability of pensions and warrants particular analysis. A more thorough understanding of the implications of different policy approaches to financing the pension system (including looking for new sources of financing, changing the tax system according to the economic reality) on sustainability, redistribution, fairness and economic growth would also merit more attention.

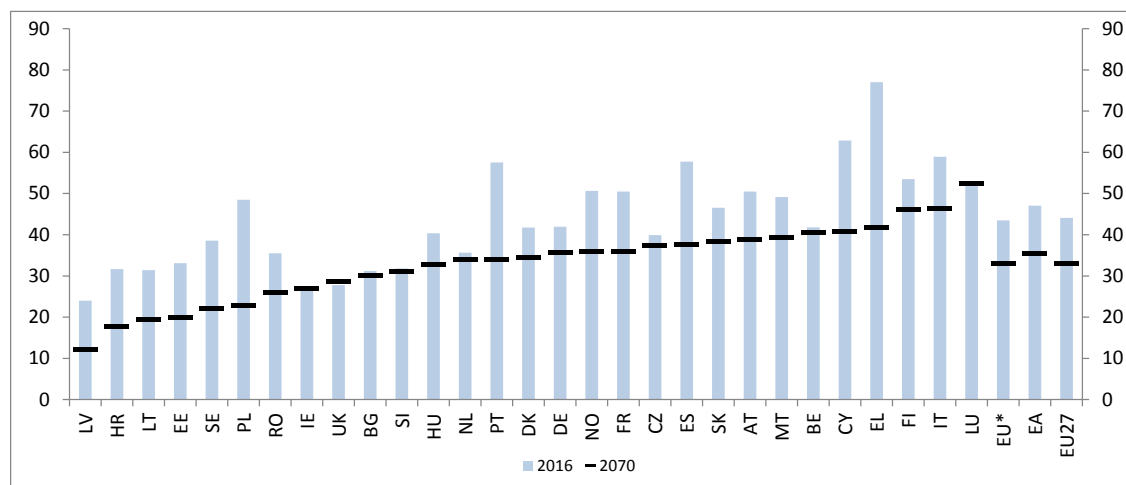
Annex

Table A.1: Participation rates by gender (% of population), EU Member States

	Participation rates 55-64						Participation rates 55-74					
	Total		Males		Females		Total		Males		Females	
	2010	2018	2010	2018	2010	2018	2010	2018	2010	2018	2010	2018
BE	39,2	52,6	47,6	57,9	30,9	47,4	24,3	31,5	30,4	35,8	18,7	27,7
BG	49,3	63,7	56,6	69,2	42,9	58,7	30,9	38,0	37,6	44,0	25,5	33,0
CZ	49,7	66,5	62,5	75,3	38,0	58,0	33,3	39,1	43,5	46,8	24,6	32,6
DK	61,8	73,3	67,8	77,7	55,9	69,0	39,8	44,2	45,5	49,6	34,2	39,0
DE	62,6	73,6	70,8	78,7	54,6	68,6	34,7	48,5	40,4	53,5	29,2	43,7
EE	64,3	72,9	64,3	70,9	64,3	74,6	42,9	53,3	45,3	54,6	41,2	52,4
IE	55,1	63,3	64,3	72,1	45,7	54,6	38,8	43,4	46,9	51,3	30,8	35,8
EL	45,2	48,5	60,2	61,4	31,1	36,9	27,8	29,7	38,0	38,3	18,4	22,1
ES	50,7	60,5	63,7	68,4	38,4	52,9	30,5	36,0	39,1	41,8	22,7	30,9
FR	42,2	56,0	45,0	58,3	39,5	53,9	27,0	32,6	29,5	34,7	25,0	30,9
HR	41,8	44,8	54,4	53,4	30,2	36,7	27,4	27,5	36,4	33,9	19,8	21,9
IT	37,9	57,0	49,5	68,6	26,9	46,1	23,1	35,3	31,3	43,8	15,5	27,5
CY	59,1	64,7	74,3	75,2	44,3	54,6	42,3	42,0	55,0	51,2	30,1	33,6
LV	56,9	70,8	58,5	72,5	55,7	69,4	35,0	49,1	38,5	52,5	32,6	46,7
LT	56,5	73,8	62,6	76,2	51,7	71,9	33,7	50,5	40,2	55,5	29,2	46,9
LU	40,6	42,0	48,8	47,5	32,0	36,2	24,3	26,9	30,6	30,9	17,7	:
HU	36,5	55,8	42,2	67,1	31,7	46,3	23,2	33,1	28,1	41,5	19,5	26,2
MT	33,3	51,4	52,3	69,1	14,6	33,4	22,7	30,2	36,6	42,2	:	18,2
NL	55,3	70,9	66,2	80,0	44,4	61,8	37,4	44,8	46,1	52,5	28,9	37,3
AT	42,2	56,2	51,4	66,0	33,6	46,6	26,3	36,2	32,8	43,8	20,6	29,2
PL	36,7	50,3	48,9	61,9	25,9	39,9	26,3	32,0	36,5	41,8	17,9	24,1
PT	54,3	63,4	62,0	69,0	47,4	58,4	39,9	42,2	46,9	48,4	33,9	36,9
RO	42,1	47,5	52,3	59,7	33,1	36,4	34,2	33,3	41,9	41,8	27,8	26,1
SI	36,5	49,5	47,5	55,1	25,5	43,9	25,6	31,6	34,5	36,4	17,5	27,0
SK	45,1	57,2	59,7	61,1	32,3	53,7	29,4	35,9	40,8	40,4	20,4	32,4
FI	60,2	70,3	60,1	69,7	60,3	70,8	40,2	41,8	42,0	43,5	38,3	39,9
SE	74,8	81,6	79,3	84,4	70,2	78,8	48,3	50,3	53,3	54,0	43,1	46,4
UK	60,0	67,5	69,2	72,7	51,1	62,5	40,7	44,4	47,9	49,5	33,9	39,6
EU-28	49,5	61,9	58,7	69,1	41,0	55,2	31,6	39,1	38,7	45,1	25,5	33,6
EA	49,3	62,6	58,1	69,3	41,1	56,3	30,1	39,2	36,6	44,7	24,2	34,0

Source: Eurostat.

Figure A.1: Total public pension benefit ratio, in %, 2016 and 2070



Source: 2018 Ageing Report.