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# Pension adequacy report

Current and future income  
adequacy in old age in the EU



Vol. 1

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



**European Commission**

Directorate-General for Employment, Social Affairs and Inclusion

**Social Protection Committee**

**The 2024 Pension Adequacy Report: current and  
future income adequacy in old age in the EU**

Volume I

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

2024

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<sup>1</sup> European Social Policy Network, <http://ec.europa.eu/social/main.jsp?catId=1135&langId=en>

<sup>2</sup> [https://economy-finance.ec.europa.eu/publications/2024-ageing-report-underlying-assumptions-and-projection-methodologies\\_en](https://economy-finance.ec.europa.eu/publications/2024-ageing-report-underlying-assumptions-and-projection-methodologies_en)

<sup>3</sup> <https://www.missoc.org/>

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## FOREWORD

The present edition of the Pension Adequacy Report, prepared every three years by the Social Protection Committee and the European Commission, looks back at a very challenging period for European societies and economies. The crisis triggered by the COVID-19 pandemic was soon followed by Russia's war of aggression against Ukraine. Just as the recovery was taking shape, a spike in energy costs and the overall cost of living set off a new challenge for the well-being of Europeans, including the older population.

Against this background, the report's analysis reaffirms the importance and resilience of our public pension systems as well as the formidable challenges they are facing. In general, the incomes of the older population were comparatively well protected during the COVID-19 and cost-of-living crises, and those in working age were also able to continue building up pension rights. A combination of robust pension systems and a rich toolbox of anti-crisis measures safeguarded pension adequacy during the crises. However, in some Member States older people continue to be at a higher risk of poverty or social exclusion than working age population and face challenges in maintaining a decent standard of living. Furthermore, deeply entrenched inequalities between older women and older men, and between different socio-economic groups, remain. Going forward, the structural challenges linked to the demographic change and the new world of work still appear large.

The report's findings also highlight the need for a holistic approach to supporting living standards in old age, encompassing pensions and other relevant policy measures. As longevity grows, adequate and mutually reinforcing pension and long-term care systems will be increasingly important to sustain living standards in the "fourth age".

As highlighted in the La Hulpe Declaration, efforts to improve the adequacy of pensions and safeguard fiscal sustainability need to go hand in hand. At the EU level, a strengthened coordination among the reporting on adequacy of pensions, on long-term care and on sustainability of age-related expenditure can facilitate a holistic approach to addressing demographic challenges, safeguarding both adequacy and sustainability of social protection and supporting intergenerational fairness.



Nicolas SCHMIT

Commissioner for Jobs and Social Rights

A handwritten signature in black ink, appearing to read "N. Schmit".



Rute GUERRA

Chair, Social Protection Committee

A handwritten signature in blue ink, appearing to read "Rute Guerra".



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## KEY CONCLUSIONS

The 2024 Pension Adequacy Report prepared jointly by the Social Protection Committee (SPC) and the European Commission supports national efforts to ensure adequate old-age income, in line with Principle 15 of the European Pillar of Social Rights. The report analyses the extent to which pension systems ensure adequate income in retirement – that is, **prevent old-age poverty and maintain the income of men and women for the duration of their retirement**, both currently and in the future. The three years preceding the current edition were marked by extraordinary challenges facing European societies and economies: the COVID-19 pandemic, followed by a period of high inflation, and spiking energy costs triggered by Russia's war of aggression against Ukraine. In the meantime, structural challenges linked to megatrends such as the demographic change and the changing world of work remain as pressing as ever. In this context, the report highlights the following key conclusions.

### *– The current picture of pension adequacy remains mixed –*

1. **The risk of poverty and social exclusion for older people has continued growing since 2019, driven by the rising relative income poverty, despite decreasing material and social deprivation.** In 2022, more than one in five people aged 65 and above were at risk of poverty or social exclusion in the EU. This represents 18.5 million people, a number growing due to both the rising poverty rate and the ageing of population. While there remain significant differences between countries, older women face higher poverty risks than men in all countries. **People in advanced old age, in particular women, are generally at a higher risk of poverty.** In 2022 almost one in four women aged 75 and above in the EU were at risk of poverty or social exclusion.
2. **The income of older people in the EU remains below 90 % of working-age income on average**, with significant differences between women and men and between countries. Pension benefits amount, on average, to around three fifths of late-career work income. Income inequality among older people has receded since 2019, possibly reflecting the widespread measures to protect lower-income pensioners during the recent crises.
3. **The increase in life expectancy has been slowing down in the EU over the last decade.** This longer-term trend was exacerbated by excess mortality during the COVID-19 pandemic, as the number of older people declined between 2020 and 2022 and life expectancy at age 65 fell. The share of healthy years in the remaining life expectancy in old age has, however, remained stable in overall terms across the EU since the beginning of the century.
4. **On average, a European can expect to spend 21 years of their lives in retirement and receiving a pension.** This is slightly less than in 2019 due to the COVID-19 pandemic. The average period of receiving a pension ranges from 15 to 25 years, reflecting the national differences in pension age and in life expectancy. The relation between the duration of working life (41 years on average) and retirement is very diverse across the EU-27 and Norway.

- 5. The need for health care and long-term care tends to increase with age and is associated with a higher risk of poverty. Covering care needs in old age remains a critical social challenge.** The total long-term care costs without public social protection can be very high compared to the pension income of older people, in particular for those with more severe needs. Women live longer in ill health than men and are more often in need of care, while having lower incomes. Social protection systems support the living standards of older people in Europe through different policy combinations of, in particular, pensions and long-term care provisions. Systems with low adequacy of pensions and low coverage of long-term care needs face particular challenges in upholding decent standards of living for older people in need of care.

*– Member States are taking further steps to safeguard adequacy, but future adequacy remains under pressure –*

- 6. During 2020-2023 the crisis context temporarily shifted the pension reform dynamics, as all Member States implemented exceptional and temporary measures. At the same time the overall trend towards permanently enhancing adequacy mechanisms continued.** During this time, the main reform trends included: enhancing access and accruing entitlements; promoting longer working lives and later retirement through positive incentives and greater flexibility in retirement pathways; and strengthening anti-poverty safety nets through reforms of basic and minimum benefits. Some Member States also implemented reforms enhancing the role of funded pension schemes and fostering individual entitlements.
- 7. Pension replacement rates for a given career are projected to decrease over the next four decades, reaffirming the results of previous analysis.** Even accounting for projected career length gains and legislated increases in the pensionable age, replacement rates are set to fall for both women and men in most countries, even if the projected size of the fall varies greatly. This is consistent with simulations showing that per capita pension income is projected to decline. The age of retirement remains a key factor explaining current and future pension benefits. While retiring two years before pensionable age mostly results in temporary or mild pension reductions, working beyond pensionable age generally brings substantial replacement rate gains.

*– Pension systems protect those in need, but gaps remain –*

- 8. Pension systems and taxation affect the level and (re-)distribution of retirement incomes and the future development of adequacy.** Pension income remains more equally distributed than income from work. Low earners have higher pension replacement rates in all countries, while having a short career reduces the replacement rate less than proportionally, though this may not always be enough to lift people out of poverty. Income inequality in old age is projected to remain stable in the decades to come.
- 9. Career breaks are not all equally protected by pension systems.** In most countries, childcare breaks are relatively well protected, whereas the pension reduction for

unemployment is slightly higher. The extent to which disability periods are credited varies across countries. Most countries would compensate for providing care to dependant family members and grant a pension which is only slightly lower than that for an uninterrupted career.

*– Persistent inequalities raise challenges for pension policies –*

10. **The majority of older people are women, making gender gaps in old age a particular social challenge.** Being single in old age further increases the poverty risk for women compared with men. Although the difference between the average pensions of men and women continues to narrow, the remaining gender gaps in old-age poverty, pension amount and pension coverage testify to persistent inequalities. The gender pension gap (26 % at EU level in 2022) has its roots in accumulated differences along the professional career: lower pay for women, shorter and/or interrupted careers, including due to care obligations; and more part-time work. Lower financial literacy can hamper women’s retirement planning, calling for financial education and pension transparency measures.
11. **Addressing inequality in life expectancy is a challenge for pension policies.** Higher-educated people can expect to live longer in retirement, partially due to lifestyle factors, and this gap is particularly pronounced among men. People with high educational attainment both enter and leave the labour market substantially later than those with lower education. These differences in life expectancy and in labour market entry and exit ages can have a regressive distributional impact. As many countries are raising pensionable ages in response to increasing longevity, pension systems may need to adjust retirement pathways for different career profiles to prevent building of inequality.
12. **The way in which inequality in labour earnings translates into pension inequality depends to a large extent on the progressivity of the pension system.** In the EU-27 and Norway, pension systems on average offset one quarter of the earnings inequality cumulated over working lives. The progressivity of the pension system depends on such features as flat-rate and means-tested benefits, ceilings on contributory pensions, and reduced entitlements at high earnings.
13. **Pensions for the self-employed are projected to be on average a third lower than those of full-time employees with a similar career, due to differences in rules and in average earnings.** Flat-rate or lower contribution rates, a low contribution base or simplified pension or tax regimes often result in low projected pensions for the self-employed. Workers in non-standard forms of employment may in some countries struggle to access pensions due to minimum earnings or working time requirements or limited options to accumulate entitlements.

*– European pension systems showed resilience in the face of crises –*

14. **European pension systems and anti-crisis measures cushioned the impact of the COVID-19 crisis on current and future pensions.** Pensions in payment were not reduced in nominal terms. The impact of the crisis on future pensions was limited, thanks

to: the expanded use of job retention schemes, in which pension entitlements generally accrued; subsidised pension contributions; the extension of unemployment and sick leave protection; and specific measures benefiting the self-employed. However, funded pension schemes were subject to strong volatility during this period.

15. **While the inflation wave observed in 2022-23 reduced the real value of pensions in most Member States, the purchasing power of pensioners was still well protected compared with that of the working-age population.** Measures to support pensioners included regular indexation and extraordinary benefit increases, pension supplements and other cash benefits. As low-income pensioners are more vulnerable to high inflation, many countries prioritised their protection through minimum benefits or targeted support measures.
16. **Pension indexation is a key policy lever to protect pensioners against income erosion.** However, pension indexation in the long run does not fully keep up with increases in earnings from work in most countries. Whereas wage indexation is usually more beneficial to pensioners than price indexation, this situation was reversed during the recent period of high inflation. Frequency of indexation is also key to safeguarding adequacy during robust price growth.

**In the light of these observations, the SPC and the Commission consider that efforts to implement the European Pillar of Social Rights need to continue.** Inclusive and robust labour markets are key to maintaining adequate pensions in an ageing society. The EU should continue to support national efforts to ensure adequate pensions through a broad policy mix, including by tackling gender inequalities during working life, mitigating the impact of care tasks, and ensuring social protection in respect of care needs. Sustained efforts to implement the [Council Recommendation on access to social protection](#) and the [Council Recommendation on affordable high-quality long-term care](#), including supporting and monitoring action within the SPC framework, are an important contribution to maintaining high living standards for older Europeans. As called for in the [Demography Toolbox](#), EU and national policies should help ensure that people in Europe can fulfil their aspirations, including by empowering older generations and sustaining their welfare.

**The adequacy and sustainability of social protection in old age require continuous monitoring and analysis, including close coordination between the analysis of sustainability of ageing-related expenditure and the adequacy of pensions and long-term care. In this light, a joint reflection on the 2024 Pension Adequacy and Ageing Reports will be organised. The SPC and the Commission will again report on pension adequacy and on long-term care in 2027. In doing so, they will strive to develop coherent analysis of pension adequacy and long-term care, through a joint report if feasible, as well as to further strengthen synergies with the Ageing Report.**



## INTRODUCTION

The 2024 Pension Adequacy Report (PAR) is the fifth edition of the report prepared every three years by the Social Protection Committee (SPC) and the European Commission (the Commission). The report aims to present a comparative analysis of the degree to which pension systems in the European Union (EU) Member States enable older people to retire with an adequate income today and in the future.

The report consists of two volumes. Volume I is devoted to a comparative analysis of pension adequacy in the EU, whereas Volume II (country profiles) provides a detailed discussion of developments in each of the 27 Member States and in Norway.

### Policy context

The PAR analysis serves to underpin the policy efforts at national and EU level to ensure adequate old-age income and pensions, the rights to which were proclaimed in the **European Pillar of Social Rights** (EPSR) (Principle 15) and implemented through its **action plan**.

The PAR is prepared in parallel with the **Ageing Report** of the Economic Policy Committee (EPC), and the Commission and uses the same underlying assumptions in the forward-looking projections, aiming for a co-ordinated assessment of the adequacy of pension benefits, and the financial sustainability of ageing-related expenditure (including pension expenditure), in the Member States.

The SPC adopted a **pension adequacy benchmarking framework** in February 2022, after the 2021 edition of the PAR successfully explored several policy levers subsequently included in the framework. The current edition continues to build synergies with the framework through the joint use of a number of indicators and the exchange of information on policy levers, such as indexation rules and minimum benefit levels.

Long-term care (LTC) plays a crucial role in supporting the living standards of older people, in particular in advanced old age. The **European Care Strategy**, put forward by the Commission in September 2022, aims to support Member States to ensure high-quality, affordable and accessible care services across the EU and improve the situation for both care recipients and the people caring for them, professionally or informally. The **EU Council Recommendation on affordable high-quality long-term care** was adopted on 8 December 2022. It invites Member States to take action to improve access to affordable, high-quality LTC and addresses the adequacy of social protection for LTC, the availability and quality of LTC services, and the challenges faced by formal and informal carers, as well as issues of LTC governance. Given the ongoing implementation process of the Recommendation, which includes exchange of information on national measures, the SPC and the Commission will not publish a dedicated report on LTC in 2024, with a view to relaunching such reporting in 2027.

The Commission set up a **High-level Group of Experts on the Future of Social Protection and of the Welfare State in the EU** to propose a vision of how to reinforce European social protection systems in the light of megatrends such as demographic change, the new world of work, digitalisation and climate change. The report of the group, published in February 2023,



puts forward a list of 21 recommendations addressed to national governments, EU institutions and social partners.

In January 2023, the Commission published its report on the implementation of the 2019 EU Council Recommendation on **access to social protection for workers and the self-employed**. The SPC and the Commission continue to support Member States in achieving the objectives of the Recommendation through dialogue and mutual learning activities and by developing a monitoring framework.

The Commission adopted a Communication on the **demography toolbox** on 11 October 2023. The Communication points to the need for a whole-of-government approach to demographic change and calls upon Member States and the EU to mobilise the necessary policies around four pillars, including supporting active and healthy ageing. Among other proposals, the Communication announced a thematic conference to be organised in 2024 to reflect on how systems and policies can sustain longevity in Europe, building on the key findings of the PARs and the Ageing Reports.

### Scope of the report

The report's main focus is on **old-age pension systems**. It looks primarily at statutory pensions, incorporating the adequacy contribution of supplementary pensions where relevant. The report also looks at the role of **survivors' pensions** in providing adequate old-age income for surviving spouses. In the context of its analysis of income inequalities and redistribution mechanisms, the report also considers **minimum income provision** for older people and how **taxation** affects income distribution in old age. Given the importance of services in ensuring decent living standards and improving well-being in old age, the report explores in particular the interaction between pensions and **LTC services**.

When analysing the developments in pension systems and their impact on adequacy, the report zooms in on the reforms adopted by the Member States since the situation described in the previous PAR (i.e. those adopted between 1 July 2020 and 1 July 2023), while also touching upon the key policy debates and the draft measures that are still in the pipeline. At the same time, the report takes stock of longer-term trends, in particular developments over the last decade.

In its analysis, the report refers to the population aged 65 or over (65+) as a general proxy for older people, and the population aged 55-64 as a proxy for potential older workers. The situation of other age groups, such as those aged 75 or over (75+), is also analysed where relevant.

Finally, the current edition of the PAR now includes Norway (NO), in addition to the 27 Member States of the EU.

### The concept of pension adequacy

The 2024 Pension Adequacy Report ('PAR2024') applies the concept of adequacy developed in previous editions of the report, distinguishing three main dimensions of adequacy: **(a) poverty protection**; **(b) income maintenance**; and **(c) pension/retirement duration**.

**First, the adequacy of pensions is measured by their ability to prevent and mitigate the risk of poverty in old age**, considering income poverty risks as well as material and social

deprivation (MSD) among women and men aged 65+. While older people's households also have other income sources, pensions account for four fifths of household income in the 65+ age group.

**Second, the adequacy of pensions is measured by their capacity to replace income earned before retirement**, thus helping to maintain people's standard of living. This can be measured either by comparing the income of the same individuals before and after retirement, or, as a proxy, by comparing the income of the older/retired population with that of the younger/working population. The current income replacement capacity of pension systems can be measured using empirical data, while future developments are analysed through stylised projections taking account of macro-economic projections and legislated reforms.

**Third, the report considers pension duration** (i.e. whether people can spend a reasonable share of their life in retirement and/or receiving a pension). Furthermore, the report also explores how **adequacy changes during the time spent in retirement**, reflecting changes in income levels, household composition, and need for care.

Particularly in advanced old age, as more people become reliant on care, the living standards of older people increasingly depend, beside monetary income, on the availability, affordability and quality of care services. The **interplay between pension and LTC systems** is therefore crucial in ensuring decent living standards and sustaining well-being in the 'fourth age'.

While the report analyses and compares the situation of each country at different points in time along the dimensions described above, it does not define what outcome level should be considered 'adequate' in each of the dimensions explored. It is a prerogative of national policy-makers to find a balance between poverty prevention, income replacement capacity, and pension duration in their pension systems, by taking into account national priorities, the broader welfare state context, and the long-term sustainability of public finances.

The current income adequacy of older people in the EU – primarily based on 2022 data, along the conceptual lines described above – is discussed in Chapter 1 of the report.

### Reforms and future adequacy

European pension systems and their performance are constantly evolving. It is therefore necessary to take stock of the latest reforms, as well as to update the projections of future developments in pension adequacy. Chapter 2 provides an overview of recent reforms in Member States' pension systems, aiming to identify the main reform trends and their focus in terms of pension adequacy.

Old-age pension systems, by their very definition, operate in a long-term horizon that requires anticipating future demographic and labour market developments and projecting outcomes for future retirees decades ahead. The theoretical replacement rate (TRR) methodology, based on stylised cases assuming standardised career profiles, makes it possible to project how the income replacement capacity of pensions could develop in the future by comparing income replacement rates after similar careers today and 40 years from now. Further, it makes it possible to explore how differences in earnings levels or various life events, such as child-rearing or disability, affect pension adequacy.

Micro-simulation is a more comprehensive yet resource-intensive modelling approach that allows to project future developments in old-age poverty risks and income inequality, as well as in employment, demography and other aspects. As before, and complementary to the TRR analysis, the current PAR includes micro-simulation results from a small set of volunteer countries.

Chapter 3 presents the results of the projections of future adequacy from the TRR and micro-simulation exercises.

### **Developments in old-age (in)equality**

Income inequality, disparities in standards of living, the emergence of non-standard forms of employment, and the increase in precarious employment raise questions over how to provide adequate social protection in old age. Long-term demographic changes, as well as recent economic and social shocks such as the COVID-19 pandemic and the energy crisis and inflation episode, have an asymmetrical impact on different population groups. Depending on how the policy responses to these challenges are designed and implemented, they may alleviate or exacerbate the existing inequalities between socio-economic groups, between men and women, or between employees and the self-employed. Chapter 4 explores these developments in inequalities.

The report provides an overview of the measures taken by Member States in response to the recent crises and their impact on the living standards of current pensioners, including measures targeting the most vulnerable pensioners, as well as on the accrual of pension rights by the working population. It compares how inflation affects different income and age groups, and how the recent inflation spike changed the way different indexation methods protect pension income.

The report gives particular emphasis to the gender dimension, analysing the inequalities between men and women, including the gender pension gap and the gender gap in pension coverage, which result from multiple gaps during working lives and which persist despite the higher educational attainment of women.

To analyse socio-economic inequalities in old age, the report explores developments in life expectancy and healthy life years by socio-economic groups, the impact of such inequalities on pension wealth, and how working-age inequalities are transmitted into old age. Furthermore, the report covers the differences in pension accrual between standard employment, non-standard forms of work, and self-employment.

The report also explores the role of redistribution mechanisms, such as minimum old-age benefits, as well as the redistributive effect of pension taxation.

## 1 CURRENT SITUATION OF OLDER PEOPLE

*In many Member States, the COVID-19 pandemic emerged during the data-collection period for the main social indicators. Although often difficult to clearly assess possible impacts on the final results, caution is warranted regarding the 2020, and probably to a lesser extent the 2021, figures.*

### 1.1 Introduction

In 2022, older people (aged 65+) represented about 21 % of the population in the EU-27. They totalled more than 94 million (95 million including Norway), made up of 53.5 million women and 40.5 million men. 45.5 million of them lived in couples, with or without children<sup>4</sup>, while 8.5 million older men and 21 million older women lived as single<sup>5</sup>. In 2062, the number of older people in the EU-27 is projected to reach 130.5 million (i.e. 30 % of the population), made up of 71.5 million women and about 59 million men<sup>6</sup>.

There were 107.5 million old-age and survivor pensioners (108.7 million with Norway) in 2020 (latest available data), up from 102.7 million in 2012<sup>7</sup> (i.e. an increase of slightly less than 5 %). Over the same period, the number of people aged 65+ in the EU increased by 16 %, from 18 to 21 % of the whole population<sup>8</sup>.

### 1.2 Protection against poverty and social exclusion

This report defines pension adequacy along three dimensions<sup>9</sup>, or key functions of pension systems. The first one is protecting older people against poverty.

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<sup>4</sup> Some older people live in other types of households. Source: Eurostat (lfst\_hhindws), Labour Force Survey.

<sup>5</sup> People not living in a couple relationship; this includes widowed and separated people.

<sup>6</sup> Eurostat, population figures (demo\_pjanbroad), and population projections (proj\_19np), at <https://ec.europa.eu/eurostat/data/database>.

<sup>7</sup> Including people under 65, and beneficiaries who are resident in other countries. The relative number of non-resident beneficiaries varies (sometimes considerably) between countries. The EU aggregate figure for the total number of beneficiaries is simply obtained as the sum of the results for the individual EU Member States, not adjusted to take into account any form of international double-counting. European system of integrated social protection statistics / Eurostat, code spr\_pns\_ben.

<sup>8</sup> PAR2021 includes an analysis of the number of pensioners increasing by less than the number of older people.

<sup>9</sup> i.e. poverty prevention, income maintenance and retirement duration. See Introduction.

**Box 1: Poverty and social exclusion – indicators**

*The AROPE (at-risk-of-poverty or social exclusion) indicator is the main indicator to monitor the 2030 EU headline target on poverty and social exclusion. It combines measures of: (a) monetary poverty; (b) deprivation; and (c) work intensity in the household. However, the third component applies only to the working-age population and is not calculated for older people. As a result, AROPE rates for the older population and the working-age population are not directly comparable<sup>10</sup>.*

*For people aged 65+, the AROPE indicator is therefore composed of two indicators: the at-risk-of-poverty (AROP) rate, which measures relative income/monetary poverty, and the severe material and social deprivation (SMSD) rate, which measures deprivation. Each of these two indicators separately can also be used to compare the situation of the older and working-age populations.*

*As regards deprivation, this report uses as the main indicator the ‘broader’ material and social deprivation (MSD) rate, based on a less restrictive definition of deprivation, which is one of the outcome indicators used in the SPC benchmarking framework on pension adequacy.*

**1.2.1 Poverty and social exclusion**

The European Pillar of Social Rights sets as a headline target a reduction of at least 15 million in the number of people at risk of poverty or social exclusion by 2030. The AROPE rate is the main indicator for monitoring this EU 2030 headline target on poverty and social exclusion.

**Old-age poverty or social exclusion rates have been increasing slowly since 2015<sup>11</sup>, and so has the absolute number of older people who are at risk of poverty or social exclusion.**

While old-age AROPE rates fell between 2008 and 2015<sup>12</sup>, they then increased until 2022, with the sole exception of 2021. The rate stood at 22.9 % among women and 16.7 % among men in 2022 (Figure 1). In total, in 2022, 20.2 % of older people were at risk of poverty or social exclusion in the EU-27<sup>13</sup>. They represent 18.5 million people were aged 65+ and at risk of poverty or social exclusion in the EU, an increase from 14.8 million in 2015 and 16.9 million in 2019: this was due both to the growing number of older people (from 84.5 million in 2015 to 94.3 million in 2022) and the increasing poverty rates. The projected increase in the older population is likely to imply an increased absolute number of older people who are at risk of poverty or social exclusion in the future, even if adequate pensions and access to affordable high-quality services can continue to contain poverty rates.

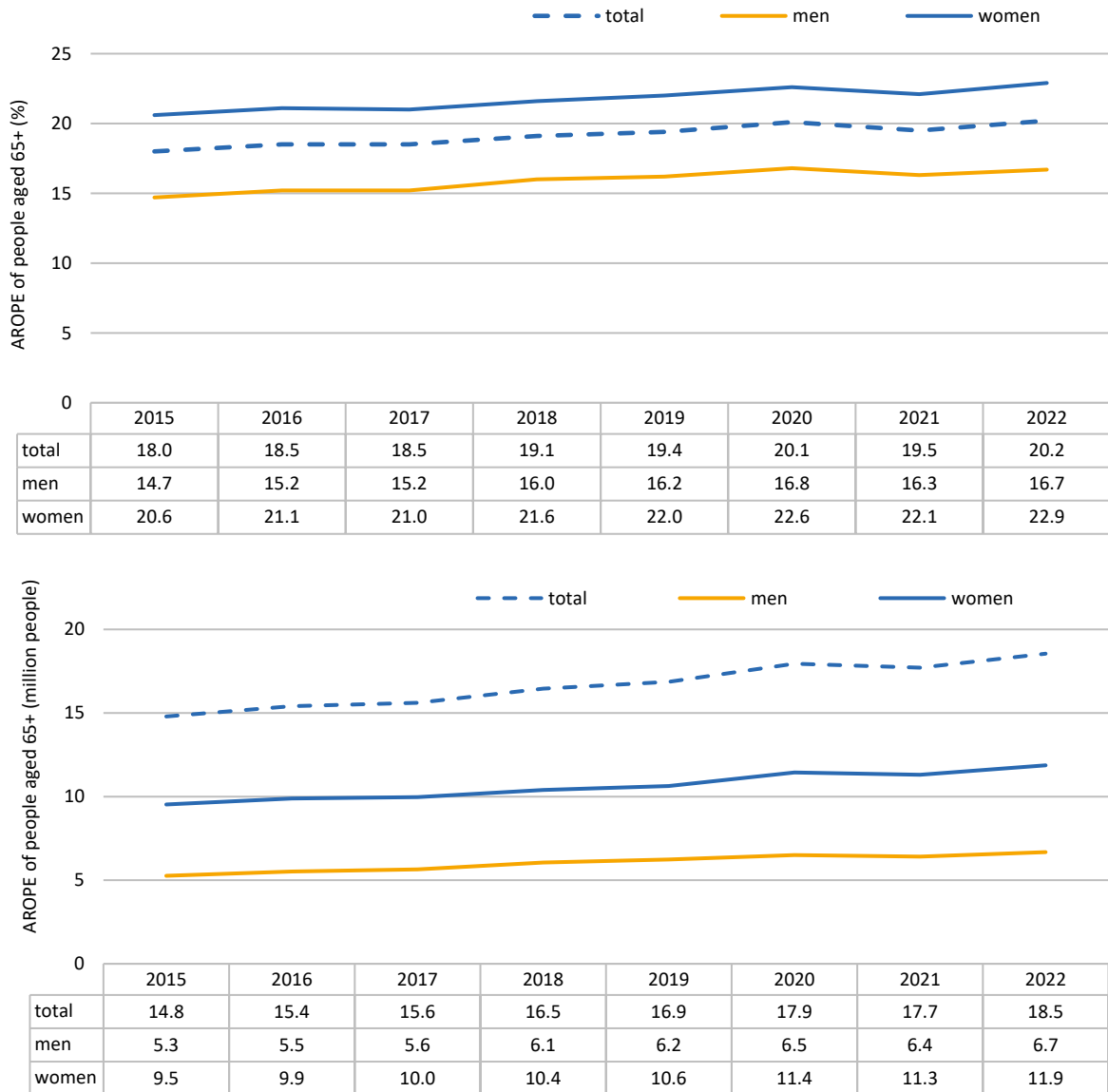
<sup>10</sup> There is no double-counting of people having low income and high deprivation. The index counts all older people who are income-poor, plus those who are materially deprived but not income-poor.

<sup>11</sup> Starting year of the Eurostat indicator.

<sup>12</sup> See European Commission (2021a), pp. 28-29.

<sup>13</sup> 8.2 % in Norway (i.e. 81,000 older people at risk).

**Figure 1: People aged 65+ at risk of poverty or social exclusion (AROPE), women and men, % and million people, EU-27, 2015-2022**



Notes: Breaks in series affect underlying time series in 2020; last updated 2 February 2024.

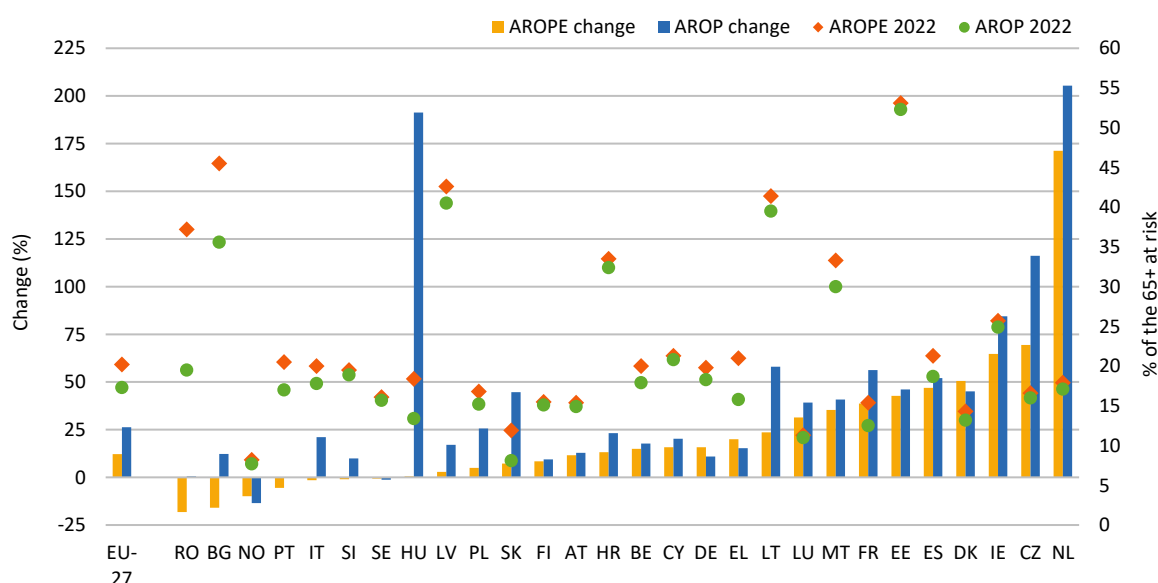
Source: Eurostat ([ilc\\_peps01n](#)).

For people aged 65+, the AROPE indicator is composed of two indicators of risk: the AROP and SMSD rates (see Box 1). The resulting composite AROPE trend therefore reflects two separate developments.

**The slight increase in the old-age AROPE rate observed at EU level since 2015 is driven by an increase in the AROP rate, offset by a slight improvement in SMSD** (see Sections 1.2.2 and 1.2.3). However, the trends in the AROPE rate as well as in its components have not been the same in all countries. Indeed, as illustrated by Figure 2, the AROPE rate in old age has

increased by at least 50 % in some Member States (DK, IE, CZ, NL<sup>14</sup>), mostly at comparatively low levels, while it has fallen in a handful of others (RO, BG, PT), although to levels still above the EU average. The monetary poverty risk (the AROP rate) has generally driven the increase in the AROPE rate, or dampened its fall; but some countries display the reverse trend, with an increase in the AROP rate smaller than the increase in the AROPE rate (DE, EL, DK). In Bulgaria, for instance, the fall in the AROPE rate has been driven by a sharp fall in the SMSD rate, while monetary poverty has increased. Similarly, in Hungary the AROPE rate increase has been very small, composed of a sharp increase in the AROP rate (almost tripling, albeit from the lowest EU rate of 4.6 % in 2015), while the SMSD rate halved over the same period.

**Figure 2: Old-age AROP and AROPE changes, 2015-2022, EU-27 Member States and Norway**



Notes: The bars and left-hand axis show the changes in AROPE and AROP rates over time, while the dots and right-hand axis display the 2022 values for both rates. Rate changes (either AROP or AROPE) are too small to appear in the case of RO, PT, SE and HU. Breaks in series affect series data, in particular in BE, DK, DE, IE, FR, LU and FI. Last updated 2 February 2024. Source: Eurostat ([ilc\\_li02](#) and [ilc\\_peps01n](#)).

**Large differences across countries also persist.** In 2022, the AROPE rate among older people ranged from 8.2 % in Norway, 11.3 % in Luxembourg and 11.9 % in Slovakia to 45.5 % in Bulgaria and 53.1 % in Estonia (Figure 3). The AROPE rate was above 40 % in four Member States, and above 50 % for women in two of them<sup>15</sup>.

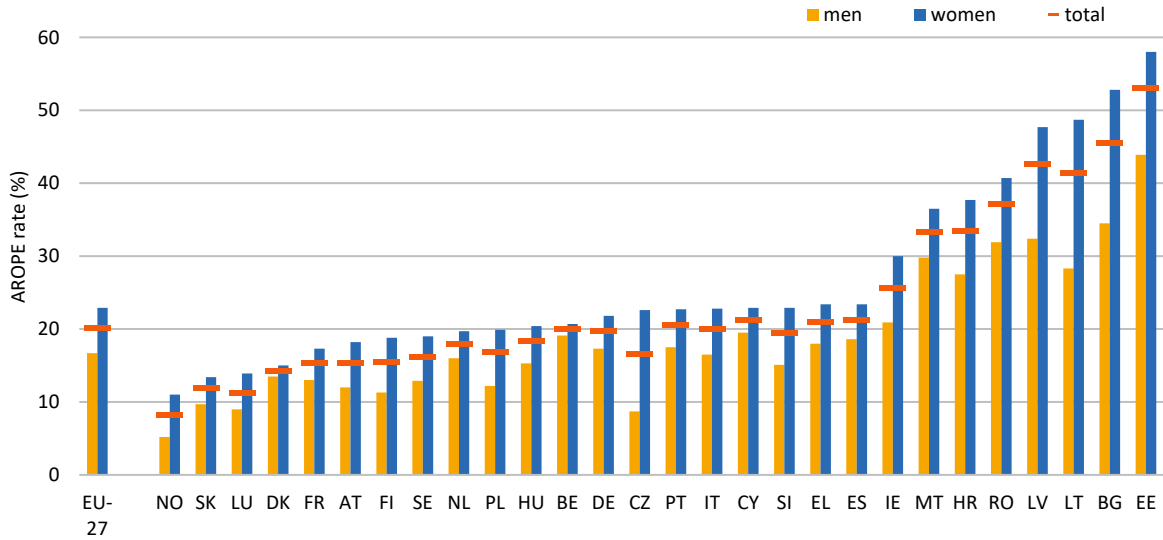
**The AROPE rate was higher among older women than among men in all countries.** For Baltic countries as well as for Czechia, the higher AROPE gender gap may be partially driven by the gender gap in life expectancy at 65 ('LE65'), as the two indicators are correlated (see Sections 1.4 and 4.2).

<sup>14</sup> In the Netherlands, for instance, the poverty threshold has become higher due to a significant increase in average incomes (by 10 % between 2020 and 2021). This led to a significant increase in the AROP rate, driving in turn the AROPE rate increase.

<sup>15</sup> See also Section 1.5 of the present report about the link between income poverty in old age and the need for LTC.



**Figure 3: People aged 65+ at risk of poverty or social exclusion (AROPE), women and men, %, 2022, EU-27 Member States and Norway**



Note: Ranked by AROPE rate for women.

Source: Eurostat ([ilc\\_peps01n](https://ec.europa.eu/eurostat/tgm/table.do?code=ilc_peps01n)); last updated 2 February 2024.

### 1.2.2 Income poverty risk

The different components of the old-age AROPE rate<sup>16</sup> must be analysed separately for a more accurate picture. The first component is the AROP rate (i.e. the risk of being in a situation of income poverty)<sup>17</sup>.

**Overall, the AROP rate among older people continues to grow.** Having fallen between 2012 and 2014, the AROP rate for those aged 65+ has been increasing since then, except for a slight fall in 2021 probably linked to the COVID-19 crisis (see Section 4.1), and reached 17.3 % in 2022 (see Figure 4)<sup>18</sup>. In 2012, the risk was 14.2 % among those aged 65+ and 16.5 % among the working-age population (18-64). In 2022, the latter fell to 15.3 %, and was lower than the risk in old age. The AROP rate of the oldest (those aged 75+) has followed the same trend as the risk for all those aged 65+, being generally higher than the latter by around 1 percentage point (pp) (1.5 pp since 2020) (see also Section 1.3).

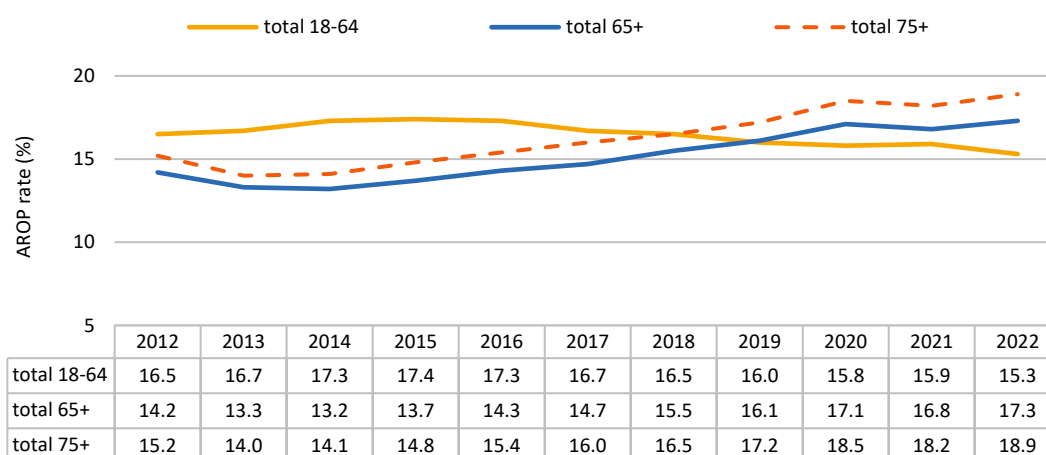
<sup>16</sup> i.e. the AROP and SMSD rates (see Box 1).

<sup>17</sup> Defined as having an equivalised income below the threshold of 60 % of the median equivalent income of the whole population. The equivalised disposable income equals the total income of a household, corrected for the number and age category of its members; see

[https://ec.europa.eu/eurostat/statistics-explained/index.php/Glossary:Equivalised\\_disposable\\_income](https://ec.europa.eu/eurostat/statistics-explained/index.php/Glossary:Equivalised_disposable_income).

<sup>18</sup> Note that 2022 figures are based on the 2021 income situation, and 2021 figures on that in 2020.

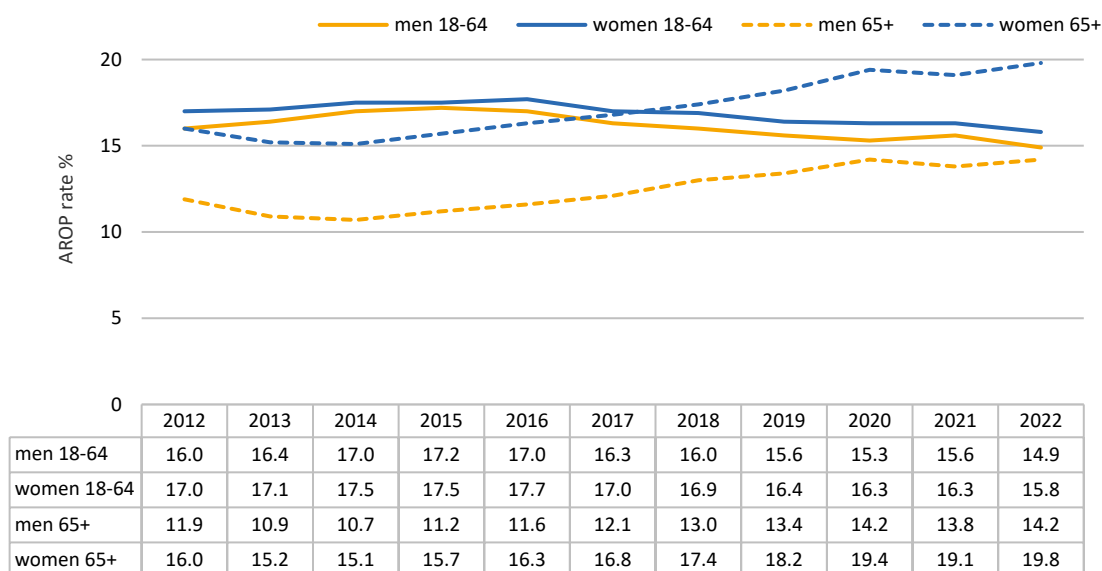


**Figure 4: At-risk-of-poverty (AROP) rate by age group, 2012-2022, EU-27**

Notes: Breaks in series affect 2020 data. 2012-2018: estimated. Last updated 2 February 2024. Cut-off point: 60 % of median equivalised income after social transfers.

Source: Eurostat ([ilc\\_li02](#)).

**The 10-year trend is also similar for women and men aged 65+, although the difference between the two has increased over the years, to reach 5.6 pp in 2022 (from 4.1 pp in 2012).** This growing difference between women and men aged 65+ is the main driver of a higher poverty risk overall for older people than the working-age population since 2019. Indeed, older men display an AROP rate lower than that of working-age men and women, as shown in Figure 5 below, while older women have the highest AROP rate among the four groups since 2018.

**Figure 5: At-risk-of-poverty (AROP) rate by age group, women and men, 2012-2022, EU-27**

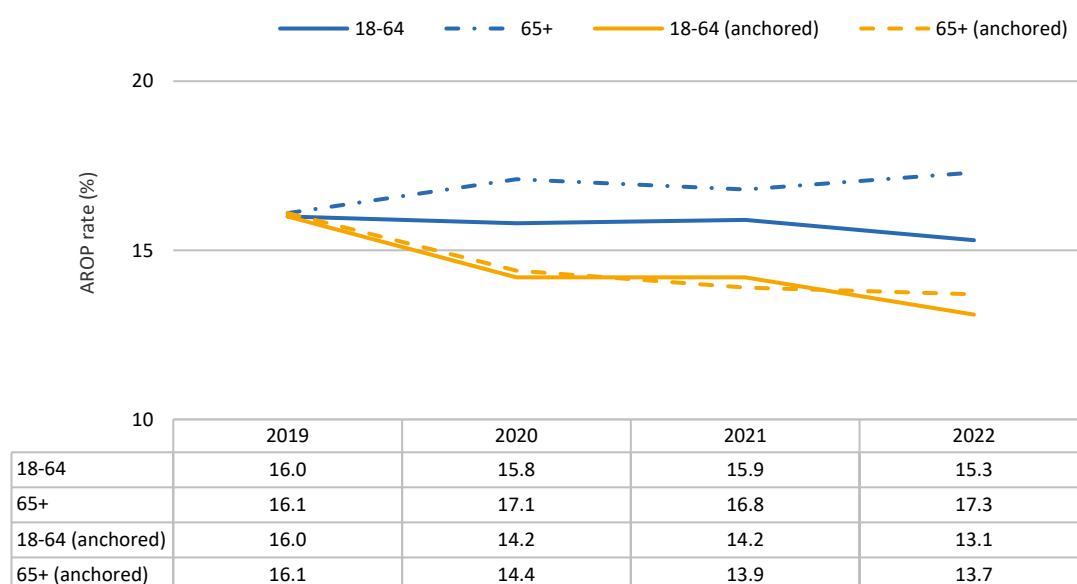
Notes: Breaks in series affect 2020 data. 2012-2018: estimated. Last updated 2 February 2024. Cut-off point: 60 % of median equivalised income after social transfers.

Source: Eurostat ([ilc\\_li02](#)).

**The difference between age groups is partly driven by the fact that the relative poverty rates (as well as relative income) of older people tend to be counter-cyclical, less affected**

by crises (such as the COVID-19 pandemic) than that of the working-age population<sup>19</sup>. The poverty rate depends on the income position relative to a poverty line, which also moves with the global income situation of a population. When looking more closely at the recent (crises) past, it is therefore interesting to complement the analysis with an indicator of poverty risk that is anchored to 2019 poverty thresholds<sup>20</sup>. The anchored measure shows a fall in monetary poverty between 2019 and 2022 for both the working-age and older population (see Figure 6), and a narrower gap between the two age groups. This difference between the two indicators (using 2019 and 2022 poverty thresholds), in particular for those aged 65+, suggests that older people's income (i.e. primarily pensions) has continued growing, but more slowly than the median income and the poverty thresholds linked to it. Hence, the share of older people below the poverty threshold has increased<sup>21</sup>.

**Figure 6: At-risk-of-poverty (AROP) rates by age group, 2019-2022, EU-27**



Notes: Cut-off point: 60 % of median equivalised income after social transfers. Last updated 2 February 2024.

Source: Eurostat ([tesov092](#)).

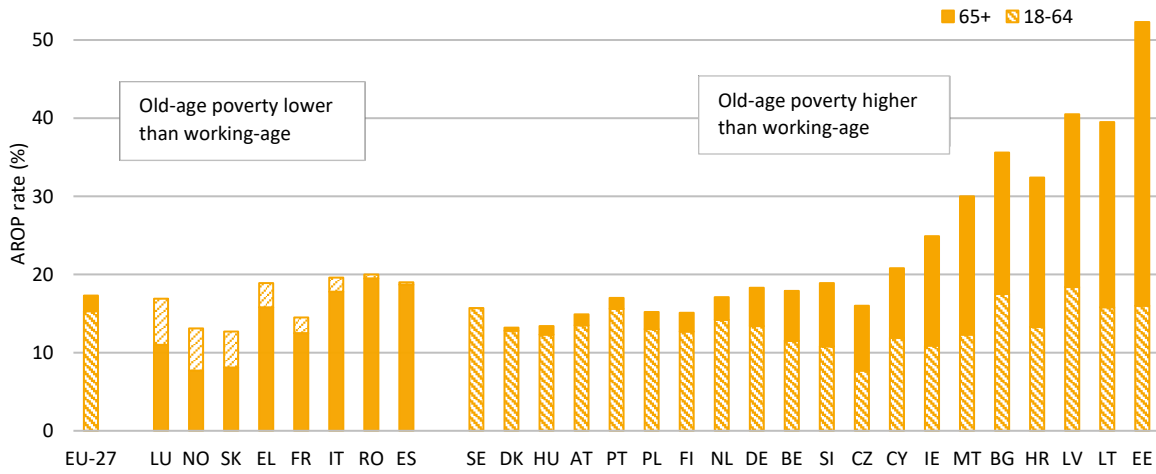
**Back to the 2022 situation, Figure 7 compares the AROP rates for working-age and older people at national level.** There is a variety of national patterns, with only a slight difference on average between the poverty risks of the two age groups in the EU. However, AROP rates in old age can be around 2 or 3 times as high as those for the working-age population in some countries, mainly in central and eastern Europe.

<sup>19</sup> As already reflected in PAR2018 and PAR2021.

<sup>20</sup> In this case, the poverty threshold for each year is calculated based on the 2019 income level and adjusted for inflation. See the Eurostat article dedicated to early estimates of income inequalities: [https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Early\\_estimates\\_of\\_income\\_inequalities#High\\_inflation\\_had\\_a\\_negative\\_impact\\_on\\_households\\_E2.80.99\\_income\\_in\\_real\\_terms](https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Early_estimates_of_income_inequalities#High_inflation_had_a_negative_impact_on_households_E2.80.99_income_in_real_terms).

<sup>21</sup> In Belgium, for instance, the unexpected increase in the old-age AROPE and AROP rates has been attributed to this effect by the Study Commission on Ageing, which showed that the poverty threshold has increased more strongly than the minimum pension and income guarantee for older people (see Volume II of the present report).

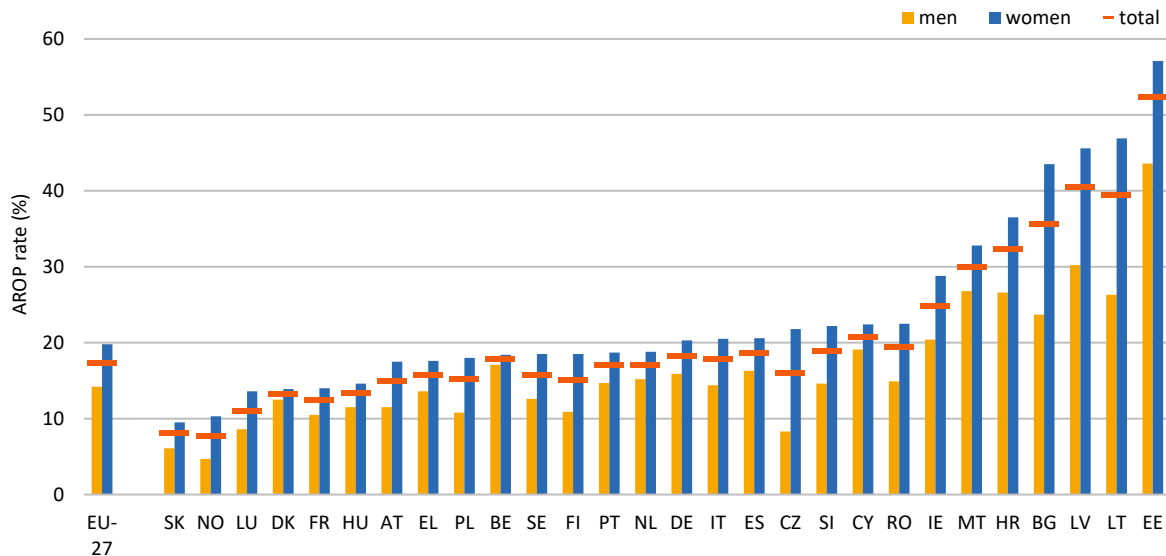
**Figure 7: At-risk-of-poverty (AROP) rate by age group, 2022, EU-27 Member States and Norway**



Notes: Values are the same for both age groups for SE, and virtually the same for ES. Last updated 2 February 2024.  
Source: Eurostat ([ilc\\_li02](#)).

**Older women face a higher poverty risk than men in all countries** (see Figure 8). The difference in AROP rates between men and women can be substantial, both in countries where the overall AROP rate is the highest (EE, LT, LV and BG) and in those where the overall rate is closer to the EU-27 average (or even lower), such as Czechia, Romania, Slovenia and Finland<sup>22</sup>.

**Figure 8: At-risk-of-poverty (AROP) rate of women and men aged 65+, 2022, EU-27 Member States and Norway**

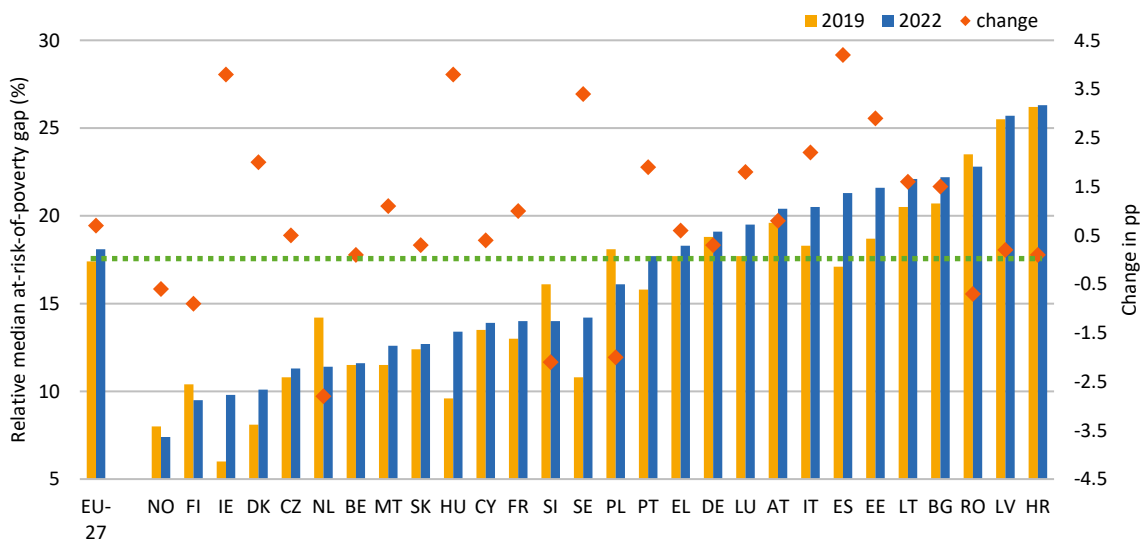


Note: Last updated 2 February 2024.  
Source: Eurostat ([ilc\\_li02](#)).

<sup>22</sup> The gender gap in income is further analysed in Sections 4.2 and 4.4 of the present report.

**The depth of poverty in old age, as measured by the poverty gap<sup>23</sup>, increased in the EU over the decade 2012-2022.** The poverty gap is the distance between the median income of those AROP and the poverty threshold. It increased from 15.9 % in 2012 to 18.1 % in 2022 among older people in the EU-27. It increased steadily after 2015 (except for a slight 0.1 pp fall in 2022), indicating that the average person AROP is now further below the poverty threshold. This widening gap indicates an increase of inequality at the bottom end of the income distribution, though it remains smaller than the gap among the working-age population (18-64), which was 25.7 % in 2022<sup>24</sup>.

**Figure 9: Relative median at-risk-of-poverty gap of people aged 65+, 2019-2022, EU-27 Member States and Norway**



Notes: Ranked by 2022 level. Last updated 2 February 2024.

Source: Eurostat ([ilc\\_pns5](#)). Breaks in series affect 2020 data in DK, DE, IE, FR and LU, 2021 data for LU and 2022 data for FR and LU. 2019 data for LU are set at the same level as in 2020.

Over the three years from 2019 to 2022, the poverty gap in old age slightly increased on average (from 17.4 % to 18.1 %), but with a strong diversity between countries. Most countries saw a peak in 2020. In 2022, the poverty gap varied between 7.4 % in Norway and 9.5 % in Finland, and 26.3 % in Croatia (see Figure 9). It increased in most countries, including in some countries where it was already above the EU average. For instance, it fell by 2.8 pp in the Netherlands (the biggest fall) and increased by 4.2 pp in Spain, and by 2.9 in Estonia, reaching 21.6 % in 2022. While there is no clear correlation between the income poverty rate and the poverty gap, the situation will be more of a concern in countries where both the poverty rate and the poverty gap are high, as is the case in Estonia, Latvia, Lithuania, Bulgaria and Croatia.

<sup>23</sup> The relative median AROP rate gap is calculated as the difference between the median equivalised disposable income of people below the AROP threshold and the AROP threshold, expressed as a percentage of the AROP threshold (cut-off point: 60 % of national median equivalised disposable income). Source: Eurostat ([ilc\\_pns5](#)).

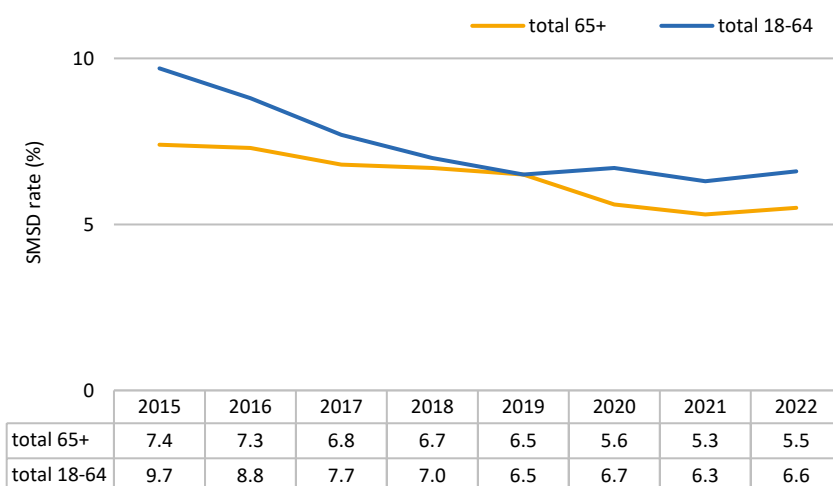
<sup>24</sup> Source: Eurostat ([ilc\\_li11](#)).

### 1.2.3 Material and social deprivation in old age

The deprivation rate indicates the proportion of people who cannot afford certain goods, services or social activities. Unlike income poverty, it is an absolute poverty measure that describes the living standards of households without comparing them with a relative threshold. Deprivation can be measured at different levels of severity, described further in this section.

As explained in Box 1, the second component of the AROPE indicator is the severe material and social deprivation (SMSD) rate<sup>25</sup>. **Unlike the AROP rate, since 2015<sup>26</sup> the overall risk of SMSD has clearly fallen, to reach 5.5 % for older people in 2022** (despite a slight year-on-year increase in 2022: see Figure 10). The overall SMSD rate in old age varies significantly between countries, ranging from 0.4 % in Luxembourg (although with a break in the data series) to 25.8 % in Romania<sup>27</sup>.

**Figure 10: Severe material and social deprivation in old age and working age, %, 2015-2022, EU-27**



Notes: Breaks in series affect 2020 data in DE, IE, FR and LU, 2021 data for LU, and 2022 data for FR and LU. Last updated 2 February 2024.

Source: Eurostat ([ilc\\_mdsd11](#)).

For this report, the ‘broader’ material and social deprivation (MSD) rate is analysed further. Indeed, as this indicator is based on a less restrictive definition of deprivation<sup>28</sup> it avoids

<sup>25</sup> The rate of severe material and social deprivation (SMSD) is an indicator that distinguishes between individuals who cannot afford certain goods, services or social activities. It is defined as the proportion of the population experiencing an enforced lack of at least seven out of 13 deprivation items (six related to the individual and seven related to the household). List of items at household level: (1) capacity to face unexpected expenses; (2) capacity to afford a one-week annual holiday away from home; (3) capacity to cope with being confronted with payment arrears (on mortgage or rental payments, utility bills, hire purchase instalments or other loan payments); (4) capacity to afford a meal with meat, chicken, fish or vegetarian equivalent every second day; (5) ability to keep home adequately warm; (6) access to a car/van for personal use; and (7) ability to replace worn-out furniture. List of items at individual level: (1) having internet connection; (2) replacing worn-out clothes by some new ones; (3) having two pairs of properly fitting shoes (including a pair of all-weather shoes); (4) spending a small amount of money each week on oneself; (5) having regular leisure activities; and (6) getting together with friends/family for a drink/meal at least once a month.

<sup>26</sup> First available year from the European Union statistics on income and living conditions (EU-SILC).

<sup>27</sup> Source: Eurostat ([ilc\\_mdsd11](#)).

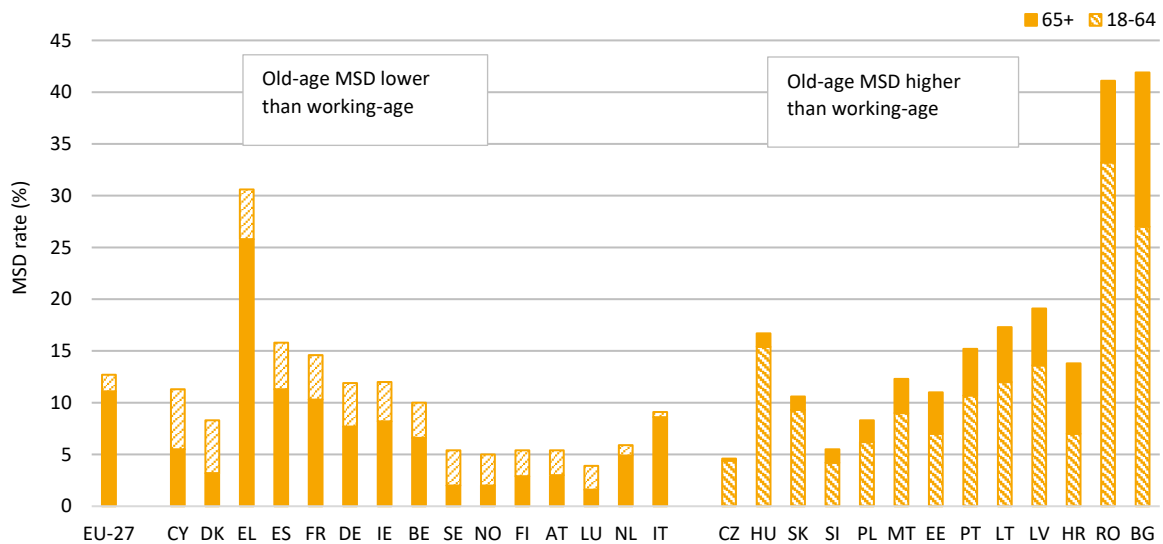
<sup>28</sup> i.e. lacking five (instead of seven for SMSD) among the 13 items listed in footnote 25.

reducing further the sample size of the survey compared with the total population, and therefore is deemed more robust for the analysis of old-age sub-groups. This indicator is also one of the outcome indicators used in the SPC benchmarking framework on pension adequacy<sup>29</sup>.

**The MSD rate follows the same falling trend as SMSD since 2015.** The working-age and old-age groups display the same path for both deprivation indicators<sup>30</sup>, albeit at the higher MSD levels (from 14.8 % in 2015 to 11.1 % in 2022 for older people, with a steeper fall from 2019 and a slight increase again in 2022; from 17.8 % to 12.7 % for working-age people, albeit with year-on-year increases in 2020 and 2022). It remains to be seen what impact the current cost-of-living crisis (see Section 4.1) will have on the deprivation rates in the coming years.

The relation between deprivation in old age and in working age is also largely similar for both indicators. **The MSD rate is lower in old age than in working age in about half the countries and in the EU on average** (see Figure 11).

**Figure 11: Material and social deprivation in old age and working age, %, 2022, EU-27 Member States and Norway**



Note: Last updated 2 February 2024.

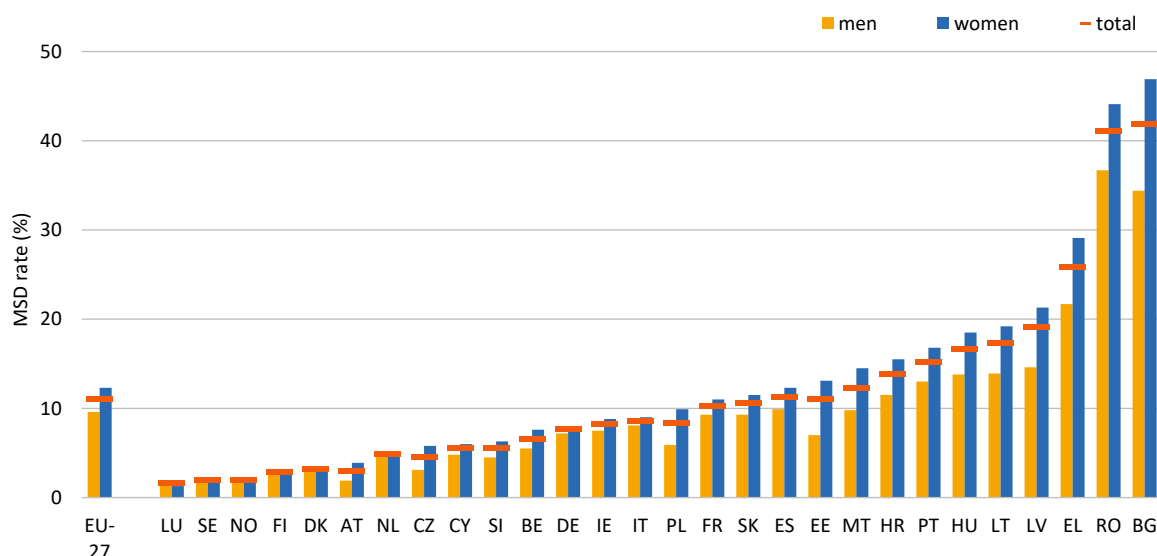
Source: Eurostat ([ilc\\_mdsd07](#)).

**The deprivation rate in old age is higher for women than for men in all Member States,** with an average difference of 2.7 pp in the EU (see Figure 12). In 2022, there were around 2.5 times more older women than men living as single people in the EU-27, and their average age was also much higher, which may partly explain this difference<sup>31</sup>. In working age, the difference between men and women has fluctuated between 1 and 1.7 pp since 2015.

<sup>29</sup> See information on the Commission’s monitoring and benchmarking frameworks at: <https://ec.europa.eu/social/main.jsp?catId=1538&langId=en>.

<sup>30</sup> Source: Eurostat ([ilc\\_mdsd07](#) and [ilc\\_mdsd11](#)).

<sup>31</sup> Source: Eurostat ([lfst\\_hhindws](#)), Labour Force Survey.

**Figure 12: Material and social deprivation in old age, %, women and men, 2022, EU-27 Member States and Norway**

Note: Last updated 2 February 2024.

Source: Eurostat ([ilc\\_mdsd07](#)).

### 1.3 Income maintenance in old age

This section discusses the second dimension of pension adequacy: the capacity of pension systems to maintain income in old age (i.e. to replace income earned before retirement). First of all, the extent to which income is maintained in old age can be proxied by a comparison of the income situation of older people (65+) with that of younger people, for instance people of working age (18-64); it is measured as the ‘relative median income ratio’. Second, as the aim is to assess the ‘income transition’ around retirement age, an alternative measure of this second dimension is to compare the median pension income of people aged 65-74, who are assumed to have retired more recently, with the median work income of people aged 50-59 (i.e. in late career). This measure is called the aggregate replacement ratio (ARR). Third, to explore income inequality among older people, this section discusses the income quintile ratio (S80/S20 ratio), an indicator that compares the income received by the 20 % of the country’s population with the highest income with that received by the 20 % of the country’s population with the lowest income. Further aspects of income maintenance are explored in Chapter 3 of the present report, which discusses the different cases of the projected theoretical replacement rates (TRRs, briefly introduced in this section), and in Chapter 4, which further explores gender inequalities and the impact of socio-economic variables on income maintenance in old age.

### 1.3.1 Relative incomes of older people

The relative income ratio allows us to compare the (median equivalised disposable) income in old age with that in working age. It takes into account income from all sources, for all people aged 65+ and for all people aged 18-64<sup>32</sup>.

**The income of older people in the EU remains below 90 % of working-age income on average, with significant differences between women and men as well as among countries.**

Over the 10 years 2012-2022, the relative income ratio in the EU-27 fell from 91.5 % by 5.3 pp (see Figure 13). The dynamic follows a path that mirrors that of the AROP rate (see Section 1.2), with a peak in 2014 before a steady fall until 2022. This trend was only interrupted by the temporary increase in 2021 (i.e. income in 2020, the first year of the COVID-19 crisis), when the income of older people increased more quickly than that of working-age people, pointing to the fact that old-age income is more stable when crises occur<sup>33</sup>. Over the whole period 2012-2022, the income of people aged 65+ slightly increased on average, but the income of working-age people increased more. In 2022, the median disposable income of those aged 65+ was 86.3 % of the income of those aged 18-64 (90 % for men and 83.9 % for women).

**The gap between the relative income ratios of men and women narrowed between 2012 and 2022 (from almost 8 to 6 pp),** except for the temporary 2021 jump. It is important to recall, though, that women's working-age income is already lower than men's. Hence, the gap in the relative income ratio indicates that on average this difference is further exacerbated in old age (see also Sections 4.2 and 4.4)<sup>34</sup>.

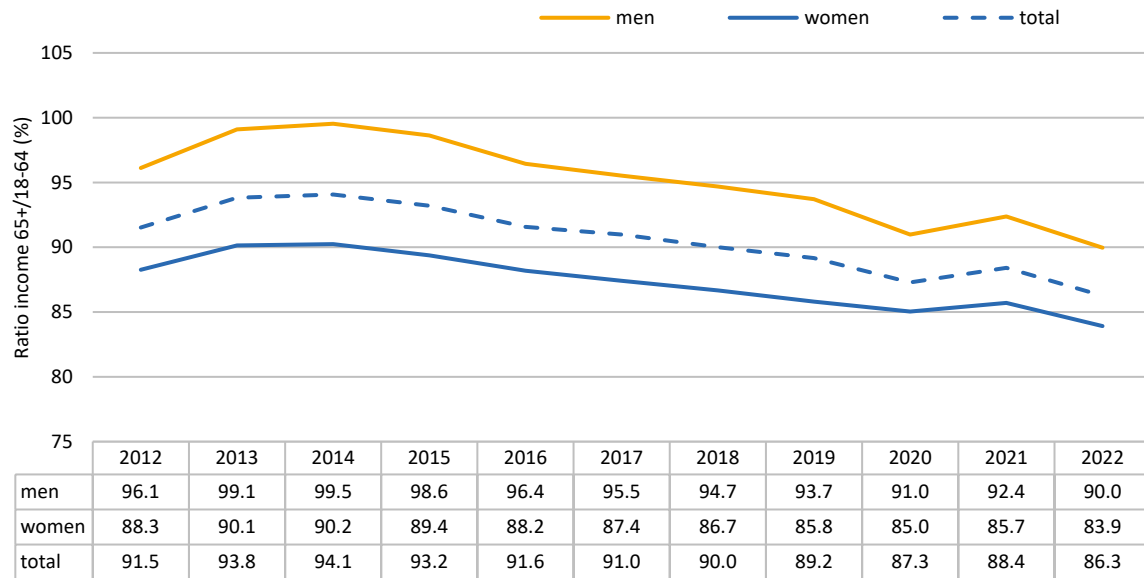
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<sup>32</sup> As for other EU-SILC measures of income, it concerns only people in private households, and values from survey in year  $t$  relate to income situation in year  $t-1$ .

<sup>33</sup> The impact of a higher 'excess mortality' rate in old age could also affect the median income of this age group (see also Section 4.1).

<sup>34</sup> PAR2021 (European Commission (2021a) (Section 1.2) also observed the key effect of education levels in income differences, both between age groups and between women and men.



**Figure 13: Relative income 65+/18-64, %, women and men, 2012-2022, EU-27**

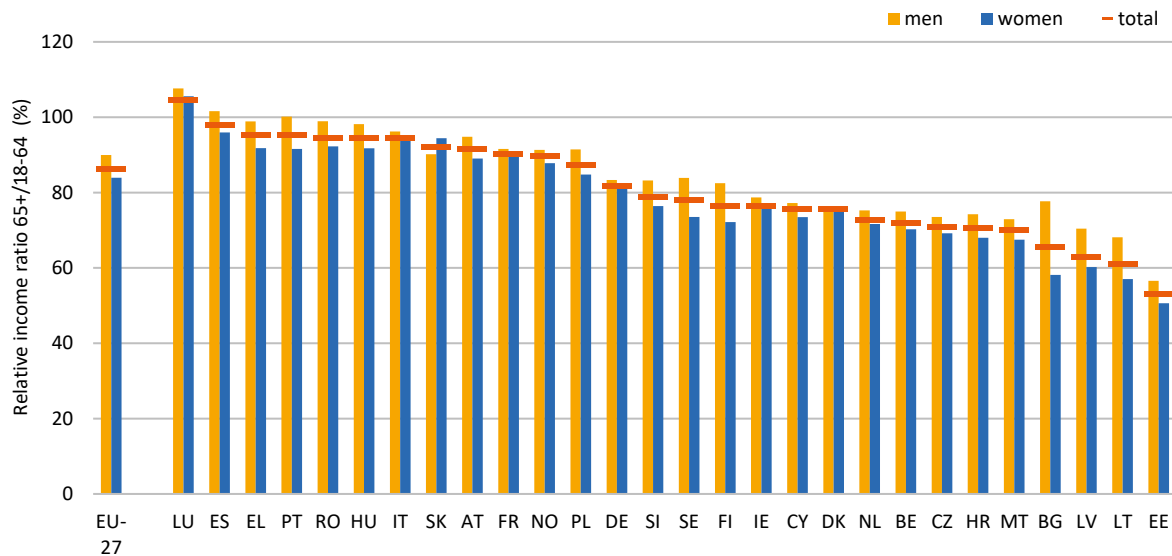
Notes: Breaks in series affect underlying 2020 data. Estimates for 2012-2019. Last updated 2 February 2024.

Source: Eurostat ([ilc\\_di03](#)).

**The relative income ratio varies significantly across countries** (see Figure 14). In 2022, it ranged from 53 % in Estonia to values above 90 % in 10 countries (including over 100 % in Luxembourg). When comparing the ratio between men and women, we see that it is lower for women in Norway and in all EU Member States except Slovakia. The ratios for men and women are relatively close in most countries, with the largest differences (more than 10 pp) observed in Bulgaria, Lithuania, Sweden, Finland and Latvia. Since the indicator is based on the median income of the household, it is affected by the share of older women living in single households, as their median income is generally lower<sup>35,36</sup>.

<sup>35</sup> For instance, in Bulgaria the share of older women living in single households is relatively high (25 % of the older population) and the share of women of working age living in a single household relatively low (5.5 % of this age group). Furthermore, older Bulgarian women are over-represented among recipients of invalidity and survivors' pensions, typically providing lower benefits than the average old-age pension (see also the country fiche on Bulgaria, in Volume II of the present report). In Slovakia, the share of women (and of men) living in a single household is the lowest in the EU in each age group, and the ratio is also over 90 % for both women and men.

<sup>36</sup> Sections 4.2 and 4.4 explore inequalities between women and men in more detail.

**Figure 14: Relative income ratio 65+/18-64, %, women and men, 2022, EU-27 Member States and Norway**

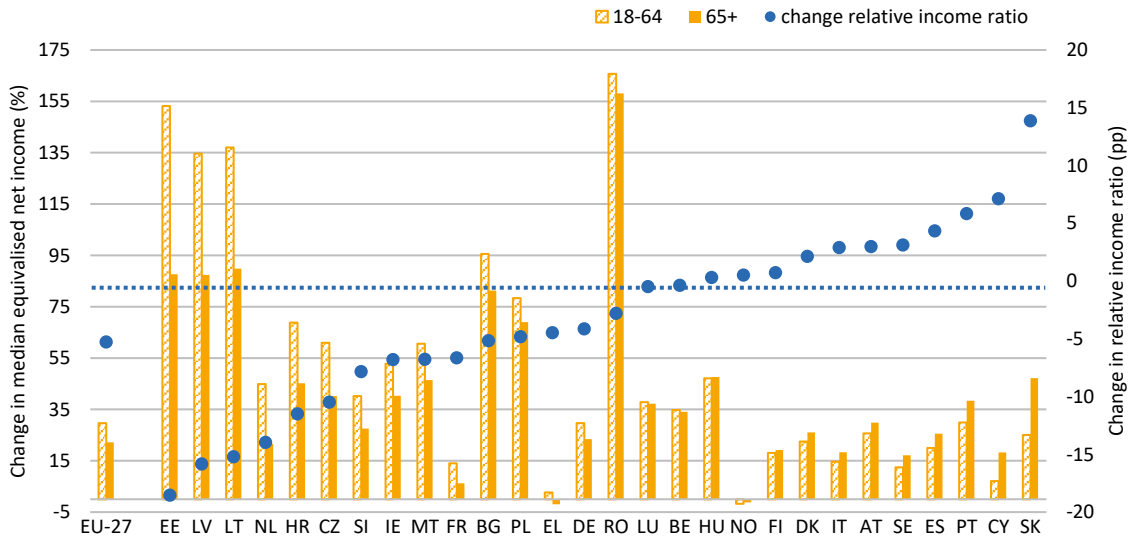
Notes: Breaks in series affect 2022 data in FR and LU. Ranked by decreasing total ratio. Last updated 2 February 2024.

Source: Eurostat ([ilc\\_di03](#)).

**Over the decade 2012-2022, the increase in median income was higher in working age than in old age in most countries and in the EU on average** (see Figure 15). The resulting fall in the relative median income ratio was particularly pronounced in the Baltic States and the Netherlands. At the same time, in 10 Member States the relative income ratio increased, for instance in Slovakia (especially for older women, whose relative income ratio was higher than men's after 2021), in Cyprus and in Sweden (slight increase)<sup>37</sup>.

<sup>37</sup> Source: Eurostat ([ilc\\_di03](#)).

**Figure 15: Median equivalised net income and relative income ratio, change 2012-2022, 18-64 and 65+, EU-27 Member States and Norway**



Notes: Breaks in series affect underlying data in 2014 for EE, 2016 for BG, LU and NL, 2019 for BE, 2020 for EU-27, DK, DE, IE, FR and LU, 2021 for LU, and 2022 for FR and LU. Last updated 2 February 2024.

Source: Eurostat ([ilc di03](#)).

### 1.3.2 Pensions as income replacement

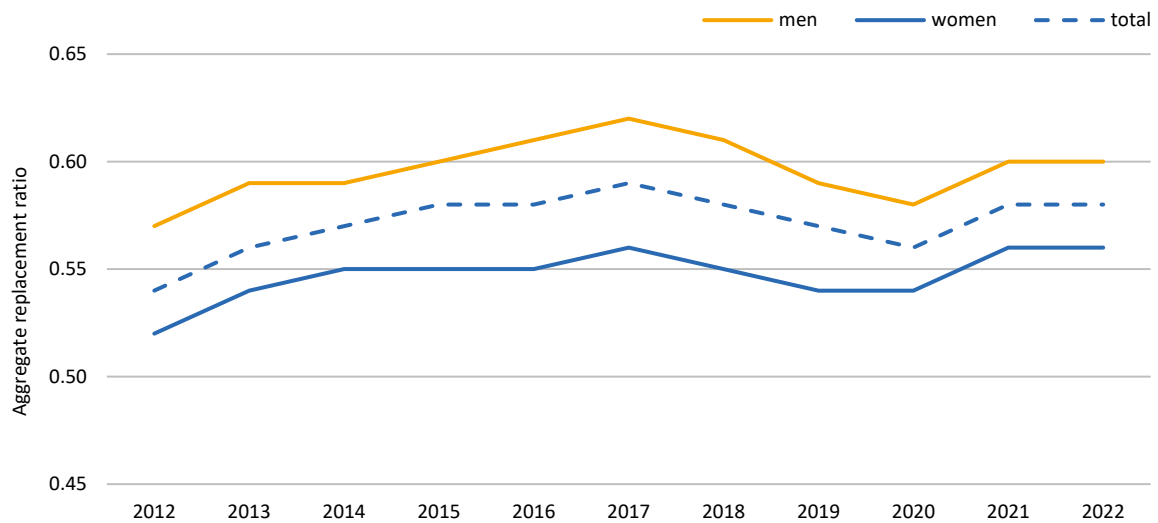
The second measurement reported here is the aggregate replacement ratio (ARR)<sup>38</sup>. It compares the pension income in the first years of retirement (ages 65-74) with the work earnings in late working years (for those aged 50-59)<sup>39</sup>. The incomes of both age groups are measured in the same year, and thus they refer to two separate 10-year cohorts<sup>40</sup>.

**Pension benefits for people aged 65-74 amount on average to around three fifths of the work income of those aged 50-59.** Over the 10 years 2012-2022, the ARR in the EU-27 slightly increased, from 0.54 in 2012 to 0.58 in 2022, with a maximum of 0.59 in 2017 (see Figure 16). Like old-age income poverty and relative income indicators, ARR is broadly counter-cyclical, albeit with a time lag compared with the former. The ratio was increasing until 2017, then fell slightly until 2020 before increasing again in 2021. The difference between men and women also slightly increased (to 6 pp) up until 2017, then narrowed to 4 pp in 2020 as the ratio for women was falling slightly less rapidly than for men.

<sup>38</sup> The ARR is the 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; see [Eurostat](#). Pension income (EU-SILC) covers old-age benefits and survivor benefits from public or mandatory schemes, and pensions from individual private plans. Work income (EU-SILC) includes income from wage and salary employment and income from self-employment.

<sup>39</sup> As a side note, the ARR tends to be lower than the relative income ratio for several reasons. The ARR only considers pension income, while the income ratio above includes all income sources; people in late career tend to have higher pay (thus higher pension entitlements), while the income ratio considers all working-age people; the ARR is based on gross income, while the tax treatment tends to be more advantageous for pensions than for work-related income (see also PAR2021, Section 1.2).

<sup>40</sup> It is not straightforward to identify the different effects at play in the ARR developments. For instance, the share of part-time (female) workers (those aged 50-59) affects the ARR positively, as the denominator is reduced whereas pensions are partly compensated by credits.

**Figure 16: Aggregate replacement ratio for pensions (excluding other social benefits), women and men, 2012-2022, EU-27**

Notes: Breaks in series affect underlying 2020 data. Estimates for 2012-2019. Last updated 29 September 2023.

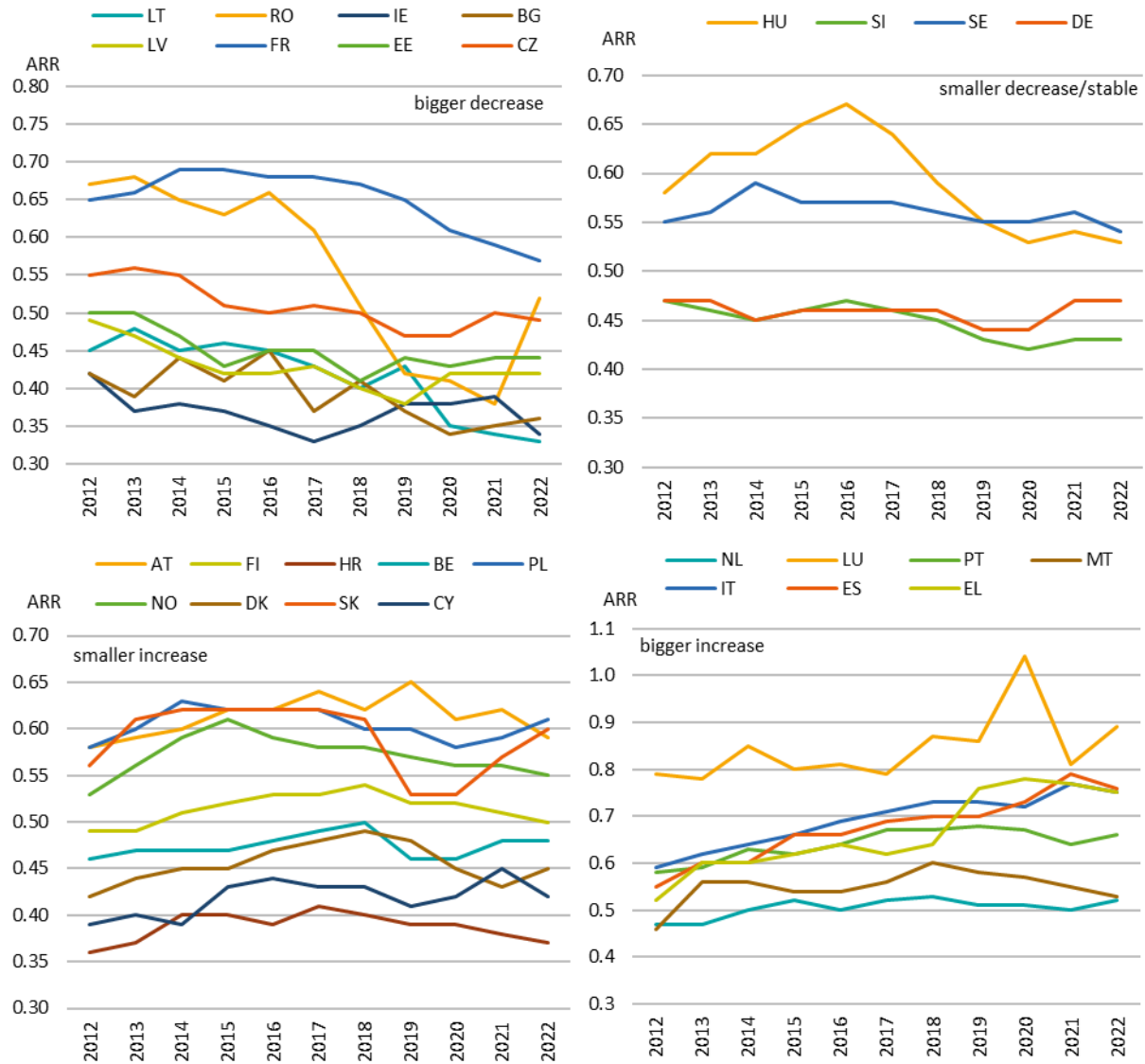
Source: EU-SILC Survey, Eurostat ([ilc\\_pnp3](#)).

**Looking beyond the EU level to individual countries, however, reveals a wide range of situations, both in the change over time of the indicator, and in the difference between women and men<sup>41</sup>.** Indeed, over the period 2012-2022, the ARR increased in more than half of the Member States and in Norway, while it fell by 10 % or more in eight Member States, and with very diverse paths (see Figure 17)<sup>42</sup>.

<sup>41</sup> Source: EU-SILC Survey, Eurostat ([ilc\\_pnp3](#)).

<sup>42</sup> In Romania for instance, the ARR fell strikingly between 2016 and 2019, and continued falling until 2021 before rising in 2022. Over the same period, the relative income ratio followed the same path, as the working-age median income increased much more quickly than the median income in old age, but at a smoother pace than the ARR. Source: Eurostat ([ilc\\_di03](#), [ilc\\_pnp3](#)).

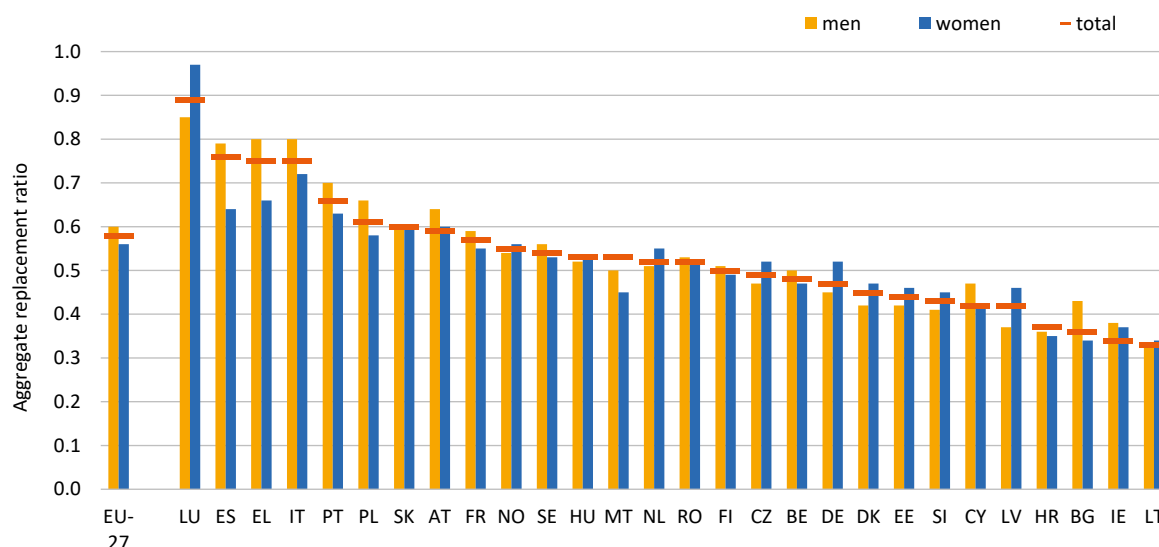
**Figure 17: Aggregate replacement ratio (ARR), 2012-2022, EU-27 Member States and Norway**



Notes: Breaks in series affect underlying data in 2014 for EE, 2016 for BG, LU and NL, 2019 for BE, 2020 for EU-27, DK, DE, IE, FR and LU, 2021 for LU and NO, and 2022 for FR and LU. Last updated 2 February 2024.  
 Source: Eurostat ([ilc\\_pmp3](https://ec.europa.eu/eurostat/tgm/table.do?tab=table&init=1&language=en&plugin=1)).

The level of the ratio in 2022 ranged from less than 0.40 in Lithuania, Ireland, Bulgaria and Croatia to 0.75 and more in Greece, Italy, Spain and Luxembourg (see Figure 18). In nearly two thirds of the Member States, the ARR for men was higher than that for women<sup>43</sup>.

<sup>43</sup> Sections 4.2 and 4.4 further analyse gender differences (including the GPG) and their possible underlying effects. Moreover, country fiches in Volume II of the present report include information on the different trends and factors at play in national contexts.

**Figure 18: Aggregate replacement ratio (ARR) for pensions (excluding other social benefits), women and men, 2022, EU-27 Member States and Norway**

Notes: Breaks in series affect underlying 2022 data in FR and LU. Last updated 2 February 2024.

Source: EU-SILC Survey, Eurostat ([ilc\\_pmp3](#)).

### 1.3.3 Income inequality in old age

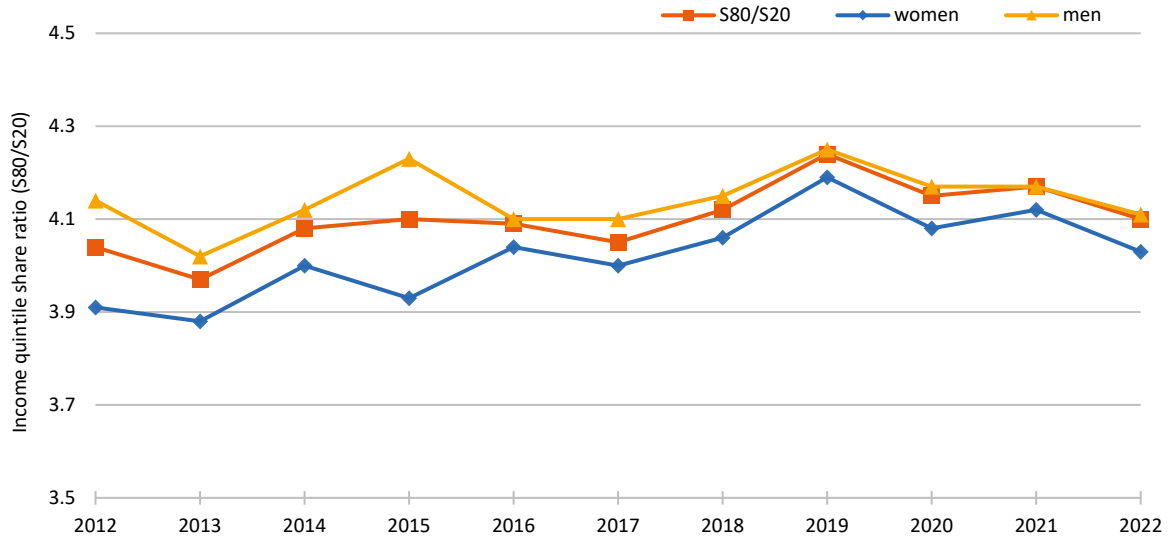
The distribution of income among older people is the third key dimension when assessing how pensions achieve income maintenance in old age. This section studies inequality among people aged 65+, measured by the income quintile ratio (S80/S20 (See Section 1.3)).

**Between 2012 and 2022, income inequality among those aged 65+ slightly increased overall, reaching its highest value in 2019 (Figure 19). In the last three years, though, inequality receded, possibly reflecting the impact of the widespread measures to protect lower-income pensioners<sup>44</sup>. In 2022, the disposable income of those in the top income quintile was on average 4 times the income of those in the bottom quintile of the EU-27 income distribution. Income inequality among men remains slightly greater than among women, although the difference has narrowed significantly over the last decade<sup>45</sup>. Over this time, the ratio for those aged 65+ has continuously been lower than for the under-65 group, illustrating the redistributive impact of pension and tax systems in the EU (analysed in Chapter 4 of PAR2021).**

<sup>44</sup> See Chapter 2 and Section 4.1 of the current report, as well as Chapter 2 of PAR2021 (European Commission, 2021a) (the income situation in the last three years is also affected by earlier reforms).

<sup>45</sup> The S80/S20 ratio in the 65+ age group was 4.11 for men and 4.03 for women in 2022. See also Section 4.2 of the present report.

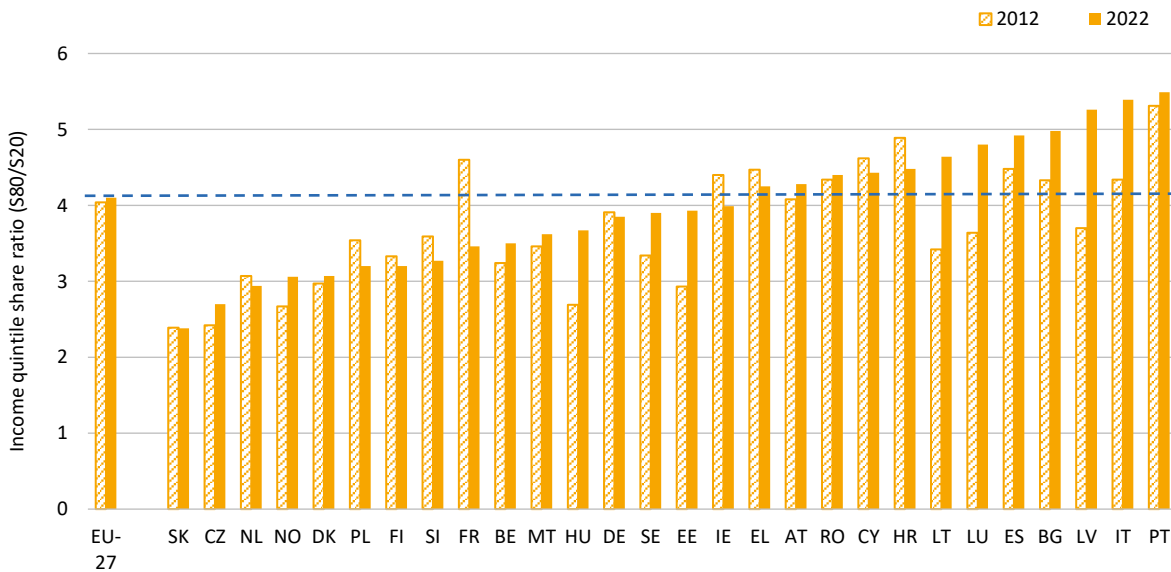
**Figure 19: Income quintile share ratio (S80/S20) for disposable income, age 65+, women and men, 2012-2022, EU-27**



Notes: Breaks in series affect underlying 2020 data. Estimates for 2014-2019. Last updated 2 February 2024.  
 Source: Eurostat ([ilc di11](#)).

While the S80/S20 inequality among those aged 65+ only slightly increased in the EU-27 as a whole, Figure 20 below shows that it fell in 11 Member States, although by less than 10 % in 10 of them. There is therefore a wide diversity among Member States and Norway over the whole period and in 2022. Indeed, the 2022 indicator ranges from around 2.4 in Slovakia and 2.7 in Czechia to 5 and more in Latvia, Italy and Portugal.

**Figure 20: Income quintile share ratio (S80/S20) for disposable income, age 65+, 2012-2022, EU-27 Member States and Norway**



Notes: Breaks in series affect underlying data in 2014 for EE, 2016 for BG, LU and NL, 2019 for BE, 2020 for EU-27, DK, DE, IE, FR and LU, 2021 for LU and NO, and 2022 for FR and LU. Last updated 2 February 2024.  
 Source: Eurostat ([ilc di11](#)).

## 1.4 Pension duration and income development after retirement

The Pension Adequacy Reports define pension duration as the third dimension of pension adequacy. It refers to the share of their lives that people spend in retirement or receiving a pension, and how their living standards evolve during that period (see Introduction).

This section therefore reflects on the latest developments in the **duration of working life** (i.e. the share of life in the labour market) and the **duration of retirement** (i.e. the share of life after leaving the labour market), complemented by trends in the employment of older workers and, as far as possible, the transition from work to retirement.

It also provides an overview of the **duration of pension payment** (i.e. the share of life after receiving the first old-age pension – which may differ from the duration of retirement, as some people start receiving pension payments before they completely leave the labour market; or vice versa). Finally, this section discusses how the adequacy of pension income changes throughout retirement (e.g. for people aged 75+) and how pension systems can support the living standards of older people throughout this period, including an overview of the existing general rules for indexing benefits.

### 1.4.1 Duration of working life and of retirement

The retirement duration can be defined as the expected lifespan spent after the exit from the labour market. As explained above, this is distinct from the duration of pension payment discussed in the next Section 1.4.2, in particular since an increasing number of Member States allow old-age benefits and working activity to be combined (see Chapter 2). For the purposes of this report, the retirement duration is based on the average exit ages that are computed for the Ageing Report<sup>46</sup>. The average exit age from employment is computed separately by country and for women and men from employment rates, for the reference age group 50-74<sup>47</sup>. The duration of retirement is then the life expectancy at that exit age<sup>48</sup>.

**In 2022, the average retired life in the EU was expected to last 21 years** (see Figure 21). It had slightly fallen since 2019, when it was 21.3 years. The COVID-19 impact on life expectancy was a driver in this fall, even if by 2022 life expectancy had almost recuperated the 2020 losses. The shortest retirement duration was expected in Bulgaria and Latvia (17.5 years), with a majority of countries close to the EU average<sup>49</sup>.

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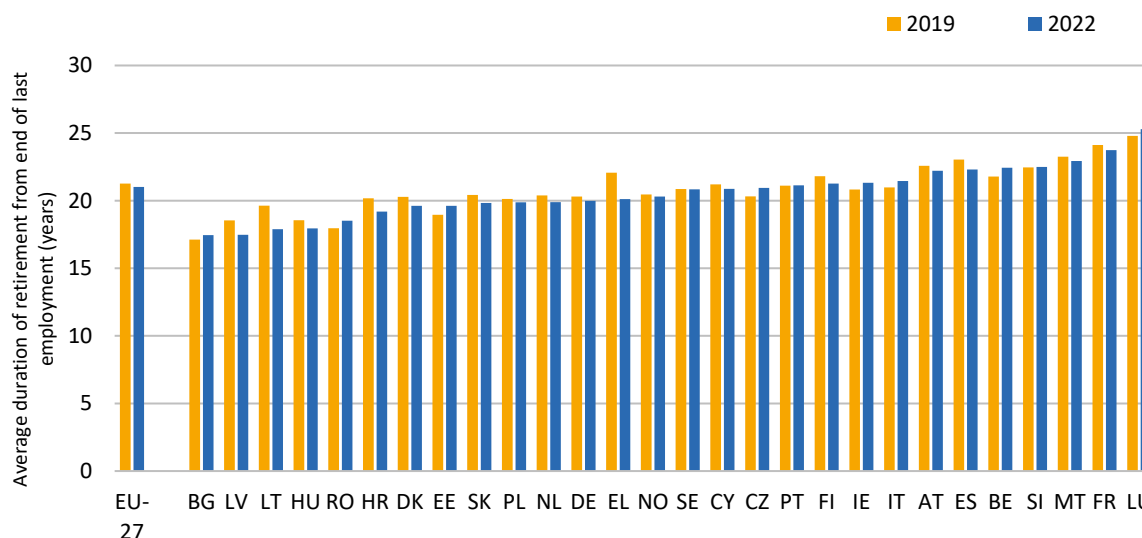
<sup>46</sup> European Commission (2023d).

<sup>47</sup> The average exit age results from the year-to-year difference in employment rates; the methodology is explained in <https://www.oecd.org/els/soc/Labour-Market-Exit-Age-Methodology.pdf>

<sup>48</sup> At the time of drafting this report, life expectancy at each single age in 2022 was not yet available from Eurostat. The rounded LE65 was therefore used to calculate the duration of retirement, correcting for the difference in months between 65 and the effective exit age. For some countries, where the effective exit age is further away from age 65, it may give rise to some over- or under-estimates in duration time (e.g. PL, LU, DK). Note that these are 2022 provisional Eurostat estimates of LE65, except for DE and IE where the data are for 2021.

<sup>49</sup> In most countries, the change in retirement duration between 2019 and 2022 seems mostly or entirely driven by the changes in LE65 and, to a lesser extent, in the average exit age.



**Figure 21: Average duration of retirement from end of last employment (in years), 2019 and 2022, EU-27 Member States and Norway**

Notes: Countries ranked by increasing duration of retirement in 2022. Working life is counted from first employment and ends when last employment ends. Latest available data for life expectancy in DE and IE are for 2021. Over this period, breaks in time series affect data in CZ, HR, IT and PT. Data on LE65 are provisional in FR (and for the EU average) for all years, in PL for 2021 and 2022, and in MT for 2022. Last updated 9 November 2023.

Source: Eurostat (demo\_mlexpec) and Ageing Report assumptions.

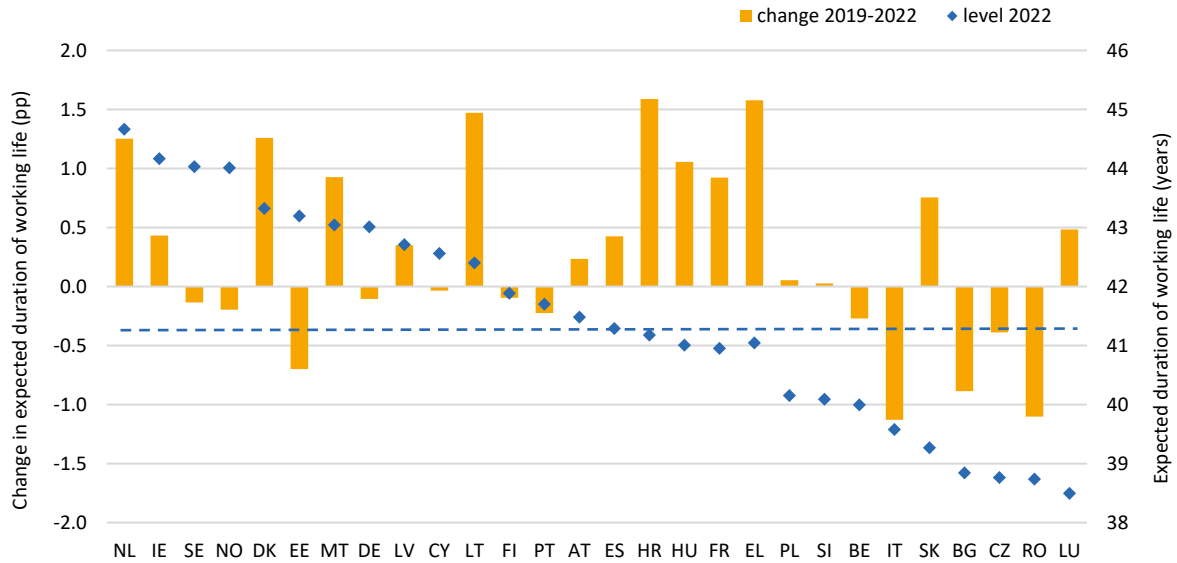
**Between 2019 and 2022 the duration of working life<sup>50</sup> increased in half of the Member States and at EU level** (see Figure 22), to reach 41.3 years in the EU on average. The estimated working life duration equals the timespan between average entry age and average exit age, and therefore ignores career breaks or unemployment spells. This average results from a diversity of national levels and recent trends (see Figure 23), as the expected duration in 2022 ranged from 38.5 in Luxembourg and 38.7 in Romania, which experienced a significant fall from 2019 to 2022<sup>51</sup>, to 44.7 years in the Netherlands, with a significant increase in the same years<sup>52</sup>.

<sup>50</sup> As defined by the EPC-AWG (i.e. as the effective exit age from the labour market minus the effective entry age). It is based on the assumptions of the 2024 Ageing Report for the 2023 average entry and exit ages, where entry age is based on the reference age group 15-30 and exit age on the reference age group 50-74. Labour market exit is the moment when a person is no longer considered employed in official statistics (not having worked for at least one hour during a short reference period). The method means that job-seekers are excluded from the measure of working-life duration.

<sup>51</sup> The reform of the special pension schemes in Romania was adopted in June 2023. There is evidence to suggest that the expected reform was a driver behind increased early retirement, as people eligible for special pensions chose to retire under the previous, more favourable, rules (see Volume II of the present report).

<sup>52</sup> Since 2015, the pensionable age has gradually risen in the Netherlands and is now at 67. The pension age rises in line with increases in life expectancy for those aged 65 (eight months for each yearly gain in life expectancy).

**Figure 22: Expected duration of working life, 2019-2022, EU-27 Member States and Norway**



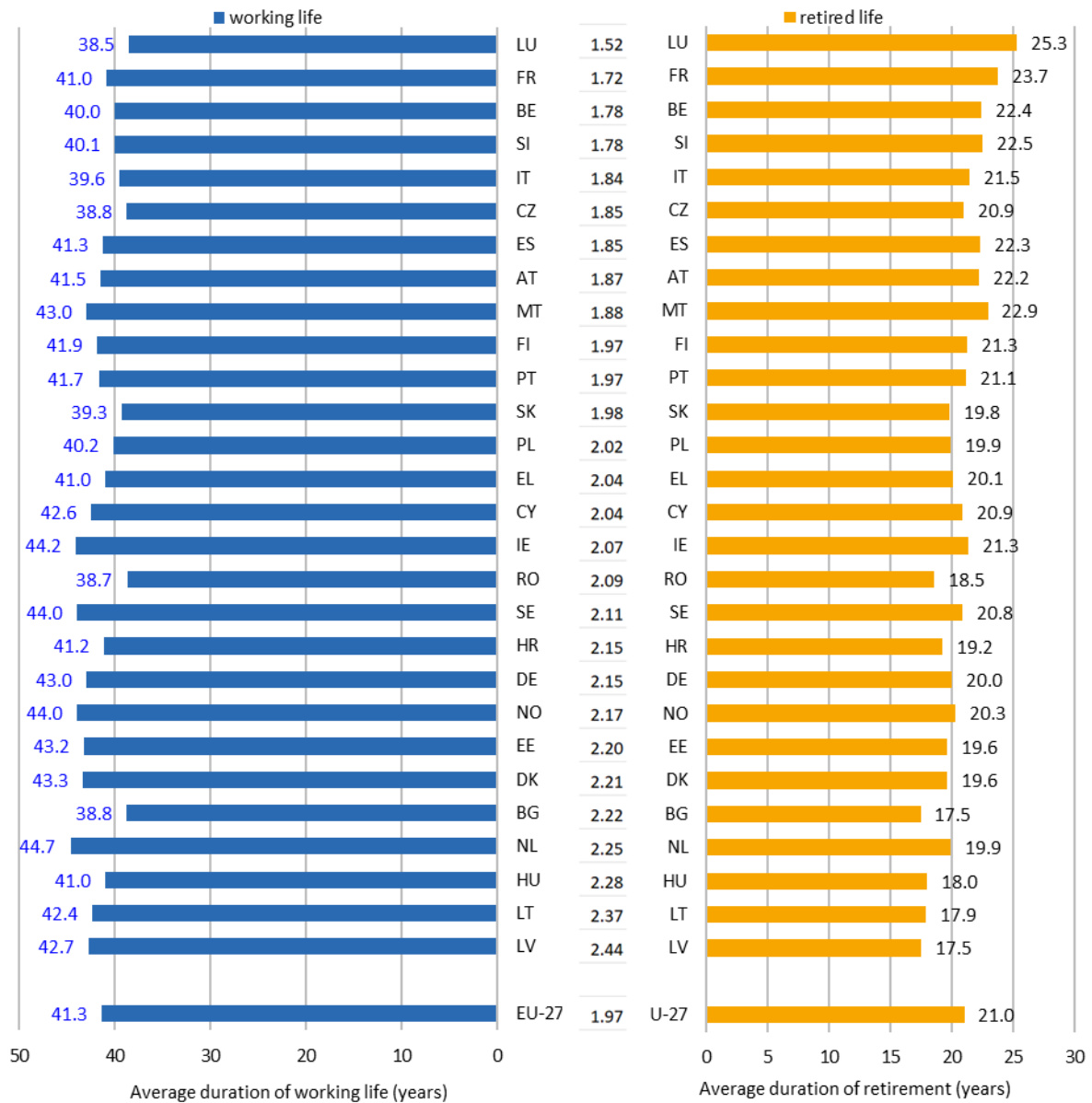
Note: The dotted line indicates the 2022 EU average duration.

Source: Ageing Report assumptions.

**The relation between duration of working life and expected duration of retirement is very diverse across the EU.** It is illustrated by Figure 23, which uses the estimates of retirement duration and of working-life duration based on average entry and exit ages<sup>53</sup>. While the average retired life in the EU is expected to last about 21 years, and working life around 41.3 years, some countries have comparatively short retirement durations coupled with long working lives, such as Latvia, Lithuania or Hungary. The Netherlands has the longest timespan between labour market entry and exit ages, namely 44.7 years. On the other hand, Luxembourg, France and Belgium combine a relatively short duration of working lives with comparatively long retired lives. In countries such as the Netherlands, Sweden, Denmark and Ireland, with basic flat-rate pensions complemented by occupational pension schemes, working lives tend to be long compared with countries with Bismarckian earnings-based public systems.

<sup>53</sup> Based on the assumptions of the 2024 Ageing Report for the 2023 average entry and exit ages.

**Figure 23: Average duration of retirement and of working life, in years, 2022, EU-27 Member States and Norway**



Notes: Countries are ranked by the (increasing) ratio of working life to retired life, which is presented in the 'column table' in the centre. Working life is counted from first employment and ends when last employment ends. Latest available data for life expectancy (women and men) in DE and IE are for 2021. Over this period, breaks in time series affect data in CZ, HR, IT and PT. Data on LE65 are provisional in FR (and for the EU average) for all years, in PL for 2021 and 2022, and in MT for 2022. Last updated 9 November 2023.

Source: Eurostat (demo\_mlexpec) and Ageing Report assumptions.

### 1.4.2 Duration of pension receipt

The duration of pension receipt, or benefit payment, is computed as life expectancy at the average age at which people receive their first old-age pension<sup>54</sup>.

**In 2022, old-age benefits were expected to be paid for 21 years on average, ranging from 15 to 25 years across the EU-27 and Norway. The figure reflects the differences in the age when people start receiving a pension and in life expectancy** (see Figure 24). The right axis of Figure 24 displays the change in years between 2019 and 2022: the average duration of pension receipt fell in most countries, and only increased significantly in Sweden. This fall may (mostly) be an effect of the COVID-19 pandemic and excess mortality, especially among older people. Luxembourg and France displayed the highest values for both men (23.6 years in LU, 22.1 in FR) and women (about 25-26 years), while women (and men) started to receive their pension benefits about one year later in France than in Luxembourg<sup>55</sup>. At the other end of the scale, Bulgaria's short duration (14 years for men and 18.9 years for women) seems to be due to the low life expectancy at pension age. In Hungary and Lithuania, the low values for men (14.3 and 14.7 years, respectively) resulted from a combination of a relatively late start of pension receipt and short life expectancy at that age. As for Denmark, it displayed the second-shortest duration for women and the shortest duration for men (16.9 years and 13.3 years, respectively), both relating to the highest average age for starting to receive an old-age pension<sup>56</sup>, but with a double caveat: (a) the life expectancy rounded estimate as explained in footnote 48; and (b) occupational pension schemes are not taken into account when determining the average age at first pension payment, whereas their inclusion would lower the average age (therefore increasing the retirement duration)<sup>57</sup>.

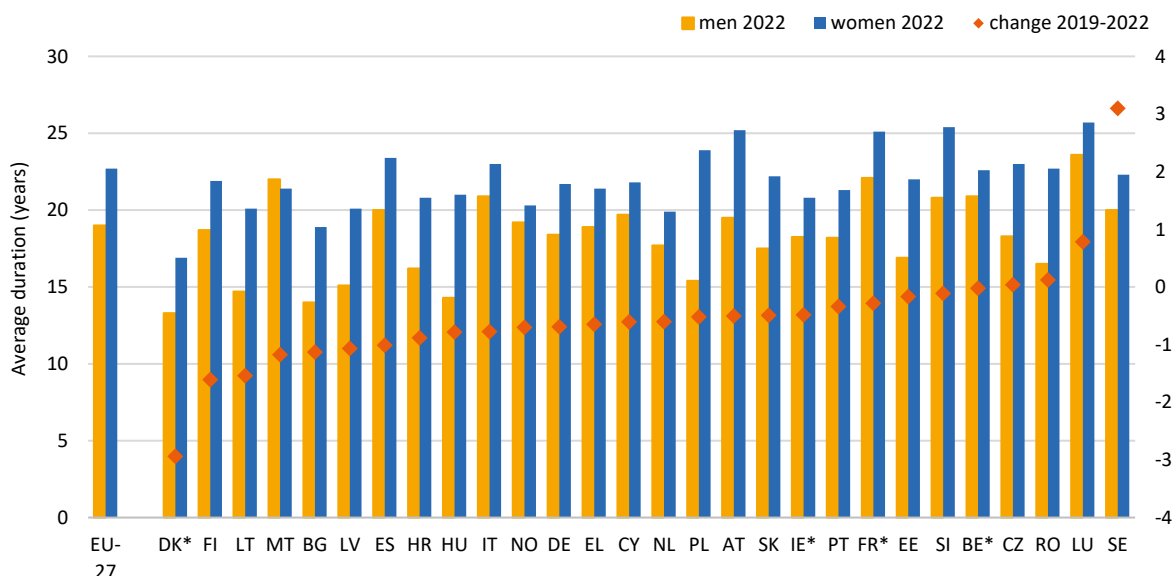
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<sup>54</sup> The data collection only covers old-age pensions, not survivors' or disability benefits. In addition, it refers to statutory public schemes. Contrary to the theoretical replacement rates (see Chapter 3), it excludes occupational pension schemes, where benefits may be paid earlier. See also footnote 48 about the use of 2022 values of life expectancy at age 65 (instead of at each single age), and the possibly resulting under/over-estimates.

<sup>55</sup> Latest data for France relate to 2021, though.

<sup>56</sup> As reported in Chapter 2, the recent pension reforms continued to be aimed at prolonging working lives, with an emphasis on incentives to defer retirement or combine work with old-age benefits.

<sup>57</sup> See also the Denmark country fiche in Volume II of the present report: '[...] *occupational and private pensions with contributions before May 1st, 2007, can be paid out at the age of 60 (5 years before the current public old-age pension age). New occupational pensions with initial contributions after January 1st, 2018 can be paid out 3 years before the old age pension age.*'

**Figure 24: Average duration of pension receipt, women and men, in years, 2022, EU-27 Member States and Norway**

Notes: \* 2021 duration data instead of 2022 (BE, DK, IE, FR). The left axis indicates the average duration for men and women in 2022, while the right axis shows the average variation between 2019 and 2022. Latest available data for life expectancy (women and men) in DE and IE are for 2021. Over this period, breaks in time series affect data in CZ, HR, IT and PT. Data on LE65 are provisional in FR (and for the EU average) for all years, in PL for 2021 and 2022, and in MT for 2022.

Source: Eurostat (demo\_mlexpec), national data on first pension receipt (collected within the Ageing Report process – last updated 9 November 2023).

### 1.4.3 Development of material situation after retirement

A key duration aspect of pension adequacy is how this adequacy evolves as people grow older. The following paragraphs review the measures of poverty analysed in Sections 1.2 and 1.3 with a focus on advanced old age (i.e. people aged 75+)<sup>58</sup>.

The poverty or social exclusion (AROPE) rate in advanced old age has followed the same trend as that for the broader group of people aged 65+, albeit at a higher level. In a nutshell (see Section 1.2), it increased between 2015 and 2022 (i.e. from 18.6 to 21.3 %) with the sole exception of a slight fall between 2020 and 2021<sup>59</sup>. In 2022, almost 9 million people aged 75+ were at risk of poverty or social exclusion in the EU.

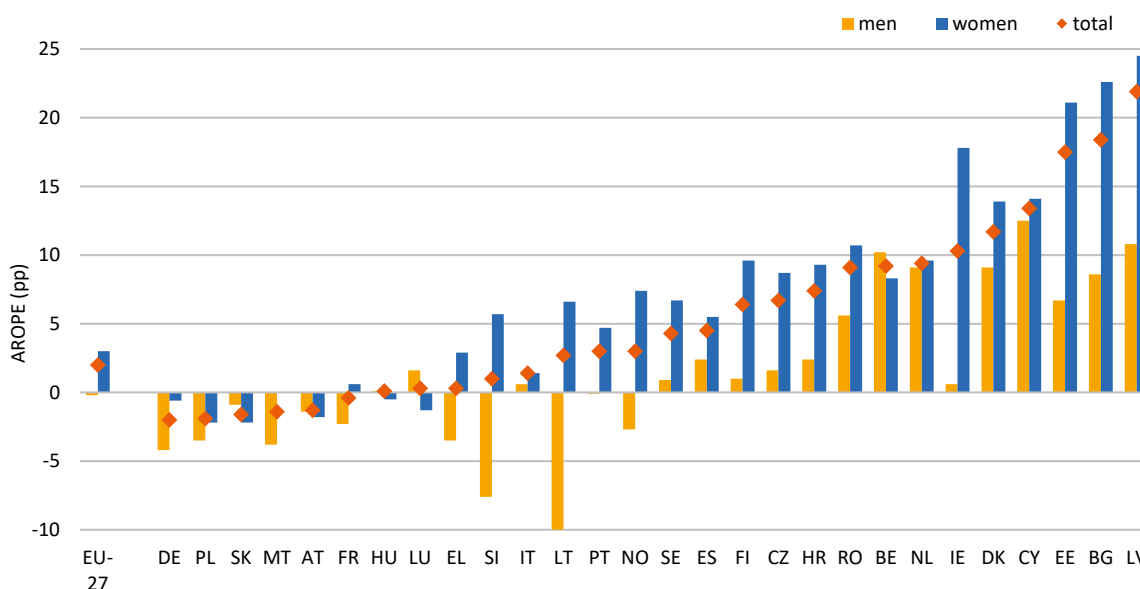
**The risk of old-age poverty and social exclusion is higher among those aged 75+, and in particular among older women.** Figure 25 displays the difference in the overall AROPE rate between the two age groups (75+ and 65-74) for women and men. In 2022, in most countries and the EU-27 as a whole, women aged 75+ had a higher poverty risk than women aged 65-74. For men the picture is less clear; in 17 countries the poverty risk of men aged 75+ was higher than for those aged 65-74 too, but this difference was markedly smaller than among women in the same country (with Belgium as the exception). And in 11 countries, the poverty risk of men

<sup>58</sup> Income maintenance is also assessed through a specific theoretical replacement rate (the ‘10 years after retirement’ case) in Chapter 3.

<sup>59</sup> Source: [Eurostat](#).

aged 75+ was equal to or lower than that of men aged 65-74. For women, this was only the case in seven countries. For men aged 75+, the average AROPE rate was 16.6 %, just below the 16.8 % rate for men aged 65-74. For women aged 75+, the average AROPE rate was 24.4 %, and higher than the 21.4 % rate among women aged 65-74.

**Figure 25: Risk of poverty or social exclusion in advanced old age, women and men, 2022, difference between age 75+ and 65-74 in pp, EU-27 Member States and Norway**



Note: Last updated 15 February 2024.

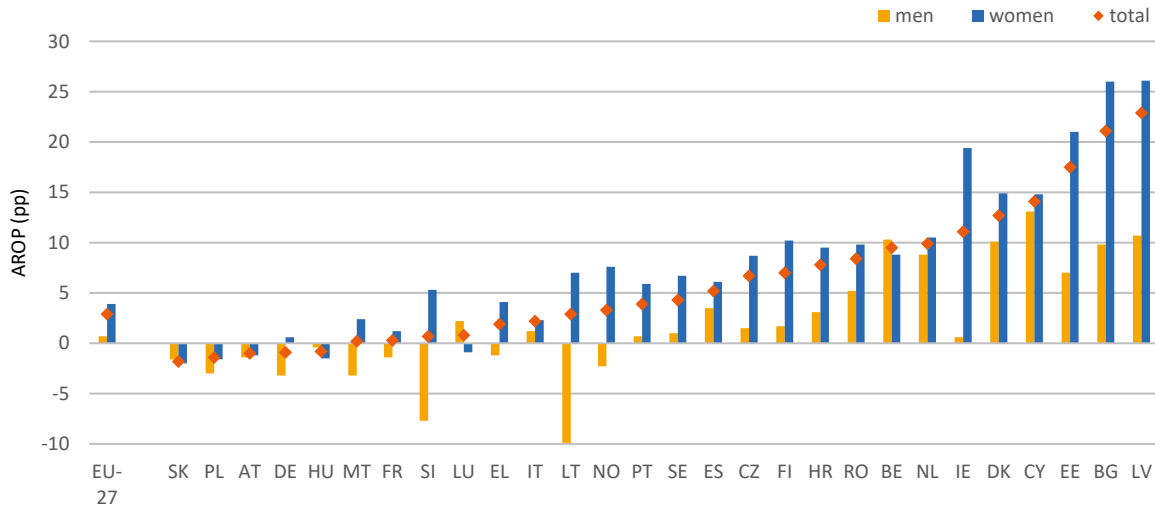
Source: Eurostat ([ilc\\_pesp01n](#)).

The above pattern is very similar for the risk of income poverty (AROP), as shown on Figure 26. **Income poverty in advanced old age affects primarily women, even more strongly than at ages 65-74. In 2022, on average 21.8 % of women aged 75+ were at risk of poverty** (i.e. almost 4 pp higher than the rate for women aged 65-74, of 17.9 %). The difference was much narrower for men (14.6 % vs 13.9 %), even though it had widened since 2019<sup>60</sup>. This may partly be due to the fact that, as age increases, the share of women living single also increases. The AROP (and AROPE) indicators are based on household income. After the age of 75 there are more women, whose individual benefits are lower on average, living in single households (see also Sections 4.2 and 4.4). The lower income poverty among women aged 65-74 may also be linked to the cohort effect (i.e. a gradual improvement of women's labour market position, leading to higher pensions). Finally, (long-term) care also starts to weigh on the disposable income situation more as people get older, and this primarily affects older women<sup>61</sup>.

<sup>60</sup> Source: Eurostat ([ilc\\_li02](#)).

<sup>61</sup> See also Sections 1.5 and 4.2. Section 1.5, for instance, estimates that average out-of-pocket costs as a share of disposable income tend to be higher for individuals aged 75+ (especially women) than for those aged 65-74, across all levels of needs and for institutional care.

**Figure 26: Poverty risk in advanced old age, women and men, 2022, difference between age 75+ and 65-74 in pp, EU-27 Member States and Norway**

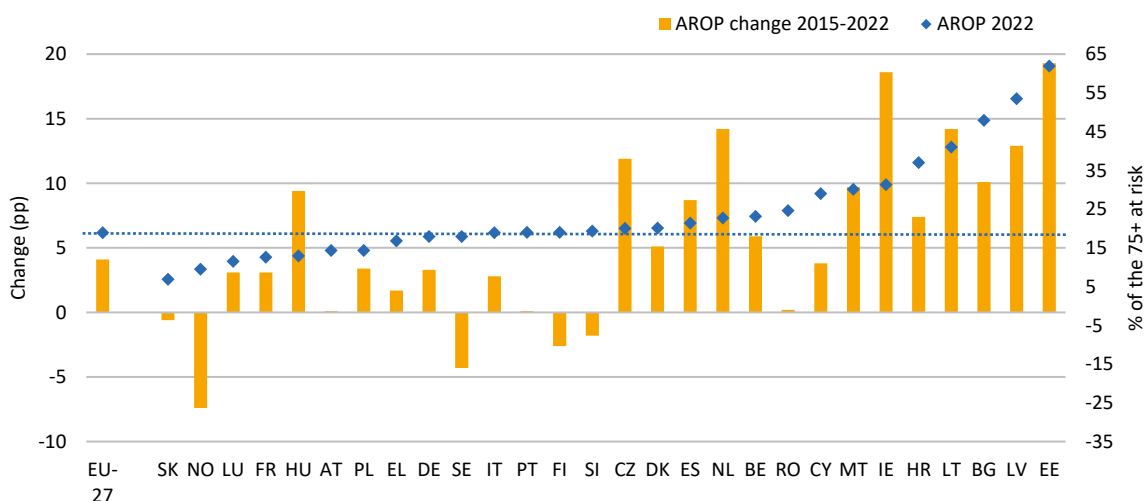


Note: Last updated 15 February 2024.

Source: Eurostat ([ilc\\_li02](#)).

Figure 27 shows the AROP rate in advanced old age, and the change (in pp) between the 2015 and 2022 rates, illustrating the diversity across countries. With all due caution due to the breaks in series, the figure shows that the poverty risk after age 75 increased over this period, on average and in all countries except Slovenia, Finland, Sweden and Norway, where it fell (although with diverse paths), and in Slovakia, Romania, Austria and Portugal, where the 2022 rate equalled the 2015 one. Again, the path is not homogeneous: in Austria and Portugal, the rate was rather stable over the period (although with a 2021 peak in PT), while Slovakia and Romania showed much more variation across years.

**Figure 27: Risk of poverty in advanced old age (75+), 2022 and change from 2015, EU-27 Member States and Norway**

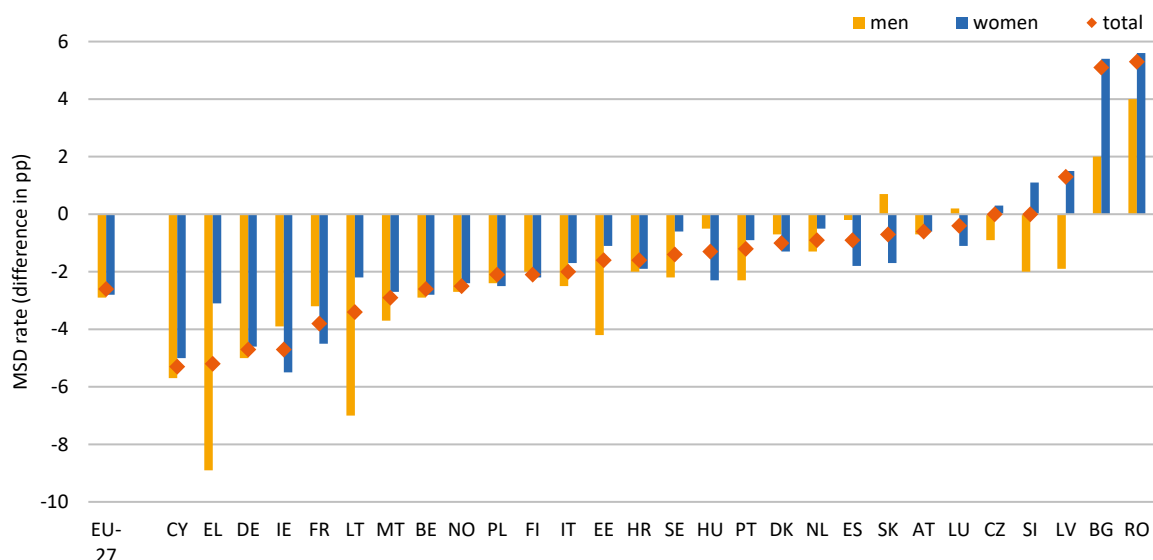


Notes: Breaks in time series affect data for BE, BG, DK, DE, IE, FR, LU, NL, NO. In particular, LU data present multiple major breaks in series during the period covered, hence the figures are not comparable across years. Changes over 2015-2022 for AT, PT and RO lie between 0.1 and 0.2 pp, therefore hardly visible on the chart. Last updated 29 September 2023 (10 November 2023 for NO).

Source: Eurostat ([ilc\\_li02](#)).

**The material and social deprivation (MSD) rate<sup>62</sup>, in contrast to income poverty, is less high on average for people aged 75+ than for those aged 65-74, for both men and women.** This is shown in Figure 28<sup>63</sup>. There are only a handful of exceptions, generally for women. In addition, although the gender difference in the deprivation rate of those aged 75+ fell markedly on average (from 6.3 to 2.9 pp between 2015 and 2022), it was still very high in several Member States, notably in Bulgaria and Greece, the Baltic States and Romania<sup>64</sup>.

**Figure 28: Material and social deprivation rates, difference between 75+ and 65-74 age groups, women and men, 2022, EU-27 Member States and Norway**



Notes: Countries ranked by increasing total MSD rate. Last updated 29 September 2023 (10 November 2023 for NO).

Source: Eurostat ([ilc\\_mdsd07](#)).

In addition, while the income poverty risk is higher in advanced old age than for the entire 65+ age group, **the income poverty gap (or depth of poverty) in advanced old age seems less pronounced<sup>65</sup>**. However, the depth of EU old-age poverty increased on average between 2012 and 2022, and between 2019 and 2022, standing at 17.3 % (though slightly below its peak in 2020). It means that these people's median incomes were on average 17.3 % less than the poverty threshold, although with a strong diversity between countries (ranging from 9.3 % to 28 %).

To conclude, **the relative erosion of income and lowering living standards in advanced old age seem to affect primarily women.**

<sup>62</sup> See Section 1.2 on the better reliability of MSD than SMSD in the case of further age breakdowns reducing the sample size.

<sup>63</sup> The reasons for these opposite outcomes are not straightforward. The preferences may be different depending on whether someone is a 'new pensioner' or an older one, or between different age cohorts, therefore leading to different reporting of 'deprivation'. The deprivation indicators also contain 'individual items', and hence leave some room for reporting the individual's, rather than the household's, situation. On the other hand, as regards income development, replacement rates are also key and changing over time, so they can imply different situations for different cohorts.

<sup>64</sup> Source: Eurostat ([ilc\\_mdsd07](#)).

<sup>65</sup> Source: Eurostat ([ilc\\_pns5](#)).



### 1.4.4 Indexation rules

A key policy lever to protect pensioners against the erosion of their income during retirement and maintain adequate pensions is pension indexation. In most countries, pension benefits are indexed to prices, wages or a combination of these. Indexation may be fixed in legislation or carried out on an ad hoc basis. Table 1 provides an overview of indexation rules in the Member States and Norway.

**Table 1: Indexation rules (% prices and % wages), EU-27 Member States and Norway**

Indexation to prices (%) and wages (%)	Countries
<b>Pension benefits indexed to prices</b>	
100/0	AT, ES, FR, HU, IT, SK, FI (basic)
<b>Pension benefits indexed to wages</b>	
0/100	DK, DE, LT, LU, NL
<b>Mixed indexation rule with greater weight given to prices than wages</b>	
80/20	FI (earnings-related), PL
70/30	none
<b>Mixed indexation rule with greater weight given to wages than prices</b>	
40/60	SI
30/70	HR, MT
<b>Mixed indexation rule with equal weight given to prices and wages</b>	
50/50	BG, CZ, CY, LV, NO
<b>Other</b>	
50 prices / 50 GDP growth	EL
20 CPI / 80 pension contribution revenues	EE
CPI, GDP and pension level	PT
100 % prices + ad hoc indexation to general living standards	BE
Ad hoc	IE, RO, SE

*Notes: BE: may apply ad hoc corrections to the rise in the general standards of living. CZ: 50/50 rule applies to average pension, indexation formula which favours lower pensions. EL: indexation has been frozen since 2010 and is expected to remain frozen until the end of 2022; from 2023 onwards, benefits will be indexed based on a mechanism calculated on the basis of 50 % of gross domestic product (GDP) growth and 50 % of the change in the consumer price index (CPI) of the previous year; pension benefits will only be indexed positively, while the increase cannot exceed the annual change in the CPI. HR: in most cases greater weight would be given to wage growth; however in cases where CPI growth was higher than wage growth in the previous semester, greater weight would be given to prices. IT: reduced indexation on higher pensions. LV: the ratio for old-age pensions depends on contribution years; small pensions are indexed in full, large pensions are indexed only partially. LT: pensions are indexed to the average (real and projected) growth of the national wage bill over a seven-year period (three years before and after the calculation year). LU: annual indexation to real wage evolution, dependent on the financial situation of the pension scheme; in addition, a non-periodic but general indexation to price evolution (inflation) applies to all wages, pensions and most social benefits. HU: applies corrections. MT: 30 % prices / 70 % wages for people born in or after 1962. AT: the legislator can pass a 'Pension Adjustment Act' and decide on other adjustment mechanism (in past years, smaller pensions were increased by more than the CPI). SI: there is also an 'extraordinary indexation' if GDP growth in the previous year is positive or if the growth in the minimum pension base is lower than the CPI for two consecutive years. SK: extra indexation of pension benefits if the cumulative rise in the monthly CPI for pensioner households reaches 5 % since the previous indexation.*

*Source: Indicators' Sub-Group (ISG) of SPC / Working Group on Pension Adequacy (WGPA).*

**While price indexation is meant to stabilise the purchasing power of retirees, in normal times wage indexation is more beneficial to pensioners in the medium term, as productivity gains typically translate into positive real wage growth.** However, in the face of a sudden increase in prices and falling real wages, the purchasing power of pensioners is not protected by wage indexation, reversing the standard way of thinking about pension indexation<sup>66</sup> (see also Section 4.1). More frequent adjustments in price indexation mechanisms minimise the temporary loss of purchasing power when inflation surges. Indexation can be carried out according to a fixed frequency and/or when an index exceeds a fixed threshold<sup>67</sup>. Almost all EU Member States and Norway apply fixed-frequency indexation, typically indexing once per year in a specific month, most often January. Croatia, Hungary and the Netherlands index twice per year and Cyprus has a second indexation moment if the CPI increased by more than 1 % in the first half of the year.

**Fixed-threshold indexation, triggered when an index exceeds a certain level, can be applied instead of regular indexation or as a secondary indexation mechanism to protect pensioners at a time of high inflation.** In Belgium, pensions are increased by 2 % whenever the CPI exceeds the level it had at the time of the previous indexation by 2 %. Luxembourg has the same rule in steps of 2.5 % and combines it with fixed-frequency indexation for adjustments to real wage growth. Czechia and Slovakia (as of 2024) also use fixed-threshold indexation as a secondary mechanism.

**Pensions are typically indexed to the average growth of the chosen indicator over a defined period ('smoothing'), to avoid indexation being too much affected by monthly fluctuations.** Most countries use a 12-month smoothing period, either comparing the last year with the previous one or averaging monthly year-on-year inflation rates, while some others use periods of three to nine months. Lithuania uses a very long smoothing period, indexing pensions to the average growth of the national wage bill over a seven-year period.

**Some countries index pensions based on projections of how inflation and/or wages will develop and implement corrections afterwards to adjust for the difference between projected and observed changes.** This is the case, for instance, in Greece, Italy, Hungary, Norway and Sweden.

## 1.5 Quality of life in the 'fourth age': the role of pensions and care services

### 1.5.1 Introduction: the broader picture

**The adequacy of pension incomes cannot be fully assessed in isolation; other supporting and enabling policies should be taken into account.** The availability of affordable, free or subsidised services may be key to ensuring adequate living standards – for instance, through housing or care policies. For people in need of healthcare or long-term care, smaller out-of-pocket payments may reduce the need for disposable pension income.

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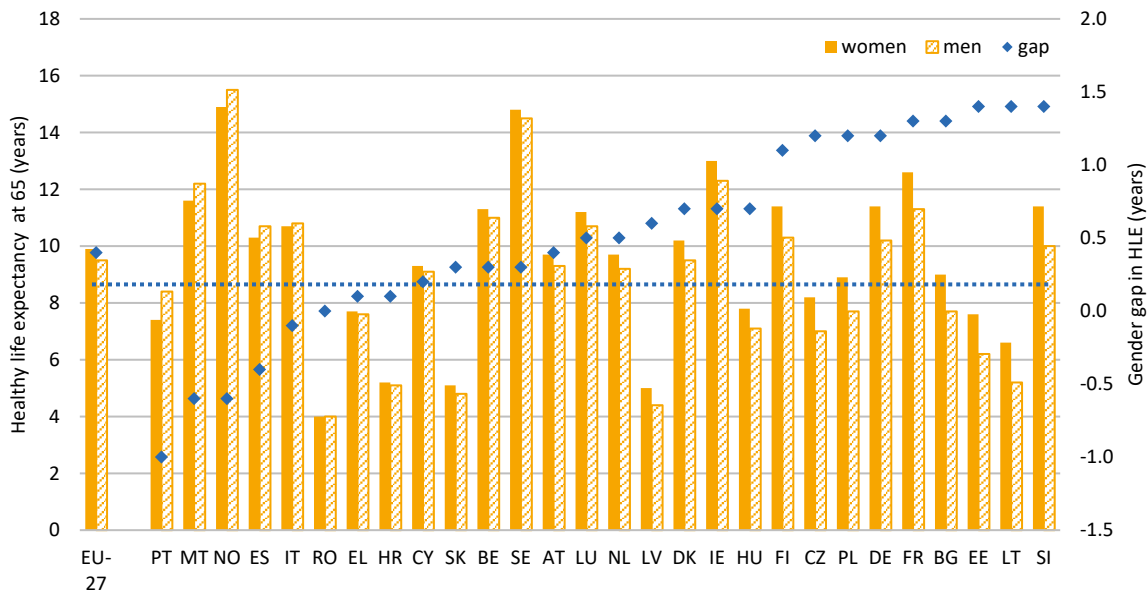
<sup>66</sup> OECD (2022a).

<sup>67</sup> OECD (2023, unpublished).

The needs for healthcare and long-term care tend to increase with age. As people in advanced old age, in particular women, generally also have a higher risk of poverty and social exclusion, covering care needs in old age is a critical social challenge<sup>68</sup>. The preceding sections noted the increasing risks of poverty and social exclusion and monetary poverty as well as increasing inequalities. Income poverty is worse in advanced old age (75+) in the EU overall and in most countries<sup>69</sup>, in particular for women<sup>70</sup>.

**Women are living longer in ill health than men. Women have a longer life expectancy at 65 than men: the difference in the EU-27 has been around 3.6 years since 2012, and even reached 3.9 years in 2021.** At the same time, the gender difference in healthy life expectancy (HLE) at 65 is much smaller (see Figure 29): less than half a year in 2021<sup>71</sup>, and even negative in some Mediterranean countries and Norway (see Figure 29). This indicates a poorer health status for women and more years spent in ill health than men (see Figure 30). In addition, women are much more often single, and therefore cannot count as much on informal care support in the family<sup>72</sup>. They are also more affected by loneliness than men<sup>73</sup>. In both men and women, mental health issues have been on the rise, especially as a consequence of the COVID-19 context.

**Figure 29: Healthy life expectancy at age 65 and gender gap (in years), 2021, EU-27 Member States and Norway**



Notes: NO data are for 2020. Break in series for LU.

Source: Eurostat ([tespm120](#) and [tespm130](#)); last updated 3 January 2024.

<sup>68</sup> Section 4.2 examines the gender gaps further: how pay and employment gaps may accumulate and contribute to a later gender pension gap, and more generally to a gender gap in old-age poverty that can be larger than in working age.

<sup>69</sup> Eurostat, code [ilc li02](#). One reason for this may lie in the (low) labour market activity rate of those aged 65-74.

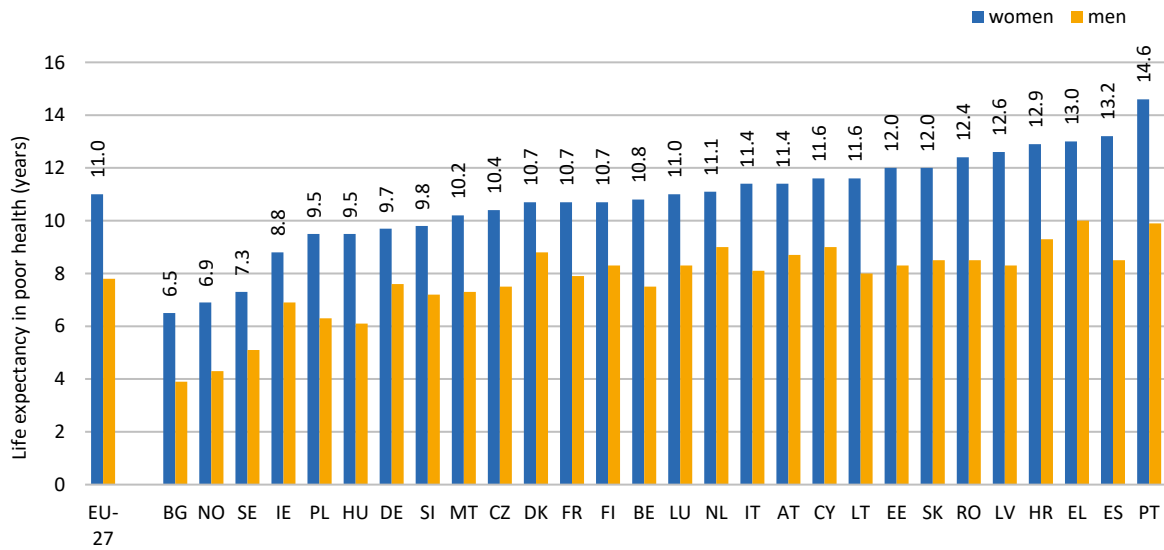
<sup>70</sup> While the poverty risk of older men (65+) lies below all others (women and men 18-64 and women 65+) for the whole period.

<sup>71</sup> This difference was even smaller in the previous decade, from 0.1 additional expected healthy life years for women at age 65 in 2012 to 0.2 in 2019 (see Section 4.2).

<sup>72</sup> In addition, for those who live in a couple, there may be a significant impact on their own (future) health once they have cared for their partner.

<sup>73</sup> Casabianca and Kovacic (2022).

**Figure 30: Life expectancy in poor health: difference between life expectancy and healthy life expectancy at age 65, women and men, 2021, EU-27 Member States and Norway**



Notes: For HLE: NO data are for 2020; break in series for LU. For life expectancy: break in series for CZ, HR and PT; values are estimated for PL and RO and provisional for FR, MT, PL and PT.

Source: Eurostat (demo\_mlexpec, [tespm120](#) and [tespm130](#)); last updated 6 July and 12 June 2023 respectively.

**Access by older women and men to healthcare services improved overall in the previous decade but deteriorated slightly in 2020 and again in 2021.** The share of older people reporting unmet needs for medical examination roughly halved between 2012 and 2019 (from 5.3 % to 2.5 %; 2.8 % in 2020 and 2021)<sup>74</sup>. Among those aged 75+ the share follows the same trend, albeit at a higher level (3.9 % in 2021). While an improvement can be observed for both age groups, both sexes and all income levels, women remain more affected than men in most countries, and in the EU overall (3.2 % and 2.4 % respectively). Women in the lowest income quintile most often report not being able to afford medical care (4.9 %).

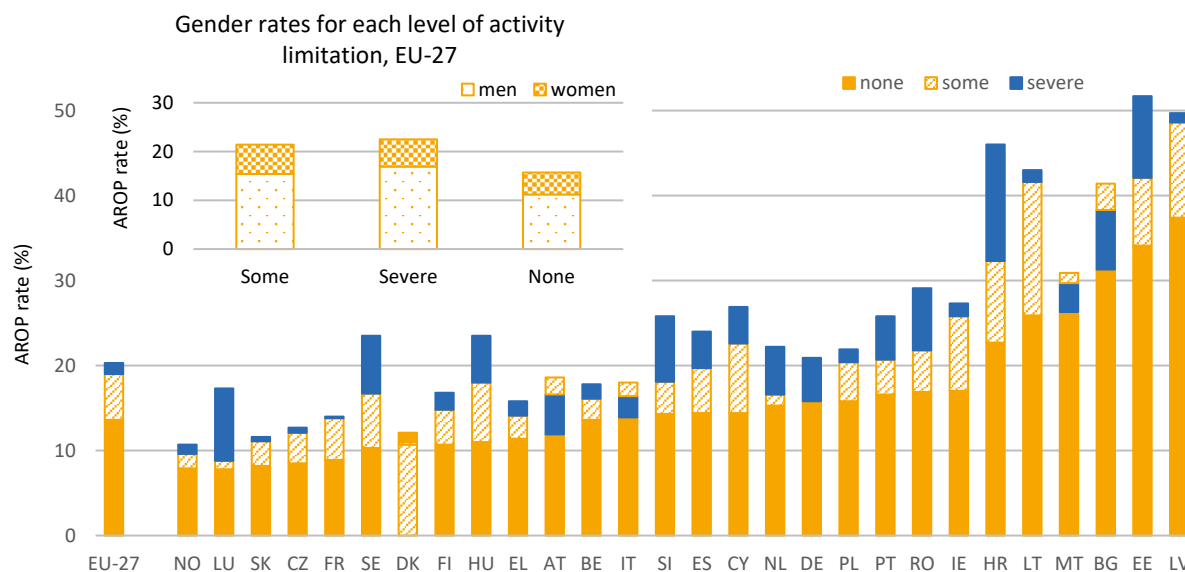
**Health issues and dependency in old age, and the related care needs, are associated with a higher poverty risk.** Those with activity limitations are exposed to a higher income poverty rate (slightly higher yet in the case of severe limitations), overall and in most countries (see Figure 31). While the AROP rate trend in 2012-2021 followed that shown in Section 1.2 (Figure 3) for each group, the difference between those with some activity limitation and those with no activity limitation increased over time to reach 5.4 pp in 2021<sup>75</sup>. As noted in PAR2021 and the LTC report of the same year<sup>76</sup>, in several EU Member States the share of people in need of care who are unable to afford professional homecare is very high, affecting about one third of older households<sup>77</sup>.

<sup>74</sup> In most EU Member States, the share of older people unable to afford healthcare is very low, and in some cases too low to be reliably measured. Eurostat, code [hlth\\_silc08](#); last updated 10 May 2023.

<sup>75</sup> Eurostat, code [hlth\\_dpe020](#).

<sup>76</sup> European Commission (2021b).

<sup>77</sup> See Eurostat 2016 survey module and European Commission (2021b).

**Figure 31: At-risk-of-poverty (AROP) rates in old age, women and men and by level of activity limitation, 2021, EU-27 Member States and Norway**

Notes: The bars show the AROP rate for each level of activity limitation; the AROP rate of those with severe limitations (blue) is most often the highest, that for those with no limitation (plain yellow), the lowest. For instance, the EU-27 AROP rate is 20.3 % for those with severe limitations, 19 % for those with some limitations, and 13.6 % for those without limitation.

Source: Eurostat (hlth\_dpe020); last updated 10 May 2023 (February 2024 for NO).

**The fact that poverty risk is higher in advanced old age<sup>78</sup> and increases with the level of activity limitation could be interpreted as an incomplete (public) insurance against the risk of dependency.** The adoption of the European Care Strategy and the EU Council Recommendation on access to affordable high-quality long-term care<sup>79</sup> in 2022 has provided the momentum to look more closely at the inter-relation between pension arrangements and the adequacy and financing of long-term care coverage. As pensions are generally the main source of income in old age, the adequacy of pension benefits is closely related to the adequacy of long-term care coverage, but the measurement of this interaction is not straightforward.

The next three sub-sections aim to picture the adequacy of social protection for those in need of long-term care. The first provides the share of total costs for long-term care covered as well as the out-of-pocket costs for users of different levels of needs. The second sub-section clusters adequacy of pension income and generosity of long-term care (cost) coverage, and the last one briefly reviews the national financing modes of both systems. The three parts are mainly based on the estimates for 24 countries or sub-national areas<sup>80</sup> (EU-24) carried out by the Organisation for Economic Co-operation and Development (OECD) as an addendum to the project ‘Measuring the effectiveness of social protection for long-term care in old age’<sup>81</sup>, with survey

<sup>78</sup> As shown in Section 1.2.

<sup>79</sup> Council of European Union (2022).

<sup>80</sup> Or sub-national governments. The term ‘countries’ is used henceforth for brevity. Missing countries: Bulgaria, Cyprus, Romania and Norway. Sub-national areas: Belgium (Flanders), Estonia (Tallinn), Italy (South Tyrol), Austria (Vienna).

<sup>81</sup> OECD (forthcoming).

data on the prevalence of needs. The study develops eight hypothetical/typical cases of type and hours of care, given at home, formally or informally, or in an institution<sup>82,83</sup>.

### *1.5.2 Long-term care costs: coverage by level of needs, gender, income*

**The total long-term care (LTC) costs without public social protection can be very high for older people compared with their disposable income (i.e. mainly pensions).** The estimated total costs of LTC for older people with severe needs would represent 1-6 times their median disposable incomes<sup>84</sup>. Even for low needs, older people with low incomes may struggle to afford the care they need.

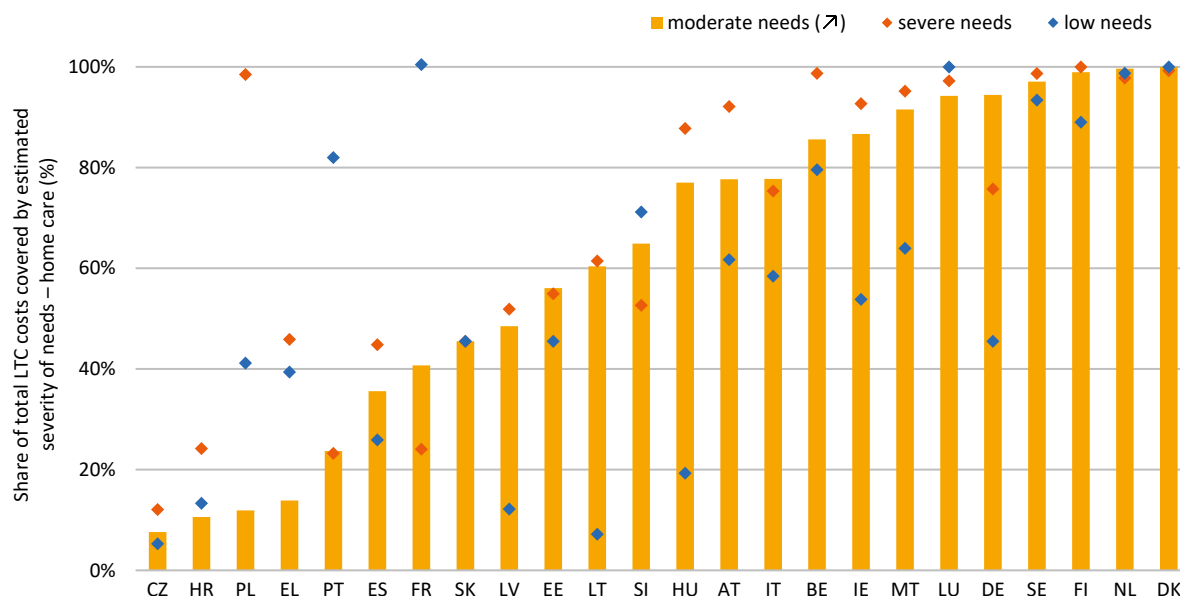
**Estimated public coverage of LTC costs is greater for older people with more severe needs**, on average. As Figure 32 shows, in 15 countries public social protection on average covers at least half the costs associated with services for moderate-needs users, and in seven countries over 90 % of the costs are covered. 10 countries cover over 90 % of the costs for severe needs in a homecare setting.

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<sup>82</sup> The term ‘institution’ refers in this section to residential care settings.

<sup>83</sup> They are based on the number of hours of need for help with ‘activities of daily living’ (ADL) (cf. personal care), ‘instrumental activities of daily living’ (IADL) (cf. housekeeping tasks), and social activities. These cases span different levels of care severity (low, moderate and severe) and different ways in which these needs can be met (professional homecare, informal care and institutional care). The level (prevalence and intensity) of LTC needs in the population aged 65+ was then determined by matching the typical cases with micro-data from surveys on ageing and retirement. The specific national policies and coverage of LTC systems are then mapped out. A key assumption of the approach is that older people with LTC needs will seek formal LTC services and support from public social protection systems. Based on this assumption, the analysis determines the public support they would be entitled to, the out-of-pocket costs they would face, their income after LTC costs, and whether they are at risk of falling into poverty due to LTC needs. For more details on the methodology used, please consult: OECD (forthcoming).

<sup>84</sup> In the Survey of Health, Ageing and Retirement in Europe (SHARE), total household income is defined as the aggregation at the household level of all individual income components, accounting for taxes, contributions, and various income sources such as earnings, pensions and capital.

**Figure 32: Share of total long-term care (LTC) costs covered, by estimated severity of needs – home care, EU-27 Member States and sub-national areas**

Notes: The share is averaged across respondents; low, moderate and severe needs correspond to around 6.5, 22.5 and 41.25 hours of care per week, respectively; the following data relate to sub-national areas: BE (Flanders), EE (Tallinn), IT (South Tyrol) and AT (Vienna); for SK, NL and DK the share for severe needs is about the same as for low needs, therefore only one out of the two is visible on the chart.

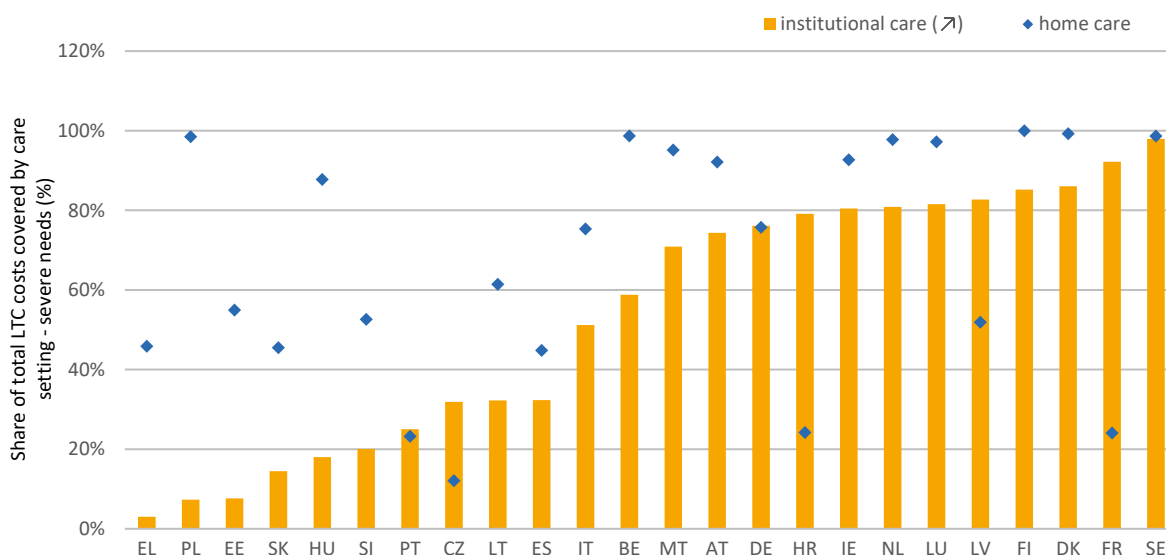
Source: OECD analysis based on the OECD long-term care social protection questionnaire, SHARE (wave 8, 2019, except PT, which refers to wave 6, 2015) and The Irish Longitudinal Study on Ageing (TILDA) (wave 3, 2015).

**Social protection support for severe needs in institutional settings<sup>85</sup> covers more than half the costs in more than half of the observed countries and is generally lower than for the same level of need in homecare.** Public coverage for severe needs in an institutional setting is above 50 % in 14 countries, and above 90 % in two countries (see Figure 33). It is higher for recipients with severe needs in home settings than in institutional settings in most countries, except in Portugal and Germany (where they are almost equal), and in Croatia, Czechia, Latvia and France (where it is lower in home settings). The generosity of benefits is also typically higher for older people with more severe needs (see Figure 32) but, while not reaching 80 % coverage, public coverage for moderate needs is roughly the same or just below that for severe needs in Portugal, Slovakia, Latvia, Estonia, Lithuania and Italy<sup>86</sup>. In Portugal, France and Slovenia, average public support is the highest for low needs, while in Luxembourg, Sweden, the Netherlands and Denmark, it is above 90 % for the three levels of needs.

<sup>85</sup> The costs of institutional care include the provision of food and accommodation, so are over-estimated relative to home care.

<sup>86</sup> For Italy the AROP rate for those with severe activity limitations was also shown to be lower than for those with some limitations, and it was even lower than for those without limitations in Denmark (see Figure 31).



**Figure 33: Share of total long-term care (LTC) costs covered, by care setting – severe needs, EU-27 Member States and sub-national areas**

Notes: Low, moderate and severe needs correspond to around 6.5, 22.5 and 41.25 hours of care per week, respectively; the following data relate to sub-national areas: BE (Flanders), EE (Tallinn), IT (South Tyrol) and AT (Vienna); the share is averaged across respondents.

Source: OECD analysis based on the OECD long-term care social protection questionnaire, SHARE (wave 8, 2019, except PT, which refers to wave 6, 2015) and TILDA (wave 3, 2015).

**Public coverage is also more generous, on average, for people with lower incomes<sup>87</sup>.** However, the differences in LTC coverage imply that people with LTC needs may have to pay a high share or even the full cost of their care. Moreover, even small out-of-pocket payments can be a significant burden for those with limited financial resources. Across the 24 countries and sub-national areas, older people estimated to have low needs, on average, would use about 20 % of their disposable income to pay for the required care. The OECD study concludes that, for those estimated to have moderate or severe needs, the average out-of-pocket cost – after support from public social protection – rises to around 50 % and 80 % of their disposable income, respectively.

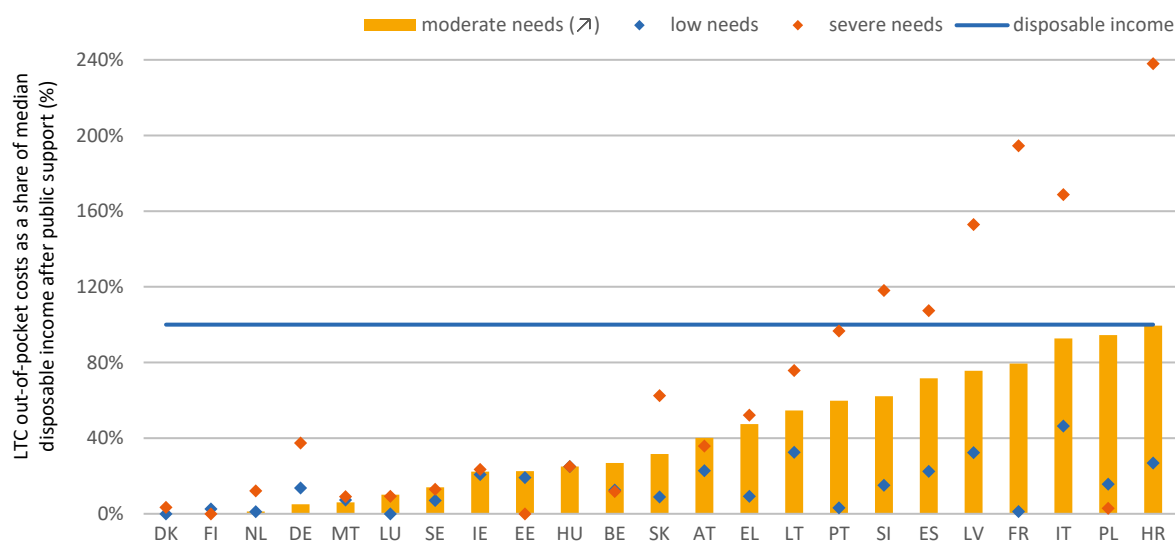
**After public financial support, the median disposable income among older people would cover the out-of-pocket costs of homecare for low and moderate needs in most countries (see Figure 34). In other words, the out-of-pocket costs for low and moderate LTC needs would be unaffordable in Czechia, as they would exceed the median disposable income, while for severe needs, institutional care would be unaffordable in five countries (PL, SK, IT, PT, EL) and homecare in seven countries (CZ, HR, FR, IT, LV, SI, ES)<sup>88</sup>.**

<sup>87</sup> OECD (forthcoming).

<sup>88</sup> In the majority of EU-24 countries and sub-national areas, the out-of-pocket costs for institutional care are higher than the costs for a similar level of care provided at home. However, the number of countries where the latter would be unaffordable is slightly higher than for institutional care.



**Figure 34: Long-term care out-of-pocket costs as a share of median disposable income after public support, by estimated severity of needs – homecare, EU-27 Member States and sub-national areas**



Notes: The share is averaged across respondents. Estimates are computed using typical cases matched to survey data. Low, moderate and severe needs correspond to around 6.5, 22.5 and 41.25 hours of care per week, respectively. Values of out-of-pocket costs for low (84 %), moderate (280 %) and severe needs at home (477 %) in CZ are very high compared with other estimates, and thus they are not shown to facilitate comparison of other estimates. The following data relate to sub-national areas: BE (Flanders), EE (Tallinn), IT (South Tyrol) and AT (Vienna).

Source: OECD analysis based on the OECD long-term care social protection questionnaire, SHARE (wave 8, 2019, except PT, which refers to wave 6, 2015) and TILDA (wave 3, 2015).

**On average across 24 countries, prospective out-of-pocket costs as a share of disposable income tend to be higher for individuals aged 75+ (especially women) than for those aged 65-74, across all levels of needs and for institutional care.** Also, the gap between older and younger groups is wider for those receiving homecare for severe needs (11.8 pp gap). While the gender gap appears minimal between women and men aged 65-74, it becomes more pronounced among the older age group. On average, women aged 75+ face 15 % higher out-of-pocket payments as a share of their disposable incomes than men in the same age group. Notably, there are no significant gender- or age-related variations in the share of public support received on average for LTC, which suggests that the higher out-of-pocket burden for LTC among women primarily stems from their lower incomes<sup>89</sup>.

The level of out-of-pocket expenses can have a deterrent effect on older people. They may have to rely on intra-household or broader family transfers where available, but otherwise may just not afford it and/or decide not to have recourse to the formal care assistance they need. As an illustration, the estimated EU-27 average uptake of formal LTC services at home is only around 25 %, based on self-reported data, with a broad range from 8 % to 46 % among EU-27 Member States<sup>90</sup>.

<sup>89</sup> OECD (forthcoming).

<sup>90</sup> The EU-27 average is 25 % based on the European Health Interview Survey (EHIS), and 28 % based on SHARE. These are the two surveys used to produce rankings; they are positively correlated, indicating broad agreement. Uptake is defined as the

### *1.5.3 Mapping generosity of pension systems and long-term care*

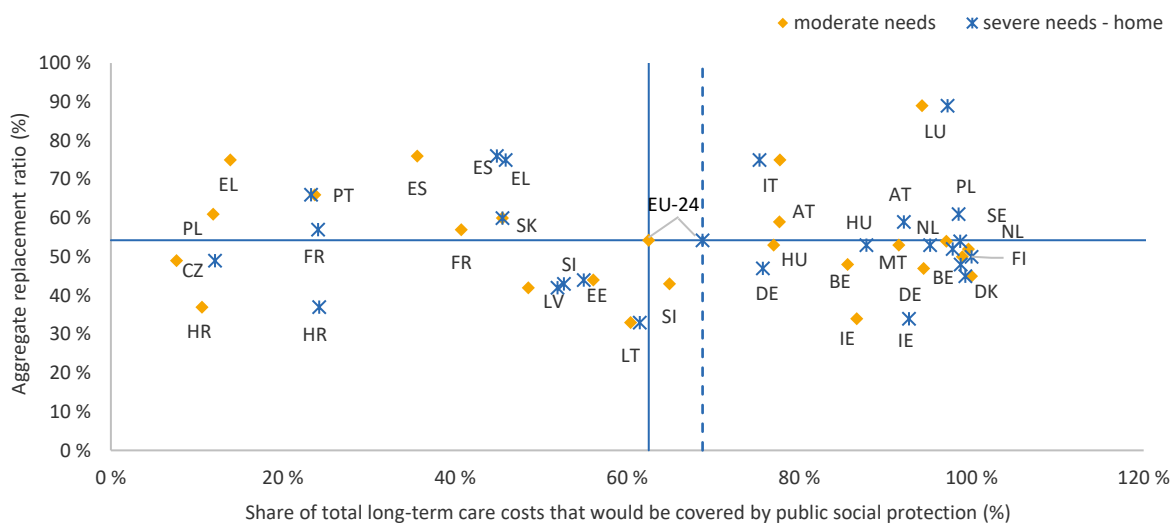
As highlighted earlier in this chapter, the adequacy of pension incomes should take into account other supporting and enabling policies. As the previous section has shown, older people with LTC needs must rely on a combination of specific support and general income, and the latter is largely in the form of a pension. Therefore, the interaction of pension incomes and LTC coverage is crucial in ensuring adequate old-age income and dignified standards of living. The share of LTC costs covered by public protection and the resulting out-of-pocket costs are considered here as proxies for the generosity of the system. As for pension adequacy, it is measured by the aggregate replacement ratio (ARR – see Section 1.3).

**Country mapping according to the generosity of pensions and LTC provision shows different approaches to supporting the living standards of older people** (see Figure 35). Plotting the ARR 2021 levels and the public coverage of LTC for moderate and for severe needs makes it possible to identify **four groups of countries** compared with the (EU-24) average generosity<sup>91</sup>. A group of Mediterranean countries (FR, EL, PT and ES) display rather high replacement ratios for pensions but low public coverage of costs for LTC, which could point to high reliance on family care. The same applies to Poland, as far as LTC for moderate needs are concerned. Luxembourg, Italy (South Tyrol) and Austria – and Poland in the case of severe LTC needs – show both a high public share of LTC costs covered and high replacement ratios for pensions. A group of central and eastern Member States (EE, LV, LT, SK and SI) have mid-to-low replacement ratios for pensions and coverage for LTC, while Croatia and Czechia appear to have very low coverage for LTC and low-to-medium replacement ratios for pensions. Finally, a wide range of countries have relatively generous public coverage for LTC in terms of costs but medium replacement ratios for pensions; they include the Nordic states, characterised by a large role of services in welfare provision, but also Belgium, Germany, the Netherlands, Malta, Ireland and Hungary.

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percentage of older people (aged 65+) estimated to have some needs who report receiving formal LTC services (help with ADL and IADL).

<sup>91</sup> The mapping outcome is broadly similar when plotting ARR against out-of-pocket payments for LTC.

**Figure 35: Aggregate replacement ratio for pensions and public social protection for long-term care – moderate and severe needs, EU-27 Member States**

Notes: The plain vertical line shows the EU average for moderate needs, while the dotted one shows the EU average for severe needs (home). LTC estimates are computed using typical cases matched to survey data. Moderate needs correspond to around 22.5 hours of care per week, and severe needs to around 41.25 hours of care per week. Unweighted EU-24 average. When the two values are identical or very close for a same country, the country name appears only once.

Source: OECD analysis based on the OECD long-term care social protection questionnaire, SHARE (wave 8, 2019) and TILDA (wave 3, 2015). ARR: Eurostat, 2021 (for the countries as a whole).

#### 1.5.4 Financing models of pensions and long-term care

Old-age benefits such as pensions are primarily financed through social protection contributions, general taxes and other receipts (such as returns on investments or transfers from other schemes)<sup>92</sup>. Similarly, Member States often combine different approaches within LTC financing models, the three main ones being (contributions to) social insurance, tax-based revenue (to finance universal or means-tested benefits), and private insurance (voluntary or compulsory)<sup>93</sup>. Despite the different approaches to LTC funding, practically all EU-27 Member States apply some form of cost-sharing or fees. The very few countries with safety-net schemes that do not rely on fees have high means-testing thresholds.

**In practice, while old-age benefits schemes are mainly financed through social contributions, long-term care in the EU is mainly financed from general (tax) revenues.**

In 2020, government schemes and compulsory contributory schemes were financing about 80 % of LTC (healthcare) expenditure in the EU on average, ranging from 50 % in Cyprus (31 % in voluntary schemes, 19 % being out-of-pocket) to 100 % in Czechia<sup>94</sup>. In 2018, social contributions on average accounted for 65.5 % of the financing of old-age pensions in the

<sup>92</sup> See detailed models in PAR2021 (European Commission, 2021a) (Section 4.2.3) and OECD (2021b).

<sup>93</sup> The main financing models broadly reflect the typology of the (four main) different welfare states in Europe (Scandinavian, Mediterranean, continental, and Anglo-Saxon + eastern Member States). See detailed models and typology of welfare states in European Commission (2021b).

<sup>94</sup> Eurostat, [Expenditure for selected healthcare functions by healthcare financing schemes \[HLTH\\_SHA11\\_HCHF\\_custom\\_7535382\]](#).

Member States for which data were available (see PAR2021<sup>95</sup>, Section 4.2.3). General government revenue from taxation accounted for 25 % of pension financing on average, mostly sourced from general taxation (apart from a small, earmarked tax in EL, HU and RO). The rest came from other receipts<sup>96</sup>.

**Table 2: Long-term care financing modes, EU-27 Member States**

Mostly insurance <sup>97</sup>	Tax-funded	Mixed (social contributions and taxes)
NL, DE, LU	AT, BG, CY, CZ, DK, FI, HR, IE, IT, LV, MT, PT, SK, ES, SE	BE, FR, EE, EL, HU, LT, PL, RO, SI

Source: OECD, WGPA.

### **Recent reforms in the financing modes of old-age pensions and LTC show no clear common trend.**

As for old-age benefits, a general long-term shift towards more tax-based pension financing was to be seen in the reforms under scrutiny in the previous PAR2021<sup>98</sup>. However, in the last three years, there has rather been a trend towards increasing social security contributions and the phasing-out of special pensions<sup>99</sup>, without major overhauls of the way pensions are financed<sup>100</sup>. Pension financing reforms related mostly to changes in the contribution rates (e.g. ES, HR, HU, PT, SK), and contributory periods were extended in very few cases (e.g. FR).

Notably, several Member States have increased the share of social security contributions in the pension financing mix by increasing contribution rates or establishing minimum contribution bases (e.g. ES, FI, HR, LV, SK [statutory funded scheme])<sup>101</sup>. Spain implemented a new sustainability mechanism, aimed at establishing a reserve fund. In some countries, diversification of the pension financing mix has been achieved through levying new taxes (e.g. HU, PT). On the other hand, some reductions in contributions have been granted to people in specific groups or with specific work statuses, such as low-income earners (e.g. DE) and certain self-employed categories (PL) or parents (SK).

<sup>95</sup> European Commission, 2021a.

<sup>96</sup> In two countries – the Netherlands and Slovakia – over 30 % of financing came from ‘other receipts’. In Slovakia (as in Italy) transfers from other schemes accounted for most of such receipts. In the Netherlands, ‘other receipts’ mostly came from interest income, reflecting the relatively large size of capital-funded occupational pensions.

<sup>97</sup> Even Member States that have social insurance-based systems rely on general taxation to finance social assistance in relation to LTC (e.g. DE) or to finance benefits that are provided by local levels of government (e.g. NL).

<sup>98</sup> The general widespread shift from social contributions to general government revenue for financing old-age benefits between 2005 and 2018 was especially in evidence between 2005 and 2010, while between 2010 and 2018 there were already some reversals, though less widespread across countries.

<sup>99</sup> Those that grant preferential treatment to certain groups of the population.

<sup>100</sup> In the previous edition of the PAR, there was a major change in Lithuania.

<sup>101</sup> For more details, see Chapter 2.

**Table 3: Pension reforms around financing, 1 July 2020 – 1 July 2023, EU-27 Member States**

Changes in the contribution rates	Increased share of social security contributions in the pension financing mix	Reforms aimed at improving coverage/contributions by the self-employed	Diversification of the pension financing mix via new taxes
ES, HR, HU, PT, SK	ES, FI, HR, HU, LV, SK (statutory funded scheme)	ES, LV, FI	HU, PT

Source: PAR2024, Volume II.

As for long-term care, in recent years Member States have mostly stayed on the historic path of their established financing model and no new explicit trends regarding the financing base can be noticed. LTC funding is following a long-term trend to be recognised as a specific social protection branch in its own right, with two Member States (SI and FR) having recently added a new contribution-based financing mechanism<sup>102</sup>.

## 2 RECENT PENSION REFORMS AND THEIR LIKELY IMPACTS

### 2.1 Introduction

This chapter examines the main pension reforms enacted in the EU-27 countries between July 2020 and July 2023, covering the period since PAR2021. Section 2.2 provides a brief overview of the main trends in pension reforms as well as some comparisons with the previous period, while Section 2.3 provides a more detailed examination. This chapter deals with permanent reforms, while temporary crisis measures are described in Section 4.1. Detailed descriptions of national reforms can be found in the respective country profiles in Volume II of the report.

### 2.2 An overview of recent pension reforms: fostering adequacy in times of crisis

Pension reforms during the period under examination took place in the context of two significant crises, the COVID-19 pandemic and the energy crisis, leading to a major economic downturn and high inflation, which negatively affected people's socio-economic situations. Though there was a continuation, and even reinforcement, of the reform trends identified in the two previous reports (PAR2021 and PAR2018), **the new crisis-related context temporarily shifted the reform dynamics as all Member States implemented exceptional temporary measures.** In the field of pensions, several Member States introduced exceptional increases and indexations of old-age benefits to maintain pension income and mitigate the risk of poverty. These measures are discussed in Section 4.1. Although the temporary measures might be more visible, **there has been an overall trend towards permanently enhancing adequacy mechanisms**, such as improvements to indexation, higher minimum pension levels, and protection for (potentially) vulnerable people.

<sup>102</sup> With the 2021 LTC law, Slovenia introduced a new contribution-based mechanism to be put in place by 2025, with transfers from pension and health insurance funds and the state budget during the transition period. France has added a new 'autonomy' branch since 2020, with an ongoing reform due to reallocate social contributions and taxes from 2024. Article 25 of the law of 14 April 2023, creates the AVA (*Assurance vieillesse des aidants* – old-age insurance for care-givers) for relatives of people with disabilities. The implementing decrees, due to be published by 1 September 2023, will provide a more precise definition of this old-age insurance scheme.

Furthermore, although previous broad policy goals such as longer working lives and individualisation of pension entitlements endured, **Member States shifted the emphasis from raising pensionable ages and tightening early retirement rules towards providing incentives to stay in work longer and to combine work with retirement.**

Examining pension reforms in more detail, four main trends can be identified.

**The first trend involves measures aimed at improving income maintenance and making pension systems more socially resilient and equitable through enhancing access and accruing entitlements.** This includes revising accrual rates, adapting calculation and indexation mechanisms, increasing tax exemptions, promoting savings in supplementary occupational or personal schemes, and improving access to pension schemes for specific categories of workers. Increased attention has been paid to improving the current or future pension accruals of the self-employed, carers and women. The gender dimension of pension reforms, already notable during the previous years, has become even more pronounced.

**The second trend focuses on promoting longer working lives and later retirement through positive incentives and greater flexibility in retirement pathways.** Over the past decade, significant increases in the pensionable age have been legislated for the coming two or three decades. Looking specifically at the last three years, Member States have continued to take steps to increase the period spent in work, but this time mainly by making it easier to combine a pension and employment, incentivising work beyond the pensionable age and extending the qualifying period for the pension entitlement.

**Thirdly, poverty reduction remains firmly on Member States' reform agendas,** with a focus on promoting access to basic old-age benefits and increasing the level of minimum pensions. In order to address the social and financial distress created by the COVID-19 pandemic, energy crisis and high inflation, national policy-makers assessed and adapted the adequacy of the national social benefits, including minimum income schemes and pension levels.

**Fourth and finally, the trend towards enhancing the role of funded pension schemes and fostering individual entitlements has become more prominent** – either through enhancing the role of collective occupational plans or by strengthening the role of statutory funded schemes. However, the latter have been subject to various (and sometimes even contradictory) changes over the past decade (see also PAR2015, PAR2018 and PAR2021), indicating that these policies are still in a process of maturing.

In what follows, these four trends will be discussed in more detail. This will be done based on Table 4, which maps the pension reforms adopted by the Member States by trend.

**Table 4: Pension reforms adopted, by trend, 1 July 2020 to 1 July 2023, EU-27 Member States and Norway**

Enhancing access to and accrual of entitlements	Prolonging working lives	Enhancing low-income pensioners' revenues	Strengthening funded pension scheme entitlements
BE, BG, CZ, DE, EE, EL, ES, FI, HR, FR, LT, MT, PL, PT, RO, SI, SK	AT, BE, CZ, DE, DK, EE, FR, ES, HR, HU, IT, MT, RO, SE, SI	BE, DE, EE, ES, CZ, CY, HR, LV, LT, MT, NO, RO, SE, SK, PT	BG, CY, CZ, EE, ES, IT, LV, LT, MT, NL, RO, SE, SK

Source: PAR2024, Volume II.

## 2.3 Pension reforms trends

### 2.3.1 Trend 1: Enhancing access to and the accrual of entitlements: making pension systems more socially resilient and equitable

**In the period 2020-2023, partially driven by the crisis context, Member States continued to improve access to and the accrual of entitlements to pension benefits.** Although this trend started in the previous period, **even more emphasis has been placed on making systems more socially resilient** by enhancing mechanisms such as pension indexation increases as well as promoting equity in the pension entitlements of some (vulnerable) population groups. This last dimension involves improved access to and the accrual of entitlements for carers (in most cases women), people with non-standard work statuses, and the self-employed.

**Indexation has played a prominent role in a context of high levels of inflation.** It was applied either automatically or, in several cases, as an exceptional temporary measure, by political decision (for more information on the temporary COVID-19 pandemic and energy crisis measures, see Section 4.1). At the same time, **this context also led to the adoption of some permanent measures implementing or revising indexation mechanisms**, sometimes justified politically by reference to the crisis (e.g. BG, EL, ES, HR, LT, NO, PL, RO, SK).

In Lithuania, for example, the pension indexation introduced in 2017 underwent two major changes. First, the indexation rule was adjusted on 1 January 2022. Previously, the government could decide not to index pensions if one of two conditions were met: negative GDP growth in the current and subsequent calendar years or a negative change in the economy's wage bill. The 2022 decision provides for pension indexation only to be suspended when *both* above-mentioned criteria are met. This measure enabled pensions to rise in 2022 despite a slight fall in GDP. Second, the regular pension indexation was supplemented by increasing the value of the pension point from January 2022 onwards. In Bulgaria, in October 2022 all contributory pensions were recalculated, using the accrual rate applicable in the month and year in which the pension was granted. Retroactive indexing was then applied (based on inflation or the increase in the country's average contributory income – whichever was higher) for each year since 2008. It was decided that pensions granted before 2008 would be treated as if they were granted in 2008. Finally, the result of this retroactive indexing would only be applied if it was in favour of the pensioner.

The one opposing example is Czechia. Here, similar to the situations described above, several indexations at non-standard dates linked to high inflation took place during 2022-2023.



However, to preserve financial sustainability, the government fast-tracked a law reducing the indexation of the earning-based component of old-age pensions in March 2023.

***Box 2: Evolution of indexation rules: deviations and their impact on reforms***

*Over the last two decades, many countries have adapted or temporarily suspended their general indexation rules, often driven by concerns over pension expenditure. Several countries suspended indexation due to financial or budgetary concerns, in particular in the wake of the 2008 financial crisis. Some countries have temporarily reduced pension indexation during the 2000-2019 period due to budget constraints. Some have introduced differentiated indexation rules by pension level, only fully indexing pensions below a certain threshold (IT, LV, AT).*

*Reduced or suspended indexation has triggered pension reforms in some countries. For example, in the Netherlands, the balancing mechanism forced several occupational pension funds to make nominal reductions in pensions in the aftermath of the 2008 financial crisis, followed by a decade in which many pension funds could not index pensions. This contributed to the 2019 Pension Agreement on the switch from defined-benefit (DB) to collective defined-contribution schemes, legislated in 2023. In Spain, an indexation mechanism introduced in 2014 to address financial sustainability issues resulted in pensions losing value in real terms; it was suspended in 2019, and automatic price indexation was reintroduced in 2023.*

**Tax or social contribution exemptions/reductions have also been implemented in some countries, with the aim of increasing the disposable income of old-age pensioners (e.g. EE, HR, MT, RO).** In Malta, for instance, since 2021, spouses who each receive a pension and apply for the married rate of tax make considerable tax savings thanks to their tax exemption. Moreover, from 2022, and for a period of five years, pension income will gradually no longer be taxable, starting with a 20 % exemption in 2022 and rising to 40 % in 2023 and 100 % in 2026. Since April 2023 in Croatia, the requirement to pay a 3 % contribution for health insurance has been abolished for pensioners below a certain income. In Romania, the constitutional court decided that healthcare insurance contributions from pensions higher than RON 4,000 are unconstitutional.

Building up better pension entitlements by improving access to and contributory periods for various population groups has been one of the most prominent trends during the period under examination.

**The trend towards improving pension entitlements for the self-employed, already observed in the two previous reports (PAR2018 and PAR2021), has continued in the last three years (e.g. BE, EL, ES, FI, PL, RO).** In Belgium, only 69 % of the income of self-employed people was taken into account when calculating their old-age pensions. In 2021, however, the calculation of old-age pensions for the self-employed was brought more into line with that for employees, thereby enhancing the pension calculation results for future beneficiaries. In Spain, in 2023, a new law on the social security regime for the self-employed was aimed at improving the benefits available to this group by increasing their social contributions through a system of contributions based on their net income. Since January 2023 in Finland, in order to tackle underinsurance, for the assessment of self-employment income more aspects are now taken into consideration along with a person's work input. This means that industry-specific median



wages, the value and the scope of the entire business activity, and the person's professional skills are taken into account. In Romania, since January 2023, the contribution base for pension insurance has been doubled to 24 minimum gross monthly wages per annum for the self-employed whose net income exceeds this threshold. Similarly, Poland has extended<sup>103</sup> the coverage of the system of lower social security contributions for the self-employed<sup>104</sup>.

**The trend towards improving entitlements for women has continued to reduce the GPG.**

In several cases, such measures involve improving pension entitlements for those caring for children and for people in need of LTC (e.g. BE, CZ, ES, SI), part-time workers (e.g. EL, ES, MT, RO) and single pensioners (e.g. LT, MT).

For instance, since January 2023, Czechia has rewarded childcare and strengthened its compensation by increasing the old-age pension<sup>105</sup> – for each child raised – of the parent considered to be the main carer (generally the mother). In Spain, one of various measures developed to reduce the GPG augments the contributory base for women with contribution gaps by increasing the number of gap years covered at 100 % of the minimum base from four to five years. The sixth and seventh years without having made any contributions will be covered by 80 % of the minimum base, as opposed to the current 50 %. Moreover, in 2021, a ‘gender gap supplement’ was approved to replace the maternity supplement introduced in 2016. Women are entitled to the new supplement as of their first child (previously as of their second one); fathers can also claim this supplement if their working careers have been affected (it was previously only available to mothers). The pension increase was applied for the first time in January 2023. Still in Spain, the new formula used to calculate old-age benefits has a mixed objective, explicitly combining fairness and solidarity. Under the new model, workers who retire before 2044 will be offered a choice of what benefits them most between two reference periods to calculate contributions: their last 25 years or their best 27 years among the 29 years prior to the retirement date. As a new feature, up until 2044, the 24 worst months of the career will not be considered in the calculation of the pension. This would favour people with irregular professional careers, generally women and self-employed workers. In France, to reduce the gap between women’s and men’s pension levels, a recent reform introduces certain compensations for mothers, including a guarantee that at least two trimesters of pre-existing pension bonuses – of up to eight trimesters – related to the birth, education or adoption of a child are allocated to a child’s mother rather than to an unspecified parent.

**Improved pension entitlements for carers, and thus indirectly for women as the main carers, have also been on the reform agenda of several countries.** In France, pension bonuses for informal/non-employed carers have been extended. In 2023 in Belgium, eligibility conditions for the guaranteed minimum pension were eased for two specific groups of workers, namely assisting spouses (of self-employed workers) and childminders. Before 2023, these

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<sup>103</sup> Initially adopted in February 2020 as a temporary measure.

<sup>104</sup> From February 2020 the option to pay lower social insurance contributions, proportional to revenue, was given to self-employed people with a revenue in 2019 below PLN 120,000 (EUR 26,667) for up to 36 months. This possibility was extended for an additional 12 months from August 2023. In 2023, around 200,000 self-employed people used this opportunity (‘Mały ZUS+’).

<sup>105</sup> Currently CZK 500 /month for each child (ca. EUR 20) should be valorised annually together with pension indexation.

groups were unable to build up pension rights. Hence, several of those whose career began before 2023 were not able to access the guaranteed minimum pension scheme either. As a result of these reform measures, in order to be eligible for the guaranteed minimum pension, assisting spouses and childminders must meet more flexible access conditions, instead of the existing condition of 30 career years. In Malta, since 2023, people receiving the carer's allowance (or increased carer's allowance) qualify for contribution credits, subject to having a sufficient insurance record before receiving the carer's allowance. Those not meeting this qualifying criterion will still be given up to four years of contribution credits.

**Some Member States have extended pension contributions for part-time work** to ensure better pension entitlements. In Romania, for instance, the monthly minimum insurable income for part-time employees has been set to the monthly minimum wage since August 2022, irrespective of the number of hours worked. This regulation was introduced to discourage tax evasion involving the use of part-time contracts to cover full-time work. The measure also, therefore, strengthens the pension protection of part-time employees. In Malta, from 2022 onwards, those workers who occupy several part-time jobs are allowed to strengthen their contributory record by paying social security contributions on more than one part-time job, up to a maximum of 40 hours a week.

**Undeclared workers have also been given the possibility of regularising their situation, notably with regard to social contributions.** In Greece, for instance, changes have been made to the statute of limitations for unpaid social insurance contributions. Since 2022, in Malta, people who were in undeclared employment before 1990 and for whom no records of social security contributions exist are entitled to pay up to five years of missing contributions. Moreover, since 2023, two years of contribution credits are paid in Malta for those who did not work for a period of time and while receiving psychiatric treatment between the ages of 18 and 30. In Romania, back-purchase of pension insurance periods is possible for those who conclude an insurance contract before 31 December 2024. Under this measure, implemented in September 2020, it is possible to choose a specific period(s) of up to six years from the past on which to retrospectively pay contributions, so that these are considered in the assessment of entitlement to old-age pension and of the amount payable.

**Although assessing the likely impact of pension reforms is not easy, as results may take years to become visible and are generally multifactorial, there are some visible trends in some countries, while others have set up quantifiable objectives.** First, some of the reforms described in this section, as changes to the indexation mechanisms, have already had an immediate impact on current benefit levels. Second, in some countries, reforms are projected to affect certain indicators in a quantifiable way. In Lithuania, for instance, the changes to the indexation mechanisms described above will be applied annually until the AROP rate for older people falls below 25 % and the average pension replacement rate exceeds 50 %. In Czechia, it is expected that the aforementioned measure increasing pension benefits for the parent providing the main care will lead to a fall of about 5 pp in the AROP rate for retired women. In Spain, the gender gap supplement will be applicable until the gender gap falls below a certain level. In France, the current reform sets the objective of reducing the GPG by half by 2027 and fully by 2050. Several reforms targeting those with certain work statuses, such as self-employed people and even undeclared workers, should improve access and entitlements to old-age

benefits (e.g. BE, EL, ES, FI, PL, RO). At the same time, some reforms may not be able to reconcile these last two objectives. For instance, in Poland, the option to temporarily (up to three years over a five-year period) pay lower social insurance contributions, proportionally to income, is expected to improve access to the pension system for certain self-employed categories – but at the risk of low pension entitlements.

**Some Member States have taken steps to improve pension entitlements for single or divorced people.** In Lithuania, in 2021, a single person’s allowance was introduced for single pensioners not receiving a widow(er)’s pension. In Malta, since March 2023, in cases of divorce, it is possible to transfer social security contributions from one spouse to another.

In Germany, benefits for reduced earnings capacity pensions that started between 2001 and 2018 will be significantly increased from 1 July 2024. This will benefit those pensioners who did not fully benefit from the previous improvements.

### *2.3.2 Trend 2: Encouraging longer working lives through positive incentives*

Pension reforms aimed at prolonging working lives continued in the period under examination, with an emphasis on **incentives to defer retirement or combine work with old-age benefits**. While only a few further reforms target increasing the pensionable age, **Member States have continued to restrict possibilities for earlier retirement**. At the same time, **some Member States have relaxed eligibility conditions for pension benefits for people with long careers or specific work statuses**. These reforms should be seen in the context of the earlier wave of reforms, which mostly focused on increasing pensionable ages and significantly reducing early-retirement pathways, aiming to strengthen the fiscal sustainability of pension systems in the aftermath of the financial crisis (see PAR2015, PAR2018, PAR2021).

**Several Member States have promoted later retirement by offering or increasing bonuses for remaining longer in work, allowing work and retirement to be combined, or increasing the age ceiling for deferred retirement** (e.g. DK, EE, ES, HR, HU, MT, AT, RO, SE). In some countries, for instance, bonuses were introduced (e.g. AT) or increased (e.g. HR) for each supplementary month of work after the pensionable age. Another measure in Croatia aimed at keeping older workers in work is that employers will not have to pay severance pay or establish a notice period for those over 65 with 15 years of pensionable service. In Denmark since 2023, it is possible to combine full receipt of the flat-rate amount and pension supplement with income from work, and regardless of the income of the partner. In Croatia, public sector employees are now allowed to combine work with pension receipt, as is the case in the private sector. In Germany, from 1 January 2023, in order to further increase work incentives, the additional earnings limit for early old-age pensions was abolished.

**Only five countries have raised their pensionable ages (DK, FR, HU, SE, SK).** The lack of new legislation increasing pensionable ages can also be explained by the fact that in most countries this was done in the past decade (see PAR2015, PAR2018 and PAR2021). The current age stands at around 65 in most Member States (see Table 5). France adopted a reform to raise the lowest pensionable age by three months every year starting from 1 September 2023, from 62 to 64 by 2030. In Sweden, the highest age for remaining at work was raised from 67 to 68 in 2020 and to 69 in 2023. The lowest pensionable age has been raised from 61 to 62 in 2020

and to 63 in 2023. In Slovakia, the future pensionable age is expected to rise due to the removal of the age ceiling (adopted in 2022 and in force since 2023), linking it instead to average life expectancy (this measure applies to people born in 1967 or later).

**It should be noted that Ireland and Slovakia have introduced reforms reducing (scheduled increases of) the pensionable age.** Ireland has reversed a planned increase in the pensionable age, with the government deciding that it will remain at 66 and not continue to rise as scheduled to 68 in 2028. At the same time, more flexibility to remain in employment has been introduced (see above). In Slovakia, the pensionable age has been reduced by six months per child (up to three) for women who have raised at least one child, and for men who have raised at least one child alone.

**Table 5: Pensionable ages (1 January 2023 and legislated future changes), EU-27 Member States and Norway**

	Current (1 January 2023)		Future			Current (1 January 2023)		Future	
	men	women	men	women		men	women	men	women
<b>BE</b>	65		66 (in 2025), 67 (in 2030)		<b>LT</b>	64y6m	64y	65 (in 2026)	
<b>BG</b>	64y6m	62	65 (in 2037) +LE		<b>LU</b>	65		65	
<b>CZ</b>	64	60-64 <sup>1</sup>	65 (by 2037) +LE		<b>HU</b>	65		65	
<b>DK</b>	67		69(2035) +LE		<b>MT</b>	61-64 <sup>2</sup>		61-65 <sup>2</sup> (in 2027)	
<b>DE</b>	65y11m		67 (2031)		<b>NL</b>	66y10m		67 (in 2024) +LE	
<b>EE</b>	64y3m		65 (in 2026) +LE		<b>NO</b>	62-75 <sup>3</sup>		62-75 <sup>3</sup>	
<b>IE</b>	66		66		<b>AT</b>	65	60	65	65 (in 2033)
<b>EL</b>	62-67 <sup>2</sup>		+LE		<b>PL</b>	65	60	65	60
<b>ES</b>	65-66y4m <sup>2</sup>		65-67 <sup>2</sup> (in 2027)		<b>PT</b>	66y4m		+LE	
<b>FR</b>	62-67 <sup>2</sup>		64-67 <sup>2</sup> (in 2032)		<b>RO</b>	65	62	65	63 (in 2030)
<b>HR</b>	60-65 <sup>2</sup>	60-63y3m <sup>2</sup>	60-65 (in 2030)		<b>SI</b>	65		65	
<b>IT</b>	67		+LE		<b>SK</b>	61y6m-63y <sup>1</sup>		62y6m-64 <sup>1</sup> (in 2030) +LE	
<b>CY</b>	65		+LE		<b>FI</b>	64-69 <sup>3</sup>		65-70 <sup>3</sup> (in 2027) +LE	
<b>LV</b>	64y6m		65 (in 2025)		<b>SE</b>	63-69 <sup>3</sup>		+LE (from 2026)	

Notes: 'Pensionable age' denotes the age of eligibility for a full old-age pension from the main statutory pension scheme; '+LE' – adjusted for life expectancy; (1) depending on the number of children raised; (2) depending on the length of the contribution period; (3) flexible pensionable age linked to benefit level.

Sources: MISSOC (Mutual Information System on Social Protection), ISG, PAR2024 Volume II.

While only a few changes have been made to the pensionable age, **measures to restrict early retirement possibilities have continued** (see PAR2018 and PAR2021) as an important pathway for prolonging working lives (AT [heavy labour], CZ, EE, EL, FR, HR, IT). In

Czechia, for instance, the eligibility age has been raised from five to three years before the pensionable age for those with 40 years of insurance (currently 35 years). Moreover, the penalty for early retirement will be stricter (with an exception for people with 45 years of pension insurance) and early pensions will not be subject to indexation until the recipient reaches the statutory retirement age. In Italy, as the ‘Quota 100’ allowing early retirement was scheduled to expire in 2021, a new quota system was adopted in 2022: the Quota 102 pension. This enables people with 38 years of contributions to retire at 64<sup>106</sup>. In 2023 the requirements were further tightened by introducing the Quota 103 pension: until 2 December 2023, retirement at 62 was possible for those with 41 years of contributions.

**Contributory periods** were extended in very few cases. In France, the minimum contribution record for a full pension at the lowest pensionable age (see above) will be increased by three months every year from 1 September 2023, from 42 to 43 years by 2027. Previously, it was scheduled to reach 43 years by 2035.

**Exceptions have remained or been introduced for people with exceptionally long careers** (depending on the context in the country) or **specific work statuses** (workers in arduous or hazardous jobs). As regards relaxing early-retirement rules, this happened mostly for people with long careers, or extending a previously scheduled phasing-out period (e.g. DK, ES, FR, HR, IT, LT). In Italy, several reforms have extended early-retirement provisions for specific groups while tightening eligibility criteria. In 2020 and until December 2021, the ‘woman option’ was extended for one year, allowing women with 35 contributory years to retire at 58 if they switched from the ‘mixed’ (partly earnings-related, partly notional defined contribution – NDC) pension calculation method to the NDC (with its lower pensions). This option was refinanced until the end of 2022, and has since been extended until December 2023, albeit with substantially tighter eligibility requirements. A similar example, still in Italy, is the extension of the ‘Social APE’. First introduced on a trial basis for the period 2017-2018, this social early-retirement scheme allows workers from 15 targeted categories to exit the labour market up to four years earlier than the standard pensionable age (SPA). In 2022, the number of targeted categories was increased from 15 to 23, while the minimum contribution years required was reduced from 36 to 32 years for workers in the construction sector. In Spain, from 2022 onwards, a new supplement was introduced for early retirement for those with long contribution periods. In Lithuania, more favourable conditions for early retirement were introduced on 1 January 2021. Until that date, the old-age pension was reduced by 0.4 % for each month of retirement prior to the pensionable age. In 2021, the reduction coefficient was lowered to 0.32 % per month. Moreover, from 1 January 2022 onwards, the old-age pension is no longer reduced after reaching pensionable age for employees who received the early-retirement pension for no more than three years and who had a long contribution period (of at least 40 years and six months in 2023) at the time this pension was awarded. This requirement will be increased for newly awarded old-age pensions by three months annually until 2031, to reach 42 years and six months. In Austria, starting in 2022, benefit deductions were reintroduced for specific types of early retirement (after they had been abolished in 2020). However, at the same

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<sup>106</sup> 38+64=102, hence the name of the system.



time, to compensate people employed at a relatively early age, an ‘early starter bonus’ has been introduced. It is granted to people retiring after 1 January 2022 who worked between their 15<sup>th</sup> and 20<sup>th</sup> birthdays and who paid at least 12 months of pension insurance contributions during this period.

The increases in pensionable ages and the incentives to stay in employment longer are expected to extend average working lives – essential for preserving the sustainability and adequacy of pension systems. While changes to the pensionable age and restrictions on early retirement are measures with a direct impact, the take-up of positive incentives and flexible retirement possibilities is more difficult to evaluate.

### *2.3.3 Trend 3: Enhancing low-income pensioners’ revenues through better access to basic/minimum old-age benefits*

**In the context of the crisis period under examination in this report**, Member States implemented mostly temporary measures (see Section 4.1), but also **continued to permanently strengthen anti-poverty safety nets**. Some of these measures were targeted at people with long careers.

Most countries resorted to raising basic/minimum pension levels (e.g. AT, BE, BG, EE, ES, HR, IE, LV, RO, SI, SK, PT) or providing better access to pensions. In Lithuania, before 2022, eligibility for the full general (basic) component (i.e. the full basic pension) was subject to fulfilling the compulsory contribution period. Since 2022, this condition has been relaxed to fulfilling the minimum contribution period. Several countries improved the benefit level or access to survivors’ pensions (e.g. BE, ES, HR, MT), made changes to the pension calculation formula to benefit low-income pensioners, or introduced an income supplement for low-income pensioners (e.g. CY, DE, SE).

In Germany, since 2021, individuals with at least 33 years of mandatory contributions to the statutory pension systems and below-average earnings have been granted an individually calculated pension supplement. In parallel, an allowance was introduced under the German ‘basic social assistance in old age and in the event of reduced earning capacity’ scheme for people with at least 33 years of credited periods in compulsory pension systems. Croatia introduced a basic pension in 2020. Sweden also introduced a supplement for low-income pensioners aged over 66 and with a long work history (at least 40 years).

Poland and Bulgaria are examples where one of the temporary crisis measures became permanent. In Poland, the means-tested 14th old-age benefit will be granted annually, and in Bulgaria the COVID-19 pension supplement was incorporated into the personal pension amount and thus became a permanent payment in July 2022.

**Reforms of basic and minimum benefits are likely to help improve the income situation of low-income pensioners.** In Belgium, for instance, as a result of increases in the minimum pension and index adjustments, the objective of achieving a minimum amount of EUR 1,500 net for a full career has been reached (45 years of seniority).

### *2.3.4 Trend 4: Strengthening the funded components of old-age benefits*

During the period under examination, **several Member States enhanced the funded component of pensions**. In some cases, such measures involved enhancing collective rights to occupational pensions, while in others individual rights were strengthened, namely in the statutory funded schemes.

#### **A) Statutory funded schemes**

**Reform trends pursue various objectives such as improving governance, increasing contribution rates, changes in benefit payment (BG, EE, LV, LT, RO, SE, SK) and even the establishment of such a scheme in Greece.** These ongoing changes and even the complete overhaul of such schemes over the past decade (see PAR2018) mean that they are still maturing and subject to frequent parametric reforms.

**Greece implemented a systemic reform in 2021, establishing a statutory funded scheme – ‘auxiliary (secondary) pensions’.** This reform provided for a transition to a fully funded defined-contribution scheme, financed by mandatory social insurance contributions. This new system applies to those entering the job market as of January 2022 and those born after January 2004, as well as, on a voluntary basis, to currently insured people aged up to 35.

**Both the pay-in and pay-out phases of statutory funded pension schemes have been the subject of reforms.**

Most changes to the pay-in stage involve **raising contribution rates or improving the choice of statutory funded individual plans (e.g. BG, LV, RO)**. Romania has increased contributions by 1 pp. In Latvia, such schemes offer three types of pension plans: active, balanced and conservative, depending on the investment strategy. Up to 2021, newly registered scheme participants (those not explicitly applying for a specific pension plan) were automatically assigned to a randomly selected conservative plan (not permitted to invest in stocks). In 2022, this default plan was changed from conservative to active. In Slovakia, since 2023, a reform in the investment options for new members and those younger than 54 is expected to stimulate the growth of returns for passive insurers who have not taken any decisions since joining the statutory funded pension scheme.

**The pay-out stage has also been reformed in some countries, leading to more choice in payment plans (e.g. BG, LV).** In Bulgaria, since 2021, the type of payment depends on the funds accumulated in an individual account. A lifetime annuity is only granted if its amount is not less than 15 % of the minimum old-age pension. In other cases, pensioners receive either a lump sum or, if the total accumulated funds are 3 times higher than the minimum old-age pension, a scheduled draw-down. In Latvia, as of 2023, the regulation governing the pay-out phase of the statutory funded pension has been changed, establishing a set monthly amount for the whole period of retirement. (It was previously possible to divide it into three sub-periods with different benefit levels: this resulted in low life annuity levels during the last sub-period, undermining pension adequacy in the oldest age group of pensioners.) In Romania, the primary legislation in the field of mandatory private pensions was amended in December 2022 so that now, in the case of disability, the participant receives the payments from pillar II regardless of the degree of disability in which they are classified.

**In Estonia a reform took a direction opposite to the above-described trends – since 2023, members can opt out of the system.** Members have three options: to withdraw all the money; to suspend new payments and leave the accumulated money in the fund; or to transfer the accumulated assets from funds to an individual pension investment account.

## **B) Occupational pension schemes**

Occupational pension legislation was enacted in five Member States, aimed at strengthening pension adequacy and the income sources in old age (CY [public sector], ES, IT, MT, NL). Spain adopted legislation aimed at boosting occupational pension schemes through the creation of publicly promoted employment funds to facilitate the enrolment of all types of workers in occupational pension schemes. The creation of sectoral employment plans is also encouraged, allowing companies in a certain sector to directly join the pension plan of the corresponding sector. Cyprus has granted access to occupational pensions to public sector employees appointed since 2011 (who, previously, had been excluded from these pensions since that year). These new measures will fill a gap that existed for almost 10 years and was the subject of longstanding negotiations between the social partners, as it led to inequities or inequalities between older and younger cohorts of public servants.

There is also the specific case of the Netherlands, which carried out a systemic reform (i.e. a significant overhaul of the occupational pension system), making it more individualised (see Box 3).

### ***Box 3: The Netherlands: a systemic reform of occupational pension schemes – towards the individualisation of, and a more market-orientated return on, entitlements (2023)***

*Occupational pensions providing defined benefits are more important in the Netherlands than in many EU Member States, as they are closely integrated into the flat-rate statutory scheme. Together they provide an old-age benefit amounting to around 70 % of average wages for 40 years of service.*

*By far the most important measure under the reform is the transition from defined benefit (DB) to collectively defined contribution occupational pensions, with new pension contracts no longer providing fixed benefits, but instead making benefits more directly dependent on pension funds' investment performance. Moreover, pension funds may implement different investment strategies for different age groups. For example, younger participants with a longer investment horizon may be exposed to a higher risk/reward, while older generations' pensions are kept relatively risk-free and therefore more stable. To balance the risk throughout the economic cycle and thus ensure solidarity between generations, the new contracts will include a collective solidarity reserve to even out any large downturns or upturns. Finally, the system introduces greater entitlement flexibility with a view to adjusting the occupational pension system to a more flexible labour market in which few people enjoy lifelong careers with a single employer, and to more flexible forms of employment contract.*

*The likely impact of the reforms is manifold. First, the new collectively defined contribution pensions give workers entitlements in terms of personal 'pension capital'. By allowing workers to accrue pension benefits on an individual basis, the government and social partners hope to improve transparency regarding workers' future pensions and – by extension – to restore public trust in a pension system hit by the losses incurred following the 2008 financial crisis. Furthermore, the transition to collectively defined contribution pensions is expected to reduce the regulatory burden*



*on pension funds, as the current DB system requires them to maintain large buffers and only allows indexation under strict conditions.*

*Another likely impact of the upcoming reform is improved inter-generational fairness. Under the outgoing system, employees pay the same contribution (the uniform contribution rate) and they all accrue the same percentage pension rights independent of their age. This system may be considered disadvantageous for younger participants, as their contributions have a longer investment horizon than those of older workers, while their accrual rates are the same. This is especially a problem when workers change jobs or move to self-employment, as is becoming increasingly common. One issue related to the reform is the transfer of the old pension rights to the new system. Under the new system, each employee will accrue individual pension rights. As the contributions of younger employees have longer investment horizons, they will generate higher pension accruals than those of older employees. Analysis shows this poses a potential problem for middle-aged workers (aged 40-50). Social partners are currently discussing the need for financial compensation for this group of workers to avoid pension gaps as a result from the reform.*

*See Volume II for more details.*

## 2.4 Ongoing and planned reforms

In several countries, there are ongoing and planned reforms confirming trends highlighted during the period under scrutiny. Some Member States are planning to improve the level of benefits (e.g. RO), to make it easier for the self-employed to combine work with employment (e.g. LU) or to improve occupational pension entitlements (e.g. CY). In Luxembourg, a proposed law would make it easier for the self-employed to combine early pensions (at the age of 57 or 60) with work. Romania intends to introduce a new pension formula for the statutory public pension scheme, along with a reform of the special pension schemes. The reforms are aimed at increasing the adequacy of benefits by creating a closer link between contributions and benefits.

Germany is currently preparing a reform to introduce mandatory old-age provision for self-employed people, which is currently the case only for certain categories of the self-employed. New self-employed people will be insured in the statutory pension system unless they choose an equivalent private pension product ('opt-out').

In November 2022, Ireland announced a series of landmark reforms to the state pension system, including a gradual increase in social insurance contribution rates, a 'total contributions approach' for calculating individual pensions entitlements and state pension provision for long-term carers, to be introduced from January 2024. Ireland is also preparing auto-enrolment into occupational pensions, which is expected to start in the latter half of 2024.

Poverty-reduction measures are also being discussed in certain countries, including introducing or increasing a minimum pension or a basic pension component (e.g. LV, NO). Positive incentives (e.g. bonuses, and more flexible rules on combining work and retirement) to encourage longer working lives remain firmly on the pension reform agenda (e.g. BE, LU). Finally, improving pension system awareness and enhancing knowledge about entitlements through digital tools is also on the agenda of some Member States (e.g. DE, PL).

### 3 ADEQUATE PENSIONS IN A LONG-TERM PERSPECTIVE

#### 3.1 Theoretical replacement rates and pensions in the future

This chapter examines the extent to which people entering the labour market today can expect an adequate pension when they retire, how various career scenarios and life events affect their income replacement in retirement, and hints at what they can do to enhance their chances of enjoying a decent standard of living in old age. It does so on the basis of theoretical replacement rates (TRRs), which indicate what percentage of their last work income as an employee in the private sector a pensioner would receive at retirement.

**The chapter thus provides an assessment of future pension adequacy, with a focus on income replacement,** although poverty protection and pension duration are also addressed. Using the TRRs (see Box 4), which allow for an analysis of income maintenance after specific careers, this chapter compares income replacement for future retirees with workers retiring today, as well as the variations observed in income replacement linked to earnings levels, career paths and various life events. To an extent, TRRs also give indications as to the future adequacy performance of pension systems in relation to: (a) poverty protection, by assessing pension outcomes linked to low-income and discontinuous careers; and (b) duration, by assessing pensions 10 years after retirement.

#### **Box 4: Theoretical replacement rates (TRRs)**

*TRRs are standard simulations, also known as model person simulations, that measure how a hypothetical retiree's pension income in the first year after retirement would compare with their earnings immediately before retirement. They are defined as the level of pension entitlements people would receive in the first year after retirement, measured as a percentage of individual earnings the year before retirement, at the moment of pension take-up. They therefore mainly reflect the income-maintenance dimension of pension adequacy (see also Sections 1.3 and 1.4 for more on income maintenance and development in old age). TRRs are calculated for a number of hypothetical cases, with assumptions on a given career length, earnings level and age of retirement.*

*Computing TRRs involves several assumptions, ranging from the specific career path to salary, inflation and interest rates over decades. Therefore, calculations based on even slightly different assumptions can yield very different results. TRR cases can be more representative in one country than another, and their levels are weakly comparable across countries. However, their sensitivity to various career and life events can be compared, and this comparison can yield insights into pension systems' adequacy-related performance.*

*TRRs are calculated for a hypothetical worker in a base case and for a given set of variant cases<sup>107</sup>. TRRs are therefore used to assess pension adequacy by altering career paths and observing how pension levels are affected. This is done by comparing the pension outcomes associated with different career paths with a baseline, the 'base case', characterised by an uninterrupted career of 40 years ending at the SPA<sup>108</sup>*

<sup>107</sup> The reader can consult the annex on the TRR methodology, which includes key definitions for each career case: see here <https://ec.europa.eu/social/main.jsp?catId=738&langId=en&pubId=8613>

<sup>108</sup> The standard pensionable age, or SPA, is the earliest age at which people can retire after a 40-year career without incurring any penalties; however, the SPA in Luxembourg was set at 65, as an exception.

(see Box 5). Insights can then be gained by comparing women with men, high earnings with low earnings, people retiring in 2022 with people starting a career in 2022 (most retiring in 2062), longer and shorter careers, continuous and interrupted careers, and so on. Comparing TRRs that result from these scenarios can also provide insights into the role of taxation or the impact of indexation rules. In particular, in the base case a prospective TRR is calculated assuming someone entering the labour market in 2022 and leaving in 2062, as well as a current TRR of someone assumed to retire in 2022. A comparison of these 2022 and 2062 TRR values indicates the impact on adequacy of recent pension reforms, whose effects often play out over decades.

The comparisons presented below focus on the net TRRs, as this reflects the contribution of pensions to disposable income. Wherever net TRRs are provided, it is important to note that the observed results also include the effect of taxation. Comparing net TRRs with the gross TRRs gives indications of the impact of taxes, which is also explored in Section 4.3.

Table 6 illustrates the current base-case TRRs that serve as a point of reference for the other cases. As noted above, the base case is influenced by several assumptions and should therefore not be interpreted in itself as an indication of current adequacy or used for a cross-country comparison.

**Table 6: Net theoretical replacement rates, base case (40-year uninterrupted career ending at the standard pensionable age), men and women average-earners, retiring in 2022, EU-27 Member States and Norway**

	BE	BG	CZ	DK	DE	EE	IE	EL	ES	HR	FR	IT	CY	LV
Men	77.4	76.2	65	71.7	69	32.9	77	81.1	98.6	53.6	77.9	80.6	65.6	60.2
Women													64.4	
	LT	LU	HU	MT	NL	AT	PL	PT	RO	SI	SK	FI	SE	NO
Men	44.2	99.7	94.0	67.9	104.8	82.9	76.3	93.2	80.9	66.5	66.6	62.7	66.5	59.6
Women	44.0					82.5	63.3		88.4	68.6				

Note: In some countries (e.g. BE) the assumed 40-year career does not give the right to a full pension.

Source: OECD and Member States.

The calculations include pension schemes that are mandatory or widespread in the given country (see in Annex the list of national pension schemes covered<sup>109</sup>). Hence, while for some countries the analysis is limited to public mandatory schemes, in others it may also include (for example) occupational schemes. The assumptions may affect even more the forecasts including supplementary pension schemes (for instance, the assumed capital returns or one-off/temporary bonuses that some supplementary schemes pay upon retirement). The underlying economic and demographic assumptions for the period 2022-2062 match the [2023 population projections](#) from Eurostat and the employment and economic projections adopted in the [Ageing Report 2024](#).

Current (2022) TRRs are computed for fewer cases – base case, Ageing Working Group (AWG) case, some career breaks – and are used as a baseline to assess future adequacy via the projected 2062 TRRs, which apply to a wider array of career profiles. In both the current TRR and the projected TRR, the ‘base-case’ career assumes a worker who is employed uninterruptedly for

<sup>109</sup> The reader can consult the list of national pension schemes covered: see here <https://ec.europa.eu/social/main.jsp?catId=738&langId=en&pubId=8613>

40 years in the private sector<sup>110</sup>, until the standard pensionable age (SPA), which is reached in 2022 and 2062 respectively (see Box 5). These current and projected base-case TRRs are compared with each other and used as a baseline for measuring the impact of various career and life events. Also, in the base case, TRR levels depend on a number of factors and assumptions that can have varying effects in different countries; thus, they are not directly comparable across countries. Although assumptions and computation details can also affect comparisons, TRR changes in time and TRR differences between career profiles are more comparable across countries than the TRRs themselves.

### ***Box 5: The base case***

*The base case assumes a worker who retires at the SPA (see Box 6 below) after an uninterrupted 40-year career on a standard employment contract. There are three career income profiles: average, low and high. The base case is the standard scenario, against which the other cases are compared. The base-case TRRs are calculated separately for the worker retiring in 2022 (the current TRR) and in 2062 (the projected TRR).*

*While the base-case TRR is computed for both women and men, differences in pension rules between the sexes lead to differences in the current TRRs in only six Member States, and in projected TRRs in only two. Note that, since the denominators of the TRRs of men and women are the same end-of-career salary for both sexes, a higher TRR would mean a higher pension benefit. The 2022 gap is to the advantage of men – that is, with slightly lower TRRs for women in Lithuania (by 0.16 pp) and Austria (by 0.45 pp), while the gap would narrow to zero by 2062. In Poland, it narrows from 13 pp in 2022 to 9 pp in 2062. In Slovenia, the 2022 TRR is slightly higher for women than for men (by 2.11 pp). And in Romania, the situation turns from a gap of 7.5 pp to the advantage of women in 2022 to one of 3.8 pp to the advantage of men in 2062. Gender differences also emerge in some alternative career cases, in particular child-related breaks that can carry a pension bonus or special credits for mothers.*

*Furthermore, when comparing countries, one must bear in mind that in those countries where pension benefits are accrued over the course of careers longer than 40 years (e.g. BE), the results based on 40 years will correspond to incomplete careers or to pensions that are lower than theoretically possible, whereas in other Member States they will correspond to the maximum possible pensions. See for instance the note under Figure 37 below.*

Another important factor is the standard pensionable age (SPA) that is used to compute the TRRs (see Box 6). As indicated in the table of pensionable ages (see Chapter 2, Table 5), in many countries people can retire at different ages. To enable calculations and comparisons, a single SPA is assumed for each country, year and sex. Even in the fixed-duration base case (i.e. 40 years leading to the SPA), we must bear the SPA in mind. As an illustration, in the TRR for Polish women the careers are assumed to start at age 20, whereas the careers in the Danish TRR

<sup>110</sup> Adding other economic sectors, for instance the public sector, has been deemed too complex, as in many countries these have specific, varied pension schemes.

start at age 33<sup>111</sup>. This has an even larger impact on other career variants, for instance the one where careers start at age 20 for all (see Section 3.4), since the SPA difference yields different career lengths.

**Box 6: The standard pensionable age (SPA)**

*The calculation of TRRs requires the specification of a pensionable age. This is not straightforward in all Member States. Pensionable age varies depending on the length of career or starting age in a number of Member States. In some countries, the pensionable age varies depending on variables that are outside the scope of this exercise; for instance, in Czechia, on the number of children that a woman has had. In others, such as Sweden, people can choose to retire within a range of ages. (See Table 5 in Chapter 2 for more details.)*

*For the purposes of TRR calculations, countries are therefore compared according to a single pensionable age, called the standard pensionable age (SPA). This is defined as the earliest age at which people can retire after a 40-year career without incurring any penalties. It can – but in most cases does not – vary between women and men; it often varies between the different reference years (2022 or 2062). In Bulgaria the minimum career is 37 years for women (40 for men) for an SPA set at 65; otherwise, retirement is possible from 67. In the case of Slovenia, the SPA is set at 65 (67 in 2062), although people could retire at age 60, provided they had started working at age 20 (this would also apply to LU). In Sweden, the SPA is assumed to be 65 (69 in 2062). In Luxembourg, it is set at 65 in 2022 and 2062. In the other countries the definition above applies directly.*

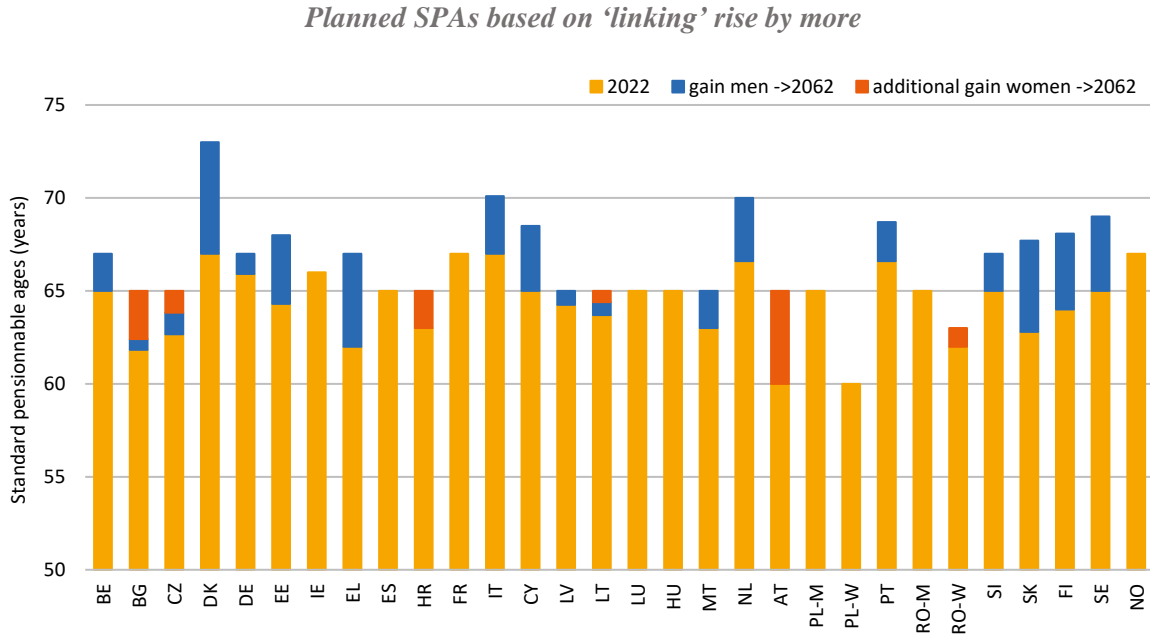
Countries that have linked pensionable age to life expectancy<sup>112</sup> tend to have larger projected SPA increases, since these decisions cover a long span and life expectancy is expected to continue rising. Other countries generally limited their legislated increases, if any, to the next decade (Figure 36).

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<sup>111</sup> For Polish women, current legislation sets a 60-year retirement age without penalty. For Danish workers, current legislated linking rules allow us to project the retirement age to 73 in 2062, calculated on the basis of the Eurostat life expectancy assumptions.

<sup>112</sup> Linking is usually to life expectancy at age 65 and applies a range of percentage increases, such as half, two thirds or full. Depending on the specific formula, SPA increases may be faster or slower.

**Figure 36: Standard Pensionable Ages (SPA) in 2022 and 2062, in years, women and men, EU-27 Member States and Norway**

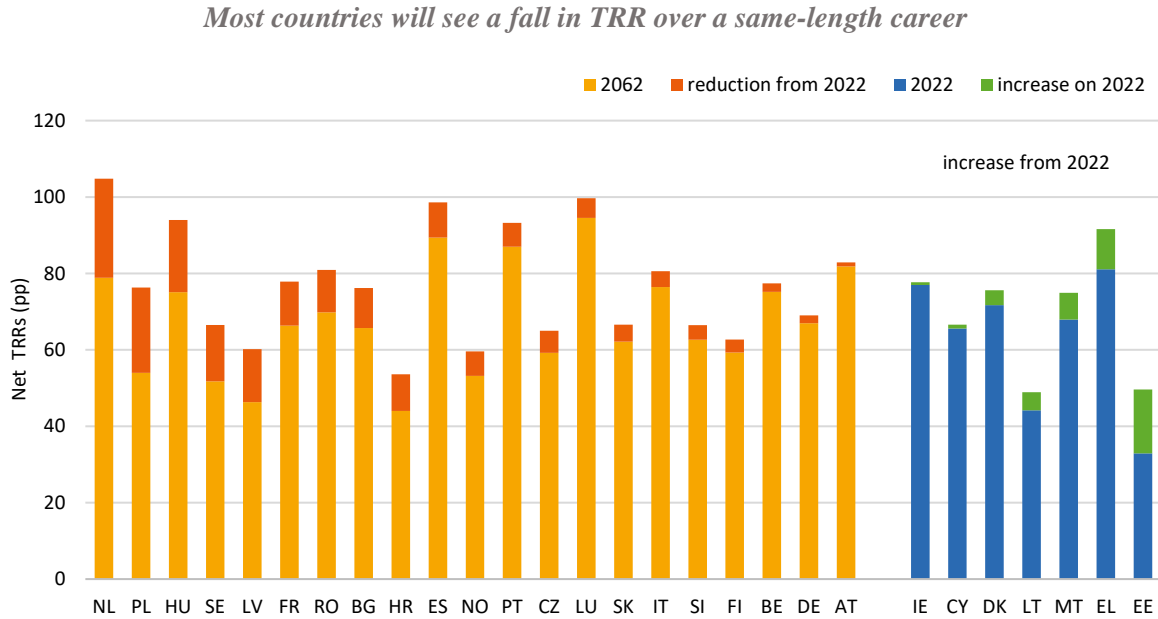


Notes: The two countries where the 2062 SPA differs for women and men (PL and RO) are duplicated (M: men, W: women). The top of each bar is the 2062 SPA. Countries for which both a 'men increase' and a 'women increase' is visible legislated different increases for women and men. The 'men increase' also includes a 'women increase'; if a 'women increase' is also visible, it is intended to be cumulated with the 'men increase'.

Source: Member States.

**In the case of standard, 40-year careers, replacement rates are set to fall over the next four decades in most countries.** Compared with the 2022 values (see Table 6) the 2062 values are higher in only seven countries, and lower in 21 (Figure 37). One way of looking at this is to say that a 40-year career is less likely to lead to a higher pension for a standard career in 2062 than it did in 2022. This implies that adequate pensions will increasingly depend on longer careers. Large falls are projected in the Netherlands and Hungary (albeit from a high level), in Poland, Sweden, Latvia and, to a lesser extent, Romania and Bulgaria. In all other countries, the changes are below 10 pp. Moderate increases are projected in Denmark, Lithuania, Malta and Greece, and a stronger increase in Estonia (16.7 pp).

**Figure 37: Net TRRs, base case (40 years to SPA), average-earner, 2022 and 2062, men, pp, EU-27 Member States and Norway**



Notes: Ordered from biggest to smallest fall. In some countries such as BE and FR, a full pension is not granted under the base-case conditions. In CZ, part of the outcome comes from the exceptional uprating of pensions granted in 2022. Source: OECD and Member States.

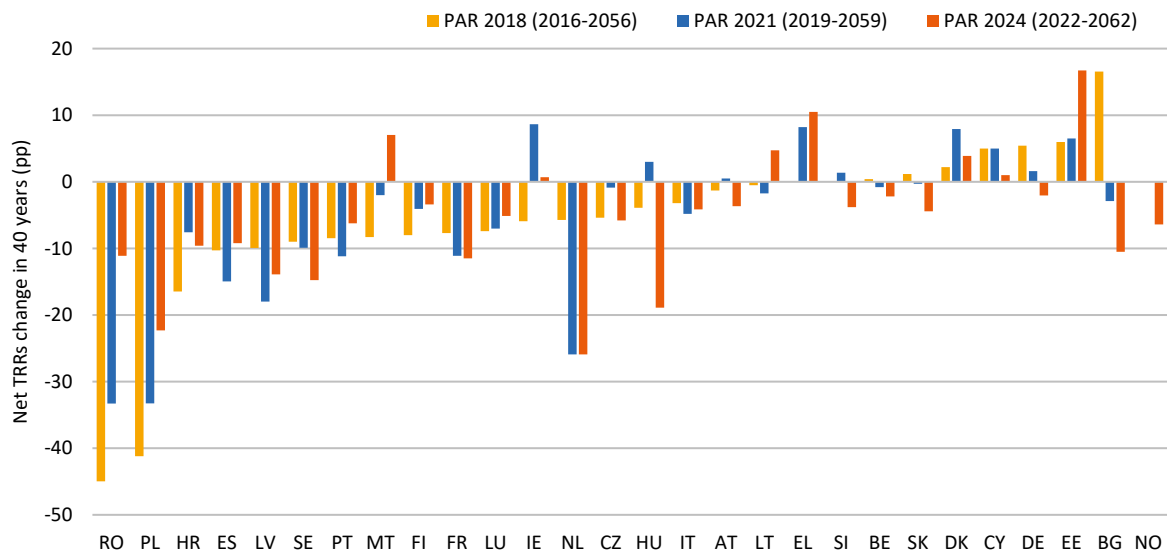
**The reduction in adequacy confirms the results of earlier analysis.** A similar comparison was shown in PAR2018 and PAR2021<sup>113</sup>. Figure 38 below compares the difference between the current and projected base TRR values in PAR2018 and PAR2021 with the current results. For most countries, the fall between the current and prospective TRRs persists through the successive versions of the PAR. But there have been quite marked changes in a few countries. For instance, in Romania the large reduction in pension levels projected six years ago, and partly reduced in PAR2021, is now more moderate. On the contrary, in Bulgaria, there was an increase projected in PAR2018 while PAR2024 now projects a reduction.

<sup>113</sup> The results of the three exercises must be compared with caution. Whereas the base-case definition has not changed, the guidelines have, albeit slightly. Still, in such a complex undertaking, even small changes in approach may make a large difference.



**Figure 38: Net TRRs change in 40 years, base case, PAR2018, PAR2021 and this exercise (PAR2024), in pp, EU-27 Member States and Norway**

*A few countries see large differences in projections, compared with the previous exercises (PAR2021 and PAR2018)*



*Notes: Ordered by difference calculated in 2018. No 2018 data for EL. FI: the smaller change in PAR2021 compared with PAR2018 is mainly explained by a change in base-case calculation assumptions. In 2018, the SPA was assumed to be higher (according to the national pension system) and the earnings-related pension included an increment for late retirement. In 2021 and 2024 calculations, the SPA is in accordance with the earnings-related system pension age. The outlook difference in HU is due to the different calculation method.*

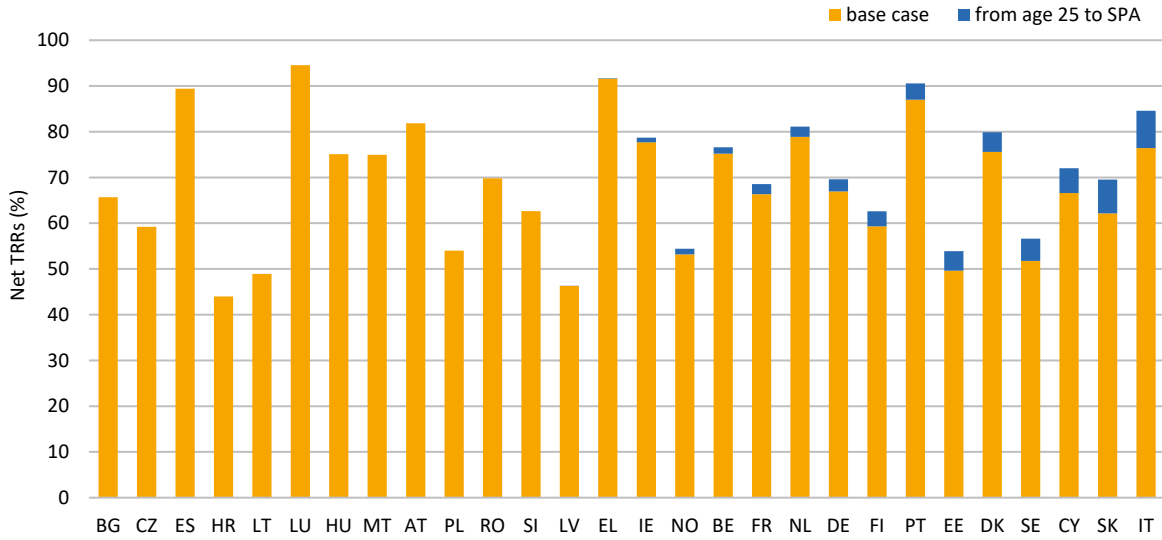
*Source: OECD and Member States.*

Table 5 in Chapter 2 shows that in some countries the pensionable age is set to increase considerably by 2062, among other things because it is expected to rise with life expectancy. As a result, the 40-year base-case career starts exceptionally late (especially in DK, where a projected SPA of 73 leads to starting a 40-year career at age 33). The resulting difference in the TRR between a 40-year career and a career starting at age 25 is illustrated in Figure 39.



**Figure 39: Net TRRs, base case and case age 25 to SPA, 2062, %, EU-27 Member States and Norway**

*Rising SPA will make a difference, already foreseeable in a few countries*



*Notes: Ordered by difference. Most of the countries on the left-hand side have not yet legislated SPA changes (generally, increases) until 2062. In almost all the countries on the right-hand side the SPA increase is projected on the basis of rules linking it to life expectancy. The segment in blue represents the pension increase for having started at age 25.*

*Source: OECD and Member States.*

### 3.2 Rising career durations

Extending one’s career to accrue additional pension rights is a key avenue to maintaining pension levels. Extending working lives is a general trend that is linked to longer lives, higher education, better health, more protected workplaces, and other overall population trends (see also Section 4.4 of the present report).

The AWG preparing the Ageing Report has published employment projections. On that basis, they also computed average entry and exit ages into and from employment<sup>114</sup>. These continue a trend of extending working lives, as shown in Table 7.

Large increases in working life durations (between 2.5 and 4.5 years) are projected in Denmark, Estonia, Greece, Italy, Slovakia and Finland. Minor increases are projected in Ireland, Croatia, Luxembourg and Hungary.

<sup>114</sup> See also Section 1.4 of the present report on the past and current durations.

**Table 7: Duration of working life (years), 2022 and 2062, EU-27 Member States and Norway**

	2022		2062			2022		2062	
	men	women	men	women		men	women	men	women
<b>BE</b>	40.1	39.9	41.8	40.8	<b>LT</b>	42.7	42.1	43.2	42.6
<b>BG</b>	40.3	37.4	41.1	38.9	<b>LU</b>	38.7	38.3	38.9	38.4
<b>CZ</b>	40.6	36.8	41.8	38.6	<b>HU</b>	42.5	39.6	42.6	40.3
<b>DK</b>	43.9	42.7	47.1	46.2	<b>MT</b>	43.2	42.9	43.8	43.3
<b>DE</b>	43.8	42.1	44.8	43.3	<b>NL</b>	45.2	44.1	46.3	45.5
<b>EE</b>	43.0	43.4	47.0	47.1	<b>AT</b>	42.7	40.3	43.0	42.0
<b>IE</b>	44.4	44.0	44.7	44.3	<b>PL</b>	42.6	37.9	42.4	37.5
<b>EL</b>	41.1	40.0	44.0	42.9	<b>PT</b>	42.0	41.5	43.8	43.1
<b>ES</b>	41.7	40.9	43.9	43.0	<b>RO</b>	40.8	36.6	41.1	37.2
<b>FR</b>	41.3	40.6	43.5	42.3	<b>SI</b>	40.8	39.3	42.1	40.8
<b>HR</b>	42.3	40.0	42.3	40.5	<b>SK</b>	40.6	38.0	43.8	41.0
<b>IT</b>	40.4	38.6	44.2	42.3	<b>FI</b>	42.6	41.2	45.2	44.0
<b>CY</b>	43.3	41.8	45.3	44.2	<b>SE</b>	44.3	43.7	46.2	45.4
<b>LV</b>	43.4	42.0	43.9	42.2	<b>NO</b>	44.6	43.4	44.6	43.4

Source: AWG<sup>115</sup>.

Careers projected by the AWG tend to be longer than the 40-year base-case career. In 2022, AWG careers are shorter than 40 years among men only in Luxembourg, and among women in 10 countries. By 2062, while in Luxembourg men would still work a little less than 40 years, women would work less than 40 years in only five countries. Scandinavian countries and Ireland have and would have the longest working lives, of around 44 to 46 years.

The pension impact of lengthening careers can be measured via the TRRs for the AWG case. These are shown in Figure 40 and concern a career length as shown in Table 7 and ending at the SPA. More detailed information on the AWG case can be found in Box 7.

<sup>115</sup> European Commission (2023d).

**Box 7: Theoretical replacement rates – Ageing Working Group (AWG) career case**

*Unlike the previous report (PAR2021), in the current AWG-case methodology all careers end at the national SPA, as in the base case. The career duration, however, varies, and this is the estimated (2022) and projected (2062) career duration from the AWG assumptions. This career duration is the difference between the average exit age from and the average entry age into employment; these are calculated from employment counts and rates (see also Section 1.4 of the present report).*

*For practical reasons, the career durations are estimated on the entry and exit ages in the retirement year. A more accurate estimate would use the same exit age in the retirement year, but the entry age some 40 years earlier. In a context of increasing education levels, this approximation yields a slight under-estimate of career lengths. Difficulties in collecting sufficient data for all countries in the early 1980s led to a decision to use entry and exit ages in the same year.*

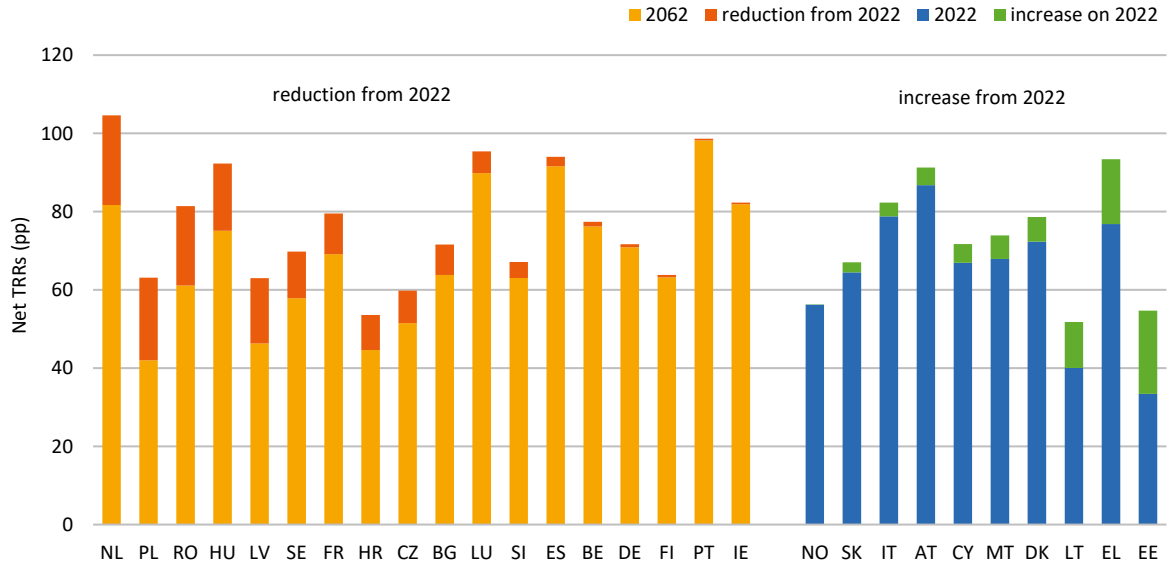
**As in the base case, the AWG-case TRRs, which are based on projected career length and the currently legislated pensionable age, will fall for both women and men in a majority of countries (Figure 40).** However, fewer countries will see the TRR fall between 2022 and 2062; and for those countries that do, this fall is generally milder.

Among women, the TRR is projected to increase in nine countries by 2062, albeit slightly; and in 11 countries among men. Unsurprisingly, the largest losses are in countries where working lives are projected to increase the least, such as Poland and Latvia, but with also a substantial reduction in Sweden (career extended by an average 1.5-1.7 years). For women, pensions in Ireland, Portugal, Finland and Germany are expected to maintain their income replacement level (less than a 1 pp change). The same holds for men in Belgium and Germany. Some of the countries with large projected career-length increases also show TRR gains, for instance Estonia and Denmark.

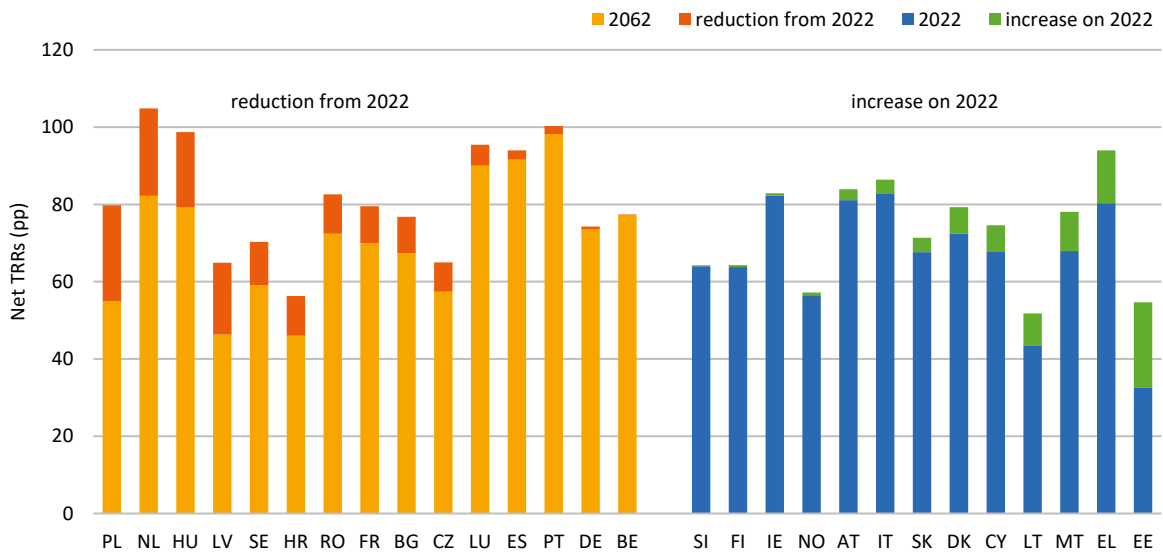
**Figure 40: Net 2022 and 2062 TRRs, AWG-career case, women and men, average-earner, pp, EU-27 Member States and Norway**

*The AWG case will see milder TRR reductions in the next 40 years compared with the fixed-career base case*

**Women**



**Men**



Notes: Ordered by change 2022-2062. HU: the apparent fall is due to calculation differences.

Source: OECD and Member States.

### 3.3 Pensions for high- and low-earners

#### Career cases in this section

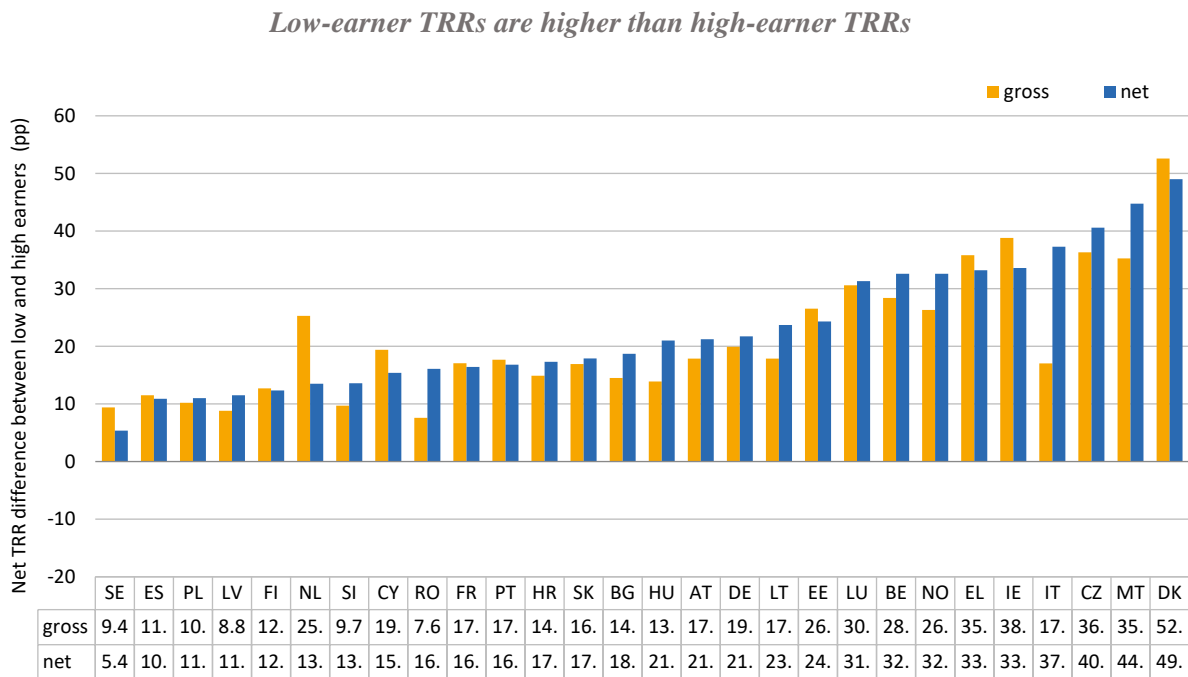
**Earnings level comparison:** a worker follows a base-case career (40 years to SPA); but while the above career was premised on national average earnings, earnings vary:

- low-income earner – a constant level of 66 % of the average earnings profile each year; and
- high-income earner – earnings grow linearly every year, from 100 % of average earnings to 200 %.

A comparison of TRRs between a low-income earner (defined as someone receiving two thirds of an average salary during their career) and a high-income earner (defined as someone starting on the average salary and progressing linearly to earn twice as much at career end) allows us to explore the redistributive impact of pension and tax systems.

**A comparison of 2062 TRRs for high- and low-earners shows that low-earners have higher replacement rates in all EU Member States and in Norway, hinting at the redistributive effect of pension systems** (Figure 41). The net TRR difference between low- and high-earners ranges from 5.4 pp in Sweden to 49 pp in Denmark, while the gross TRR difference ranges from 7.6 pp in Romania to 52.6 pp in Denmark.

**Figure 41: Low-earner minus high-earner TRRs 2062, gross and net, base case, men, in pp, EU-27 Member States and Norway**



Note: Ordered by difference in net TRR.

Source: OECD and Member States.

**In 17 out of 28 countries, the difference between low- and high-earner TRRs is larger in net than in gross terms, indicating that taxes tend to further enhance the redistributive effect of pensions.** The largest redistributive tax effect is observed in Italy. **In the other 11 countries, taxation seems to lessen the difference between high- and low-earners.** This effect

is strongest in the Netherlands, but is also substantial in Ireland, Sweden, Cyprus and Denmark. Part of this may be due to pensions usually being lower than work income, and therefore the income difference between high- and low-earners is larger while working than after retiring, leading to a lower tax-rate difference. The difference among women (not shown) is almost exactly the same as among men.

### 3.4 Career duration and incentives to work longer

#### Career cases in this section<sup>116</sup>

##### Change in career duration and in retirement age

- A worker retiring two years *after* the national SPA (the starting point of the career is as in the base case, now with 42-year career, retirement in 2064).
- A worker retiring two years *before* the national SPA (the starting point of the career is as in the base case, now with 38-year career, hence retirement in 2062).

##### Change in career duration with retirement at SPA

- A worker retiring at the SPA with 42 years of career (starting point 2022, retirement in 2064).
- A worker retiring at the SPA with 38 years of career (starting point 2022, retirement in 2060).

##### Start work at age 20 (retirement at SPA)

- A worker starts a career in 2022 at age 20 and then retires at the SPA, so the retirement year varies by country (and sex if relevant).

##### 20-year interrupted career

- A worker works for 10 years 2022-2032, then has a 20-year career break from 2032 to 2052, and then works 10 years until the SPA in 2062.

In all cases, credited non-contributory periods (e.g. studying years) are not taken into account.

**Variants on the base case include different career durations. The results below derive from comparing the TRRs under different assumptions, implying varying career lengths, against the base-case TRRs.** First, the 38-year and 42-year durations (ending at or around the SPA) enable assessment of the end-of-career incentives for working longer. Then, more drastic variations (a 20-year career and a career from age 20) address more extreme cases. The modelling of long careers does not include work-related effects, such as seniority or any other possible effect of a short career on wages; even beyond the SPA, or after a prolonged break, the hypothetical workers continue earning an average salary. Therefore, changes in TRRs are only due to pension rules.

With the SPA currently ranging around 65, the standard 40-year career would start at around age 25 in most countries. However, average ages at first employment in the EU are just above 20, meaning that many people start working nearer to their 20th birthday and the case of people working uninterruptedly from age 20 to the SPA is not uncommon. Therefore, it is interesting

<sup>116</sup> In some countries, the TRR differences are influenced by different calculations; for instance, if those profiled are born in different years, different life expectancy benefit adjustments may be applied.

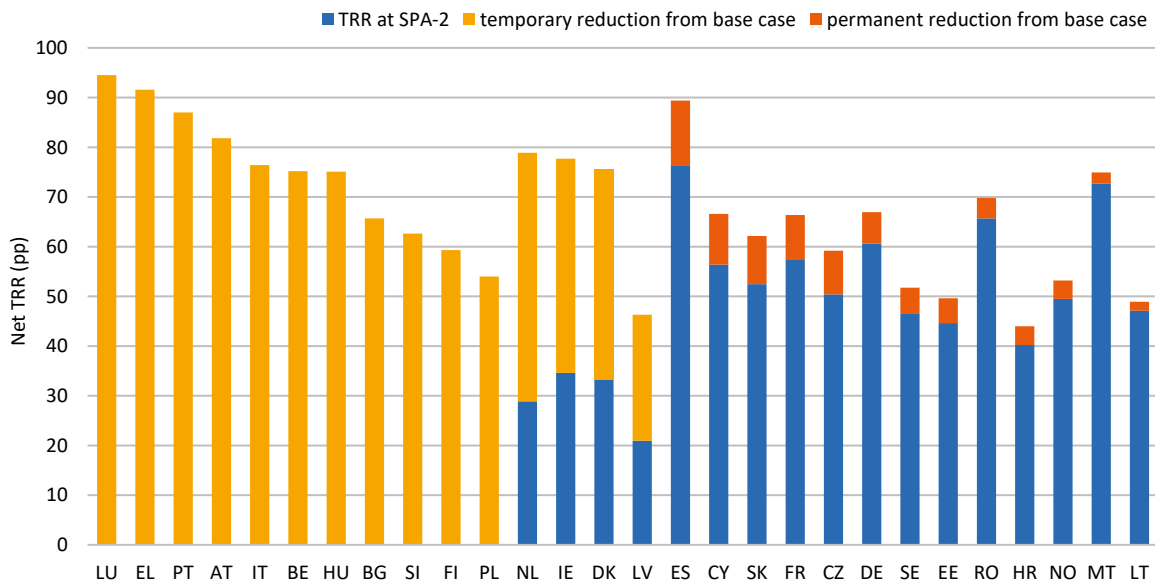
to check the TRR after longer (or shorter) careers. This section explores the effects of different career lengths.

### 3.4.1 Retiring two years before or after the SPA

**Approaching retirement, people may have the option to retire earlier than the SPA or to work longer.** Most countries encourage longer working lives, with the objective to dampen the impact of population ageing on the financial sustainability of the social security – and specifically the pension – systems, while maintaining their adequacy; pension reductions for early retirement and bonuses for working longer are part of their policies. In some countries such as Norway reductions and bonuses are set according to an actuarial neutrality principle. Figure 42 and Figure 43 below show estimates of TRR change linked to careers that are cut short or extended beyond the SPA, by two years.

**Figure 42: Net TRR, base case and retiring two years earlier, on average earnings, 2062, in pp, EU-27 Member States and Norway**

*Exiting employment two years before the SPA carries mild or temporary pension reductions*



Notes: Ordered by TRR difference (base case TRR - SPA-2 TRR) – countries represented by the full yellow bars do not allow retirement before the SPA under the case conditions. Retiring at SPA-2, the blue bars represent the TRR; the yellow bars represent the temporary TRR reduction compared with the base case; when the retiree reaches the SPA, the pension is restored, albeit most often partially<sup>117</sup>. The orange bars represent the TRR permanent difference; this persists throughout retirement. Source: OECD and Member States.

**Retiring two years earlier mostly results in a temporary or mild pension reduction** (Figure 42). In the 11 countries shown on the left of Figure 42, a pension would not be granted to someone who retired two years before the SPA at the time they retire. However, it must be emphasised that in these countries people will start to receive a pension, albeit a reduced one, when they reach pensionable age, even if they did stop working two years earlier. For instance,

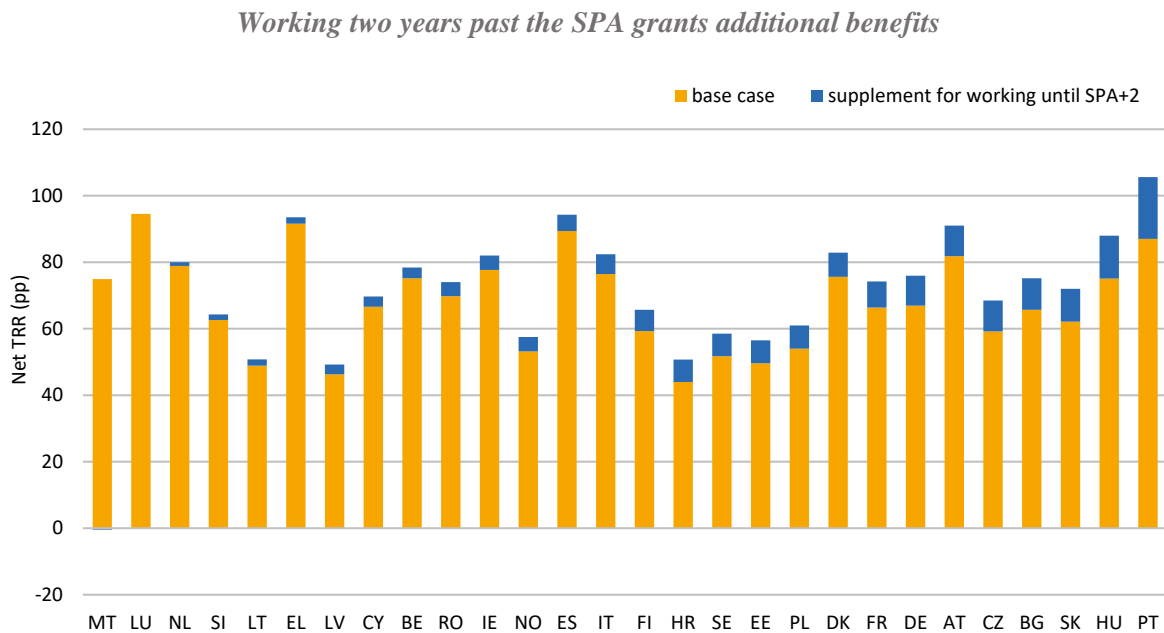
<sup>117</sup> In Greece, for instance, a 38-year career will yield only a reduced pension at a later age. In Portugal, the worker would start receiving a reduced pension at the SPA.



in Bulgaria, the retiree would receive a pension after turning 67 in 2064. This also applies to the four countries with partial yellow bars in Figure 42, where, on leaving employment, the retiree would only be entitled to part of the pension; some years later, the pensioner would start to receive a higher pension (for instance, at the age of 67 in NL, a state pension in addition to the occupational pension). Moreover, in some of these countries, a pension would be granted under variants of this case, for instance if the retiree had accumulated additional non-contributory or voluntary pension credits (as in LU).

On the other hand, in countries that grant a pension early, the benefit reductions (ranging from about 1.8 pp in LT and 2.2 pp in MT to over 10 pp in CY and ES) are permanent.

**Figure 43: Net TRR, base case and retiring two years later, on average earnings, 2062, in pp, EU-27 Member States and Norway**



Notes: Ordered by difference in TRR between the two careers. In RO and PL, TRRs are higher for men than for women – by 1 pp and 5.9 pp, respectively.

Source: OECD and Member States.

**TRR gains thanks to working beyond the SPA are substantial in most countries** (Figure 43). Two additional years increase the career length by 5 %. But the corresponding TRR increase is over 10 % in 12 of the 28 countries and reaches more than 21 pp in Portugal<sup>118</sup>. At the other end of the scale, the TRR stays the same in Luxembourg<sup>119</sup>, while it falls slightly in Malta.

### 3.4.2 Starting work 38 or 42 years before the SPA

**Assuming that people stop working at the SPA** (as is the case in the base-case TRRs), **the age of entry into the labour market can make a difference**. Not everyone manages to start their career 40 years before their retirement age; meanwhile, other people start earlier than that,

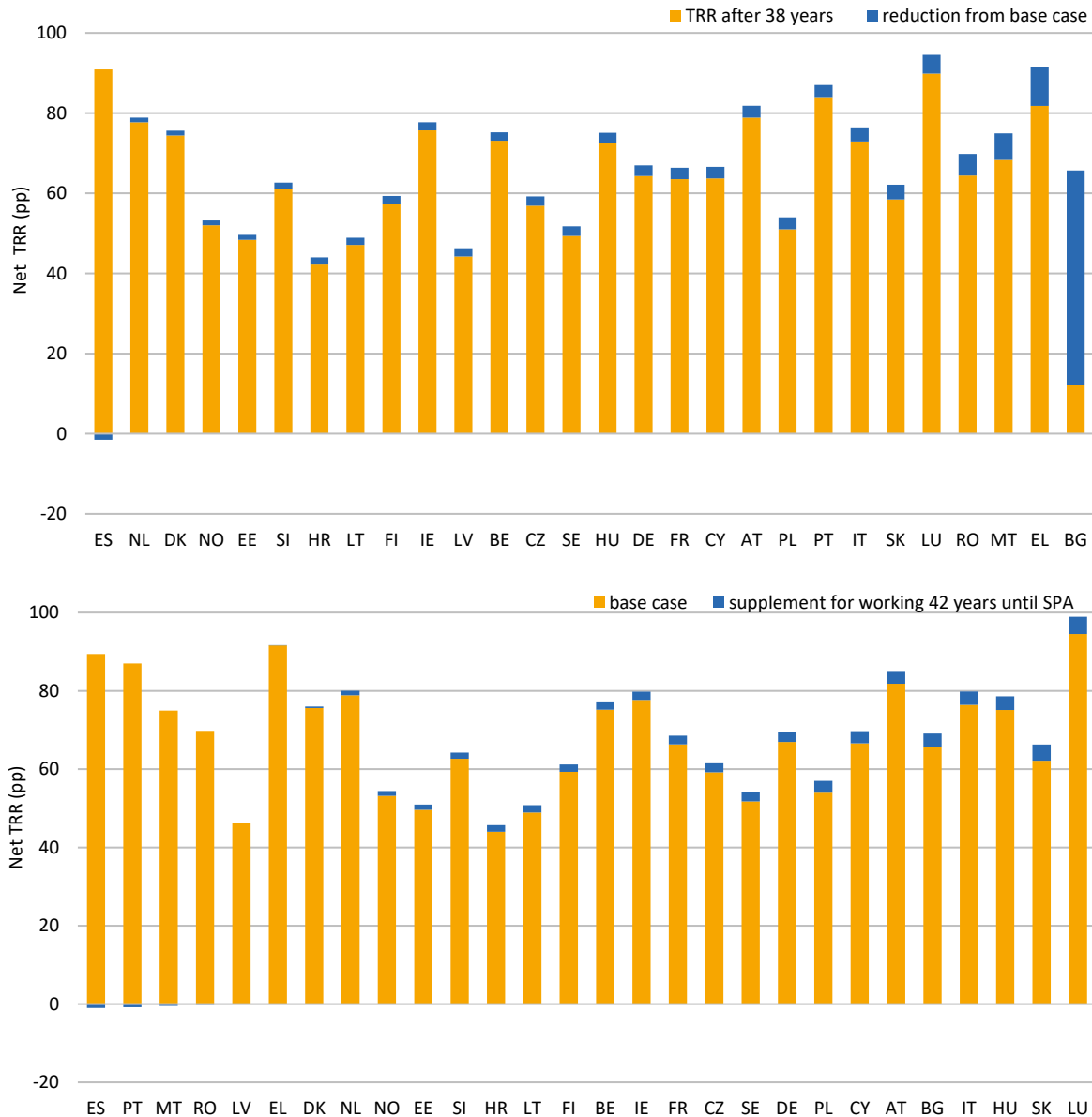
<sup>118</sup> This ranges from +6.4 pp over a TRR of 59.3 in Finland (so, about 10.8 %) to +18.6 pp over a TRR of 87 in Portugal.

<sup>119</sup> For Luxembourg this is mainly due to the fact that the SPA was set at 65 as an exception.

resulting in a longer career. In an ageing society where the SPA is increasing, careers also become longer. But as people stay longer in education – and youth unemployment is still high – some people still end up with shorter careers, with the result that career durations may become more different across individuals and socio-economic groups (see Section 4.4).

**Figure 44: Difference between net TRR in 2062, two career lengths ending at the SPA (starting 38 and 42 years earlier), pp, EU-27 Member States and Norway**

*Starting a career early/late has a mild impact on pensions*



Notes: Careers start in 2022 and end in 2060 (upper figure) and 2064 (lower figure). Each figure is separately ordered by the difference in TRR between the career shown and the base case. In BG, for a 38-year career, only the statutory funded pension is paid at the SPA (i.e. a temporary reduction of 53.5 pp) and the statutory pension is granted at age SPA+2 (permanent reduction of 4.0 pp).

Source: OECD and Member States.

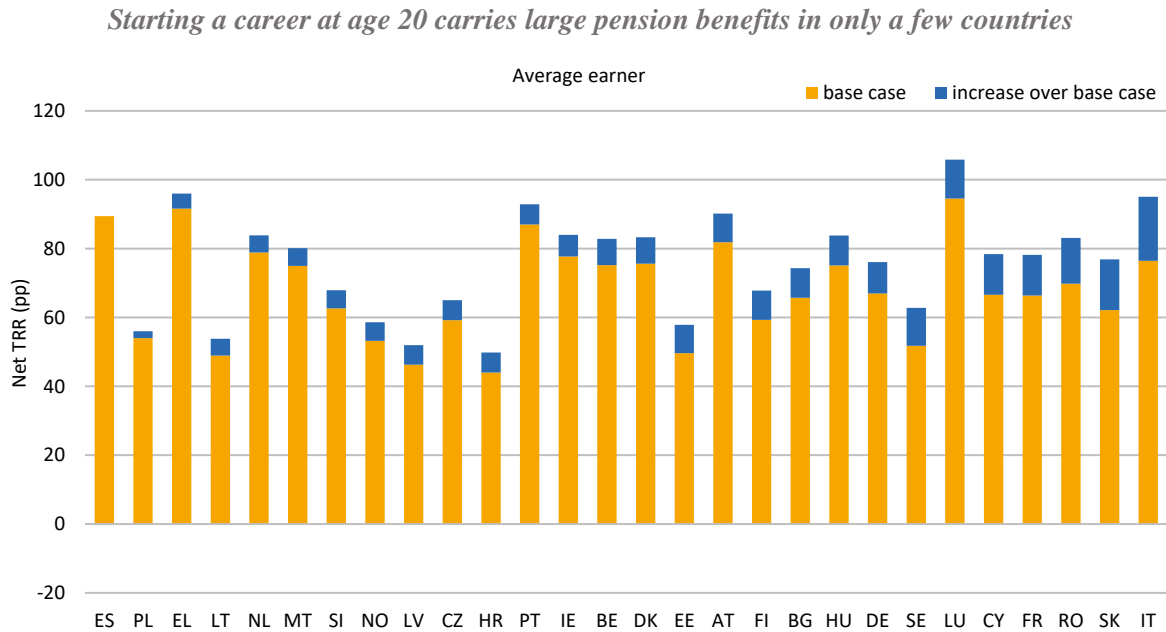
**The age of entering the labour market has a much smaller impact on pension income than the age of retiring. Reductions for late starts and gains for early starts are significantly lower than the reductions/gains for early/deferred retirement around the SPA (Figure 44).**

In seven countries (e.g. ES, PT<sup>120</sup>, MT, RO) having started a career two years earlier leads to a (sometimes very) small reduction in pension benefits under the assumptions of the case. In Slovakia and Luxembourg, a 42-year career results in a gain of over 4 pp.

### 3.4.3 Very long or short careers

Starting at age 20 and working until the SPA means that the career duration is longer than 40 years (i.e. the base case)<sup>121</sup>. The difference among men ranges from three years in Romania to 13 years in Denmark; in other words, in Denmark this career case is 53 years long, 13 years longer than the base case<sup>122</sup>. Since the career length varies between countries along with the SPA, the country comparison below is strongly affected by the different resulting career durations.

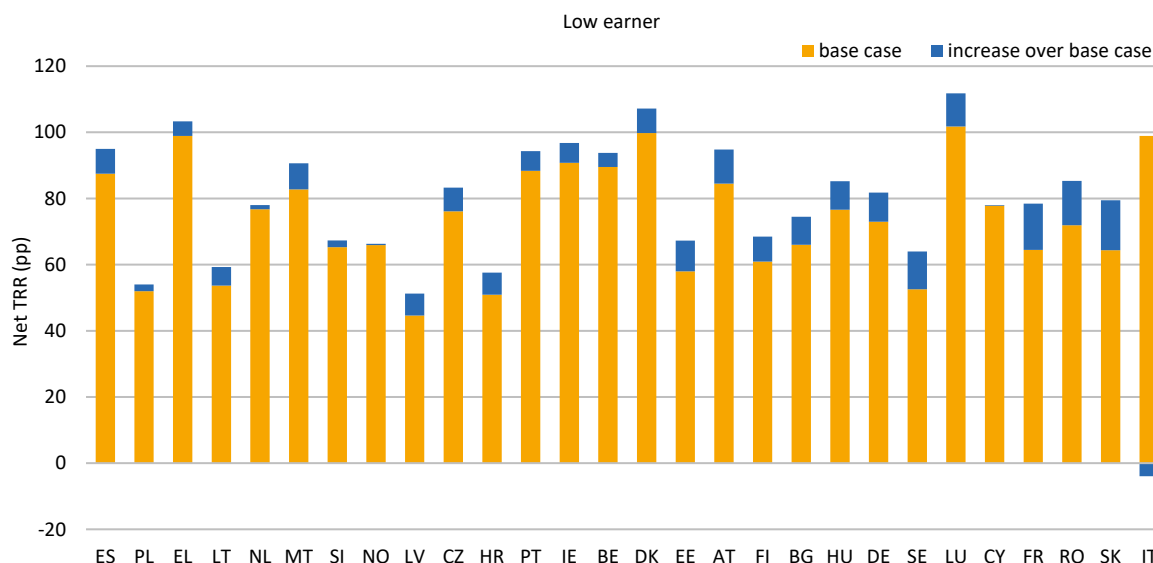
**Figure 45: Difference between net TRR, age 20 until SPA and base case, 2062, in pp, EU-27 Member States and Norway**



<sup>120</sup> There is a tax effect, as in Portugal the tax applied to the pension varies: in the base case the tax is 8.24 % while in the ‘42 years until SPA’ case it is 9.64 % (an increase of 1.4 pp in tax).

<sup>121</sup> With the exception of women in Poland, where the career duration for this case would also be 40 years, the same as in the base case.

<sup>122</sup> In Luxembourg and Slovenia the fact that the SPA is set at 65 implies a 45-year career in the case starting at age 20. However, earlier retirement would be allowed, in particular for starting an early career.



Notes: Data ordered by TRR difference in the average-earner case. In PL and RO, TRRs 'age 20 to SPA' are higher for men than for women – by about 10 pp.

Source: OECD and Member States.

**A long career that starts early increases replacement rates in almost all countries, but less than proportionally to the extra years worked** (Figure 45). Most resulting TRR gains are below 10 pp (with seven exceptions for average-earners, and six for low-earners) compared with the reference scenario, even if careers in some cases are 25 % longer. In Denmark, the increase is only just above 7 pp, in spite of a much longer career. Also, the advantages to starting a career early can depend a lot on the income level. Average-earners benefit most from an early career start in Italy, Slovakia and Romania. Low-earners seem to benefit from pension increases linked to starting early careers especially in Slovakia, France and Romania, and in spite of the fact that in these countries the career length increases relatively little. It must be pointed out that an early career start is more common among those with lower educational attainment, who are also more often low-earners. In Italy among low-earners, starting a career at age 20 yields an even lower pension (by about 4 pp) than in the base case, due to the different tax regime<sup>123</sup>.

**The 20-year career scenario represents an extreme case of a short career, since, in some countries, this is the minimum contributory period for receiving any pension at all** (and in CZ this is not even enough to qualify). This career is modelled as working for 10 years, having a 20-year career break from 2032 to 2052, and then working 10 further years until the SPA in 2062. Shorter career breaks defined as 'justified for social reasons' are dealt with in the next section.

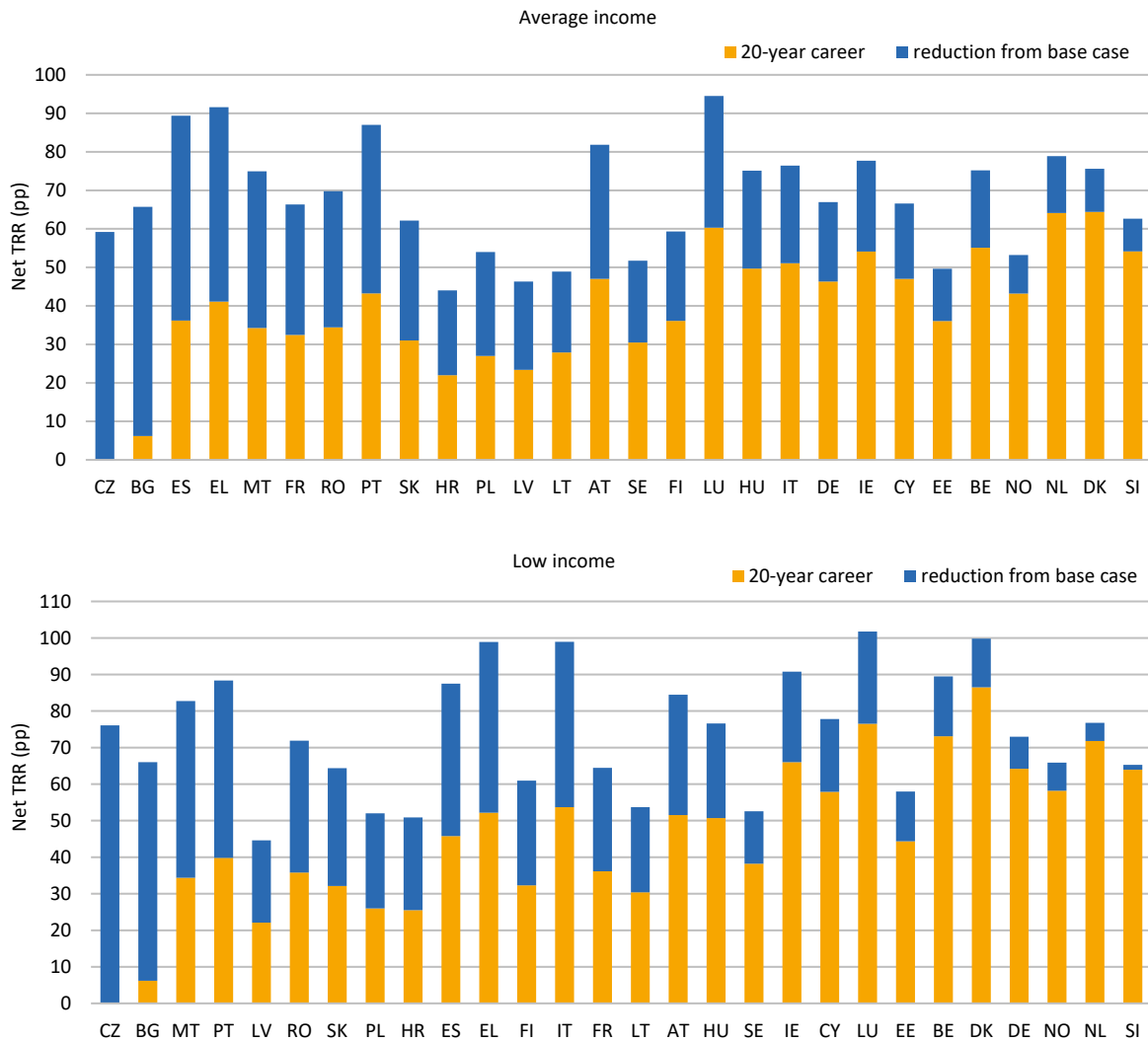
**In a majority of countries, a short, 20-year career reduces the TRR by at least 20 % but less than proportionally, reaffirming the redistributive effect of pension systems** (Figure 46). Minimum pensions or residence-based pensions act to dampen the impact of a reduced

<sup>123</sup> For low-earners the base-case pension – lower than the taxable threshold – is not subject to tax, while the pension in case of early entry is fully taxed. In Portugal the new flexibility regime for an early-retirement pension, in force from October 2019, allows someone starting work at age 20 earlier access to a pension, since the number of contribution years at age 60 is equal or superior to 40; there is no TRR increase compared with the base case as a penalty is applied. Among women, the reduction is the same as men's, except in Poland and Romania where the reduction is smaller.

career. In 10 Member States, the TRR reduction for an average-earner is between 50 and 60 %, while in Bulgaria, 90 % of the pension is lost until age 67 (SPA+2)<sup>124</sup>, and in Czechia no pension at all is granted. In 12 countries, the resulting TRR reduction from the discontinued career is between about 20 % and less than 50 %; it is mildest in Slovenia, where the short career entails a pension reduced by 8.5 pp, or 13.6 %, compared with the base case. Since in this case people work for half the duration of the base case, a proportional pension reduction would be 50 %.

**Figure 46: Net TRR, 20-year career (and base case) average and low income, 2062, %, EU-27 Member States and Norway**

*A short, 20-year career grants a lower pension, but the reduction is less than proportional*



Notes: Ordered by decreasing percentage of TRR reduction for the short career. In CZ, a pension is not granted after a 20-year career ending at the SPA (entitlement after a 20-year career comes at SPA + 5). Similarly, in BG, at the SPA only the statutory funded pension is granted (i.e. a temporary reduction of 59.5 pp or 90 %), while the statutory pension would only be granted at age 67 (SPA+2) (i.e. a 'permanent' reduction of 32.9 pp or 50 %).

Source: OECD and Member States.

<sup>124</sup> Only the statutory funded pension is paid until age 67 (SPA+2); afterwards the 'permanent' benefit reduction is 50 %.

### 3.5 Career breaks

#### Career cases in this section

**Career break for three years of childcare:** Start work in 2022, childcare covering a period of three years of absence, and the worker applies for this period to be credited. Two children are born two years apart, in 2025 and 2027. The career ends in 2062 at the SPA.

**Break of three years, plus part-time work for 10 years:** Childcare covering a period of three years of absence, as for the above childcare case (first child born in 2025; second child two years later); again, credited if allowed. After the three-year break, there follows a period of 10 years of part-time work at 66 % of average earnings, before full-time work resumes in 2038 until the SPA in 2062.

**Break for three years of unemployment:** Start in 2022, unemployment in 2032-2035, with entitlement to highest full unemployment benefits, then work until 2062.

**Break for three years of family care:** Start in 2022, family care break 2052-2055, then work until 2062.

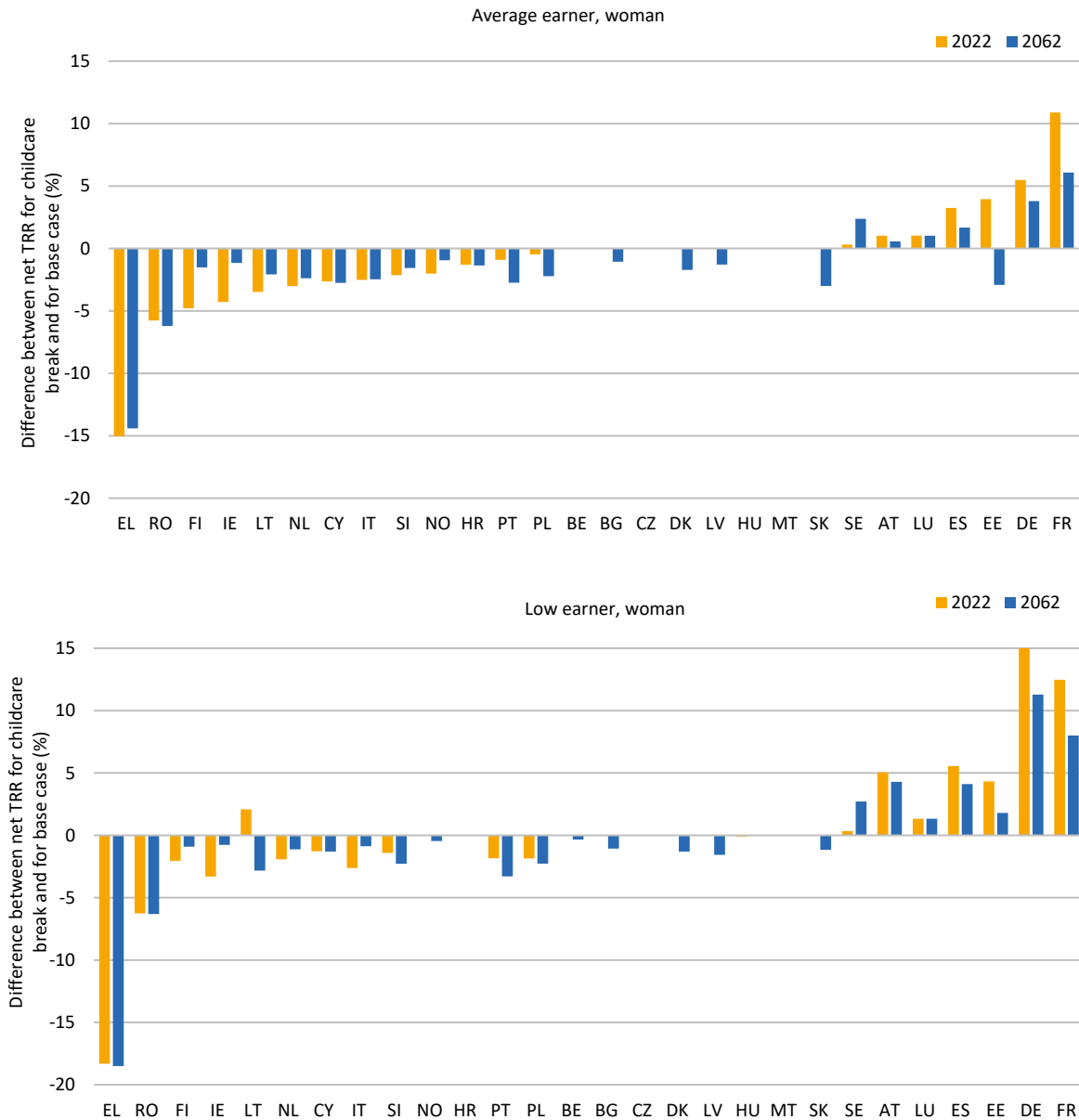
**Early retirement due to disability:** Leave the labour market five years prior to the national SPA in 2057.

**While non-worked periods often lead to non-accrual of pension rights, some of these periods are considered justified for social reasons and therefore valorised by pension systems.** People can find themselves unemployed or in a situation where they must stop working, or reduce their working time, because of family obligations, such as caring for children (including part time) or other family care (providing LTC, such as for frail older people or adults with disabilities); they can also become disabled and unable to work. Salaried workers often receive pension credits (or equivalent benefits) in such circumstances (see also Section 4.1). Such credits can dampen the impact of a (limited) absence from work and, in some countries, can even raise the pension benefit to a level above that of an uninterrupted career.

**Childcare is a frequent reason for discontinuing work.** This is modelled as a career where a worker starts with three years of work, after which they have two children and start a three-year break from working, receiving benefits. Then they work uninterruptedly for 34 years until the SPA.

**Figure 47: Difference between net TRR for childcare break and for base case, average- and low-earning woman, 2022 and 2062, %, EU-27 Member States and Norway**

*Mild pension reductions apply to a short childcare career break, and, in a few countries, a bonus*



Notes: Both figures ordered by TRR difference, average case, 2022. The TRRs shown are for the case of a woman.  
Source: OECD and Member States.

**In most countries, the impact on the replacement rate of a three-year break for childcare is limited to a few per cent** (Figure 47). In terms of years, this is much lower than the reduction in effective career duration: three years out of 40, corresponding to 8 %. As concerns TRRs, the benefit reduction is the highest in Greece, at about 15 % for an average-earner woman and just above 18 % for a low-earner, in both periods (2022 and 2062). The most severe pension reductions among average-earner women are seen in 2062, in Greece (12.4 %) and Romania (6.2 %); among low-earners, besides Greece, Romania also displays significant reductions in 2022 and 2062 (6.3 % in both periods). All other benefit reductions are below 5 % in both periods and for both income levels.

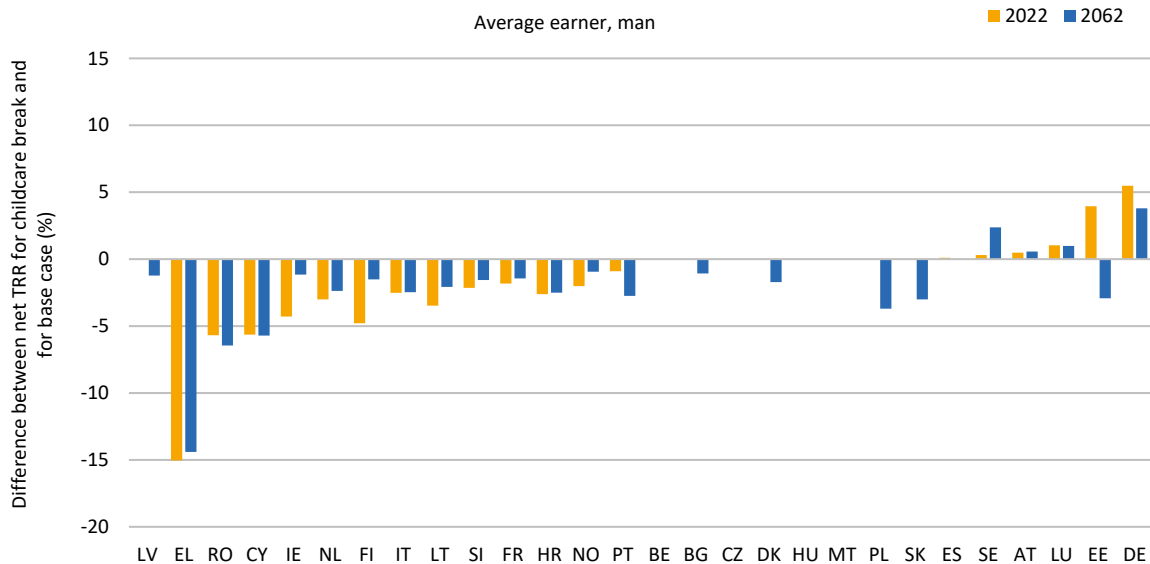


Significantly, in 2022 average-earning women would see reduced benefits for such a three-year career break in only 13 countries. In 2062 this count increases to 18 countries, but the benefits are reduced very little in most cases, with two exceptions (EL and RO). On the other end of the scale, seven countries in 2022 and six in 2062 would grant a higher benefit to average-earner women for this three-year break in careers than in the base case.

Overall, comparing 2022 with 2062, we observe that in 2022 eight or nine countries fully credited the discontinued three years for both levels of income, while only four of them would still do so in 2062. The others will apply some benefit reduction in 2062, even though in most countries such reduction will be less than 3.5 %.

The higher benefits are generally a bonus that is granted on becoming a parent and do not depend on discontinuing work.

**Figure 48: Difference between net TRR for childcare break and for base case, average-earning man, 2022 and 2062, %, EU-27 Member States and Norway**



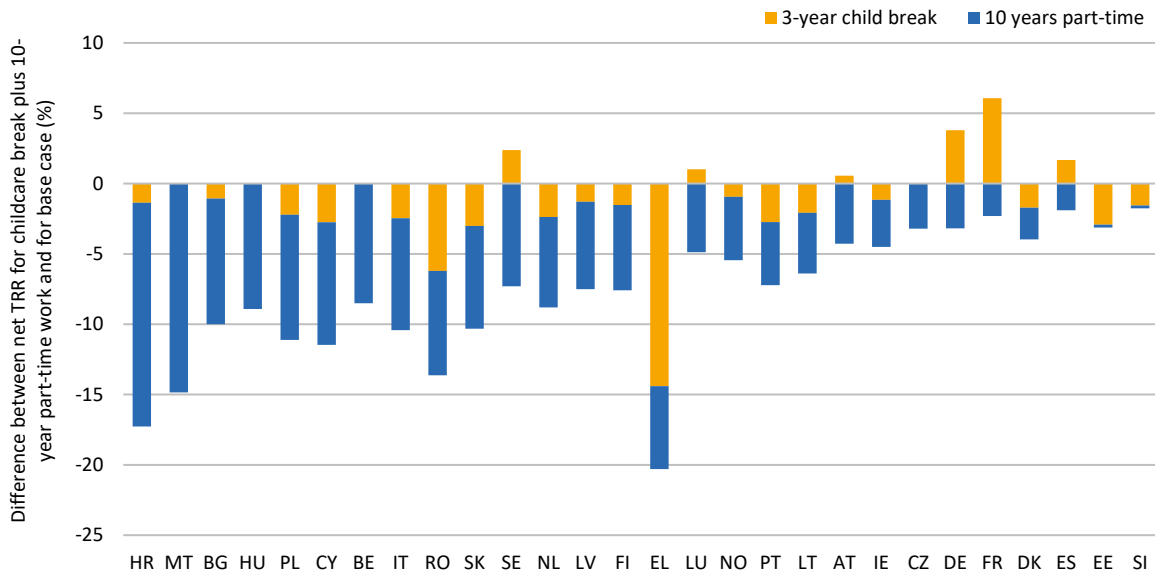
Notes: Ordered by TRR difference in 2022. The TRRs shown are for the case of a man. No 2062 TRR for LV.  
Source: OECD and Member States

Among average-earner men, the child-related bonuses appear in fewer countries (six in 2022). In 20 countries the provisions for men are the same as for women, yielding the same TRRs in the three-year childcare break. In most other countries, women have better compensation than men for the childcare break. The differences range from minor in Croatia, Poland and Romania to larger ones in France (9.9 pp in 2022, 5 pp in 2062).

To take account of the fact that, in many Member States, mothers are over-represented in part-time work, a variant of the above career-break case adds a 10-year period of part-time work right after the break, followed by 24 years of full-time work until the SPA; the part-time work is assumed to be at earnings amounting to 66 % of the average monthly wage consistently over those 10 years. Once again, the assumption here is that, apart from the break, the career does not change; this comparison only concerns pension and tax rules, and does not take into account the potential detriment to a career from taking breaks (such as wage scarring).

**Figure 49: Difference between net TRR for childcare break plus 10-year part-time work and for base case, average-earning woman, 2062<sup>125</sup>, %, EU-27 Member States and Norway**

*A 10-year spell of part-time work for childcare generally has limited impact*



Notes: Ordered by total TRR change in %. Part-time case results not simulated for 2022.

Source: OECD and Member States.

**A childcare break followed by working part time leads to a benefit loss in all countries, but credits limit the impact.** In most countries, the benefit loss is less than 9 % (for a three-year complete break followed by a 10-year period of part-time work at 66 % of the average salary, and a childcare period that is equivalent to 16 % of the working career duration; Figure 49).

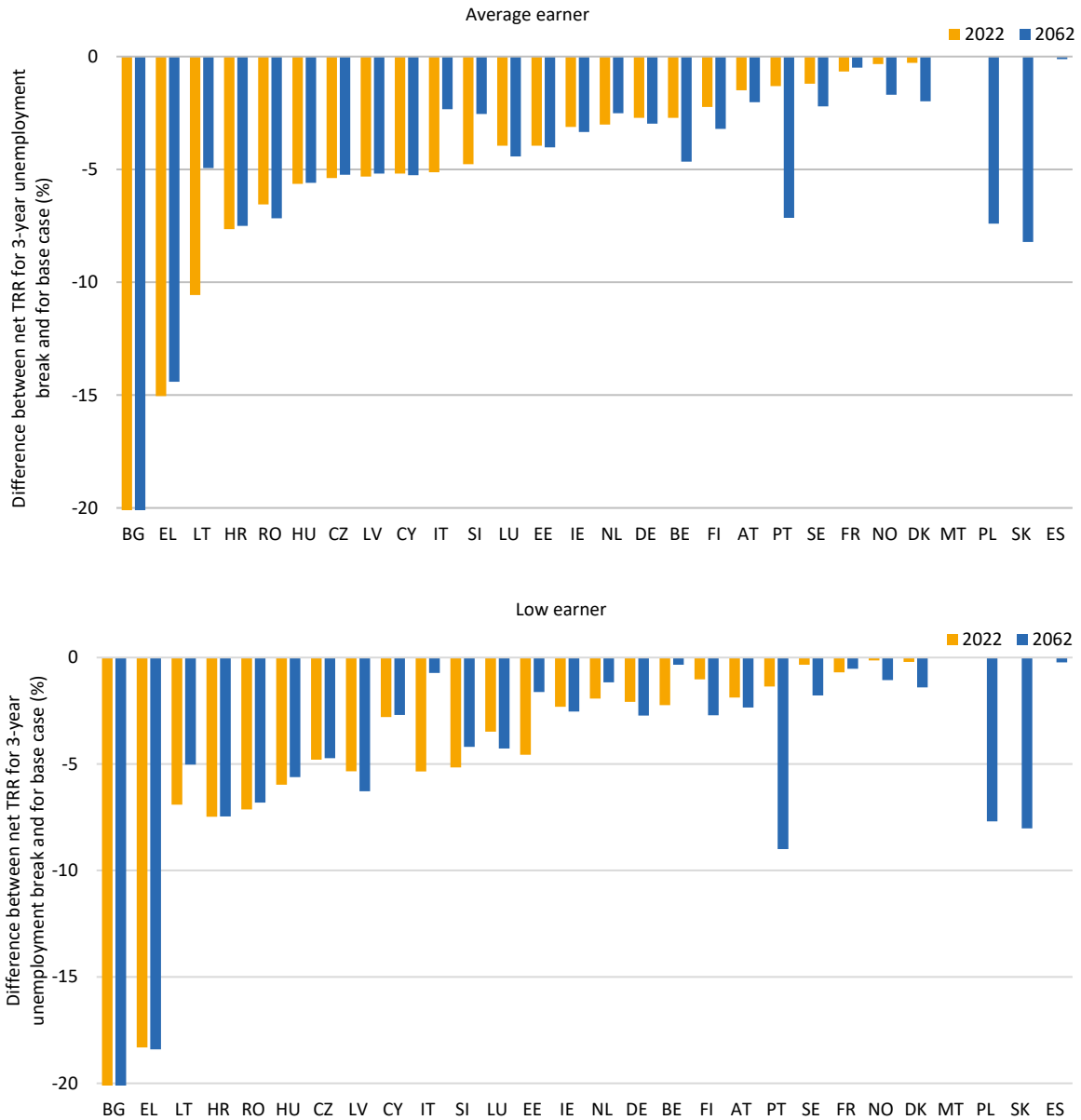
Most countries combine some benefit reduction (or at least, no bonus) from the childcare break with a further reduction due to part-time working. Large benefit reductions due to the part-time period are shown in Malta (for a total loss of 11.1 pp, or 14.8 %), Croatia, Hungary, Belgium and Italy. In Germany and France, the reduction for 10 years of part-time work is offset by the child bonus, resulting in a benefit (slightly) higher than the uninterrupted career base case. In Sweden, Luxembourg, Austria and Spain, the benefit reduction related to part-time work outweighs the child bonus.

**Unemployment gives rise to slightly larger pension reductions than childcare.** The impact of unemployment stints on replacement rates is modelled through a career that is similar to the one involving a childcare break (see above) and consists of 10 years of work, then three years of unemployment, during which benefits are granted, followed by 27 years of work until the SPA is reached in 2062.

<sup>125</sup> This case's TRR in 2022 was not computed.

**Figure 50: Difference between net TRR for three-year unemployment break and for base case, average- and low-earner, 2022 and 2062, %, EU-27 Member States and Norway**

*Unemployment breaks have more impact on pensions than childcare breaks*



Notes: Ordered by TRR change in the average-earnings career in 2022. The (temporary) reduction in BG is by 100 % in 2022 and about 80 % in 2062 for both an average- and a low-earner.

Source: OECD and Member States.

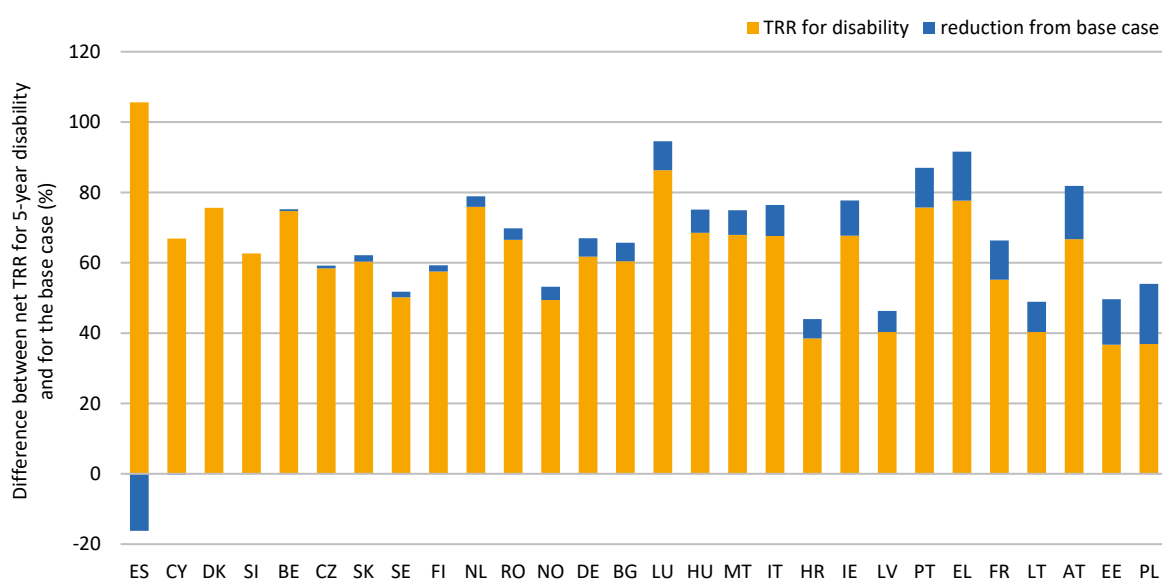
**Benefit reductions from a three-year unemployment break are limited to less than 5 % in most countries (for a break equivalent to reducing the career duration by 8 %; Figure 50).** In most cases, the benefits are cut by less than the proportion of the reduced career duration (three years out of 40 is about 8 %), signalling that credits are granted, albeit not fully replacing the work-related contributions. There are a few exceptions with large reductions, notably in Bulgaria (until age 67) and Greece.

**The impact of pension rules changes little between 2022 and 2062**<sup>126</sup>, except in Portugal (- 7.1 % and -9 % for average- and low-earners respectively), Poland and Slovakia (no change in 2022, but in 2062 a reduction more or less equivalent to the reduction in career duration); and in Bulgaria, the TRR in 2062 is temporarily (until the pensioner reaches age 67) reduced to the level of the defined-contribution component<sup>127</sup>. Conversely, in Lithuania the reduction is halved for an average-earner between 2022 and 2062.

**Disability can also cause people to leave the labour market.** The comparison here is between the base case and a career of 35 working years until 2057, followed by a five-year disability period, and considers the pension benefit in 2062, when the worker would have reached the SPA.

**Figure 51: Difference between net TRR for five-year disability and for the base case, average-earner, 2062, %, EU-27 Member States and Norway**

*Disability breaks generally lead to lower benefits, and in only two countries to higher ones*



*Notes: Ordered by difference from base case, in %. Disability-case results not simulated for 2022. In LV, the TRR would also depend on disability: for people with a disability status at the SPA, the old-age pension granted at the SPA cannot be lower than the disability pension granted in the preceding period.*

*Source: OECD and Member States.*

**Disability periods are not credited as consistently across countries as childcare or unemployment.** Spain stands out, as a five-year period of disability at the end of someone's career gives rise to higher overall pension benefits (Figure 51)<sup>128</sup>. In two countries, Denmark and Slovenia, the pensions are not affected by the disability period. On the other side, about half of the countries would only partly compensate for the five years not worked and grant benefits reduced by up to 10 % (the time not worked over a 40-year career is about 12 %). In

<sup>126</sup> Once again, in some countries the rules have changed, although the specific impact in the TRR cases is low.

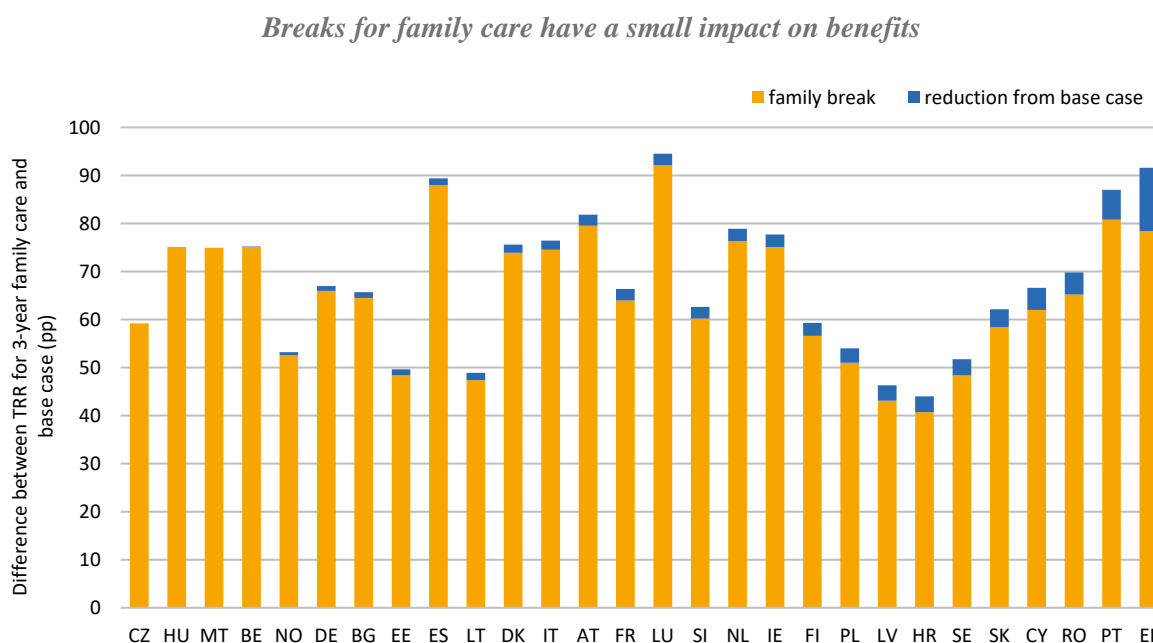
<sup>127</sup> i.e. a temporary total loss in 2022 and an 80 % loss in 2062. At age 67, the 'permanent' reduction would then be 3.5 % in 2022, and 6.2 % in 2062.

<sup>128</sup> And Cyprus, to a much lesser extent, with an increase of less than 1 %.

seven countries, the pension would be more than 10 pp lower. In percentage terms, the largest reductions are in Estonia (26 %) and Poland (31.7 %). Between these extremes, compared with the uninterrupted career, in 13 countries the ‘disability TRR’ is reduced by up to 7 pp, representing up to 10-13 % for a career that is just over 12 % shorter. In 10 countries, however, the reduction in pension level at the SPA is more than proportional to the reduction in worked career length.

**Another common end-of-career reason for discontinuing work is the need to provide care to incapacitated (adult) family members.** A common example is informal carers (mostly women) dropping out of the labour market to provide LTC to a frail (old) family member: see Chapter 4 of the Commission’s 2021 LTC report<sup>129</sup>. This case is modelled as a worker working uninterruptedly for 30 years, then leaving work for three years (to care for a family member), before returning to work for the seven remaining years to the SPA in 2062.

**Figure 52: Average-earner TRR for base case and for three-year family care case, 2062, in pp, EU-27 Member States and Norway**



Notes: Ranked by TRR difference. In LV, this scenario only applies to the family care of a child with disability under 18, for which a disabled childcare benefit is paid and the state makes contributions.

Source: OECD and Member States.

**Most countries would compensate for the work loss and grant a pension that is only slightly lower (mostly less than 5 %) than in the base case with an uninterrupted career** (Figure 52). This compares favourably with the roughly 8 % reduction in effective career duration implied by a three-year break. In four countries (BE, CZ, HU and MT), the family break entails no (or a negligible) reduction in eventual pension benefits. In a further 15 countries, the reduction is less, and often much less, than 5 %. In nine countries the reduction

<sup>129</sup> European Commission (2021b) (Section 4.2).

would be more than 5 % and only Greece would reduce the pension by more than 8 % (13.2 pp, corresponding to a 14.4 % pension reduction).

### 3.6 Pensions 10 years after retiring

#### Career case in this section

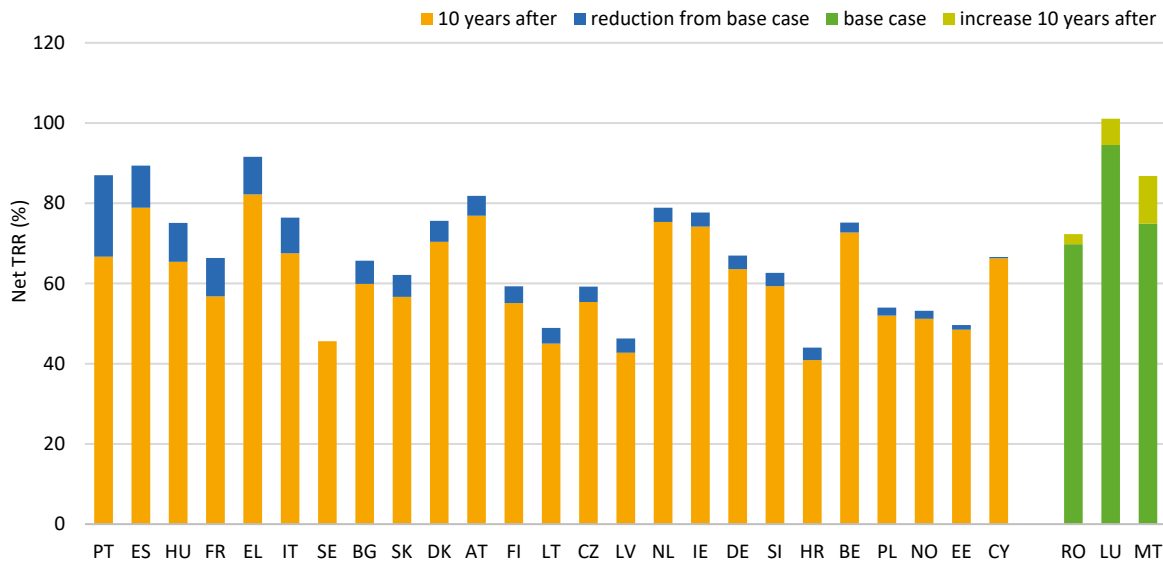
**Pension 10 years after retiring:** The career is the base case, and the person retires in 2062. This is the value of an individual’s pension 10 years after retirement (i.e. in 2072) divided by the income of another average-earner worker retiring in 2072, after a similar 40-year career up to the national SPA in 2062.

Comparing replacement rates at retirement and 10 years after (in 2072, against the base case) provides information on the impact of pension indexation and, in particular, the relationship between pensions and changes in prices and wages<sup>130</sup>.

This variant brings the TRRs beyond the income-maintenance dimension of pension adequacy, and into the duration dimension. Indexation is subject to the observations in Section 1.4 (where the mechanisms in the various countries are presented).

**Figure 53: Net TRR, base case and 10 years after retiring, average-earner, 2072, in %, EU-27 Member States and Norway**

*In most countries, pensions fall as a pensioner ages*



Notes: Ranked by difference in TRR. Countries on the left have replacement rates that fall more than 10 years after retirement; those on the right have a more sustained TRR after 10 years.

Source: OECD and Member States.

<sup>130</sup> This is calculated considering the value of an individual’s pension 10 years after retirement (i.e. in 2072) divided by the income of another average-earner worker retiring in 2072 after a 40-year career up to the national SPA in 2062 (thus, the two retirees are in different cohorts, with 2022/2032 as the relevant entry years for the calculation of the prospective replacement rates).

**In most countries, pension indexation does not fully keep up with increases in earnings from work** (Figure 53). In only three countries (RO, LU and, especially, MT), the pensions actually gain relative value in the 10 years after retirement. In seven countries, the relative loss is below 5 %, and in further 11 countries between 5 and 10 %. Reductions of 10 % or more are projected in seven countries, topped by Portugal with a 23.4 % 10-year erosion.

It is particularly important to point out here that these results are based on the projections of the AWG on prospective growth rates for wages and prices, among other things<sup>131</sup>. Different changes in wages and prices may lead to different changes in the TRRs after retirement. While this applies to all the TRR shown above, this ‘10 years after case’ is very sensitive to them, in particular the wage growth rate as compared with that in prices.

### 3.7 Pensions for surviving spouses

#### Career cases in this section

**Survivor ratio 1: A couple retiring at the SPA after each having a 40-year career.** Both careers are exactly as in the base case at average earnings. The man dies at retirement.

**Survivor ratio 2: A couple retiring at the SPA after having 40-year (man) and 20-year (woman) careers.** The man’s career is as in the base case (40 years at average earnings), and the woman’s career as in the short career case (10 years at average earnings, a 20-year break with no credit, and then 10 years at average earnings). The male partner dies at retirement.

In both cases we show the pension ratio, which is on a different scale from the TRR shown so far. The ratio compares: (a) as the numerator, the widow’s pension, including any supplement in view of her deceased husband’s right to pension but excluding any one-off or temporary payments; with (b) as the denominator, the cumulative pension income the couple would have received if the husband had not died.

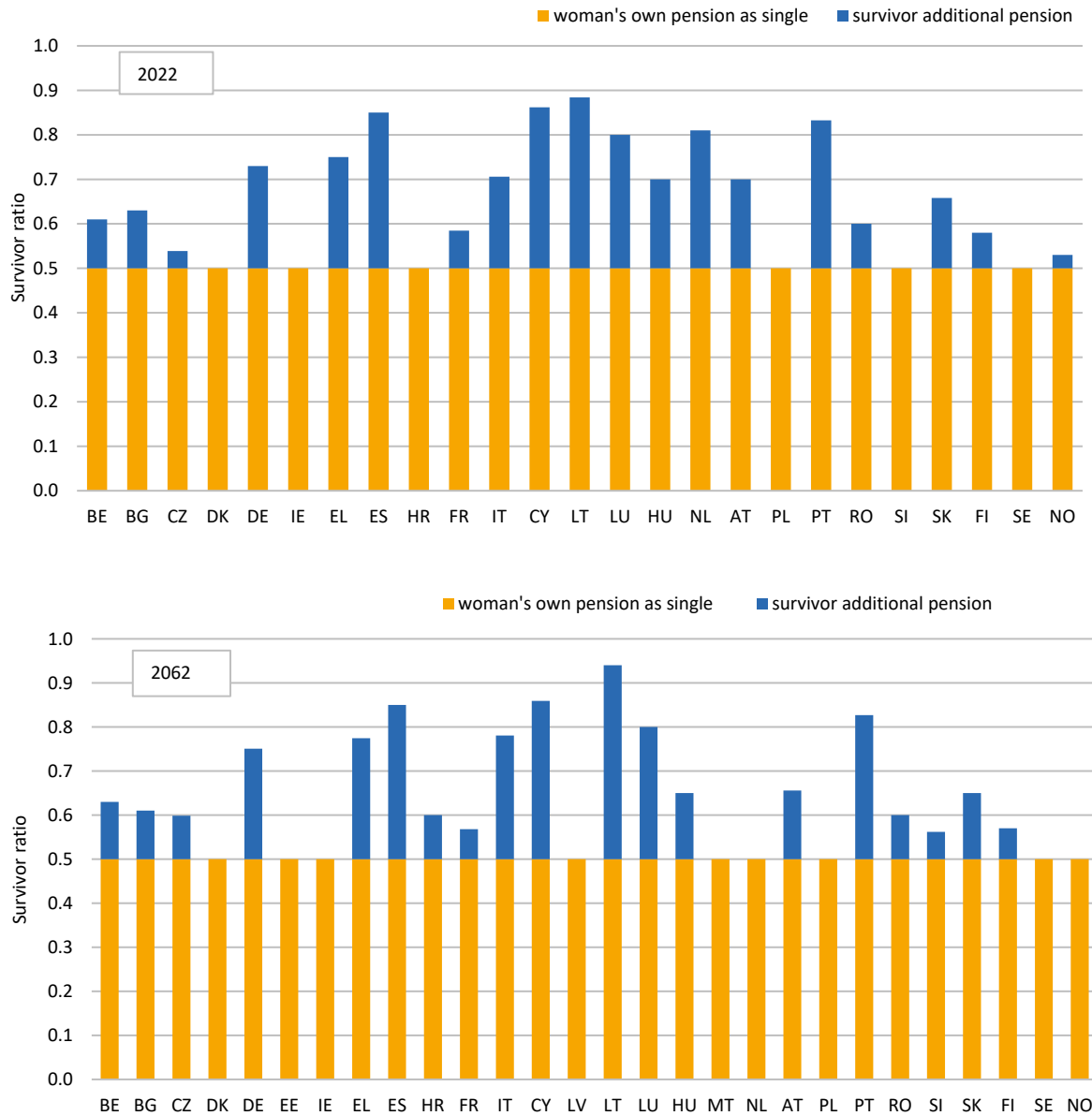
**The death of a spouse can significantly affect the income situation of the surviving partner,** particularly in retirement when it may no longer be possible to compensate for household income loss through professional activity. Comparing the pension benefits of the surviving spouse with the combined benefits of the couple illustrates the extent to which pension systems protect the surviving spouse. Hereafter the report focuses on the situation of a widow, which is much more common than that of a widower, due to gender differences in life expectancy and age differences within couples.

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<sup>131</sup> See European Commission (2023d).

**Figure 54: Survivor ratio 1, widow’s pension compared with her own entitlements, 2022 and 2062, EU-27 Member States and Norway**

*Most countries provide for a supplement to a widow on the basis of her husband’s pension*



Notes: A ratio of '1.0' on the scale represents the couple's pension income had the man not died, i.e. it corresponds to 100 %. The bars represent which fraction of it is granted: yellow bar, from the woman's own pension; blue bar on top, if any, from the survivor top-up. EE, LV and MT: no 2022 data.

Source: OECD and Member States.

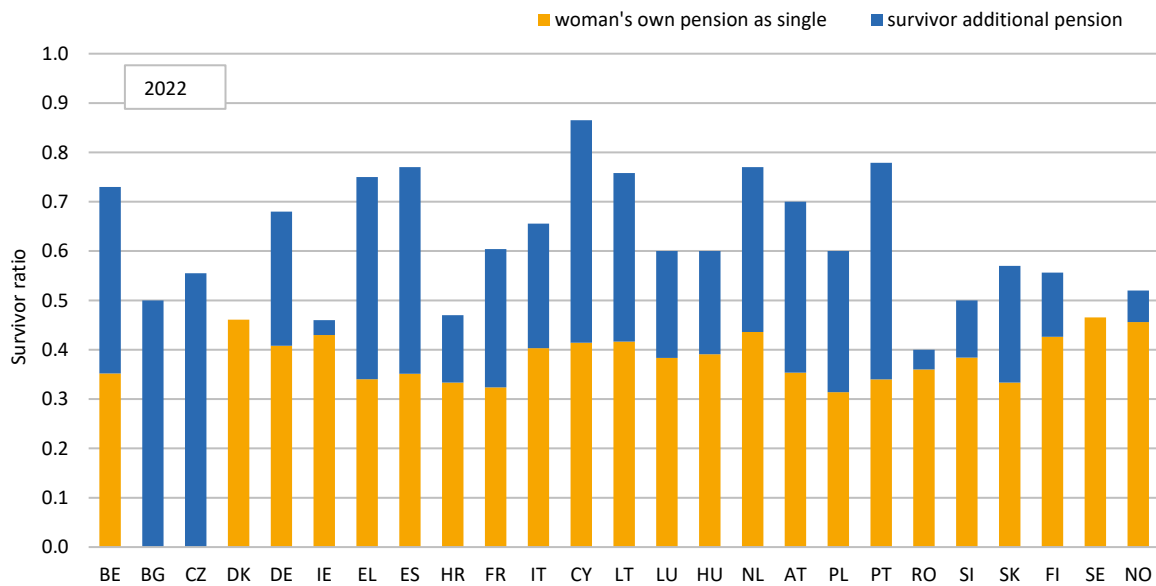
**The widow is entitled to part of the acquired benefits of the deceased spouse in most countries, which can sometimes be cumulated with her own pension.** Figure 54 shows how the benefits of the surviving widow compare with the couple’s combined benefits (yellow bars), which are standardised to equal the value 1, and whether the widow receives any derived benefit on top of her own entitlement (blue bars on top), in the case where both the woman and the man



worked a full 40-year career<sup>132</sup>. Lithuania, Cyprus, Spain and Portugal stand out as granting the highest survivor benefits in both 2022 and 2062. Comparing the benefits of the surviving spouse with the woman’s own entitlements, six countries (DK, IE, HR, PL, SI, SE) granted no additional pension to the surviving woman’s own in 2022, among those for which values are available<sup>133</sup>. In 2062, four of them (DK, IE<sup>134</sup>, PL, SE) still grant no additional pension, joined by Estonia, Latvia, Malta, the Netherlands and Norway, whereas the other countries largely maintain their support regime.

The situation is similar in the case where the woman works a 20-year career (Figure 55). In 2022, the survivor ratio was the highest in Cyprus, Portugal, the Netherlands and Spain. The widow’s pension was less than half the combined couple pension in five countries in 2022 (RO, DK, IE, SE, HR) and in nine countries in 2062 (LV, SE, EE, NL, BG, IE, DK, NO, SK). In 2062, it is highest in Cyprus, Belgium and Portugal. Comparing the widow’s pension with her own entitlements in both 2022 and 2062 in Bulgaria and Czechia, where the widow would have no or very low own entitlements, the survivor benefit increases her income to half or more of the couple’s benefit. Cyprus, Portugal and Greece (and Spain in 2022) also grant a large top-up from the deceased husband’s pension. At the other end of the scale, two countries (DK and SE) did not grant any supplement to the widow in 2022, joined by two more (LV and NL) in 2062.

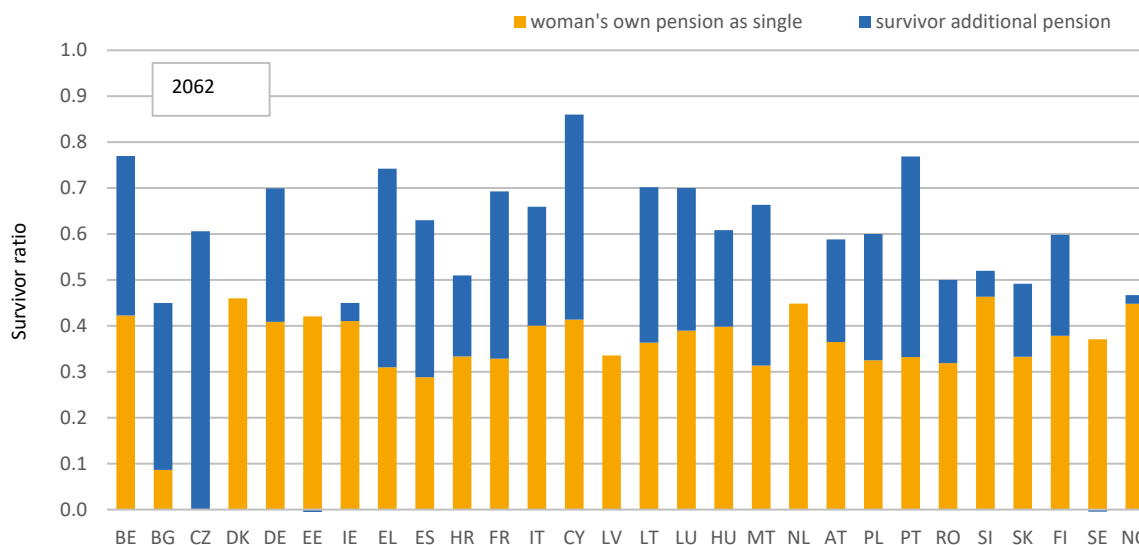
**Figure 55: Survivor ratio 2, widow’s pension compared with her own entitlements, 2022 and 2062, EU-27 Member States and Norway**



<sup>132</sup> Women’s own entitlements would be equal or close to 0.5 in all countries, as average earnings are assumed equal for both women and men.

<sup>133</sup> With no net values available for 2022 for Estonia, Latvia and Malta.

<sup>134</sup> In Ireland, while there would not be an increase in the core pension rate, a survivor living alone would be entitled to a weekly supplement to the pension. The ‘living alone increase’ has a current value of EUR 22, which is equivalent to an 8 % increase on the maximum pension rate.



Notes: '1' (= 100 %) on the scale represents the couple's pension income had the man not died. The bars represent which fraction of it is granted: yellow bar, from the woman's own pension; blue bar on top, if any, from the survivor top-up. BG (only supplementary) and CZ do not grant a pension after a 20-year career; so the widow only has a pension based on her deceased husband's. EE, LV, MT: no 2022 data.

Source: OECD and Member States.

### 3.8 Future adequacy through the lens of micro-simulation

In this chapter of the Pension Adequacy Report, future adequacy is assessed mainly on the basis of TRRs. Within the context of the PAR, researchers from Belgium, Slovenia, Czechia and Norway have used dynamic micro-simulation models to produce projections of the future AROP rates and inequality indicators for older people and pensioners<sup>135</sup>. These simulations are made in such a way that they are consistent with projections of both Eurostat (for demography) and the Ageing Working Group (AWG), which gets its mandate from the Economic Policy Committee (EPC). In this way, they allow us to assess the future adequacy of pensions in these countries jointly with their financial sustainability, using the AWG reference scenario and several sensitivity tests and alternative policy scenarios. Furthermore, a joint assessment of the impact of the sensitivity tests suggests possible pathways to improve both financial sustainability and prospective adequacy. The results presented in this section are discussed in more detail in Dekkers et al. (2024).

Between 2022 and 2070, in Belgium total public pension expenditure would increase by 3.5 pp of GDP. The poverty risks of both pensioners and older people would fall over time, roughly until the end of the 2030s. From then on, the poverty risks of both groups would stabilise. What causes the fall? First of all, the minimum pensions and means-tested guaranteed income would in the first decades increase more quickly than earnings, and therefore their growth would exceed that of the poverty threshold. Furthermore, the cohorts of women who will retire during

<sup>135</sup> Note that in Belgium, the budgetary and adequacy projections are produced by two separate models; the former by a semi-aggregate model MALTESE and the latter by a dynamic microsimulation model MIDAS. In Slovenia, Czechia and Norway, the dynamic microsimulation models produce both budgetary and adequacy projections.

the coming decades have much longer careers and obtained higher wages than the women who are currently retired. This will drive down their poverty risks, and also that of the men who share their households.

In the base scenario, the population of Czechia is projected to shrink by approximately 2.5 % between 2002 and 2070. At the same time, the number of pensioners would increase by 25 %. As a result, pension expenditure is projected to increase by 10.8 pp of GDP by the late 2050s, after which it would decline again. The AROP rate for pensioners is expected to more than double from the current level, reaching more than 25 % in 2070. There are two main reasons for this dramatic increase. Firstly, the differentiation between pensioners is expected to grow very quickly during the late 2030s and up to the 2040s, as generations that witnessed the centrally planned economy, with full employment and extremely low wage differentials, retire and are gradually replaced by generations who spent most of their lives in market economy conditions. Secondly, after 2040, the growth rate of earnings will reach its long-term level, and a gradual decline in pension levels relative to wages will occur. This relative reduction in pensions will amount to roughly 10 % by 2070. As the poverty threshold is mainly driven by earnings, the AROP rate for pensioners will continue to grow through the whole projection period.

As in Czechia, total public pension expenditure in Slovenia would peak in the late 2050s, when it will have increased by 3.8 pp of GDP. Although considerably less dramatic than in Czechia, poverty rates for older people and pensioners would increase up to the late 2040s, mainly because the participation rates in tertiary education would go up among younger generations. This would reduce their career length, and therefore would cause the average contributory period at retirement to go down. As these generations retire, the replacement rate will go down too, and poverty rates will increase.

In Norway, spending on public pensions as a percentage of GDP increases slightly (by 1.7 pp of GDP) between 2022 and 2070. Increases in pension expenditure due to population ageing are in the Norwegian system stabilised somewhat through an actuarial correction that drives down pension benefits when life expectancy increases. Further, annual pension benefits are driven down even more by the AWG assumption that labour supply in the reference scenario does not follow the increase in life expectancy. In addition, the guaranteed minimum pension is currently indexed by a rate lower than wage growth, causing an increased risk of poverty over time. The AROP rate of both pensioners and older people is thus projected to almost triple up to 2070.

The AWG highlights that the reference scenario should be considered in conjunction with sensitivity tests and alternative policy scenarios to assess how these assumptions affect the results. Relative to the reference scenario, these sensitivity tests, for example, increase life expectancy, increase or reduce net migration, augment the activity rate of older active cohorts, or change the speed at which productivity, and therefore earnings, increase over time. The Ageing Report then describes how this would affect public pension spending. Insofar as it is technically possible and relevant, the different country teams in this micro-simulation project simulated the impact on the projected adequacy of pensions. Table 8 summarises the results.

For each country, the first cell of the first row shows the AROP rate among retirees in 2070 in the reference (baseline) scenario. The second cell shows the expenditure as a fraction of GDP, also in 2070 in the reference scenario. The following rows then show the impact of the various scenarios on the AROP rate of retirees (deviation from the reference scenario in pp: this ‘AROP impact’ is an indicator of the adequacy impact of this scenario) and on expenditure relative to GDP (again as a deviation from the reference scenario, in pp). This ‘budget impact’ is an indicator of the broader sustainability impact.

**Table 8: The impact of alternative scenarios on old-age poverty and expenditure**

	Belgium		Czechia		Slovenia		Norway	
	AROP impact in 2070	Budget impact in 2070	AROP impact in 2070	Budget impact in 2070	AROP impact in 2070	Budget impact in 2070	AROP impact in 2070	Budget impact in 2070
Public pension expenditure								
Baseline in %	4.4	16.2	24.9	9.8	24.7	13.7	24.8	12.5
<b>Alternative scenarios: deviation from the reference scenario in pp</b>								
Higher life expectancy at birth (+2y)	-0.1	0.8	-0.5	0.6	0.3	0.9	0.0	0.3
Higher migration (+33 %)	0.2	-0.4	0.6	0.2	0.3	-0.7	0.4	-0.5
Lower migration (-33 %)	-0.3	0.5	-0.5	-0.3	-0.4	0.9	-0.4	0.5
Lower fertility (-20 %)	0.1	1.3	0.5	-0.1	-0.1	1.1	0.9	1.0
Higher employment rate of older workers (+10 pp)	-0.1	-1.1			-0.3	-0.7		
Higher TFP growth (convergence to 1 %)	0.8	-0.6					0.9	-0.2
Lower TFP growth (convergence to 0.6 %)	-1.0	1.1						
Policy scenario: constant retirement age	0.6	1.1						
Policy scenario: link SRA to life expectancy			-0.1	-1.5				

Notes: TFP = total factor productivity.

Source: Dekkers et al. (2024).

In several sensitivity tests, there appears a trade-off between the AROP impact and the budget impact. This is the case in both the higher and lower TFP growth scenarios in Belgium and the higher TFP growth scenario in Norway. The scenario with higher productivity results in lower expenditure but also a higher poverty risk among retirees, while the opposite is the case for the lower productivity scenario in Belgium. This is because the TFP scenario has an immediate impact on the growth rates of earnings, which, through the poverty threshold, affects the poverty risk of pensioners and older people. In addition, in the migration scenarios there is such a trade-off between the AROP impact and the budget impact for all countries (except CZ): the higher migration scenario would result in lower expenditure (as a percentage of GDP) but also a higher poverty risk among retirees, as there would in the long run be a higher proportion of migrant

pensioners who have shorter careers and lower earnings. Conversely, the lower migration scenario would result in higher expenditure but also a lower poverty risk among retirees.

In some other scenarios, there is no such clear trade-off, however. The higher life expectancy scenario clearly results in higher expenditure relative to GDP, but the impact on the poverty risk among retirees is small (BE) or absent (NO). Only in Slovenia is there a higher poverty impact of this scenario, while poverty would fall in Czechia. The lower fertility scenario increases expenditure (save for CZ, where the impact is negligible), while also increasing the poverty risk (save for SI, where the impact is negligible). The same goes for the constant retirement age scenario in Belgium. Finally, the higher employment rate among older workers scenario in both Belgium and Slovenia, as well as the scenario where the SRA increased with life expectancy in Czechia, would result in lower expenditure as well as lower poverty risks among retirees. For a more detailed discussion of these results, the reader is referred to the report underlying this section.

## 4 EQUALITY IN AGEING SOCIETIES

### 4.1 Income protection measures during recent crises and their impact on pension adequacy

#### 4.1.1 Introduction

The past three years have been marked by the COVID-19 pandemic, followed by a period of high inflation and spiking energy costs, exacerbated by Russia's war of aggression against Ukraine. These successive crises have had a considerable effect on societies, national economies, and pension schemes. Various national measures were introduced to protect the income of workers and pensioners, and to limit job losses and their impact on the accrual of pension entitlements. Pension incomes were preserved during the COVID-19 pandemic; however, the period of high inflation, which started shortly after the pandemic, created heavy pressure on pensioners' real income.

Energy prices started to increase sharply in 2021, and governments were forced to subsidise or cap the prices for energy-intensive production and for the population<sup>136</sup>. The high energy inflation spilled over to food, consumer goods and services in autumn 2021 and 2022. In 2022, average consumer price inflation in the EU was 9.2 %. Considerable differences, however, did exist among the Member States, as inflation ranged between 5.9 and 6.1 % in France and Malta, respectively, and 18.9 % in Lithuania and 19.4 % in Estonia<sup>137</sup>. The period of high inflation continued during the first half of 2023, although at a lower level than in 2022. Annual consumer price inflation in the EU was 6.1 % in July 2023<sup>138</sup>. Energy prices, which peaked in autumn 2022, fell considerably on a year-on-year basis in August 2023, but remained higher than before the start of the Russian war of aggression in February 2022.

**The EU has put in place unprecedented financial support instruments to help Member States cope with the impact of the crisis.** The Recovery and Resilience Facility (RRF) is a temporary fund that is the centrepiece of '[Next Generation EU](#)' – the EU's plan to emerge stronger and more resilient from the crisis. Through the RRF, the Commission raises funds by borrowing on the capital markets (issuing bonds on behalf of the EU). These are then available to the Member States, to implement ambitious reforms and investments that:

- make their economies and societies more sustainable, resilient and prepared for the [green](#) and [digital](#) transitions; in line with the EU's priorities; and
- address the challenges identified in country-specific recommendations under the [European Semester](#) framework of economic and social policy co-ordination.

The RRF is also crucial for implementing the '[REPowerEU plan](#)' – the Commission's response to the socio-economic hardships and global energy market disruption caused by Russia's war of aggression against Ukraine.

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<sup>136</sup> For more details see: Sgaravatti et al. (2023).

<sup>137</sup> Eurostat: Inflation rate – harmonised indices of consumer prices (HICPs), code [tec00118](#).

<sup>138</sup> Eurostat: HICP – monthly data (annual rate of change), code [PRC\\_HICP\\_MANR](#).

The EU also created in May 2020 **the Support to mitigate Unemployment Risks in an Emergency (SURE)** instrument, which supported short-time work schemes and other job-retention schemes (JRSs), to help protect jobs and thus employees and the self-employed against the risk of unemployment and loss of income<sup>139</sup>. 19 Member States have been granted financial assistance under SURE<sup>140</sup>. The EU had provided EUR 98.4 billion in back-to-back loans by the end of 2022. All 19 EU Member States that had asked to benefit from the scheme have received all of the requested amount. The primary beneficiaries of SURE support were small and medium-sized enterprises in the sectors most affected by the pandemic (hospitality and food services, wholesale and retail trade, and manufacturing).

#### *4.1.2 COVID-19 pandemic*

**The shock triggered by the COVID-19 outbreak was exceptionally deep.** Nonetheless, macro-economic and employment policies succeeded in avoiding much sharper repercussions on individual incomes than initially feared. In particular, employment dropped much less than GDP, even though the labour market was severely affected. Jobs were preserved mainly through JRSs and financial subsidies for self-employed people. JRSs were used on a much larger scale than ever in the past. According to the final report on SURE<sup>141</sup>, at the height of the pandemic in 2020 approximately 31.5 million people and 2.5 million firms are estimated to have been covered by SURE in 19 Member States. National sick leave schemes were also broadly used during the confinement periods and provided extended paid sick leave for workers who had to stay at home with their minor children due to the long-term closure of schools or due to quarantine imposed at work or school by public authorities<sup>142</sup>.

The exceptional labour market policy response during the COVID-19 crisis was not limited to JRSs. Many countries eased or broadened access to unemployment benefits or reduced, temporarily suspended or entirely waived minimum contribution requirements to unemployment or pension insurance schemes; granted unemployment insurance to new groups of workers; and provided special forms of income support to self-employed people<sup>143</sup>.

**For current pensioners, pension benefits were safeguarded during the COVID-19 pandemic.** Pensioners generally suffer lower income losses during economic downturns than the working-age population. The COVID-19 crisis was no exception to the rule. Contrary to many JRSs, where workers or the self-employed received only part of the usual salary or yearly taxable income, pension payments were not reduced during the COVID-19 pandemic. On the contrary, many countries introduced diverse temporary or targeted income support measures

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<sup>139</sup> See Council of European Union (2020).

<sup>140</sup> See the list of Member States using SURE and the amounts provided per country at the SURE website ([https://economy-finance.ec.europa.eu/eu-financial-assistance/sure\\_en#related-links](https://economy-finance.ec.europa.eu/eu-financial-assistance/sure_en#related-links)).

<sup>141</sup> European Commission (2023e).

<sup>142</sup> See for more detail: Baptista et al. (2021).

<sup>143</sup> See notably in European Commission (2022b) and European Commission (2023a).



for pensioners. As a result, the relative income of pensioners temporarily improved during the COVID-19 pandemic<sup>144</sup>.

A limited number of one-off payments to older people were also included in the packages of crisis measures (AT, BG, CZ, EL, LT, LV). From August 2020 until the end of June 2022 Bulgaria paid a COVID-19 supplement to all pensioners and offered a one-off individual payment in addition to the old-age pension, to encourage pensioners to be vaccinated. Czechia provided in December 2020 a one-off payment of approximately EUR 200 (CZK 5,000) to all pensioners in order to compensate them for the extraordinary expenses associated with the purchase of face masks, disinfectant and other health protection items during the pandemic. Belgium provided a temporary bonus of EUR 50 per month to all beneficiaries of the income guarantee pension for older people, to help them cope with the COVID-19 situation. To preserve the purchasing power of pensioners who worked extra during the crisis (e.g. retired medical staff) and were affected by illness or temporary unemployment, they were exceptionally allowed until the end of September 2021 to cumulate a pension with a sickness or unemployment benefit.

**The impact of the COVID-19 crisis on future pensions has been limited thanks to the expanded use of job retention schemes (JRSs) (generally with guaranteed accrual of pension entitlements), subsidised pension contributions, the extension of unemployment and sick leave protection, and specific measures benefiting the self-employed.**

In mandatory earnings-related pension schemes, pension rights generally continued to accrue on the subsidised part of wages. There have been, however, a few exceptions. In Latvia and Poland, wages paid in JRSs did not accrue entitlements in mandatory earnings-related schemes, but the periods covered were validated as contribution periods and fully counted towards eligibility conditions (e.g. for minimum pensions). In Denmark and the Netherlands, JRSs covered at least some contributions to occupational schemes, which was not the case in Norway and Sweden<sup>145</sup>.

**In most countries, the state budget or other public funds also subsidised mandatory pension contributions on subsidised wages.** For example, Germany has reimbursed employers who have used JRSs, including for total social security contributions related to the worked hours lost, resulting in the accrual of full pension entitlements. In Italy, the subsidised part of wages, up to 80 %, has not been subject to pension contributions, but pension entitlements accrued on full wages. In France, since changes in the legislation in June 2020, contributions on subsidised wages have been paid by the newly created ‘solidarity fund’, mostly financed by the state budget and local governments. France has also subsidised employers’ contributions in selected sectors without lowering individual accruals.

Greece has fully subsidised pension contributions for workers who stopped their activity due to the pandemic. Hungary has suspended pension contributions in sectors affected by the

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<sup>144</sup> 2021 Eurostat data, which refer to the income situation in 2020, the first year of the COVID-19 pandemic, show a slight year-on-year increase in the relative median income ratio of people aged 65+ (from 0.89 to 0.91) and of the ARR (from 0.56 to 0.58) in the EU-27 (codes ilc\_pnp2, ilc\_pnp3).

<sup>145</sup> OECD (2021b), p. 21.



lockdown between March and June 2020 while entitlements kept accruing fully. Norway temporarily reduced social security contributions by 4 pp without affecting entitlements in the NDC scheme.

Many countries allowed **deferral of pension contributions** for a few months, and temporarily lowered or removed the penalties for delays in paying contributions, including Belgium, Czechia, Estonia, Finland, France, Greece, Italy, Luxembourg, the Netherlands, Norway, Poland, Portugal, Slovakia and Spain. For example, in selected sectors, Italy allowed the deferral of pension contributions to the NDC scheme that were due between February and May 2020. The contributions were to be repaid by the end of 2022. In Estonia, employees could suspend their contributions (2 %) to the mandatory funded pension scheme between December 2020 and August 2021. Available data show that approximately 1.4 % of eligible employees made use of that temporary suspension (60 % of whom were women, and about a third aged 35 to 44).<sup>146</sup>

**The COVID-19 crisis strongly affected a number of sectors where many workers are self-employed**, such as culture, hospitality, event management, personal services and tourism. Some countries provided temporary and targeted cash transfers to the self-employed. Several countries deferred, subsidised or suspended social security contributions for the self-employed while pension entitlements kept accruing. This was important because mandatory pension contributions for the self-employed are based on their income in the previous year (e.g. AT, SI, CZ) or at the minimum required amount (e.g. PL, ES<sup>147</sup>). In addition, Estonia, France, Hungary, Italy, Poland, Slovakia, Slovenia and Spain granted subsidised social security contributions and thereby pension entitlements to the self-employed, whereas Portugal reduced the pension contributions of the self-employed without reducing their accrual rates.

**Fully funded pension schemes were subject to strong volatility in the period 2020-2022.** After the COVID-19 shock to financial markets in spring 2020, the markets – and thus also pension funds' financial portfolios – recovered during 2021, even outperforming pre-COVID-19 index values by the end of the first quarter of 2021. Nevertheless, in 2022 the world's largest 300 pension funds saw a fall in their combined assets for the first time since 2018<sup>148</sup>, of 12.9 % – representing a sharp correction compared with an 8.9 % increase in 2021.

**Extraordinary measures addressing funded pension schemes in the EU during the COVID-19 crisis mostly focused on facilitating access to savings**, for example by allowing exceptional withdrawals from mandatory funded pension schemes. For voluntary schemes, France, Portugal and Spain lifted penalties or relaxed the conditions for withdrawing pension assets. The Netherlands took measures in funded occupational schemes to mitigate the impact of the crisis on pensioners.

**Due to excess mortality during the pandemic, the number of older people declined on average between 2020 and 2022, and life expectancy at 65 (LE65) fell in the majority of**

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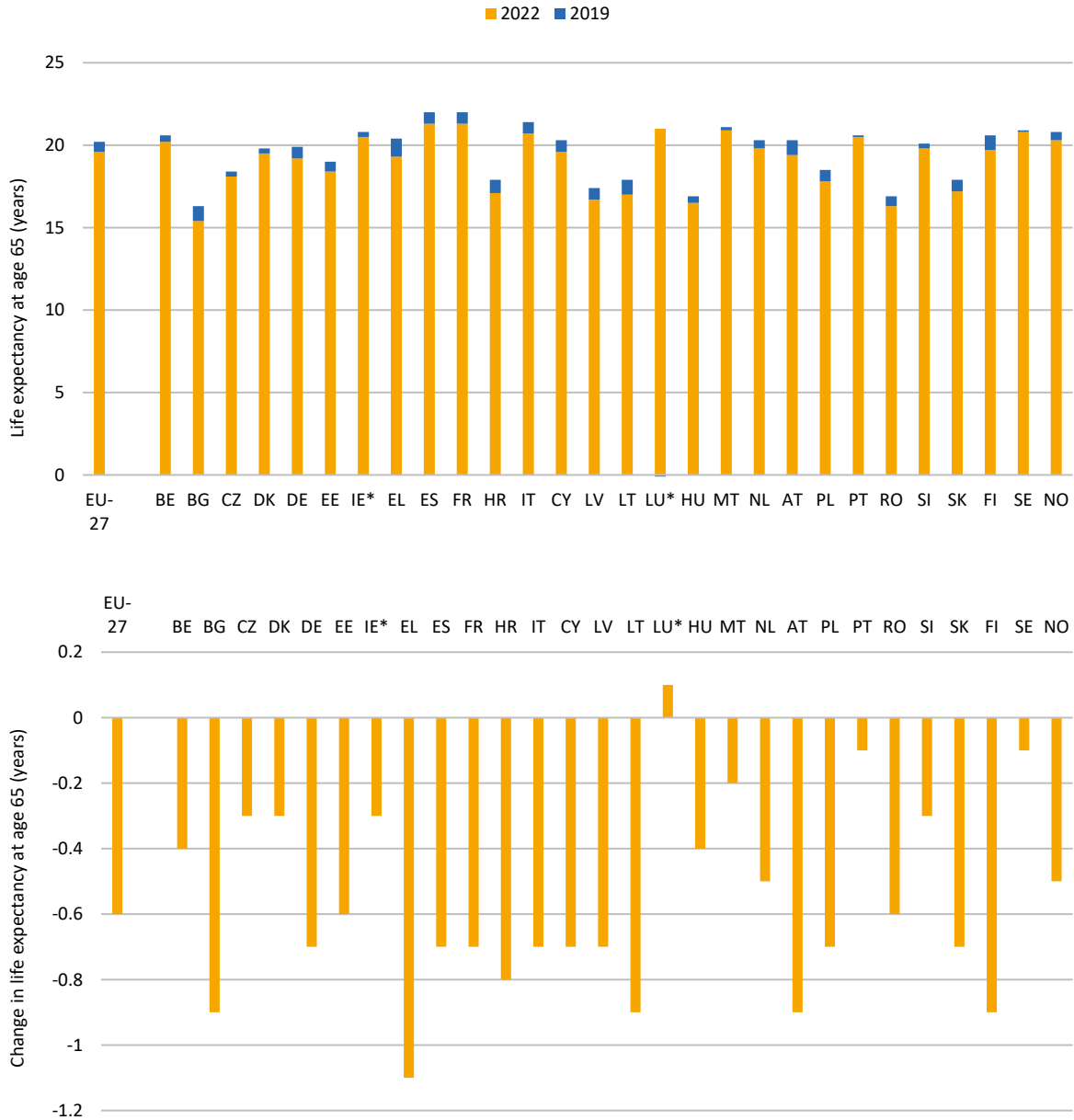
<sup>146</sup> Baptista et al. (2021), p. 103.

<sup>147</sup> In 2022 Spain adopted a new law providing that, from 2023 on, contributions for the self-employed are based on their net income (see Chapter 2).

<sup>148</sup> Thinking Ahead Institute (2023).

**Member States** (see Figure 56 and Figure 57; also see Sections 1.4 and 4.4.2 for more detail). This effect of the COVID-19 pandemic is nevertheless expected to be limited in time and to have only a short-term impact on national pension schemes in terms of the reduced number of old-age pensioners.

**Figure 56: Life expectancy at 65, 2019 and 2022, EU-27 Member States and Norway**



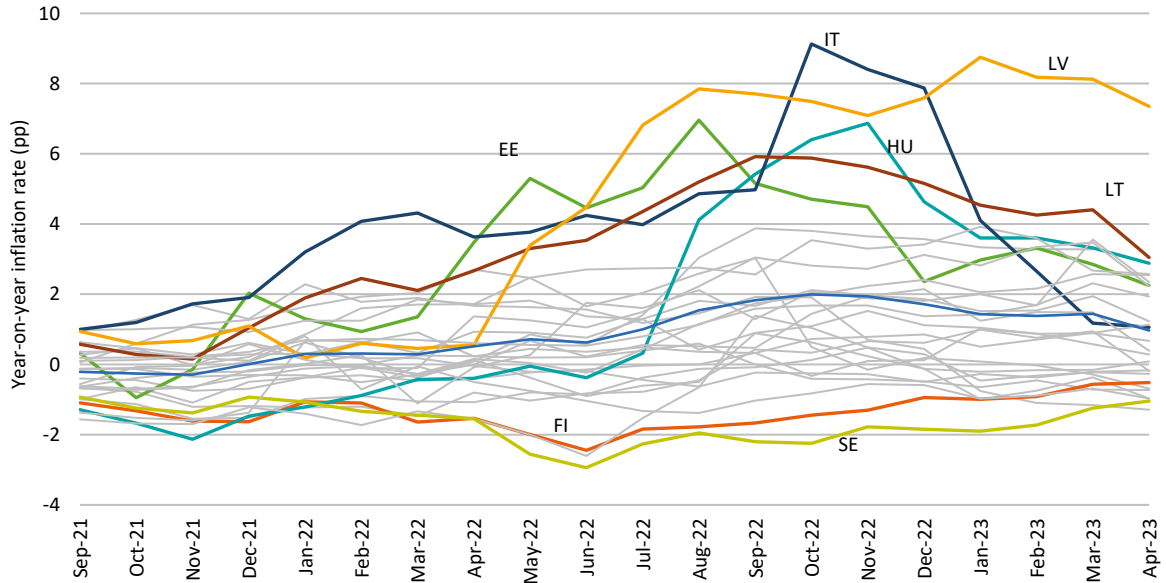
Notes: \*IE: 2021 instead of 2022. \*LU: life expectancy actually increased by 0.1.

Source: Eurostat.



in Finland and Sweden, the inflation rate has consistently been higher for high-income households than for low-income households.

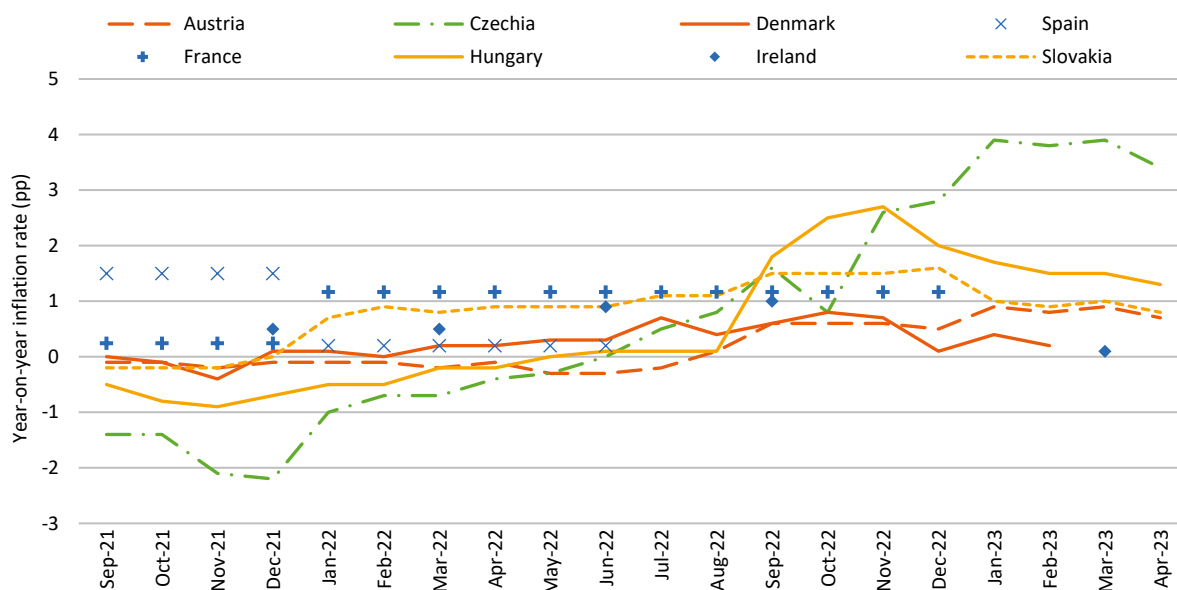
**Figure 58: Gap in year-on-year inflation rate between the lowest and highest income quintile, in pp, EU-27 Member States**



Note: Light blue line indicates average of EU-27.

Source: Claeys et al. (2023).

**The cost of living increased somewhat more for older people than for younger people in some countries.** Age-specific inflation data have limited availability, but for most countries for which data are available, and noting that the results may be affected by which age groups or household types are compared, the conclusion still seems to be that older people have experienced somewhat higher inflation than younger age groups (Figure 59). Possible causes include older people occupying older housing stock with lower energy-efficiency, and the higher share of food costs in their expenditure (OECD, 2023 unpublished).

**Figure 59: Gap in year-on-year inflation rate between older and younger age groups, in pp, EU-27 Member States**

Notes: For several countries, the data show the difference in the inflation rate (in pp) between older people and younger age groups: AT (65+ vs 30-64), FR (75+ vs 30-44), IE (65+ vs 35-64) and ES (60+ vs <40). In CZ, HU and SK, inflation is compared for pensioner households vs all households. In DK, it refers to a pensioner household vs a household with a two-child family.

Source: OECD (2023, unpublished).

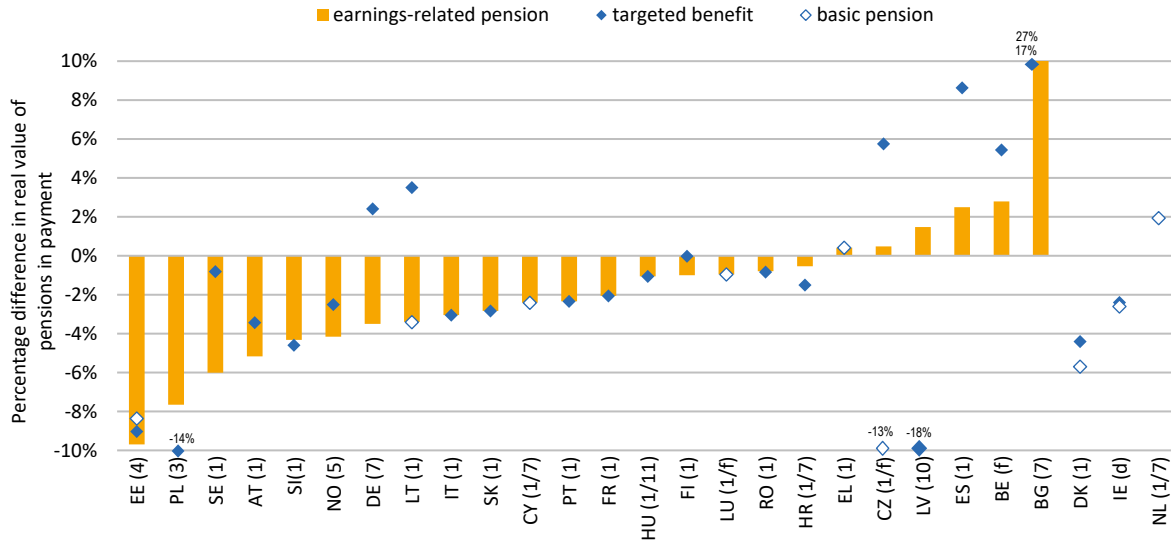
**Faced with cost-of-living increases, the income and the purchasing power of pensioners were relatively well protected compared with the working-age population**, thanks to national rules on statutory pension indexation. This is especially noticeable when comparing the pension increases during recent years with the considerably lower increase in wages for the working-age population. While the increase in wages has been relatively limited during this period, statutory pensions were mostly automatically price-indexed or were increased on an ad hoc basis by discretionary decisions of national policy-makers by more than the average increase in wages.

**Despite tight labour markets in several Member States, nominal wage growth remains well below the high inflation rates recorded in 2022 and first half of 2023.** Growth in real wages between the first quarters of 2022 and 2023 was negative in all countries except Belgium and the Netherlands (growth of 2.9 % and 0.4 %, respectively). A more than 10 % loss in real wages is reported from Czechia (10.4 %), Latvia (13.4 %) and Hungary (15.6 %).

**Pensions fell in real terms in January 2023 compared with January 2022 in most EU Member States and Norway** (Figure 60). The period is selected to cover the lion's share of the inflation surge and to correspond to the indexation cycle most used in EU Member States (i.e. annual indexation in January). According to OECD calculations, earnings-related pensions lost more than 5 % in real terms in Austria, Estonia, Poland and Sweden, while targeted benefits were more than 5 % lower in real terms in Estonia, Latvia and Poland, and basic pensions more than 5 % lower in Czechia, Denmark and Estonia. Only a few countries, such as Bulgaria (which implemented several ad hoc increases), saw their pensions improve in real terms over

the same period. These results should be interpreted with care as the precise timing of indexation plays a key role in the outcome.

**Figure 60: Difference in real value of pensions in payment in January 2023 compared with January 2022, %, EU-27 Member States and Norway**



Notes: The numbers between brackets refer to the month(s) of indexation of the earnings-related pension; for DK, IE and NL they refer to the basic pension. d = discretionary adjustments; f = fixed-threshold indexation. For countries indexing pensions at different rates based on pension size (AT, IT, LV and PT) or career length (LV), the scenario for the average pensioner is shown (average male pensioner for AT). MT not included due to missing data.  
Source: OECD calculations based on information provided by Member States.

**Indexation of pensions to changes in prices, wages, or to a mix of both, matters greatly for pensions, especially in times of robust price increases.** Section 1.4 describes in detail the national pension indexation rules. Countries where pensions experienced significant losses in real value are generally those where indexation is primarily wage-driven and prices play a limited role in the indexation mechanism, or there is some delay in adjusting pensions to price increases. In the recent period, in fact, wages have not increased at the same pace as prices, with the result that the inflationary shock in most countries translates into real-terms wage losses. Even in countries with price indexation, it matters whether the indexation takes place soon after the price index surges; this is the case in fixed-threshold indexation mechanisms such as in Belgium. Finally, there are important differences between countries in the impact of indexing pensions to a general or to a pensioner-specific price index, as the latter has increased more than the CPI in countries such as Czechia and Hungary (see Figure 59).

**The recent period of high inflation has thus reversed the standard way of thinking about pension indexation.** In normal times, wages would grow more quickly than prices due to productivity gains. In the recent past, due to falling real wages, price indexation has become a more favourable protection for pensioners than wage indexation, while being more costly than initially anticipated.

**The interplay of inflation, indexation of pensions, and uprating of past earnings in the calculation of new pensions has affected retirement incentives in some countries.** In Czechia, the legal provisions requiring pensions to be indexed every time inflation increases by

5 % (special price index for pensioners), brought two extraordinary pension indexations during 2022 (in May and September) in addition to the regular January indexation. As the indexations applied to all pension claims submitted in 2022, the consequence was that early retirement in 2022 was more beneficial for the majority of people than retiring on reaching the regular retirement age any time during 2023<sup>150</sup>. This led to a high number of early-retirement claims during the last quarter of 2022, and in the end to a legislative change to the indexation rules in 2023, excluding early pensions from the pension indexation until people reached the regular retirement age.

**Low-income pensioners with no additional assets or revenues are the most vulnerable group of pensioners during high inflation periods.** In the exceptional circumstances where prices increase more quickly than wages, indexing pensions to wages or a mix of prices and wages may result in real income losses for pensioners and raise poverty risks for older people with low income. Protecting in full all pensioners against high inflation is likely to be very costly for national schemes. Depending on the fiscal space and national preferences, alternatives to full price adjustment for all may include a combination of: a flat-rate payment; full adjustment up to a threshold; and partial adjustment, potentially up to a cap beyond which no adjustment would apply<sup>151</sup>.

**Although the situation varies between countries, a common policy response to high inflation has been to prioritise the protection of the most vulnerable pensioners.** This may comprise one-off benefits for low-income pensioners or, in general, the low-income population. It may also be a flat-rate increase in pensions in the case of extraordinary indexation, in order to provide a higher amount to lower pensions and thus not increase even further the difference between low and higher pensions.

Long established measures in the Member States were modified to help pensioners directly, through permanent increases in their pension benefits. These included the following.

- **Regular or extraordinary increases** in all pension benefits (e.g. BG, CY, EE, ES, FI, FR, HU, IE, LT, LV, MT, NL, PT, SE) including **increases in social minima** or a **reevaluation of minimum pensions** (e.g. BE, CZ, ES, HR, IE, IT, RO, SE). In Estonia, the total pension increase in 2023 was higher than in previous years, and was further boosted by the increase in the tax exemption amounts for individuals of pensionable age. In Italy, additional increases for pensions equal to or lower than the minimum pensions were planned for 2023 and 2024. The additional growth rate in 2023 was 1.5 % for all pensioners, and 6.4 % for those aged 75+; in 2024, pensions were to be increased by 2.7 %.

Specific social benefits, other than pensions, were increased in a number of Member States during the time of high inflation (e.g. family/child benefits, unemployment benefits, and minimum subsistence income), the most important one for low-income pensioners being

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<sup>150</sup> The pension calculation for requests filed during 2023 takes into account parameters of 2021 and thus excludes the two extraordinary indexations over the course of 2022.

<sup>151</sup> OECD (2022b).



probably housing benefit, providing the financial support for increased housing and energy costs (for a review of national minimum pension schemes see Section 4.4.6).

Governments further implemented ad hoc income support measures for pensioners, helping them to cope with the impact of high energy prices on the general cost of living. These measures mainly include the following.

- **Pension supplements** (one-off or regular) (e.g. AT, BG, DK, HU, IT, LV, PT, RO) and **other cash benefits** targeting pensioners (e.g. DE, EE, EL, HR, HU, IE, IT, LU, MT, NL, RO, SI, SK). In Austria, for example, the ‘equalisation supplement’ was a standard, one-off payment paid three times during 2022 (February, April and September) for those receiving the minimum pension, and once in September 2022 to all pensioners in proportion to the amount of their pensions. In Malta, the annual bonus was increased, and in 2022 a cash benefit was paid to people aged 63 or over who had not accumulated sufficient contributions for an old-age pension.
- **Other support measures** were implemented in rare cases. In Bulgaria, for example, the cost of the monthly public transport cards for pensioners was reduced by an additional 20 %. In Romania, food vouchers were offered to pensioners in 2022 and 2023. Ireland expanded the eligibility of pensioners aged 70+ for the fuel allowance scheme that tops up pension benefits during the heating season, and provided additional lump-sum payments to recipients of the fuel allowance and of the benefit for single older people. In Finland the housing allowance for pensioners was increased.

Pensioners also benefited from other income support measures not targeted at them but which served as ‘inflation packages’ for the general population during the period 2021-2023: measures that offered heating support through social tariffs for electricity and gas or caps on energy prices. Some countries temporarily suspended or cut the value added tax on energy utilities such as fuel (CZ, PL) or on basic foodstuffs (PL), while Hungary applied price caps to fuel, essential foods and energy (up to average consumption levels)<sup>152</sup>. Minimum subsistence income or housing benefits were increased, and the claim procedures simplified and streamlined.

## 4.2 Gender gaps

### 4.2.1 Introduction

**The majority of older people are women. This makes gender gaps in old age a particular social challenge.** While in 2022 women represented 57 % of the EU population aged 65+, as reported in Chapter 1, they generally had higher poverty risks and lower income than men. In the EU, about 1 in 5 women aged 65+ (i.e. more than 10 million) were at risk of poverty<sup>153</sup>. Over the 2012-2022 period, both the at-risk-of-poverty-or-social-exclusion (AROPE) and at-risk-of-poverty (AROP) rates stayed significantly higher for older women than for their male counterparts in the EU. While the material and social deprivation (MSD) rate has been falling

<sup>152</sup> For a detailed report on national fiscal policy responses to the energy crisis, see Sgaravatti et al. (2023).

<sup>153</sup> All the latest figures come from the EU-SILC 2022 wave (budget income 2021), unless specified otherwise.



since 2015<sup>154</sup> for both sexes, convergence between women and men has been slow and incomplete<sup>155</sup>. The same is true for income replacement in old age<sup>156</sup>.

### **Box 8: Intra-household income distribution**

*While the overall gender differences in old-age poverty rates and income levels are already significant, they might not capture the true extent of gender inequalities that individuals face. In particular, most poverty indicators described in Chapter 1 are based on equivalised income at household level and assume equal sharing of income, thus ignoring possible (gender) inequality within households.*

*Measuring individual risks and individual pension incomes could give a better picture of the real economic independence of older women. Recent research has developed a measurement framework for financial independence, defined over three key dimensions: income, wealth, and power and control (EIGE, 2024). It shows that the gender inequalities in the AROP rate are greater if poverty is based on individualised income rather than household income. The same report highlights analysis showing that the individual's share of household income is a significant predictor of their individual risk of experiencing material deprivation.*

*In this context, both the legal (matrimonial or cohabitating) status – which may also influence the pooling/sharing of resources – and the very design of benefit allocation may play a direct role. In several Member States, if a cohabiting or married person does not have a pension entitlement in their own right, their partner can claim an increase (means-tested) for a dependent adult. In Ireland, the payment can be made directly to the dependent adult as a separate payment rather than as a top-up to the primary payment, which fosters financial independence.*

### **Living single in old age further increases the poverty risk for women compared with men.**

As the AROP indicator is limited to inequality between households, focusing on single people provides a more direct comparison between women and men (see Box 8 on possible intra-household inequality). In addition, older women are much more likely than their male counterparts to be living on their own<sup>157</sup>. For single households, the AROP gap between women and men was larger in 2022 in almost all countries and for the EU-27 overall (8.5 pp, against 5.6 pp for all households; see Figure 61)<sup>158</sup>. While country-level data need to be considered with caution in view of sample sizes, especially in smaller countries<sup>159</sup>, they appear to confirm that

<sup>154</sup> First year for which the indicator is available.

<sup>155</sup> And with a slightly increased gap from 2021 to 2022. Eurostat, code [ilc\\_mdspd07](#).

<sup>156</sup> The gender gap in the relative income ratio has narrowed between 2014 and 2020, to 6.0 pp in 2022. While the ARR has slightly increased in the EU over the last 10 years, it stayed lower for women than for men, with the gap varying between 4 and 6 pp over this period.

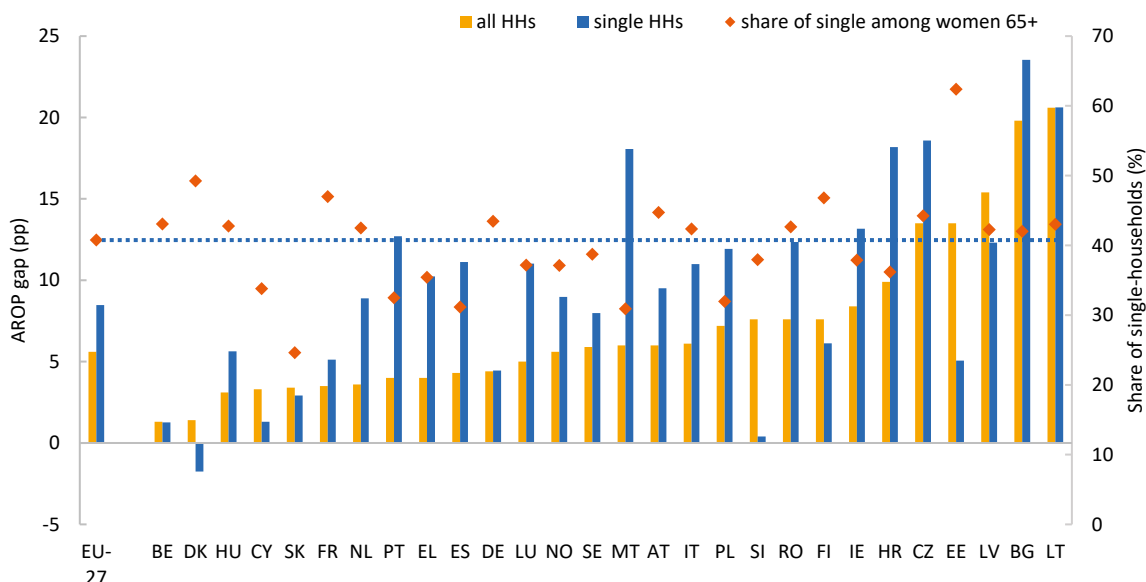
<sup>157</sup> Variable codes [ilc\\_pnp12](#) or [tespn240](#) (pensions portfolio): gender differences in the AROP rate by age – EU-SILC survey.

<sup>158</sup> The proportion of older people living alone, and in particular single older women, has changed recently and especially since 2019, due to the COVID-19 pandemic and more frequent heatwaves. Eurostat, code [lfst\\_hhindws](#). As stated in European Commission (2023c): ‘Generally speaking, COVID-19 was a prominent, but not leading, cause of death in 2020. Based on available data from 15 Member States, COVID-19 was the third ranked cause of death in 2020, representing 7.9 % of all deaths, after cardiovascular diseases (35.0 %) and cancer (23.4 %). COVID-19 proved fatal mostly for older people, and more men than women died.’ For more information, see the Eurostat ‘Statistics Explained’ articles on [weekly death statistics](#) and on [excess mortality](#).

<sup>159</sup> E.g. in Estonia the share of older women living in single-person households appears to have more than doubled between 2020 and 2021, and increased again by more than 6 pp in 2022 (from 25.9 % to 56.5 % and then 62.2 %).

living single in old age generally puts women at a bigger disadvantage than men. In some, particularly southern, European countries (MT, HR, PT), the much higher AROP rate for single older women may be related to the low labour market participation of these generations of women.

**Figure 61: Difference between the at-risk-of-poverty (AROP) rate for women and for men aged 65+, 2022, EU-27 Member States and Norway**



Notes: Ranked by increasing poverty gap for all household types. The dotted line is set at the EU-level share of single-person households among women aged 65+. Break in series for FR and LU for the poverty variables. For ES and FR, the definition of household types differs. Last updated 16 November 2023 for poverty variables (1 December for LU), and on 15 June 2023 for household types.

Source: Eurostat ([ilc\\_li02](#), [ilc\\_pnp12](#) and [lfst\\_hhindws](#)).

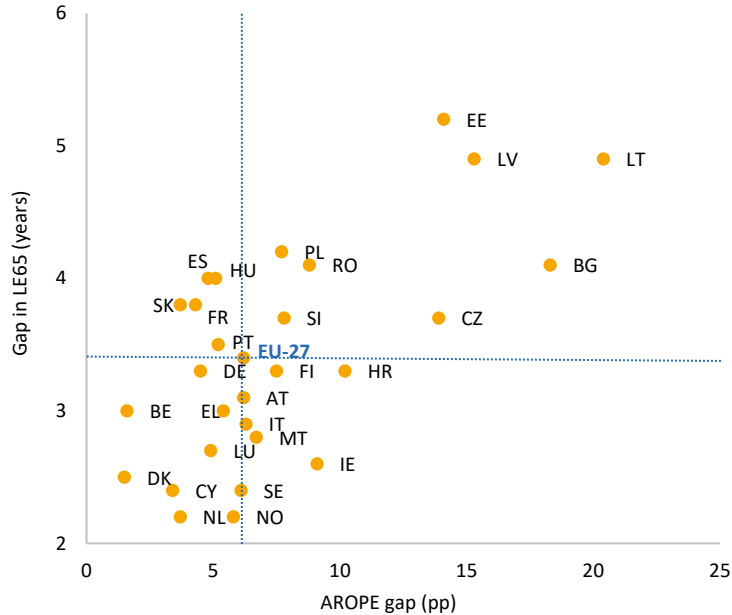
**The differences between the incomes of men and women are exacerbated in old age.** When looking at income replacement, it is important to keep in mind that the gender-specific indicators – both the relative income ratio and the aggregate replacement ratio (ARR) – compare the income of older women with that of working-age women, which is already lower than for men (see the gender gap in earnings, Section 4.2.3). A gender gap in these ratios therefore means that the difference between the income levels of men and women becomes even larger when they retire.

Besides being exposed to higher poverty risks and lower income levels, **older women also face a poorer health status than older men** (see Section 1.5, Figure 29 and Figure 30). Indeed, while in 2020 and 2021 life expectancy at age 65 (LE65) continued to be higher for women than for men by 3.6 years in the EU (3.4 in 2022), the difference in healthy life years at 65 was less than half a year in 2021<sup>160</sup>, and even negative in some countries. Figure 62 displays the position of the EU, the 27 Member States and Norway as to the two gaps: the gap in LE65, and

<sup>160</sup> This difference was even smaller in the past decade, from 0.1 additional expected healthy life years for women at age 65 in 2012 to 0.2 in 2019 (see Section 1.5; codes [demo\\_mlexpec](#), [tespm120](#) and [tespm130](#)).

the gap in old-age poverty and social exclusion. It shows a positive correlation between the two gaps: the higher the gap in LE65, the higher the gap in the AROPE rate.

**Figure 62: Life expectancy at 65 and at risk of poverty or social exclusion (AROPE) rate, gender gaps, 2022, EU-27 Member States and Norway**



Notes: 2021 data for DE and IE. Last updated 15 December 2023.

Source: Eurostat ([demo\\_mlexpec](#), [ilc\\_peps01n](#)).

#### 4.2.2 Gender pension gap and coverage gap

Pension incomes – old-age pensions in particular – make up the bulk of monetary assets in old age. In addition, they are a key component of the economic independence of older people. The Eurostat ‘gender pension gap’ (GPG) measure<sup>161</sup> is commonly used to characterise drivers of the poverty gap in old age (see Bettio et al., 2013). The GPG compares the average gross pension income of men with that of women (for those receiving a pension, including survivors’ benefits). The analysis presented below is based on the GPG in the 65-79 age group<sup>162</sup>.

**The difference between the average pension income of men and that of women continues to narrow.** Although still amounting to 26.1 % in 2022 (see Table 9), the GPG in the EU had indeed narrowed by 3.4 pp since 2019 and by almost a third over the previous decade (from 34.7 % in 2012). In other words, in 2022 women aged 65-79 received a gross pension that was on average 26.1 % lower than that of men in the same age group. Women receive lower pensions on average in all EU Member States and in Norway, but, as already shown in previous reports, the extent of this gap varies considerably between countries (see Table 9). In 2022, the

<sup>161</sup> Eurostat: the GPG (65-79) – code [ilc\\_pnp13](#) – shows the relative difference (in %) between women’s average (gross) pension income and men’s average pension income. Pension income includes old-age benefits, survivors’ benefits and regular pensions from individual private plans. Note that in 2020 Eurostat has changed the way it computes the EU average, resulting in a break in the EU series.

<sup>162</sup> Considering the whole age group over 65 would be subject to a bias from the large proportion of women in the age group over 80, generally with even lower pensions.

gap ranged from 4.7 % in Estonia to 45.0 % in Malta. However, caution should be exercised when trying to interpret these differences, in particular as substantial changes in different directions between subsequent years can be observed<sup>163</sup>.

**Table 9: Gender pension gap (ages 65-79), %, 2022, EU-27 Member States and Norway**

GPG at ages 65-79 – EU-SILC survey					
	2019	2022		2019	2022
EU	29.5	26.1	LT	18.8	11.9
BE	33.4	23.8	LU	46	38.3
BG	21.3	24.3	HU	10.6	10.8
CZ	14.2	14.6	MT	42.6	45
DK	7.7	8.8	NL	42.1	40
DE	36.1	28.5	AT	36.3	32.8
EE	0.8	4.7	PL	21.7	17.8
IE	27.3	30.2	PT	27.1	24.4
EL	24.1	26.5	RO	21.8	18.6
ES	31.3	26.8	SI	12.3	5.9
FR	30	30.1	SK	11.6	11.1
HR	24.4	20.9	FI	22.6	22.8
IT	35.6	32.2	SE	27	24.8
CY	39.3	36.7			
LV	15.2	13.4	NO	22.8	19.9

Source: Eurostat ([ilc\\_pnp13](#)); last updated 1 December 2023.

The gender pension gap above only considers older people who receive a pension. This is only part of the picture, however. **Fewer women have been qualifying for a pension than men, creating a gap in pension coverage.** In some countries, it concerns mostly women married to men who do receive a pension, implying that the man's pension should cater for both, and may be increased for that reason. It may be an increase for a dependent spouse, as in Ireland or Spain, or a bonus awarded if the person with the lower pension waives their pension rights, as in Belgium<sup>164</sup>. Hence, this gap does not necessarily reflect women's real access to pension income. However, as mentioned in the introduction to this section, this household-level view ignores possible gender inequality within households and may not capture the real economic (in)dependence of older women. And in all other cases, even if old-age minimum income

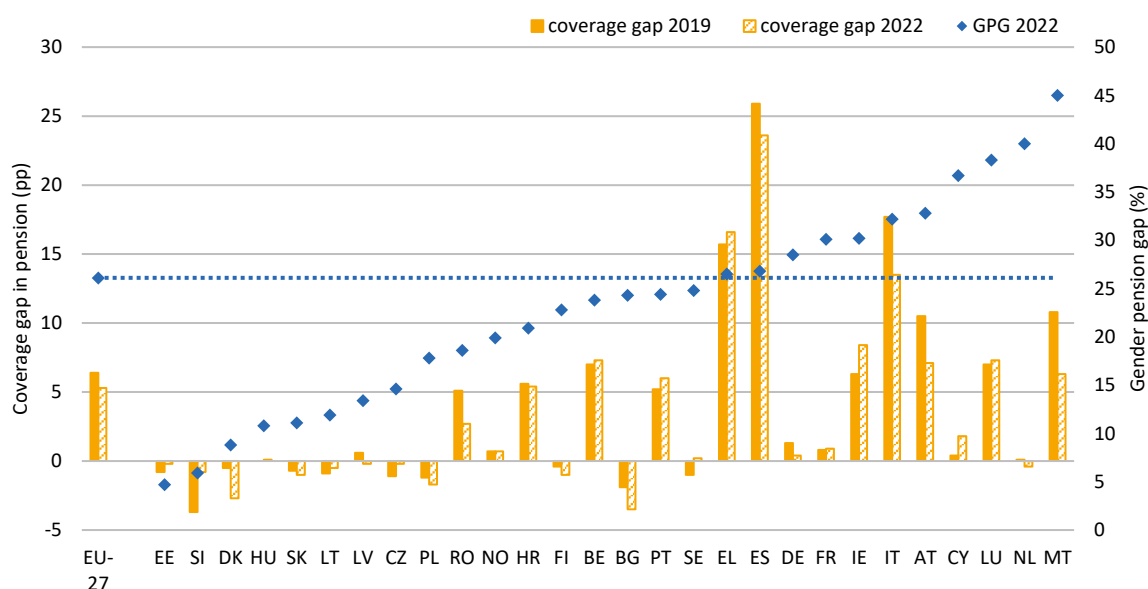
<sup>163</sup> The main reason is the size of the sample, as some countries only count a small number of women (aged 65-79) receiving a pension that pertains to the GPG definition. Besides the sample size, other reasons may affect the reliability of the indicator across years. In particular, the indicator is based on the average pension, which makes it very sensitive to outliers. Among those are also 'temporary outliers' for a specific year (i.e. pensioners receiving one-time/lump-sum payments in supplementary schemes). This still concerns men more often than women.

<sup>164</sup> It also means that in the event of their spouse's death, those women would receive a survivor's pension, although this benefit is only granted for a limited period of time in several countries, and is being phased out in Sweden.

provision tends to fill the gap<sup>165</sup>, this leaves too many women with insufficient income for a dignified life in old age.

The gender coverage rate in pensions<sup>166</sup> (GCRP) measures this gap, also for the 65-79 age group. The 2022 GCRP was negative or below 1 pp in 16 countries (see Figure 63), while it was largest in Spain, Greece and Italy, followed by Ireland, Luxembourg and Belgium<sup>167</sup>. Greece and Spain displayed a GPG around the EU average, while in Ireland, Italy and Luxembourg the GPG was well above the EU average. With the Netherlands as the most notable exception, countries with a negative GCRP (i.e. more older men than women do not receive a pension: left axis) also displayed a GPG lower than the EU average (right axis<sup>168</sup>). However, a reduced coverage gap does not imply a reduced pension (income) gap. Indeed, the latter indicator may be mechanically widened if broadening coverage gives rise to numerous (very) low pension benefits, which still tend to concern women much more than men.

**Figure 63: Gender pension gap and coverage gap in pensions, 2022, EU-27 Member States and Norway**



Notes: Ranked by increasing GPG for 2022; the dotted line is set at the EU value of the GPG for 2022. Break in series for EU and LU (2020), NO (2021) and FR (2022). Last updated 15 December 2023.

Source: Eurostat ([ilc\\_pnp13](#) and [ilc\\_pnp14](#)).

<sup>165</sup> In addition, survivor's pensions still play a key role in EU pension systems as a means to dampen the poverty risk for older women living as single. See Section 4.4.6 of the present report, as well as Dekkers et al. (2022), Stevens et al. (2023), and Van den Bosch (2024a).

<sup>166</sup> It is the difference between the proportion of women aged 65-79 who do not receive a pension, minus the proportion among men, in pp. Eurostat, EU-SILC, code: [ilc\\_pnp14](#). Note that in some countries the statutory retirement age is (already) above 65.

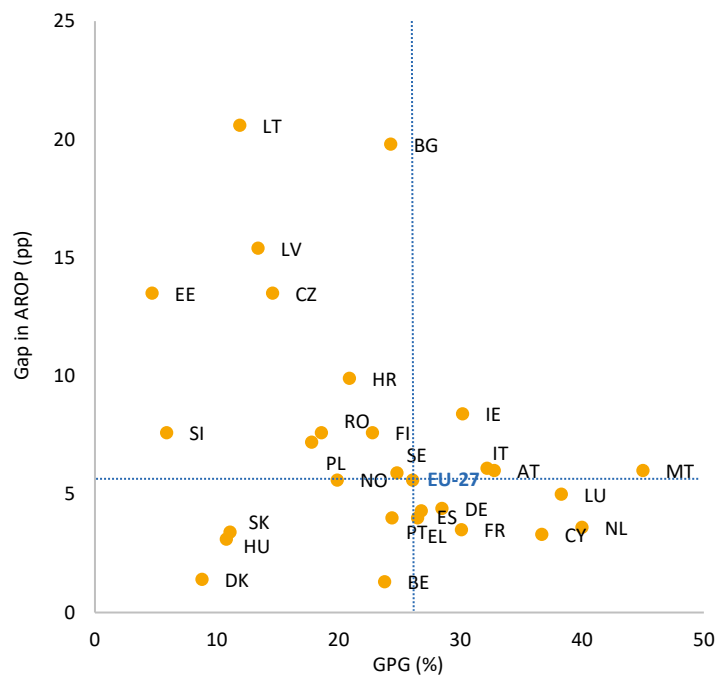
<sup>167</sup> For Belgium, Van den Bosch (2024a) mentions as a source of the high GCRP the system of family pensions, whereby the person with the higher pension in a couple (usually the man) can get a bonus if the person with the lower pension waives their pension rights. The quasi-null number of older men without pension in this country supports this explanation. A similar system is in place in Spain, where the retirement pension benefit is increased in the case of dependent spouses. Ireland also has an increase for dependent partners. If a cohabiting or married person does not have a pension entitlement in their own right their partner can claim an increase (means-tested) for a dependent adult. The payment can be made directly to the dependent adult as a separate payment rather than as a top-up to the primary payment.

<sup>168</sup> Some studies propose compound indicators combining the two gaps (see for instance Dekkers et al. 2022).

It is also important to understand the income situation of those without a pension. Section 4.4.6 reviews the minimum income schemes in place in the EU Member States and highlights the key role they play in reducing gender gaps caused by career inequalities, as women are (sometimes substantially) over-represented among beneficiaries of minimum income schemes.

**While poverty gaps and pension gaps both testify to remaining gender inequalities in old age, their magnitudes are not clearly linked.** The comparison of the GPG with indicators of poverty risk such as those recalled in the introduction does not show any strong correlation with the difference in either AROPE<sup>169</sup> or AROP rates (see Figure 64)<sup>170</sup>.

**Figure 64: Gender pension gap and gap in poverty risk, 65+, 2022, EU-27 Member States and Norway**



Source: Eurostat ([ilc\\_pnp13](#) and [ilc\\_li02](#)); last updated 15 December 2023.

**Within the broader context of gender equality mainstreaming in policy-making<sup>171</sup>, the analysis and measurement of gender gaps is receiving increased attention.** The GPG indicator has been used for about 10 years now and is attracting renewed interest, including by policy-makers, as a measure of the possible relative financial autonomy of older women and a signal of persisting inequality. Stakeholders and researchers<sup>172</sup> also analyse options for

<sup>169</sup> Eurostat code: [ilc\\_peps01n](#).

<sup>170</sup> While this could be due to the different measurement bases (individual income for the GPG, median equivalised income for the poverty-risk indicators), there is no stronger correlation between the GPG indicator and the gender gap in poverty risk measured only for single-person households; but it could still be due to other factors such as small sample sizes.

<sup>171</sup> The EU Gender Equality Strategy 2020-2025 notes that accumulated lifetime gender employment and pay gaps, including part-time work and career gaps linked to women's caring responsibilities, result in a wide pension gap and contribute to a higher poverty risk for older women. See: European Commission (2020b).

<sup>172</sup> See for instance Dekkers et al. (2022), Van den Bosch (2024a and 2024b).

improving this indicator, including the use of a GPG net of tax (see also Box 9 on the impact of pension taxation).

### ***Box 9: Gender pension gap and the role of taxation***

*Section 4.3 of this report presents the results of a PENMOD analysis of the impact of pension taxation on income distribution from a dynamic/lifetime perspective, combining EUROMOD (the tax-benefit micro-simulation model for the EU) and the EDGE-M3 model, for four countries representing different pension systems (DE, IT, LV, NL). The analysis has been undertaken by the Commission's Joint Research Centre (JRC) and also aimed to grasp the impact of taxation on the gender pension gap.*

*The after-tax gender gaps are smaller than the before-tax gaps in three of the four countries (41 % vs 44 % in IT, 14 % vs 17 % in LV, 30 % vs 36 % in NL), and slightly bigger in Germany (41 % vs 40 %).*

*Generally, the analysis shows that a policy reform fully exempting pension benefits and contributions increases the gender pension gap in the after-tax individual income for the total population, indicating a progressive tax system; men earn more on average and thus tax exemptions would be more beneficial to them than to women. Conversely, a policy reform characterised by an increase in the taxation of pension benefits will widen the gender pension gap in Germany and the Netherlands, women being affected more than men.*

*This reflects the fact that, in these countries, on average women get a higher share of their incomes in the form of pensions, and also the fact that the tax reform affects not only the pension benefits, but also other types of income sources provided to pensioners (e.g. old-age tax credits and other age-related benefits) that are removed with the policy reform (see Section 4.3 for more details).*

Old-age inequalities reflect several gaps arising over a career/lifespan. The two next subsections aim to provide an insight into some key factors.

#### ***4.2.3 Impact of labour market and education factors on gender pension gap dynamic***

**The gender pension gap has its roots in differences accumulated during professional careers, resulting in lower contributions: the pension income will be lower where there is a lower pay, shorter and/or interrupted careers, and more part-time work.** The differences are only partially dampened by the redistributive mechanisms embedded in public pension schemes, including minimum pensions, pension credits and survivor's pensions<sup>173</sup> (see Section 4.4.6). Gender differences in the labour market are only reducing slowly, leading to a slow narrowing of the GPG. In addition, developments in the labour market, including in pay differentials, are expected to affect the GPG only very gradually (as the working cohorts slowly reach age 65 – more generally, the retirement age)<sup>174</sup>. For now, women make up a large majority of those in the lowest quintile of the pension distribution and are much less represented in the top two quintiles of the pension distribution.

<sup>173</sup> See an analysis of the impact of survivor pensions on the overall GPG in Van den Bosch (2024a).

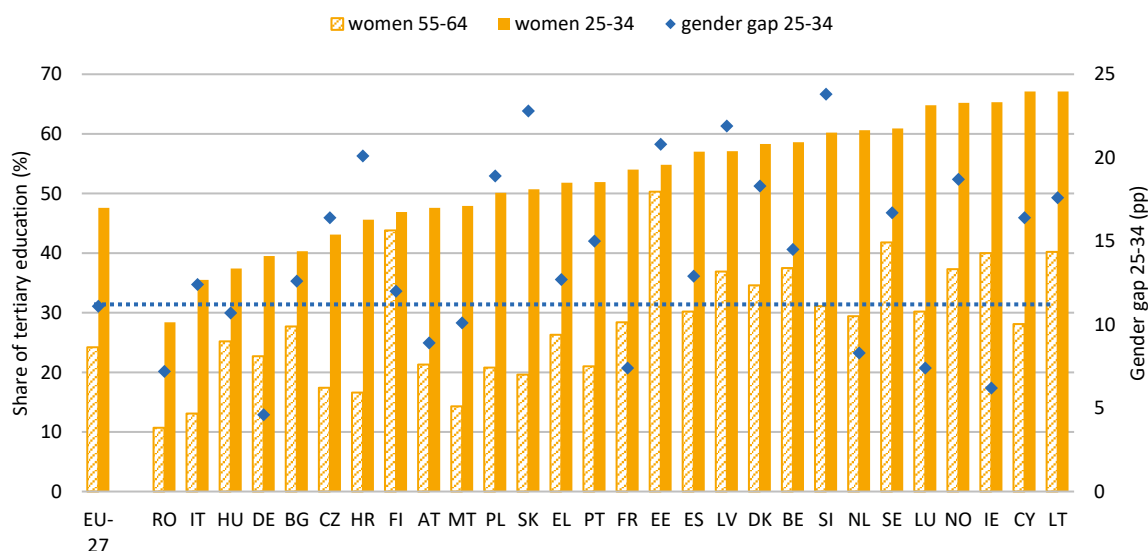
<sup>174</sup> See Barslund et al. (2021) and Dekkers et al. (2022), which confirm this intuition. They use micro-simulation models to project the future GPG and to identify the consequences of women's situation in the labour market for their future pension incomes.



The MIGAPE project<sup>175</sup> has projected the GPG for four Member States (BE, LU, PT and SI), showing a sharp narrowing over the coming years until a slowing-down in 2040<sup>176</sup>. The most important factors identified are the recent narrowing in employment gaps, followed by the narrowing gender pay gaps. Where the GPG stays at a relatively higher level (BE and LU) it is attributed to the large gender difference in the part-time working rate.

**The educational attainment of women has seen enormous progress in recent decades. Overall, in the EU and in Norway, the education level of young women today is higher than that of men.** As for women aged 55-64, in 2022 their educational attainment was still lower than that of men aged 55-64 in the EU, which indicates that the high education level of young women is a recent phenomenon<sup>177</sup>. Widening the impact on the GPG, there is a larger educational difference between older and younger cohorts among women than among men. Figure 65 displays the tertiary education attainment for both age groups, and the related gender gap for those aged 25-34.

**Figure 65: Share of women with tertiary education, 2022, EU-27 Member States and Norway**



Notes: The gender gap in educational attainment is the difference between the percentage of women aged 25-34 with tertiary education and the percentage of men in the same category.

Source: Eurostat ([edat\\_lfse\\_03](#)); last updated 14 September 2023.

**The gender pay gap seems to emerge early on during careers<sup>178</sup>**, despite the higher education attainment levels of young women than their male counterparts (as described above), due to the earnings penalty caused by childcare breaks and, to a lesser extent, gender differences in economic sectors and activities. The pay gap<sup>179</sup> remains wide despite slight improvements

<sup>175</sup> Barslund et al. (2021).

<sup>176</sup> The time by which the historical increase in women's participation in the labour market will be almost fully reflected in pension incomes.

<sup>177</sup> Eurostat: code [edat\\_lfse\\_03](#).

<sup>178</sup> See European Commission (2022a).

<sup>179</sup> The gender pay gap in unadjusted form, defined as the difference between average gross hourly earnings of male and female employees as a percentage of average gross hourly male earnings. Eurostat code [sdg\\_05\\_20](#).



(12.7 % in 2021, down from 16.4 % in 2012 and 13.7 % in 2019). It is also interesting to note that the majority of the EU Member States recorded a wider gender pay gap (in absolute terms) in the private sector than in the public sector, and that the gap was widest in financial and insurance activities in almost all countries for which data are available<sup>180</sup>.

**Care breaks are a major factor contributing to the gender pension gap.** While the TRR calculations presented in Chapter 3 show that short childcare breaks are well covered by pension system rules, these simulations do not take into account the real-life impact on careers and earnings penalties resulting from care breaks. In early career, the earnings curve tends to be steep (i.e. earnings rapidly increase with experience); hence the earnings penalty associated with a childcare break can be high (Van den Bosch, 2024a). As regards career breaks for (family) long-term care, taken later in a career, they also seem well covered by pension systems (see Chapter 3).

Men also tend to enter the labour market earlier and leave later than women, leading to lower lifetime earnings for women. More detailed analysis of the gender-specific entry and exit ages and their impact on income inequality in old age is presented in Section 4.4.

The gender employment gap<sup>181</sup> reached 10.7 pp in the EU in 2022 (80 % for men and 69.3 % for women aged 20-64), varying significantly across countries.

**Those labour market gaps combine to form a ‘career gap’ and eventually translate into pension gaps through the unequal capacities to accrue pension entitlements.** In this context, the gender overall earnings gap<sup>182</sup> provides a valuable insight into the formation of the pension gap, as it makes it possible to indicate for each country the relative weight of its three components: (1) the average hourly earnings; (2) the monthly average of the number of hours paid (before any adjustment for part-time work); and (3) the employment rate (see Table 10).

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<sup>180</sup> Eurostat codes [earn\\_gr\\_gpgr2ct](#) and [earn\\_gr\\_gpgr](#) (no data for IE and EL). See also [Gender pay gap statistics – Statistics Explained \(europa.eu\)](#).

<sup>181</sup> Eurostat code [lfsi\\_emp\\_a](#).

<sup>182</sup> Currently only available until 2018.

**Table 10: Contributions to the gender overall earnings gap, 2018, EU-27 Member States and Norway**

	Contributions to the gender overall earnings gap		
	Gender pay gap	Gender hours' gap	Gender employment rate gap
<b>EU-27</b>	36.7	29.3	34.0
<b>Belgium</b>	19.4	42.7	38.0
<b>Bulgaria</b>	54.8	4.1	41.1
<b>Czechia</b>	49.3	8.0	42.7
<b>Denmark</b>	54.7	19.0	26.2
<b>Germany</b>	41.4	40.2	18.5
<b>Estonia</b>	66.4	15.6	17.9
<b>Ireland</b>	26.9	37.0	36.1
<b>Greece</b>	20.6	9.7	69.7
<b>Spain</b>	31.5	24.4	44.1
<b>France</b>	52.0	23.1	24.9
<b>Croatia</b>	41.2	5.6	53.2
<b>Italy</b>	9.9	34.7	55.4
<b>Cyprus</b>	38.1	16.2	45.7
<b>Latvia</b>	73.2	10.4	16.4
<b>Lithuania</b>	66.4	23.3	10.3
<b>Luxembourg</b>	5.6	53.6	40.8
<b>Hungary</b>	46.7	12.1	41.2
<b>Malta</b>	27.8	16.0	56.2
<b>Netherlands</b>	27.7	54.1	18.2
<b>Austria</b>	39.1	40.3	20.7
<b>Poland</b>	24.8	22.4	52.9
<b>Portugal</b>	40.4	24.0	35.6
<b>Romania</b>	6.7	1.7	91.6
<b>Slovenia</b>	42.0	17.0	41.0
<b>Slovakia</b>	60.4	8.1	31.5
<b>Finland</b>	65.7	20.3	14.0
<b>Sweden</b>	47.2	37.5	15.3
<b>Norway</b>	43.8	43.9	12.2

Note: The gaps of the components (gender pay gap - GPG, gender hours' gap - GHG and gender employment rate gap - GERG) do not add up to the gender overall earnings gap (GOEG). However, the following relationship holds:

$(1 - GPG/100) \times (1 - GHG/100) \times (1 - GERG/100) = (1 - GOEG/100)$  which can be transformed by the logarithm into the following additive relationship:

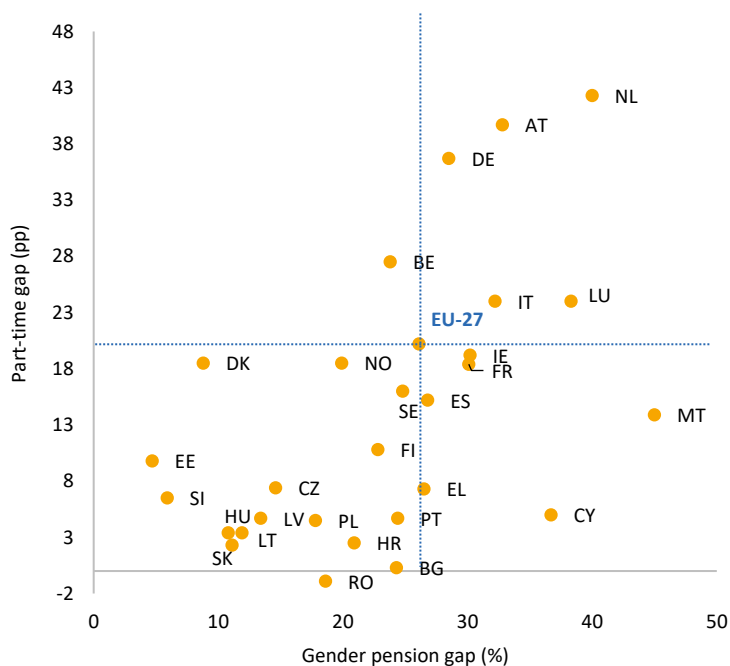
$LN(1 - GPG/100) + LN(1 - GHG/100) + LN(1 - GERG/100) = LN(1 - GOEG/100)$ . This allows calculating contributions as follows (e.g. for GPG):  $LN(1 - GPG/100) / LN(1 - GOEG/100) \times 100$ .

Source: Eurostat (online data codes: *earn\_gr\_gpgr2*, *earn\_ses\_monthly*, *lfsi\_emp\_a*)

With increasing female employment rates, **the persisting gender pension gap is increasingly linked to the difference in part-time employment rates of men and women**, rather than to differences in the activity rates themselves. Indeed, the gender employment gap is wider when considering full-time equivalent employment, largely reflecting the higher share of part-time work among women (27.8 % of employed women in 2022, but only 7.6 % of men)<sup>183,184</sup>.

The EU gender gap in part-time employment has slightly narrowed over the 10 years 2012-2022<sup>185</sup>. Figure 66 below shows the national diversity in both part-time and pensions gender gaps. Although the interpretation of this graph should be done with caution as the two indicators clearly pertain to different cohorts at any moment in time, it still suggests that where the gender gap in part-time employment is higher than the EU average, the GPG also tends to be higher.

**Figure 66: Part-time gap and pension gap, 2022, EU-27 Member States and Norway**



Source: Eurostat ([ilc\\_pnp13](#), [tepsr\\_lm210](#)); last updated 8 January 2024.

The scarring effect of career breaks, pay gaps and part-time employment on the building-up of pension entitlements is obvious in earnings-based pensions. In the case of career breaks and part-time work, there can be a further indirect negative impact through reduced career prospects<sup>186</sup>. This is the case in most national statutory pension systems, and even more in occupational pension schemes. A further recourse to supplementary pensions can exacerbate

<sup>183</sup> Unpaid work in general is a key driver of part-time work. According to Eurofound (2023) and the 2021 EWCTS wave: ‘[In 2021] Men worked 42 hours on average per week, while women worked 37 hours. However, taking unpaid work into account alters the picture, because women spent 13 hours more on average per week than men doing unpaid work. Considering paid and unpaid work together, women worked 7 hours more in a week than men (70 hours and 63 hours, respectively), which amounts to a total of 8 working weeks in a year.’

<sup>184</sup> Employment and activity by sex and age, Eurostat: codes [lfsi\\_emp\\_a](#), [lfsi\\_pt\\_a](#).

<sup>185</sup> Eurostat, code: [tepsr\\_lm210](#).

<sup>186</sup> Lis and Bonthuis (2019).

the gender pension gap, given the reduced take-up by women, and their reduced contributions when they do enrol<sup>187</sup>.

For these reasons, the design of pension systems can make a strong difference. Care-giving career breaks still concern primarily women, and pension entitlements accrued during such breaks, while they cannot compensate for career penalties, can significantly reduce the direct impact of such periods on future pension incomes, thus contributing to a smaller gender pension gap. Protection of care-giving breaks in occupational pensions can also contribute to reducing the gender pension gap, in particular in systems where such schemes play an important role in income replacement. Currently, some occupational schemes in EU Member States provide credits for childcare breaks, where this is stipulated in collective agreements. In addition, equal access to care credits for both women and men is an important element of gender equality in work-life balance.

Albeit slow in effect, it remains therefore essential to monitor and to address the remaining gender gaps in the labour market, not only to narrow future gender pension gaps, but also to ensure today's further gender equality and increased well-being.

#### **4.2.4 Pension awareness, saving behaviour and financial literacy**

The preceding sections review several gender gaps and highlight different components leading to a gender pension gap. Indeed, career differences have a major impact on the resulting pension entitlements, mechanically where the latter are based on the individual contribution histories (see also Section 4.4). Tackling the gender pension gap, and the poverty gap in old age, therefore relies on reducing gender gaps in the labour market as well as on the (re)design of pension systems.

**Awareness of pension systems and financial literacy is key to ensure financial well-being for all.** An additional policy lever to ensure adequate pensions for all lies therefore in the opportunity for each person to prepare for their pension, provided that they have the relevant information, and that they understand its impact. With clear information at hand on the pension system, people are able to identify how to adapt their career and life choices if they wish to, as well as to invest in supplementary options to fund their future pensions<sup>188</sup>.

**While financial literacy is also key to understanding statutory pension systems, it plays a particularly important role in supplementary pension saving. Available evidence suggests that the gender gap may be wider where supplementary (voluntary) pension schemes play a greater role<sup>189</sup>.** While part of the reason lies in the fact that saving capacity and the relative

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<sup>187</sup> European Commission (2020b), pp 14, 29.

<sup>188</sup> As highlighted by the High-Level Group of Experts on Pensions (European Commission, 2020a): *'Making people aware of their pension perspectives and the possible need for supplementary saving for retirement is an important challenge, in particular since many supplementary pensions are voluntary. [...] A good understanding of the functioning and performance of financial markets (e.g. risk and rate of returns) is important. However, it is a challenge for a lot of people to acquire the capabilities and competences for this understanding'*.

<sup>189</sup> See for instance Stevens et al. (2023): *'The gender gap in funded schemes is different on several levels than the gap in PAYG schemes. When it comes to funded occupational schemes, it is first of all clear that women participate (on average) less than men. [...] A major gender issue in funded schemes is that the reproduction of wage inequalities weighs stronger for women'*

fiscal incentives may be stronger for men, another key issue is the gender gap in financial literacy, which can prevent women from taking up personal investment opportunities where they are accessible to them.

**First, a persistent gender gap in general financial literacy can be observed.** Among other studies, an analysis of Germany, the Netherlands and the United States (Bucher-Koenen et al., 2017) finds in those three countries a persistent and large gender gap in financial literacy – be it in objective measures or in self-reported ones – that is independent of socio-economic background and cultural and institutional context. This gender gap is also found among the young, and among those for whom financial knowledge is likely to be very important (for example, widows or single women). And to make it worse, the authors also report evidence that women have difficulties obtaining high-quality financial advice<sup>190</sup>.

As a recent illustration, **the latest Eurobarometer on financial literacy<sup>191</sup> shows a higher proportion of men with a high score in financial literacy<sup>192</sup> than of women (24 % vs 13 %), and conversely, a higher share of women with a low score (21 % vs 14 % of men).** An OECD report on gender equality (OECD, 2023a) also confirms that gender differences in financial knowledge and financial resilience persist, as observed in surveys by the OECD International Network on Financial Education (OECD/INFE). The OECD score is even more comprehensive, as financial literacy is defined as a combination of ‘*financial awareness, knowledge, skills, attitudes and behaviours necessary to make sound financial decision and ultimately achieve financial well-being*’. Based on this financial literacy score, the latest edition of the OECD/INFE survey also reports that the gender gap is mainly due to a gap in financial knowledge – as distinct from attitudes or behaviour – and is higher in Estonia, Finland, Greece, Luxembourg and Sweden<sup>193</sup>.

On the one hand, studies report that **women are more likely to be responsible for debt management<sup>194</sup>, while men are more likely to make the decision on incurring a debt.** In addition, women are ‘*likely to take primary responsibility for childrearing, to make important and daily decisions about the allocation of household resources, and to have a major role in the transmission of financial habits and skills to their children*’<sup>195</sup>, which makes their financial knowledge key for themselves and for the next generations. On the other hand, several studies also highlight that they have not only a lower financial literacy score, but also that they would have less interest and less self-confidence as to their knowledge. In survey terms, it means that they are more likely to report that they ‘do not know’ when answering financial questions<sup>196</sup>. Based on a representative Dutch panel study, it has also been found that taking away the ‘do

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*than for men. [...] According to SHARE data, in countries with a mature occupational pillar the gender gap in the coverage of current older population varies from 6 pp in Sweden to 34 pp in the Netherlands (Survey of Health, Ageing and Retirement in Europe)*’.

<sup>190</sup> See also for instance Lusardi and Mitchell (2008); and Tinghög et al. (2021) for Sweden.

<sup>191</sup> European Commission (2023b).

<sup>192</sup> Where the financial literacy score is a summary measure of financial knowledge (self-assessed and tested) and financial behaviour.

<sup>193</sup> OECD (2023b), p. 28.

<sup>194</sup> EIGE (2024).

<sup>195</sup> OECD (2013a).

<sup>196</sup> See for instance Bucher-Koenen et al. (2017).

not know' response option substantially reduces the gender gap<sup>197</sup>. Further, the authors find that about two thirds of the financial literacy gender gap is explained by lower financial knowledge while the remaining third is due to lower confidence. In other words, 'women have lower financial literacy than men, but they know more than they think they know'<sup>198,199</sup>.

**As concerns in particular retirement and pension benefits and investments, only 74 % of women report feeling 'very confident' or 'somewhat confident' they will have enough money to live comfortably throughout their retirement years, compared with 81 % of men<sup>200</sup>.** They are also less likely than men to report having (or, in the past two years, having had) a private pension or retirement product (19 % vs 25 %) or life insurance (29% vs 34 %). Similarly, the third edition of the Pan-European Pension Survey (covering 14 EU Member States plus Switzerland)<sup>201</sup> finds that women tend to save less: 44 % of them report not saving for retirement through a supplementary pension, compared with 34 % of men. At the same time, 27 % of them are 'not confident at all' that they will be able to maintain a comfortable standard of living post-retirement based on their mandatory public and occupational pensions, compared with 18 % for men, which is quite in line with the 'confidence score' reported in the Eurobarometer above.

The MIGAPE project has allowed us to focus on pension awareness for a sample of Belgians aged 25-60<sup>202</sup>. It shows that **pension knowledge is limited among both men and women, but especially among women, and among them young women.** Women also spend less time and effort seeking information about statutory or supplementary pensions. However, they report thinking about their pension when considering employment transitions more than men do. It therefore seems counter-intuitive that they seek less pension information. It may be linked to the fact, reported in the same survey, that women experience less freedom of decision about the shape of their career (and also that they prioritise the interests of other household members). Further, their stronger pessimism as to their future pension situation may well make them refrain from collecting information on a supposedly bad future situation.

**The gap in financial knowledge and literacy has an impact on financial well-being, and in particular the ability to prepare and plan for retirement.** As women live longer than men, and are therefore also more likely to live single in their (advanced) old age, it is important to improve women's financial literacy in particular, with the aim of helping them plan for retirement and ensure their financial security. There has been significant research on the role of financial education in individual economic decisions and well-being (see Lusardi and Mitchell, 2014, for a thorough review). A positive impact of financial education – and general education – on economic behaviour and well-being has been demonstrated. Concerning pensions, Lusardi and Mitchell (2008) have demonstrated a strong and positive association between financial

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<sup>197</sup> Bucher-Koenen et al. (2021).

<sup>198</sup> Ibid.

<sup>199</sup> Tinghög et al. (2021) have also identified a factor of financial anxiety due to 'stereotype threat', without being able to disentangle its short-term effect (at the moment of conducting the test) and its long-term one (while building a stock of financial knowledge).

<sup>200</sup> European Commission (2023b): [Flash Eurobarometer 525: Monitoring the level of financial literacy in the EU](#).

<sup>201</sup> Insurance Europe (2023).

<sup>202</sup> Barslund et al. (2021).



literacy and retirement planning among older women in the US, and this positive impact of financial knowledge on retirement planning has also been measured for instance for Germany (Bucher-Koenen and Lusardi, 2011).

In the light of these analyses, **the positive impact of financial education on the (future) economic situation of older women is clear, and opens an opportunity for policies to improve pension adequacy and reduce the gender gap.** However, so far, the effects of (financial) education policies on actual savings and pension behaviour in the long run generally seem less conclusive<sup>203</sup>. The decisions linked to retirement are complex, with many factors entering the decisions over the active-age period, and many financial decisions being once-in-a-lifetime events (including when to retire and claim pension benefits). On the side of pension providers, transparency and clarity also need to be ensured, including with the support of pension-tracking instruments. There are also significant differences in individual behaviour, implying that not everyone will (equally) gain from financial education<sup>204</sup>, which seems to point to the need for financial education programmes targeted at specific groups of the population. Financial education is powerful but also has limits. Hence, to ensure high participation in supplementary schemes in particular, default options and nudges such as auto-enrolment remain useful.

**A large array of worldwide, EU and national initiatives aimed at improving financial literacy have been launched.** The Commission<sup>205</sup> and OECD/INFE have published in 2022 a joint financial competence framework for adults, and a similar one in 2023 for children and young people. This framework aims to improve individuals' financial skills by providing a common EU-level terminology and framework to inform the development of financial literacy policies and programmes, identify gaps in the provision of training, and create evaluation tools. For supplementary pensions, a yearly 'European retirement week' is in place since 2021<sup>206</sup>.

**Member States have made increasing efforts to improve awareness and clarity of pension rights**<sup>207</sup>. In Estonia, a study on pension-related financial literacy is planned to be published in April 2024. The Dutch Ministry of Finance has launched a 'money wise' platform with partners from the financial sector, science, government, education, and advisory and consumer organisations, notably organising a yearly 'three pension days' event, during which they focus on awareness-raising about pensions. Different national press media also organise awareness-raising campaigns, such as the financial literacy and inclusion campaign by the *Financial Times*, including items targeted at women<sup>208</sup>. In the context of a 2018-2020 project addressing the gender pension gap, Greece ran a campaign through leaflets, TV broadcasts and an online

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<sup>203</sup> Angelici et al. (2022).

<sup>204</sup> Lusardi and Mitchell (2014).

<sup>205</sup> See [https://finance.ec.europa.eu/consumer-finance-and-payments/financial-literacy\\_en](https://finance.ec.europa.eu/consumer-finance-and-payments/financial-literacy_en).

<sup>206</sup> [European Retirement Week](#).

<sup>207</sup> See the country fiches in Volume II of the present report. See also Spasova et al. (2023): awareness-raising campaigns focusing on old-age benefits and survivors' benefits have been identified in 17 Member States (CZ, DE, EE, EL, ES, FI, FR, HR, HU, LT, LU, LV, MT, NL, PL, SE, SI). The main goals of these campaigns were to provide general information on the benefits available, and on future access to those benefits and their adequacy, as well as information on digital access and more recent reforms. Some of them also tackled questions concerning individual situations.

<sup>208</sup> See <https://ftflic.com/>.

calculator, to raise awareness about the gender pension gap and to increase women's understanding of the link between pension amounts and contributions. Belgium has recently launched new statistics on the gender pension gap, which are visible on the national pension website<sup>209</sup>. Luxembourg also targeted women in a 2020 campaign aimed at improving the uptake of schemes and raising awareness of the options available for topping up their pensions. In Slovenia, the 'My Work. My Pension' project, co-financed by the EU in 2019-2020, also included a communication campaign targeted especially at raising awareness among women.

As pointed out again in OECD (2023a), financial education remains key, but: (a) evidence on the effectiveness of related initiatives for women is still limited; and (b) challenges remain in terms of reaching women, their lower self-confidence, persistent gender stereotypes, and their limited time availability. In particular, while facilitating the acquisition of financial skills, it is therefore also crucial to support instilling confidence in women's own financial knowledge and competence<sup>210</sup>.

### 4.3 Role of pension taxation

**Taxes on old-age pension contributions and benefits affect the level and distribution of retirement incomes, and the future development of pension adequacy.** Pension contributions and/or benefits often enjoy partial or total tax rebates (e.g. tax allowances and tax credits), often with a view to encouraging savings for more adequate pensions.

The 2021 Pension Adequacy Report (PAR2021) analysed the impact of tax on current (2019) pensions, by comparing the **actual**, partial tax exemption regime ('baseline')<sup>211</sup> with two theoretical extremes: one **without exemptions** (tax fully applied to contributions and benefits under national income tax rules, or 'TT'), the other **with full exemptions** (zero tax on contributions and pensions, or 'EE'). Such comparison scenarios (EE and TT) are extreme and indicate a likely direction for results (e.g. poverty rates) should a reform lead towards more (or fewer) exemptions. Moreover, the magnitude of the result should be seen jointly with how far the EE and TT scenarios are from the current regime, Figure 67 provides an overview of the current pension taxation regimes in the EU. As regards the four countries considered in this section, Italy and Latvia are 'Et' (exempt contribution, partial tax on benefits), and Germany and the Netherlands 'tt' (partial tax on both contributions and benefits).

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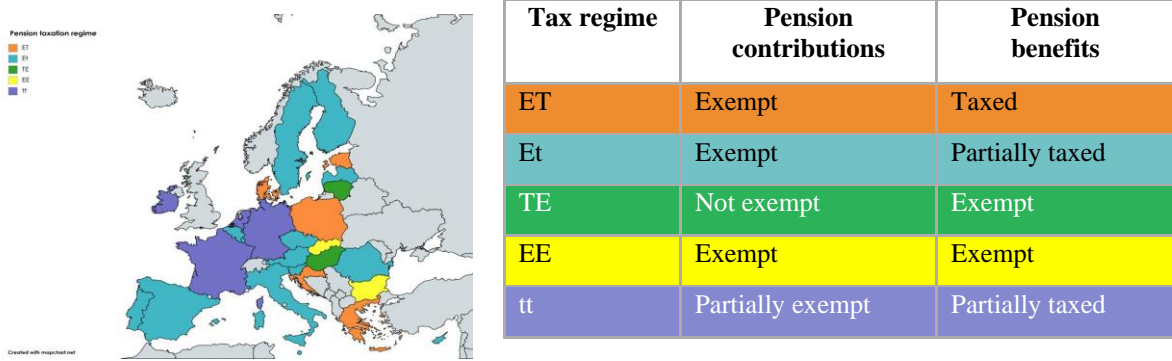
<sup>209</sup> See <https://pensionstat.be/fr/chiffres-cles/genre-pension>.

<sup>210</sup> See also Bucher-Koenen et al. (2021).

<sup>211</sup> The 2022 tax treatment of mandatory public pensions and occupational old-age pensions is the following: 'Et' for Italy and Latvia, 'tt' for Germany and the Netherlands. The first letter of each tax regime refers to the tax treatment of pension contributions, while the second letter indicates the tax treatment of main old-age pension benefits (E = fully exempt, T = fully taxed). 't' refers to a reduced exemption of pension contributions (e.g. via a cap) or to a reduced effective tax rate (e.g. because of the existence of specific pension- or age-related tax allowances/credits) on pension benefits.



**Figure 67: Pension taxation regimes in the EU**



Source: JRC.

However, the results presented in PAR2021 were limited to a static approach. In contrast, this section will show **dynamic results** and presents **medium-term projections** (2022, 2042 and 2062). The results of the JRC analysis summarised here are produced using a combination of a general-equilibrium overlapping generations model and the EUROMOD micro-simulation model. Since this approach introduces feedback between the various results, even the basic projections, such as for employment and income, are different under the three different tax scenarios (baseline, TT and EE), as the taxation regime affects employment and economic activity as well as aggregate savings. This exercise captures multiple influences, cumulated along individual life histories. In the JRC study, two effects stand out, namely that of population change and of tax incentives for working and paying contributions.

The projections require not only detailed data, but also that the national pension and tax systems are modelled in detail. For this reason, the analysis is limited to four countries, **Germany, Italy, Latvia and the Netherlands**. These cover a wide spectrum of old-age poverty rates (high in LV, low in NL), gender gaps (high in IT, DE, NL, low in LV), income-maintenance rates (high in NL, low in LV), pension systems (e.g. flat-rate residence-based public scheme complemented by occupational pensions in NL vs a strong link to contribution in DE public pensions; low expenditure in LV vs high expenditure in IT).

**4.3.1 Scenarios: income and public fiscal balance**

Per capita **labour income is projected to increase** while **pension income falls**, under all scenarios (baseline, EE and TT). This stems from population ageing and reflects the facts that: (a) as labour becomes scarcer, it is remunerated at a higher wage; and (b) average pension systems become less generous over time, due to the increase in the demographic pressure on the pay-as-you-go (PAYG) pension systems and to pension reforms implemented such as legislated increases in statutory retirement ages (as evidenced in Chapter 3).

**Low-skilled workers** record the largest relative increase in labour incomes, as their labour supply is more responsive to the wage increase. Moreover, their pre-tax income would also rise the most under the TT scenario, as they would increase their labour supply to compensate for the loss of disposable income due to higher taxes.

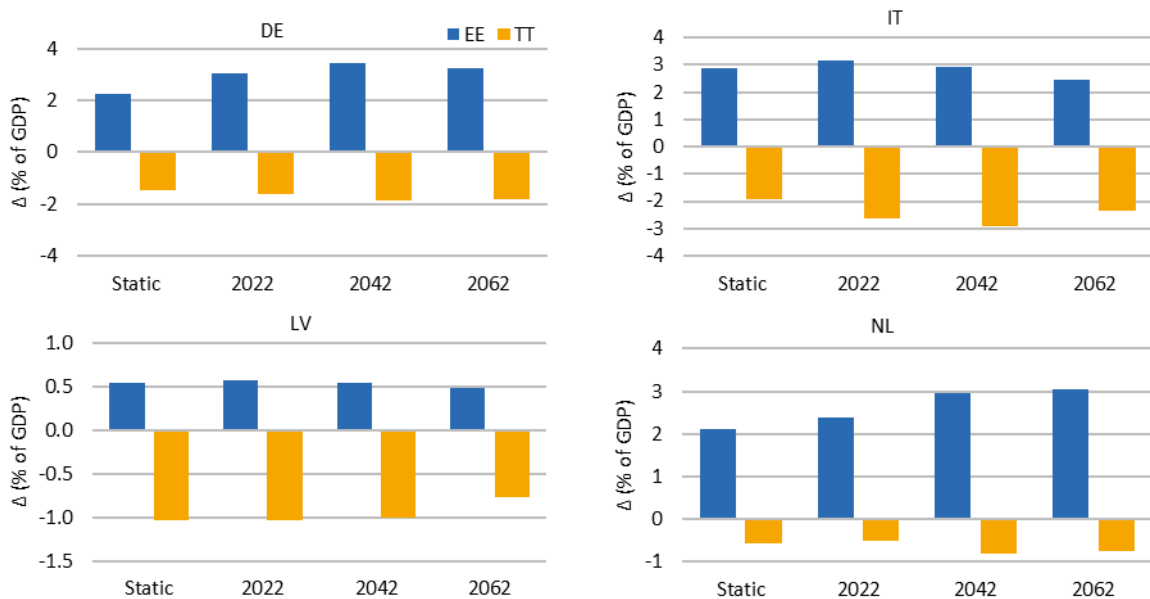
**In all (baseline, EE and TT) scenarios, population ageing will reduce overall GDP growth** in all countries compared with its long-run technology trend, by reducing the working-age population and thus employment. Compared with the baseline fall, the gross domestic product (GDP) would be even lower under the EE scenario, because this would leave workers with a higher disposable income and a lower incentive to work and save, outweighing the increase in consumption. Conversely, and for the same reason, GDP would be higher under the TT scenario than for the baseline.

In all countries, **population ageing raises the dependency ratio** (the share of pensioners to working-age adults) and causes the public fiscal balance to deteriorate, putting a downward pressure on governments’ net revenues. This, combined with a downward trend in real GDP, implies that the primary balance-to-GDP ratio is expected to fall over time.

As shown in Figure 68, the impact of the EE and TT scenarios on the **public fiscal balance** considering the general equilibrium impacts **spans a range of +/- 3 % of GDP**, quite substantial considering that pensions represent about 12 % of GDP in the EU. In turn, the relative increases and reductions give an indication of the impact of the current tax and exemptions regime in each country. For instance, EE would have a larger impact than TT in Germany and the Netherlands, indicating significant exemptions introduced by the EE scenario; the impact is low in Latvia, although pension expenditure is overall lower in this Member State (about 7 % of its GDP).

In the end, the calculations assume that the state budget will be balanced by lower public expenditure. At the same time, an EE reform, while lowering public expenditure even further, would increase private consumption. The model results hereafter combine the various effects.

**Figure 68: Fiscal impacts of EE and TT scenarios over time (as % of GDP) compared with baseline (current pension taxation systems), selected EU-27 Member States**



Notes: The figure displays the deviation (in pp) in the ratios of the net fiscal cost to annual GDP at market prices, adjusted by the GDP forecasts obtained from the EDGE-M3 model, for reform scenarios compared with the baseline scenario over selected years. The bars labelled ‘Static’ display the same concept from the static analysis as presented in PAR2021 (i.e. not considering population change, feedback on employment or other dynamic effects).

Source: JRC, based on the EUROMOD model, the EDGE-M3 model, and the Eurostat database.

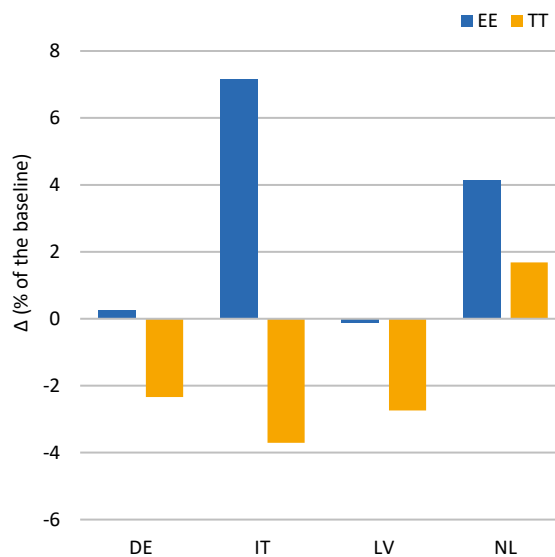
### 4.3.2 Income inequality

**Inequality in disposable income is projected to remain stable** in all countries, since incomes will change in very similar ways across income and age groups.

When observing the impact of reforms (EE and TT), separate effects play together. Tax rates tend to be progressive, so **exemptions tend to be more beneficial to those on higher incomes**.

On the other hand, whereas older people with lower incomes rely almost exclusively on pensions, those with higher incomes often have additional income sources. This entails that **an exemption that only applies to pension benefits would be more advantageous for pensioners with lower incomes**. This effect is large in Latvia (currently ‘Et’) where even the EE scenario (slightly) reduces inequality, as shown in Figure 69. The effect is even larger in the Netherlands, where a TT reform would increase inequality: current tax incentives are particularly favourable to those in poverty, and removing them would widen income gaps.

**Figure 69: Inequality impact – S80/S20 ratio change, EE and TT scenarios (% deviation from baseline), 2022, selected EU-27 Member States**



*Notes: The figure displays changes in the quintile share (S80/S20), provided as a % deviation from the baseline scenario. Source: JRC, based on the EUROMOD model.*

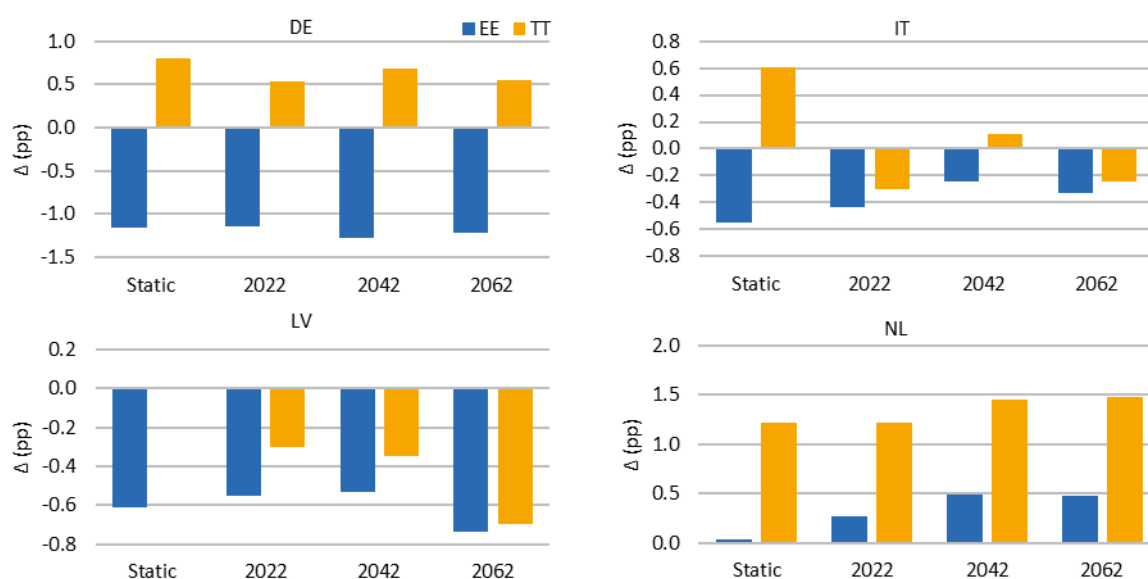
### 4.3.3 Poverty

**The at-risk-of-poverty (AROP) rate** for the total population is expected to **increase in Germany (slightly) and Latvia, and to fall in Italy and the Netherlands**. The simulation results suggest that demographic differences are at play: the German and Latvian populations are expected to age more quickly and, given that older people are more likely to be below the poverty threshold, poverty increases.

The **static analysis** pointed consistently to **poverty rising under the TT scenario and falling under the EE scenario**, which directly affects disposable income. However, when dynamic

effects are included, the impact is less clear<sup>212</sup>. In **Italy**, for instance, the **TT scenario shows a fall in AROP in 2022 and 2062**, with a very small increase in 2042 (see Figure 70). This is driven by the increase in **labour supply** among low-skilled workers (which allows some consumption smoothing) and **more than offsets the additional taxes**. In Latvia this impact is even stronger. Similarly, but at the other end of the scale, in the Netherlands **poverty increases under the EE scenario** (low-income) as workers reduce their working time and find themselves at a higher risk of poverty. It appears that taxes on contributions result in increased employment, which in turn reduces poverty, and thus income effects on the labour supply are dominant.

**Figure 70: Poverty impact – AROP change, EE and TT scenarios over time (pp deviation from baseline), selected EU-27 Member States**



Notes: The figure displays the deviation (in pp) between the reforms and baseline scenario over selected years in the AROP rate for the total population, using a relative anchored poverty line at 60 % of median baseline equivalised disposable income. The bars labelled 'Static' display the same concept from the static analysis using the EUROMOD model.

Source: JRC, based on the EUROMOD model and the EDGE-M3 model.

#### 4.3.4 Gender pension gap

Generally, the **EE scenario increases the gender pension gap in after-tax individual income for the total population**, indicating a progressive tax system; men earn more on average and thus tax exemptions would be more beneficial to them than women. The exception to this rule is couples in Germany, which are jointly taxed. As the calculations consider an equal share of reduced taxation among household members, the effect is that, in this case, women benefit from tax exemptions more than men do.

In Italy, the EE scenario increases the gender pension gap among the total population; however, it is the **TT scenario<sup>213</sup> that increases the gap in the lowest (20<sup>th</sup>) income percentile**, because

<sup>212</sup> Dynamic results are difficult to analyse, because the changes in taxation regulation imply behaviour changes, which sometimes overcome the direct taxation effect.

<sup>213</sup> In the case of Italy ('Et'), this means mainly more tax on contributions.

it would lessen the equalising impact of specific exemptions. Among the poorest 20 % in the Netherlands, exemptions would narrow the pre-tax gap, but both the EE and TT scenarios would increase the net gap<sup>214</sup>.

#### **4.3.5 Impact on different households**

As the report from the JRC shows, tax provisions can have different impacts on single people and couples. In Germany, the tax impact is far larger on poverty among older single people than among older couples, and therefore more on women's than men's<sup>215</sup>. In Latvia and the Netherlands, the opposite applies, the impact on men and on couples being larger<sup>216</sup>. In Italy, full taxation would increase poverty more among men and couples, whereas full exemption would reduce poverty more among single people and women. The impact of the EE and TT scenarios would affect more the particularly vulnerable people aged 75+ (and men slightly more than women, although there are many more women in that age group).

Very generally speaking, the results suggest that minor differences in pension schemes may make for large differences when taxes are involved. In addition, changes in tax regimes produce stronger effects for lower-skilled workers and lower-income pensioners, highlighting their importance in reducing poverty. However, all results need to be interpreted very cautiously because the simulated effects depend on model assumptions and may thus change under different model assumptions.

### **4.4 Development of socio-economic inequalities**

#### **4.4.1 Introduction**

This section investigates different facets of inequality throughout the life course and their impact on the capacity of old-age pension policies to ensure adequate old-age benefits.

The inequalities built up during working lives translate into varying degrees of inequality in retirement income, depending on the features of the pension system, notably the link existing between old-age benefits and lifetime earnings, and the redistributive mechanisms in place.

As a first element, the section discusses the socio-economic determinants of inequality in life expectancy to be taken into account when assessing inequality among retirees, and their implications for pension design. Differences in educational attainment, in particular, appear to affect old-age life expectancy, therefore future pension wealth, and to have an impact on labour market entry and exit ages – thus, again, on pension income.

The section further discusses the role of factors such as career length and the progressivity of the pension system in the transmission of income inequality from working life to old age. To quantify the redistributive capacity of a pension system, the OECD progressivity index is used.

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<sup>214</sup> EE would extend exemptions to higher incomes (men) whereas TT would remove exemptions from lower incomes.

<sup>215</sup> Women are over-represented among single people.

<sup>216</sup> As indicated above, the poverty impact of tax provisions in Latvia, where both EE and TT would reduce it, is the opposite of that in the Netherlands, where both scenarios would increase it.

The redistributive features of pension schemes can take different forms and relate to elements such as the formulae used to calculate pension benefits and the retirement age, or the pension credits applicable to career breaks for reasons such as unemployment or childcare. Pension systems also include specific redistributive mechanisms in the form of flat-rate and means-tested benefits, aimed at protecting retirees against relative poverty in old age.

Finally, this section looks at the labour income of the self-employed and non-standard workers, and the way in which their labour market situation translates into pension income, as compared with full-time permanent workers.

The section is mostly based on OECD (2023, unpublished).

#### *4.4.2 Life expectancy and healthy life years in old age*

**Following the acceleration witnessed between the mid-1990s and early 2010s, gains in old-age life expectancy have been slowing down in the EU over the last decade.** As Figure 71 shows, significant breaks occurred in old-age life expectancy gains among women from the early 2010s in most EU Member States (see: OECD, 2023c; OECD, 2021b). For men, it is estimated that life expectancy gains in old age have started to slow down as of 2012 on average in the EU<sup>217</sup>, also taking into account the effect of COVID-19 on old-age mortality rates.

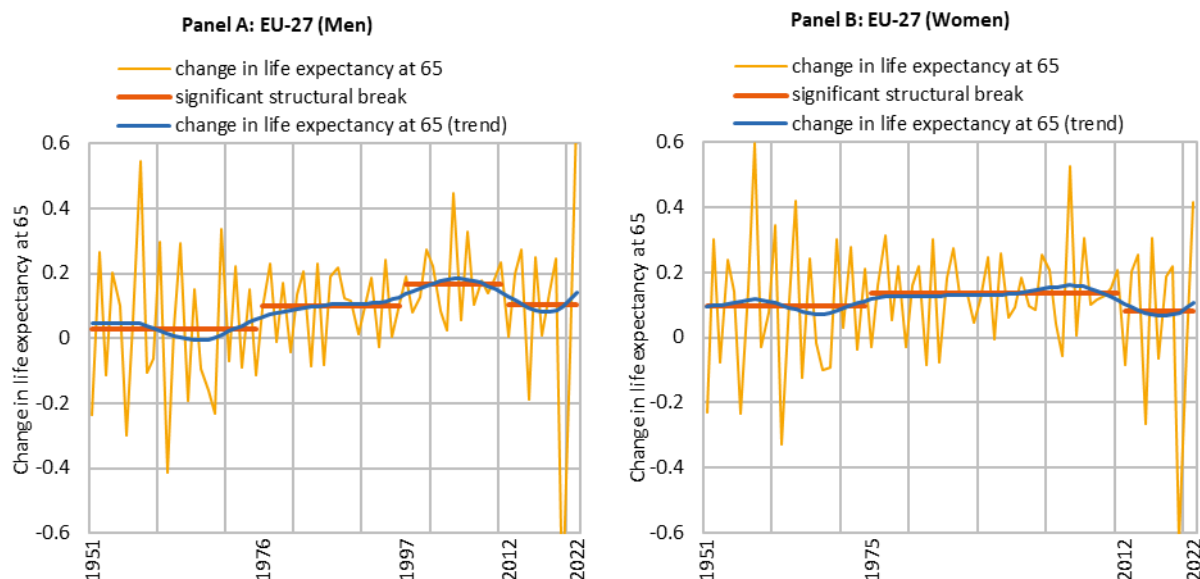
For men, and on average in the EU-27, starting from 2012 the annual pace of life expectancy improvements at age 65 slowed down to about one half of the pace recorded in the decade before. It is estimated that the average trend in old-age life expectancy gains has slowed down from a pace of 20 months per decade between the mid-1990s and 2012, to 12 months per decade since 2013 on average in the EU (Figure 71, Panel A). This 12-month gain per decade is the same as the one recorded from the 1970s to the mid-1990s.

**For women, this structural break is similar, and was already in place before the COVID-19 pandemic** (Figure 71, Panel B). Moreover, the estimated current pace of a 10-month life expectancy gain per decade is historically low, lower than the level recorded between the 1950s and the mid-1970s (when it was 12 months per decade)<sup>218</sup>.

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<sup>217</sup> The EU average is calculated by averaging life expectancy across countries, giving the same weight to each country.

<sup>218</sup> These results cannot, however, be taken as definitive. It is in fact difficult to be certain whether data for recent years reflect structural or short-term developments. This general issue is currently compounded as the latest years were affected by the COVID-19 pandemic, with unusual volatility and therefore less precise estimates of structural breaks in the trend series.

**Figure 71: Changes in remaining life expectancy at 65, women and men, EU-27, 1951-2022 (in years)**

Notes: The vertical axis shows the number of years by which LE65 increased. For example, a value of 0.1 means that the remaining LE65 increased by 0.1 years per year (i.e. by 1.2 months per year). The breaks are significant at the 99 % confidence level. To limit interferences from short-term fluctuations in change in period life expectancy, the breaks are estimated on the Hodrick-Prescott filtered trend series ( $\lambda=100$ ). For visual purposes, the range of the vertical axis has been limited to -0.6 to +0.6, but recent changes for men were larger in absolute terms: -0.68 in 2020 and +0.78 in 2022.

Source: United Nations World Population Prospects: The 2022 Revision.

The above general trends are reflected in most EU Member States, whereby life expectancy gains have slowed down since the early 2010s for both men and women. Data for men until 2019 showed a small slowdown in life expectancy gains since the mid-2000s in most EU Member States, with only six being estimated to have experienced a statistically significant break in the series (HR, LV, LT, LU, MT, NO). For women, almost all countries are estimated to have experienced a structural break in the series around 2010-2013 (except HR, DK, SI, SE, NO)<sup>219</sup>.

**Together with life expectancy, the evolution of healthy life expectancy (HLE) in old age is in principle an important dimension for retirement age policies.** Estimates of HLE are produced by both the World Health Organization (WHO) and Eurostat, although using different methodologies. Eurostat defines healthy life years at 65 as the number of remaining years that a person aged 65 is expected to live without any severe or moderate health problems. The WHO defines HLE as the average number of years in good health that a person aged 60 can expect to live based on current rates of ill-health and mortality. Furthermore, the Eurostat indicator is

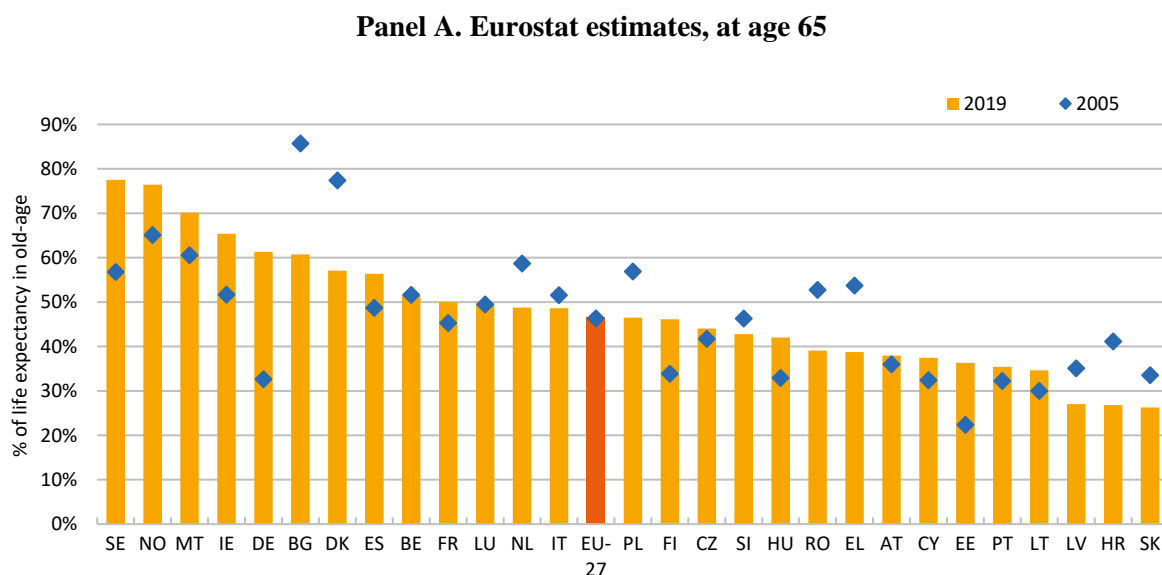
<sup>219</sup> These results are more robust than for men as they are less sensitive to the COVID-19 crisis, since breaks are identified even when limiting the data up to 2019.



based on survey data<sup>220</sup>, while the WHO indicator is based on administrative and register data<sup>221</sup>.

Both indicators show that the share of healthy years in remaining life expectancy in old age has remained stable overall in the EU during the first two decades of the 21<sup>st</sup> century. Nevertheless, on a closer look, the two methodologies bring in different results. According to Eurostat, on average across the EU in 2019 slightly less than half of remaining life years at age 65 were expected to be healthy, a stable share compared with 2005 (Figure 72, Panel A). This overall stable average hides important cross-country differences, ranging from less than 30 % in Croatia, Latvia and Slovakia to more than 70 % in Norway and Sweden in 2019<sup>222</sup>. The share of HLE in remaining life as measured by the WHO is substantially higher than Eurostat estimates in 2019<sup>223</sup> and shows little variation across countries and over time (Figure 72, Panel B). In 2019, it ranged from 74 % in Czechia to 78 % in France. The largest change between 2000 and 2019 is a 1.7 pp fall recorded in Czechia<sup>224</sup>.

**Figure 72: Healthy years as a share of life expectancy in old age, 2005-2019, EU-27 Member States and Norway**



<sup>220</sup> Eurostat defines healthy life years at 65 as the number of remaining years that a person aged 65 is expected to live without any severe or moderate health problems. Health problems are measured using the Global Activity Limitation Instrument (GALI), which is included in the annual EU-SILC survey. GALI is a single subjective question to assess health: ‘For at least the past six months, to what extent have you been limited because of a health problem in activities people usually do?’. Respondents can select one of the following options: severely limited; limited but not severely; and not limited at all.

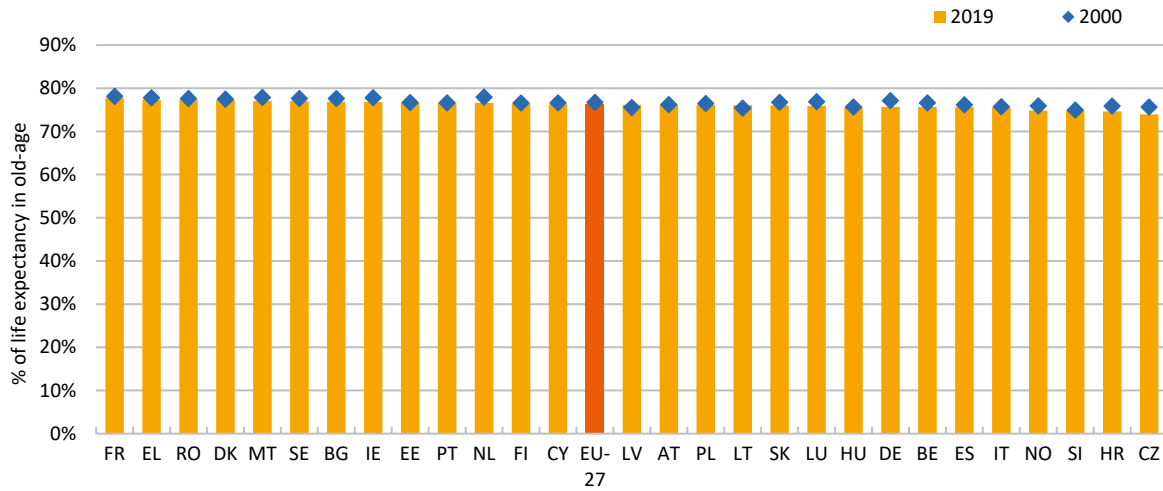
<sup>221</sup> The WHO publishes estimates by age and sex based on the disability-adjusted life years (DALY) methodology. These estimates are produced from objective health data on 369 diseases and injuries gathered from a wide array of sources including among others, censuses, household surveys, civil registration and vital statistics, disease registries, and health service use.

<sup>222</sup> In Norway, the share of HLE increased from 65 % to 76 % between 2005 and 2019. Also, surprisingly, according to Eurostat Bulgaria has a relatively large share of healthy years in life expectancy, while this is the opposite in Austria; but this might relate to low life expectancy overall in Bulgaria.

<sup>223</sup> This may be partly due to the fact that the WHO calculates HLE at age 60 while Eurostat analyses it at age 65.

<sup>224</sup> When measured in terms of number of remaining healthy years, Eurostat estimates for 2019 vary from less than five years in Croatia, Latvia and Slovakia to more than 15 years in Norway and Sweden, while the WHO estimates range from 15 years in Bulgaria and Hungary to almost 20 years in France.

**Panel B. WHO estimates, at age 60**

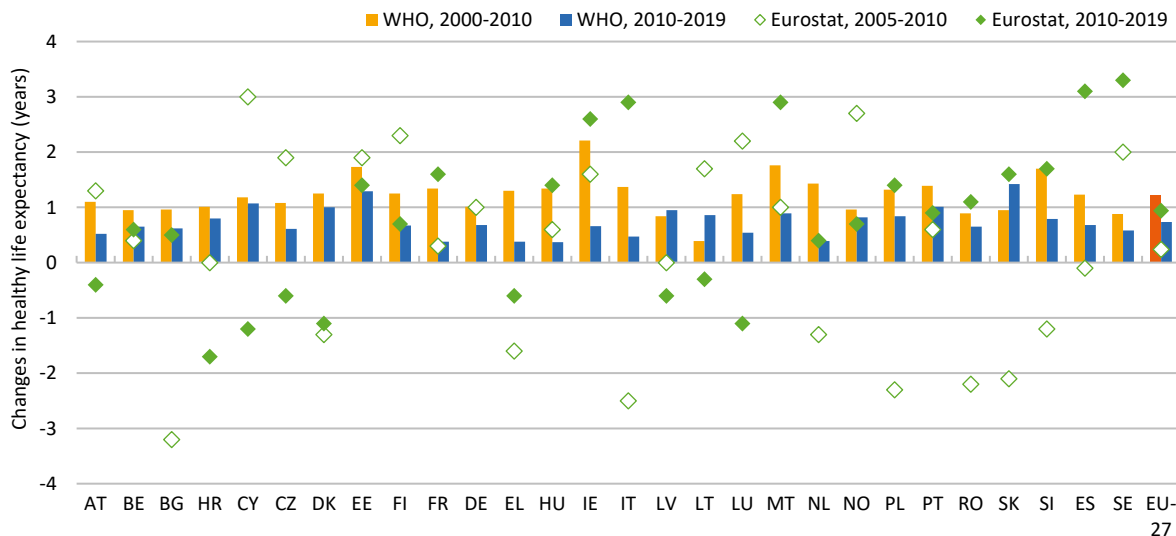


Note: Eurostat data are imputed for IT for 2010 as data are missing for that year but the estimates for 2009 and 2011 are the same.

Source: Eurostat (2020a); WHO, Healthy life expectancy (HALE) at age 60 (WHOSIS\_000007).

Moreover, while according to the WHO all EU Member States experienced growth in HLE over both the first and the second decade of the 21<sup>st</sup> century, Eurostat shows negative HLE growth in 17 countries either between 2005 and 2010 or between 2010 and 2019, or in both periods. WHO data show that, on average in the EU, HLE increased by 2.0 years between 2000 and 2019 (Figure 73). On the other hand, according to Eurostat, HLE grew by 1.2 years on average between 2005 and 2019. In Norway, HLE increased by 1.8 and 3.4 years according to the WHO and Eurostat, respectively<sup>225</sup>. Due to the methodological differences in both approaches, it is not immediately clear what causes these differences in results.

<sup>225</sup> Among other things, in Italy Eurostat finds a marked fall of 2.5 years in the first period and a large increase of 2.9 years in the second period, while the WHO calculated that HLE grew in both periods. For the total period between 2005 and 2019, Eurostat estimates range from a decline of more than two years in Bulgaria, Denmark and Greece to an increase of more than five years in Germany and Sweden, compared with increases over 2000-2019 of between 1.6 years in Belgium and 3.0 years in Estonia for the WHO.

**Figure 73: Changes in healthy life expectancy (HLE), first two decades 21<sup>st</sup> century, number of years, EU-27 Member States and Norway**

Notes: Eurostat data are imputed for IT for 2010 as data are missing for that year but the estimates for 2009 and 2011 are the same. The 5.1 value for DE refers to the change in the Eurostat measure for 2010-2019.

Source: Eurostat (2020a); WHO, Healthy life expectancy (HALE) at age 60 (WHOSIS\_000007).

**Because of the methodological complexities and differences in levels and developments of indicators over time, it seems that the Eurostat and WHO indicators are not suitable, at least in their current form, to underpin pension policy choices, in particular as concerns the automatic linking of retirement ages.** The WHO estimates show that HLE has increased at a similar pace to total remaining life expectancy in all EU Member States, meaning that the share of healthy years in life expectancy has remained broadly stable. In contrast, Eurostat data show a stable share of healthy life years in remaining life expectancy on average in the EU while this share changes a lot over time for individual countries. This variability might be explained by the fact that, as with all self-reported subjective measures, the Eurostat measure is influenced by reporting biases and cultural factors, and thus requires very large samples to provide robust results. Most of these shortcomings do not concern the WHO measure, which is, however, based on a relatively complex methodology, requiring large datasets on both morbidity and disability – and which might be influenced by medical advances, potentially leading to lower estimates of HLE due to morbidity conditions being more precisely diagnosed. Moreover, it remains somewhat puzzling that the WHO estimates show very limited variability across countries and over time.

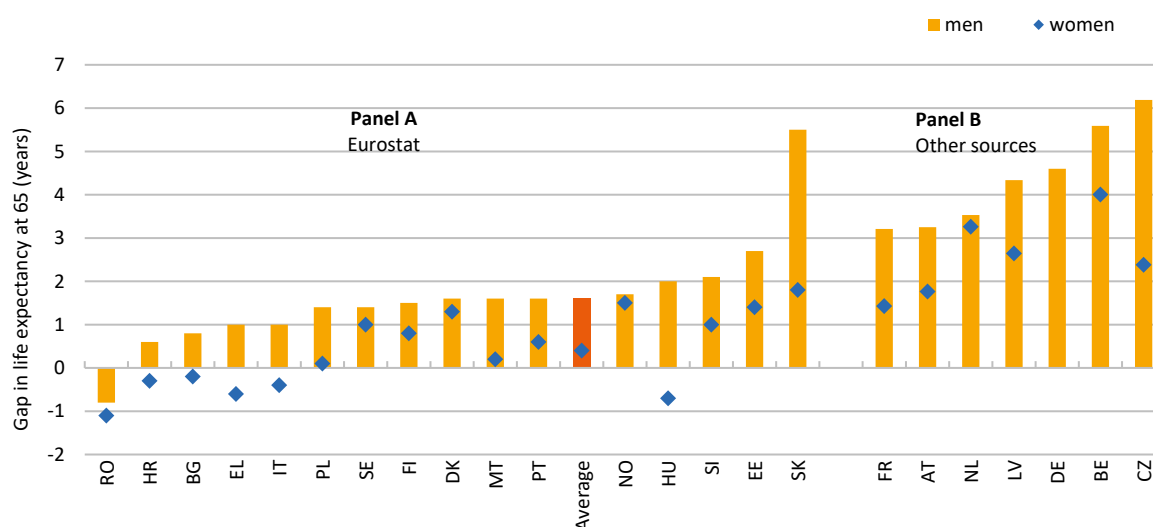
#### 4.4.3 Socio-economic determinants of inequality in life expectancy

**Ageing is not a uniform process.** Mortality rates differ widely across socio-economic groups in all countries. This is true whether socio-economic differences are measured according to education, income or occupation. Since these differences are due to multiple factors, it is generally difficult to disentangle the causal effect of one specific variable.

**Higher-educated people can expect to live longer in retirement than their lower-educated peers.** Education can have a causal effect on life expectancy through impacts on people's incomes and occupational trajectories, and by affecting lifestyle choices.

**Educational gaps in life expectancy exist in all countries and are particularly pronounced among men.** On average across the EU Member States for which data are available and Norway, Eurostat estimates that men aged 65 with a tertiary education degree can expect to live 1.6 years longer than men who did not attain an upper-secondary education (Figure 74, Panel A). In most EU Member States, the estimated gap is 1-2 years. The gap is much smaller for women: the average educational gap in LE65 is 0.4 years. As shown in Panel B, for seven countries, for which data are available only from other sources, the gap is between 3.2 and 6.2 years for men and between 1.4 and 4.0 years for women, much higher than for countries in Panel A.

**Figure 74: Gap in life expectancy at 65 between ‘tertiary’ and ‘less than upper secondary’ educational levels, women and men, 2017 or latest available, EU-27 Member States and Norway**



Notes: Eurostat figures probably under-estimate the real gap in life expectancy as they do not take into account differences in mortality after age 75. Accounting for inequalities in mortality after age 75 results in a doubling of the educational gap in LE65 (Murtin et al., 2017).

Sources: Eurostat (2020b); OECD (2017); Gheorghe et al. (2016); Grigoriev and Doblhammer (2019).

The socio-economic status of the family people grew up in also plays a role in life expectancy, independently of educational attainment. One of the methodological challenges in tracking educational inequalities in life expectancy over time is indeed the rising level of education in the population, which results in the group of lower-educated people being an increasingly selective group, consisting of people with underlying health conditions (Banks et al., 2021).

**Lifestyle factors, in particular smoking, play an important role in explaining educational differences in life expectancy<sup>226</sup>.** On average across 15 European countries, smoking is

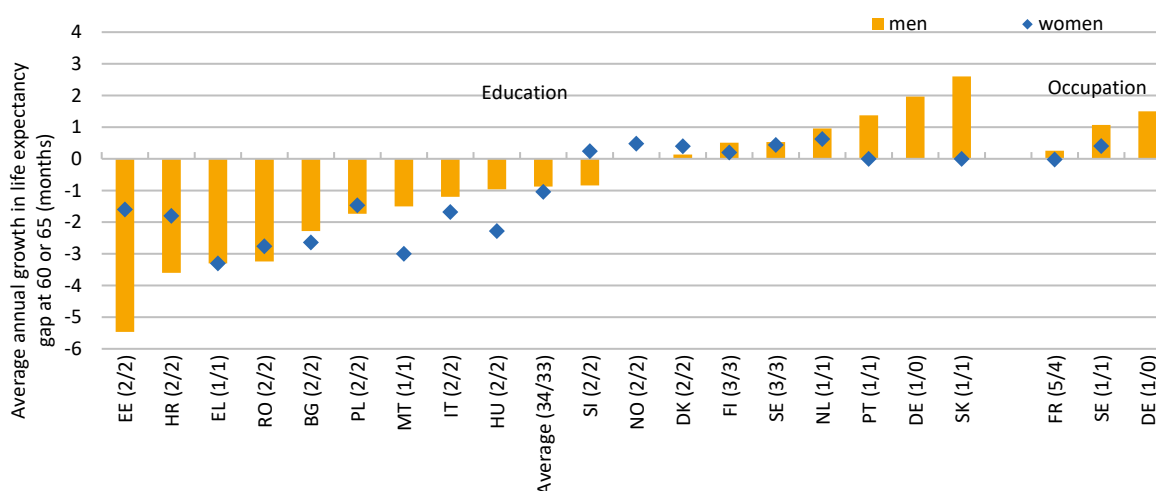
<sup>226</sup> The relative importance of different risk factors for educational gaps in life expectancy also differs across countries, among other factors because lifestyle risk factors are not always linearly associated with educational level. For instance, middle-educated men in the 50-79 age group are more physically active than higher-educated men in several countries, and in some countries smoking is less common among lower-educated women than among their higher-educated peers (Mäki et al., 2014). The relationship between occupation and lifestyle is even more complex than the one between education and lifestyle, as a reverse causality is more likely: the health impacts of lifestyle factors are more likely to influence a person's occupation than their level of education. According to Stringhini et al. (2017), while there are important differences in mortality rates by last known occupation, these are partially linked to lifestyle factors such as physical inactivity rather than to occupation itself.

estimated to be the biggest contributor to the educational gap in life expectancy and explains around 20 % of the gap among both men and women (Mackenbach et al., 2019). In addition, low income explains 10 % and 13 % of the gap for men and women respectively, and high bodyweight explains respectively 8 % and 12 % of the gap. Other lifestyle factors, such as high alcohol consumption, play a minor role, as do other socio-economic risk factors.

As shown in Figure 75, the educational gap in life expectancy is estimated to have declined over time by around one month per year on average for both men and women, across the 17 EU Member States for which data are available and Norway.

In general, with average longevity increasing when life expectancy of the lower-educated groups increases (i.e., education gaps narrow), a correlation can be expected between the size of the educational gap in LE65 and average life expectancy. Such a correlation is not found in countries with high average life expectancies for both low and high educational attainment groups. As shown in Figure 76, there is no correlation among men (Panel A), and a positive but statistically insignificant correlation among women (Panel B), meaning that high average longevity in the best-performing countries seems to be the result of consistently higher longevity across all education levels.

**Figure 75: Average annual growth (in months) in life expectancy gap at 60 or 65 between lowest and highest educational and occupational category, women and men, EU-27 Member States and Norway**

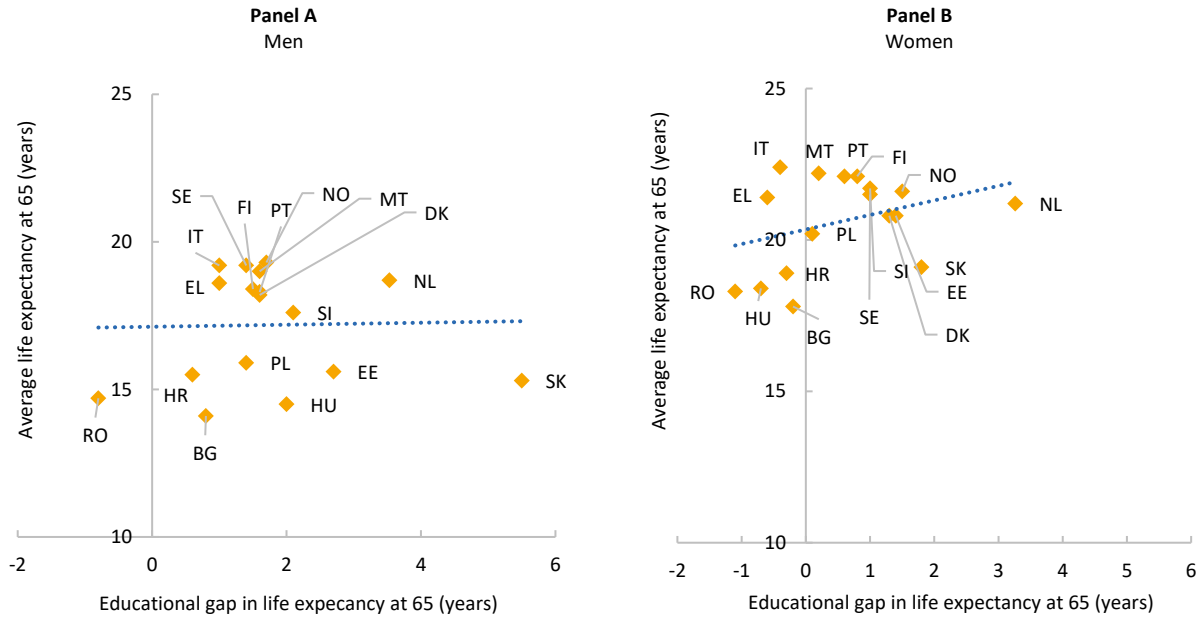


Notes: Number of included study periods shown between brackets on the horizontal axis (men/women). Study periods are the period(s) over which a study evaluates the change in the gap in life expectancy between different groups in a certain country. A single study can contain multiple study periods for the same country if the gap is assessed at more than two points in time. Study periods are weighted by the length of the period assessed so that an evolution in life expectancy assessed over a 10-year period has double the weight of an evolution in life expectancy assessed over a five-year period. The vertical axis presents the average annual change in the size of the life expectancy gap over all study periods per country. Across all countries and study periods, the average educational gap declined by one month per year. There is no change in the gap over time for men in NO (covered by two study periods).

Reading note: The evolution of occupational gaps in life expectancy at 60 or 65, often measured as the difference between manual workers and professionals or managers, was only assessed for FR, DE and SE. In FR the occupational gap in remaining life expectancy was stable over time for women and at most increased slightly for men – by about one week per year. In DE, the gap increased by 1.5 months per year for men, whereas in SE it increased by one month per year for men and 0.4 months per year for women.

Sources: Eurostat (2020b); Cambois et al. (2001); Gheorghe et al. (2016); Grigoriev and Doblhammer (2019); Insee (2016); Kibele et al. (2013); Burström et al. (2005).

**Figure 76: Correlation between average life expectancy at 65 and educational gap in life expectancy at 65 for men (Panel A) and women (Panel B), in years, 2017, EU-27 Member States and Norway**



Note: The linear correlation coefficient for men equals 0.02, and the one for women equals 0.35.  
 Source: Eurostat (2020b).

#### 4.4.4 Impact of inequality in life-expectancy on pension wealth

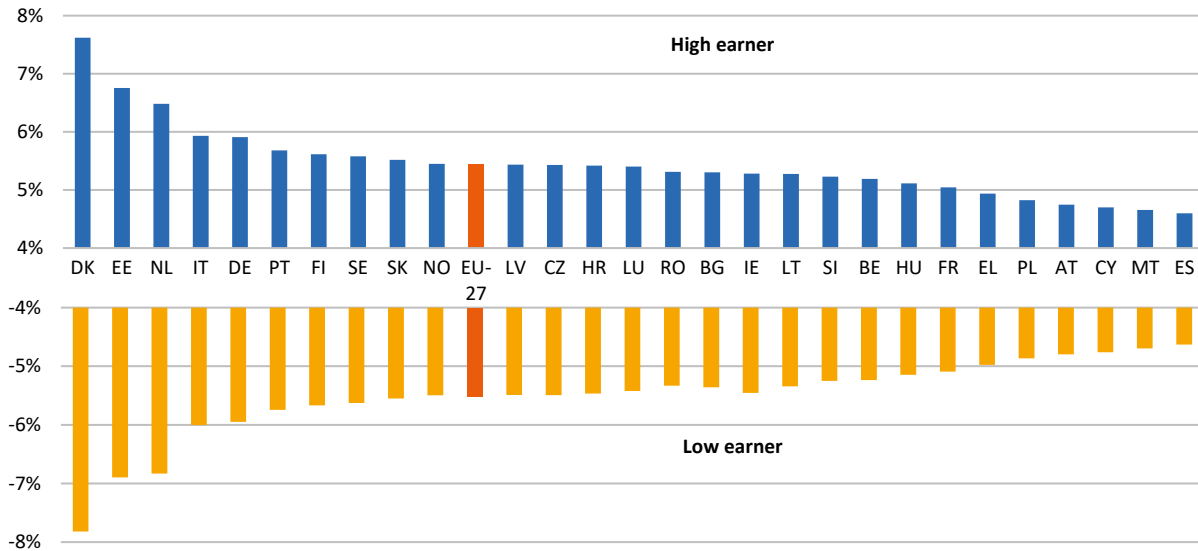
**Whatever their determinants are, inequalities in old-age life expectancy have an impact on pension wealth and on the performance of pension systems more generally.** To ascertain their relevance, this section assesses the impact of a uniform three-year gap in life expectancy at retirement age on pension wealth and on the implicit rates of returns on contributions paid in all countries. Calculations are based on the results of the prospective TRR produced using the OECD pension models<sup>227</sup>.

For low-earners, it is estimated that a below-average remaining life expectancy of 1.5 years lowers the discounted value of total pension flows (pension wealth) by 5.5 % on average across the EU-27 plus Norway (Figure 77)<sup>228</sup>. In other words, on top of low monthly pensions due to low earnings during their careers, lower-income people would receive on average 5.5 % less pension income over their lifetime due to lower life expectancy. Similarly, and again given the replacement rate, a higher life expectancy of 1.5 years benefiting high earners raises their pension wealth by a similar order of magnitude, namely by 5.4 % on average. This proportional effect comes mechanically from discounting financial flows and is not influenced by replacement rates or the types of pension schemes.

<sup>227</sup> See Chapter 3 of this report.

<sup>228</sup> This proportional effect comes mechanically from discounting financial flows and is not influenced by e.g. the replacement rates, or the type of pension scheme.

**Figure 77: Impact of 1.5-year absolute difference in remaining life expectancy on pension wealth of high- and low-earners relative to common life expectancy, EU-27 Member States and Norway**



*Reading note: After accounting for a remaining life expectancy at retirement age that is 1.5 years lower than the average life expectancy within countries, the pension wealth of low-earners is reduced by 5.5 % on average across countries.*

*Notes: Calculated from the prospective gross TRR results produced using the OECD pension models. Cohort mortality data calculated from EUROPOP2023 and adjusted to give an increase and reduction in remaining life expectancy at retirement of 1.5 years for high- and low-earners, respectively.*

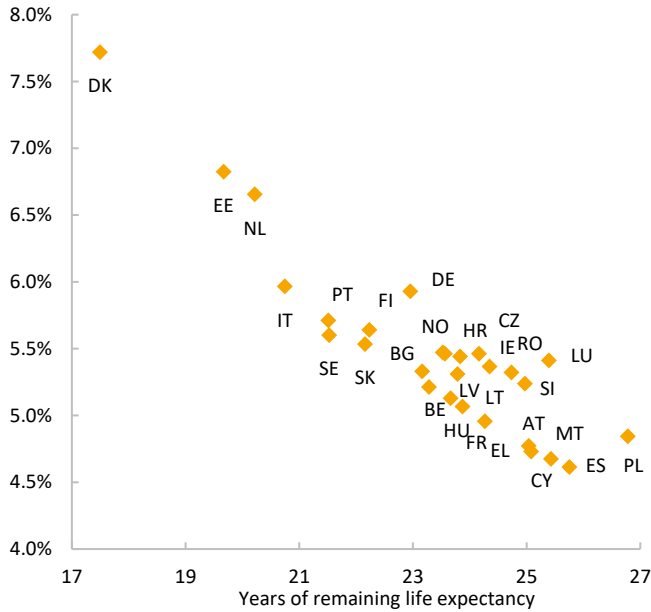
*Source: OECD pension models.*

The impact of life expectancy differences on pension wealth also closely correlates with remaining life expectancy at retirement age, and therefore depends on the pensionable age in each country. The income-related differences in life expectancy on pension wealth vary from about 4.5 % to 7.5 % across countries, depending on remaining life expectancy at retirement age. The lower the remaining life expectancy, the larger the effect because a 1.5-year difference in life expectancy means more in relative terms (Figure 78). In other words, high retirement ages and mortality rates lower retirement duration and thus overall pension wealth. Denmark, Estonia and the Netherlands, with current or projected retirement ages of respectively 73, 70 and 70, have a pension wealth impact of life expectancy exceeding 6.5 %<sup>229</sup>. Italy also has 70 as the retirement age, but thanks to greater longevity the effect is slightly lower than 6.0 %. By contrast, Austria, Cyprus, Greece, Malta, Spain and, due to the low retirement age of women, Poland, are all countries with an effect of 5.0 % or less.

<sup>229</sup> For Denmark, as for other countries where the retirement age is linked to projected changes in life expectancy, this is mainly linked to the very high pensionable age assumed to enter into force in the future. See also Chapter 3 on TRRs.



**Figure 78: Average impact of 1.5-year absolute difference in life expectancy at retirement age on pension wealth of high- and low-earners, EU-27 Member States and Norway**



Notes: Calculated from the prospective TRR results produced using the OECD pension models. Cohort mortality data calculated from EUROPOP2023 dataset and adjusted to give an increase and reduction in remaining life expectancy at retirement of 1.5 years for high- and low-earners, respectively.

Source: OECD pension models.

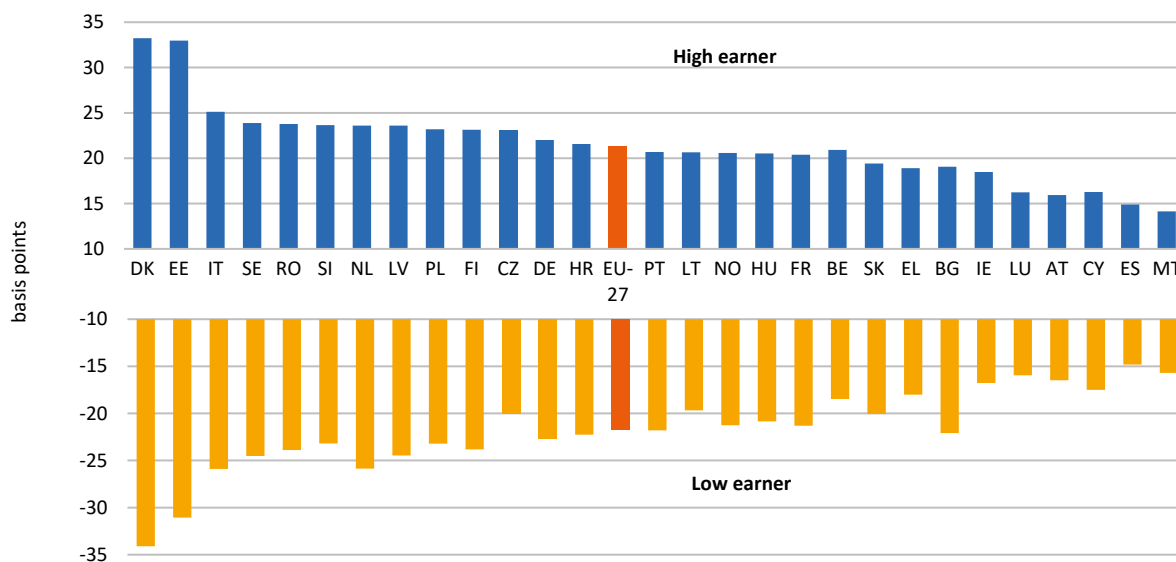
The previous paragraphs discuss the impact of life expectancy on pension wealth. Next, the impact on the effective rate of return is discussed. This is relevant because, while pension wealth refers to the pension flows received during the retirement period only, the effective rate of return takes into account both the contributions paid and the pension flows, therefore providing a different point of view on the progressivity of the pension system.

According to OECD calculations, for a low earner whose remaining life expectancy at retirement is 1.5 years below average, the effective annual rate of return on total contributions paid is 0.22 pp lower on average across the EU. This translates into an average effect on the total pension income of low- and average-earners over their lifetime that is slightly lower than that obtained through the pension-wealth angle. Conversely, a higher life expectancy of 1.5 years benefiting high earners raises their effective rates of return by 0.21 pp (i.e. it increases total pension entitlements by about 4.5 %). Thus, all else being given (i.e. independently of any other features of the pension system, such as the degree of progressivity of the benefit formula), based on a three-year life-expectancy difference across income levels, the induced regressive redistribution from low-earners to high-earners is estimated at about 9 % in total.

The impact on effective rates of return of accounting for low life expectancy for low-earners and high life expectancy for high-earners varies greatly across countries (Figure 79). As for pension wealth, remaining life expectancy at retirement ages, resulting from differences in retirement ages and mortality rates, is the main driver of the effect of differences in life expectancy on effective rates of return. At the same time, the absolute impact measured in basis points is reduced to a small extent for low-earners in very progressive pension systems, which

tend to have a relatively high rate of return for low-earners. This explains why, for example, the absolute effect for low-earners in Czechia, Ireland and Lithuania is slightly lower than for high-earners.

**Figure 79: Impact of a 1.5-year absolute difference in remaining life expectancy at retirement age on effective rates of return on pension contributions of high- and low-earners, EU-27 Member States and Norway**



*Reading note:* After accounting for a remaining life expectancy at retirement age that is 1.5 years lower than the average life expectancy within countries, the effective annual rate of return of low-earners is reduced by 22 basis points on average across countries.

*Notes:* Calculated from the prospective TRR results produced using the OECD pension models. Cohort mortality data calculated from EUROPOP2023 and adjusted to give an increase and decrease in remaining life expectancy at retirement of 1.5 years for high- and low-earners, respectively.

*Source:* OECD pension models.

**The shorter life expectancy of low earners affects both horizontal and vertical redistribution within pension systems.** First of all, as a result of gaps in life expectancy, those with lower education attainment, and thus generally lower incomes and pensions, have paid proportionally more for the same insurance protection. Therefore, pensions de facto redistribute income from those dying early to those who live long. Moreover, the shorter life expectancy of low-earners reduces the progressivity of pension systems because low- (high-) earners receive benefits over shorter (longer) periods. Schemes that aim to closely link benefits to contributions, and which therefore appear neutral, may become ‘hidden regressive’ because of these systematic differences in life expectancy<sup>230</sup>.

**Addressing inequality in life expectancy is a challenge for pension policies.** It is in fact difficult to define and target specific groups. Letting different groups retire at different ages may indeed raise issues, such as how these groups are defined, how to deal with social or occupational mobility, whether individual health status and behaviour should be considered, and how retirement ages should be adapted to changing longevity in a group. Several EU

<sup>230</sup> As an example, Bommier et al. (2005) estimated that differential mortality offsets about one third of the income redistribution built into the French PAYG pension system.

Member States in the past have allowed for different retirement ages based on sectors or occupations, and these have been increasingly tightened or closed in recent years. The role of redistributive pension policies, including for the determination of benefit levels for low-income workers, is on the contrary growing in importance (see Chapter 2 of this report, on pension reform trends).

**The regressive impact of inequality in life expectancy on pension systems is also relevant to the question of how retirement ages should respond to changes in life expectancy.**

Raising the retirement age with unchanged life expectancy means that this increase shortens low earners' average retirement duration more in relative terms due their estimated lower life expectancy<sup>231</sup>. If, conversely, retirement ages increase with increasing life expectancy and life expectancy gains tend to benefit all categories equally, increasing retirement ages should not be regressive, and the arguments about linking retirement ages to life expectancy remain valid. Finally, if pension ages remain at the same level despite longevity gains, those gains, to the extent that they are broadly shared across socio-economic groups, will benefit relatively more those with shorter expected lives: longevity improvements that are well shared are progressive, as they mean more for those with shorter lives.

**Increasing retirement ages to accompany life expectancy improvements would therefore be neither progressive nor regressive, provided that life expectancy inequality is stable** (and depending on the extent of the increase). However, if life expectancy gaps between socio-economic groups widen, linking the retirement age to life expectancy may raise equity concerns<sup>232</sup>.

#### *4.4.5 Transmission of earnings inequality into pension inequality: career length and progressivity of the pension system*

This section discusses the role of factors such as career length and the progressivity of the pension system in the transmission of income inequality from working life to old age. The Gini index is used to investigate income inequality based on the disposable income at household level for different age groups.

**The Gini index displays overall lower inequality among older age groups than among working-age groups in the EU** (Figure 80)<sup>233</sup>. This is consistent with observations in previous editions of the PAR that pension and tax systems provide for stronger income redistribution in old age than in working age. On average in 2021 (or latest available year), the Gini coefficient at older ages was slightly lower than at working ages. Data show a lower Gini coefficient among those aged 66+ than among those aged 20-65 in three quarters of EU Member States plus Norway<sup>234</sup>. The coefficient was lower by more than 5 pp in Czechia and Norway. In Czechia,

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<sup>231</sup> See also OECD (2017).

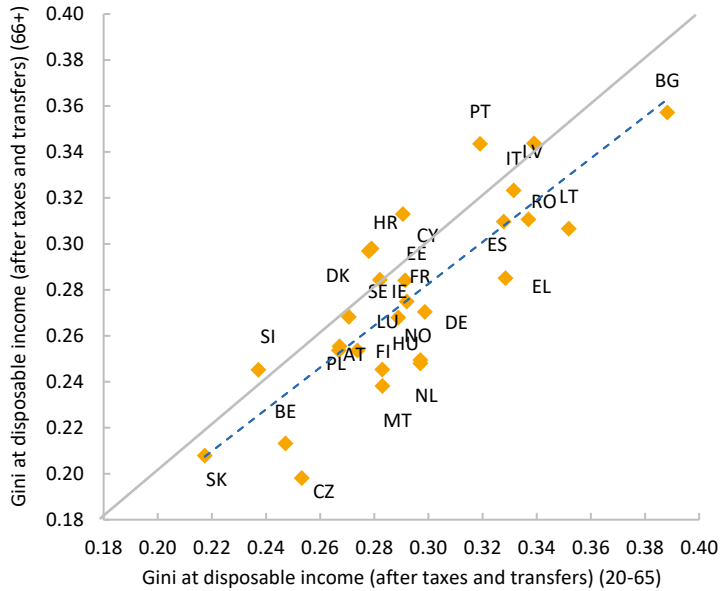
<sup>232</sup> Boulhol et al. (2023).

<sup>233</sup> The Gini index considers the whole income distribution. It measures the extent to which the distribution of income within a country deviates from a perfectly equal distribution. A coefficient of 0 expresses perfect equality where everyone has the same income, while a coefficient of 1 expresses full inequality where only one person has all the income.

<sup>234</sup> However, on average across countries, the Gini coefficient at older ages is just slightly lower than at working ages, 0.276 versus 0.293. One might expect larger differences between both age groups due to redistributive instruments within pension

this can be explained by both low past wage inequality (generating a very compressed distribution of current pensions) and a highly redistributive pension system (OECD, 2020).

**Figure 80: Gini coefficient of income inequality at older and working ages, 2021 or latest available year, EU-27 Member States and Norway**



Note: Most recent data are for 2021 in FI, LV, NL, NO and SE; for 2019 in DK, FR, DE, HU and SK; for 2018 in MT; and for 2020 in the remaining countries.

Source: OECD income distribution database.

**Even in countries where inequality is higher among older people, no country displays a Gini coefficient that is 3 pp higher among older age groups than among working-age groups.** The difference is greater than 2 pp only in Cyprus, Latvia and Portugal. According to analysis from the OECD (see the discussion on the OECD progressivity index below), Latvia and Portugal are among the EU Member States with the least progressive pension systems, thereby transmitting a high share of wage inequality into older age. In Latvia, safety nets and social spending are low across all age groups, and the redistributive capacity of the social protection system is therefore, overall, very limited for all.

**Figure 80 also shows that the Gini coefficients at older ages display similar patterns across countries to those at working ages.** Among the EU-27 plus Norway, the linear cross-country correlation between these two age groups is high, at 83 %<sup>235</sup>. For example, Bulgaria,

systems and better safety nets applying to the older population, as well as much higher incomes for some groups during working age. However, inferences about the small gaps between Gini results for older and working-age populations should be treated carefully, as comparing indicators across age groups for a given year means comparing individuals belonging to different birth cohorts with therefore different historical backgrounds.

<sup>235</sup> The high linear cross-country correlation between age groups shown by the Gini coefficient (83 %) is confirmed when looking at the inter-decile D9/D1 ratios (81 %). This indicator highlights the gap between the top (9th decile) and the bottom (1st decile) of the distribution; it is an earnings-dispersion measure that takes into account the two extremes of the distribution only. Inter-decile ratios are high for both age groups in Bulgaria, Italy, Latvia, Romania and Spain. They are relatively low for both age groups in Belgium, Czechia, Denmark, Finland and Slovakia. See also Section 1.3.3, which looks at the income quintile ratio (S80/S20).

Italy, Latvia, Lithuania, Portugal, Romania and Spain have high income inequality measured by the Gini index among both working-age and old-age groups (greater than 0.30). Similarly, Belgium, Czechia, Slovakia and Slovenia have relatively low income inequality for both age groups (lower than 0.26). The high correlation between Gini coefficients may reflect differences across countries in policies to tackle inequality more generally, whatever the age groups.

The way in which labour earnings inequality translates into pension inequality depends to a large extent on the progressivity of the pension system. The redistributive elements of pension schemes can take different forms, in relation to the importance of non-contributory versus contributory elements, the formulae used to calculate pension benefits, and the type of pension credits applicable to career breaks for reasons such as unemployment or childcare.

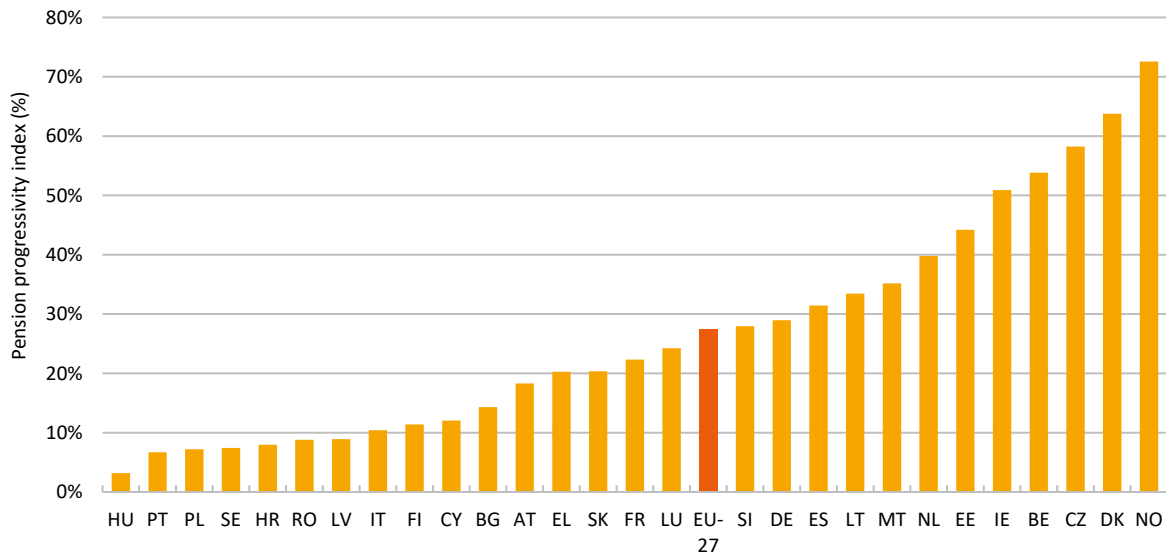
**To quantify the redistributive capacity of a pension system, the OECD has developed a progressivity index**, building on TRRs across different earnings levels. According to the index, a pension system consisting of only a universal basic scheme scores 100 %, while a system where individual pension entitlements are fully proportional to lifetime earnings scores 0 %<sup>236</sup>.

Based on the OECD progressivity index, on average in the EU-27 and Norway pension systems would offset one quarter of the earnings inequality cumulated over working lives (Figure 81). In other words, on average three quarters of persistent wage inequality would be transmitted into pension inequality. Based on this methodology, Norway, Denmark, Czechia, Belgium and Ireland have the most progressive pension systems (progressivity index above 0.50), meaning that less than half of lifetime income inequality is transmitted to pensions. At the same time, a very large share of wage inequality is translated into pension inequality in Croatia, Hungary, Latvia, Poland, Portugal, Romania and Sweden, where the progressivity index is lower than 0.10, reflecting the fact that pension benefits closely reflect individual wage levels.

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<sup>236</sup> The methodology of the OECD progressivity index builds on TRRs across earnings. It refines the one used in OECD (2017), which itself extended the progressivity index in OECD (2013b) to take into account first-tier pensions even for people who did not work. The Gini coefficient of earnings is taken from SES data. In a pension system made up of only non-contributory flat-rate benefits, all pensions are the same, the Gini coefficient of pensions is zero and the index is equal to 1. Reciprocally, when pensions are proportional to earnings, the Gini coefficient of pensions is equal to the Gini coefficient of earnings, and the progressivity index is equal to zero: there is no redistribution in that case. The estimated results clearly depend on the modelling assumptions. In particular, the estimated progressivity level highly depends on the choice of the 40-year base-case TRRs to which the country-specific population shares that match the Gini coefficient of earnings are applied.

**Figure 81: Pension progressivity index, EU-27 Member States and Norway**



*Notes: Only the schemes used within the TRR exercise are included.  
Source: OECD calculation based on base-case TRRs across earnings levels.*

As shown in Table 11, a high level of non-contributory safety nets – translating into high TRRs for low-earners as compared with high-earners – contributes to the progressivity of the pension system. For Denmark, the TRR for high-earners is close to the EU average, while for low-earners it is much higher. In both Denmark and Ireland, the basic pension is a flat rate for all earnings levels, and therefore worth relatively more for low earners. Belgium also has a high level of first-tier benefits, which are more tightly targeted. The Netherlands has a high universal safety-net benefit too but, in contrast to Denmark and Norway, this does not translate into a much higher TRR for low-earners relative to average-earners, compared with the EU on average; low-earners in the Netherlands contribute indeed much less to the occupational pension scheme. However, the Netherlands has a much higher progressivity index than on average in the EU, at 0.40<sup>237</sup>.

<sup>237</sup> This can be partly explained by the design of safety nets in these two countries: these are much higher but at a flat rate in the Netherlands, while in Belgium they are targeted, which generates steeper increases in TRR when moving from average- to low-earners.

**Table 11: Main determinants of the OECD Pension progressivity index, EU-27 Member States and Norway**

	Progressivity Index	‘Qualitative’ progressivity index	TRR difference between low-earners and high-earners	Non-contributory safety-net level		Progressivity Index	‘Qualitative’ progressivity index	TRR difference between low-earners and high-earners	Non-contributory safety-net level
<b>AT</b>	0.18			+	<b>IT</b>	0.10	-	-	
<b>BE</b>	0.54	++	++	++	<b>LV</b>	0.09	--	--	-
<b>BG</b>	0.14	-	-		<b>LT</b>	0.33	+	++	--
<b>HR</b>	0.08	--	-	--	<b>LU</b>	0.24	+	+	++
<b>CY</b>	0.12	-	--		<b>MT</b>	0.35	+		+
<b>CZ</b>	0.58	++	++	-	<b>NL</b>	0.40	+	+	++
<b>DK</b>	0.64	++	++	++	<b>PL</b>	0.07	--	--	--
<b>EE</b>	0.44	+	++		<b>PT</b>	0.07	--	--	
<b>FI</b>	0.11	-	--		<b>RO</b>	0.09	--	--	-
<b>FR</b>	0.22		-		<b>SK</b>	0.20			-
<b>DE</b>	0.29			+	<b>SI</b>	0.28			+
<b>EL</b>	0.20		+		<b>ES</b>	0.31	+	+	
<b>HU</b>	0.03	--	-	--	<b>SE</b>	0.07	--	--	
<b>IE</b>	0.51	+	++	+	<b>NO</b>	0.73	++	++	++

Note: Qualitative signs indicate differences compared with the EU average: ++ means much higher, + (substantially) higher, - (substantially) lower, and – much lower.

Reading note: In FI, at 0.11 the pension progressivity index is (substantially) lower than the EU+NO average of 0.26, due to the difference between the TRRs of low- and high-earners being much lower than in the EU on average, while the old-age safety level is similar to the average.

Source: OECD.

**Ceilings on contributory pensions, or reduced entitlements at high earnings, tend to make pension systems more progressive.** In Czechia, high progressivity is a result of redistribution within contributory pensions through the contribution-based basic components, which leads to low-earners having a TRR that is about twice that for high-earners. Moreover, earnings above 43 % of the average wage have an accrual rate of 0.26 compared with 1.0 for earnings below, thus reducing pension entitlements for higher earners.

Conversely, low levels of safety nets and strong links between pension entitlements and past wages weigh on the progressivity of the pension system. The 11 countries farthest to the left of Figure 81 have both a very flat TRR structure (see Chapter 3) and relatively low safety-net levels. In Bulgaria, Finland, Hungary, Italy, Latvia, Poland, Portugal and Romania only earnings-related components are applicable, with ceilings playing a limited role. In Cyprus, a higher accrual rate applies to earnings above 50 % of average earnings. In Sweden, the



replacement-rate structure is flat across earnings levels due to some compensating mechanisms: those with earnings above 122 % of the average wage have a much higher contribution rate in the NDC scheme (30 % vs 4.5 %), which offsets lower first-tier benefits for them.

**The way pension systems account for career histories in former transition economies may also affect inequalities in old age.** Earnings levels during the period of planned economies are typically disregarded in the new earnings-based systems. Hungary, for instance, calculates pensions only based on earnings since 1988. At the same time, older workers who lost their jobs during the collapse of planned economies may have faced difficulties in re-entering employment before retirement, resulting in pensions calculated on very low earnings. In the case of Latvia, earnings between 1996 and 1999 were used to compute entitlements in the NDC scheme for periods worked before 1996 (OECD, 2018).

**Income inequality between retirees may also stem in some countries from past pensions being based on earnings towards the end of the career when wage inequality is more pronounced.** Referring to the last or best years of careers widens pension inequality, as this benefits more those with good career progression, while those with flat, low wages are relatively penalised. Most EU Member States currently refer to full careers, and several countries have undergone reforms in this field. Austria is increasing the years used from 15 in 2003 to 40 years by 2028. Spain also increased them from the last 15 years to the last 25 (2011 reform) and will further increase them to the best 27 of the last 29 years.

**Clearly the redistributive capacity of a pension system cannot be fully assessed in isolation, by looking at cash benefits only. The availability of in-kind benefits,** including access to affordable, free or subsidised services, may be key to ensuring adequate living standards, for instance through housing or care policies (see Section 1.5).

**Finally, other factors might have an impact on the redistributive capacity of a pension system.** For instance, as women live longer on average, a large share of them, especially among retirees, live alone in old age, often with low individual pensions and with survivor pensions insufficient to compensate for the loss of previous economies of scale, with a consequent drop in equivalised disposable income. In addition, while pension systems account for a large part of retirement income, the part resulting from the savings accumulated during working age outside the pension system can be a significant source of income inequality.

**Pension inequality is also largely fuelled by differences in career duration.** Building on the gross TRRs calculated for the 20-year short-career case as compared with the 40-year full-career base case (see Section 3.4), it is possible to further assess pension inequality by extending the TRR calculations to the whole pension wealth for both low- and average-earners (i.e. to the total discounted pension entitlements – all pensions paid throughout the retirement period)<sup>238</sup>. Not all pension components in each country are in fact indexed similarly through retirement; hence the relative weight of the different components evolves, creating a wedge between the

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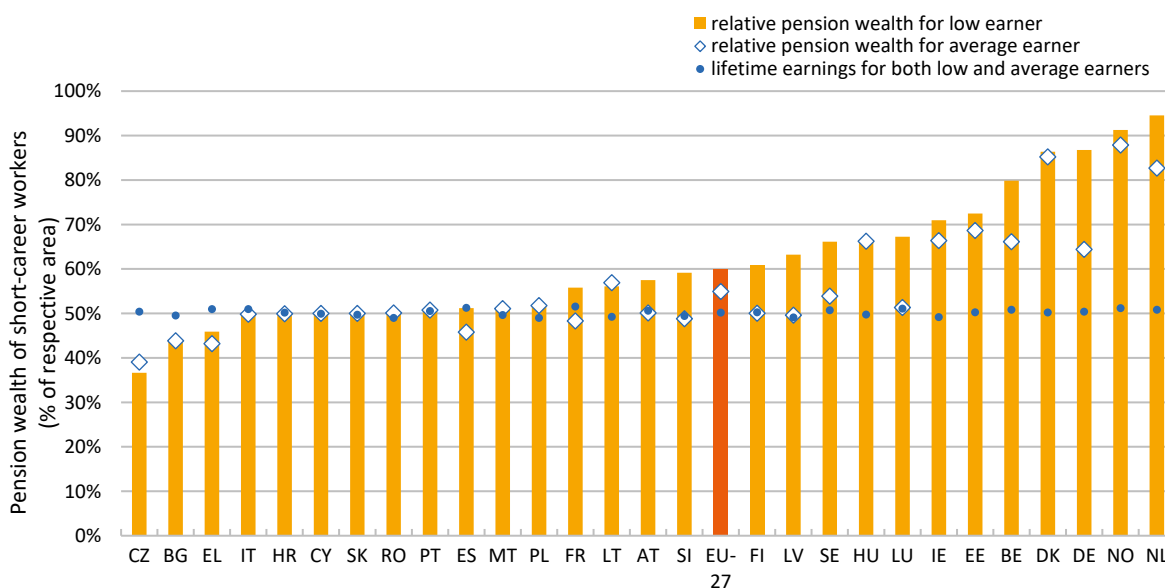
<sup>238</sup> All the pension wealth analysis is based on the gross TRR.

pension wealth and relative TRR calculated at retirement only. Moreover, in some countries not all components are available at retirement age, as is the case in Bulgaria and Czechia<sup>239</sup>.

For low-earners, the pension wealth of half-career workers is 60 % of that of full-career workers in the EU on average, from 37 % in Czechia to 90 % or more in the Netherlands and Norway (Figure 82). The ratio of lifetime wages between short-career and full-career workers may slightly differ across countries due to the specific wage profiles used for the projections. A close link for a given wage level between total entitlements and the length of the working period would generate a pension-wealth ratio of 50 % between these two cases. The EU average of 60 % means that, compared with full-career workers, low-earners with short careers (20 years instead of 40) receive pensions that are about 20 % higher than implied by their relative earnings during working life or contributions.

It is also worth noting that the short-career case used for the TRR does not account for instruments, such as pension credits for unemployment or childcare periods, that may significantly cushion the impact of career breaks on pensions<sup>240</sup>.

**Figure 82: Pension wealth of short-career workers relative to full-career workers, low- and average-earners, EU-27 Member States and Norway**



*Reading note.* In FI, while lifetime earnings of short-career workers are equal to 50 % of that of full-career workers, the pension wealth of short-career workers is equal to 61 % of that of full-career workers for low-earners and 50 % for average-earners.

*Note.* The short-career case refers to someone working for 10 years then taking a break for 20 years with no credits before working again for 10 years immediately prior to the normal retirement age, whilst the full-career case works the entire 40-year period. Calculations for pension wealth are based on TRR results and account for indexation rules for each specific component discounted to 2062 levels using the common 2 % real discount rate assumed within the TRR exercise.

*Source:* OECD pension models.

<sup>239</sup> In Bulgaria the social insurance component is only available at age 67 with fewer than 40 years of contribution, whilst in Czechia no pension is possible until age 70 without at least 35 years of contributions.

<sup>240</sup> An increasing number of pension systems include provisions to boost the entitlements of half-career workers through credits. For example, in Ireland, a person who has paid contributions for 10 or more years can receive an additional 20 years of credits for caring periods.

Flat-rate and means-tested benefits help to explain why short-career workers are better protected in terms of pensions in some countries. Beyond the Netherlands and Norway, the pension-wealth ratio is also above 85 % for low-earners in Denmark and Germany. In Denmark and the Netherlands, the basic pension is unrelated to career length while the means-tested supplement is larger for short-career workers. In Germany, low-earners with a career of at least 33 years benefit from the basic pension supplement to the points system, whilst short-career workers can receive supplementary means-tested social assistance at both low and average earnings, explaining this high ratio.

**Bulgaria, Czechia and Greece have a pension-wealth ratio for short-career workers lower than 50 %.** In Greece, the accrual rates increase with career length, so those with a shorter career have much lower levels. In addition, the basic pension is reduced by 30 % for people with shorter careers as they do not have the required 40 years of contributions to retire at age 67.

#### *4.4.6 The role of redistribution mechanisms: minimum old-age benefits, survivors' benefits and pension credits for career breaks*

**Non-contributory pensions<sup>241</sup>, contributory minimum pensions<sup>242</sup> and social assistance for low-income pensioners<sup>243</sup> play a key redistributive role for those who did not accumulate sufficient pension rights during working life.** In the Member States where the public pension systems provide a residence-based flat-rate pension or pension component (DK, EE, IE, NL, FI, SE), this benefit ensures minimum income protection in old age. For their part, most of the countries with an earnings-based state pension system provide a contributory minimum pension subject to qualifying conditions. Beyond minimum pensions, almost all Member States also provide specific social assistance benefits for older people, in most cases as a protection of last resort, subject to means-testing. Table 12 presents the share of recipients of specific benefits aged 65+ in the total population in that age group according to latest available data, and how this share has evolved compared with that reported in PAR2021<sup>244</sup>. The table shows that, **over the last three years, the share of older people receiving minimum income benefits has remained overall stable, with variations by country and scheme<sup>245</sup>.**

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<sup>241</sup> Universal flat-rate pensions are paid to all older residents as a uniform amount (sometimes distinguishing between single people and couples), regardless of the beneficiary's employment or contribution record. The amount can be reduced for people who have not been residents for long enough.

<sup>242</sup> Contributory minimum pensions are provisions that enhance the pension level for people who had low earnings and/or periods of low employment intensity but meet minimum contributory criteria. Basically, they ensure that there is a minimum reward for people's contribution effort. This can take different forms, being based on the number of contribution years or contribution amounts (linked to earnings).

<sup>243</sup> Specific social assistance in the form of supplements for low-income pensioners is a more targeted way of guaranteeing a minimum income to older people and represents a basic social safety net for this group. Entitlement to social assistance is usually not subject to past residence or contribution requirements. However, social assistance does require beneficiaries to be current residents in the country that pays social assistance, which is not 'exportable'.

<sup>244</sup> It should be noted that since the coverage rates depend on the eligibility rules of the specific benefit, they are not comparable across countries.

<sup>245</sup> An increase in a benefit's recipient rate may point either to a deterioration in the income situation of the target population, or to changes in the benefit level or eligibility conditions that result in broader coverage.

**Women continue to represent the majority of minimum income benefit recipients.** In most cases where data are available by gender, the share of older women receiving minimum income benefits is higher than that of men, sometimes overwhelmingly. This is for instance the case in Bulgaria, where respectively 8.3 % of men and 38 % of women aged 65+ are recipients of the minimum pension (full career) benefit. Similarly important differences are recorded, among others, in countries such as Luxembourg, Malta, Austria and Sweden. The overall situation has not changed since PAR2021, though developments vary by scheme and country. This is in line with the fact that older women continue to have lower pension incomes and higher poverty risks than men (see Chapter 1).

**Table 12 also provides an overview of the amounts of social assistance cash benefits and minimum pensions (contributory or residence-based) in the Member States<sup>246</sup>.** The table shows that the level of minimum income benefits varies substantially across Member States.

**Table 12: Share of recipients of minimum income benefits in the population aged 65+ by benefit (current situation and change since PAR2021) and benefit amount, EU-27 Member States and Norway**

	Benefit name	Share of beneficiaries among population aged 65+				Benefit amount, 1 July 2023	
		Latest data (%)		Change compared with PAR2021 data (pp)		EUR per month	Notes
		Men	Women	Men	Women		
BE	Guaranteed minimum pension	34.9	39.5	+6.8	+8.3	1,637	For a 45-year career
	Minimum right per career year	..	..			2,522	Monthly wage for a full-time worker is lifted to this amount
	Guaranteed income for older people	3.8	5.8	..	..	1,460	For a person living alone. The pension is topped up to this amount
BG	Minimum pension (full career)	8.3	38.6	+4.8	+7.4	239 <sup>1</sup>	Excludes statutory funded pensions
	Minimum pension (15-year career)	6.3	6.9	+2.6	-0.4	203 <sup>1</sup>	85 % of the full-career benefit. Excludes statutory funded pensions.
	Social old-age pension (means-tested)	0.5	0.2	+0.1	-0.1	127 <sup>1</sup>	
CZ	Allowance for living	7.26	6.96			192	Excludes housing supplement
DK	Public old-age pension	n/a (universal coverage)				847	+ Means-tested supplement EUR 927 or EUR 462 per person (for singles/couples) + Means-tested supplementary amount linked to length of residence + Minimum statutory funded pension EUR 33
DE	Means-tested basic social assistance in old age	3.7 <sup>1</sup>	3.8 <sup>1</sup>	+0.6	+0.5	502	Excludes housing, heating and allowance for additional and one-off requirements

<sup>246</sup> Benefit amounts in the table refer to a single non-disabled person; in many Member States, different amounts may apply to families or people with disabilities.

	Benefit name	Share of beneficiaries among population aged 65+				Benefit amount, 1 July 2023	
		Latest data (%)	Change compared with PAR2021 data (pp)		EUR per month	Notes	
			Men	Women			Men
EE	National pension	1	0.30	+0.69	-0.07	295.34	Excludes statutory funded pensions, housing and other allowances
	Pension supplement for pensioners living alone ( <i>Üksi elava pensionäri toetus</i> )	14.3	20.1			16.67	Supplement of EUR 200 (16.67 per month) per year for pensioners living alone
IE	State pension (contributory)	78.1	48	-3.2	+3.2	1,149.63 <sup>2</sup>	Maximum amount. Paid weekly. Benefit varies from EUR 106 to EUR 265.30 per week, depending on contribution record. Excludes the qualified adult/child allowance.
	State pension (non-contributory)	10.6	13.9	..	..	1,100.66 <sup>2</sup>	Maximum rate of EUR 254 per week as of 2023. Means-tested payment
EL	National pension <sup>247</sup> ( <i>Εθνική σύνταξη</i> )	1.12	1.77	..	..	413.76	Maximum amount. It is paid in full once at least 20 years of insurance have been completed. The amount of the national pension is reduced by 2 % for each year of insurance that falls short of 20 years, as long as at least 15 years of insurance have been completed.
	Social solidarity allowance for uninsured older people	..	..	..	..	387.90	+ Rent allowance up to EUR 362
ES	Minimum contributory pension	13.24	22.54	-2.85	-2.38	913.60 <sup>2</sup>	Paid in 14 monthly instalments; means-tested
	Non-contributory old-age pension	1.82	3.54	+0.12	-0.13	565.40 <sup>2</sup>	Paid in 14 monthly instalments of EUR 392 + Housing maximum EUR 525 per year
FR	Minimum contributory pension	22	44	-5.4	-5.7	684	Complex calculation
	Solidarity allowance for older people	3.8	3.5	-0.1	-0.3	961	
HR	Minimum pension	31.6	34.4	+13.8	+15.0	317	Average benefit in payment is reported. The individual minimum pension amount depends on the individual contributory period and the moment of retirement (penalty/bonus is applied).
	National benefit for older people	0.7	0.9	..	..	120.71	
IT	Minimum pension supplement	..	..	..	..	619.9 <sup>2</sup>	Paid in 13 monthly instalments of EUR 572.20 each
	Social increase	..	..	..	..	709.4 <sup>2</sup>	Benefits paid in 13 monthly

<sup>247</sup> The main pension in Greece consists of two components: the national pension and the contributory pension. The national pension is funded by the state and is provided regardless of the level of earnings or the level of (periodic) employment intensity, along with the contributory pension to those who fulfil eligibility criteria for a pension. The national pension does not work as a minimum pension, as it is always supplemented by a contributory component.

	Benefit name	Share of beneficiaries among population aged 65+				Benefit amount, 1 July 2023	
		Latest data (%)	Change compared with PAR2021 data (pp)			EUR per month	Notes
		Men	Women	Men	Women		
	<i>Social allowance</i>	4.91	6.43	+4.6	+6.15	545.2 <sup>2</sup>	instalments of EUR 82.64 in addition to the minimum pension supplement – refers to a beneficiary aged 65-69 – higher if age 70+ Benefits paid in 13 monthly instalments of EUR 503.27
CY	<i>Minimum pension</i>	..	..	..	..	395.80 <sup>2</sup>	Paid in 13 monthly instalments
	<i>Social pension</i>	..	..	..	..	377.18 <sup>2</sup>	Paid in 13 monthly instalments
LV	<i>Minimum old-age pension</i>	..	..	..	..	149.60 (with 15 years of insurance record)	Depending on career length (from 15+ years) EUR 172.70 from 1 July 2023 for a pensioner with 15 years of insurance record, upon reaching standard retirement age
	<i>State social security benefit</i>	..	..	..	..	109	EUR 125 from 1 July 2023
LT	<i>Pension supplement</i>	0.12	1.00	-7.74	-11.59	24.95	Depending on career length (from 15 to 33+ years); maximum amount of pension the person gets together with pension supplement set at 100 % of minimum consumption needs
	<i>Social assistance pension</i>	0.51	1.19	-0.56	-0.18	184	+ Possibly housing costs
LU	<i>Minimum pension</i>	4.59	23.25	-0.40	-0.92	2,061.25	Requires 40 years of insurance career (including credited non-contributory periods), otherwise reduced proportionally
	<i>Guaranteed minimum income</i>	2.06	2.41	+0.21	+0.09	1,675.10	
HU	<i>Minimum old-age pension</i>	0.0	0.0	-0.5	-0.7	71 (HUF 28,500)	Maximum, conditional on 20 years of contributions. Paid in 13 instalments per year.
	<i>Old-age allowance</i>	0.2	0.2	0.0		94-126	Higher benefits if age 75+
MT	<i>National minimum pension</i>	5.98	10.90	-8.62	-7.1	712	Maximum amount, conditional on 50 contribution weeks per year. Reduced for less intensive contributions.
	<i>Non-contributory old age pension</i>	2.03	5.81			683.32	Includes means-tested maximum energy allowance, supplements and bonuses
NL	<i>General old-age pension (AOW)</i>	92	93			1,215.81	Full pension payable after 50 years of insurance; proportional deduction for shorter insurance period
	<i>AIO, huurtoeslag, zorgtoeslag</i>	..			..	Variable	Means-tested and related to actual cost of rent and health insurance
AT	<i>Equalisation supplement to pension</i>	4.9	8.95	-0.1	+3.35	1,110.26	Conditional on 15 years of insurance; higher amounts for >30 and >40 years
PL	<i>Minimum old-age pension</i>	6.3	6.3	+5.1	+0.5	356	Requires 25/20 qualifying years (for men/women), including non-contributory
	<i>Additional annual benefit for pensioners – '13th pension'</i>	..			..	356 (~ 30 per month) (PLN 1,588.44)	Paid once a year (in April) to all pensioners, regardless of the amount of the basic pension benefit. The additional annual benefit is entitled to the amount of the lowest

	Benefit name	Share of beneficiaries among population aged 65+				Benefit amount, 1 July 2023	
		Latest data (%)	Change compared with PAR2021 data (pp)		EUR per month	Notes	
			Men	Women			Men
	( <i>tzw. 13 emerytura</i> )					old-age pension in force from 1 March of a given year.	
	<i>Extra additional annual benefit for pensioners – ‘14th pension’ (tzw. 14 emerytura)</i>	..		..	594 (~ 49 per month) (PLN 2,650)	Paid once a year. The full amount is paid to people with a pension or disability pension not exceeding PLN 2,900. Above this amount, this additional benefit is reduced (‘złoty for złoty’ principle). The amount and date of payment of this extra additional benefit is determined by the Council of Ministers.	
PT	<i>Minimum pension (contributory)</i>	31,13			-4.47	340-492 <sup>22</sup>	Paid in 14 monthly instalments. Depends on contribution years, from <15 to >30.
	<i>Social old-age pension (non-contributory)</i>	1,48	3,95		+1.19	262 <sup>2</sup>	Paid in 14 monthly instalments of EUR 224 plus EUR 10-39 if aged 70 or over. Can be supplemented by LTC allowance.
	<i>Solidarity supplement for older people</i>	3,83	7,28	-1.77	-1.92	488	Paid in 12 monthly instalments. Maximum amount depending on means test. Average amount paid is EUR 143 monthly.
RO	<i>Social indemnity for pensioners</i>	3.19	15.79	-2.71	-5.28	227	Maximum, paid in addition to the individual pension
SI	<i>Guaranteed pension</i>	..	..	0.7	0.6	687.75	Conditional on 40 years of pension qualifying period without purchased period and 60 years of age or less due to the lowering of the age limit. New rule from May 2021: it is indexed as other pensions; e.g. EUR 653.75 in April 2022. Including the annual allowance, the monthly amount is EUR 714.
	<i>Minimum pension (najnižja pokojnina)</i>					310.11	Conditional on 15 years insurance period and 60 years of age.
	<i>Minimum invalidity pension (najnižja invalidska pokojnina)</i>					413	
	<i>Supplementary allowance</i>	3.0	3.4			214.71 (maximum)	Including the annual allowance, the monthly amount is EUR 450.92
	<i>General social assistance</i>	..	..			465.34 (maximum)	The amount of supplementary allowance depends on the census for this right and the individual’s own income. The census in 2023 is EUR 684.05. Census for a single person is EUR 465.34.
SK	<i>Minimum pension</i>	2.3	7.8	-6.31	-6.7	334.30	Increases after 30 years of pension contributions
	<i>Assistance in material need</i>	..	..	..	..	74	Plus EUR 83 housing allowance and EUR 75.70 protection allowance
FI	<i>National pension</i>	24.8	40.8	-1.5	-3.6	654.13	Amount depends on marital status. Reduced for shorter residence periods. 50 % of the total amount of pension income



	Benefit name	Share of beneficiaries among population aged 65+				Benefit amount, 1 July 2023	
		Latest data (%)	Change compared with PAR2021 data (pp)		EUR per month	Notes	
			Men	Women			Men
							that exceeds the income limit (EUR 743 per year in 2023) is deducted from the full amount of the national pension. If the old-age pension starts before or after 65, an early reduction/or deferred increase is calculated. National pension is also paid abroad.
	<i>Guarantee pension</i>	2.7	4.8	+0.6	+0.4	922.42	Other pension income deducted from the full amount. Guarantee pension is paid only in Finland.
	<i>Housing allowance for pensioners</i>	7.5	12.9	+0.3	-0.1	..	
SE	<i>Guarantee pension</i>	27	65	+11.2	+17.5	953	Maximum amount. Reduced with other pension income.
	<i>Maintenance support for older people</i>	1	1	-0.1	-0.3	602	Maximum amount. Reduced with other income. Excludes housing costs up to a ceiling.
	<i>Housing supplement</i>	8	18	+0.0	-1.3	653	Maximum amount. Depends on housing costs and is reduced with income.
NO	<i>Minimum pension</i>	4.5	22	..	..	2,038	Minimum pension for a single pensioner = NOK 257,040 per year. Divided by the estimated EUR 1 = NOK 10.51 as of 1 January 2023, and then divided by 12 to get the monthly value.

Notes: (1) as share of population above statutory retirement age; (2) if the benefit is paid in more than 12 instalments per year, 1/12 of the total annual amount is given; – no data; n/a – not applicable.

Source: Coverage rates – SPC WGPA (reference year varies by scheme); benefit amounts – MISSOC, SPC ISG, SPC WGPA.

**Several new benefits were introduced in the period under consideration (2020-2023) and minimum benefits were increased, with a view to expanding old-age minimum income protection.** In some cases, the eligibility conditions were eased, with, as a result, an increase in the number of older people benefiting from such schemes. Chapter 2 provides an overview of recent reforms of minimum pension benefits.

**Pension credits also play an important redistributive role, by cushioning the effects of career breaks on the accumulation of old-age pension rights.** People can find themselves unemployed or in a situation where they must stop working or reduce their working time because of family obligations, such as caring for children or for family members in need of LTC. The capacity of credits to compensate for career interruptions or work reductions depends on how they are calculated and on the maximum periods taken into account (Section 3.5 analyses this capacity using TRRs).

**Almost all Member States provide pension credits for childcare breaks, though these may be age-limited or conditional on being entitled to childcare benefits (Table 13).** In 15 Member States, pension credits for childcare breaks are conditional upon receiving an

allowance and most often end once the child has reached a given age. Improving pension entitlements for carers, and thus indirectly for women as the main carers, has been high on the reform agenda of EU Member States in recent years (see Chapter 2).

Credits for periods of unemployment, whereby people continue to build up pension entitlements during unemployment spells, are also common (Table 13). The state recognises such spells as insurable periods for pensions, most often on the condition of receiving unemployment benefits. The rules on the creditable period and on the level of credits vary widely among countries.

**Table 13: Career break credits: childcare and unemployment, EU-27 Member States and Norway**

Reason for break	Formula	Countries
<b>Childcare</b>	Credited if allowance granted	BE, EE, IE, EL, FR, IT, LV, LT, LU <sup>1</sup> , HU, MT, PT, RO, SE, FI
	Credited	DK <sup>2</sup> , NL <sup>3</sup>
	Credited up to maximum age	(6 mo) HR; (1 yr) SI; (1.5 yrs) LV; (3 yrs) BG, DE, ES, CY; (4yrs) CZ (4 yrs), NO, AT; (6 yrs) SK <sup>4</sup>
	Credited up to maximum time	PL (12 months)
	Not credited	None
<b>Unemployment</b>	Credited	BG, CZ, DK <sup>5</sup> , EL, FR, CY, NL <sup>5</sup> , AT, PT
	Credited if allowance granted	BE, DE, EE, ES <sup>6</sup> , HR <sup>8</sup> , IE, IT, LV, LT, LU, HU, MT, NO, PL, RO, SI, SE, FI
	Credited up to maximum time	None
	Not credited	SK <sup>7</sup>

*Notes: (1) Maximum two years while child is aged 6 or under. During a childcare break in LU: (a) replacement income (maternity leave, paid parental leave, etc.) is subject to pension contributions; (b) pension contributions for up to two years may be granted without paid allowance (baby years); and (c) credited non-contributory periods up to age 6 may be granted. (2) Residence-based pensions; career breaks treated the same as other residence periods. (3) Residence-based pensions. (4) Extended to 18 years in the case of child disability. (5) Residence-based pensions. (6) For people aged over 52. (7) Unemployment periods that occurred until 31 December 2003 were/are credited. (8) Unemployment periods are credited up to maximum of five years to people who fulfil the age criteria but lack a maximum of five years of contributory period for acquiring an old-age pension.*

*Sources: SPC ISG, PAR.*

**All EU Member States also provide survivor benefits for spouses, and these can have a considerable impact on income redistribution in old age, especially for women, who make up the majority of recipients.** Survivor benefits tend to play a key role in reducing gender gaps in pension entitlement<sup>248</sup>, and can thus be considered an essential solidarity mechanism

<sup>248</sup> Dekkers et al., 2022 (see notably Figure 9) shows the positive impact of survivors' pensions on the GPG. When considering a broader measure of the GPG, taking into account the coverage gap, generous survivor pensions also appear to reduce the gap (see Van den Bosch, 2024a).

(see also Section 4.2). In most Member States, these are compulsory social insurance schemes financed by contributions, with the level of pensions depending on (and being calculated as a percentage of) the pension rights of the deceased person. In the vast majority of countries, these schemes compulsorily cover both workers and the self-employed (though with different modalities in some cases). The level of the survivor's pensions most often varies between 50 % to 80 % of the actual or hypothetical retirement pension of the deceased spouse, depending on the underlying calculations and conditions, including family composition. While minimum contributory requirements generally apply to the deceased spouse, in a few Member States with residence-based flat public pensions all residents are protected by these schemes. (For an estimate of the impact on the surviving spouse's income, see Section 3.7.)

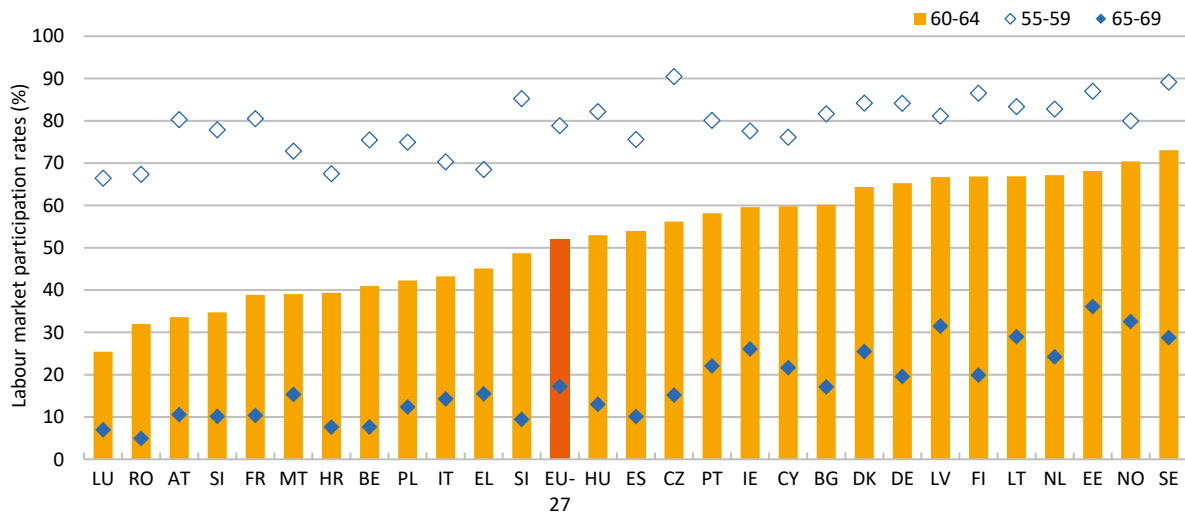
#### 4.4.7 Differences in labour market entry and exit ages and implications for pension design

Labour market entry and exit ages have an impact on future pension entitlements. Differences among socio-economic groups, as measured in terms of education attainment, are reflected in labour market entry and exit ages and these compound pension benefit levels.

**Overall, labour market participation declines strongly after age 60, but with substantial differences among EU Member States.**

On average in the EU, 85 % and 79 % of people aged 50-54 and 55-59, respectively, were active in the labour market in 2022, against 52 % and 17 % at ages 60-64 and 65-69. Activity rates at ages 60-64 ranged from less than 40 % in Austria, Croatia, France, Luxembourg, Malta, Slovenia and Romania to more than 70 % in Norway and Sweden.

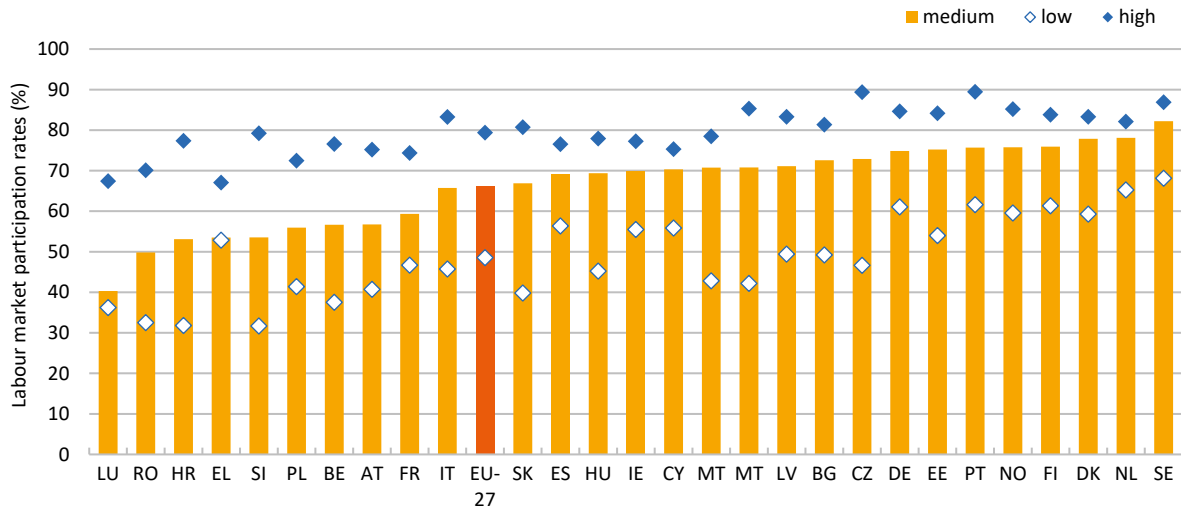
**Figure 83: Labour market participation rates at ages 55-59, 60-64 and 65-69, EU-27 Member States and Norway, 2022**



Source: OECD calculations based on Eurostat data.

**Older workers' participation rates also vary substantially by education level and are much higher for the highly educated** (Figure 84) The participation gap by education level varied from less than 20 pp in Greece, the Netherlands and Sweden to more than 40 pp in Croatia, Czechia, Lithuania, Slovenia and Slovakia.

**Figure 84: Labour market participation rate, age 55-64, by education level, 2022, EU-27 Member States and Norway**

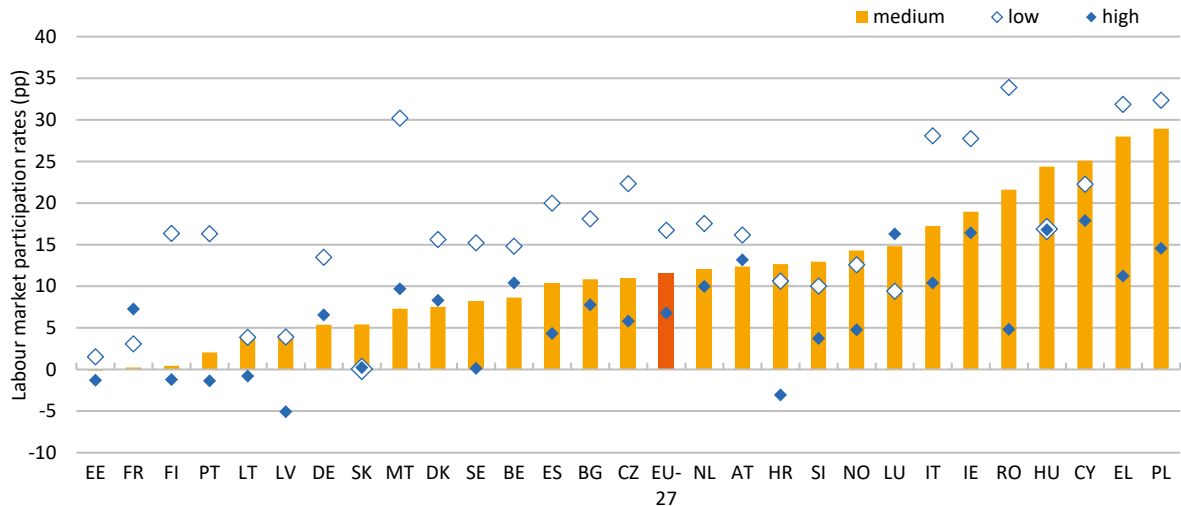


Note: Education level is based on the International Standard Classification of Education (ISCED). Medium is ISCED 3-4, Low is ISCED 0-2, and High is ISCED 5-8.

Source: OECD calculations based on Eurostat data.

While activity rates among those aged 55-64 are higher for men than for women at all education levels, the gap is larger for those with low education (Figure 85). On average in the EU, activity rates in 2022 were higher for men than for women with high, medium and low education, by 6.8, 11.6 and 16.7 pp respectively.

**Figure 85: Labour market participation rates: gender differences (men-women aged 55-64), in pp, by education level, 2022, EU-27 Member States and Norway**

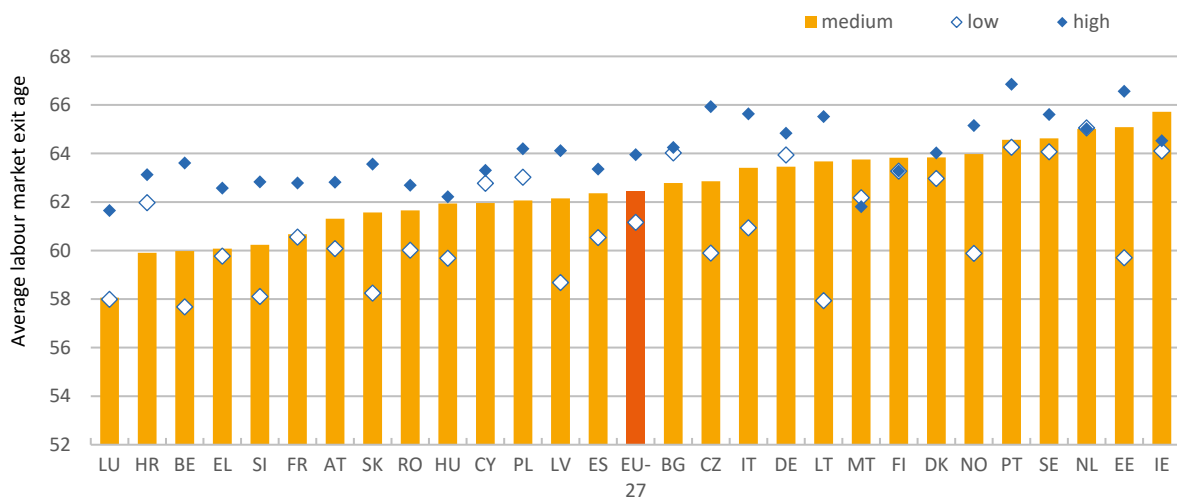


Note: Education level is based on ISCED. Medium is ISCED 3-4, Low is ISCED 0-2, and High is ISCED 5-8.

Source: OECD calculations based on Eurostat data.

OECD calculations of average labour market exit ages for workers aged 40 and over <sup>249</sup> show that on average in the EU those with higher education leave the labour market 1.5 and 2.8 years later than those with medium and low education, respectively (Figure 86)<sup>250</sup>. The difference between high and low education levels varies from less than one year (e.g. in BG, CY, FI, IE, MT, NL) to more than five years (e.g. in BE, CZ, EE, LV, LT, NO, SK). In Bulgaria, Croatia, Cyprus, Germany and Poland, people with low education level leave the labour market later than those with medium education. In Finland, Ireland and Malta, people with medium education leave the labour market at older ages than those with high education. In the Netherlands, labour market exit ages hardly differ by education.

**Figure 86: Average labour market exit age, by education, 2022, EU-27 Member States and Norway**



Notes: Data for EE, LV, NO, and SE for people aged 75+ use the EU-27 average. Education level is based on ISCED. Medium is ISCED 3-4, Low is ISCED 0-2, and High is ISCED 5-8.

Source: OECD calculations based on Eurostat data.

OECD analysis also shows that differences between Member States in average labour market exit ages by education level have diminished over time, and countries with lower labour market exit ages have been catching up. For a given educational level, countries with low average labour market exit ages in 2005 have shown increases since then, although to a lesser extent for those with a medium education level. This is especially the case for Bulgaria, Croatia, Czechia and Poland for the low-educated, Bulgaria, Croatia, Poland, Slovakia and Slovenia for those with medium education and for Bulgaria, Croatia and the Netherlands for the highly educated.

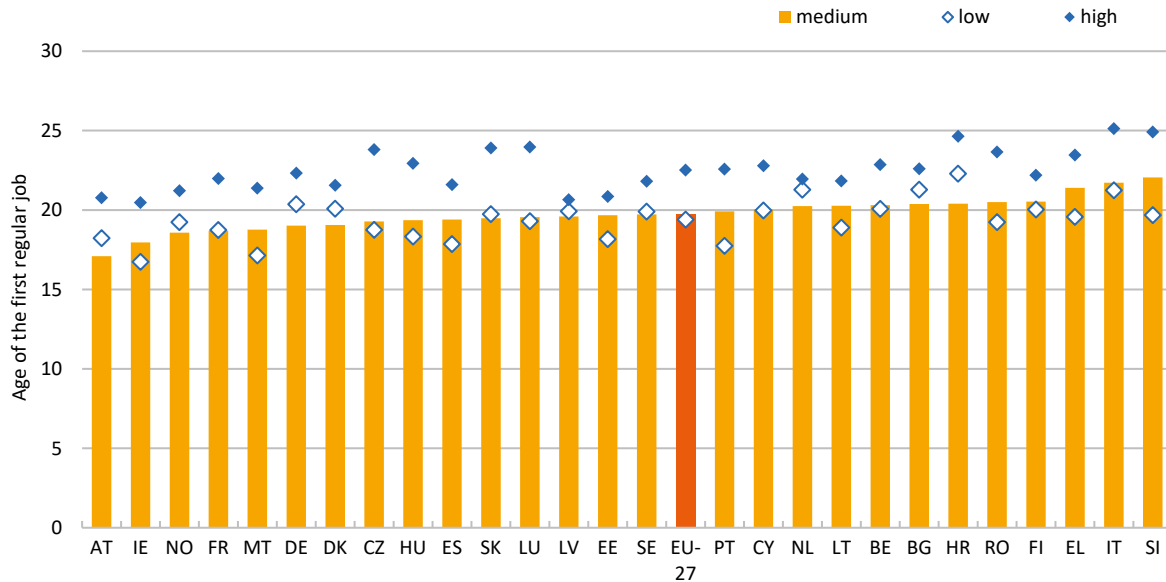
Besides exiting generally later, people with high education attainment enter the labour market on average three years later than those with low education (Figure 87). Among those aged 26-34, in 2020 those with high education entered the labour market at age 22.5 on average

<sup>249</sup> The methodology for calculating the average age of labour market exit is based on changes through time in the participation rates of cohorts of individuals (broken down by gender): [www.oecd.org/els/soc/Labour-Market-Exit-Age-Methodology.pdf](http://www.oecd.org/els/soc/Labour-Market-Exit-Age-Methodology.pdf). See also: <https://www.oecd.org/employment/emp/average-effective-age-of-labour-market-exit.htm>.

<sup>250</sup> It is important to keep in mind that exiting the labour market does not mean receiving an old-age pension. For example, it is likely that people with low education receive unemployment benefits or claim disability benefits more often than those with high education.

compared with age 19.4 for those with low education. Pursuing high education delays the entry in the labour market in all countries, from by around one year in Bulgaria, Denmark, Latvia and the Netherlands, to around five years in Czechia, Hungary, Luxembourg, Portugal and Slovenia.

**Figure 87: Age of starting first regular job, age group 26-34, 2020, by education level, EU-27 Member States and Norway**



Notes: Education level is based on ISCED. Medium is ISCED 3-4, Low is ISCED 0-2, and High is ISCED 5-8. Based on SILC question PL190: ‘When did you begin your first regular job?’  
 Source: OECD calculations based on EU-SILC data.

Existing educational differences in labour market entry and exit ages and life expectancy spur the debate about the need for flexibility around statutory retirement ages to overcome the building of inequality in old age. Clearly, differentiating retirement ages or benefit accruals by education level, or other socio-economic variables, seems not to be a viable solution<sup>251</sup>. For example, granting higher accrual based on low education attainment may provide opaque incentives for people not to pursue higher education or not to reveal their true education level (see e.g. Le Garrec and Lhuissier, 2016).

The question whether basing eligibility for pension benefits on the contribution period without penalty is fairer than basing it on common retirement ages irrespective of career length, is also not straightforward. In some countries, the contribution period plays a key role in access to full pensions (e.g. FR requires 42 years currently, increasing to 43 by 2036; DE 45 years; and EL 40 years). When comparing, for example, the case of individuals contributing 42 years between age 20 and 62 with those contributing between 22 and 64, actuaries would say that the pensions of the former should be lower to reflect their longer retirement period from age 62 (compared with age 64) as is automatically the case in NDC schemes. The justification for providing them with similar benefits would be stronger if account could be taken of differences in life expectancy.

<sup>251</sup> See also Section 4.4.2 above.

**For the same average earnings and the same career length, claiming a pension later usually results in higher replacement rates.** For example, PAR2021 (European Commission, 2021a) shows that a 42-year career provides a higher replacement rate for people retiring two years after the statutory retirement age than for those retiring at it. Bonuses in earnings-related schemes that typically apply after the retirement age come on top of accruing standard entitlements<sup>252</sup>. In those cases, the higher replacement rates due to higher retirement ages offset in principle shorter retirement periods. Moreover, if those who started earlier have lower life expectancy, their retirement period may not effectively be longer. Belgium, Greece and Luxembourg (and FR in the mandatory occupational scheme), deviate by not paying an additional deferral bonus in their PAYG schemes (see Volume II of this report, country fiches).

**In a few countries, early-retirement ages depend on career length.** This is for instance the case in Austria (40 years), Germany (35), Greece (40) and Luxembourg (40). In Estonia, early retirement is possible one year earlier with 20 years of contribution, with early retirement increasing by one year for each additional five years of contributions with a maximum of five years with 40 years of contributions. Those with sufficiently long contribution periods are typically not in the first income deciles<sup>253</sup>. It is also possible to retire at an earlier age for individuals who started their full career early in Belgium, Denmark, France, Germany, Italy, Luxembourg, Portugal, Slovakia and Slovenia.

**Finally, special pension provisions for long careers do not necessarily benefit people with short life expectancy.** Socio-economic differences in labour market entry ages are sometimes advanced as a reason for providing early-retirement options for people who started their careers early. However, most often people with long careers, including those who started their career early, do not experience career breaks. By contrast, people with low education tend to experience career breaks more often than others and their labour market participation rates are low throughout prime age. Early starters with uninterrupted careers are likely to be in relatively good health (selection effect) and may not have particularly low earnings<sup>254</sup>.

As concerns the gender differences in entry and exit ages, contrary to the situation observed for people with different educational levels, these do not offset each other but add up: men enter earlier and leave the labour market later. In fact men exit the labour market later than women in most EU Member States, and one year later on average in the EU (Figure 88). They exit the labour market two or more years later than women in Austria, Cyprus, Greece, Luxembourg, Norway, Poland, Portugal and Slovenia, while women remain longer in the labour market than men in Belgium, Estonia, France, Finland, Latvia, Lithuania and Malta<sup>255</sup>.

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<sup>252</sup> See European Commission (2021a).

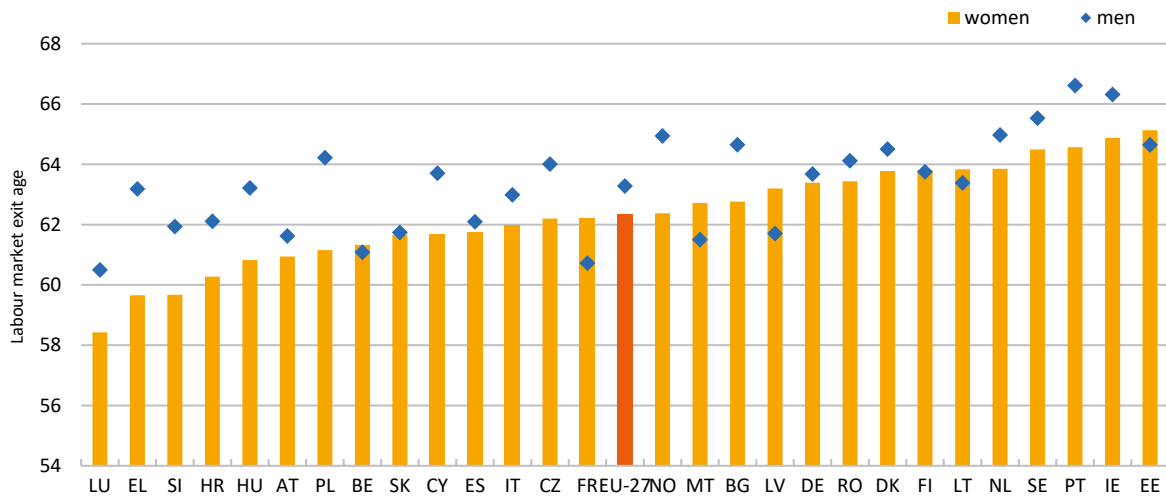
<sup>253</sup> It has been shown that in France they are at or above the median of the income distribution: Aubert and Bozio (2023).

<sup>254</sup> For example, Aubert (2023) shows that people with long careers in France do not have lower life expectancy.

<sup>255</sup> The labour market exit ages computed by the OECD are lower by 0.3 and 0.9 years for men and women, respectively, on average compared with the numbers computed by DG-ECFIN for the 2024 Ageing Report. The numbers from the two sources correlate well across countries, at 0.71 and 0.63 (linear correlation coefficient) for men and women, respectively. The differences are explained by methodological differences, in particular different age groups: 50-74 (DG-ECFIN) vs 40-84 (OECD) and basing calculations on employment (DG-ECFIN) vs labour market participation rates (OECD).



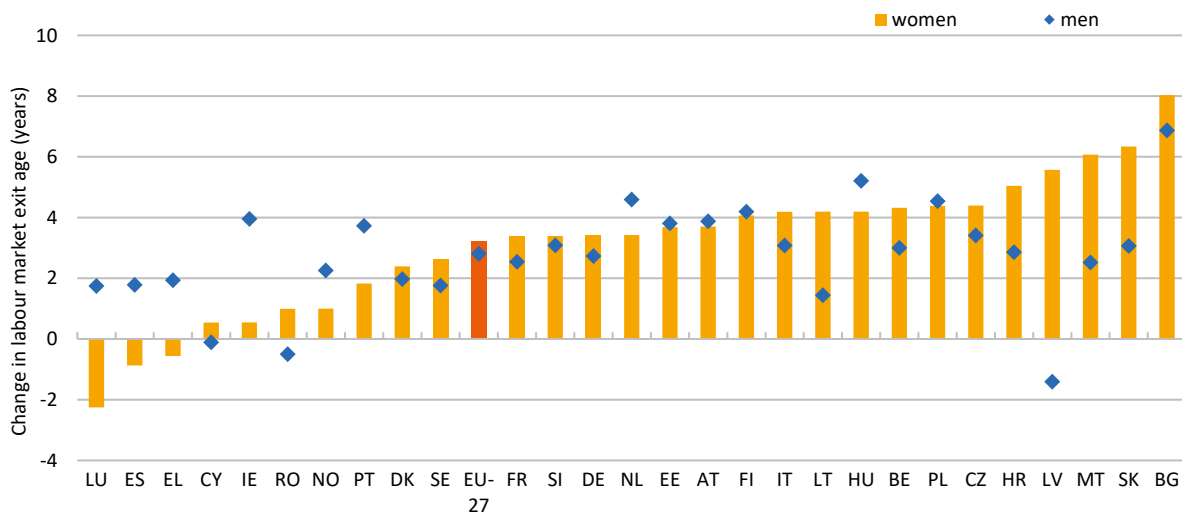
**Figure 88: Labour market exit age, women and men, 2022, EU-27 Member States and Norway**



Source: OECD calculations.

Even if women have been slowly catching up with men in terms of average labour market exit age, data show that it might take another 38 years to close the gap. Between 2005 and 2022, the labour market exit age increased by 3.2 years among women and by 2.8 years among men on average in the EU (Figure 89). Trends are not the same across Member States, as the gap narrowed by seven years in Latvia, and by around three years in Lithuania, Malta and Slovakia, while it increased in 12 Member States and by more than two years in Ireland, Greece, Luxembourg and Spain.

**Figure 89: Change in labour market exit age between 2005 and 2022, women and men, in years, EU-27 Member States and Norway**

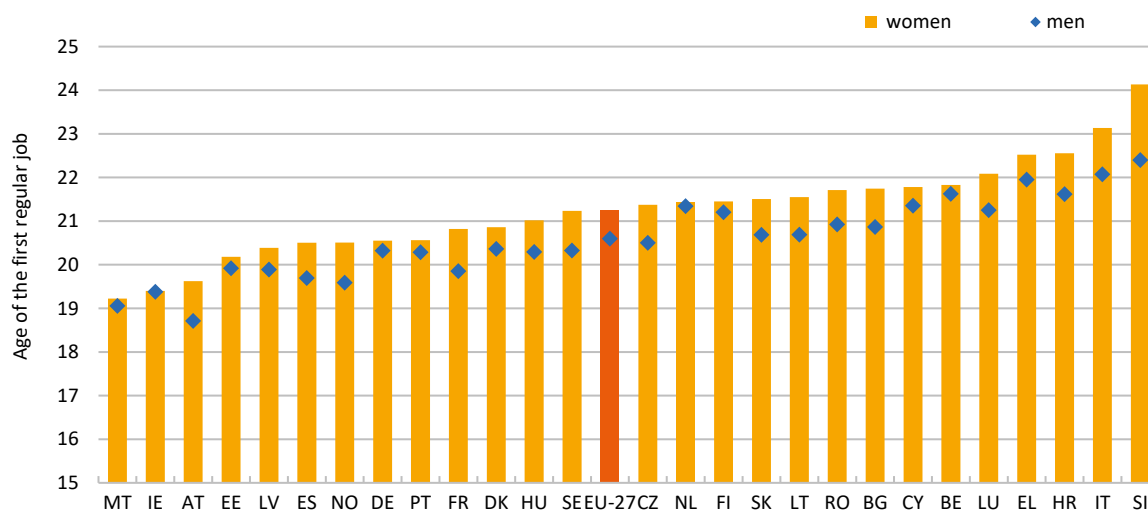


Source: OECD calculations.

Moreover, women report having started their first regular job at age 21.2, hence a 0.6 years later than men, on average in the EU (Figure 90). The difference is almost nil in Belgium, Estonia,

Germany, Malta, the Netherlands and Portugal, while it is of one year or more in France, Italy and Slovenia<sup>256</sup>.

**Figure 90: Age of starting first regular job, age group 26-34, 2020, women and men, EU-27 Member States and Norway**



Note: Education level is based on ISCED. Medium is ISCED 3-4, Low is ISCED 0-2, and High is ISCED 5-8. Based on SILC question PL190: 'When did you begin your first regular job?'

Source: OECD calculations based on EU-SILC data.

Gender differences in both labour market entry and exit ages lead to lower lifetime earnings of women compared with men and thereby feed the GPGs. Closing the gap in the entry ages is beyond the realm of pension policy. Exit ages, by contrast, might be influenced by pension policies. Different retirement rules for men and women, which were widespread in the past, promoted earlier labour market exit by women, but today almost all EU Member States have aligned retirement rules for men and women.

#### 4.4.8 Non-standard forms of work, self-employment, and pension inequalities

**While the debate on pensions for those in non-standard forms of work, including the self-employed, is not new, the topic has been growing in importance in recent years** (see PAR 2018 and PAR 2021). Despite a high degree of uncertainty on how labour markets will evolve in the future, a rising number of non-standard forms of employment can be reasonably foreseen. However, while labour markets change quickly, policy responses, especially in the pension field, are difficult processes that take time to materialise (OECD, 2019).

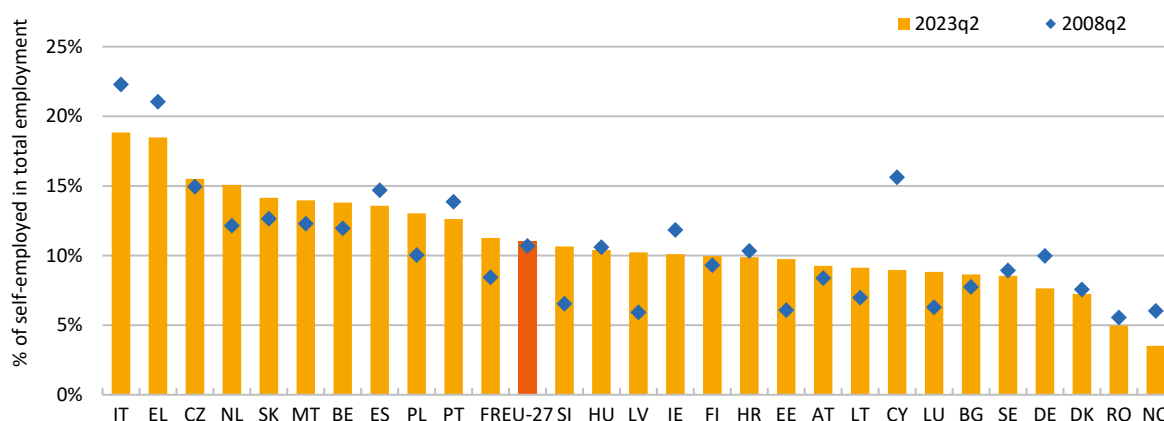
**The share of the self-employed in total employment has remained overall stable in the last 15 years<sup>257</sup>, at 11 % on average across the EU (Figure 91), ranging from less than 8 % in**

<sup>256</sup> Entry ages by gender calculated based on employment rates for the Ageing Report are higher and show larger gender differences. The EU-27 average age was 22.6 and 21.4, showing a difference of 1.2 years. The correlation between the two is significant, at 0.51 and 0.58 for men and women, respectively.

<sup>257</sup> The agriculture, forestry and fishery sectors are not included in the analysis of the self-employed, because in several countries they have special pension regimes, and this would blur the analysis. In 2008, the NACE Rev. 2 classification of economic activity was applied to Labour Force Survey data by Eurostat, which makes sectoral comparisons with previous years more difficult.

**Denmark, Germany, Norway and Romania, to 15 % or more in Czechia, Greece, Italy and the Netherlands.** The composition of this group has nevertheless changed over time, with the number of self-employed people having a business with employees having steadily fallen, and the number of solo self-employed having increased in recent years<sup>258</sup>. In the second quarter of 2023, around two thirds of the self-employed had no employees. Moreover, among the 19 million self-employed without employees in the EU in 2022, 3.3 million (18 % of the total) worked for one client only ('dependent self-employed' people)<sup>259</sup>.

**Figure 91: Share of self-employment in total employment, 2008 (Q2) to 2023 (Q2), EU-27 Member States and Norway**



Source: OECD calculations based on Eurostat data (EU Labour Force Survey).

From their side, the share of temporary workers slightly declined, from 9.6 % to 9.1 %, between 2008 and 2023 on average in the EU<sup>260</sup>, while the share of part-time workers slightly increased in most countries, from 13.5 % to 14.5 % on average in the EU<sup>261</sup>.

**Full-time self-employed people, part-time workers and workers on temporary contracts earned less than full-time permanent workers in 2021** (Figure 92). Full-time self-employed people earned yearly about 80 % of earnings for full-time employees on average in the EU. Temporary contracts also paid 19 % less than open-ended contracts on average in the EU. Finally, part-time workers earned half of earnings for full-time employees on average on a yearly basis, from less than 40 % in Cyprus, Ireland, Malta and Spain to more than 60 % in Belgium, Luxembourg, Poland and Slovenia.

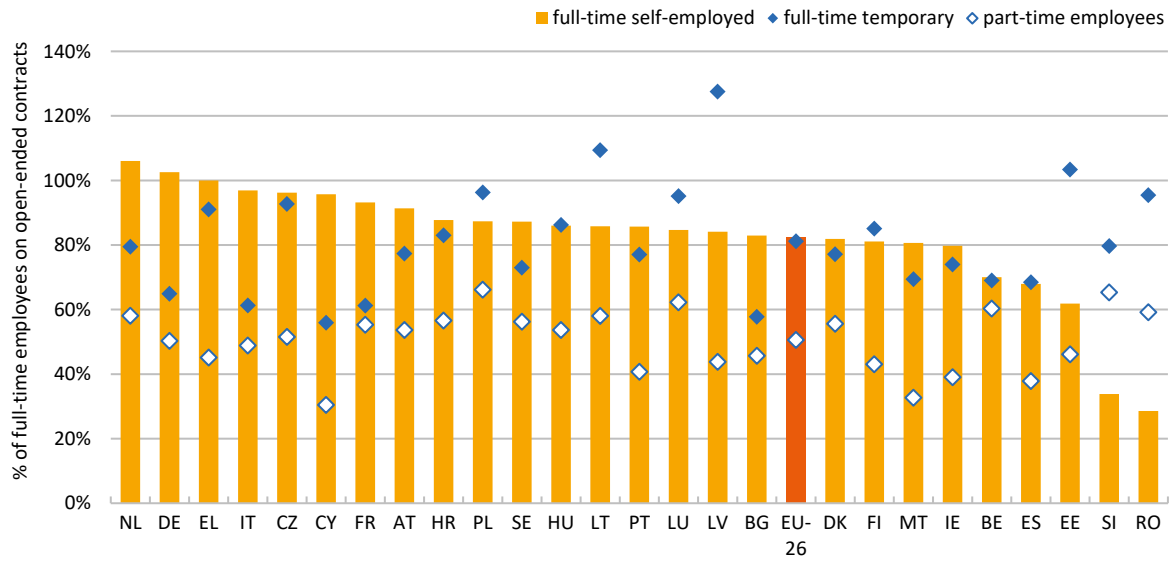
<sup>258</sup> See Schoukens (2022).

<sup>259</sup> Source: DG EMPL calculations based on Eurostat (EU Labour Force Survey).

<sup>260</sup> The decline was particularly sharp in Poland and Spain, by more than 8 pp from the peak values in the past. Conversely, this share increased by 7 pp in the Netherlands.

<sup>261</sup> In the Netherlands 43 % of workers are employed on a part-time basis, against 30 % in Austria and Germany, and less than 5 % in Bulgaria, Croatia, Hungary, Romania and Slovakia. The share of part-time workers varies largely by gender and age and is highly correlated with the level of pay.

**Figure 92: Yearly earnings relative to those of full-time employees on open-ended contracts, 2021, EU-27 Member States**

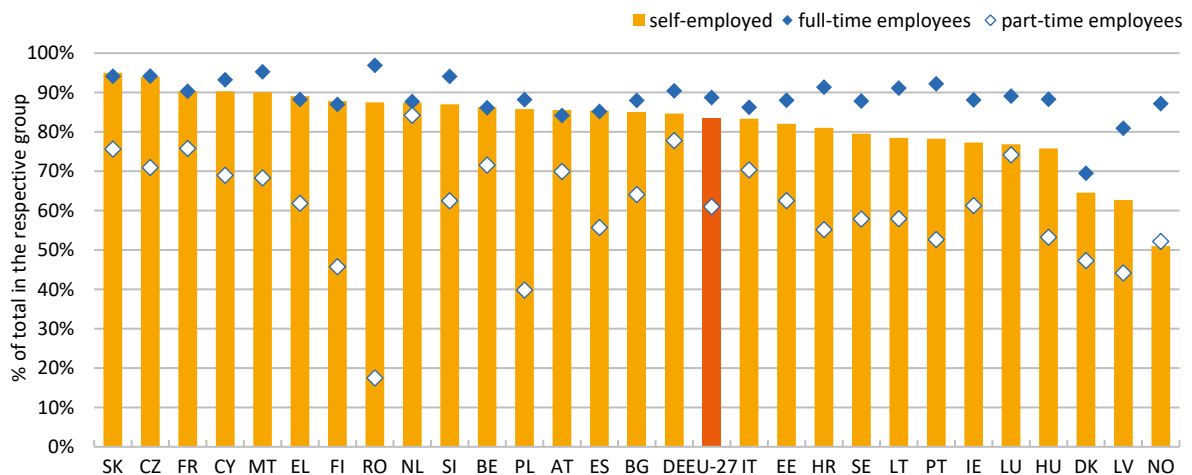


Notes: Average yearly gross earnings of those whose employment status remained unchanged for 12 months in 2021. Top and bottom 1 % of earnings skipped for the calculation. Only observations with positive income are included. Data for NO and SK are unavailable.

Source: OECD calculations based on EU-SILC.

**Figure 93 shows that the status of self-employment is relatively stable, albeit less so than full-time (dependent) employment.** On average across the EU-27 and Norway, between 2016 and 2020 83 % of the self-employed were still self-employed one year later. Part-time (dependent) employment was substantially less stable, with only 61 % of part-time workers remaining in the same status after one year on average in the EU.

**Figure 93: Probability of remaining self-employed, full-time employees or part-time employees after one year, 2016-2020, EU-27 Member States and Norway**



Notes: Based on monthly self-declared labour market status. For DE, NO and PT data for 2014-2018 were used, due to availability.

Source: OECD calculations based on EU-SILC.

To be entitled to pension benefits, the self-employed are required to participate, mandatorily or voluntarily, in earnings-related pension schemes in most EU Member States<sup>262</sup>. However, they contribute and are covered in a similar way to employees only in 10 countries (Table 14, first column). The self-employed are also covered by basic pensions in all countries where such pensions exist, including contribution-based basic pensions.

**However, pension rules differ in many ways between employees and the self-employed.** In 13 EU Member States and Norway (second to fourth columns), the self-employed are mandatorily covered by earnings-related schemes but may be allowed to contribute: (a) less than employees through reduced contribution rates (second column); (b) only flat-rate minimum contributions through a high degree of discretion in setting their income base (third column); or (c) not at all if earnings are less than some income threshold (fourth column). In Denmark, Germany, Ireland and the Netherlands, the self-employed are, unlike employees, not required to join earnings-related schemes<sup>263</sup>. Moreover, similar to dependent workers, most countries grant the self-employed access to private pensions with tax advantages.

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<sup>262</sup> See European Commission (2022c).

<sup>263</sup> In Germany, only certain categories of self-employed people are subject to mandatory pension. Regarding the voluntary scheme, the take-up rate as estimated in 2019 was very low (around 8 %): see European Commission (2022c), Table 1.6. In this context, Germany is preparing a draft law expanding the pension coverage of the self-employed. In the 2021 coalition agreement, the governing parties agreed to introduce mandatory old-age pension insurance for all new self-employed people. These would be insured in the statutory pension system unless they choose an ‘equivalent’ private pension product.

**Table 14: Pension contributions required for the self-employed in 2023, EU-27 Member States and Norway**

Mandatory or quasi-mandatory contributions to earnings-related schemes				Mandatory contributions to basic pensions only	No mandatory pension contributions
Employee-like	Reduced contribution rate	Flat-rate or low contributions	Regular contributions mandatory only above income threshold		
Bulgaria	Austria***	Croatia	Austria	Ireland*	Denmark
Cyprus	Belgium****	Greece	Finland	Netherlands	Germany**** ***
Czechia	France	Poland	Romania		
Estonia	Italy	Romania	Slovakia		
Hungary	Latvia				
Lithuania**	Norway				
Luxembourg** ***	Sweden				
Malta					
Portugal					
Slovenia**					
Spain*****					

Notes: 'Employee-like' means that self-employed people are covered by schemes that are the same as (or equivalent to) those for employees, with the same contribution rates and thresholds, and that their contributions are income-based. (\*) In IE neither self-employed people nor dependent workers are covered by mandatory or quasi-mandatory earnings-related schemes, but basic pensions are financed with contributions. (\*\*) In LT and SI, some self-employed workers operating under specific legal forms pay only flat-rate contributions. (\*\*\*) In AT the total contribution rate is the same for employees and the self-employed but a part of the contribution rates of the self-employed is paid from the state budget. (\*\*\*\*) In BE the self-employed pay lower contributions than employees but there is no effect on pension accruals. (\*\*\*\*\* In LU, for self-employed people with an income below one third of the social minimum wage, coverage is voluntary. (\*\*\*\*\* In DE, only certain categories of self-employed people are subject to mandatory pensions. (\*\*\*\*\* In ES since January 2023 the self-employed are to contribute according to their net income.

Source: Information provided by countries and OECD (2019).

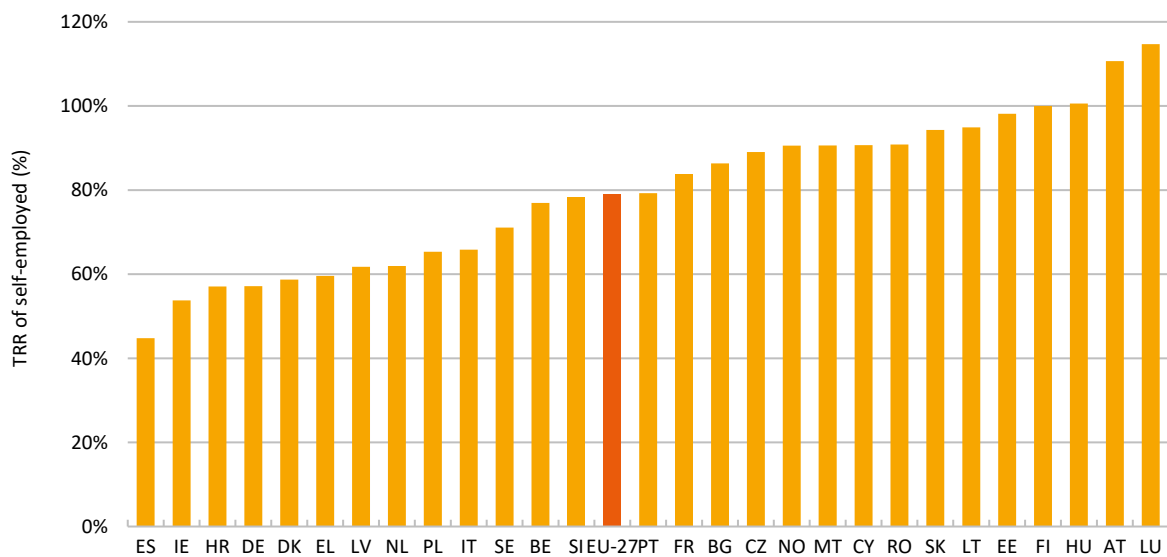
Combining different rules and different average earnings during working lives results on average in self-employed people receiving pensions one third lower than those for full-time employees (Figure 94). The calculation of the TRR shows that theoretical pensions for the self-employed are lower than for employees with similar earnings. The self-employed with a taxable income (i.e. net of social security contributions) equal to the net average wage before taxes (gross wage net of employee contributions)<sup>264</sup> can expect to receive – after a full career – an

<sup>264</sup> The 'equal taxable income' assumption makes it possible to isolate the sole effect of different pension rules. However, it does not include the earnings differences between self-employed and full-time employee earnings, as the self-employed have on average 82 % of full-time employees' yearly earnings. Moreover, estimates are based on those contributing only the amount that is mandatory to pensions – which means that it does not compare, for many countries, the pensions of self-employed people who contribute to the same level as employees. In some countries, having the same taxable income as employees does not necessarily imply that the same contributory income is taken into account for pension contributions and pension calculations for the self-employed (e.g. the self-employed might have to pay both employer and employee contributions and will hence have a higher contributory income).

old-age pension equal to 79 % of the theoretical gross pension of an average-wage employee in the EU on average<sup>265</sup>. In Denmark, Germany, Ireland and the Netherlands the theoretical pension of the self-employed is about 60 % of that of employees. This is because the self-employed are covered to a limited extent by mandatory earnings-related pension schemes (albeit in DE mandatory insurance upon application and voluntary insurance in the statutory pension scheme is possible); thus their old-age pension is assumed to be limited to basic pensions or old-age safety nets.

**Flat-rate or lower contribution rates often result in low theoretical pensions for the self-employed.** TRRs are at around 60 % of employee pensions in Croatia, Greece and Poland. In these countries only flat-rate contributions to earnings-related schemes are mandatory for the self-employed. In Latvia, the contribution rate for incomes above the minimum wage is reduced to 10 % for self-employed people, compared with 20 % for employees. The fact that in Belgium, Norway and Sweden pensions are lower than for employees, at 77 %, 91 % and 71 % respectively, is the mere result of the fact that the OECD pension models used for these calculations do not take into account occupational pension schemes (the self-employed are thus assumed not to be covered by such schemes).

**Figure 94: Theoretical future pensions of a self-employed person relative to an employee, 40-year career, contributing only the mandatory amount to pensions and retiring at normal retirement age, EU-27 Member States and Norway**



*Notes: In BE, DE and IE, it is assumed that only employees are covered by occupational pensions. TRRs refer to the year 2026 (see also Chapter 3 of this report).*

*Source: Information provided by countries and OECD pension models.*

Even for the same coverage and nominal contribution rate, the theoretical pensions of the self-employed are lower when the contribution base is set too low. This can result, for example, from basing the contributions on the income of the self-employed net of social security

<sup>265</sup> First-tier benefits are taken into account in these projections, but neither the voluntary schemes nor those that are mandatory for only some specific groups of the self-employed (e.g. liberal professions or farmers) are.



contributions (instead of gross wages for dependent employees) or on a low percentage of the gross income.

**Simplified pension or tax regimes for the self-employed with micro-enterprises may also lead to lower pensions.** Simplified rules may mean that only flat-rate contributions are required, or that the contribution base is equal to the turnover (total sales) minus a flat-rate deduction to cover costs (which means there is no need to document the actual costs of economic activity).

A few countries introduced specific regulations to limit pension coverage gaps for self-employed people who are economically dependent on one or a few major clients. In Germany, the self-employed who work predominantly for one client and do not have employees have been mandatorily covered by earnings-related pensions since 1999. In Italy and Portugal, the contributions of independent contractors relying on single contracts are topped up by their clients. In Portugal, if a self-employed person depends on one single client the latter must also pay social security contributions for them. The contribution rate varies depending on the degree to which the worker relies on the client.

In Estonia, Finland, Hungary and Lithuania the theoretical pensions are the same or almost the same for the self-employed and employees. In these countries, the contribution base for the self-employed is harmonised with the wages of employees. In Finland in particular, the self-employed are expected to declare an income equal to the theoretical wage they would get in doing a similar job, taking into account the work input, professional skills, and other information describing the value of the person's work<sup>266</sup>.

As concerns part-time workers, lower pension entitlements are mainly the result of lower total earnings and pension entitlements resulting from reduced working hours. In most countries, earnings-related pensions depend solely on total earnings without specifically accounting for whether earnings come from part-time or full-time work. Also, contribution-based basic and minimum pensions are based on total earnings and are not affected by the number of hours worked in most countries. This also means that workers with more than one job generally pay pension contributions based on total income from all jobs and receive benefits accordingly.

**Pension levels depend on hours worked for the same total earnings only in Croatia, Greece and Slovenia.** In Croatia, the contribution-based basic pension is pro-rated for the working time; thus, for instance, the pension of someone working 60 % of full-time hours at the average hourly wage is 2 % lower than that of someone working full time and earning 60 % of the average wage<sup>267</sup>.

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<sup>266</sup> See ESPN Flash Report for Finland: <https://ec.europa.eu/social/BlobServlet?docId=25946&langId=en>.

<sup>267</sup> Slovenia combines two features that result in the pensions of part-time workers being higher than for full-time workers with the same total earnings. The contribution period is pro-rated for working time while accrual rates are higher for the first 15 years than for following years of work. As a result, 40 years of working three days a week gives 24 years of contributions, including 15 years with the higher accrual rate and nine years with the lower accrual rate, while someone working full time at 60 % of the average wage gets 15 years with the higher accrual rate and 25 years with the lower rate. This would result in the pension of a part-time worker being 9 % higher than that of a full-time worker with the same total earnings. However, the minimum pension is also pro-rated with working time, and thus it increases the pension only for the full-time worker in that

In Estonia, Hungary, Lithuania and Romania, special rules for part-time workers apply only when monthly earnings are lower than the minimum wage. In these countries, every insured person must pay pension contributions on at least the monthly minimum wage to validate a month for pension calculation purposes. In Romania, for instance, the monthly contribution base cannot be lower than the monthly minimum wage even if wages are, with the result that part-time workers with low wages bear a higher effective contribution rate.

Finally, working very few hours may limit access to pensions, as minimum earnings or minimum working time requirements exist in one third of EU Member States (Table 15). In Denmark and Germany, a minimum number of working hours is needed to be eligible for at least one component of pensions. Six countries set a minimum earnings level to acquire entitlements to mandatory pensions, ranging from less than 5 % of average earnings in Finland and Ireland to 8 % in Czechia and between 10 % and 15 % in Austria, France and Hungary (OECD, 2019). In Germany, there is no minimum earnings requirement but workers with a monthly income of EUR 520 or less ('mini-jobs') may opt out of statutory pension insurance, in which case only the employer pays contributions and pension entitlements are proportionally lower.

**Table 15: Minimum earnings and working-time requirements for pension entitlement, EU-27 Member States and Norway**

Minimum level of earnings	Minimum number of hours worked	No requirement
AT, CZ, FR, FI**, HU, IE	DK (9 hours/week), DE (up to 3 months or 70days/year),	BE*, BG, HR, CY, EE, EL, IT, LV, LT, LU, MT, NL, NO, PL, PT, RO, SK, SI, ES, SE

*Notes: (\*) In BE, working less than one third and two thirds, respectively, of the full-time annual equivalent results in the year not being taken into account for eligibility to early retirement and minimum pension. In SK the minimum level of earnings applies only to validate eligibility to minimum pensions but not to old-age pensions. (\*\*) In FI, there is a very low minimum threshold of earnings to be covered by pensions, at 1.6 % of average wage, which is set for practical reasons (i.e. not to place a large administrative burden on tiny tasks such as walking the neighbour's dog).*

*Source: Information provided by countries and OECD (2019).*

A total of 19 countries do not require either a minimum level of earnings or a minimum number of hours; in these countries all part-time workers are thus covered by pension schemes. As a result, they can benefit from full minimum pensions and contribution-based basic pensions despite having effectively worked less. Moreover, for the same hourly wages, part-time workers can expect higher replacement rates than those working full time thanks to the redistributive elements of pension systems. The redistribution at play is indeed similar to that for low-wage full-time workers.

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case, resulting in the pension of a part-time worker being finally 'only' 2 % higher. In addition, in Slovenia, pension credits compensate for part-time work in the case of those caring for children or for older family members.

## 5 ANNEXES

### 5.1 Annex 1: List of definitions

**Defined-benefit (DB) schemes** – pension schemes where the benefits accrued are linked to earnings and the employment career (the future pension benefit is pre-defined and promised to the member). It is normally the state (in public DB schemes) or scheme sponsor (in occupational DB schemes) that bears the investment risk and often also the longevity risk.

**Defined-contribution (DC) schemes** – pension schemes where the level of contributions, and not the final benefit, is pre-defined: no final pension promise is made. DC schemes can be public, occupational or personal: contributions can be made by the individual, the employer and/or the state, depending on scheme rules. The pension level will depend on the performance of the chosen investment strategy and the level of contributions. The individual member therefore bears the investment risk. PAYG-financed DC schemes are known as notional defined contribution (NDC) schemes.

**Funded scheme** – a pension scheme whose benefit promises are backed by a fund of assets set aside and invested for the purpose of meeting the scheme's liability for benefit payments as they arise. Funded schemes can be either statutory, occupational or personal.

**Pensionable age** – legislated age at which a member of the pension scheme is eligible to receive full pension benefits, subject to meeting qualifying conditions.

**Occupational pension schemes** – a pension plan where access is linked to an employment or professional relationship between the plan member and the entity that sets up the plan (the plan sponsor). Occupational pension schemes may be established by employers or groups of employers (e.g. industry associations) or labour or professional associations, jointly or separately, or by self-employed people.

**Pay-as-you-go (PAYG) schemes** – pension schemes where current contributions finance current pension expenditure.

**Pension pillar** – different types of pension schemes are usually grouped into two, three, four or more pillars of the pension system. There is however no universally agreed classification. The PAR distinguishes between statutory, statutory funded, occupational and personal pensions.

**Personal pension schemes** – supplementary pension schemes, access to which does not depend on an employment relationship. The schemes are set up and administered directly by a pension fund or a financial institution acting as pension-provider without the involvement of employers. Individuals independently purchase and select material aspects of the arrangements. The employer may nonetheless make contributions to personal pension schemes. Some schemes may have restricted membership.

**Statutory pension scheme** – social security and similar programmes administered by the general government (that is, central, state, and local governments, plus other public sector bodies such as social security institutions), access to which is based on legislation. Public pension plans can be financed from social security contributions or general taxation and have

traditionally been of the PAYG type, but can also be funded (see also: Statutory funded pension schemes).

**Statutory funded pension schemes** – funded pension schemes, access to which is based on legislation. In statutory funded schemes, part of participants' social security contributions are converted into funded assets, typically administered by authorised private managers. Participation in these schemes can be mandatory or voluntary.

**Supplementary pension schemes** – occupational and personal pension schemes, generally providing additional retirement income to the statutory pension schemes.

## 5.2 Annex 2: Indicators glossary

**Aggregate replacement ratio (ARR).** The aggregate replacement ratio is the ratio of the median individual gross pension of people aged 65-74 to the median individual gross earnings of people aged 50-59. By measuring the level of older people's pensions relative to the income from work of people in the decade before retirement, the aggregate replacement ratio reflects the overall adequacy of pensions in the transition from work to retirement. It should be noted that the ratio is not calculated at household level, but based on individual gross incomes. However, several other factors, such as household composition and size, and the taxes or social contributions paid on gross pensions, can have a strong influence on disposable incomes and the actual living standards of individuals. It should also be taken into account that the ratio compares the income situation of two different cohorts (before and after retirement in the same survey year) (source: Eurostat, EU-SILC, [ilc\\_pnp3](#)).

**At-risk-of-poverty (AROP) rate (for age groups 65+ and 75+).** The at-risk-of-poverty rate indicates the proportion of people who live in a household with an equivalised disposable income below an at-risk-of-poverty threshold, which is set at 60 % of the national median equivalised disposable income (after social transfers) (source: Eurostat, EU-SILC, [ilc\\_li02](#)).

**At-risk-of-poverty or social exclusion (AROPE) rate (for age groups 65+ and 75+).** The at-risk-of-poverty or social exclusion rate is the main indicator for monitoring the 2030 EU headline target on poverty and social exclusion. It combines measures of: (a) relative income; (b) severe material and social deprivation; and (c) work intensity in the household. However, the last of these measures applies only to the working-age population and is not calculated for older people. As a result, AROPE rates for the older population and working-age population are not directly comparable. To compare those age groups, a separate look at the at-risk-of-poverty indicator and the severe material and social deprivation indicator is more appropriate. There is no double-counting of people having low income and severe deprivation. The indicator reflects all the older people who are income-poor, plus those who are materially deprived but not income-poor (source: Eurostat, EU-SILC, [ilc\\_peps01](#)).

**Equivalised disposable income** equals the total income of a household, corrected for the number and age category of its members (see: [https://ec.europa.eu/eurostat/statistics-explained/index.php/Glossary:Equivalised\\_disposable\\_income](https://ec.europa.eu/eurostat/statistics-explained/index.php/Glossary:Equivalised_disposable_income)).

**Excess mortality indicator.** The excess mortality indicator measures the number of deaths from all causes during a defined period, compared with those observed in a baseline period (source: Eurostat, [demo\\_mexrt](#)).

**Gender gap in pension coverage rate (65-79), or the gap in the gender coverage rate in pensions (GCRP).** The gender gap in pension coverage rate measures the extent to which women have less access to the pension system than men. It is the difference between the proportion of women aged 65-79 who do not receive a pension and the analogous proportion among men, measured in pps (source: Eurostat, EU-SILC, [ilc\\_pnp14](#)).

**Gender gap in pension income (65-79), or gender pension gap (GPG).** The gender gap in pension income shows how far women's pensions lag behind men's in the central age group. It is the relative difference (in percentage terms) between women's average pension income and men's average pension income. Pension income includes old-age benefits, survivors' benefits, and regular pensions from individual private plans. Note that in 2020 Eurostat changed the way it computed the EU average, resulting in a break in the EU series (source: Eurostat, EU-SILC, [ilc\\_pnp13](#)).

**Gini coefficient.** The Gini coefficient is a measure of the way in which different groups of households receive differing shares of total household income. The lower its value, the more equally household income is distributed. Complete equality would result in a Gini coefficient of 0, and complete inequality in a Gini coefficient of 1.

**Healthy life years at age 65, or healthy life expectancy (HLE),** is a composite indicator that measures the number of remaining years that a person aged 65 is expected to live in a healthy condition. It is calculated separately for women and men by combining mortality data from Eurostat's demographic database with data on self-perceived activity limitations from the EU-SILC. A healthy condition is defined as the absence of longstanding severe or moderate limitations in usual activities because of a health problem. Longstanding limitations are those that last for more than six months (source: Eurostat, [tespm120](#) and [tespm130](#)).

**Income quintile share ratio (S80/S20) of older people (65+).** The income quintile share ratio is the ratio of total income received by the 20 % of the population with the highest income (top quintile) to that received by the 20 % of the population with the lowest income (lowest quintile). Income must be understood as equivalised disposable income (source: Eurostat, EU-SILC, [ilc\\_di11](#)).

**Life expectancy at age 65 (LE65)** is the average number of additional years of life that a survivor to age 65 will live beyond the age of 65, on the basis of current mortality rates (source: Eurostat, [demo\\_mlexpec](#)).

**Material and social deprivation (MSD) rate (65+).** The material and social deprivation rate is the proportion of people who cannot afford at least five items from a list of 13 deprivation items (source: Eurostat, EU-SILC, [ilc\\_mdspd07](#)). (It is similar to the severe material and social deprivation rate – see below, including for a full definition of deprivation items.)

**Pension progressivity index.** Developed by the OECD, this index quantifies the redistributive capacity of a pension system. According to the index, a pension system consisting of only a

universal basic scheme scores 100 %, while a system where individual pension entitlements are fully proportional to lifetime earnings scores 0 %.

**Pension-wealth ratio.** The pension-wealth ratio compares the total discounted pension entitlements – all pensions paid throughout the retirement period – for different groups of people (e.g. short-career workers relative to full-career workers, and low-earners relative to average-earners) (source: OECD pension models).

**Relative median at-risk-of-poverty gap (65+).** The relative median at-risk-of-poverty gap shows the intensity of poverty: in other words, how poor people in poverty are. It is calculated as the difference between the median equivalised disposable income of people below the at-risk-of-poverty threshold for people aged 65+ and the at-risk-of-poverty threshold for the total population, expressed as a percentage of the latter (set at 60 % of national median equivalised income) (source: Eurostat, EU-SILC, [ilc\\_li11](#)).

**Relative median income ratio (65+/18-64).** The relative median income ratio is the ratio of the median equivalised disposable income of people aged 65+ to that of people aged 18-64. It includes all sources of income, and not just pensions, the indicator measures the overall income situation of older people relative to the income of the younger age group – those aged 18 to 64 (source: Eurostat, EU-SILC, [ilc\\_di03](#)).

**Retirement duration from end employment** is computed as life expectancy at the average age of leaving the labour market (‘exit age’) for people who were at work at age 50. This exit age is calculated as part of the Ageing Report assumptions<sup>268</sup>.

**Retirement duration from first pension** (or average duration of pension receipt). This is computed as life expectancy at the average age at which people start receiving an old-age pension. The latter is collected directly from Member States via a questionnaire as part of the preparation of the Ageing Report<sup>269</sup>.

**Self-reported unmet need for medical examination**<sup>270</sup> (65+) concerns a person’s own assessment of whether they needed examination or treatment for a specific type of healthcare during the previous 12 months, but did not have it or did not seek it because of one of the following three reasons: ‘too expensive’, ‘waiting list’ or ‘too far to travel’. Medical care refers to individual healthcare services (medical examination or treatment excluding dental care) provided by or under the direct supervision of medical doctors or equivalent professions according to national healthcare systems (source: Eurostat, EU-SILC, [hlth\\_silc\\_08](#)).

**Severe material and social deprivation (SMSD) rate (for age groups 65+ and 75+).** The severe material and social deprivation rate is an indicator that distinguishes between individuals according to whether they can afford certain goods, services or social activities. It is defined as the proportion of the population experiencing an enforced lack of at least 7 out of 13 deprivation items (7 related to the household, and 6 related to the individual). The list of items at household level is: 1) Capacity to face unexpected expenses; 2) Capacity to afford paying for one week

<sup>268</sup> [2024 Ageing Report. Underlying Assumptions and Projection Methodologies - European Commission \(europa.eu\)](#).

<sup>269</sup> [2024 Ageing Report. Underlying Assumptions and Projection Methodologies - European Commission \(europa.eu\)](#).

<sup>270</sup> [https://ec.europa.eu/eurostat/cache/metadata/en/hlth\\_silc\\_01\\_esms.htm](https://ec.europa.eu/eurostat/cache/metadata/en/hlth_silc_01_esms.htm)



annual holiday away from home; 3) Capacity to being confronted with payment arrears (on mortgage or rental payments, utility bills, hire purchase instalments or other loan payments); 4) Capacity to afford a meal with meat, chicken, fish or vegetarian equivalent every second day; 5) Ability to keep home adequately warm; 6) Have access to a car/van for personal use; 7) Replacing worn-out furniture. List of items at individual level: 1) Having internet connection; 2) Replacing worn-out clothes by some new ones; 3) Having two pairs of properly fitting shoes (including a pair of all-weather shoes); 4) Spending a small amount of money each week on themselves; 5) Having regular leisure activities; 6) Getting together with friends/family for a drink/meal at least once a month (source: Eurostat, EU-SILC, [ilc mdsd11](#)).

**Survivor ratio.** The survivor ratio measures how the benefits of a surviving widow compare with the couple's combined benefits, and whether the widow receives any derived benefit on top of her own entitlement. A value of '1.00' on the scale represents the couple's pension income had the man not died (i.e. it corresponds to 100 % of prior income).

**Theoretical replacement rates (TRRs)** measure how a hypothetical retiree's pension income in the first year after retirement would compare (in percentage terms) with their earnings immediately before retirement. They are calculated for a number of hypothetical cases, with assumptions on a given career length, earnings level and age of retirement.

### 5.3 Annex 3: Abbreviations

*All indicators marked with an asterisk (\*) are defined and explained in the indicators' glossary above.*

AROP*	at risk of poverty
AROPE*	at risk of poverty or social exclusion
ARR*	aggregate replacement ratio
AWG	Ageing Working Group (of the EPC)
DB	defined benefits
DC	defined contributions
EPC	Economic Policy Committee
EPSR	European Pillar of Social Rights
ESPAN	European Social Policy Analytical Network
EU	European Union
EUR	euro
EUROMOD	tax-benefit micro-simulation model for the European Union
EU-SILC	European Union statistics on income and living conditions
GDP	gross domestic product
HLE*	health life expectancy
LE65*	life expectancy at age 65



LTC	long-term care
MISSOC	mutual information system on social protection
MSD*	material and social deprivation
NDC	notional defined contributions
OECD	Organisation for Economic Co-operation and Development
pp	percentage point(s)
PAR	Pension Adequacy Report
PAYG	pay-as-you-go pension scheme
SMSD*	severe material and social deprivation
SPA	standard pensionable age
SPC	Social Protection Committee
TRR*	theoretical replacement rate

### Member States and Norway

BE	Belgium	LT	Lithuania
BG	Bulgaria	LU	Luxemburg
CZ	Czechia	HU	Hungary
DK	Denmark	MT	Malta
DE	Germany	NL	The Netherlands
EE	Estonia	AT	Austria
IE	Ireland	PL	Poland
EL	Greece	PT	Portugal
ES	Spain	RO	Romania
HR	Croatia	SI	Slovenia
FR	France	SK	Slovakia
IT	Italy	FI	Finland
CY	Cyprus	SE	Sweden
LV	Latvia	NO	Norway

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