Strengthening the Hungarian Pension System

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CONTENTS

Contents

Tables

Figures

Boxes

Foreword

Hungary's Recovery and Resilience Plan includes a reform roadmap to improve the medium- and long-term sustainability of the Hungarian pension system while increasing lower-income pensioners' entitlements (Government of Hungary, 2022[1]). The reform is expected to address the Recommendation of the Council of the European Union on the 2022 National Reform Programme of Hungary, recommending that Hungary "for the period beyond 2023, pursue a fiscal policy aimed at achieving prudent medium-term fiscal positions. Improve the long-term sustainability of the pension system while preserving adequacy in particular through addressing income inequalities" (European Commission, 2022[2]). To support the development of pension reform, at the request of the Hungarian Government, this report assesses the challenges and opportunities of the current pension system, identifies possible policy options and evaluates the feasibility and impact of a suitable reform. It covers the public pension pillar of the pension system and the employment and tax policies aimed at prolonging working lives.

Chapter 1 describes the system's main challenges and opportunities. **Chapter 2** describes a set of possible adjustments to pension parameters to address the system's challenges and improve fiscal sustainability while preserving the system's adequacy. **Chapter 3** discusses a few complementary measures to simplify the system and reward late retirement.

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Executive summary

The Hungarian pay-as-you-go public pension system performs well in maintaining the standard of living after retirement. The average disposable income of individuals older than 65 is on par with the rest of the population, relative old-age poverty is low, and according to the current rules in the pension system, new entrants to the labour market could expect high pension benefits. The future net replacement rate for full-career workers, defined as the net pension entitlement divided by net pre-retirement earnings, is estimated to be 22 percentage points higher than the OECD average and 16 percentage points higher than the OECD/EU countries.

Like in other EU countries, population ageing challenges the pension system as fewer working-age individuals must finance higher pension-related spending. Past reforms that raised the statutory retirement age, cancelled the early retirement options, and tightened the conditions of disability retirement increased the effective retirement age and prolonged careers, especially for men. These reforms have partially offset some of the adverse fiscal effects of population ageing. Nonetheless, other policy measures deepened the fiscal challenge. Since 2011, women who accumulate 40 years of rights have been allowed to retire with full benefits before reaching the statutory retirement age, and more than half of female retirees take advantage of this scheme and retire at relatively young ages. In 2022, half of those who used the scheme retired before the age of 60. In addition, in 2021, a 13th month's pension benefit has been reintroduced, increasing all pension benefits, including those of high earners, by 8.33%.

Overall, spending on public pensions in Hungary is expected to rise by about 4.3% of GDP by 2070, while, at the same time, pension contributions are expected to remain constant as a share of GDP. Without further policy changes, it would contribute to a significant increase in public debt. A sensitivity analysis shows that even a substantial increase in the fertility rate to 2.1 could, by 2070, have a limited effect on pension expenditures. Adjusting the pension system parameters is, therefore, needed.

This report provides an evidence-based menu of actionable policy options that the authorities could consider for shifting the Hungarian public pension system towards a more sustainable fiscal path. The effects of the proposed policy options are presented in the summary table at the end of the Executive Summary (Table 1). The options are categorised into three main groups:

1. **Tightening eligibility conditions** to improve financial sustainability through later retirement, shortening the duration of benefit payments while raising contribution periods. This option could be implemented by:

   – adjusting the Women-40 scheme, either through the addition of a minimum age limitation or through raising the eligibility years gradually so that the scheme will be phased out in the long run; or

   – increasing the statutory retirement by eight months for every year of an increase in life expectancy at age 65. Simultaneously, an early retirement option could be introduced, leaving workers some leeway to decide whether to have a longer retirement period with lower pension benefits or a shorter retirement period with higher pensions.

2. Adjusting benefit levels to make them less generous. This option could be implemented by:

– linking benefits to the size of the contribution base – accounting for the impact of demographic changes affecting the workforce size;

– changing the uprating (valorisation) formula to rely on a mix of CPI and wage growth instead of wage growth only or lowering the accrual rates; or

– by adjusting the 13th month's pension benefit by adding an indexed ceiling.

3. Increasing the social security contribution rates or other taxes to finance the expected increase in spending.

The proposed options have different expected effects on total pension-related spending and adequacy. These effects will need to be considered carefully to design an effective policy option. While tightening the eligibility conditions would positively impact potential output and the replacement rates (for those retiring at the statutory retirement age), it would leave fewer years in retirement for pensioners, while time spent in retirement in Hungary is already relatively low, especially for men. Lowering the benefit levels would mainly decrease the expected replacement rates, although they are expected to remain above the OECD average. Adjusting the 13th month's pension benefit would affect the current pool of pensioners and not only future generations. Increasing the contribution rates risks discouraging employment and deteriorating the Hungarian economy's competitiveness while also having adverse effects on future replacement rates.

The implementation mechanism also differs and needs to be carefully considered as it would impact the acceptability of the policy option. Linking the retirement age to life expectancy, for example, is an automatic adjustment mechanism based on a relevant (still unknown) development in a crucial indicator. Relying on such a mechanism could help avoid the economic and social costs of changing the pension parameters in an ad hoc and abrupt manner when fiscal pressure becomes too tight. The report also considers two combined options, which could reduce spending by more and, at the same time, spread the risks involved in relying too much on an individual measure.

A few additional features of the Hungarian pension system require improvements to ensure an effective policy option. In contrast to most OECD countries, the pension entitlements in Hungary are calculated based on non-linear accrual rates that vary with the length of the contribution period and on net wages; the accrued earnings are adjusted annually by the previous year's national average wage increase so that large fluctuations due to, for example, the business cycle can occur; and a minimum pension de facto does not exist. Those features have less impact on the financial stability or adequacy of the system. Still, they make it difficult for individuals to fully assess the optimal time to retire, expose workers to unnecessary business cycle risks and make it hard for decision-makers to adjust the system's parameters when needed. Changing these features for the current pool of workers is complex and risks having unexpected and unintended consequences, so the review only considers changing them for cohorts entering the labour market in the future.

Providing a lump-sum grant alternative to Hungary's late-retirement bonus, prioritising training for older workers, disentangling the link between labour protection laws and the statutory retirement age and reinforcing the private pension system could complement the policy option. However, the attractiveness and effectiveness of some of these measures depend on the chosen policy option. Supporting private pension instruments, for example, would be more important in case of reducing pension benefits, so individuals could voluntarily maintain high replacement rates. Prioritising training for older workers would be more efficient in complementing changes in the eligibility conditions.

TABLE 1. **Summary table on the effect of proposed policy options**

Fiscal impact estimates in columns 4 and 5 are shown relative to the 'no policy change'-scenario[1]

Category	Scenario	Automatic adjustment mechanism	Net impact on total expenditures and contributions in 2070 (% of GDP)[2]	Net impact on total expenditures and contributions in 2045 (% of GDP)[2]	Net replacement rate of average worker (%) in 2070 (women, if different)[3]	Average expected time in retirement in 2070 (women)[4]
Tightening eligibility conditions	1) Linking the retirement age to gains in life expectancy (2/3:1) starting in 2025	Yes	+2.2	+1.2	98.2 (91.9)	18.5 (23.6)
	2) Linking the retirement age to gains in life expectancy (2/3:1) starting in 2035	Yes	+1.7	+0.5	96.1 (89.8)	19.5 (24.6)
	3) Adjusting the Women-40 scheme by introducing an age limitation (60)	No	+0.3	+0.3	89.8 (83.5)[5]	21.8 (27.4)[5]
	4) Gradually raising the career length limitation in the Women-40 scheme	No	+1.1	+0.9	89.8 (89.8)	21.8 (25.4)
Adjusting the benefit levels	5) Linking benefits to the size of the contribution base[6]	Yes	+0.7	+0.3	86.3 (80.5)	21.8 (27.4)
	6) Changing the uprating (valorisation) formula to rely on a mix of CPI and wage growth	No	+1.6	+0.8	80.8 (75.7)	21.8 (27.4)
	7) Adjusting the 13th month's pension benefit by adding an indexed ceiling	No	+0.3	+0.2	89.8 (83.5)	21.8 (27.4)
Increasing the contribution rate	8) Increasing the contribution rates for either employees or employers	No	+2.2	+1.2	89.8 (83.5)	21.8 (27.4)
Combined scenarios	9) Linking the retirement age to life expectancy in a 2/3:1 manner and the eligibility period for women of 40 years to gains in life expectancy of women 1:1	Yes	+2.6	+1.3	98.2 (96.0)	18.5 (22.6)
	10) Linking the benefits to the size of the contribution base; adjusting the early retirement option for women so that it will include an age limitation (60); and adjusting the 13th month's pension benefit by adding an indexed ceiling	Yes	+1.0	+0.6	86.3 (80.5)[5]	21.8 (27.4)[5]

Note: Calculations of fiscal impact have been conducted by the Hungarian State Treasury to be aligned with the assumptions used to inform the European Commission's Ageing Reports. Estimates on pension adequacy are based on OECD calculations.

1. In the 'no-policy-change'-scenario, the imbalance between contributions and spending is projected to amount to -0.8% in 2030, -3.3% in 2045 and -5.2% in 2070 (% GDP).
2. A positive number refers to a reduction in the fiscal imbalance, which is defined as the annual difference between pension contributions and spending (% GDP).
3. Following the Ageing Report assumptions, the income ceilings for wage degression are expected to follow wage growth.
4. Pension adequacy and career length estimates are shown for an average worker (male/female). The estimates in the brackets represent a weighted average of women working until the regular retirement age and women using the Women-40 scheme. For Policy Options 1, 2 and 9, the actuarially neutral early retirement option is considered.
5. The models used to estimate the pension adequacy impact and the average years spent in retirement project women to retire above age 60 in 2070 even without a reform.

Source: Hungarian State Treasury and OECD calculations.

The Hungarian working-age population is shrinking, and the number of people aged 65 or older is rising, increasing pressures on ageing-related spending and the public pension contribution base. The number of people aged 65 or older is projected to rise to around 2.6 million in 2070, which is 28% higher than in 2023.

1. Challenges and opportunities of the current pension system

This section reviews the parameters of the public earnings-related pension scheme and identifies the pension system's main challenges and opportunities. It starts by describing the adverse impact of population ageing on pension-related spending and total pension contributions. Then, it discusses the main features of the Hungarian pension system that contribute to the sustainability challenge, including low future normal retirement age, lax early retirement conditions for women, generous benefits and limited employment in older ages.

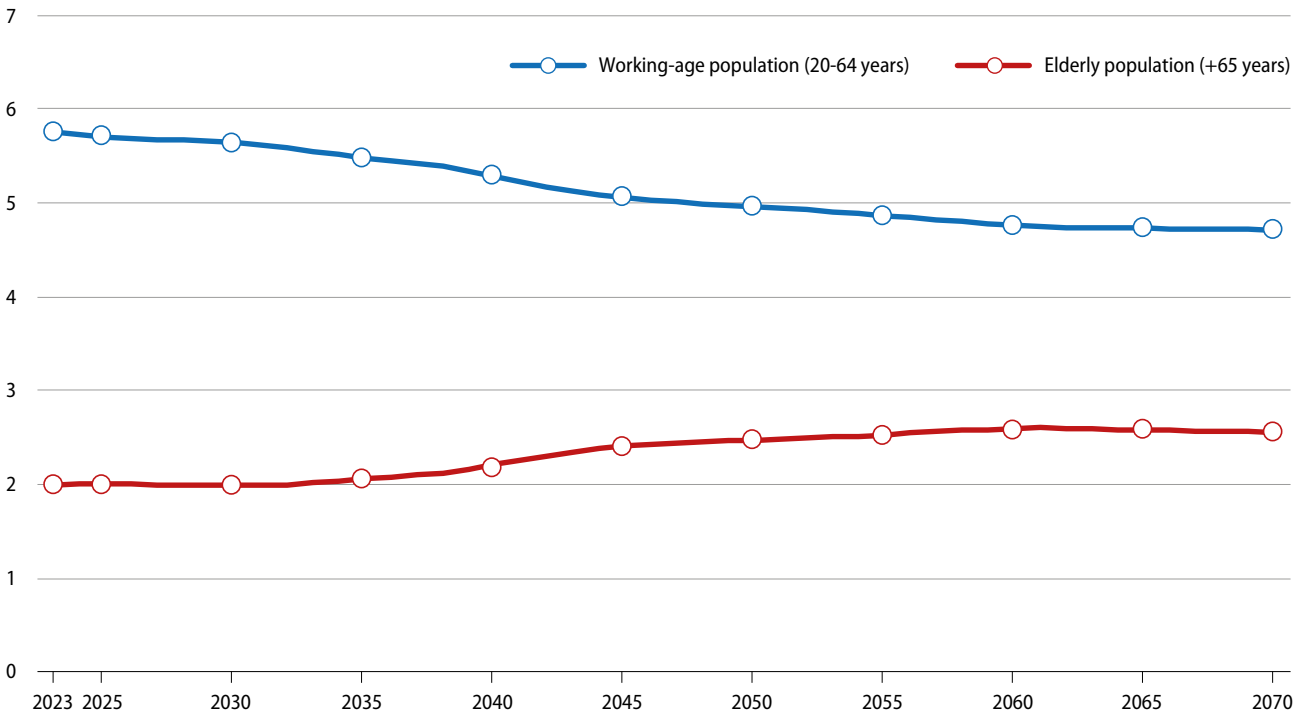
1.1. DEMOGRAPHIC HEADWINDS PUT THE SUSTAINABILITY OF THE PENSION SYSTEM AT RISK

The Hungarian population is ageing

The Hungarian working-age population is shrinking, and the number of people aged 65 or older is rising, increasing pressures on ageing-related spending and the public pension contribution base. The number of people aged 65 or older is projected to rise to around 2.6 million in 2070, which is 28% higher than in 2023. Over the same period, the working-age population (people aged 20-64) is projected to decrease by 18% to 4.7 million (Figure 1.1). As a result, the ratio of potential workers to one person aged 65 or older is declining considerably. While in 1995, there were 4.2 Hungarians aged 20-64 for each person aged above 65, the ratio is at 2.9 in 2023 (lower than the OECD average of 3.16) and expected to decline further to 1.8 by 2070 (European Commission, 2024[3], OECD, 2023).

Rapid population ageing is also occurring in other EU countries (Figure 1.2), driven by two megatrends: fewer children are born, and life expectancy increases. This is a significant challenge for pay-as-you-go pension schemes, such as Hungary's (Box 1.1), as fewer workers must finance growing pension spending.

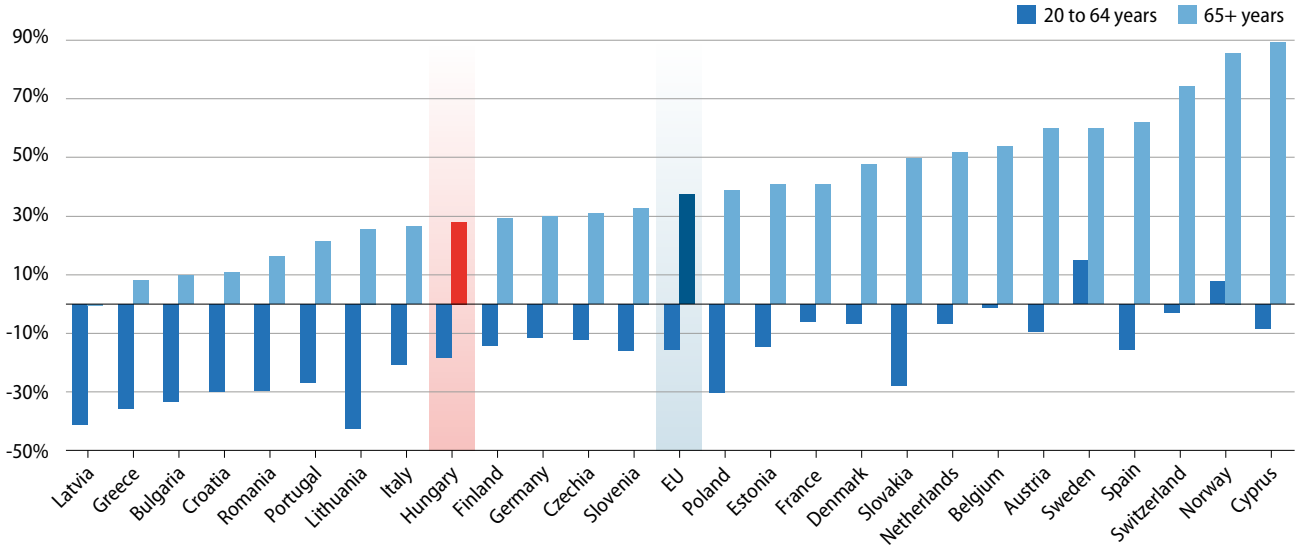
FIGURE 1.1. **The working-age population will decline, while the number of those above 65 will rise**
In million people



Source: European Commission 2024 Ageing Report, main demographic and macroeconomic assumptions based on EUROPOP2023 (Eurostat).

FIGURE 1.2. **The pace of population ageing is comparable to other EU countries**

The projected change in the working-age population (20 to 64 years) and in the old-age population (65+ years), selected EU countries, 2023 to 2070



Note: Outliers with extreme demographic changes are omitted. Those include Ireland, Malta, Luxembourg and Iceland.

Source: EUROPOP2023 (Eurostat).

BOX 1.1. THE HUNGARIAN PUBLIC PENSION SYSTEM

The Hungarian pension system consists mainly of a mandatory earnings-related public pension scheme, which is a defined benefit scheme financed on a pay-as-you-go basis. The system has limited redistributive features, including low minimum contributory and non-contributory benefits. Voluntary private pension provision plays a minor role.

Pension schemes for private-sector workers and civil servants are fully integrated as is the case in half of OECD countries. The majority of self-employed are also covered by the same pension scheme, although some self-employed can opt for paying low, flat-rate contributions (see below). There are very few special provisions for specific occupational groups, as exceptions only exist for miners and dancers.

Contributory pensions

Qualifying conditions

To qualify for an earnings-related old-age pension, individuals need to both reach the retirement age and obtain the required minimum service period. Since January 2022, the statutory retirement age is 65 years for both men and women. In addition, 15 years of service are required.

The early retirement scheme is only accessible to women, with the required number of years effectively worked (i.e. in paid employment) depending on the number of years of benefit receipt connected to raising children. Women, including childless women, can retire at any age if they have an eligibility period of at least 40 years ('Women-40'). The eligibility period includes any period for which pension contributions are made, including periods of paid work and periods in which benefits were received connected to raising a child. Up to three years of non-employment per child can be covered through benefits, although at least 32 years of employment are needed besides the periods of child raising for women with up to four children, or 30 years in the case of a severely disabled child.[1] There is no penalty for early retirement: the pensions for women retiring early are calculated following the same formula as for people retiring at the statutory retirement age.

Benefit calculation

The earnings-related public pension system is a mandatory defined benefit system in which the calculation of benefits is based on the number of service years and the average of wages earned since 1988 until retirement. The uprating of past wages to calculate average earnings is discussed below. Since 2013, if the insured's average earnings exceed HUF 372 000 (EUR 985), only 90% of earnings

1. In households with at least five children, the required number of years worked is further lowered by one year for each child from the fifth child onward with a maximum reduction of seven years, hence, in case of eleven or more children, 25 years of employment are required.

between HUF 372 000 (EUR 985) and HUF 421 000 (EUR 1 115) are considered and 80% of earnings exceeding HUF 421 000 (EUR 1 115).

The accrual rate for the earnings-related pension is calculated as 43% of average earnings for the first 15 years of service period. For each additional year of service period, the accrual rate increases by 2.0 percentage points from 16 to 25 years, 1.0 percentage point from 26 to 36 years; 1.5 percentage point from 37 to 40 years; and 2.0 percentage points thereafter.

Pensions are calculated in the following five steps:

1. **Net earnings are calculated for each year of contributions separately.** Gross earnings are reduced by employees' social security contributions and the personal income tax rate applying in the year of retirement (so tax benefits, e.g., for children, are not considered).
2. **Uprating (valorisation) of past net earnings for each year.** The net earnings are uprated by the growth of net average earnings up to one year before retirement.
3. **Average net earnings are calculated.** The average of the uprated net earnings for each year is calculated. Then, reductions are applied so that only 90% of the average net earnings exceeding HUF 372 000 (EUR 985) and 80% of the average net earnings exceeding HUF 421 000 (EUR 1 115) are retained.
4. **The total accrual rate is determined based on the length of the service period.** The law specifies the accrual rate for every length of service period, following the accrual rate for each year of service period specified above.
5. **The monthly pension is calculated.** The amount is determined by multiplying the total accrual rate (4) and average monthly net earnings (3). As pension income is neither taxed nor subject to social contributions, the resulting pension is the same in gross and net terms.

Career breaks

Periods during which childcare benefits are received are considered in the calculation of the accrual rate but not in the calculation of career-average earnings, unless doing so is more beneficial for the recipient, in which case the level of the benefit is considered in the calculation of career-average earnings. Also other periods during which social benefits subject to payment of contributions are received, including unemployment benefits, are only included in the average-wage calculation if this is more beneficial.

Indexation of pensions in payment

Since January 2012, pensions are indexed to the growth of the general consumer price index (CPI) or to a pensioner-specific CPI if higher. Pension benefits are increased according to the projected annual level of the index for the indexation year and the increase is set in the annual budgetary act. If the evolution of index exceeds the projected level, a correction takes place in November and is applied retroactively from January. Due to high inflation rates, there have been additional adjustments of pensions in 2021 and 2022.

Minimum contributory pension

There is a minimum pension of HUF 28 500 (EUR 75) per month. In case the earnings-related pension of a person with at least 20 years of service is below this amount, the pension is topped up to that level. This is a very rare case, as people retiring with 20 years of contributions at the minimum wage level would have a pension amounting to more than HUF 70 000 (EUR 185) in 2022. The minimum pension particularly provides a source of income to people who had sufficiently long careers under the communist system to qualify for a pension but faced difficulties in finding a job during or after the transition to a market economy. Since only wages from 1988 are considered, these people have very low reference earnings. There has been no nominal increase in the level of the minimum pension since 2008. As a result, the Hungarian minimum pension is the second lowest in the OECD as a percentage of gross average earnings.

Contributions

Employees pay 18.5% of their salary in social security contributions, of which 10 percentage points go to pensions and the rest to unemployment and health insurance. The employer pays 13% in social contributions (knowns as the 'social contribution tax' in Hungary) since 2022, 71.6% of which goes to pensions, increasing to 89.14% in 2024 – corresponding to an increase in employer contributions to the pension system from 9.3% to 11.6%. The rate of social contributions paid by the employer has been declining steadily since 2017, when it was first reduced from 27% to 22%, then to 19.5% in 2018, 17.5% in 2019 and 15.5% in 2020. There is no ceiling on earnings for the payment of social contributions. Pensions are fully financed from social contributions, although the state has the legal obligation to finance the deficit if expenditures of the Pension Insurance Fund are in excess of its revenues.

Self-employees

For most self-employees, pension contributions and entitlements are based on the so-called entrepreneurial withdrawals, which are net of social security contributions. Contribution rates are the same for employees and the self-employed: the self-employed pay both the 18.5% employee contribution and the 13% employer contributions. Self-employed must pay contributions at least at the level that is due on the minimum wage, although this does not apply to self-employed who combine self-employment and regular employment.

Self-employed following the so-called KATA tax rules (itemised taxation system) pay tax at a flat rate of HUF 50 000 (EUR 132) per month, which covers all tax and social security liabilities, including

...Box 1.1. continued

pension contributions. Self-employed can choose KATA if their annual revenue is not higher than HUF 18 million (EUR 47 520) and if – due to the change of legislation in 2022 – they only sell products or services to individuals. As the KATA rule determines a hypothetical contribution base of HUF 108 000 (EUR 286), which is lower than the statutory gross minimum wage (HUF 232 000 (EUR 613) in 2023), the value of a year worked is only equal to 0.47 service years. Hence, 40 years worked in KATA results in only 18 service years considered in the pension calculation. This reduction of the number of service years is applied in the calculation of the pension but not in the pension eligibility (minimum service years) conditions.

Working after becoming eligible for a pension

If a person with at least 20 years of service does not claim a pension upon reaching the statutory retirement age of 65, the pension is increased by 0.5% for each month during which contributions are paid and pension uptake is delayed. Alternatively, once becoming eligible to receive a pension, a person can claim a pension and continue working. In that case, both employer and employee are exempt from paying social contributions, and only the 15% personal income tax applies to gross earnings. In that case, no more pension is built up. There are no limits in terms of earnings or hours worked to combine work and pension for private-sector workers nor for some public-sector functions with a labour shortage.

Non-contributory benefits

Non-contributory targeted benefits are available for older people, but both benefit levels and take-up are very low. Only around 6500 people, or 0.3% of the population aged 65+ receive the targeted old-age benefit. Individuals who have reached the statutory retirement age for their cohort but with little or no income, for instance, because they did not attain the 15 years of contributions to receive a pension, may qualify for social assistance benefits for older people. For households with an income below the threshold for their household type, the benefit tops up household income to that threshold. There are three thresholds: the base threshold applies to singles aged up to 74, it is 135% of that threshold for singles aged 75+, and 170% for couples. In 2024, the three thresholds are HUF 40 870 (EUR 102) for singles aged up to 74, HUF 55 170 (EUR 138) for singles aged 75+, and HUF 69 510 (EUR 173) for couples.

Public pension spending is set to rise sharply

At present, public spending on pensions as a share of GDP in Hungary is below the EU average. However, it is expected to surge drastically in the following decades and exceed the EU average by 2070 (Figure 1.3, Panel A). The European Commission's Ageing Reports, published every three years, include projections of public pension expenditure as a percentage of GDP for each EU country. Based on the current legislation and assuming no offsetting measures are taken, the 2024 Ageing Report projects total pension expenditures in Hungary to increase by 4.3% of GDP by 2070. The current projections of pension expenditures (12% of GDP in 2070) are broadly similar to the 2021 results.

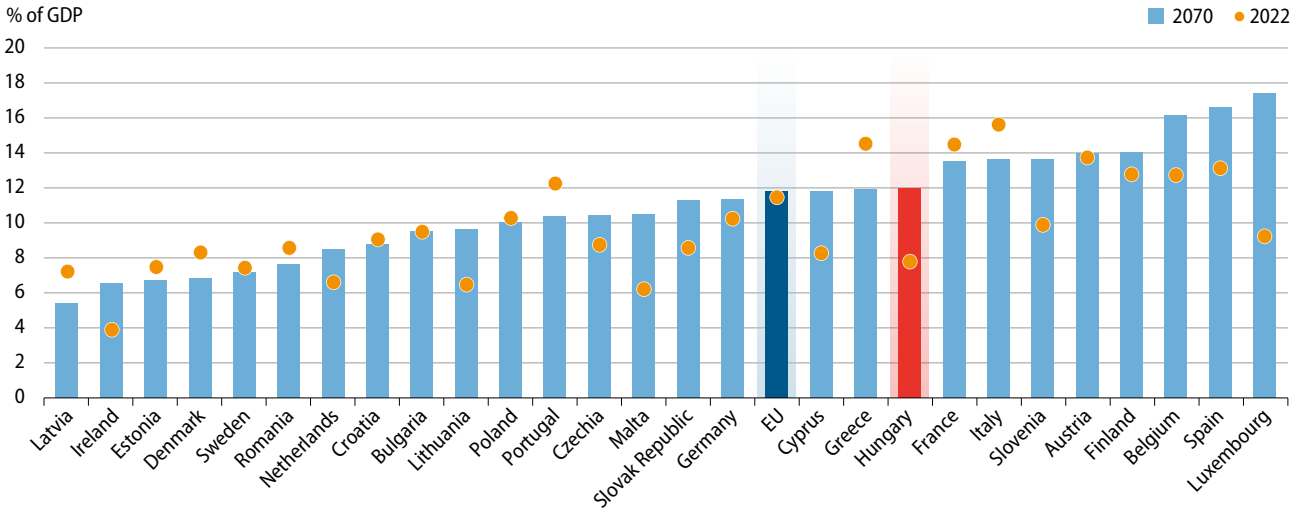
Compared to other EU countries, the projected increase in total spending in Hungary is high. During the same period, EU average pension expenditures are expected to rise considerably as a share of GDP by 2045 (+0.7% of GDP) but then fall slightly so, overall, expenditures would rise, on average, by only 0.4% of GDP by 2070 (Figure 1.3, Panel B). Only in Luxemburg and Malta is the increase in expenditures projected to be higher than in Hungary. While this used to be also the case for Slovakia, the recent re-introduction of the link between retirement age and life expectancy is projected to slow the increase.

The EU projections cover not only the earnings-related mandatory pension scheme but also disability benefits, old-age social allowances, all pension-like supplementary social allowances and temporary benefits below the retirement age. Until 2030, total expenditures are expected to remain stable as the increase in earnings-related pension expenditures will offset a decrease in survivors' pensions due to fewer permanent marriages (Table 1.1)[2]. In addition, a rapid increase in labour market participation until 2030 and past reforms that tightened access to early retirement and increased the normal retirement age will mitigate the effect of population ageing on pension spending on old age and early retirement benefits, mainly in the current decade (see below). After 2030, spending is projected to grow rapidly, in line with the rise in the ratio of people aged 65 or above to people aged 20-64 (Figure 1.4).

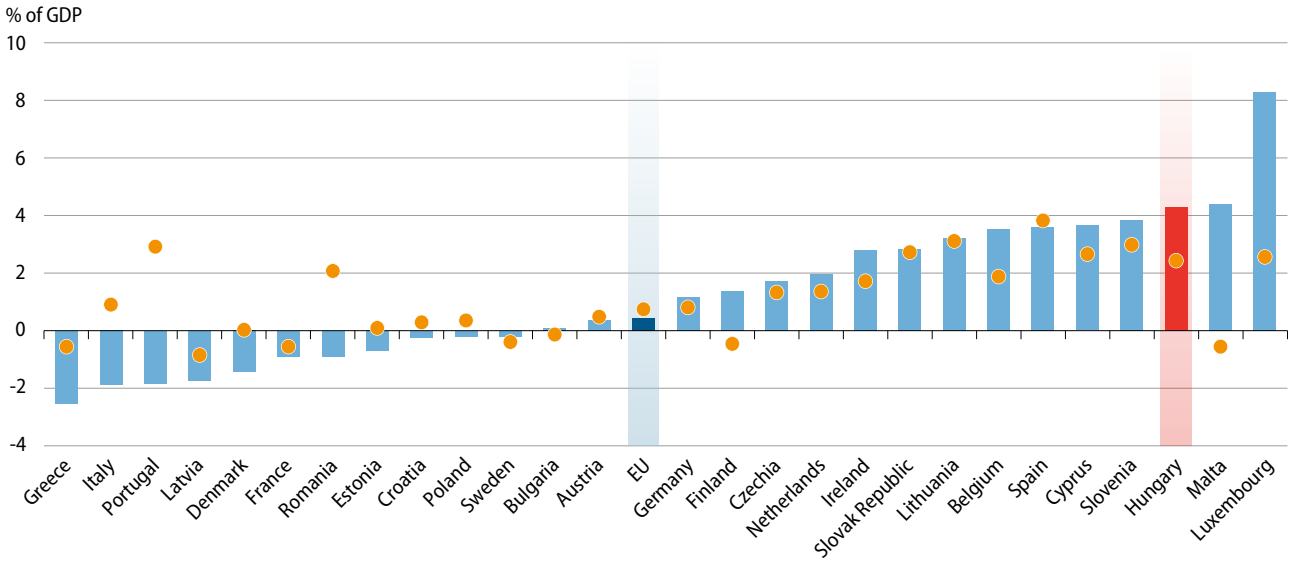
2. The share of individuals aged 40-44 who never married surged from 10.6% in 2001 to 37.3% in 2022.

FIGURE 1.3. **Pension expenditure will increase sharply without further reforms**

Panel A: Public pension expenditure as a percentage of GDP



Panel B: Change in public pension expenditure as a percentage of GDP, compared to 2022



Source: European Commission 2024 Ageing Report, Table II.1.64.

TABLE 1.1. **The increase in earning-related pension expenditures will accelerate after 2030**

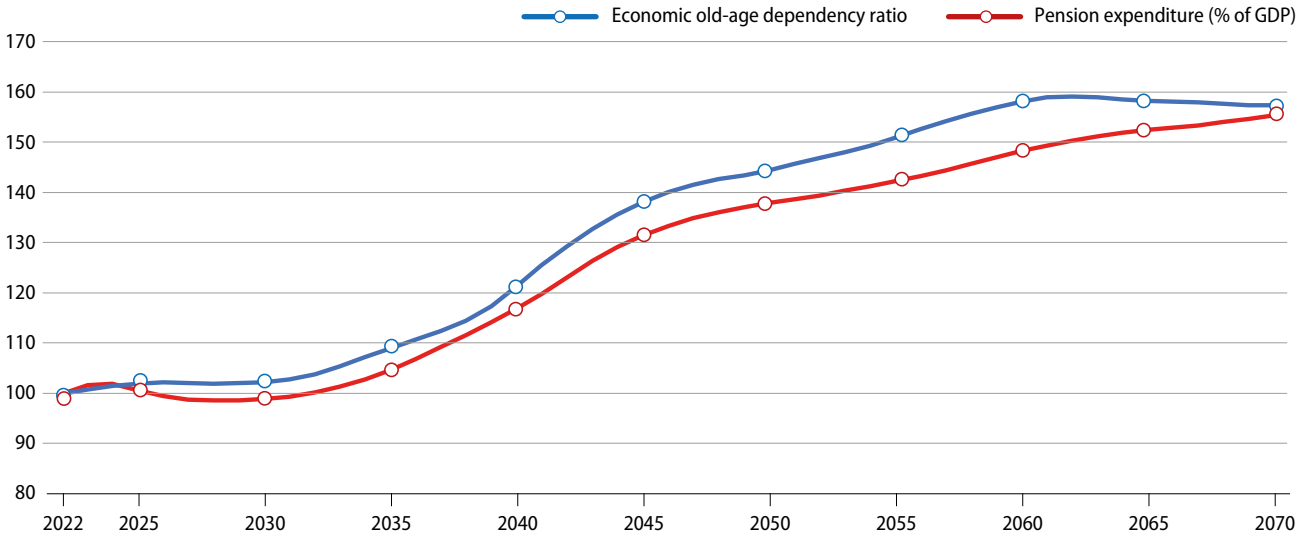
Projected gross public pension spending by scheme, % of GDP

	2022	2030	2040	2050	2060	2070	Change 2022-2070
Total public pensions	7.7	7.7	9.0	10.7	11.5	12.0	4.3
Old-age and early pensions	6.3	6.4	8.0	9.7	10.5	11.1	4.7
Disability pensions*	0.6	0.5	0.5	0.4	0.4	0.4	-0.2
Survivor's pensions	0.8	0.6	0.5	0.5	0.5	0.5	-0.3
Other pensions	0.1	0.0	0.1	0.1	0.1	0.1	0.0

Note (*): Since 2012, benefits have been allocated to individuals with reduced working capacity. These individuals can receive disability and rehabilitation benefits, financed by the Health Insurance Fund.

Source: European Commission 2024 Ageing Report, Hungarian State Treasury.

FIGURE 1.4. **The projected rise in pension expenditures is driven by demographic developments**
Index of the economic old-age dependency ratio (population aged 65+ as a % of the population aged 20-64) and pension expenditure (% of GDP), 2022 = 100



Source: European Commission 2024 Ageing Report, Table II.1.59 and Table II.1.64.

While expenditures are projected to rise sharply, pension contributions would remain stable. In principle, a cohort's total pension contributions should be broadly aligned with the total spending on that cohort. Currently, this is not the case in the Hungarian pay-as-you-go system. While total expenditure is projected to increase significantly, contributions to the public pension paid by employers, employees and self-employed persons are projected to remain stable at about 6.8% of GDP. Overall, the gap between total pension-related spending and contributions, which affects the general government deficit, is expected to increase from about 0.9% of GDP to 5.2% of GDP by 2070.

Addressing this imbalance is key to safeguarding Hungary's fiscal sustainability. Debt simulations conducted for the 2024 *Economic Survey for Hungary* show that the absence of policy changes to reduce ageing-related expenditures (mainly pension-related) would lead public debt to reach 200% of GDP by 2060, in a scenario where changes in the primary fiscal deficit would entirely be due to increases in ageing-related costs (OECD, 2024[5]). These results call for phase-in modifications to the pension system to increase revenues or reduce spending.

A fast rise in fertility would not be enough to bring the system back to a sustainable path

Projecting economic developments over the next half century is subject to considerable uncertainty. The European Commission projections, which are the basis for this report's diagnostic of the current pension system, are made under a 'no policy change' assumption and on a set of exogenous macroeconomic variables covering employment and labour productivity. The projections are not aimed to predict the future but to illustrate what the future could hold if current policies remain unchanged. Like any other projections, they are strongly influenced by the underlying assumptions.

As noted above, the 2024 Ageing Report projects spending to increase by 4.3% of GDP by 2070. However, the report assumes that the income ceilings used to calculate the uprated net earnings (90% of the average net earnings exceeding HUF 372 000 and 80% of the average net earnings exceeding HUF 421 000) are indexed to wage growth, while according to current legislation, they are to remain constant, as was the case since their introduction in 2013 (Box 1.1). Assuming these ceilings remain in their current nominal values throughout the entire projection period, spending is expected to be around 1.5% lower in 2070 than in a scenario assuming ceilings indexed to average wage growth. If these ceilings are only indexed to CPI, the projected pension-related spending 2070 would still be revised downward by 0.6% of GDP.

On the other hand, less favourable assumptions about demographic developments (lower fertility rates and migration as well as higher life expectancy) and labour market outcomes (lower productivity growth and employment) could

raise total pension spending (as % of GDP), deepening the fiscal challenge (Table 1.2). For example, a 10% higher life expectancy at 65 (about 1.5 years) that increases the length of the average period spent in retirement and, therefore, the number of active pensioners, would increase spending by 1.1% of GDP in 2070. In contrast, in EU countries which already introduced automatic adjustment mechanisms in their public pension system, the effect of a higher increase in life expectancy on the change in public pension expenditures is much lower (European Commission, 2021[3]).

Importantly, the sensitivity analysis highlights that increases in fertility rates are largely insufficient to bring the system back to a sustainable path. They could only have a substantial downward effect on expenditures in the long term. Until 2050, the increase in the number of potential employees would be limited due to the time lag between birth and labour market entry. Moreover, even under the assumption of a fast increase in the fertility rate to 2.1 by 2050, expenditures are expected to decline by only 0.7% of GDP by 2070. Higher fertility would also increase spending on preschool programmes and education, offsetting some of the potential fiscal savings.

TABLE 1.2. **The change in pension expenditure due to change in assumptions**
A change from 'no policy change'-scenario, % of GDP

	2030	2045	2070
Negative fiscal impact			
Higher life expectancy at 65 (+10%)	0.1	0.4	1.1
Constant fertility rate (at 1.63)	0.0	0.1	0.2
Lower Total Factor Productivity growth (-10%)	0.2	0.6	1.3
Positive fiscal impact			
Lower life expectancy at 65 (-10%)	-0.1	-0.4	-1.1
Higher fertility, increasing to 2.1 by 2050	0.1	0.1	-0.7
Higher TFP growth (+20%)	0.0	-0.4	-0.9

Note: The changes in life expectancy and labour productivity are assumed to occur gradually until 2070. The effect of changes in life expectancy and fertility do not consider the impact on the number of contributors. In the 'no-policy-change'-scenario, the fertility rate is expected to increase gradually from 1.63 to 1.71 and then stabilise.

Source: Hungarian State Treasury.

1.2. SEVERAL DESIGN FEATURES OF THE HUNGARIAN PENSION SYSTEM CONTRIBUTE TO THE SUSTAINABILITY CHALLENGE

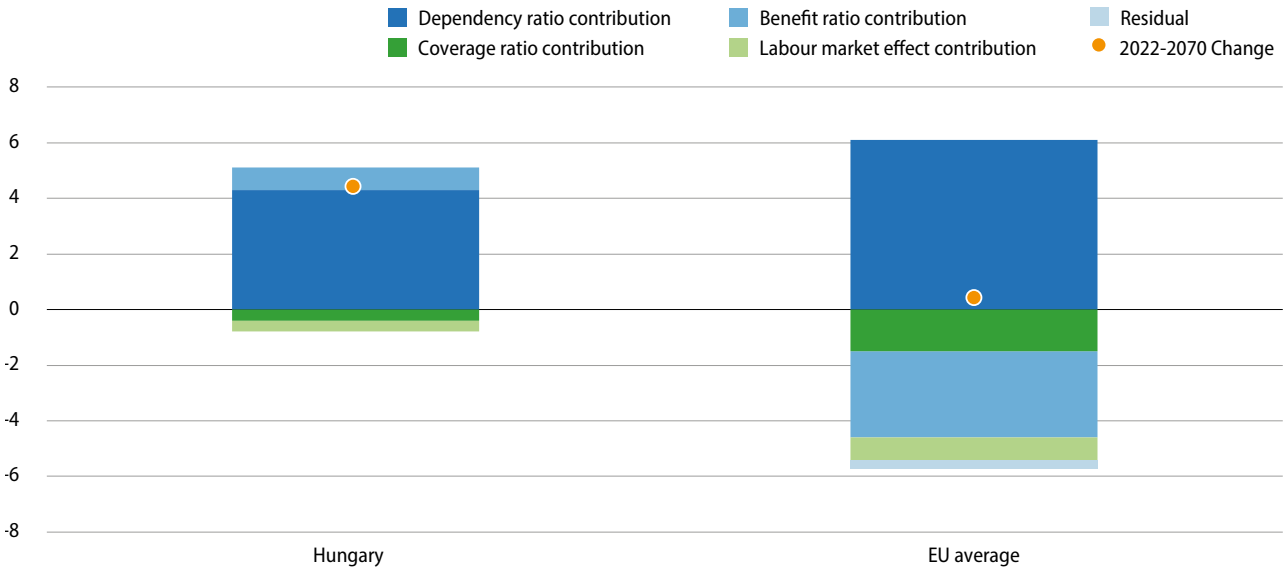
While population ageing is projected to have a significant impact in all EU countries, not all are expected to experience such a high increase in pension-related spending as in Hungary. In many EU countries, governments have responded proactively to counter this demographic shift. They have implemented measures to mitigate the impact by, for example, incorporating sustainability factors into their pension systems. These measures are expected to largely offset the adverse fiscal impact of population ageing on pension-related spending in the EU average (Figure 1.5). This section compares the main features of the Hungarian pension system to those of other countries, notably the retirement age and pension benefits, to shed light on the main factors driving public pension expenditure up faster than elsewhere. Likewise, it discusses determinants of the contribution base, the second layer in the system's fiscal sustainability.

The retirement age is not catching up with increases in life expectancy

The more substantial rise in pension-related spending in Hungary is partly due to longer expected retirement periods. Past reforms have tightened access to early retirement, raised the statutory retirement age and incentivised late retirement by giving a relatively generous bonus for those who choose to defer their retirement. These reforms are expected to reduce the number of pensioners relative to the old-age population (the coverage ratio), offsetting some of the adverse fiscal effects of population ageing (Figure 1.5). The number of pensioners relative to the old-age population

FIGURE 1.5. **Other EU countries are expected to offset the rise in pension expenditures driven by demographic developments**

Contribution to change in gross public pension expenditure; 2022-2070 (percentage points of GDP)



Source: European Commission 2024 Ageing Report, Table I.1.10 (p. 40).

is projected to decline by 5.4% by 2070, reducing spending by 0.4% of GDP. Nevertheless, this effect is lower than in most other EU countries, and especially compared with countries like Italy and Denmark, which have linked the statutory retirement age to gains in life expectancy and, therefore, are expected to have higher future normal retirement ages (Box 1.2).

Without further policy changes, the expected duration of retirement in Hungary is set to increase sharply, surpassing the gains in most other EU and OECD countries. Based on United Nations life expectancy projections and the current and projected normal retirement ages in 2022, men who entered the labour market in 2022 are projected to spend 7.9 years longer in retirement than those who retired in the same year. The average expected increase for men is 4.2 years

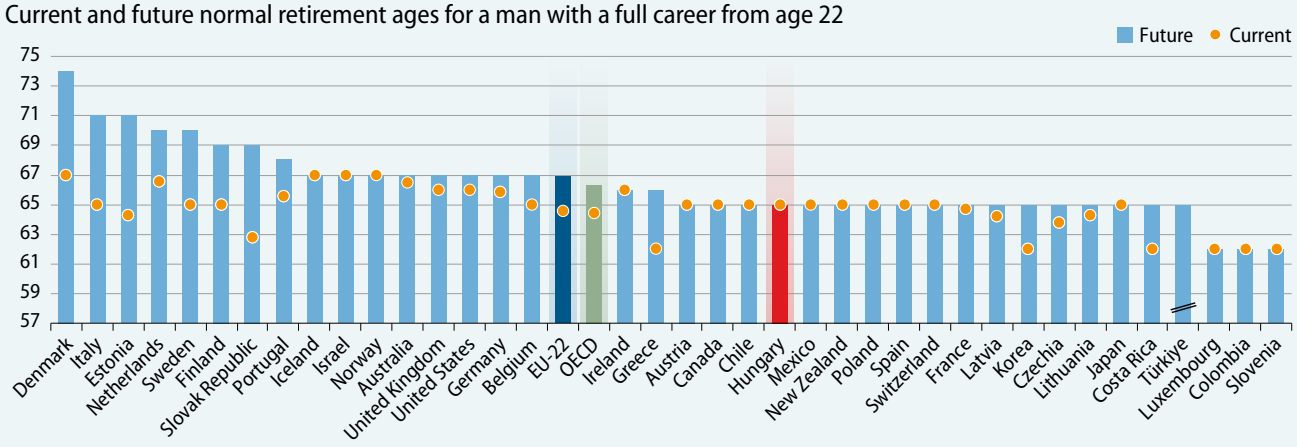
BOX 1.2. CURRENT AND FUTURE NORMAL AND EARLY RETIREMENT AGES

The OECD defines the normal retirement age as the age of eligibility of all schemes combined without penalty based on a full career after labour market entry at age 22. The normal retirement age is 65 for men and 62 for women, both for people retiring in 2022 and for those entering the labour market in 2022. For men, the current normal retirement age in Hungary is above the OECD average of 64.4 years, but it is set to be below the average of 66.3 years in the future and even further below the average of 66.9 years for the 22 EU member states in the OECD (Figure 1.6). Based on current legislation, normal retirement ages for men will increase in more than half of OECD countries. Moreover, Hungary is one of only six OECD countries where the future normal retirement age is lower for women than for men, alongside Colombia, Costa Rica, Israel, Poland and Türkiye (Figure 1.7).

Many OECD countries allow people to retire a few years before the statutory or normal retirement age, generally two or three years before. In that case, the pension benefit is typically reduced to account for fewer contribution years and longer retirement periods. There is no early retirement possibility for men in Hungary. As a result, the minimum retirement age is higher than in most OECD countries (Figure 1.8). In the OECD on average, early retirement is possible at 62.2 years now and at 64.0 years in the future. Among the 22 EU member states in the OECD, these numbers are slightly higher at 62.8 and 64.5 years respectively but remain below the age of 65 applying in Hungary.

FIGURE 1.6. **The future normal retirement age is low**

Current and future normal retirement ages for a man with a full career from age 22

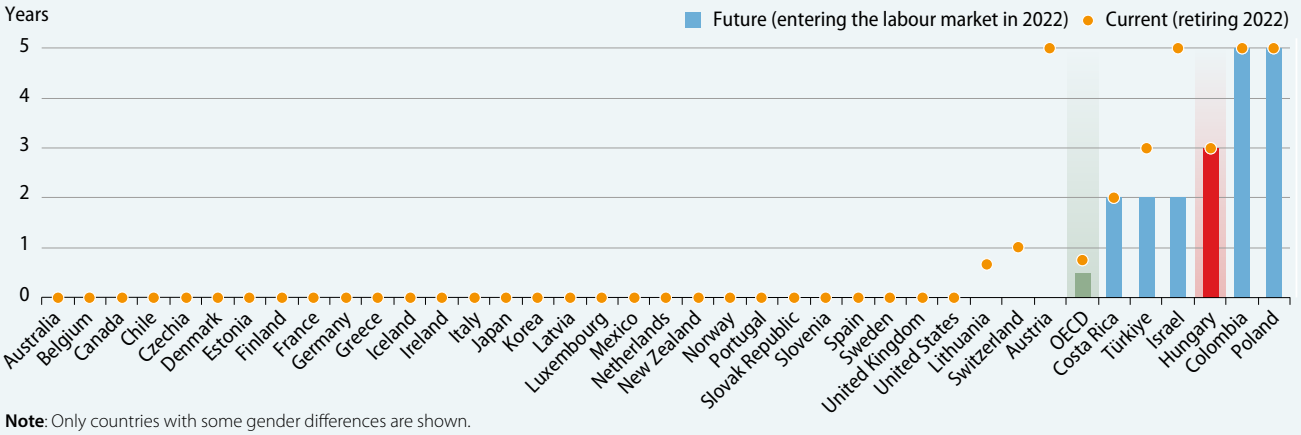


Note: Current and future refer to retiring in 2022 and entering the labour market in 2022, respectively. For better visibility, the scale of this chart excludes the lowest observed values of 52 for Türkiye. Credits for educational periods are not included.

Source: *OECD Pensions at a Glance 2023*

FIGURE 1.7. **Hungary is one of only six OECD countries with a lower future normal retirement age for women**

Current and future normal retirement ages for a woman with a full career from age 22

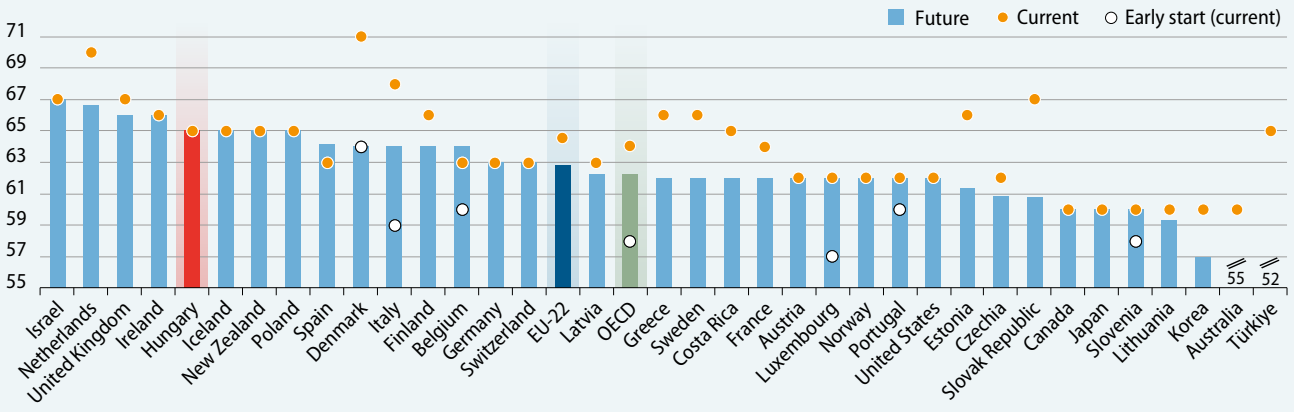


Note: Only countries with some gender differences are shown.

Source: *OECD Pensions at a Glance 2023.*

FIGURE 1.8. **Current and future early retirement ages for a man with a full career are high**

Current and future refer to retiring in 2022 and entering the labour market in 2022, respectively



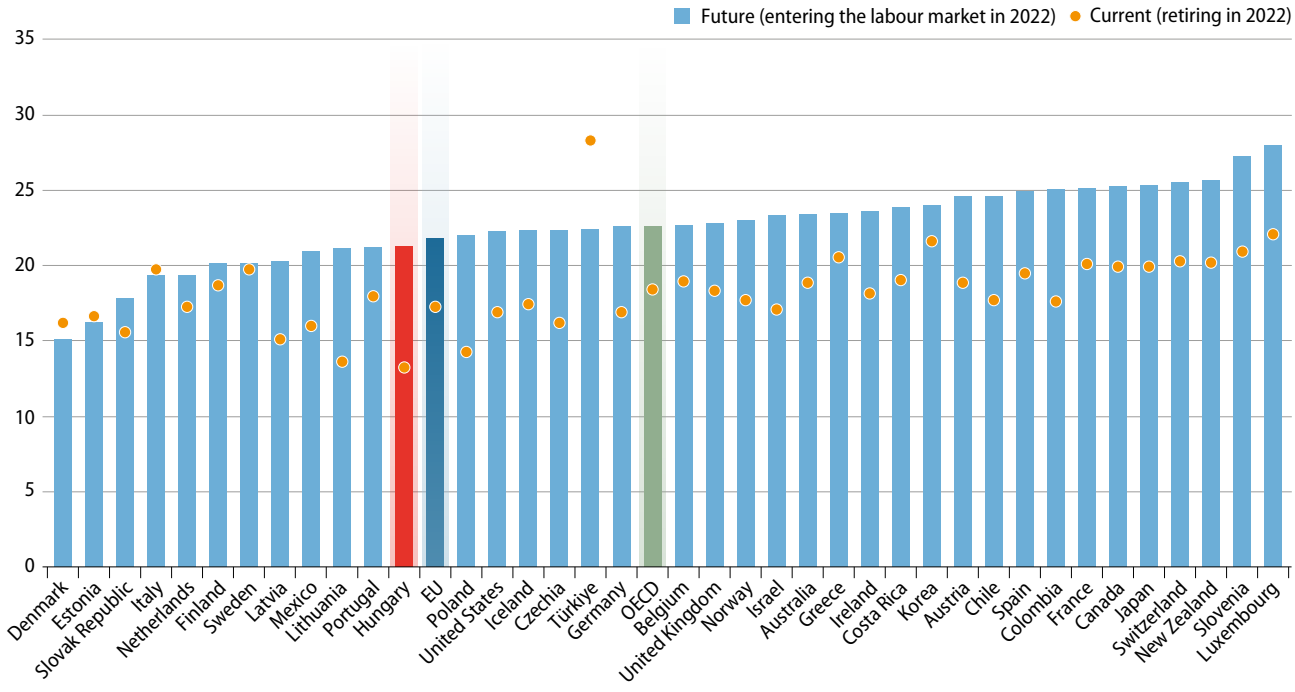
Note: The difference between early and normal retirement ages is whether or not a penalty applies at the retirement age.

Source: *OECD Pensions at a Glance 2023.*

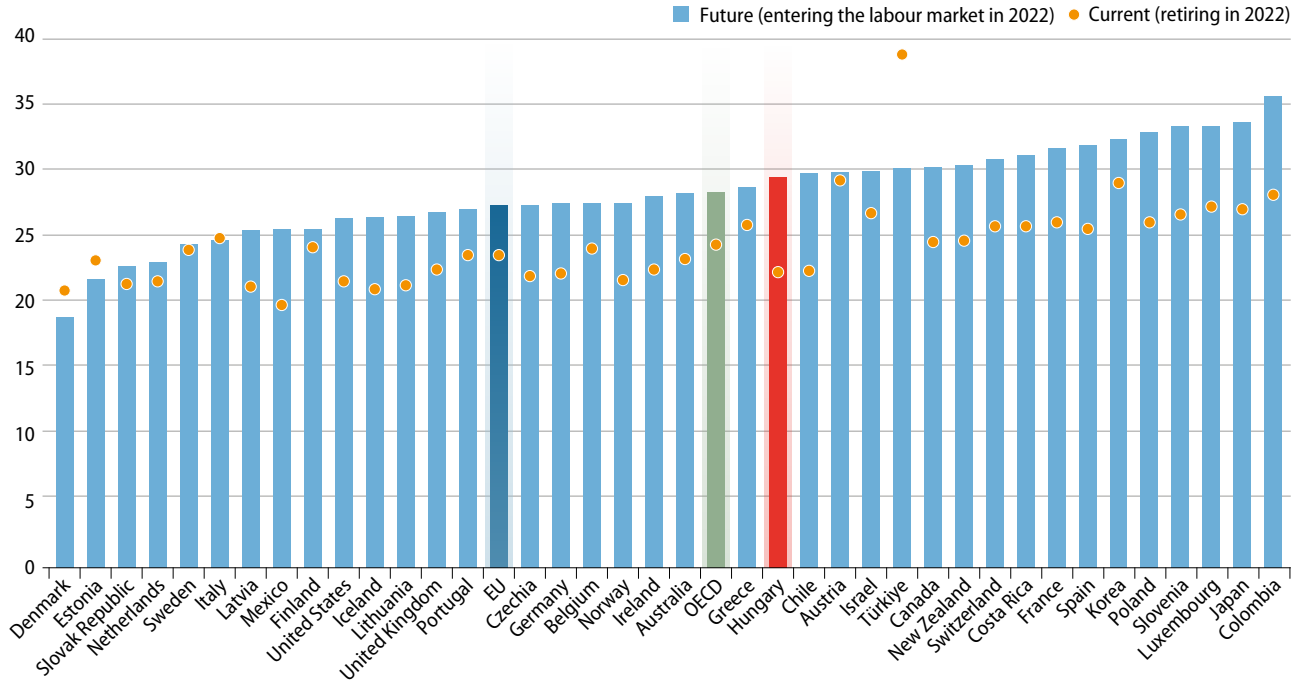
FIGURE 1.9. **Expected years in retirement are projected to increase strongly**

The difference between the normal retirement age for a person who enters the labour force at age 22 and life expectancy at age 65.

Panel A: Men (years)



Panel B: Women (years)



Note: The estimation of the current and future expected time in retirement is based on indicators retrieved from OECD Pensions at a Glance 2023. Current (retiring in 2022): life expectancy at age 65 based on mortality rates of 2022 and the normal retirement age for people retiring in 2022. Future (entering the labour market in 2022): expected remaining life expectancy at age 65 in 2065 based on mortality rates of the indicated cohort and the projected normal retirement age for a person who entered the labour force in 2022.

Source: OECD *Pensions at a Glance 2023* and United Nations, Department of Economic and Social Affairs, (2022). *World Population Prospects 2022*, Online Edition.

in the EU and 4.1 years in the OECD. For Hungarian women, the projected increase amounts to 6.5 years, compared to 3.3 and 3.6 years for the EU and OECD, respectively (Figure 1.9). As a result, for women, the time spent in retirement is expected to be longer than in the OECD and EU averages, whereas, for men, it is projected to remain below the averages of these two groups (Figure 1.9).

About half of women use the Women-40 early retirement scheme

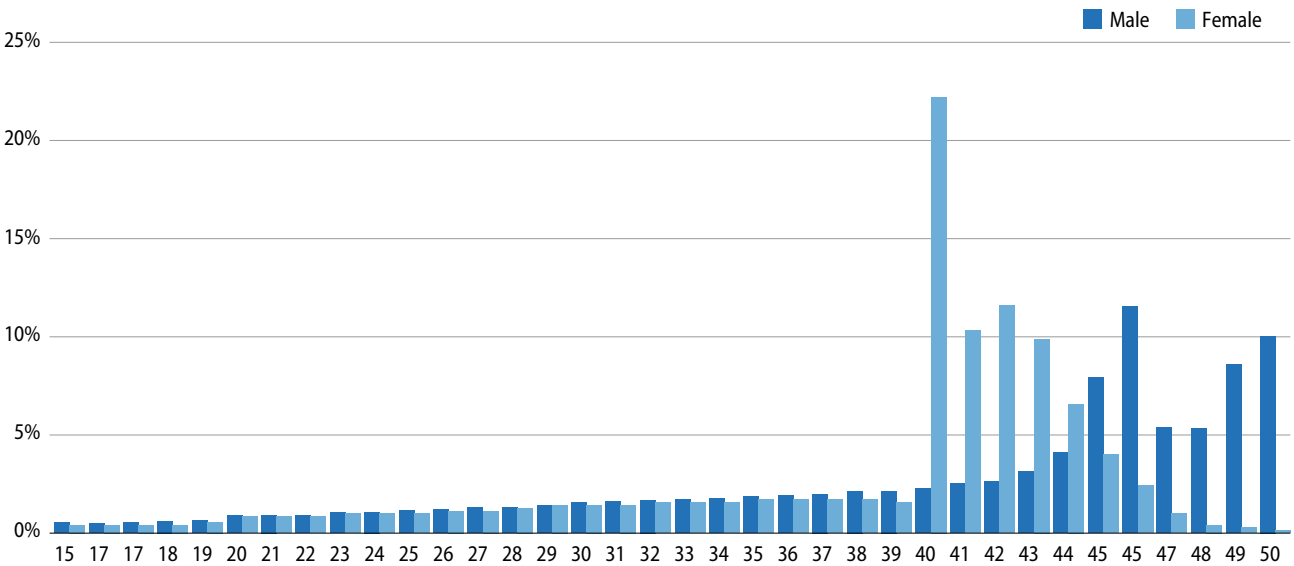
As mentioned in Box 1.1 above, since 2011, women who have accumulated at least 40 years of rights before reaching the statutory retirement age are allowed to retire with full benefits. Periods spent in receipt of several child-related benefits (including maternity and parental leave benefits) count towards eligibility, and the minimum period of gainful activity is 32 years (less for five children or more), or 30 years in case of care for a severely disabled child. The early retirement option contrasts sharply with the situation for men, who are not afforded the same early retirement privilege. Likewise, the special eligibility conditions do not apply to women with fragmented careers, who are often low-paid. They need to wait until the statutory retirement age to be eligible for pension benefits.

About half of all women in Hungary are using the scheme (54% in 2022) and for them, the number of years in retirement is already high and expected to increase further. About 20% of women who use the scheme do so after they accumulate precisely 40 years of rights, compared to only 2% of all men, suggesting that the privilege significantly affects the labour market exit age (Figure 1.10). The average retirement age of those who used the scheme in 2022 was 59.9, after increasing by one year since 2016, with 49% retiring before the age of 60. Lower chances of remaining in the labour market might justify favourable retirement conditions. However, the scheme does not target vulnerable groups. Women using the scheme have a higher chance of leaving a job when retiring, while only about 60% of women retiring at the statutory retirement age have a job just before retirement. In 2023, the average pension benefit of those women using the Women-40 scheme is 34% higher than the average benefit of all women pensioners, partly due to the later retirement of Women-40 users as the scheme was only introduced in 2011. Pensioners who retired more recently have, on average, higher benefits due to wage growth but longer and more stable careers of the Women-40 retirees are also likely to play a role.

The Women-40 scheme leads to notable gender disparities in the effective retirement age and the employment rate for people above age 60, dragging down the aggregate employment rate for that age group (Figure 1.11). Hungary has a very small gender gap in employment rates for the 50-59 and a very large gender gap for the 60-64 compared to other

FIGURE 1.10. **Many women retire after accumulating exactly 40 years of pension rights**

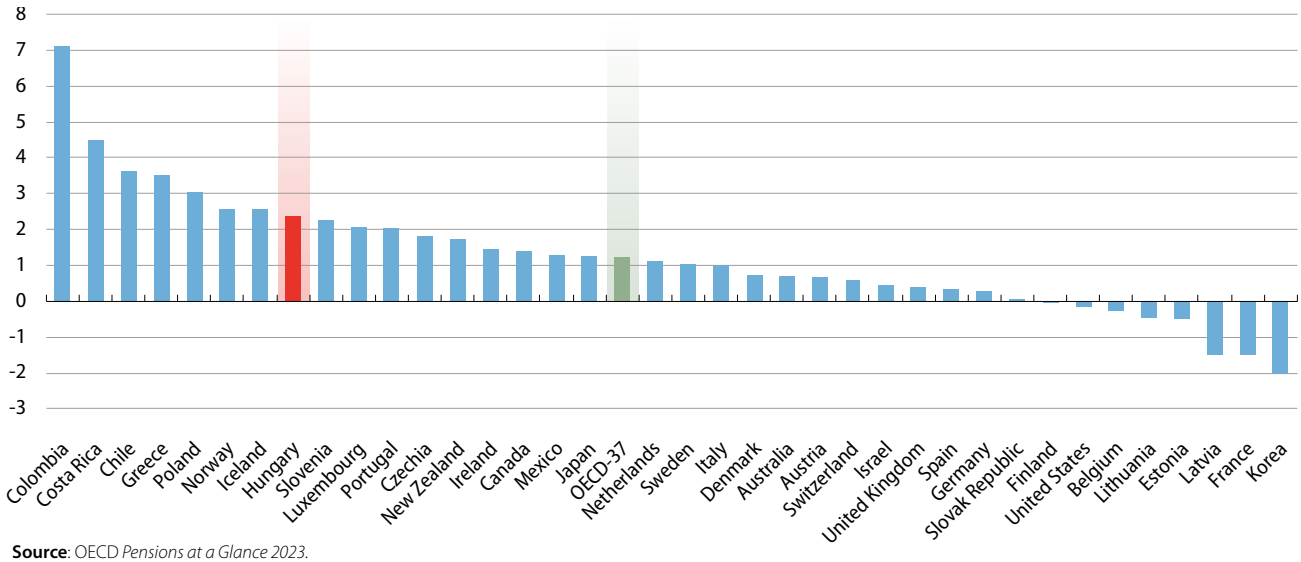
Service period by gender, number of new retirees, average of 2020 to 2022



Source: OECD calculations based on data from the Ministry of Finance.

FIGURE 1.11. **The gender gap in the average labour market exit age is high**

Average labour market exit age for men minus average labour market exit for women, in years, 2022



Source: OECD *Pensions at a Glance 2023*.

OECD countries. In 2022, the gender gap in employment rates was 2.3 percentage points in Hungary for the 50-54 and 6.0 percentage points for the 55-59, compared to 15.5 and 16.3 percentage points in the OECD on average, and 9.8 and 10.9 percentage points for the 22 EU member states in the OECD. For the age group 60-64, men were twice as likely to be in employment as women, reflected in a gender gap of about 35 percentage points, more than double the average gap in the OECD and in the 22 EU member states in the OECD.

While the Women-40 scheme is justified on the grounds of helping grandmothers to replace mothers in child care, it is open to any woman, whether or not she has any children (or grandchildren) or whether they live in or out of Hungary (Simonovits, 2019[6]). About 9% of the scheme's recipients have no children, and another 24% have only one. These shares are expected to rise significantly in the next decades following the decline in fertility rates. More generally, while grandparents in Hungary play a significant role in their grandchildren's lives (Maria Kopp Institute for Demography and Families, 2022[7]), the causal impact of the Women-40 scheme on mothers' employment and fertility rates, and especially the magnitude of the effect, is unclear. It is likely that further strengthening public investment in childcare, including in smaller municipalities, supporting flexibility in the childcare services offered to mothers to young kids and continuing to improve the quality of childcare through staff qualification and training would have a more significant effect on gender employment gaps (which are high for parents with young children) and fertility rates (see the complementary measures section). Potential fiscal savings achieved by providing more targeted transfers to families could be used to finance additional childcare places childcare places (OECD, 2024[5]).

The pension system is relatively generous

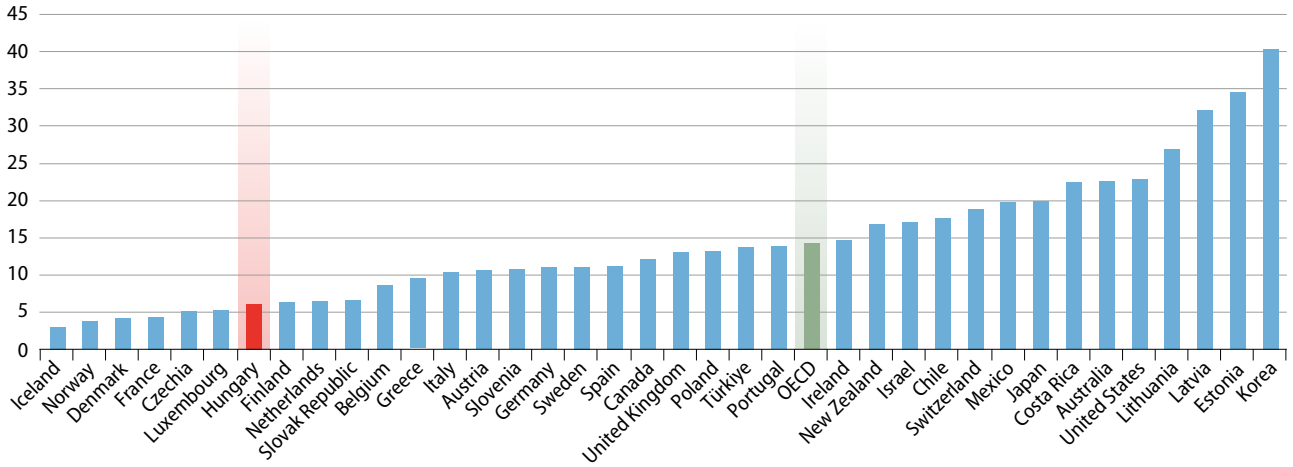
Comparatively high pension benefits keep old-age poverty low overall

The main goal of the pension system is to limit the fall in standard of living when individuals retire by smoothing their consumption profile and allowing basic subsistence for the entire retiree population. The Hungarian pension system performs relatively well in this respect. On average, in 2020, people over 65 in OECD countries had a disposable income equal to 88% of the total population. In Hungary, before the full implementation of the 13th month's pension benefit, this figure stood at 87%, with old-age pensions and other public transfers being the most important component of old-age income (accounted for 73% of total incomes in 2020). People aged 76+ had a slightly lower average income than the 66-75 in Hungary as in all OECD countries except Poland. The mean disposable income of this age group was 84% of that of the entire population against 81% for the OECD on average (OECD, 2023[8]).

The relatively high benefits help to keep the risk of poverty low (Figure 1.12). Relative income poverty among older people, measured as having a disposable income below half of the median equivalised household income, was 6.1%

FIGURE 1.12. **Old-age relative poverty is low**

Old age income poverty ratio, (age 66+), 2020



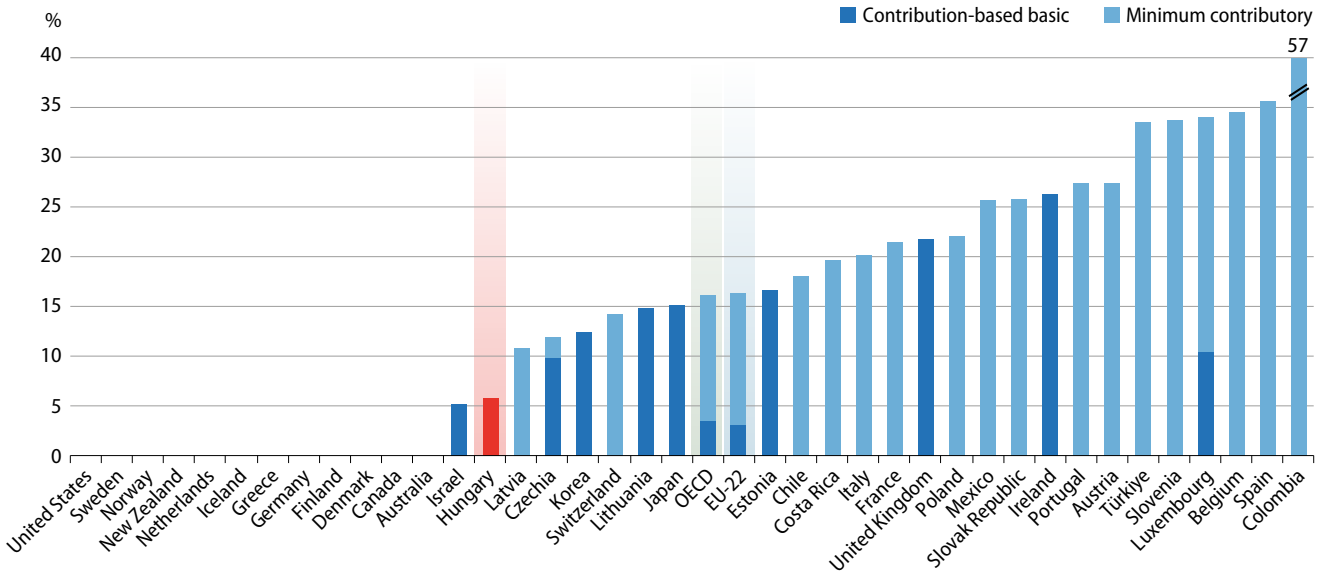
Source: OECD Income Distribution Database, *OECD Pensions at a Glance 2023*.

and 8.7% in the population as a whole in 2020, compared with 14.2% and 11.4%, respectively, in the OECD on average. This rate was even lower, at 4.6%, among the population aged 76+. As in most OECD countries, the share of older women below the relative poverty threshold (7.1%) is higher than that of men (4.4%). The high share of women living alone in old age contributes to the higher poverty rate among women. In most OECD countries, women more often live alone in old age compared to men due to a higher likelihood of being widowed. Still, the share of women living alone in Hungary (about 45%) is relatively large (OECD, 2022, p. 105[9]).

Nonetheless, the overall low poverty rate among older people masks some pockets of vulnerability. Both the contributory minimum pension and the non-contributory targeted benefit are low, and only a tiny share of older people receive them because, currently, most are entitled to higher benefits. The minimum pension equals 5.9% of gross average earnings, the second lowest amongst OECD countries with contributory first-tier benefits (Figure 1.13). Although the high accrual rates in the first 15 years of service (Box 1.1 above), which are meant to protect those with short careers (typically low-

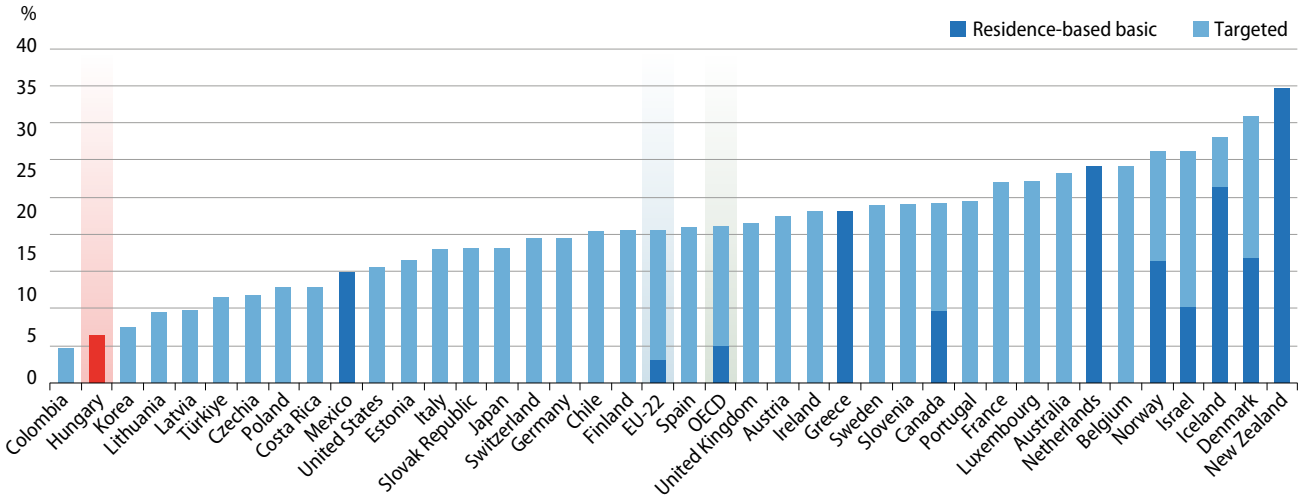
FIGURE 1.13. **The minimum pension is low**

Contributory first-tier benefits as percentage of gross average earnings, 2022



Source: *OECD Pensions at a Glance 2023*.

FIGURE 1.14. **Hungarian old-age safety-net benefits are among the lowest in the OECD**
Non-contributory first-tier benefits as percentage of gross average earnings, 2022



Note: Due to the 35% increase in the old-age safety-net benefit in 2023, the level of the benefit in 2023 is likely somewhat higher than the 6.4% shown in the graph for 2022, but below 8.6% of average earnings as that would be the level if there is no average wage growth between 2022 and 2023.

Source: *OECD Pensions at a Glance 2023.*

income groups), can be seen as taking the role of a minimum pension (see below). Hungarian targeted benefits for older people are also among the lowest in the OECD (Figure 1.13). In the OECD on average, targeted schemes provide benefits of 16.2% of average earnings, and when also including residence-based basic pensions, the average non-contributory benefit in OECD countries equals 21.1% of average earnings. In Hungary, the support was equal to 6.4% in 2022 for a single new retiree, while the sharp increase in the level of the benefit in 2023 is unlikely to alter Hungary's position in the figure vis-à-vis other OECD countries (Figure 1.14). Although the current share of people relying on these benefits is low, the number could increase in the future, among other things, due to the diversified employment forms available in the labour market. Shifting spending towards non-contributory benefits might be needed to protect the most vulnerable and to keep the poverty rates low without raising the fiscal deficit further.

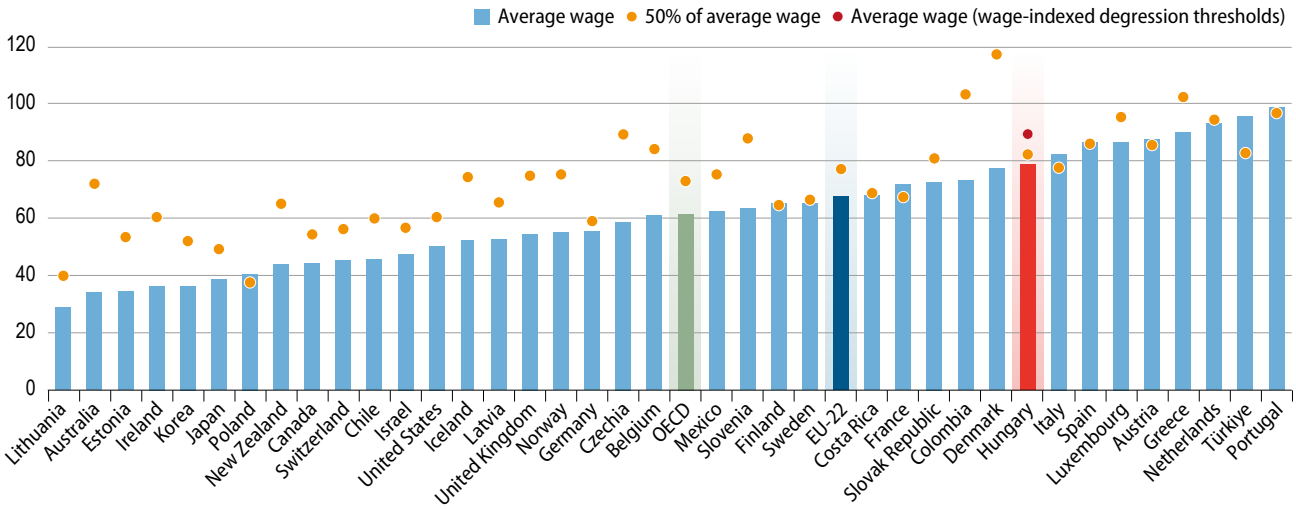
Benefit levels will remain high under current policies

The earnings-related pension system is expected to secure good pensions for individuals with full careers also in the future. The gross replacement rate is defined as the gross pension benefit divided by gross pre-retirement earnings. For male workers with an average wage who entered the labour market in 2022 at the age of 22 and work constantly until they can claim a pension without penalty (in Hungary, 65 for men and 62 for women), the future gross replacement rate is estimated at 52.4% (49.0% for a woman), which is just above the OECD average of 50.7% and just below the EU (27 countries) average of 54.8%. In contrast to most OECD countries, the expected gross replacement rates in Hungary are less dependent on the earning levels before retirement. The gross replacement rate for a man earning 50% of average earnings throughout his career is only 3.7 percentage points higher than for a man earning 200% of average earnings. In contrast, in the OECD, the replacement rate for those who earn half of the average wage is, on average, 21.5 percentage points higher.

For average earners, the net replacement rate is 11.7 percentage points higher than the gross replacement rate on average in the OECD because of progressive taxation and contributions paid by employees as well as favourable tax treatment of pensioners in some countries. The difference is over 25 percentage points in Hungary, as pension income is liable for neither taxes nor social security contributions. As a result, Hungary has high future net replacement rates, at 78.8% for men and 73.7% for women (due to shorter average career length driven by the Women-40 scheme). For men, this is 17.4 percentage points higher than the OECD average and 11.2 percentage points higher than the average of the 22 EU member states in the OECD (Figure 1.15). However, this is based on the scenario in which the thresholds for the reductions to 90% and 80% (Box 1.1) remain unadjusted in nominal terms, as they have been since their inception in 2013. If the thresholds are instead indexed to price or wage growth the replacement rate is even higher, at 83.7% and 89.8%, respectively.

FIGURE 1.15. **The net pension replacement rates are high**

For a man entering the labour market in 2022 aged 22, earning 100% and 50% of average wage for a full career



Note: Low earners in Colombia, New Zealand and Slovenia are at 64%, 63% and 56% of average earnings, respectively, to account for the minimum wage level.

Source: *OECD Pensions at a Glance 2023.*

After retirement, the pension benefits are expected to keep their real level in Hungary, like in most OECD countries (Box 1.3), as the allowances are indexed to changes in the Consumer Price Index. However, because the average wage is assumed to keep increasing above inflation in the long term, pensions in payment are expected to decline relative to the average wage and new entitlement of pensioners retiring later. The net replacement rate is expected to decline from 78.8% at the age of 65 to 65.4% by the age of 80[3]. In contrast, countries where the indexation of pension benefits follows wages have the same replacement rate at age 80 as at the normal retirement age.

Most self-employed workers are expected to have high replacement rates as well. There are two different pension contribution rules for the self-employed (Box 1.1 above). For the self-employed in "regular" self-employment, contribution rates are the same as for salaried employees. But self-employees with annual revenues lower than HUF 18 million (EUR 47 550) and, since 2022, who only sell products or services to individuals, can choose the so-called KATA tax rules (itemised taxation system) and pay contributions at a flat rate of HUF 50 000 per month (EUR 132), which covers all tax and social security liabilities including pension contributions. As the KATA rule determines a hypothetical contribution base, which is lower than the statutory gross minimum wage, the value of a year worked is only equal to 0.47 service years. Hence, under current rules, 40 years worked in KATA would result in only 18 service years considered in the pension calculation. Nonetheless, following a tightening of the KATA rules from September 2022 less than 25% of the self-employed are now covered under the KATA scheme with the others covered under the same rules as salaried employees. As a result of the reform, the theoretical pension of a self-employed worker is equivalent to that of a salaried employee, assuming both earn the equivalent to the salary-employee average wage. Before the reform, the typical self-employed benefit was worth only 18% of an employee's[4].

The full-career case is instructive for capturing the impact of current pension rules, but it falls short of being fully representative. Pension benefits are notably lower for people with a shorter career length, while many individuals experience some periods of unemployment or enter the labour market relatively late, for example, due to tertiary education. In Hungary, the unemployed accrue pension rights from the unemployment benefits, but the unemployment

3. The net replacement rate at the age of 80 is defined as the pension benefit at the age of 80 divided by the net pre-retirement earnings of new retirees. So, the denominator follows wage growth from the age of 65 to 80.

4. As mentioned above, some self-employed are still insured under the KATA system, which means that their expected benefit is worth about 18% of that of a salaried employee.

benefit period is limited to 90 days. For the average-wage worker becoming unemployed at age 35, pension shortfalls relative to someone with an entire, unbroken career are substantial. Pension benefits decline by around 12% in Hungary, compared to only 6% in the OECD average (Figure 1.16, Panel A). For people who are less than five years away from retirement, however, the full period of unemployment up to five years under the so-called 'job-seeker aid before pension' scheme can be credited if they have at least 15 service years. There is no reduction in pension after a five-year childcare break in Hungary (Panel B). On average in the OECD, a woman on average earnings taking a five-year childcare break has a pension that is 5 percentage points lower than that of a woman without breaks.

BOX 1.3. **PENSION BENEFITS INDEXATION IN OECD COUNTRIES**

Earnings-related pensions are indexed to price growth in 17 OECD countries including Hungary, while wage indexation is only applied in Germany and Lithuania (Table 1.3). Nine countries adjust earnings-related pensions to a mix of prices and wages. This mix can be realised in three different ways. First, Czechia, Latvia and Poland adjust earnings-related pensions fully to prices and in addition partially adjust to real-wage growth if positive. Second, Luxembourg adjusts earnings-related pensions to the highest of price or wage growth. And finally, five countries index earnings-related pensions to part of price growth and part of nominal-wage growth.

TABLE 1.3. **Price indexation is the most common type of indexation in OECD countries**

Indexation rule of earnings-related pensions in payment

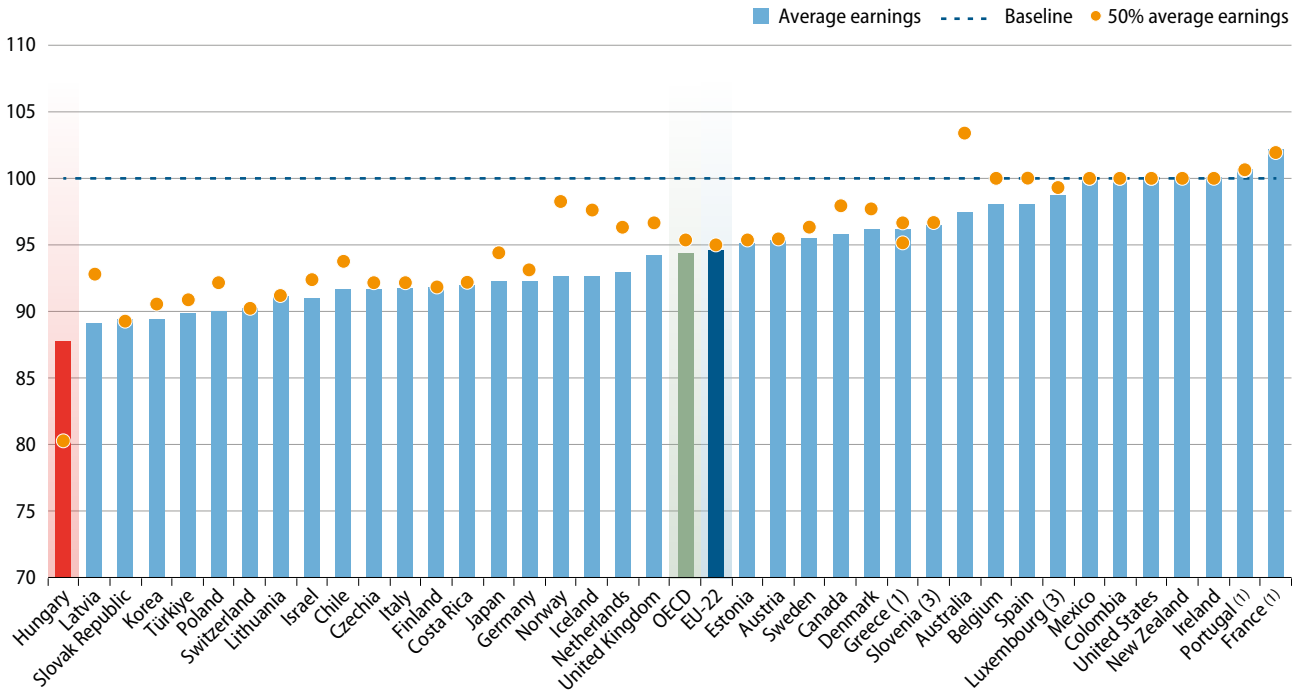
Less than prices	Prices		Mix of prices and wages			Wages	Less than wages	Discretionary
	CPI or similar		100% prices + x% real wages if positive	Highest of prices or wages	Mix of prices and wages (%p+%w)	Avg. wage or similar		
1	18			9		2	1	0
JPN	AUT	**HUN**	CZE (50%)	LUX	CHE (50+50)	DEU	SWE	
	BEL	ITA	LVA (wb, 50-80%)		EST (20+80, wb)	LTU (wb)		
	CAN	KOR	POL (20%)		FIN (80+20)			
	CHL	MEX			NOR (50+50)			
	COL	NLD			SVN (40+60)			
	CRI	PRT						
	ESP	SVK						
	FRA	TUR						
	GRC	USA						

Note: Funded Defined Contributions (FDC) annuities are not included with the exception of Chile and Mexico where CPI indexation is mandatory for FDC annuities. Wb = wage bill. Some countries indexing to prices do not use the (full) CPI but use similar metrics. This includes alternative cost-of-living measures (Australia, the Slovak Republic and the United States, as well as Japan for targeted benefits), CPI measures where certain types of goods are removed from the basket (Belgium, France and Portugal), and measures where indexation in principle follows CPI but can be higher or lower depending on other metrics (the Netherlands and Portugal). In Austria, Italy, Latvia and Portugal, full price indexation is only applied for pensions below a certain threshold. In Canada, indexation is frozen if there is a projected deficit in the pension system, and a political agreement on how to restore long-term financial sustainability cannot be reached, although this has so far never happened. Greece adjusts pensions to less than CPI if real GDP declines. Japan indexes earnings-related and basic pensions to the wage bill until age 67 and applies price indexation as of age 68.

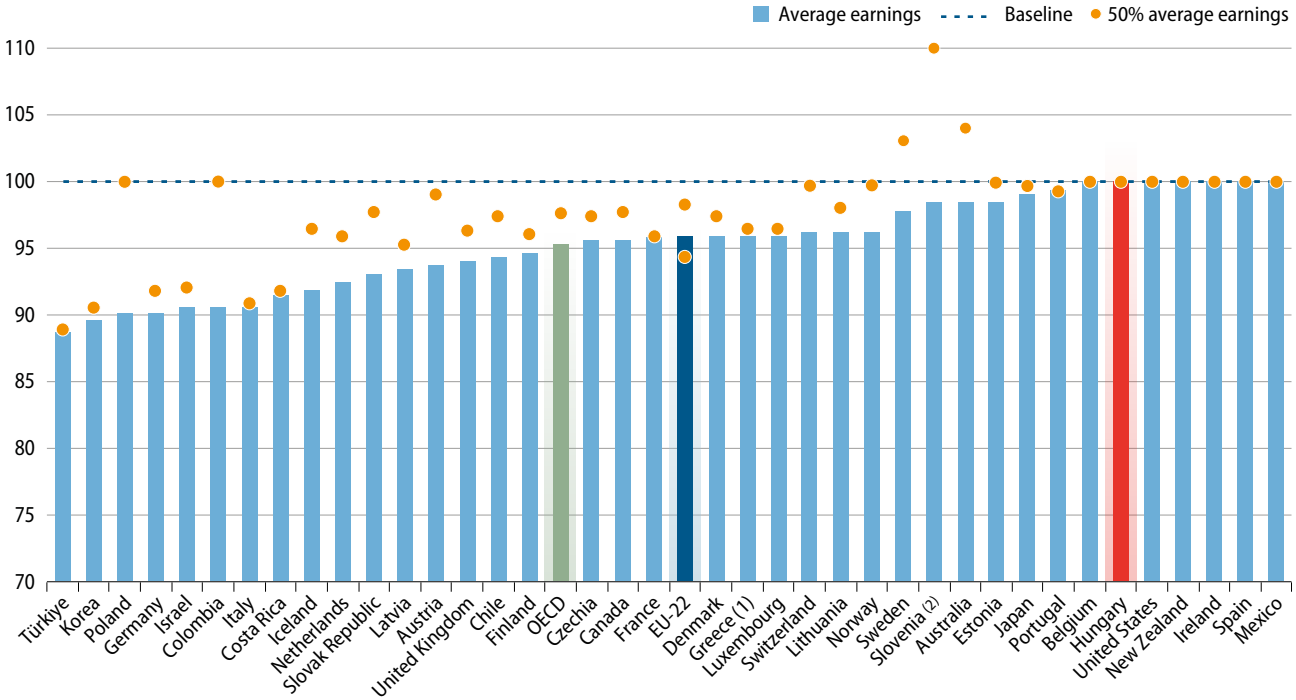
Source: *OECD Pensions at a Glance 2023*.

FIGURE 1.16. **The reduction in pension due to prolonged unemployment breaks is high**

Panel A: Gross pension entitlements of low and average earners with a five-year unemployment break starting age 35 versus workers with an uninterrupted career



Panel B: Gross pension entitlements of low and average earners with a five-year childcare break starting age 30 versus worker with an uninterrupted career

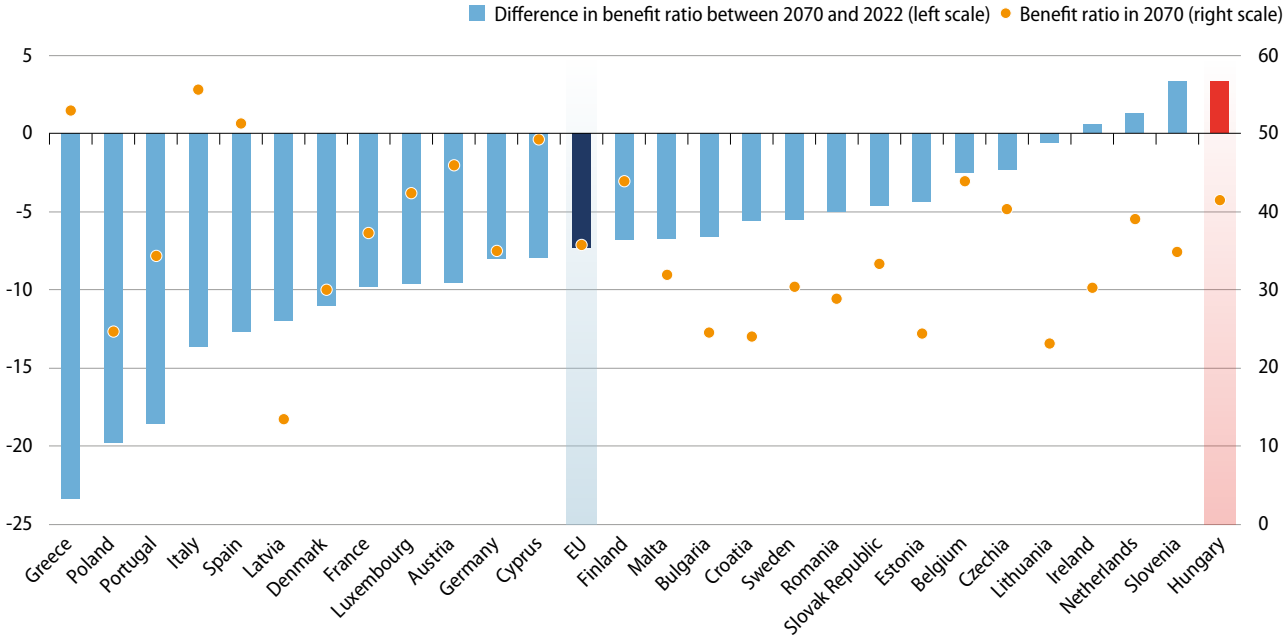


Note: Figure in brackets refers to increase/decrease in retirement age. Individuals enter the labour market at age 22 in 2022. The unemployment break starts in 2035. Low earners in Colombia, New Zealand and Slovenia are at 64%, 63% and 56% of average earnings, respectively, to account for the minimum wage level. Two children are born in 2030 and 2032 with the career break starting in 2030.

Source: *OECD Pensions at a Glance 2023* and OECD calculations.

FIGURE 1.17. **In contrast to most EU countries, the benefit ratio is planned to increase**

In percentage points



Note: The benefit ratio is the ratio between the average pension and the average wage, both measured in gross terms.

Source: European Commission 2024 Ageing Report, Table II.1.79.

A few EU countries made their pension systems more sustainable by curbing the pension benefit levels. Hungary, on the other hand, is one of only four EU countries where the benefit ratio, defined as the average pensions to average wages, is planned to increase between 2022 and 2070 (European Commission, 2024[3]) (Figure 1.17). In 2070, it is expected to stand at 41.5, compared with 38.2 in the EU average. The main reason is the re-introduction of the 13th month's pension benefit. According to the 2018 Ageing Report, published before the measure was introduced, the benefit ratio was expected to decrease by about 5 percentage points until 2035 and to remain stable afterwards (Ministry of Finance and Hungarian State Treasury, 2020[4]). Another reason is that more workers will have careers beyond forty years in the future, benefiting from higher accrual rates due to the non-linearity of the system. The annual additions to the percentage of the average monthly salary, forming the basis of the old-age pension, rise from 1.5% to 2% after the fortieth year, leading to a higher benefit per year of contribution for those passing this threshold.

There is little scope to increase contributions beyond what is already factored in

The contribution base will increase on the back of rising labour force participation with this increase already integrated in the fiscal projections

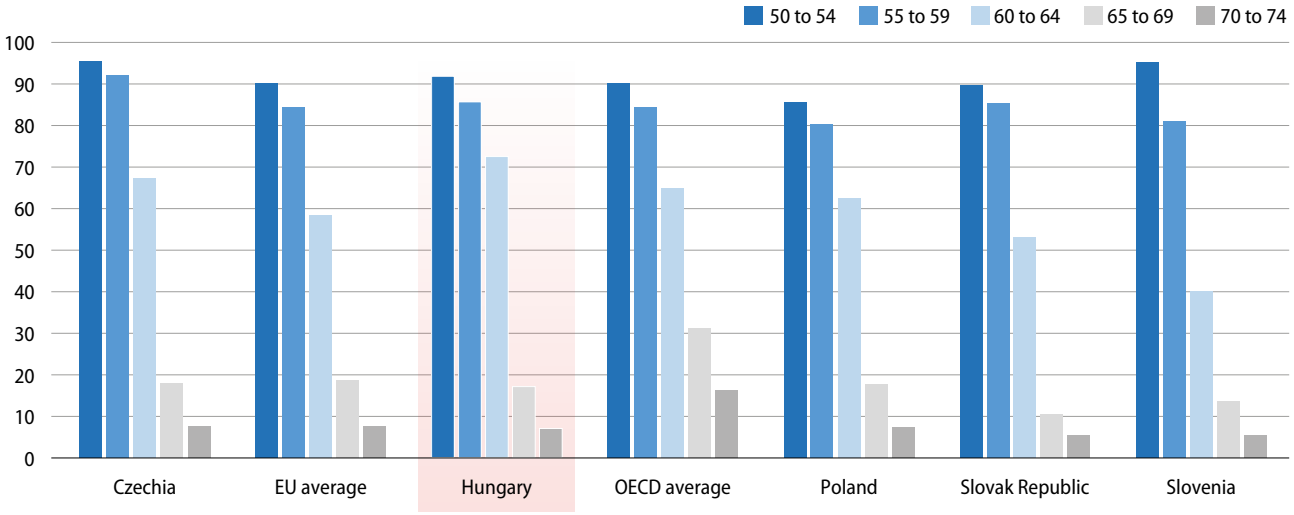
Higher employment rates of older people could lead to higher GDP growth and fewer pensioners with, on average, shorter pension periods[5], which is another way to offset the adverse fiscal impact of population ageing. At present, the labour force participation rate of women aged 60 or above in Hungary is lower than in the EU and OECD averages, even though they are slightly higher amongst those aged 55 to 59 (Figure 1.18). The labour force participation of males aged 60-64 is higher in Hungary than in the EU and OECD averages, but it is lower for those aged 65 or above.

Nevertheless, there is limited room for improvements in the projected fiscal balance related to pensions due to increased employment, as employment and labour market participation are already set to be relatively high. According to the European Commission projections used to evaluate future spending and contributions, the participation rate of

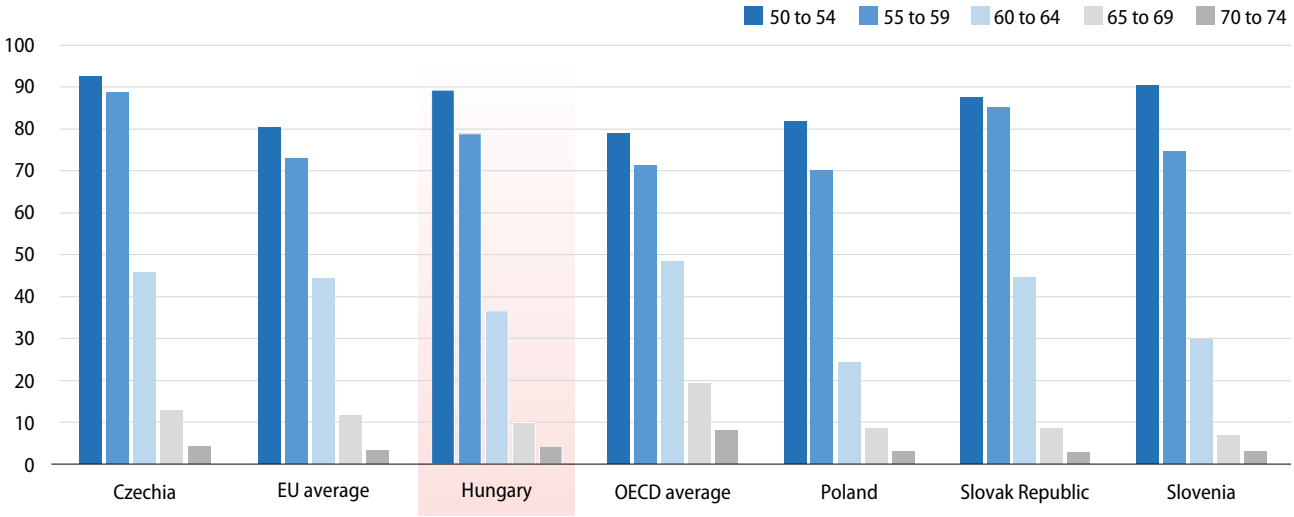
5. This second mechanism is probably limited in Hungary, as favourable taxation for pensioners incentivises those who continue working to withdraw their pension benefits at the same time. So, the direct effect on public finance is limited. However, this is not the case for those who work in the public sector, as they cannot withdraw their benefit while working.

FIGURE 1.18. **Old-age labour force participation is low, as in other Central and Eastern European OECD countries**
Labour force participation rate, by age, 2022

Panel A: Men



Panel B: Women

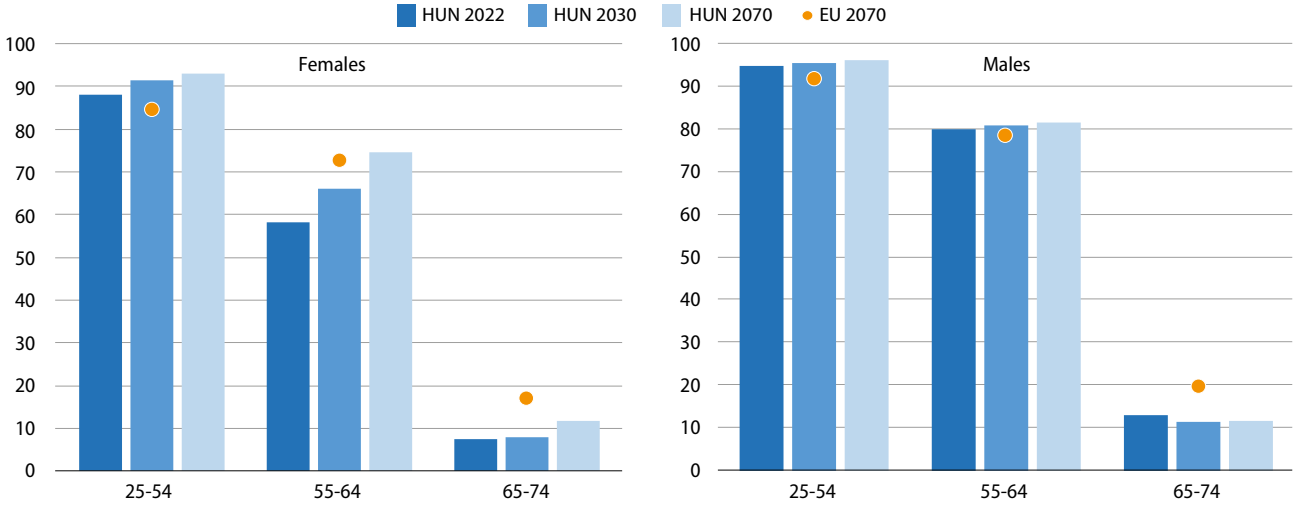


Source: OECD stat; LFS by sex and age – indicators (2022).

individuals aged 20-74 is assumed to increase by 2.5 percentage points from 70.8% in 2022 to 73.3% in 2070 (European Commission, 2024[3]). In 2070, it is expected to be 2.6 percentage points higher than the EU average. Labour market participation amongst those aged 24 to 54 is expected to reach 94.1%, the highest in the EU, and 77.8% amongst those aged 55 to 64, exceeding the EU average for both men and women (Figure 1.19).

Even though the participation rate of those aged 55 to 64 has increased rapidly in recent years (Box 1.4) – it grew by about 28 percentage points in the 10 years up to 2022 – reaching significantly higher levels of participation by 2070 without further policy changes, such as abolishing or at least adjusting the Women-40 scheme, seems optimistic. The projection for those aged 65 or above is more moderate. Among people aged 65-74, the participation rate in Hungary is assumed to increase from 9.7% in 2022 to 11.6% in 2070, remaining much below the EU average (European Commission, 2024[3]). Increasing the statutory retirement age to above 65 would likely be needed to close the employment gap from the EU average in this age group.

FIGURE 1.19. **Labour force participation rates of those aged 25-64 are projected to be high for both men and women**



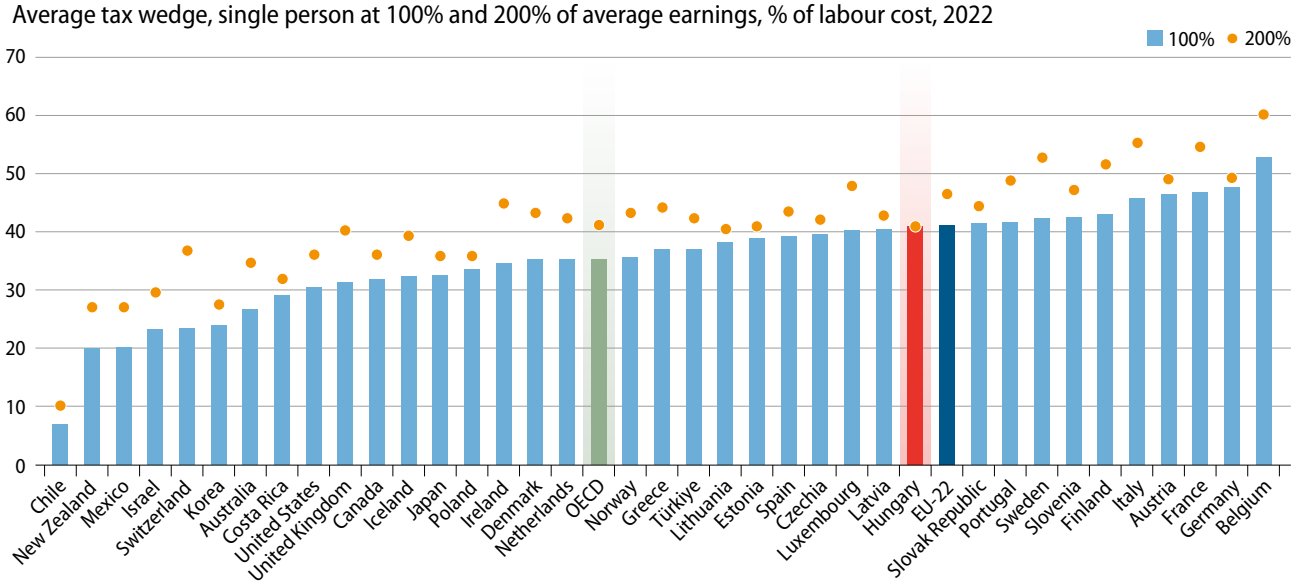
Source: European Commission 2024 Ageing Report, Table II.1.36, Table II.1.37, Table II.1.38, Table II.1.42, Table II.1.43, Table II.1.44.

Room to increase contribution rates is limited

Beyond pension contributions, health contributions and personal income taxes are levied on labour earnings, which creates a wedge between labour costs for employers and net take-home pay for employees. High tax wedges might be an important constraint for increasing pension contributions because they lower income, discourage employment, and deteriorate international competitiveness. In 2022, Hungary had the 11th highest tax wedge among the 38 OECD member countries for an average single worker and the 14th highest for an average married worker with two children (Figure 1.20). Thus, the space for increasing the contribution rate for low and mid-wage workers is rather limited. Notwithstanding, some space exists to increase the tax wedge on high earners. Hungary has a flat personal income tax system, meaning that progressivity in the system is relatively low. Consequently, the tax wedge for workers earning twice the average wage, for example, is equal to the wedge on average earners, while in other countries it is higher. In 2022, 20 OECD countries had a higher tax wedge on those earning twice the average wage than in Hungary. If additional revenues are needed, other sources than social security contributions that are less detrimental to employment and productivity should be also considered (see discussion on Policy Option 8 in Chapter 2 below).

FIGURE 1.20. **The tax wedge for an average earner is high**

Average tax wedge, single person at 100% and 200% of average earnings, % of labour cost, 2022



Source: OECD Taxing Wages Dataset, https://stats.oecd.org/index.aspx?DataSetCode=AWCOMP

BOX 1.4. **THE EFFECT OF THE PREVIOUS INCREASE IN THE RETIREMENT AGE**

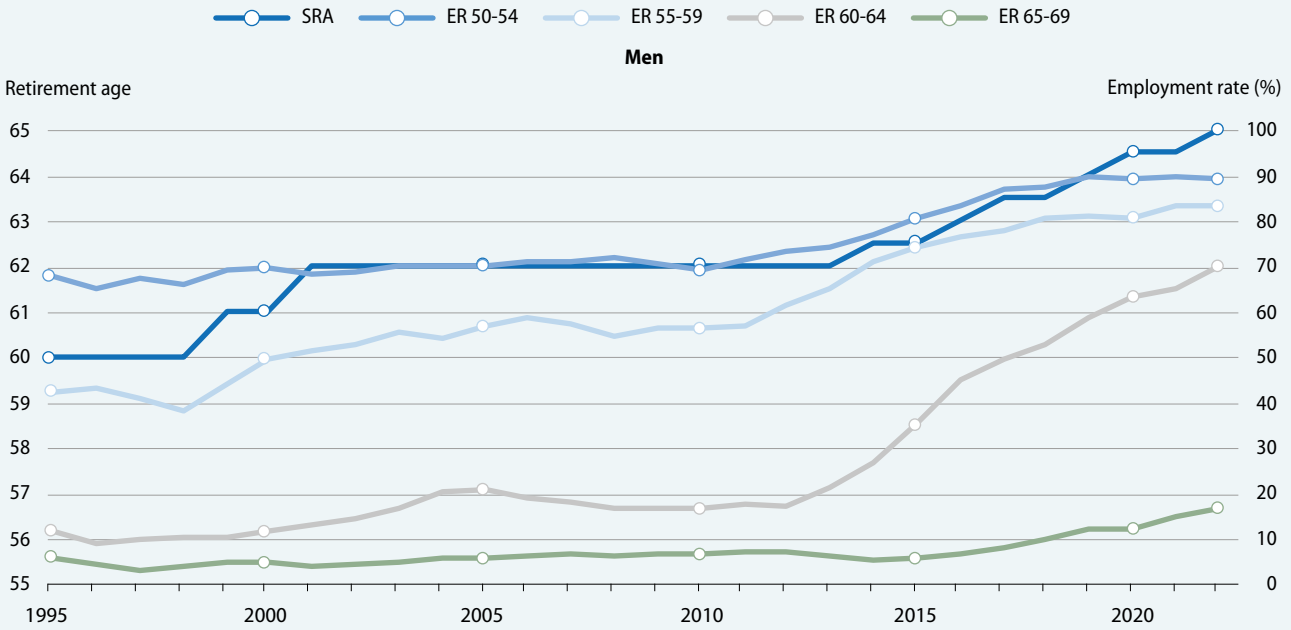
Hungary increased the statutory retirement age several times since the mid-1990s. Initially at 55 for women and 60 for men, the 1996 retirement-age reform set the retirement age at 62 for both men and women. For men, the retirement age increased to 62 by 2001 (1939 birth cohort) while it reached that level for women in 2009 (1947 birth cohort). In 2009 a further increase of the statutory retirement age was legislated, gradually increasing from 2014 to reach 65 in 2022 (1957 birth cohort). The change has had an important role in increasing employment rates for those aged 55-74 between 2002 and 2017 (Geppert et al., 2019[10]).

Early retirement options were also restricted over the same period. The 1996 reform allowed for early retirement without penalty up to five years before the statutory retirement age on the condition of a 38-year service period for both men and women (less for older cohorts). Early retirement with penalty was possible with a 33-year service period, although penalties were very mild. The penalty was dependent on how long before the statutory retirement age the pension was claimed, with very low penalties for shorter periods of early retirement. The pension was reduced by 0.1% for each month of early retirement up to one year and increased by 0.1 percentage point for each year of early retirement so that a penalty of 0.5% per month only applied to people retiring five years before the statutory retirement age. The 2009 reform reduced the period of early retirement from five to three years. From 2014 onward, the early retirement age would have increased together with the statutory retirement age. Furthermore, the required service length was extended to 40 years for early retirement without penalty and 37 years for early retirement with penalty, although the penalty formula remained the same. However, in 2011, the early retirement scheme was scrapped entirely, and the women-40 scheme was introduced, effectively allowing early retirement only for women after a 40-year eligibility period.

Among men, the increase in employment rates of different age groups has more or less followed the pattern of retirement-age increases (Figure 1.21, Panel A).[6] In the age group 60-64, the employment rate

FIGURE 1.21(a). **Employment rates of older workers have followed increases in retirement ages**

The evolution of the statutory retirement age (SRA) (left-hand scale) and employment rates (ER) for different age groups (right-hand scale) between 1995 and 2022, by gender



Note: SRA = statutory retirement age; ER = employment rate.

Source: OECD labour statistics and information provided by Hungary.

6. The increasing employment of older workers has not resulted in a decline in employment rates among youth. For the age group 25-34, the employment rate increased from 81% in 1995 to 90% in 2022 for men and from 53% to 81% for women over the same period. The trends were only temporarily interrupted in the wake of the 2008 financial crisis in particular for men, and with the COVID-19 pandemic in 2020 in particular for women.

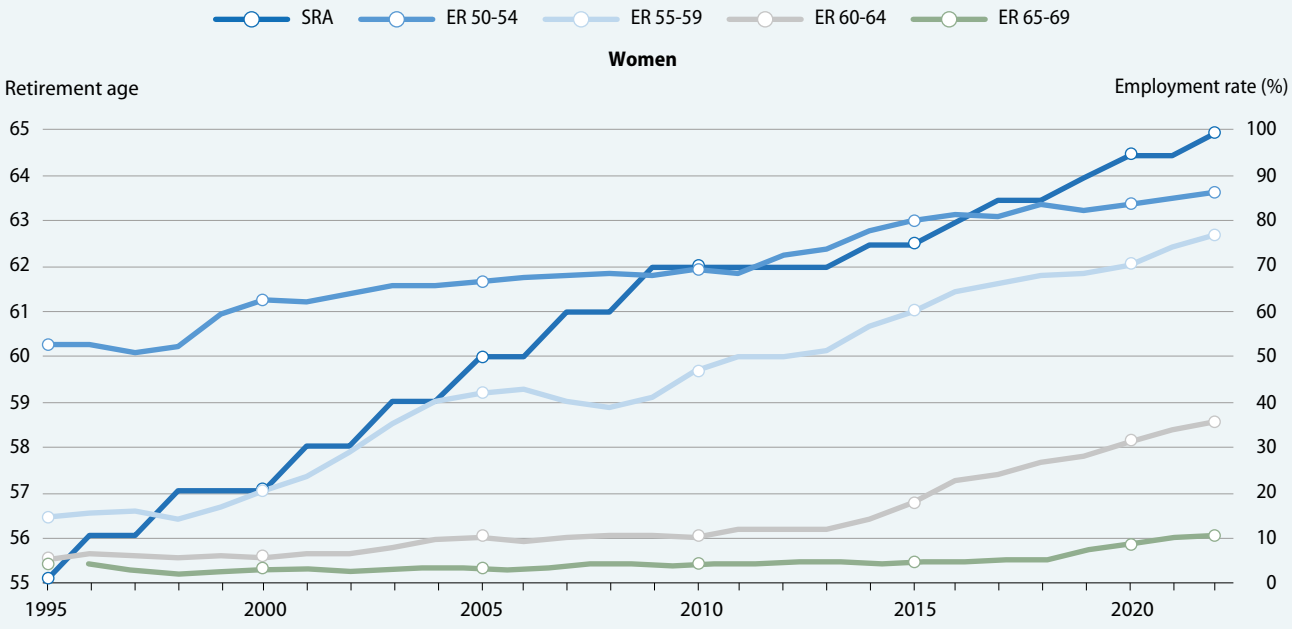
...Box 1.4. continued

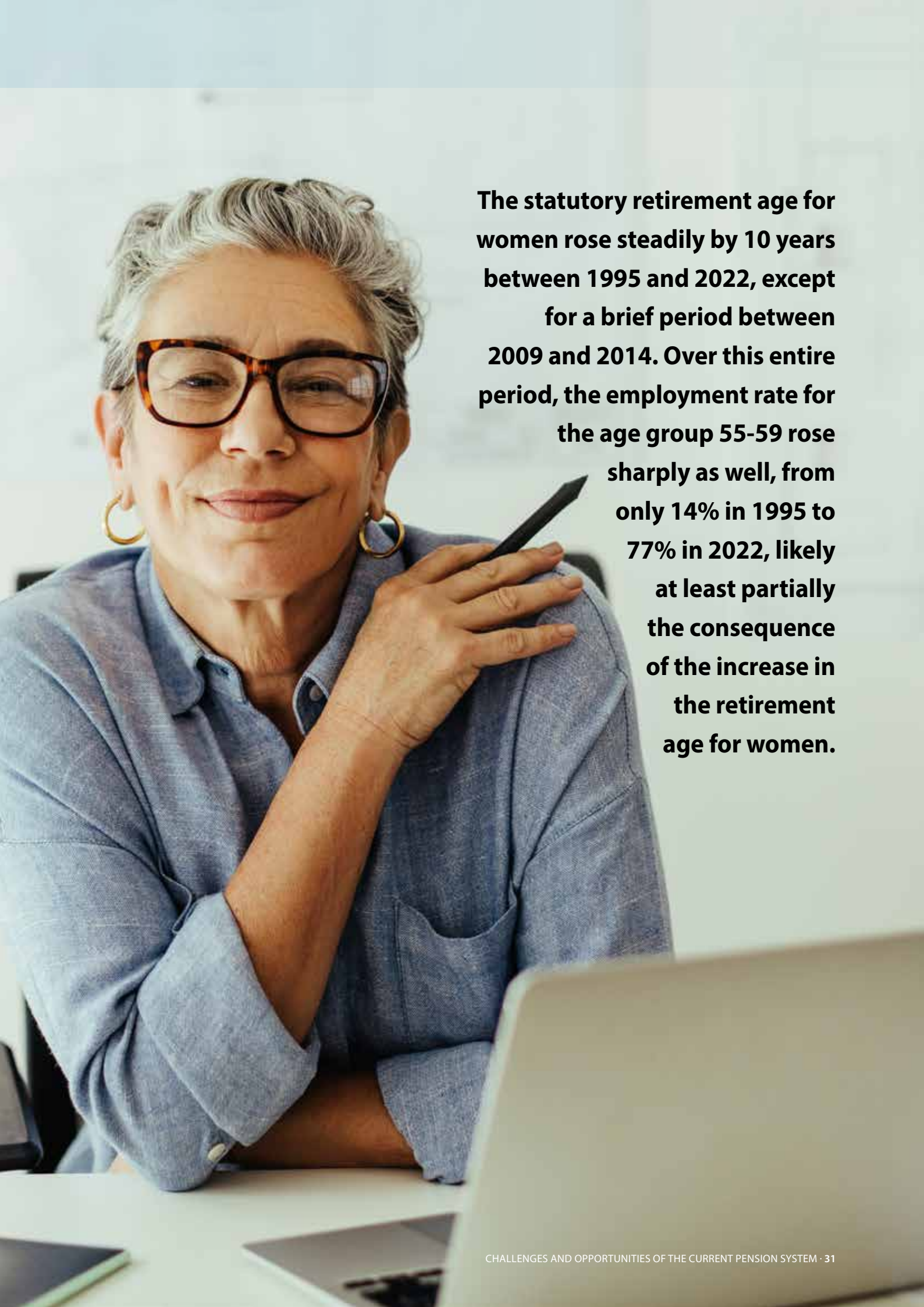
increased from around 10% to around 20% between 1999 and 2004 following the increase of the statutory retirement age from 60 to 62. Moreover, as the early retirement age rose from 55 to 57 in tandem with the increase in the statutory retirement age, the employment rate for the 55-59 increased from around 40% to over 50% in the same period. In comparison, the employment rate in the age group 50-54, which was just before men could become eligible for early retirement, remained roughly stable at around 70% between 1995 and 2010. While male retirement ages remained the same through most of the 2000s, employment rates of these different age groups remained roughly stable over this period. From 2011 onward, employment rates increased again for the age group 55-59, just at the time the early retirement possibility for men was eliminated, with the employment rate shooting up from 56% in 2011 to over 80% seven years later. The increase in the employment rate by 16 percentage points in the age group 50-54 over the same period could indicate that other factors than early retirement reforms may also play a role, as people in this age group have never been eligible for early retirement. Alternatively, this may be the result of spill-over effects such as changing retirement norms (i.e. shared ideas in a society about until which age people are perceived as too young to retire or from when they are perceived as too old to continue working) or individual financial reserves no longer being sufficient to bridge increasing gaps between quitting employment and becoming eligible for an old-age pension. The start of the steep increase in the employment rate of the age group 60-64 corresponds to the moment the statutory retirement age started to increase from 62 to 65 in 2014. At 21% in 2013, the employment rate of men in this age group reached 70% in 2022.

Employment rates of women increased sharply as well over the same period, marked by a very fast increase in their statutory retirement age (Panel B). The statutory retirement age for women rose steadily by 10 years between 1995 and 2022, except for a brief period between 2009 and 2014. Over this entire period, the employment rate for the age group 55-59 rose sharply as well, from only 14% in 1995 to 77% in 2022, likely at least partially the consequence of the increase in the retirement age for women. At the same time, the introduction of the women-40 scheme in 2011 appears not to have slowed down the trend in increasing employment rates of women in the different age groups. The employment rate has increased almost continuously over this period as well among the 50-54, from 52% initially to 87% in 2022, just below the rate for men in the same age group. Other than for men, however, employment in this age group may have been impacted by reforms as early retirement was possible at age 50 for women in 1996. The only clear trend break in women's employment rates is an increase for the 60-64 after 2014, coinciding with the increase in the statutory retirement age from 62 to 65. Employment among the 60-64 increased from an extremely low 13% in 2014 to 35% in 2022. The increase however is much less pronounced than for men, which may be the consequence of the women-40 scheme partially mitigating the impact of the retirement-age increase.

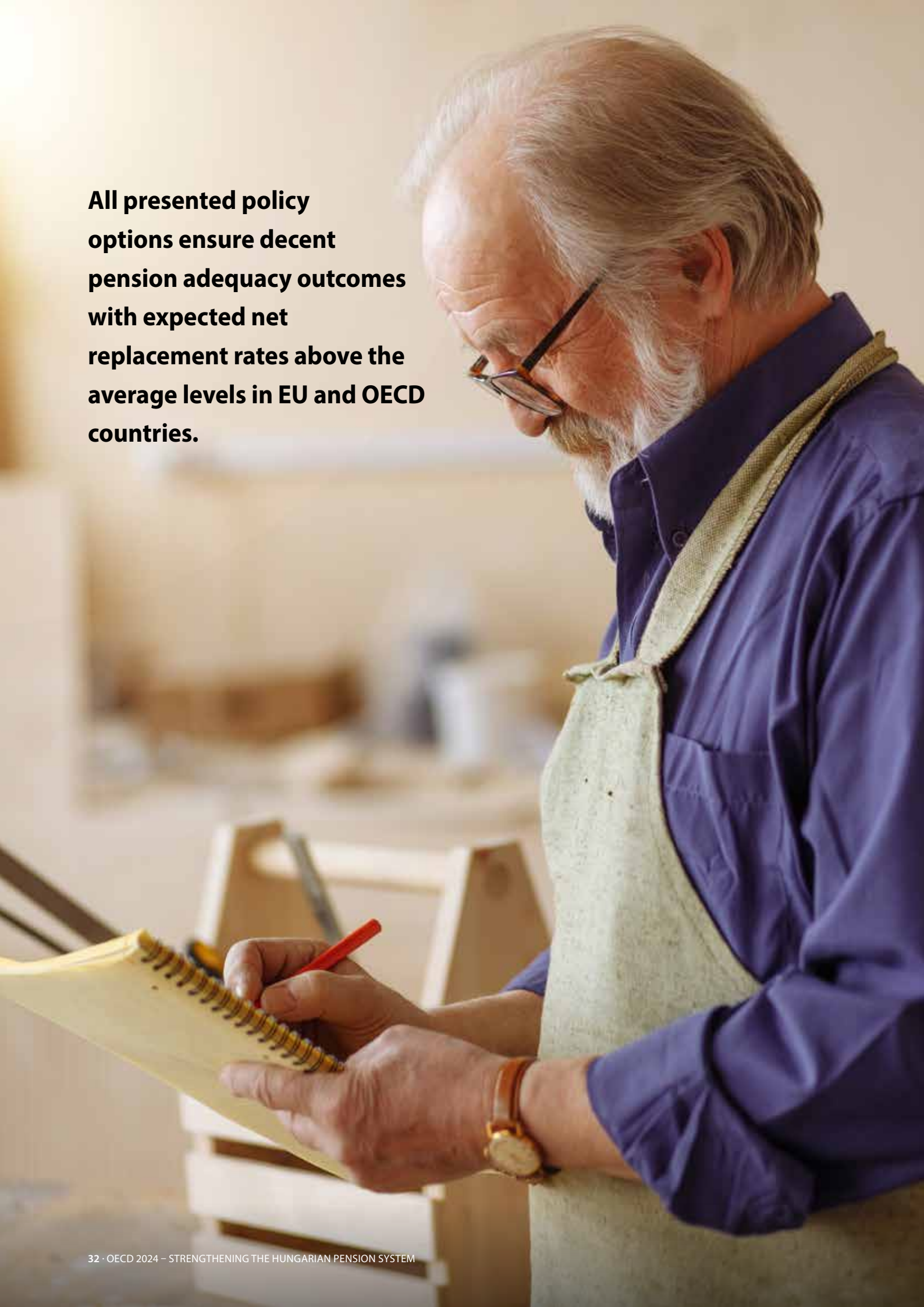
FIGURE 1.21(b). **Employment rates of older workers have followed increases in retirement ages**

The evolution of the statutory retirement age (SRA) (left-hand scale) and employment rates (ER) for different age groups (right-hand scale) between 1995 and 2022, by gender





The statutory retirement age for women rose steadily by 10 years between 1995 and 2022, except for a brief period between 2009 and 2014. Over this entire period, the employment rate for the age group 55-59 rose sharply as well, from only 14% in 1995 to 77% in 2022, likely at least partially the consequence of the increase in the retirement age for women.



All presented policy options ensure decent pension adequacy outcomes with expected net replacement rates above the average levels in EU and OECD countries.

2. Strengthening the medium- and long-term sustainability of the pension system

This section discusses policy options to improve the sustainability of the public pension system by changing the system's parameters. The assessed parameters include the retirement age, pension benefits (via pension indexation and accrued benefits) and contribution rates. More radical options that involve switching from the unfunded to a funded system or increasing the reliance on private saving accounts, which could be beneficial if market returns are believed to be higher than GDP growth, are beyond the scope of this report. Nevertheless, Hungary could consider strengthening complementary pension saving instruments to accompany the pension reform (a short overview of the current state of play is presented in Section 3).

All policy options are evaluated with a model used by the Hungarian authorities to evaluate past reforms (Box 2.1). These calculations are then complemented by a model developed by the OECD that estimates the extent to which the policy options contribute to closing the pension funding gap for a representative cohort affected by the policy change (Box 2.2). Pension adequacy estimates are calculated using the OECD model informing the OECD publication *Pensions at a Glance* (Box 2.3). The list of policy options (scenarios) is divided into two parts. First, stand-alone changes of individual parameters are examined. To facilitate comparability between scenarios, some of them are set to produce the same savings as in the scenario that models the option of linking retirement to life expectancy, a policy change already recommended in the *2019 OECD Economic Survey of Hungary* (OECD, 2019[11]). Second, two combined policy options are described and analysed. The latter aims at enhancing financial sustainability and, at the same time, ensuring intergenerational fairness, protecting vulnerable groups and simplifying the system.

BOX 2.1. MODEL USED FOR EVALUATING THE FISCAL IMPACT OF THE SET OF POLICY OPTIONS

The Hungarian State Treasury developed a macro model that estimates the impact of the policy options discussed in this report, projecting expenditures and the number of pensioners. This output data is further broken down, considering gender and age cohorts, including men, women, and women covered by the Women-40 scheme.

The model's parameters are set based on: Pension Payment Stock Data (September 2023), including the number of beneficiaries and the average benefit amount; New Entrants Data (2022), encompasses the number of new pensioners and the associated average benefit amounts for the year 2022; Population Forecast from Eurostat (Until 2070) segmented by age cohorts; and Eurostat Macroeconomic Forecasts for GDP growth, CPI and labour productivity growth.

Changes in the number of beneficiaries and new entrants are integrated into the model based on Eurostat's data which may differ from data of the Hungarian Central Statistics Office (HCSO). These data also encompass the influence of migration. However, due to time constraints, the model does not account for the differences in pension entitlements between Hungarian workers and migrant workers of the same age (the latter likely to have lower pension entitlements). Thus, the model's results can be considered as an upper estimate of expenditure from this perspective. The budgetary effects of pension-like benefits are consistently factored into all estimations, following a uniform approach based on the Ageing Working Group (AWG) model.

The 'no-policy-change'-scenario, to which the fiscal impacts of the policy options are compared, draws on the assumption that the statutory retirement age remains at 65 years while the Women-40 scheme remains, applying current eligibility criteria. The income ceilings for wage degression (only 90% of the average net earnings exceeding HUF 372 000 (EUR 985) and 80% of the average net earnings exceeding HUF 421 000 (EUR 1 115)) are assumed to be indexed to wage growth. According to the model, in the 'no-policy-change'-scenario, pension-related spending is projected to rise by 2.3% of GDP by 2045 and 4.0% by 2070.

For the scenarios implying longer working years due to a higher statutory retirement age or tighter eligibility conditions for the Women-40 scheme, the number of active pensioners is predicted to decrease. In the model, the assumption is made that the total reduction of active pensioners is equal to the total increase in contributors implying that old-age unemployment remains constant. To derive the increase in total contributions and calculate the system's fiscal imbalance, the additional contributors are assumed to earn the average wage.

Source: Hungarian State Treasury.

BOX 2.2. **ESTIMATING THE FISCAL IMPLICATIONS FOR A REPRESENTATIVE COHORT**

The model developed by the OECD aims at objectives i) indicating replacement rates that could be fully financed by individual contributions disregarding other budgetary sources and ii) quantifying the pension funding gap: the difference between the total benefits a representative cohort is expected to receive according to the current pension rules and the total contributions, both compounded according to the system's internal rate of return. This allows to evaluate how changes in the system's parameters could reduce this gap.

To compute actuarially fair replacement rates and pension funding gaps, different assumptions are needed. The internal rate of return is assumed to be equal to the sum of employment growth, inflation and labour productivity growth[7]. Income ceilings used for the calculation of the accrued benefits are assumed to be indexed to wage growth. The representative agents, male and female workers from seven different income classes (minimum wage to 4x average wage), are assumed to be full-time employees entering the labour market at the age of 22 to 24, depending on their income levels. High earners are assumed to enter the labour market later as they usually spend more time in post-secondary and tertiary education. All representative agents are assumed to continuously work until the statutory retirement age (65), except women making use of the early retirement option (assumed to be 50% of all women). The latter are expected to enter the labour market earlier and retire after a career of forty years at the age of 60 to 62. To calculate the cohort's contribution gap, the model weighted each agent's impact according to the Hungarian wage distribution in 2022 (contribution rates and the other pension rules are described in Box 1.1).

Table 2.1 serves to illustrate the results for a representative cohort, showing working years, net replacement rates, income-dependent contribution gaps and the actuarially fair replacement rates, i.e. those consistent with total contributions paid financing price-indexed benefits received while accounting for projected productivity gains, employment growth and mortality rates under current pension rules. Contrary to the comprehensive agent assumptions used to project the pension funding gap for the specific policy options, for this simplified illustration, unisex life expectancy and standard career length until the statutory retirement age of 65 is assumed, disregarding the Women-40 scheme's impact on working years. Based on this simplified illustration of the cohort characteristics, contributions cover around 80% of benefits with high earners contributing relatively more than low earners. The actuarially fair replacement rates are about 13 to 16 percentage points, or 18%, lower than the projected net replacement rates based on legislated measures. In a similar exercise conducted for Slovenia (OECD, 2022, p. 133[9]), the actuarially fair replacement rate for the representative agent who assumed to earn the average wage was about 20% lower than the expected rate based on the current pension rules.

TABLE 2.1. **Model calibration for the age cohort entering retirement around 2070**

Worker income	Working years	Expected net replacement rate, current rules (%)	Contributions, % of benefits	Actuarially fair replacement rates (%)
Min wage	43	93	74	77
2/3 the average wage	43	93	74	77
Average wage	42	91	74	75
5/3 of the average wage	42	85	80	70
2 times the average wage	42	83	82	68
3 times the average wage	41	77	85	64
4 times the average wage	41	76	87	63

7. The baseline assumptions are based on the 2021 EU Ageing Report (the latest version available at the time the modelling was conducted). Comparing the assumptions in the 2024 and 2021 Ageing Reports, the projected annual changes in employment growth, CPI growth and labour productivity growth have been revised by -0.02, 0.56, and -0.01 percentage points, respectively (European Commission, 2024[3]; European Commission, 2021[4]). Calibrating the model to these changes, deviations in the share of the contribution gap closed are limited to two percentage points or less for all presented policy options.

BOX 2.3. **MODEL FOR CALCULATING EXPECTED REPLACEMENT RATES**

The OECD model calculates the pension benefits of six workers born in 2000 and entering employment aged 22 in 2022, who retire after a full career, based on current legislation. A full career is defined as entering the labour market at age of 22 and permanently working full-time until reaching the age of eligibility of all pension schemes combined without penalty (i.e., the normal pension age). Hence, for the base case the normal retirement age for men in Hungary is equal to the statutory retirement age of 65, whereas it is 62 for women as that is when a woman entering the labour market aged 22 can retire after a full career through the Women-40 scheme.

The pension benefits presented reflect the pension drawn at the normal retirement age by men and women working at the average wage, half of the average wage and twice the average wage, respectively, throughout their whole career. Pension benefits are expressed as replacement rate, i.e. as a percentage of pre-retirement earnings[8].

In all models, the degression thresholds above which only 90% and 80% of average earnings are taken into account in the pension benefit calculation are assumed to follow wage growth. Price inflation is assumed to be 2% per year. Like for all OECD countries, real earnings are assumed to grow by 1.25% per year on average (given the assumption for price inflation, this implies nominal wage growth of 3.275%).

Under current legislation, a man entering the labour market aged 22 in 2022 and retiring at 65 in 2065 will receive a net replacement rate of 89.8% at the average wage, of 94.0% at half the average wage and 82.5% at twice the average wage. Replacement rates are lower for women as they are assumed to retire three years earlier. Upon retirement in 2062, replacement rates for women on average earnings, on half of average earnings and on twice the average earnings will have a net replacement rate of 83.5%, 87.4% and 76.7%, respectively.

8. Under the baseline assumptions, workers earn the same percentage of average worker earnings throughout their career. Therefore, final earnings are equal to lifetime average earnings revalued in line with economy-wide wage growth, as is the case in Hungary. Replacement rates expressed as a percentage of final earnings are thus identical to those expressed as a percentage of lifetime earnings.

2.1. TIGHTENING ELIGIBILITY CONDITIONS

Tightening eligibility conditions could improve financial sustainability by shortening the duration of benefit payments while raising GDP and pension contributions as careers become longer. Such a change would mainly affect future pensioners, with the precise effects on different cohorts depending on whether the implementation occurs on a cohort or year basis.

Limiting the number of years in retirement to reduce future spending is reasonable especially in times when life expectancy and healthy life expectancy are increasing. In Hungary, healthy life expectancy at the age of 65 increased by 1.2 years for men and 1.9 years for women from 1995 to 2021 (Eurostat, 2023[12]), and is expected to keep rising along with the expected increase in life expectancy. Despite these increases, life expectancy, especially for men, is lower than in many other OECD countries. This, combined with rapid increases in the statutory retirement age during the last decade, imply that Hungarians are expected to live fewer years after retirement than their peers in other EU countries. Any changes to the eligibility conditions would therefore need to find the right balance between different objectives.

There are two main options for tightening the eligibility conditions: increasing the statutory retirement age and adjusting the Women-40 scheme. The current statutory retirement age is about the OECD average for both men and women and no further increases are currently underway. Due to the Women-40 scheme, the normal retirement for women (measuring the age of eligibility based on a full career after labour market entry at age 22) is 3 years lower than the statutory age (which is 65). As other countries keep increasing the statutory retirement age – either through discretionary increases or by linking it to changes in life expectancy (as done in Denmark, Italy, Portugal, Estonia, Finland, Greece, and the Netherlands (Box 1.2) – the expected retirement age for those who enter the labour market today is lower in Hungary than the OECD average. By allowing future pensioner generations to access a full pension from age 65, despite the expected rise in life expectancy, future generations will receive more pensions throughout their lives than current ones. The 2019 *OECD Economic Survey* already recommended Hungary to link the statutory retirement age to increases in life expectancy (OECD, 2019[11]), a recommendation that was also expressed by the Hungarian central bank in its recently published Competitiveness Report (MNB, 2022[13]). The 2019 *OECD Economic Survey* also recommended abolishing the Women-40 scheme.

Linking the retirement age to changes in life expectancy reduces uncertainty about future pension rules by minimising the need for ad hoc adjustments. It improves credibility and helps to build trust in the pension system (OECD, 2021[5]). Transmitting two-thirds of gains in life expectancy to the retirement age would broadly keep the share that adults spend in retirement relative to the time they spend working constant across generations, thus contributing to intergenerational equity. It would enable to reduce pension-related spending while increasing replacement rates (through more years of contributions) and the number of years in retirement (Figure 2.1). Linking the statutory retirement age to life expectancy 1:1 will bring higher savings but might not be optimal as the number of years in retirement would remain relatively low.

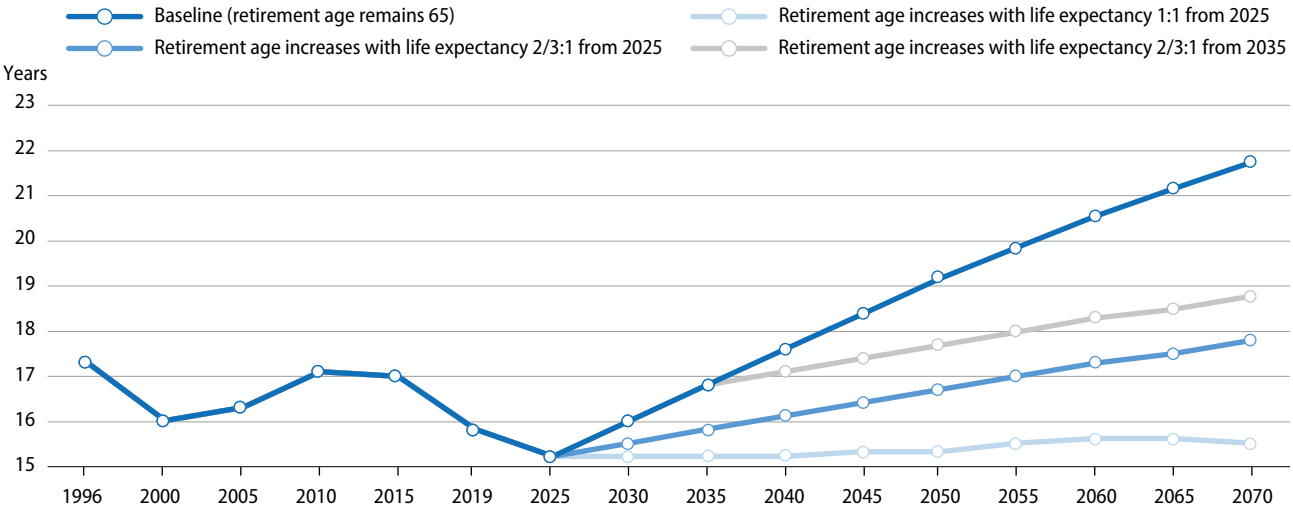
POLICY OPTION 1: Linking the retirement age and the Women-40 scheme to life expectancy by a factor of 2/3:1, starting from 2025

This scenario assumes that the statutory retirement age increases by eight months for every year of gains in the average life expectancy of men and women at age 65 (a link of 2/3:1). As a result, the statutory retirement age is projected to increase from 65 years in 2025 to 67 years by 2045 and to 69 years by 2070 (rounding to full years). The Women-40 scheme would be linked to the change in female life expectancy with a factor of 8 months per year, to avoid an increasing discrepancy between the effective retirement ages and the expected years in retirement of men and women. Thus, for women with a long service eligibility, the option to retire before the age of 65 without any penalty would remain.

At the same time, the policy option will introduce a new early retirement option for men and women who are not entitled for the Women-40 scheme. Allowing workers some leeway to decide whether to have a longer retirement period with lower pension benefits or a shorter retirement period with higher pension benefits could lower the gap in expected years in retirement relative to the EU average and improve well-being, as individuals have different preferences regarding consumption (higher pension benefits) and leisure (longer retirement period). It could also increase public acceptability of further increases in the retirement age. Notwithstanding, for the early retirement option to not cause additional expenditures, it should be actuarially neutral as much as possible. Therefore, those who choose to retire early will receive their pension benefits with a penalty, accounting for the longer time in retirement (Box 2.5). In addition, to minimise the adverse impact on economic activity and total tax revenues, the early retirement option would be limited, so it will not exceed two years before the statutory retirement age and will not allow retiring before the current retirement age of 65.

FIGURE 2.1. **The time people spend in retirement can increase even in case of linking retirement to gains in life expectancy**

The gap between the projected cohort life expectancy at 65 and the statutory retirement age depending on different linkage options (shown for men in years).



Source: OECD calculations and European Commission 2024 Ageing Report.

BOX 2.4. **LINKS OF RETIREMENT AGE TO LIFE EXPECTANCY IN OECD COUNTRIES**

One in four OECD countries now link retirement ages to life expectancy, including Denmark, Estonia, Finland, Greece, Italy, the Netherlands, Portugal, the Slovak Republic and Sweden. Beyond pensions, such links lower the impact of ageing on total output and ultimately on the average standard of living of the whole population.

The exact link differs across countries. Denmark, Estonia, Greece, Italy and the Slovak Republic increase the retirement age by one month for every month gained in life expectancy at age 65, except for Denmark which uses age 60. This might be needed to ensure financial sustainability, but a one-to-one link implies that all additional expected life years are spent working, while the length of the retirement period is constant, leading to a steady decline in the share of adult lives spent in retirement. In Denmark, the parliament has to vote every five years to ensure the link is maintained.

In Finland, the Netherlands, Portugal and Sweden, the statutory retirement age increases by two-thirds of the change in life expectancy at 65. These links are designed to keep the ratio of expected time in retirement to time spent working roughly constant. In addition, in Portugal, someone with more than 40 years of contributions can retire four months earlier for each year over 40 years of contributions. This effectively implies that only half of life expectancy gains are reflected in the normal retirement age. The Netherlands switched from a one-to-one to a two-thirds link before it took effect in 2020, and discussions in Denmark are ongoing on whether to move from a one-to-one to a slower link. Hence, while a one-to-one link may be beneficial from a perspective of financial sustainability, the political sustainability of such a link might be weak over time.

Not all links between retirement ages and life expectancy ensure by themselves the financial sustainability of pay-as-you-go defined-benefits schemes, even if the pension system is based on sound finances initially i.e., notwithstanding the impact of demographic changes. First, whether it does, depends of course on the extent to which changes in life expectancy are transmitted to changes in retirement ages. One-third, two-thirds or one-to-one links do not produce the same effects. Second, changes in the size of the working-age population driven by past fertility rates and migration matter for pension finances irrespective of longevity gains. Third, in most countries additional years of work mean additional pension entitlements, so the impact of a link between retirement age and life expectancy on pension financing depends on the extent to which the resulting increase in career length is offset by lower accrual rates. As long as the pensioner-to-contributor ratio stays constant, a stable aggregate replacement rate can be financed by a stable contribution rate in a sustainable way when the initial parameters are also set in a sound way. This is why one objective of such links is to help stabilise the pensioner-to-contributor ratio, which tends to increase with longevity gains and retirement ages that do not adjust. Not raising the retirement age in line with improvements in life expectancy tends to deteriorate financial balances, which then need to be improved through lower replacement rates, reduced pension indexation, higher contribution rates or additional tax resources.

Two aspects make the implementation of such a link attractive. First, it is conditional on health changes that are effectively taking place, as captured by life expectancy. If health improvements do not materialise, then retirement ages do not increase. Second, such links limit the political cost of undertaking unpopular measures such as raising the retirement age.

Source: OECD *Pensions at a Glance 2021*.

Compared to a 'no-policy-change'-scenario that assumes that the statutory retirement age will remain 65, Policy Option 1 is projected to reduce the number of active pensioners by 11.1% and increase the number of potential contributors by 8.6% by 2070, thus lowering the gap between contributions and pension-related expenditures. On the other hand, higher old-age employment and longer careers also result in higher accrued pension benefits, partly offsetting the positive fiscal effect. Overall, the linkage is expected to reduce pension spending by 1.7% of GDP by 2070 and increase contributions by 0.6% of GDP, without considering the positive effect of this measure on GDP (denominator effect) and other tax revenues (Table 2.3). The imbalance between pension-related spending and contributions, therefore, would decline by at least 2.2% of GDP.

According to the model that calculates the replacement rates for a representative cohort (Box 2.2), increasing the statutory retirement age by 8 months for each additional year of life expectancy could address 65% of the pension funding gap for the cohort retiring around 2070. The share of lifetime benefits covered by lifetime contributions would remain below 100%, meaning that the system would not be fully actuarially fair. Contributions of an average male worker would cover 92% of their benefits (compared to 90% without a policy change) while the ratio would amount to 74% for the female counterpart (compared to 65%) due to higher life expectancy and more years spent in retirement, but also because of the still lower average retirement age of women using the indexed early retirement scheme (Women-40).

BOX 2.5. **ACTUARIALLY NEUTRAL EARLY RETIREMENT OPTION**

Early retirement option

Those who choose the early retirement option will receive their pension benefit reduced by a penalty accounting for longer time in retirement. In practice, it means that on top of the reduced accruals due to missing years of contributions, there will be a penalty on accrued entitlements for each month of early retirement. Nevertheless, to minimise the adverse impact on economic activity, the early retirement option would be limited, so it will not exceed two years before the statutory retirement age.

Penalty for early retirement

The needed penalty could be calculated so that the present value of the future pension benefits from already accrued entitlements of an individual retiring early remains constant, implying actuarial neutrality. In that sense, it is neutral for public finances, at least when abstracting for other possible spill overs (e.g. tax revenues) from remaining employed. The penalty depends on the retirement age, life expectancy, the indexation of pensions and discount rates.

As derived in Pensions at the Glance 2017 (Chapter 2, ANNEX 2.A1), the actuarially neutral penalty can be expressed as a function of the annuity factor (AF) at time t:

$$Penalty\ rate_t = \frac{1}{(Annuity\ Factor_t - 1)}$$

The annuity factor serves to calculate the cumulated pensions by being multiplied with the initial pension benefit. The annuity factor is a function of the indexation of pensions in payment ($1 + u$), the probability (s) of survival to age t (life expectancy) conditional on being alive at age τ (retirement age) (s_τ^t), a discount factor ($1 + r$) and the duration between retirement and life expectancy. It can be expressed as:

$$Annuity\ factor_t = \sum_{\tau=t} \frac{(1+u)^{\tau-t} s_\tau^t}{(1+r)^{\tau-t}}$$

If the statutory retirement age is not linked to life expectancy and remains at 65, the estimated actuarially neutral penalty for the Hungarian pension system is expected to decrease to 5.8% by 2065, down from 7.6% today, due to the extended average time spent in retirement following the projected increase in life expectancy. Accordingly, a higher statutory retirement age, e.g. due to a stronger link to the change in life expectancy, implies a gradually higher penalty rate. In case of a link between statutory retirement age and life expectancy with a factor of 8 months per year, reaching 69 years in 2069, the projected annual penalty amounts to 6.5% (Table 2.2).

Application of penalty to starting benefit

Assuming the automatic adjustment mechanism described above, a gain in expected life expectancy of six years, as projected by the Ageing Report 2021, would induce an increase of the statutory retirement age by four years from 65 to 69 by 2069. Capped at two years, making full use of the early retirement option would imply retiring at 67. If the penalty amounts to 6.5% per year, as elaborated above, a member of the representative cohort retiring two years early would receive a starting benefit multiplied by factor 0.88 or shown differently:

$$Starting\ benefit_{(Age\ 67)} = \frac{Total\ accrued\ benefits_{(Age\ 67)}}{(1 + Penalty)^2}$$

$$= \frac{Total\ accrued\ benefits_{(Age\ 67)}}{1.13}$$

TABLE 2.2. **Annual penalty for the actuarially neutral early retirement**

Scenario	2025: Statutory retirement at age 65	2065: Statutory retirement at age 65	2068: Statutory retirement at age 68	2069: Statutory retirement at age 69
Leaving the statutory retirement static at age 65	7.6%	5.8%	–	–
Linking the statutory retirement age to life expectancy with a factor of 8 months per year of increase, from 2035	7.6%	–	6.3%	–
Linking the statutory retirement age to life expectancy with a factor of 8 months per year of increase, from 2025	7.6%	–	–	6.5%

Note: A detailed description on how to calculate an actuarially neutral penalty is provided in Pensions at a Glance 2017, ANNEX 2.A1 *Actuarial neutrality and financial incentives in pension systems*.

Source: OECD calculations., *OECD Pensions at a Glance 2017*.

TABLE 2.3. **Fiscal implications of linking retirement ages to gains in life expectancy by a factor of 2/3:1 from 2025 onwards**

Compared to 'no-policy-change'-scenario

Variable	2045	2070
Change in gross public pension expenditure (as % of GDP)	-0.9	-1.7
Change in pension contributions (% of GDP)	0.3	0.6
Change in the imbalance of contributions and expenditures (% of GDP)[2]	1.2	2.2
Change in total benefit ratio (percentage points)	-0.9	-1.2
Statutory retirement age	67	69
Change in number of active pensioners (%)	-6.6	-11.1
Share of contribution gap closed (%)[1]		65
Contributions (% of benefits), average male worker[1]		92
Contributions (% of benefits), average female worker[1]		74

Note: 1. The calculations are based on the model that computes the actuarially fair replacement rates, described in Box 2.2. These calculations presuppose that a representative cohort is affected by the policy change throughout their entire contribution and retirement periods. Therefore, the projected impact applies to long-term pension projections (mostly post-2070) rather than the current pension stock. 2. A positive figure represents an improvement in the fiscal balance.

Source: Calculations by the Hungarian State Treasury and the OECD.

Linking the retirement age to two-thirds of gains in life expectancy at 65 from 2025 would raise future replacement rates for those remaining employed as total accrued benefits increase. The expected net replacement rate increases by 8.4 percentage points for a male worker on average earnings (Table 2.4). For all income levels, net replacement rates increase by 9.3%, hence the difference across income levels expressed in percentage points only reflects differences in the initial replacement rates.

Linking the career-length requirement to two-thirds of gains in life expectancy in the Women-40 scheme has the exact same impact on replacement rates as also for them, all extra years worked are at the same 2% accrual rate. This represents an increase of 10.0% in net replacement rates, higher than the 9.3% for men only due to lower initial replacement rates.

TABLE 2.4**. Pension adequacy implications of linking retirement ages to gains in life expectancy by a factor of 2/3:1 from 2025 onwards**

For men and women entering the labour market aged 22 in 2022 and retiring at the normal or earliest retirement age

Variable	Gross	Net	Year of retirement
MEN			
Replacement rate (%), retirement at normal retirement age, average wage (change from current legislation in pp)	65.3 (5.6)	98.2 (8.4)	2069
Replacement rate (%), retirement at normal retirement age, 50% average wage (change from current legislation in pp)	68.3 (5.8)	102.7 (8.7)	2069
Replacement rate (%), retirement at normal retirement age, 200% average wage (change from current legislation in pp)	59.9 (5.1)	90.2 (7.7)	2069
Replacement rate (%), retirement 2 years early with 6.5% penalty p.a., average wage (change from current legislation in pp)	54.4 (-5.3)	81.8 (-8.0)	2067
Replacement rate (%), retirement 2 years early with 6.5% penalty p.a., 50% average wage (change from current legislation in pp)	56.9 (-5.6)	85.6 (-8.4)	2067
Replacement rate (%), retirement 2 years early with 6.5% penalty p.a., 200% average wage (change from current legislation in pp)	49.9 (-4.9)	75.1 (-7.4)	2067

...Table 2.4 continued

Variable	Gross	Net	Year of retirement
Average replacement rate (%), EU-22 countries, average wage	54.8	68.2	2067
Average replacement rate (%), OECD countries, average wage	50.9	61.6	2066
Change in normal retirement age (years)	4	4	
Change in earliest retirement age (years), retirement 2 years early with 6.5% penalty p.a.	2	2	
WOMEN			
Replacement rate (%), retirement at normal retirement age, average wage (change from current legislation in pp)	61.1 (5.6)	91.9 (8.4)	2066
Replacement rate (%), retirement at normal retirement age, 50% average wage (change from current legislation in pp)	63.9 (5.8)	96.1 (8.7)	2066
Replacement rate (%), retirement at normal retirement age, 200% average wage (change from current legislation in pp)	56.1 (5.1)	84.4 (7.7)	2066
Average replacement rate (%), EU-22 countries, average wage	54.4	67.6	2066
Average replacement rate (%), OECD countries, average wage	50.3	60.8	2066
Change in normal retirement age (years)	4	4	

Source: OECD calculations.

In case of early retirement two years before the normal retirement age with a penalty of 6.5% per year, net replacement rates decline: the net replacement rate declines by 8 percentage points for the average earner. As individuals can decide to retire less than two years before the statutory retirement age, all changes between +8.4 percentage points and -8.0 percentage points are possible. According to the assumptions in the baseline model (Box 2.3), women retire through the Women-40 scheme more than two years before the statutory retirement age, so the early-retirement scheme with penalty does not apply to them.

POLICY OPTION 2: Linking the retirement age and the Women-40 scheme to life expectancy by a factor of 2/3:1, starting from 2035

The scenario assumes that the statutory retirement age would be linked 2/3:1 to gains in remaining life expectancy at the age of 65, while at the same time allowing actuarial neutral early retirement two years before the statutory retirement age but not before the age of 65 (as described above). However, the link starts from 2035 instead of 2025, reaching 66 in 2045 and 68 in 2070. The special early retirement option for women would also be linked to the change in life expectancy with a factor of 2/3:1 from 2035. This scenario has the same implications as the previous scenario, but with smaller magnitudes. Compared to the 'no-policy-change'-scenario, pension expenditures are expected to decline by 0.4% of GDP by 2045 and by 1.3% by 2070 (Table 2.5) while contributions would only increase by 0.1% of GDP by 2045 and by 0.4% by 2070.

Compared to Policy Option 1, the increase in replacement rate is more moderate due to one less year of accrual at the 2% rate. Net replacement rates for men retiring at the normal retirement age are expected to increase by 7.0% for all income levels (Table 2.6), instead of 9.3% in Policy Option 1, although differences in the initial replacement rates imply uneven effects when reported in percentage points. As the link of the career-length condition results in the same increase in total accruals, changes in replacement rates expressed in percentage points are the same for women as for men. In Policy Option 2, the replacement rate of an average worker retiring early decreases more significantly than in option 1 (-9.9 percentage points compared to -8.4). The greater reduction results from the lower replacement rate before application of the penalty due to one year less of accrued benefits while the annual penalty rate remains almost unchanged (6.3% in Policy Option 2 compared to 6.5% in Policy Option 1).

Increased inequality in life expectancy could pose a challenge when linking the retirement age to life expectancy (OECD, 2019[15]). There is conflicting evidence about how socio-economic differences in life expectancy have changed among OECD countries. Nonetheless, in Hungary, inequality in life expectancy is already high. The life expectancy of highly educated men, for example, is 25% higher than that of low-educated men (Murtin and Lübker, 2022[16]). While automatically linking retirement ages to life expectancy is one of the key policies to improve financial sustainability, it is important to monitor as closely as possible the medium-to long-term trends in life-expectancy inequality.

TABLE 2.5. **Fiscal implications of linking retirement ages to gains in life expectancy by a factor of 2/3:1 from 2035 onwards**

Compared to 'no-policy-change'-scenario

Variable	2045	2070
Change in gross public pension expenditure (as % of GDP)	-0.4	-1.3
Change in pension contributions (% of GDP)	0.1	0.4
Change in the imbalance of contributions and expenditures (% of GDP)[2]	0.5	1.7
Change in total benefit ratio (percentage points)	-0.3	-1.3
Statutory retirement age	66	68
Change in number of active pensioners (%)	-2.2	-7.6
Share of contribution gap closed (%)[1]		57

Note: 1. The calculations are based on the model that computes the actuarially fair replacement rates, described in Box 2.2. These calculations presuppose that a representative cohort is affected by the policy change throughout their entire contribution and retirement periods. Therefore, the projected impact applies to long-term pension projections (mostly post-2070) rather than the current pension stock. 2. A positive figure represents an improvement in the fiscal balance.

Source: Hungarian State Treasury and OECD calculations.

TABLE 2.6. **Pension adequacy implications of linking retirement ages to gains in life expectancy by a factor of 2/3:1 from 2035 onwards**

For men and women entering the labour market aged 22 in 2022 and retiring at the normal or earliest retirement age

Variable	Gross	Net	Year of retirement
MEN			
Replacement rate (%), retirement at normal retirement age, average wage (change from current legislation in pp)	63.9 (+4.2)	96.1 (+6.3)	2068
Replacement rate (%), retirement at normal retirement age, 50% average wage (change from current legislation in pp)	66.9 (+4.4)	100.6 (+6.6)	2068
Replacement rate (%), retirement at normal retirement age, 200% average wage (change from current legislation in pp)	58.6 (+3.8)	88.3 (+5.8)	2068
Replacement rate (%), retirement 2 years early with 6.3% penalty p.a., average wage (change from current legislation in pp)	53.4 (-6.3)	80.3 (-9.5)	2066
Replacement rate (%), retirement 2 years early with 6.3% penalty p.a., 50% average wage (change from current legislation in pp)	55.9 (-6.6)	84.1 (-9.9)	2066
Replacement rate (%), retirement 2 years early with 6.3% penalty p.a., 200% average wage (change from current legislation in pp)	49 (-5.8)	73.8 (-8.7)	2066
Average replacement rate (%), EU-22 countries, average wage	54.8	68.2	2067
Average replacement rate (%), OECD countries, average wage	50.9	61.6	2066
Change in normal retirement age (years)	3	3	
Change in earliest retirement age (years), retirement 2 years early with 6.3% penalty p.a.	1	1	

...Table 2.6 continued

Variable	Gross	Net	Year of retirement
WOMEN			
Replacement rate (%), retirement at normal retirement age, average wage (change from current legislation in pp)	59.7 (+4.2)	89.8 (+6.3)	2065
Replacement rate (%), retirement at normal retirement age, 50% average wage (change from current legislation in pp)	62.5 (+4.4)	94.0 (+6.6)	2065
Replacement rate (%), retirement at normal retirement age, 200% average wage (change from current legislation in pp)	54.8 (+3.8)	82.5 (+5.8)	2065
Average replacement rate (%), EU-22 countries, average wage	54.4	67.6	2066
Average replacement rate (%), OECD countries, average wage	50.3	60.8	2066
Change in normal retirement age (years)	3	3	

Source: OECD calculations.

POLICY OPTION 3: Adjusting the Women-40 scheme to include an age limitation in addition to the career length limitation

As previously noted, a significant gap has emerged between the retirement eligibility condition of men and women. Since 2011, women who have accumulated at least 40 years of rights before reaching the statutory retirement age are allowed to retire with full benefits. This contrasts sharply with the situation of men, who are not afforded the same early retirement privilege.

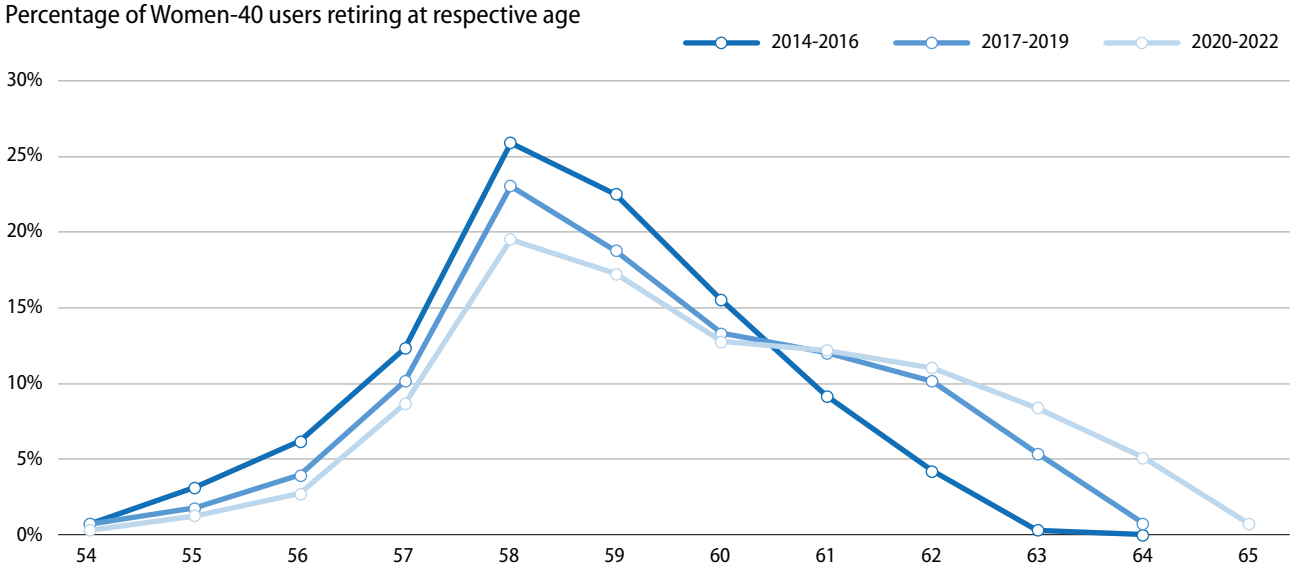
The third policy option limits the burden that the Women-40 scheme puts on fiscal spending and economic output by introducing a minimum age of 60 years for women to be eligible for early retirement, starting in 2025. Around half of female retirees use the Women-40 scheme, and approximately half of them retire at 59 years or younger. Thus, adding a minimum age of 60 years to the Women-40 scheme would immediately reduce the projected time in retirement by at least one year for around 50% of the scheme's users or 25% of all female retirees. As the employment of Women-40 users is generally high, the measure would also likely have a positive effect on employment in the group of female workers between 55 and 60 and on GDP. But without further measures, the effect of this adjustment would decrease over time. Between 2012 and 2022, the distribution of the retirement age of women using Women-40 has gradually moved to the right with the median retirement age increasing from 58 to 59 (Figure 2.2). Assuming this trend continues, the minimum age of 60 would affect a smaller share of retirees in the future.

Introducing a supplementary age requirement of 60 years to the Women-40 scheme is projected to have a small direct effect on the imbalance of pension contributions and benefits. The minimum age is projected to reduce pension spending by 0.2% of GDP in 2045 and 2070 while contributions would increase by 0.1% of GDP respectively. Hence, the deficit of total contributions minus expenditures is expected to diminish by 0.3% of GDP by 2070 (Table 2.7).

Introducing a supplementary age requirement of 60 years to the Women-40 scheme does not affect replacement rate calculations in the model. The normal retirement age is based on labour market entry at age 22, so the qualifying condition of a 40-year career is only met at age 62. However, due the introduction of the minimum age requirement of 60 years, the career length of a woman who (for example) would otherwise be able to retire aged 58 under the Women-40 scheme would extend from 40 to 42 years. At a 2% annual accrual, this would result in an increase of the net replacement rate of 5.0% at all income levels.

FIGURE 2.2. **Between 2012 and 2022, almost two-thirds of the women covered by the Women-40 scheme retired at age 59 or younger but the median retirement age is gradually increasing**

Percentage of Women-40 users retiring at respective age



Source: OECD illustration, based on data from the Hungarian State Treasury.

TABLE 2.7. **Fiscal implications of adjusting the Women-40 scheme**

Variable	2045	2070
Change in gross public pension expenditure (as % of GDP)	-0.2	-0.2
Change in pension contributions (% of GDP)	0.1	0.1
Change in the imbalance of contributions and expenditures (% of GDP)[2]	0.3	0.3
Change in total benefit ratio (percentage points) (women)	-1.3	-1.4
Statutory retirement age	65	65
Change in number of active pensioners (%)	-2.5	-1.9
Share of contribution gap closed (%)[1]		11
Contributions (% of benefits), average female worker[1]		65

Note: 1. The calculations are based on the model that computes the actuarially fair replacement rates, described in Box 2.2. These calculations presuppose that a representative cohort is affected by the policy change throughout their entire contribution and retirement periods. Therefore, the projected impact applies to long-term pension projections (mostly post-2070) rather than the current pension stock. 50% of women are assumed to use the modified Women-40 scheme, based on actual retirement data. In the model, users of the Women-40 scheme are assumed to start their careers 1-2 years earlier than the total average of workers, depending on their income level. 2. A positive figure represents an improvement in the fiscal balance.

Source: Hungarian State Treasury and OECD calculations.

POLICY OPTION 4: Gradually abolishing the Women-40 scheme

A more effective way to address the negative impact of the Women-40 scheme on the fiscal deficit of the pension system and the labour market participation of women at age 55-64 would be to gradually phase it out and align the eligibility conditions of women with those of men. Equalising the retirement ages of men and women has been a general trend across the OECD. Most of the countries where there was a gender difference, either have already eliminated it or are in the process of eliminating it (Box 1.2). In addition to Hungary, only Colombia, Costa Rica, Israel, Poland, and Türkiye are maintaining a lower retirement age for women entering the labour market today (OECD, 2023[8]).

This fourth policy option proposes to gradually abolish the Women-40 scheme from 2025 onwards. For this, the minimum eligibility period (currently 40) will increase by one year every year so that the women-40 scheme will be effectively abolished after approximately ten years, considering that the youngest women covered by the scheme retired at age 54 in recent years.

Phasing out the Women-40 scheme could significantly increase female employment and reduce pension-related spending by about 0.7% of GDP by 2070, not accounting for likely additional tax revenues linked to stronger economic activity (Table 2.8). The policy option would also increase pension contributions by about 0.3%. Due to the long-term abolishment of Women-40, the number of active pensioners would decrease by 250,000 women until 2070 (a decline of 6.6% of total pensioners).

TABLE 2.8. **Fiscal implications of gradually abolishing the Women-40 scheme**

Variable	2045	2070
Change in gross public pension expenditure (as % of GDP)	-0.6	-0.7
Change in pension contributions (% of GDP)	0.3	0.3
Change in the imbalance of contributions and expenditures (% of GDP)[2]	0.9	1.1
Change in total benefit ratio (percentage points) (women)	0	0.2
Statutory retirement age	65	65
Change in number of active pensioners (%)	-5.9	-6.6
Share of contribution gap closed (%)[1]		19
Contributions (% of benefits), average female worke[r1]		69

Note: 1. The calculations are based on the model that computes the actuarially fair replacement rates, described in Box 2.2. These calculations presuppose that a representative cohort is affected by the policy change throughout their entire contribution and retirement periods. Therefore, the projected impact applies to long-term pension projections (mostly post-2070) rather than the current pension stock. 50% of women are assumed to use the modified Women-40 scheme, based on actual retirement data. In the model, users of the Women-40 scheme are assumed to start their careers 1-2 years earlier than the total average of workers, depending on their income level. 2. A positive figure represents an improvement in the fiscal balance.

Source: Hungarian State Treasury and OECD calculations.

Longer careers and higher accumulated rights would also significantly improve pension adequacy and lower poverty among future women pensioners. With the gradual abolishment of the Women-40 scheme, with full elimination well before the time horizon of the future replacement rate projections (about 2065), future replacement rates for women match those of the base case for men (Table 2.9) – although their pension wealth is higher due to longer life expectancy. Replacement rates increase by 7.5% for all income levels as a result of a three-year increase in career length.

TABLE 2.9. **Pension adequacy implications of gradually abolishing the Women-40 scheme**
For women entering the labour market aged 22 in 2022 and retiring at the normal retirement age

Variable	Gross	Net	Year of retirement
Replacement rate (%), retirement at normal retirement age, average wage (change from current legislation in pp)	59.7 (+4.2)	89.8 (+6.3)	2065
Replacement rate (%), retirement at normal retirement age, 50% average wage (change from current legislation in pp)	62.5 (+4.4)	94.0 (+6.6)	2065
Replacement rate (%), retirement at normal retirement age, 200% average wage (change from current legislation in pp)	54.8 (+3.8)	82.5 (+5.8)	2065
Average replacement rate (%), EU-22 countries, average wage	54.4	67.6	2066
Average replacement rate (%), OECD countries, average wage	50.3	60.8	2066
Change in normal retirement age (years)	3	3	

Source: OECD calculations..

2.2. ADJUSTING BENEFIT LEVELS

As noted above, the average disposable income of individuals older than 65 in Hungary is on par with the rest of the population, old-age poverty is low, and according to the current rules of the pension system, new entrants to the labour market can expect high pension benefits once they retire. Next to Slovenia, Hungary is the only EU country where the benefit ratio, the ratio between the average pension and the average wage, is projected to increase by 2070. Thus, lowering pension benefit levels is justifiable to protect the fiscal sustainability of the system.

POLICY OPTION 5: Adjusting past earnings to the size of the contribution base

In this fifth policy option, the accumulated benefits are adjusted for trends in employment to consider the impact of population ageing on the workforce size and, therefore, the contribution base. Anchoring changes in the contribution base (or a proxy like the size of the working-age population, GDP growth or the total wage bill) in a pay-as-you-go system makes good economic sense as it closely relates to the internal rate of return of what the scheme can ensure on paid contributions. Estonia, Greece, Japan and Lithuania have such mechanisms in place (see Box 2.6 on related international practices).

In Hungary, once the starting pension level has been set, pensions are indexed to the annual change in the Consumer Price Index and not the average wage (Box 1.1). Therefore, the link to the contribution base would only apply to the uprating (valorisation) of the average wage used to determine the starting benefit and not to the calculation of the subsequent indexation of pension benefits. Specifically, the annual change in contributors (measured as the change in employment) is assumed to subtract by about 0.23 percentage point each year from the uprating figure used to determine the starting benefits between 2025 and 2070 (in the 'no-policy-change'-scenario, this figure equals 4.1%, the expected annual wage growth, so the adjusted rate is 3.9%). To minimise fluctuations in the uprating formula due to business cycles' impacts on employment, the adjusted formula should account for a multi-year moving average in employment, as in other OECD countries that link pension benefits to the contribution base (Box 2.6).

Compared to the 'no-policy-change'-scenario, adding a factor to the uprating formula to incorporate the change in the size of the contribution base is projected to reduce pension spending by 0.3% of GDP by 2045 and by 0.7% of GDP by 2070 (Table 2.10). The reduction is generated entirely by lower benefits, while total contributions are expected to remain as in the 'no-policy-change'-scenario. Despite the adjustment, lifetime contributions of the average male and

TABLE 2.10. **Fiscal implications of adjusting past earnings to the size of the contribution base**
Compared to 'no-policy-change'-scenario

Variable	2045	2070
Change in gross public pension expenditure (as % of GDP)	-0.3	-0.7
Change in pension contributions (% of GDP)	0	0
Change in imbalance of contributions and expenditures (% of GDP)[2]	0.3	0.7
Statutory retirement age	65	65
Change in number of active pensioners (%)	0	0
Share of contribution gap closed (%)[1]		37
Contributions (% of benefits), average male worker[1]		84
Contributions (% of benefits), average female worker[1]		70

Note: 1. The calculations are based on the model that computes the actuarially fair replacement rates, described in Box 2.2. These calculations presuppose that a representative cohort is affected by the policy change throughout their entire contribution and retirement periods. Therefore, the projected impact applies to long-term pension projections (mostly post-2070) rather than the current pension stock. 2. A positive figure represents an improvement in the fiscal balance.

Source: Hungarian State Treasury and OECD calculations.

female workers would still not cover the net pension wealth but rather close around 36.5% of the pension funding gap for the cohort retiring around 2070, as suggested by the model calculating actuarially fair replacement rates.

Moving from uprating past earnings based on wages to uprating based on the contribution base has a bigger impact on lower earners than on higher earners as past earnings are indexed to changes in the contribution base but the degression thresholds remain wage-indexed (Table 2.11). For high earners, the drop in career-average earnings due to the change in the uprating procedure means that a larger share of their career-average earnings falls below the 90% and 80% degression thresholds compared to when past earnings are uprated to wage growth, which reduces the impact of the change in the uprating. As career-average earnings of low earners already fell fully below the degression thresholds before the change in uprating procedure, this offsetting impact does not apply to them. For the low-wage male earner, the net replacement rate drops by 4.3 percentage points, compared to 3.5 percentage points for the average-wage and high-earner cases, respectively. Among women, replacement rates fall with 3.8 and 3.0 percentage points, respectively.

TABLE 2.11. **Pension adequacy implications of adjusting past earnings to the size of the contribution base**
For men and women entering the labour market aged 22 in 2022 and retiring at the normal retirement age

Variable	Gross	Net	Year of retirement
MEN			
Replacement rate (%), retirement at normal retirement age, average wage (change from current legislation in pp)	57.4 (-2.3)	86.3 (-3.5)	2065
Replacement rate (%), retirement at normal retirement age, 50% average wage (change from current legislation in pp)	59.6 (-2.9)	89.7 (-4.3)	2065
Replacement rate (%), retirement at normal retirement age, 200% average wage (change from current legislation in pp)	52.5 (-2.3)	79.0 (-3.5)	2065
Average replacement rate (%), EU-22 countries, average wage	54.8	68.2	2067
Average replacement rate (%), OECD countries, average wage	50.9	61.6	2066
Change in normal retirement age (years)	0	0	
WOMEN			
Replacement rate (%), retirement at normal retirement age, average wage (change from current legislation in pp)	53.5 (-2)	80.5 (-3)	2062
Replacement rate (%), retirement at normal retirement age, 50% average wage (change from current legislation in pp)	55.6 (-2.5)	83.6 (-3.8)	2062
Replacement rate (%), retirement at normal retirement age, 200% average wage (change from current legislation in pp)	49 (-2)	73.7 (-3)	2062
Average replacement rate (%), EU-22 countries, average wage	54.4	67.6	2066
Average replacement rate (%), OECD countries, average wage	50.3	60.8	2066
Change in normal retirement age (years)	0	0	

Source: OECD calculations..

BOX 2.6. OTHER COUNTRY PRACTICES OF LINKING BENEFITS IN PAYMENT TO THE SIZE OF OR A PROXY FOR THE CONTRIBUTION BASE

Six OECD countries adjust pensions in payment to the size of the contribution base or a proxy thereof: Estonia, Greece, Japan, Latvia, Lithuania and Portugal (Table 2.12).

The Estonian pension system includes an adjustment of pensions to the evolution of total contributions through the value of the pension point within their points system. This mechanism affects both new pensions and pensions in payment as both the base amount of the pension and the value of the point are indexed for 20% to the CPI and for 80% to total contributions in the last year over total contributions the year before.

Similarly, in Lithuania, both the value of the pension point and of the basic pension are linked to changes in the wage bill, albeit over a seven-year period: for a given year, the average wage bill growth comprises the average for the last three years as well as projections of wage bill growth in the current and next three years. Lithuania also ensures a certain level of pension adequacy by not adjusting pension benefits and entitlements if the wage bill falls in nominal terms. While the long reference period provides smoothing, it also creates a need for supplementary corrections in case the seven-year moving average deviates too much from economic conditions in the current year. This need is addressed through a reserve fund mitigating the impact of short-term economic shocks and by applying the indexation only if total contributions are expected to exceed total pension expenditures during both the current and the next year – in that case, a maximum of 75% of the surplus can be used for indexation. The seven-year smoothing procedure does not contain a mechanism to correct indexation if the projections on which indexation was based in previous years turn out to be incorrect. The lack of such a correction mechanism makes the automatic adjustment mechanism vulnerable to manipulation by changing projection methods or assumptions.

Latvia's earnings-related pension scheme is a notional defined contribution (NDC) scheme. Pensions in payment are indexed fully to CPI and in addition to between 50% and 80% of real wage-bill growth depending on the number of years of contributions, if real wage-bill growth is positive.

TABLE 2.12. Adjustment of pension benefits to size of the working population, GDP or the wage bill in OECD countries

Basic characteristics of adjustments to evolutions in size of the working population, GDP or the wage bill

	Affects new pensions	Affects pensions in payment	Based on change in…	Extent of indexation	Period assessed	Mechanism to protect adequacy
Estonia	•	•	Total contributions	80% (+ 20% CPI)	1 year	No negative indexation
Greece		•	GDP (nominal)	50% [a] (+50% CPI)	1 year	
Japan[b]	•	•	Total number of active participants across schemes [c]	added to both wage growth (uprating of past wages) and CPI growth (indexation of pensions in payment)	3 years	Replacement rate for standard pension not below 50%
Latvia	•	•	Total wage bill	CPI + between 50% and 80% of real wage-bill growth depending on career length	1 year	
Lithuania	•	•	Total wage bill	100%	7 years	No negative indexation
Portugal		•	Real GDP	Ranging between CPI – 0.75% and CPI + up to 20% real-GDP growth [d]	2 years	

Note: a) Pensions are indexed to the lowest of two options: either full CPI or 50% CPI and 50% GDP. Hence, partial indexation by GDP only applies if real GDP falls. b) Increases in life expectancy are also accounted for in indexation of new pensions and pensions in payment in Japan, but it is proxied by a fixed rate based on long-term projections in life expectancy. c) If the sum of the change in the number of active participants and -0.3% is negative, it is added both to the growth of average wages in the uprating of past wages to calculate pension entitlements in build-up and to CPI growth in the indexation of pensions in payment. d) In Portugal, indexation varies depending on the level of the pension itself and growth in real GDP.

Source: *OECD Pensions at a Glance, 2021.*

... Box 2.6.continued

Replacement rates from the points scheme in Estonia and Lithuania and the NDC scheme in Latvia will likely be eroded significantly over the next decades due to the impact of demographic changes on the indexation of the point value. Indeed, the size of the working-age population is projected to fall sharply by about 30% in Estonia and almost 40% in Latvia and Lithuania by 2060. This means that the value of total contributions or the wage bill will grow significantly less than wages, lowering replacement rates.

Japan's system of 'macroeconomic indexation' applies a correction both to price indexation of pensions in payment and, for new pensions, to the uprating of past wages based on the average wage. Both are adjusted by changes in the number of contributors to public pensions. The change in the total number of active participants is calculated as an average over the three-year period between four and two years prior. Macroeconomic indexation in addition includes a fixed factor that is supposed to account for growth of life expectancy at 65. If the sum of the growth rate of the number of active participants and -0.3% is negative, it is added both to the growth of average wages in the uprating of past wages to calculate pension entitlements and to CPI growth in the indexation of pensions in payment.

Adjustments in both Estonia and Japan contain little smoothing as both countries assess change over a period of one year and three years, respectively. Yet, the pension systems in both countries include a mechanism to limit the size of the adjustment. In Estonia, as in Lithuania, negative indexation is not possible. Japanese pensions are indexed to inflation with no additional correction at times of negative inflation (and partial correction in case of small positive inflation) as the adjustment itself cannot result in a nominal decrease in pensions. The same applies to uprating in case of negative wage growth. In 2018, a catch-up system was introduced, which carries over downward benefit revisions in years of negative inflation to later years. The Japanese automatic adjustment mechanism also contains a safeguard limiting its application that should prevent that pensions become inadequate due to the adjustment to the size of the contributing population: if the actuarial review conducted every five years projects that the replacement rate of a "standard pension" (i.e. a typical case) will fall below 50% before the next review, adjustments can be suspended.

Greece adjusts pensions in payment by 50% of CPI and 50% of nominal GDP growth. Indexation cannot exceed CPI growth, hence, partial indexation to GDP growth only applies if real GDP falls. In Portugal, indexation of pensions in payment depends on average growth in real GDP over the last two years and the pension level itself, with more favourable indexation of the lowest pensions. The lowest indexation applies to the highest pensions when real-GDP growth is below 2%, in which case pensions in payment are indexed to CPI inflation minus 0.75%; the most favourable indexation applies to the lowest pensions when real-GDP growth exceeds 3%, in which case pensions in payment are indexed to CPI plus 20% of real-GDP growth.

POLICY OPTION 6: Adjusting past earnings to a mix of CPI and wage growth

Another possibility to reduce pension-related spending through an adjustment of the uprating (valorisation) procedure is to move from an indexation that is fully based on wage growth to a combination of wage and CPI inflation from 2025 onwards. In this scenario, both wage growth and CPI growth get equal weights of 0.5. The adjustment is assumed to only apply to wages earned in 2025 or after, while the uprating of wages earned before 2025 is assumed to continue to be based solely on wage growth. The indexation of pension benefits to CPI is assumed to remain unchanged.

The change of the uprating formula is expected to generate savings because wage growth is expected to exceed CPI growth in the long term due to labour productivity growth. The change would also moderate the impact of phases of extreme wage growth or high external inflation due to, for example, soaring energy or food prices (as was partly the case in the recent surge in inflation) on new pension entitlements. Even so, the implications of changing the uprating formula for pension benefits are difficult to predict and understand. In addition, the choice of the uprating procedure has redistribution implications as moving from wage to price uprating is likely to increase inequalities (Box 2.7). It could be better and more transparent, but perhaps less accessible politically, to maintain wage uprating while lowering the accrual rates evenly (Boulhol, 2019[17]). In principle, reducing the accrual rates could achieve similar savings as presented below.

Assuming the difference between wage growth and inflation amounts to 2% per year, explained by labour productivity growth, uprating using 50% CPI inflation and 50% wage growth will reduce the career average of uprated earnings by 22% relative to the 'no-policy-change' scenario, which assumes uprating fully based on wage growth. This implies a sharp decline in the replacement rate and, therefore, spending on new pensions. For a representative cohort beginning their career in 2025, total contributions are expected to be higher than benefits by 12%, exceeding the savings needed to close the contribution gap. However, this strong effect will materialise only in the very long run (after 2070), as the adjustment will only apply to wages earned from 2025 onwards. During the projection period, the policy option is expected to reduce expenditures by 0.8% of GDP by 2045 and by 1.6% by 2070 (Table 2.13). The model does not account for potential effects on employment whereby some workers may decide to retire later in exchange for higher benefits. However, this effect is expected to be small.

The long-term savings effect of the policy option largely depends on labour productivity growth. Suppose Hungary's average annual labour productivity growth until 2070 will align with the projected EU average of 1.4% (0.6 percentage points lower than the projected rate for Hungary in the 2024 Ageing Report); then the share of the contribution gap closed will be significantly smaller. In this scenario, the projected surplus of total contributions to benefits would fall from 11% to become a deficit of 7%, indicating a 3-percentage point reduction for every 0.1 percentage point decrease in the labour productivity growth assumption.

TABLE 2.13. **Fiscal implications of adjusting past earnings to a mix of CPI and wage growth**
Compared to 'no-policy-change'-scenario

Variable	2045	2070
Change in gross public pension expenditure (as % of GDP)	-0.8	-1.6
Change in pension contributions (% of GDP)	0	0
Change in the imbalance of contributions and expenditures (% of GDP)[1]	0.8	1.6
Change in benefit ratio (percentage point)	-3	-5.7
Statutory retirement age	65	65
Change in number of active pensioners (%)	0	0
Share of contribution gap closed (%)[1]		139
Contributions (% of benefits), average male worker[1]		113
Contributions (% of benefits), average female worker[1]		100

Note: 1. The calculations are based on the model that computes the actuarially fair replacement rates, described in Box 2.2. These calculations presuppose that a representative cohort is affected by the policy change throughout their entire contribution and retirement periods. Therefore, the projected impact applies to long-term pension projections (mostly post-2070) rather than the current pension stock.

Source: Hungarian State Treasury and OECD calculations.

Uprating past earnings to 50% of the change in prices and 50% of the change in wages lowers the reference wage, with low earners experiencing again the biggest loss in future net replacement rates, as a higher share of career-average earnings falls below the degression thresholds for high earners mitigating the effect of the shift in uprating (Table 2.14). For men, low earners lose 11.2 percentage points, compared to 9.0 percentage points for both average-wage and high-earner cases; among women, the respective losses are 9.7 percentage points and 7.8 percentage points. Notwithstanding, even after the change, the expected replacement rates remain above the OECD average.

TABLE 2.14. **Pension adequacy implications of adjusting past earnings to a mix of CPI and wage growth**
For men and women entering the labour market aged 22 in 2022 and retiring at the normal retirement age

Variable	Gross	Net	Year of retirement
MEN			
Replacement rate (%), retirement at normal retirement age, average wage (change from current legislation in pp)	53.7 (-6.0)	80.8 (-9.0)	2065
Replacement rate (%), retirement at normal retirement age, 50% average wage (change from current legislation in pp)	55.0 (-7.5)	82.8 (-11.2)	2065
Replacement rate (%), retirement at normal retirement age, 200% average wage (change from current legislation in pp)	48.8 (-6.0)	73.5 (-9.0)	2065
Average replacement rate (%), EU-22 countries, average wage	54.8	68.2	2067
Average replacement rate (%), OECD countries, average wage	50.9	61.6	2066
Change in normal retirement age (years)	0	0	
WOMEN			
Replacement rate (%), retirement at normal retirement age, average wage (change from current legislation in pp)	50.3 (-5.2)	75.7 (-7.8)	2062
Replacement rate (%), retirement at normal retirement age, 50% average wage (change from current legislation in pp)	51.6 (-6.5)	77.7 (-9.7)	2062
Replacement rate (%), retirement at normal retirement age, 200% average wage (change from current legislation in pp)	45.8 (-5.2)	68.9 (-7.8)	2062
Average replacement rate (%), EU-22 countries, average wage	54.4	67.6	2066
Average replacement rate (%), OECD countries, average wage	50.3	60.8	2066
Change in normal retirement age (years)	0	0	

Source: OECD calculations.

BOX 2.7. UPRATING (VALORISATION) IN OECD COUNTRIES

Most OECD countries uprate past wages to average-wage growth

Like Hungary, most OECD countries uprate past earnings based on average-wage growth to calculate the reference wage used for pension purposes. Among the 23 OECD countries with mandatory pay-as-you-go defined benefit earnings-related pension systems, 13 uprate past wages based on average-wage growth. By contrast, 5 countries uprate past wages to the evolution in prices: Belgium, Colombia, Costa Rica, Greece and Spain. In addition, France applies price uprating in the main public earnings-related scheme and wage uprating in the mandatory private occupational scheme.

Furthermore, 4 countries apply other measures: Finland, Portugal, Switzerland and Türkiye. In Finland, past-earnings are uprated to 80% of average-wage growth and 20% of price inflation. In Portugal, they are uprated to 25% of average-wage growth and 75% of price inflation, capped at price inflation plus 0.5 percentage points – the cap then applies when real-wage growth exceeds 2%. Switzerland uprates past earnings in the public pension scheme to a complex mix of wage growth and changes in the minimum pension. Türkiye uprates with price inflation plus 30% of real-GDP growth.

Moving from wage- to price-uprating will likely reduce pensions of people with flat earnings profiles including women with long career breaks for child-rearing

Due to real-wage gains over time, moving from wage- to price-uprating reduce pensions across the board. However, while contribution revenues tend to follow total wages and therefore GDP (assuming constant labour share), this makes spending projections as a share of GDP sensitive to real-wage growth assumptions. Therefore, one significant weakness of such a policy shift – compared with reducing accruals to achieve the same *expected* savings, is that it increases the

... Box 2.7 continued

sensitivity of pension finances to future productivity gains which are very difficult to predict. This therefore induces an undesired uncertainty, with potentially large implications.

Beyond lower expected benefits overall, the choice of the uprating procedure has redistributive implications as moving from wage to price uprating is likely to increase inequalities. When wage uprating is applied, it does not matter for pension build-up when in the career a person makes a certain income. Price uprating on the other hand results in pension entitlements built up early on in the career falling behind on the development of wages. Hence, when moving from wage- to price-uprating in a budget-neutral way, i.e. with a corresponding adjustment of accrual rates, pensions will improve for people with steep earnings profiles and high earnings at the end of the career whereas they will decline for people with flat earnings profiles and people with higher earnings at the start of the career. Hence, such a change will likely have a negative impact among others on the pensions of low-earners with little career progression and of women with career breaks for child-rearing as long absences from the labour market reduce the probability of steep career progression.

POLICY OPTION 7: Adjusting the 13th month's pension benefit by adding an indexed ceiling

Another straightforward way to reduce expenditures would be to adjust the 13th month's pension benefit by adding an indexed ceiling. For example, the 13th month's pension benefit could remain in place for all pensioners but apply only to benefits below the average pension benefit in the respective year. This means that if the expected monthly benefit equals two times the average pension benefit, the bonus will amount to only 50% of the benefit. In 2023, the average allowance was HUF 217 758 (EUR 553). In contrast to the other policy options discussed above, adjusting the 13th month's pension benefit would not only affect future generations, but also the current pool of pensioners. It would lower total expenditures by 0.18% in 2030, by 0.24% in 2045 and by 0.28% in 2070 (Table 2.15).

TABLE 2.15. **Fiscal implications of implementing an indexed ceiling on the 13th month's pension benefit**
Compared to 'no-policy-change'-scenario

Variable	2045	2070
Change in gross public pension expenditure (as % of GDP)	-0.2	-0.3
Change in pension contributions (% of GDP)	0	0
Change in imbalance of contributions and expenditures (% of GDP)[2]	0.2	0.3
Statutory retirement age	65	65
Change in number of active pensioners (%)	0	0
Share of contribution gap closed (%)[1]		6
Contributions (% of benefits), average male worker[1]		78
Contributions (% of benefits), average female worker [1]		65

Note: 1. The calculations are based on the model that computes the actuarially fair replacement rates, described in Box 2.2. These calculations presuppose that a representative cohort is affected by the policy change throughout their entire contribution and retirement periods. Therefore, the projected impact applies to long-term pension projections (mostly post-2070) rather than the current pension stock. [2] A positive figure represents an improvement in the fiscal balance.

Source: Hungarian State Treasury and OECD calculations.

Capping the 13th month's pension benefit at the level of the average pension affects pensioners with above-average entitlements. For the high-earner case, this corresponds to a drop in the future net replacement rate of 3.2 percentage points for the high-earning man and 3.0 percentage points for the high-earning woman (Table 2.16)[9].

9. The replacement rates calculations are for illustration. In practice, individuals who become new pensioners on the 1st of January of a given year are eligible to receive the 13th month's pension only in the subsequent year.

TABLE 2.16. **Pension adequacy implications of implementing an indexed ceiling on the 13th month's pension benefit**

For men and women entering the labour market aged 22 in 2022 and retiring at the normal retirement age

Variable	Gross	Net	Year of retirement
MEN			
Replacement rate (%), retirement at normal retirement age, average wage (change from current legislation in pp)	59.7 (0)	89.8 (0)	2065
Replacement rate (%), retirement at normal retirement age, 50% average wage (change from current legislation in pp)	62.5 (0)	94.0 (0)	2065
Replacement rate (%), retirement at normal retirement age, 200% average wage (change from current legislation in pp)	52.7 (-2.1)	79.3 (-3.2)	2065
Average replacement rate (%), EU-22 countries, average wage	54.8	68.2	2067
Average replacement rate (%), OECD countries, average wage	50.9	61.6	2066
Change in normal retirement age (years)	0	0	2065
WOMEN			
Replacement rate (%), retirement at normal retirement age, average wage (change from current legislation in pp)	55.5 (0)	83.5 (0)	2062
Replacement rate (%), retirement at normal retirement age, 50% average wage (change from current legislation in pp)	58.1 (0)	87.4 (0)	2062
Replacement rate (%), retirement at normal retirement age, 200% average wage (change from current legislation in pp)	49 (-2)	73.7 (-3)	2062
Average replacement rate (%), EU-22 countries, average wage	54.4	67.6	2066
Average replacement rate (%), OECD countries, average wage	50.3	60.8	2066
Change in normal retirement age (years)	0	0	

Source: OECD calculations..

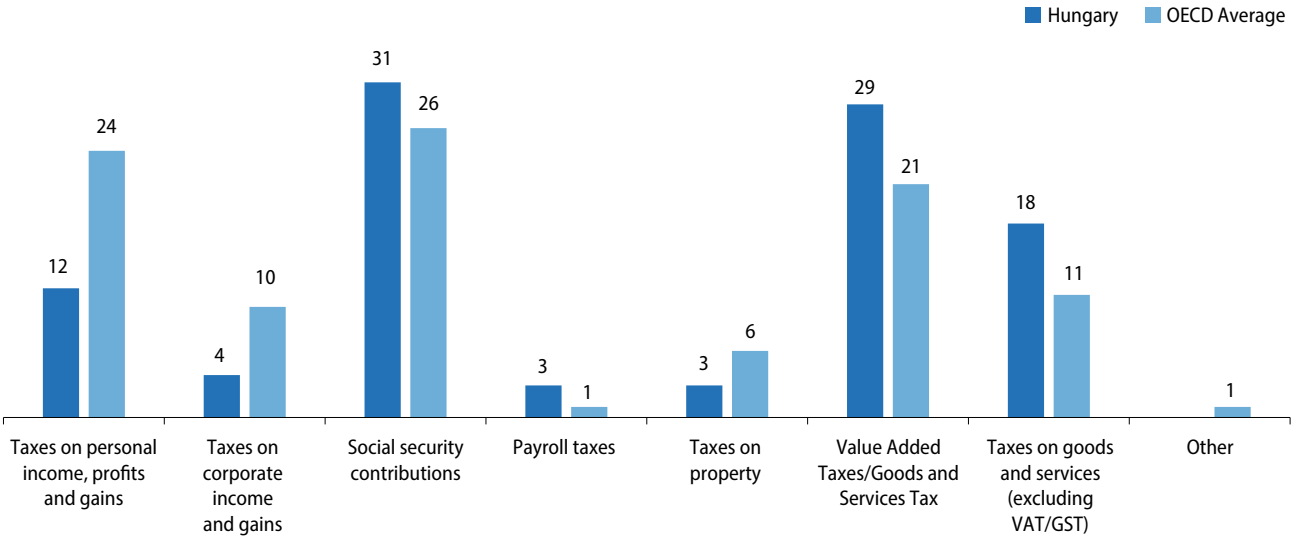
2.3. INCREASING THE CONTRIBUTION RATES

POLICY OPTION 8: Increasing the contribution rates for either employees or employers

Raising the contribution rates is another option to strengthen the fiscal sustainability of the pension system. This eighth scenario assesses the required increase in the social security contribution rate to raise revenues by 2.2% of GDP by 2070, gathering savings equivalent to those in Policy Option 1 (linking the retirement age to life expectancy from 2025). To achieve such savings, the contribution rate would need to gradually increase by 10.8 percentage points. This increase would raise the contribution rate from 21.65% (including 13% for employers, of which 89.14% goes to the Pension Fund, and 10% for employees) to 32.5% by 2070, without considering the potential negative impact of the higher contribution rate on employment and GDP. In 2045, the adjusted rate would be 29.6%.

Such an increase in the contribution rates could discourage employment and deteriorate the competitiveness of the Hungarian economy. Hungary already has the 11th highest tax wedge among OECD countries (Figure 1.20 above). Adding eight percentage points (as needed by 2045) would bring Hungary to the 2nd place, above all neighbouring countries. According to an analysis of historical personal income tax reforms in OECD countries (Égert, 2018[18]), increasing the tax wedge by eight percentage points could reduce GDP per capita by about 1 ½ in the long run. This estimation does not reflect Hungary's particular institutional settings and fiscal position, so it should be seen as purely illustrative. Nonetheless, it emphasises the risk of relying too much on increasing the tax wedge to solve the fiscal sustainability

FIGURE 2.3. **Revenues from taxes on corporate income and gains and property taxes are limited**
Tax structure compared to the OECD average, 2021



Source: OECD Revenue Statistics 2022 – Hungary. https://www.oecd.org/tax/revenue-statistics-hungary.pdf

challenge. The adverse effect of raising additional revenues by increasing other taxes or reducing tax exemptions would likely be significantly lower (Drucker, Krill and Geva, 2017[20]). The overall tax burden (defined as total tax revenues as a % of GDP) in Hungary is about the OECD average, and relative to the OECD average, the tax structure in Hungary is characterised by higher revenues from social security contributions, payroll taxes and value-added taxes and lower revenues from taxes on corporate income and gains as well as from property taxes (Figure 2.3). The OECD 2023 Economic Survey recommends that Hungary should lower the tax wedge while increasing the reliance on consumption taxes by removing some reduced VAT rates and exemptions, compensating low-income households with targeted cash transfers, as well as increasing recurrent taxes on immovable property to the OECD average (OECD, 2024[5]).

Increasing the contribution rate of employees would also affect the pension benefits of future generations, as in the Hungarian system, benefit levels are calculated on net income. Hence, in addition to a reduction in their disposable income at active age, the same cohorts would see a proportionate decline in their pensions. A one percentage point increase in the contribution rate of employees is projected to lower the expected lifetime pension benefits of an average pensioner by 1.5% due to a decline in the average pensionable monthly income. The net replacement rate, which does not capture this adjustment, would remain unchanged.

2.4. COMBINED SCENARIOS

To improve fiscal sustainability and balance between the different objectives of the public pension system, a mix of different policy measures could be considered. This section therefore presents two additional policy options that combine several of the policy options discussed above.

POLICY OPTION 9: Linking retirement ages to gains in life expectancy and phasing out the Women-40 scheme

One option would be to link the retirement age to life expectancy in a 2/3:1 manner while allowing early retirement two years before the statutory retirement age but not before the age of 65 (Policy Option 1) and adjusting the early retirement option for women by linking the eligibility period of 40 years to gains in life expectancy of women by a factor 1:1 to gradually phase out the Women-40 scheme and equalise the retirement age for men and women in the long run (Policy Option 4, but with the eligibility period not increased by one year every year, but by increases in life expectancy).

Equalising and increasing the statutory retirement age would have a strong positive effect on employment and, therefore, economic activity and total contributions. It is projected to lower the numbers of active pensioners by

7.6% until 2045 and by 13.6% until 2070 and increase the number of contributors by 5.2% and 10.4%, respectively. As a result, pension contributions would rise by 0.4% of GDP by 2045 and by 0.7% of GDP by 2070 while pension-related spending would be lowered by 1% of GDP by 2045 and 1.9% of GDP by 2070, without considering the positive effect of this measure on GDP and, therefore, total tax revenues. According to the model that calculates the impact for a representative cohort (Box 2.2), the policy option would close 71% of the pension funding gap for a representative cohort retiring around 2070 (Table 2.17) – a stronger effect than for scenario 1 due to the phase-out of the Women-40 scheme.

TABLE 2.17. **Fiscal implications of linking retirement ages to gains in life expectancy and phasing out the Women-40 scheme**

Compared to 'no-policy-change'-scenario

Variable	2045	2070
Change in gross public pension expenditure (as % of GDP)	-1	-1.9
Change in pension contributions (% of GDP)	0.4	0.7
Change in imbalance of contributions and expenditures (% of GDP)	-1.3	-2.6
Change in benefit ratio (percentage point)	-0.9	-1.4
Statutory retirement age	67	69
Change in number of active pensioners (%)	-7.6	-13.6
Share of contribution gap closed (%)[1]		71
Contributions (% of benefits), average male worker[1]		9
Contributions (% of benefits), average female worker1		76

Note: 1. The calculations are based on the model that computes the actuarially fair replacement rates, described in Box 2.2. These calculations presuppose that a representative cohort is affected by the policy change throughout their entire contribution and retirement periods. Therefore, the projected impact applies to long-term pension projections (mostly post-2070) rather than the current pension stock. 50% of women are assumed to use the Women-40 scheme, based on actual retirement data. In the model, users of the Women-40 scheme are assumed to start their careers 1-2 years earlier than the total average of workers, depending on their income level.
2. A positive figure represents an improvement in the fiscal balance.

Source: Hungarian State Treasury and OECD calculations.

In this first combined scenario, the only changes affecting men are the link of the statutory retirement age to two-thirds of life-expectancy gains and the introduction of an early-retirement option with penalty two years prior. Hence, the resulting replacement rates are exactly the same as in Policy Option 1. For women, however, the career-length requirement in the Women-40 scheme is extended by full life-expectancy gains. In this scenario, women would build up pension entitlements for six more years at the 2% annual accrual rate. This results in substantial increases in net replacement rates of 15% for all income levels, or 12.5 percentage points for the average earner (Table 2.18). Women entering the labour market aged 22 in 2022 would be able to access the early retirement scheme with a penalty under the same conditions and with the same replacement rates as men.

TABLE 2.18. **Pension adequacy implications of linking retirement ages to gains in life expectancy and phasing out the Women-40 scheme**

For men and women entering the labour market aged 22 in 2022 and retiring at the normal or earliest retirement age

Variable	Gross	Net	Year of retirement
MEN			
Replacement rate (%), retirement at normal retirement age, average wage (change from current legislation in pp)	65.3 (+5.6)	98.3 (+8.4)	2069
Replacement rate (%), retirement at normal retirement age, 50% average wage (change from current legislation in pp)	68.3 (+5.8)	102.7 (+8.7)	2069
Replacement rate (%), retirement at normal retirement age, 200% average wage (change from current legislation in pp)	59.9 (+5.1)	90.2 (+7.7)	2069
Replacement rate (%), retirement 2 years early with 6.5% penalty p.a., average wage (change from current legislation in pp)	54.4 (-5.3)	81.8 (-8)	2067
Replacement rate (%), retirement 2 years early with 6.5% penalty p.a., 50% average wage (change from current legislation in pp)	56.9 (-5.6)	85.6 (-8.4)	2067
Replacement rate (%), retirement 2 years early with 6.5% penalty p.a., 200% average wage (change from current legislation in pp)	49.9 (-4.9)	75.1 (-7.4)	2067
Average replacement rate (%), EU-22 countries, average wage	54.8	68.2	2067
Average replacement rate (%), OECD countries, average wage	50.9	61.6	2066
Change in normal retirement age (years)	4	4	
Change in earliest retirement age (years), retirement 2 years early with 6.5% penalty p.a.	2	2	
WOMEN			
Replacement rate (%), retirement at normal retirement age, average wage (change from current legislation in pp)	63.8 (+8.3)	96 (+12.5)	2068
Replacement rate (%), retirement at normal retirement age, 50% average wage (change from current legislation in pp)	66.8 (+8.7)	100.5 (+13.1)	2068
Replacement rate (%), retirement at normal retirement age, 200% average wage (change from current legislation in pp)	58.7 (+7.7)	88.2 (+11.5)	2068
Average replacement rate (%), EU-22 countries, average wage	54.4	67.6	2066
Average replacement rate (%), OECD countries, average wage	50.3	60.8	2066
Change in normal retirement age (years)	6	6	

Source: OECD calculations..

POLICY OPTION 10: Adjusting past earnings to the size of the contribution base; age limit on women's early retirement; indexed ceiling on the 13th month's pension benefit

Another option would be to combine tighter eligibility conditions for women and lowering the benefit levels for the current and future pool of pensioners. Specifically, this policy option assumes that pension benefits are linked to the size of the contribution base by adding a factor to the uprating formula (Policy Option 5), that the early retirement option for women is adjusted by including an age limitation (age 60) in addition to the career length limitation (Policy Option 3) and, that the the 13th month's pension benefit is adjusted by adding an indexed ceiling at the level of the average pension benefit in the respective year (Policy Option 7).

The introduction of the minimum age at 60 years for the Women-40 scheme would reduce the number of active pensioners by -2.5% until 2045 and -1.9% until 2070, strengthening the labour force participation of women in the age group from 55 to 65. The threshold causes total contributions to moderately increase by 0.1% of GDP by 2045 and 2070 respectively (Table 2.19). Besides, the combined option reduces the fiscal deficit by lowering current and future benefits levels. Total spending is projected to decrease by 0.5% by 2045 and 0.9% by 2070, lowering the total imbalance of contributions and benefits by 0.6% in 2045 and 1% in 2070. For the representative cohort fully subject to the changes in 2070, the contribution of this policy option to closing the pension funding gap is 42%, a weaker effect than for the first combined scenario (Policy Option 9, Table 2.17).

TABLE 2.19. **Fiscal implications of tightening eligibility conditions for those who are entitled to the Women-40 scheme and lowering the benefit levels for the current and future pool of pensioners**

Compared to 'no-policy-change'-scenario

Variable	2045	2070
Change in gross public pension expenditure (as % of GDP)	-0.5	-0.9
Change in pension contributions (% of GDP)	0.1	0.1
Change in imbalance of contributions and expenditures (% of GDP)	0.6	1
Statutory retirement age	65	65
Change in number of active pensioners (%)	-2.5	-1.9
Share of contribution gap closed (%)[1]		42
Contributions (% of benefits), average male worker[1]		84
Contributions (% of benefits), average female worker[1]		72

Note: [1]The calculations are based on the model that computes the actuarially fair replacement rates, described in Box 2.2. These calculations presuppose that a representative cohort is affected by the policy change throughout their entire contribution and retirement periods. Therefore, the projected impact applies to long-term pension projections (mostly post-2070) rather than the current pension stock.

Source: Hungarian State Treasury and OECD calculations.

In this second combined scenario, combining past earnings uprated to the size of the contribution base with the capping of the 13th month's pension benefit, the regressive impact of the change in uprating procedure (Policy Option 5) is mitigated (Table 2.20). The capping does not affect the low and average-wage earners' net replacement rates, but it does cause a further drop in the net replacement rate of the high-earner case. The combination of both measures hence results in the low-earner case being affected least by the policy change and the high-earner case most. The introduction of the supplementary age requirement of 60 years to the Women-40 scheme does not affect replacement rate calculations as the normal retirement age, applying to a woman entering the labour market aged 22, exceeds the age limitation.

TABLE 2.20. **Pension adequacy implications of tightening eligibility conditions for women and lowering the benefit levels for the current and future pool of pensioners**

For men and women entering the labour market aged 22 in 2022 and retiring at the normal retirement age

Variable	Gross	Net	Year of retirement
MEN			
Replacement rate (%), retirement at normal retirement age, average wage (change from current legislation in pp)	57.4 (-2.3)	86.3 (-3.5)	2065
Replacement rate (%), retirement at normal retirement age, 50% average wage (change from current legislation in pp)	59.6 (-2.9)	89.7 (-4.3)	2065
Replacement rate (%), retirement at normal retirement age, 200% average wage (change from current legislation in pp)	50.5 (-4.3)	76.0 (-6.5)	2065
Average replacement rate (%), EU-22 countries, average wage	54.8	68.2	2067
Average replacement rate (%), OECD countries, average wage	50.9	61.6	2066
Change in normal retirement age (years)	0	0	
WOMEN			
Replacement rate (%), retirement at normal retirement age, average wage (change from current legislation in pp)	53.5 (-2)	80.5 (-3.0)	2062
Replacement rate (%), retirement at normal retirement age, 50% average wage (change from current legislation in pp)	55.6 (-2.5)	83.6 (-3.8)	2062
Replacement rate (%), retirement at normal retirement age, 200% average wage (change from current legislation in pp)	47.1 (-3.9)	70.9 (-5.8)	2062
Average replacement rate (%), EU-22 countries, average wage	54.4	67.6	2066
Average replacement rate (%), OECD countries, average wage	50.3	60.8	2066
Change in normal retirement age (years)	0	0	

Source: OECD calculations..

2.5. COMPARISON OF THE DIFFERENT POLICY OPTIONS

The different policy options described above have different effects on pension adequacy and total pension-related spending. While tightening the eligibility conditions would positively impact potential output, total contributions and replacement rates (for those retiring at the statutory retirement age), it would leave fewer years in retirement for pensioners. Lowering benefit levels would mainly decrease expected replacement rates, although they would remain above the OECD and the EU averages for workers earning the average wage. Adjusting the 13th month's pension benefit is the only option that would also affect the current pool of pensioners and, therefore, would have a more significant impact on spending and pension adequacy in the short run. It is also more progressive in nature. Increasing contribution rates risks discouraging employment and negatively affecting the competitiveness of the Hungarian economy. Table 2.21 provides a comparison of the effects of the different policy options.

The fiscal impact of the various policy options is visualised in Figure 2.4, panels A and B. While the impacts on pension-related spending and contributions depend largely on assumptions about economic growth, employment, life expectancy and the fertility rate, none of the options is expected to reduce the fiscal deficit of the public pay-as-you-go pension system to zero. Therefore, even stronger reforms might need to be considered if the ambition is to fully restore the system's fiscal balance. However, given that the system is broadly balanced until 2030, the recent increase in the

the system's fiscal balance. However, given that the system is broadly balanced until 2030, the recent increase in the share of social security contributions dedicated to pensions and the uncertainty regarding long run fiscal projections, this might turn out to be unnecessary.

All presented policy options ensure decent pension adequacy outcomes with expected net replacement rates above the average levels in EU and OECD countries (Figure 2.4, Panel C). In contrast to the policy options that address the fiscal imbalance by lowering benefit levels (5 to 7), policy options that link the retirement age to life expectancy (1 and 2) provide the advantage of enhancing fiscal sustainability and pension adequacy levels at the same time. The policy options adjusting the Women-40 scheme (3 and 4) also fulfil both objectives while ensuring a normal retirement period in international comparison.

TABLE 2.21. **Summary table on the effect of proposed policy options**

Fiscal impact estimates in columns 4 and 5 are shown relative to the 'no policy change'-scenario[1]

	Scenario
Tightening eligibility conditions	1) Linking the retirement age to gains in life expectancy (2/3:1) starting in 2025
	2) Linking the retirement age to gains in life expectancy (2/3:1) starting in 2035
	3) Adjusting the Women-40 scheme by introducing an age limitation (60)
	4) Gradually raising the career length limitation in the Women-40 scheme
Adjusting the benefit levels	5) Linking benefits to the size of the contribution base
	6) Changing the uprating (valorisation) formula to rely on a mix of CPI and wage growth
	7) Adjusting the 13th month's pension benefit by adding an indexed ceiling
Increasing the contribution rate	8) Increasing the contribution rates for either employees or employers
Combined scenarios	9) Linking the retirement age to life expectancy in a 2:3/1 manner and the eligibility period for women of 40 years to gains in life expectancy of women 1:1
	10) Linking the benefits to the size of the contribution base; adjusting the early retirement option for women so that it will include an age limitation (60); and adjusting the 13th month's pension benefit by adding an indexed ceiling

Improving pension financial sustainability is never easy politically, but at least some of the options discussed should be implemented as soon as possible to limit the economic and social costs from changing the rules in an ad hoc and abrupt manner when fiscal pressure becomes too tight. Two of the policy options described above – linking the retirement age to life expectancy and the benefit levels to the contribution base – are automatic adjustment mechanisms. They aim to keep the system sustainable in the future based on the actual (still unknown) developments of the most crucial economic and demographic indicators. These kinds of mechanisms help to prevent the accumulation of large financial deficits and smooth the needed adjustments, thus reducing political, social, and economic disruptions. They are perceived as a remedy to the tendency of governments to procrastinate measures to address financial sustainability issues.

	Automatic adjustment mechanism	Net impact on total expenditures and contributions in 2070 (% of GDP)[2]	Net impact on total expenditures and contributions in 2045 (% of GDP)[2]	Net replacement rate of average worker (%) in 20703 (women, if different)	Average expected time in retirement in 2070 (women)	Contributions as share of benefits (%), average worker (women)
	Yes	+2.2	+1.2	98.2 (91.9)	18.5 (23.6)	92 (74)
	Yes	+1.7	+0.5	96.1(89.8)	19.5 (24.6)	88 (72)
	No	+0.3	+0.3	89.8 (83.5)[5]	21.8 (27.4)[5]	78 (65)[5]
	No	+1.1	+0.9	89.8 (89.8)	21.8 (25.4)	78 (69)
	Yes	+0.7	+0.3	86.3 (80.5)	21.8 (27.4)	84 (70)
	No	+1.6	+0.8	80.8 (75.7)	21.8 (27.4)	113 (100)
	No	+0.3	+0.2	89.8 (83.5)	21.8 (27.4)	78 (65)
	No	+2.2	+1.2	89.8 (83.5)	21.8 (27.4)	90 (75)
	Yes	+2.6	+1.3	98.2 (96)	18.5 (22.6)	92 (76)
	Yes	+1	+0.6	86.3 (80.5)[5]	21.8 (27.4)[5]	84 (72)[5]

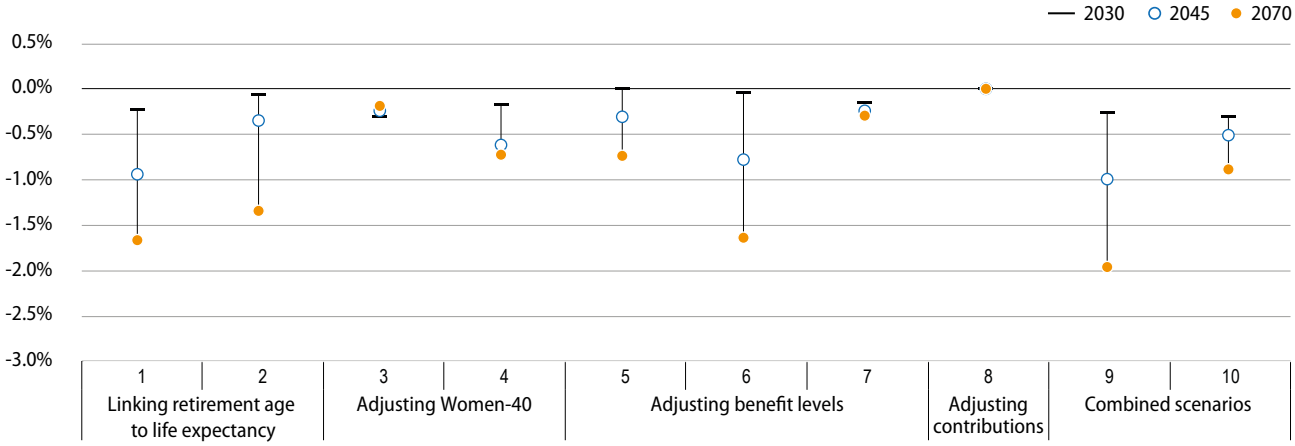
Note: Calculations of fiscal impact have been conducted by the Hungarian State Treasury to be aligned with the assumptions used to inform the European Commission's Ageing Reports. Estimates on pension adequacy are based on OECD calculations.

1. In the 'no-policy-change'-scenario, the imbalance between contributions and spending is projected to amount to -0.8% in 2030, -3.3% in 2045 and -5.2% in 2070 (% GDP).
2. A positive number refers to a reduction in the fiscal imbalance, which is defined as the annual difference between pension contributions and spending (% GDP).
3. Following the Ageing Report assumptions, the income ceilings for wage degression are expected to follow wage growth.
4. The calculations are based on the model that computes the actuarially fair replacement rates, described in Box 2.2. Contributions, % of benefits represents the present value of expected lifetime contributions divided by the present value of expected total pension benefits. These calculations presuppose that a representative cohort is affected by the policy change throughout their entire contribution and retirement periods. Therefore, the projected impact applies to long-term pension projections (mostly post-2070) rather than the current pension stock.
5. Pension adequacy and career length estimates are shown for an average worker (male/female). The estimates in the brackets represent a weighted average of women working until the regular retirement age and women using the Women-40 scheme. For Policy Options 1, 2 and 9, the actuarially neutral early retirement option is considered.
6. The models used to estimate the pension adequacy impact and the average years spent in retirement project women to retire above age 60 in 2070 even without a reform.

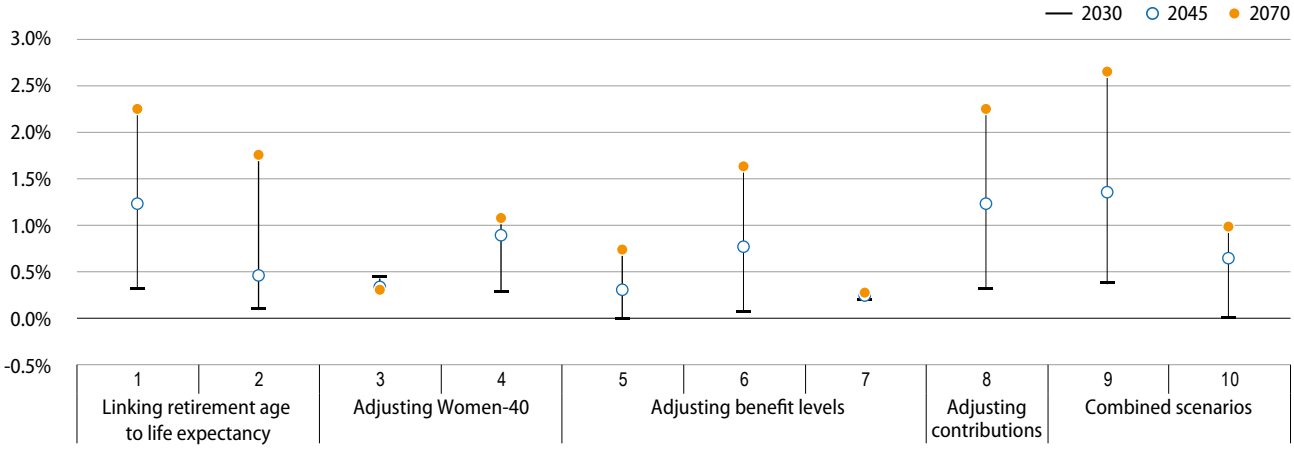
Source: Hungarian State Treasury and OECD calculations.

FIGURE 2.4. **Comparison of fiscal impact of policy options**

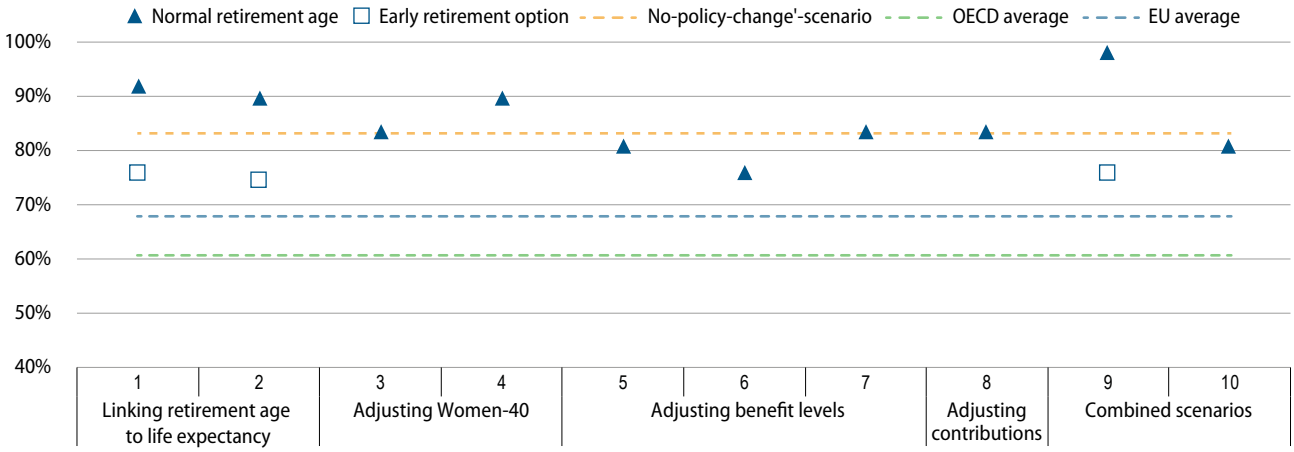
Panel A: Change in total spending (% of GDP, Y-axis) through policy option (X-axis) compared to 'no-policy-change'-scenario



Panel B: Reduction of fiscal imbalance (% of GDP, Y-axis) through policy option (X-axis) compared to 'no-policy-change'-scenario

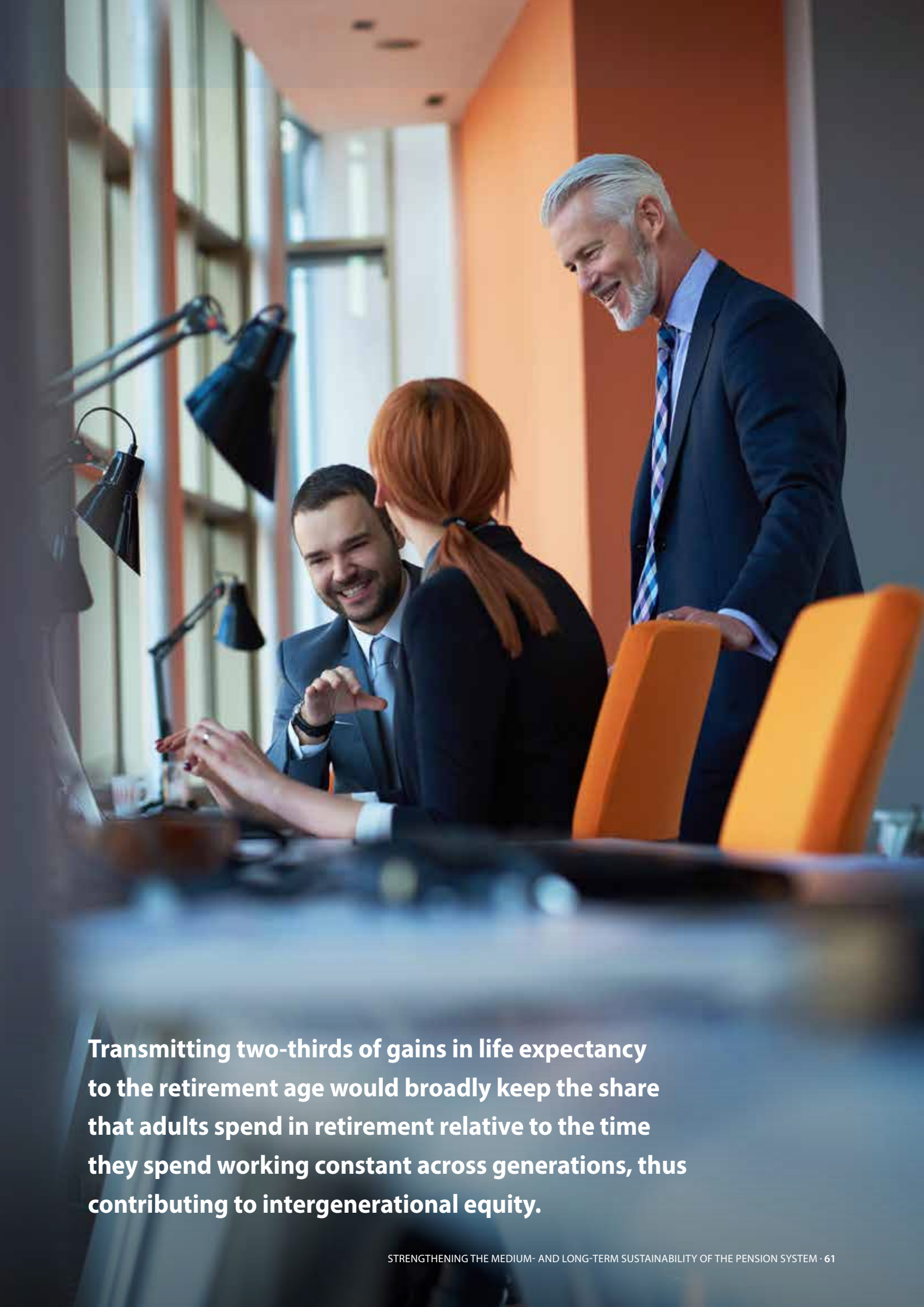


Panel C: Change in net replacement rate of women with average wage (Y-axis) through policy option (X-axis)



Note: A positive number in Panel B refers to a reduction of the fiscal imbalance of the pension system (in percent of GDP), which is defined as the annual difference between pension contributions and spending (% GDP). Calculations of fiscal impact have been conducted by the Hungarian State Treasury to be aligned with the assumptions used to inform the European Commission's 2024 Ageing Reports. The 'no-policy-change'- scenario, to which the fiscal impacts of the policy options are compared, draws on the assumption that the statutory retirement age remains at 65 years while the Women-40 scheme remains, applying current eligibility criteria. However, contrary to current legislation, the income ceilings for wage degression (only 90% of the average net earnings exceeding HUF 372 000 (EUR 985) and 80% of the average net earnings exceeding HUF 421 000 (EUR 1115)) are assumed to be indexed to wage growth. In the 'no-policy-change'- scenario, the fiscal imbalance is projected to rise from -0.8% in 2030 to -3.4% in 2045 and -5% in 2070.

Source: Hungarian State Treasury and OECD.



Transmitting two-thirds of gains in life expectancy to the retirement age would broadly keep the share that adults spend in retirement relative to the time they spend working constant across generations, thus contributing to intergenerational equity.

A lump-sum bonus for late retirement could strengthen the incentive to defer retirement with a limited impact on public finances.

3. Complementary measures

This section identifies additional policy measures that could complement the chosen policy option by simplifying the pension system, strengthening incentives for late retirement, fighting labour market age discrimination, reinforcing the private pension system and boosting fertility rates. The attractiveness of some of these complementary measures will depend on the chosen policy option. Increasing retirement ages, for example, could be complemented by measures to fight ageism in the labour market and provide better training for older workers. Lowering benefit levels could be supplemented by reinforcing private pension instruments so that individuals could voluntarily maintain high replacement rates. The more ambitious the chosen policy option, the more important the complementary measures will be.

3.1. CHANGING THE BENEFIT CALCULATION TO A REGIME WITH A CONSTANT ACCRUAL RATE APPLIED ON MOVING AVERAGE OF GROSS WAGES

A few features of the Hungarian pension system require improvements. Those features have less impact on the financial stability or adequacy of the system. Still, they make it difficult for individuals to fully assess the optimal time to retire, expose workers to unnecessary business cycle risks and make it hard for decision-makers to adjust the system's parameters when needed.

As described in Box 1.1, the pension entitlements are calculated based on non-linear accrual rates that vary with the length of the contribution period. The accrued rights are front-loaded for the first 15 years, before gradually falling the next 20 years, whereafter they rise again from age 36 until retirement. The front-loading of accrued rights rewards workers with shorter careers (Figure 3.1), typically low-income groups. However, it is not targeted to low-income groups and the non-linearity of the rates makes it difficult for individuals to fully assess the optimal time to retire. Higher accrual rates at the beginning of one's career for early years of coverage also disincentive (or at least do not incentivise as much as possible) late retirement. Across the OECD, only Hungary, Greece, Luxembourg, Slovenia and Spain have accrual rates that vary with service time.

Moreover, the pension benefits unusually accrue based on net wages (i.e., gross wage less employee contribution and taxes). In contrast, all OECD countries, except Hungary and Slovenia, accrue pension entitlements based on gross wages. Thus, in Hungary, any increase in personal income tax rates or employees' social security contributions mechanically reduces accrued pension benefits and gross replacement rates by lowering net wages and, therefore, gross pensions. This might lead to unintended consequences of benefit deterioration following changes in tax or contribution rates and make the benefit calculation harder to understand for workers. In addition, in Hungary there is *de facto* no minimum pension because very few people are eligible for the current instrument, which pays out an amount that is three to four times less than what individuals would receive if they met the minimum occupational requirement for a pension based on the minimum wage (Figure 1.14).

At retirement, the total accrual is converted into pension benefits by multiplying the accumulated accrual rate by average lifetime earnings. Earnings are adjusted annually by the previous year's national average wage increase to reflect rising economy-wide welfare during the service time. However, large fluctuations in the annual wage growth due to the business cycle or technical issues related to the average wage calculations lead to hard-to-predict variations in the monetary value of initial pension benefits. Moreover, initial pension benefits might vary for workers with similar wage careers who retired in different years.

While changing these features for the current pool of workers would be complex and might risk having unexpected and unintended consequences, adjusting the system for new entrants from 2025 could be beneficial in the long run. Addressing those issues implies a major overhaul of the benefit calculation formula based on three pillars:

1. The calculation of accrued benefits could be changed to a regime with a constant accrual rate applied on gross wages. Pension allowances would remain tax-free. Likewise, the uprating (valorisation) according to wage growth and the indexation of pensions according to CPI growth would remain unchanged unless the uprating is adjusted. The current ceilings of the net income considered for pension calculation (100% up to HUF 372,000 (EUR 985), 90% up to HUF 421,000 (EUR 1115) and 80% above) would be recalculated to apply to gross wages. While for a career of forty years or longer, the constant accrual rate generates equivalent starting pension levels as the no-linear one, the constant rate disincentivises very short careers (Figure 3.1).

2. The minimum pension could be reformed to become an effective tool protecting low earners and other vulnerable people, e.g. those with short careers and extended periods of unemployment. A minimum pension could mitigate risks for vulnerable people with insufficient career length and low entitlements. The minimum pension could be indexed with the same parameter used for the uprating of normal pensions ensuring that it remains at parity with regular pension levels, stabilising replacement rates for eligible pensioners.

3. To reduce the unpredictability of the uprating through fluctuations in wage growth, Hungary could move from annual wage growth to a three-year moving average as recommended in the *2019 OECD Economic Survey of Hungary* (OECD, 2019[11]). To ensure transparency, the calculated average would need to be made public every year, whether using three years or another number. The new regime could be applied for people entering the labour market from 2025 onwards.

3.2. MEASURES TO RAISE EFFECTIVE RETIREMENT AGES

Retirement timing is the result of an interplay between various socio-economic and health changes often taking place simultaneously (De Tavernier et al., 2019[20]).[6] Financially, having access to non-work income such as an early-retirement or old-age pension reduces the importance of earnings from work. Socially, people's roles and preferences change for instance when they become grandparents or when their partner retires, increasing the value of non-working time. Finally, some changes may result in involuntary retirement, in particular declining health and experience of age discrimination in the labour market. On all these dimensions measures can be taken to raise effective retirement ages, although the effectiveness of specific measures is likely to differ across countries depending on the relative importance of each dimension in people's retirement decisions in a country and the wider policy context.

The primary focus of measures to delay labour market exit is on changing the financial incentive structure. As discussed in Chapter 2, this can be done through increasing statutory and early retirement ages, increasing career-length requirements to claim a pension, or increasing penalties and bonuses for early and deferred pension uptake, respectively.

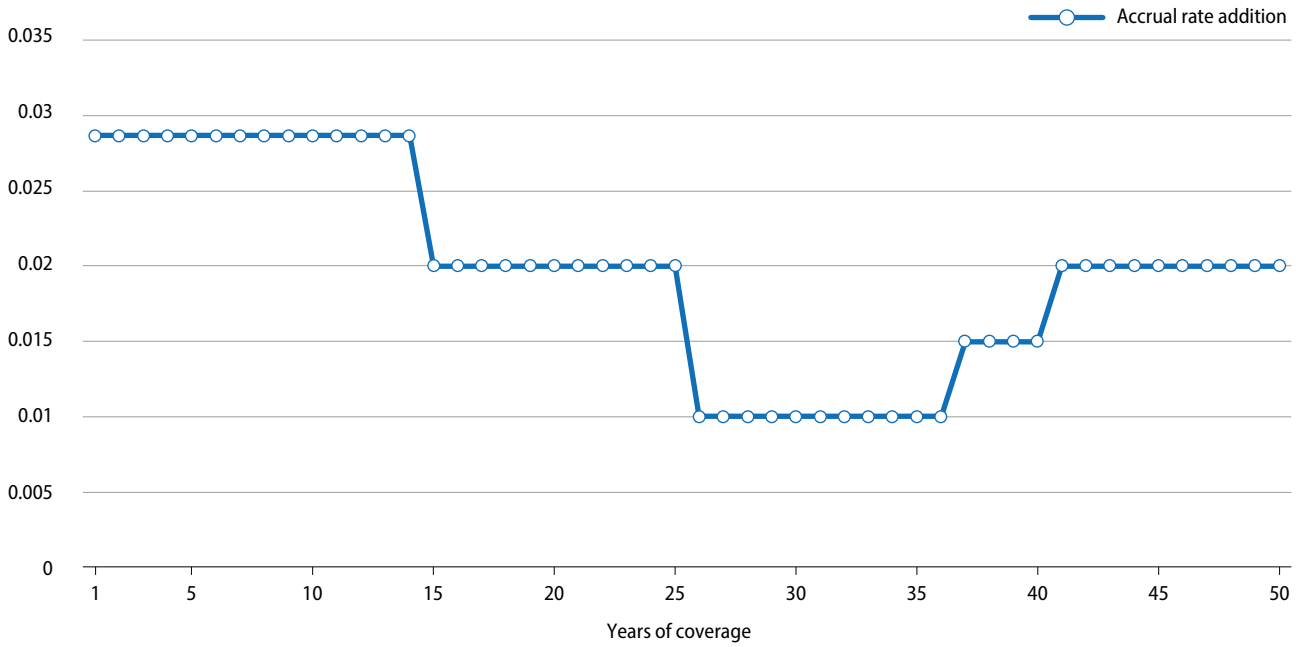
Penalties for early pension uptake and bonuses for deferral change incentive structures around when to claim a pension. Defined Benefit pension schemes without actuarially neutral offsets for early or deferred retirement incentivise claiming a pension at the earliest opportunity as delayed uptake effectively reduces pension wealth on accrued entitlements. This is for instance the case in Hungary's women-40 scheme, where no penalty applies to early retirement. The introduction of early-retirement penalties in Germany, for instance, significantly delayed both labour market exit and age of claiming a pension (Hanel, 2010[21]). In the Netherlands, a reform making early-retirement schemes actuarially neutral similarly delayed labour market exit (Euwals, van Vuuren and Wolthoff, 2010[22]). Hungary does have a bonus for deferral of 6% per year which is rather standard in international comparison (Figure 3.2), although it is below the estimated actuarially neutral rate of 7.6% based on current mortality rates. Actuarial neutrality requires higher penalties and bonuses in countries with overall lower life expectancy in retirement as a one-year change in retirement timing has a bigger impact as a proportion of total time in retirement. Canada currently is the only country with a penalty exceeding 7%. Canada, Japan, Lithuania, the United States and, under some circumstances, Portugal have bonuses of 8% per year or more, which likely is more than what actuarial neutrality requires (Box 2.5).

10. See Scharn et al. (2018[30]) for a comprehensive overview of variables affecting retirement timing.

FIGURE 3.1. **Non-linear accrual rates favour short careers**

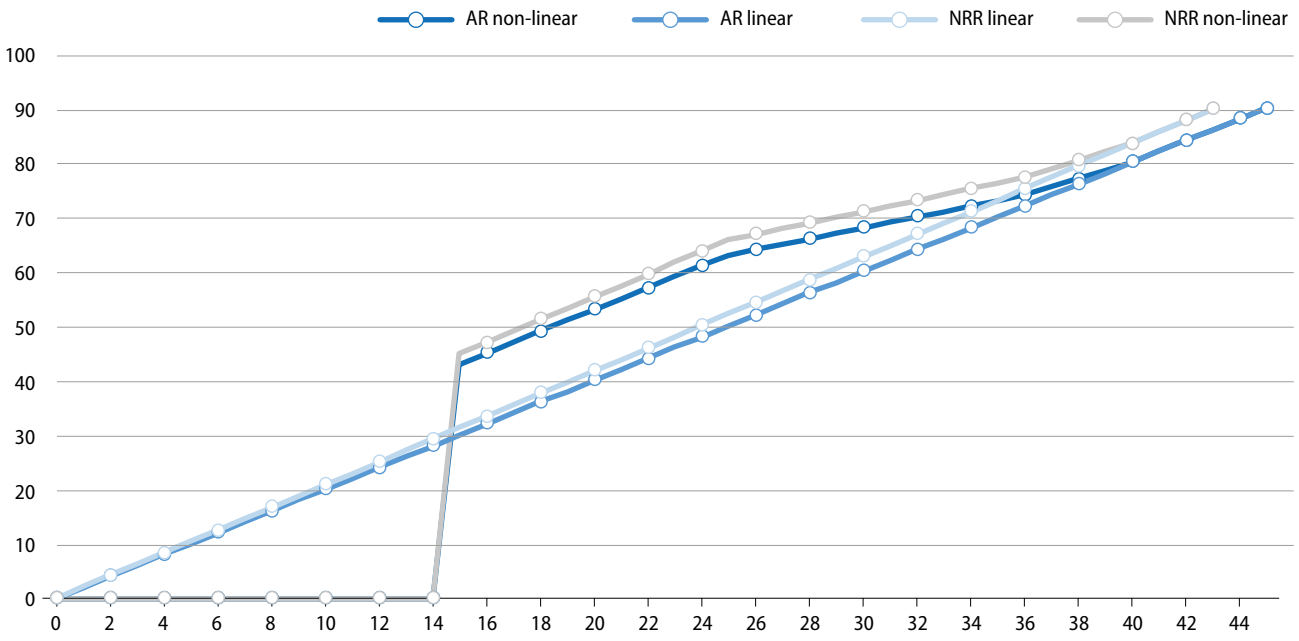
Panel A

Annual accrual rate addition in the current pension system



Panel B

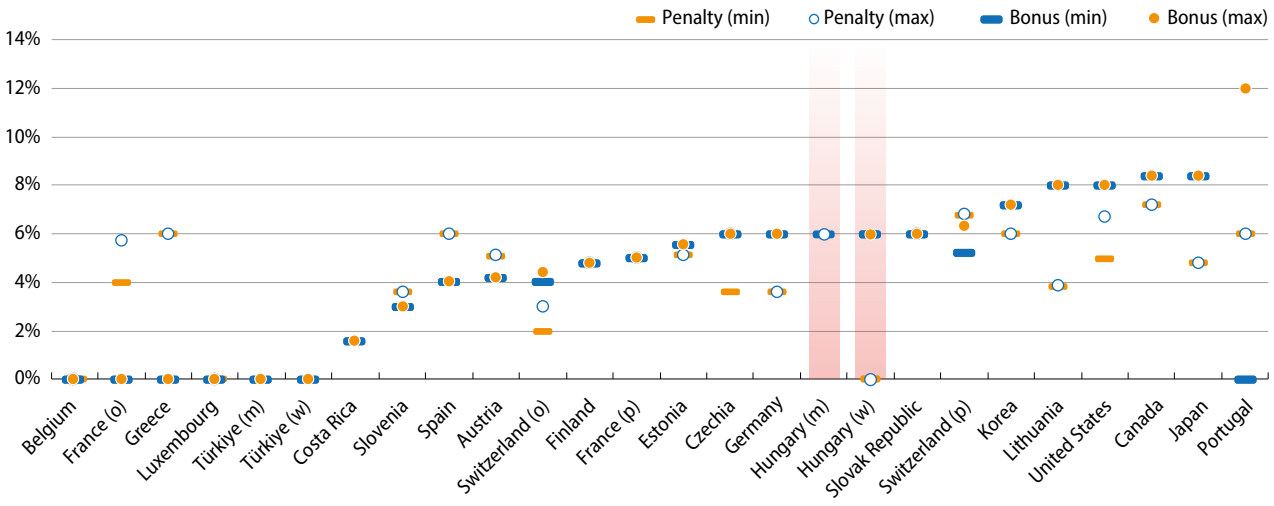
Accumulation of accrual rates and implied net replacement rates in the current system with non-linear accrual rates compared to a system with equivalent generosity and a constant accrual rate of 2% (percentage points on the Y-axis)



Note: The accrual rates for the years 1 to 15 are implicitly calculated, as workers with careers below 20 years of coverage are not entitled to receive a public pension. By dividing the starting replacement rate of 43% for 15 years of coverage by 15, the implicit accrual rate of 2.87% is obtained.

Source: *OECD Pensions at a Glance 2023.*

FIGURE 3.2. **Penalties and bonuses for each year of early and late retirement in DB schemes**
For an individual with an uninterrupted career after entering the labour market at age 22 in 2022



Note: In some countries, penalties and bonuses vary depending on length of anticipation or deferral or on number of contribution years. m = men, w = women; p = public pension scheme, o = occupational pension scheme.

Source: *OECD Pensions at a Glance 2023.*

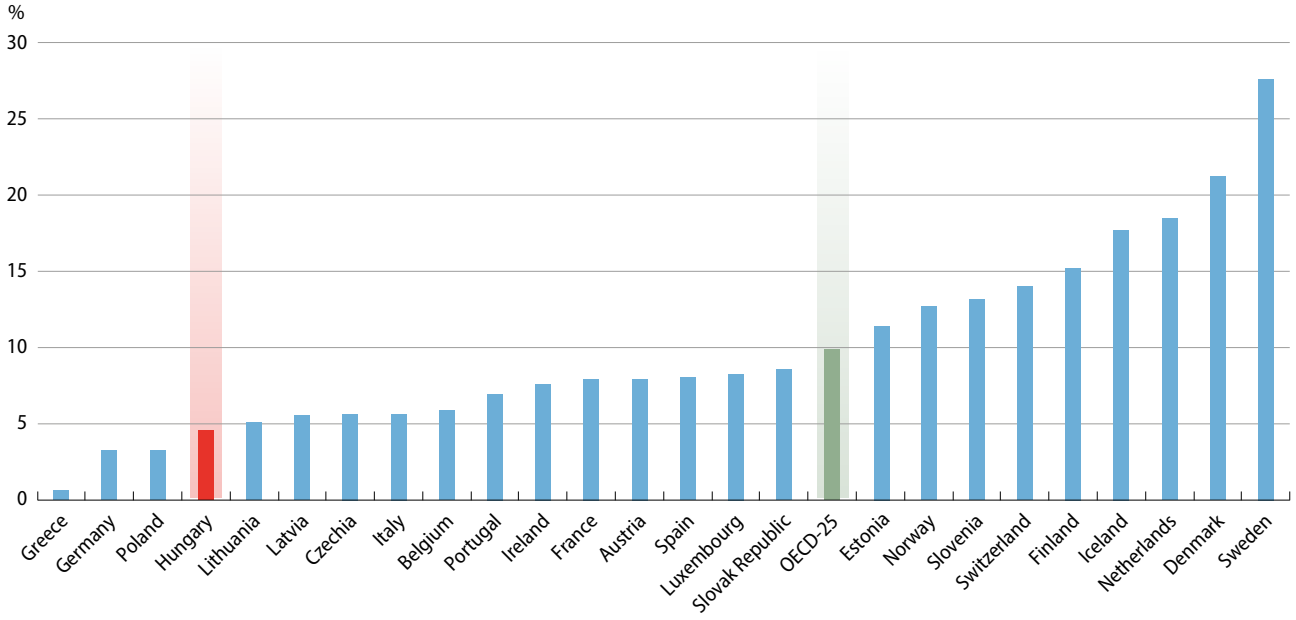
Providing a lump-sum alternative to Hungary's deferral bonus could strengthen the (perceived) incentive to delay retirement, with limited impact on public finance. That is, for those who defer pensions, instead of a bonus increasing their monthly pensions for life, they would get a lump sum of the actuarially equivalent value at retirement. This option is attractive especially for individuals with a large preference for the short term and may influence people to delay retirement. While by construction it is actuarially neutral for public finance, this measure has some impact on the spending pattern over time during the phase-in as it generates short-term costs for public finance that are then exactly offset in actuarial terms by medium-term savings. For those who combine work and pensions in Hungary, not paying social contributions is similarly attractive as this generates higher income in the short term even though no additional pension entitlements are generated.

To make its bonus more attractive, Spain recently introduced the option to take it up as a lump sum, although the choice is far from actuarially neutral as the lump sum is vastly below what most people could expect to receive from the 4% increase in their monthly pensions. Belgium is planning to introduce a similar lump-sum deferral incentive growing with a fixed amount for every day worked after becoming eligible to claim a pension. According to current plans, a one-off payment of EUR 7 550 would be granted for each year worked after becoming eligible to early retirement up to a maximum of three years. In Austria, evidence from administrative registers on the impact of severance-pay lump sums on delaying retirement shows that these incentives can be effective in delaying retirement by six to nine months, although almost no one is prepared to delay retirement by 15 months for a lump-sum in excess of 25% of annual earnings (Manoli and Weber, 2016[23]). Beyond the pure financial incentive, a bonus may also be an important signal to older workers that they are wanted. A Norwegian study shows that even a modest bonus provided by an employer to all staff reaching a certain age reduces the retirement probability of these workers (Hermansen and Midtsundstad, 2018[24]).

Another policy measure affecting financial incentives to continue working concerns investment in education and training of older workers. Education and training allow older workers to maintain their earnings capacity, reducing the relative appeal of pension benefits. It makes older workers more attractive for employers as it helps older workers maintain their productivity and meet employers' skills needs. The types of skills matter also, as workers with firm-specific skills have more limited options to continue working than workers with more general and transferable skills (Montizaan, Cörvers and de Grip, 2013[25]). Moreover, being offered training has a substantial effect on the age when people expect to retire beyond the effect of participation in training (de Grip et al., 2020[26]), suggesting that being

FIGURE 3.3. **Older workers' participation in education and training is low**

Participation rate in education and training during the last 4 weeks among 55-64, 2022



Source: Eurostat, education and training statistics (trng_lfs_01).

provided with training opportunities creates signalling effects similar to employer-provided bonuses for working longer. With around 5% of people aged 55-64 recently having received some form of education and training, half the average of the 25 OECD countries for which data are available, Hungary performs rather poorly in this regard (Figure 3.3).

Shifting spending on training towards old-age and low-skilled workers could be cost-effective. OECD countries have been using different strategies to promote education and training of older workers (OECD, 2019[27]). To encourage employers to invest in training, some countries have embarked on initiatives to reduce the cost of training for older workers relative to other employees. A German programme targeting low-skilled and older workers shows that such programmes can be effective tools to delay labour market exit. Some countries are increasingly doing more to increase the interest and motivation of older adults to invest in their own skills. Australia and Korea, for instance, offer targeted career advice and guidance services to help older adults understand the benefits of learning and make informed decisions about their investment in further skill development. In addition, many countries are deploying programmes that recognise existing skills through validation and certification to boost participation of older workers in training. In case of unemployment, training should be part of a wider package also including placement and counselling measures to support disadvantaged older workers to find a new job. Finally, education and training can also be an effective tool to help workers move out of arduous occupations before they develop longer-term disabilities (OECD, 2019[27]).

The social dimension of retirement is more difficult to steer as it refers to people's social roles and preferences, although policies can shape a context in which parents are less reliant on grandparents for childcare provision. Grandparental care norms, for instance, are important determinants of retirement. Across Europe, both grandfathers and grandmothers who regularly provide childcare are more likely to retire, in particular in regions with stronger grandparental childcare norms (Bertogg, 2023[28]). However, investment in professional childcare provision reduces retirement of grandmothers. In European regions where grandparental care norms are weaker, grandmothers are more likely to retire if there is limited professional childcare infrastructure (Bertogg, 2023[28]). In the United States, the birth of a grandchild has a similar effect on retirement probability of women as self-assessed health, with the effect being particularly pronounced if the generation in between is working full-time (Lumsdaine and Vermeer, 2015[29]).

Reducing determinants of involuntary retirement, such as deteriorating health or ageism, would be another way to increase the effective retirement age. Involuntary retirement is particularly concerning as it entails retirees who

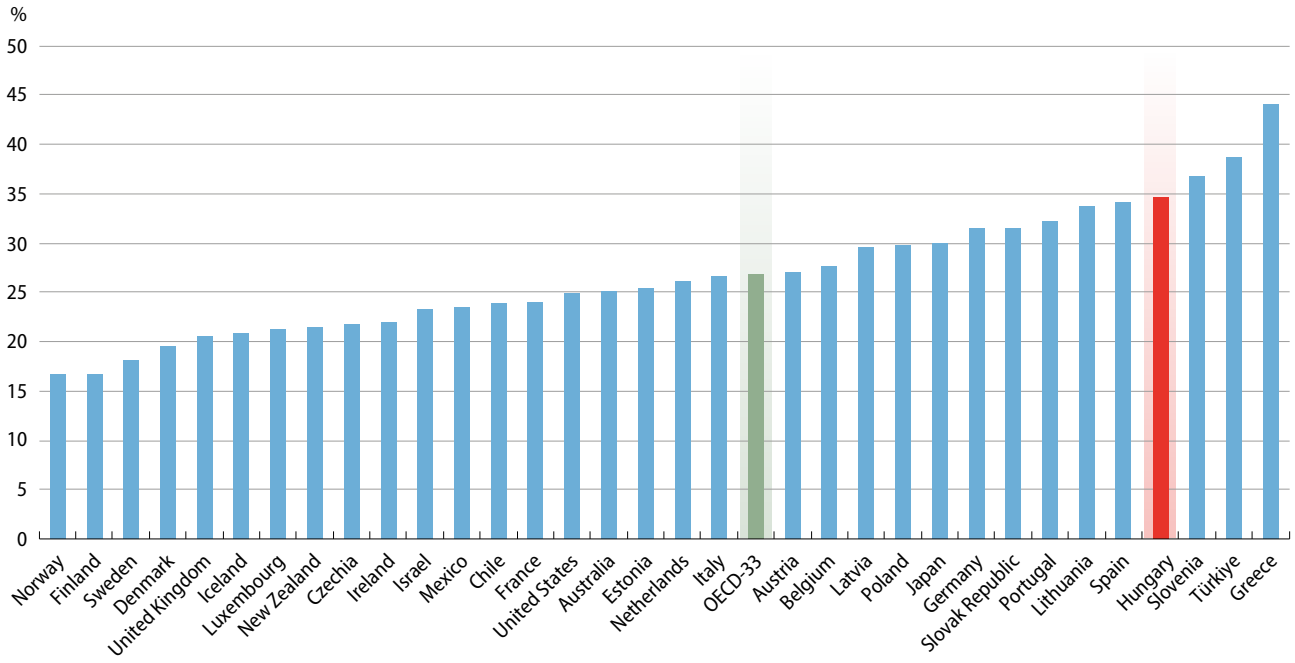
are not ready for retirement financially or in terms of social orientation. A wide range of health metrics including subjective health and work capacity have been linked to earlier exit from the labour market (Scharn et al., 2018[30]). The OECD Job Quality Framework highlights a high prevalence of job strain, referring to a situation of high job demands combined with insufficient resources to deal with these demands, among older workers in Hungary, although the most recent data are from 2015 and hence have to be interpreted with caution (Figure 3.4). Collective bargaining provides an important tool for workers and employers to improve job quality, including working conditions and the working environment, which would facilitate older workers to remain in employment longer.

Different policy initiatives have been taken across OECD countries to ensure that work-related health problems do not result in permanent withdrawal from the labour market (OECD, 2019[27]). Several countries have developed toolkits and guidance materials for employers on how to deal with health issues when they emerge. Some countries have gone further in the preventive approach having measures in place to detect possible issues, such as an obligatory psychosocial risk assessment of working practices in Denmark. In the United Kingdom, a national occupational health advice service is set up to improve the capacity of small and medium-sized businesses to deal effectively with health issues.

A second important driver of involuntary retirement is ageism, which could become even more critical in case of an increase in retirement ages (Policy Options 1-4). Age discrimination is very common across OECD countries despite virtually all having legislative frameworks in place prohibiting it. Employment policies have an important impact on the prevalence of age discrimination. Seniority pay and stricter employment protection of older workers provide supplementary reasons for employers to prefer younger workers, although they play much less an important role in Hungary than in many other OECD countries (OECD, 2019[27]). However, Hungary has a form of mandatory retirement as labour protection is removed when people reach the statutory retirement age. Moreover, it is among only a few OECD countries with a mandatory retirement age before age 68. Several countries have either abolished mandatory retirement ages or have raised the applicable age limits over the last decades. As it forms an obstacle to extending working lives, mandatory retirement by employers should be discouraged or further restricted in close consultation and collaboration with employers' and workers' representatives, while respecting that in a limited number of instances such practices may be necessary.

FIGURE 3.4. **Older workers in Hungary are highly exposed to job strain**

Share of workers 50-64 facing more job demands than the resources they have at their disposal, 2015.



Source: OECD Job Quality database.

Finally, some programmes that are often considered in discussions on extending working lives are unlikely to be cost-effective. Wage subsidies are generally effective in bringing the unemployed back to work, but budgetary costs and deadweight effects can be large, so that these programmes are frequently not cost-effective (OECD, 2019[27]). The introduction of the possibility to work part-time at the end of the career overall is not an effective strategy to delay retirement and may even result in earlier full withdrawal from the labour market (Hess, Bauknecht and Pink, 2018[31]).

3.3. ENHANCING RETIREMENT SECURITY: THE ROLE OF PRIVATE PENSION INSTRUMENTS IN COMPLEMENTING THE PUBLIC PENSION SCHEME

The Hungarian pension system comprises a public pay-as-you-go component, as well as a supplementary voluntary private component, where assets accumulate to back individuals' future retirement income. A modification of the public pension system designed to improve its fiscal sustainability could, depending on the chosen policy option, reduce expected pension benefits. While average net replacement rates are projected to remain decently high for all policy options outlined above, private pension instruments could play a more important role, in particular in the case of implementing Policy Options 5-7 (adjusting benefit levels), helping to ensure adequate incomes in retirement. This section discusses ways to improve the complementarity of the public pay-as-you-go and private funded pension systems.

The landscape of voluntary pension instruments in Hungary

Five different private pension options exist in Hungary (Table 3.1), including personal and occupational plans. More than one in four employees in Hungary contributes to a private pension instrument, whereby voluntary pension funds are by far the instrument with the highest uptake, with around 1.1 million contributors. In 2018, the average contribution amounted to 3.4% of the net average earnings (IOPS, 2019[32]). Individual contributions to different private pension instruments are encouraged through a labour tax credit that amounts to 20% of contributions, with different monthly ceilings depending on the instrument. On the contrary, for employer contributions, the tax burden is equally high as for wage payments, which might explain why, in 2022, employees paid around three times as much in contributions than employers. There is also an aggregate ceiling for the tax allowance for contributors using several savings instruments.

Challenges to private pension savings in Hungary

While the coverage of private pension instruments is not negligible, the total voluntary contributions are extremely low compared to other OECD countries (Figure 3.5). One reason is the relatively generous public pension system, which provides high replacement rates. Another is low confidence in private instruments due to the "switchback reform", which *de facto* eliminated the mandatory Defined Contribution scheme, introduced in 1997, in 2011. During the reform, about 90% of the capital (around 11% of GDP) accumulated between 1998 and 2010 by the mandatory private pension funds was transferred into the general government budget. All payments out from the pillar were suspended, and all previous mandatory payments (employer and employee contributions) were diverted into the public system. Before the reversal, more than 70% of the labour force were members of a labour market pension fund. After the reversal, only 102 000 members stayed in the Defined Contribution scheme, essentially young people and high-income earners (OECD, 2019[11]). A lack of awareness and knowledge regarding the importance of current financial decisions on future well-being is likely another reason for the low voluntary contributions.

Policy options to reinforce the role of voluntary pension instruments

Strengthening awareness and confidence

Enhancing public knowledge about the pension system and how financial choices affect retirement income could motivate more individuals to contribute to private retirement savings. Awareness of the system's existence, its functionality, and its personal relevance may inspire those who are able to save, even through modest or sporadic sums, to put money aside for retirement. Hungary is currently in the process of establishing a pension awareness taskforce that could elaborate best practices in achieving this goal while drawing on experiences from other countries with historically similar challenges in the areas of awareness and confidence.

One way to build trust in the system is through pension communication campaigns, which are effective when designed according to clearly set and measurable objectives. Objectives may be to build consensus around the need for a policy

TABLE 3.1. **Overview of existing voluntary pension instruments in Hungary**

Voluntary pension option	Voluntary pension funds	Pension insurance	Retirement savings account (NYESZ)	Occupational pension institutions	Formerly mandatory private pension funds
Legislation	Law No. 96/1993	Law No. 88/2014	Law No. 156/2005	Law No. 117/2007	Law No. 82/1997 Changed in 2011
Providers	Voluntary pension funds (30)	Life insurers (22)	Banks	One institution (Allianz Occupational Pension Institution)	Private pension funds (4)
Description	Voluntary defined contribution schemes. Contributions are paid either by the employee, the employer or both. Members receive pension benefits upon retirement, either as a lump sum, annuity, or a mix of both.	Life insurance contract dedicated to a pension purpose. Two product solutions exist: traditional and unit-linked insurances. While the withdrawal of funds by benefitiaries is subject to strict rules, raising the statutory retirement age does not affect the conditions of current contracts.	Individuals make choices about the asset allocation of their savings. Upon reaching retirement age, individuals are eligible to access their savings provided that a minimum of ten years has elapsed since the account's inception. The payout depends on the return of chose assets and a person's propensity to save as there is no contribution obligation.	Occupational pension institutions have a limited role, with no current linkage to the PAYG system to prevent compromising the funding of public pensions. Hence, contributions are restricted to voluntary and additional payments.	Since 2011, individuals can choose to stay with the formerly mandatory private pension funds or to revert to the public pension system (remaining in the mixed system is possible). No longer new entries into the system. Most people tend to switch back to the public scheme by the time of retirement.
Uptake Contributions, Assets	Members: 1.1 million Annual contributions: EUR 370 million Assets at market price: EUR 4.6 million	Members: 470 000 Annual contributions: EUR 330 million	N/A	N/A	Members: 51 000 Annual contributions: EUR 3.1 million Assets at market price: EUR 723 million
Availability of 20% tax allowance for employees and monthly ceiling	Yes, EUR 390	Yes, EUR 338	Yes, EUR 260/338	N/A	N/A

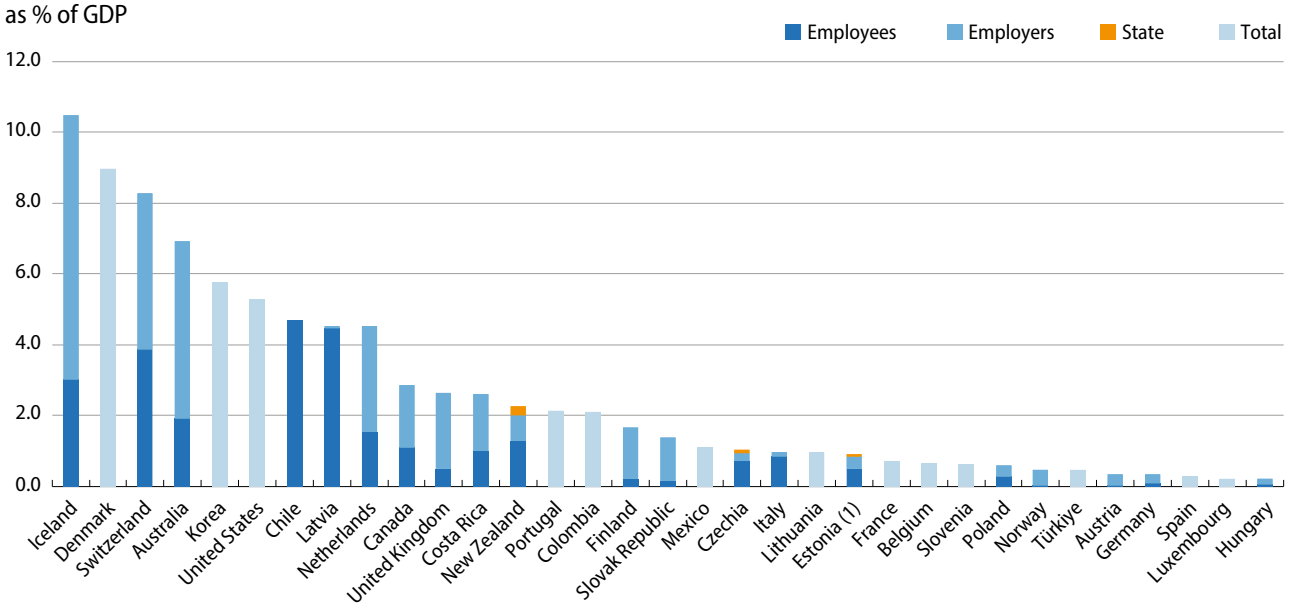
Source: Information provided by the Hungarian Ministry of Finance (October 2023); IOPS (2019)

change, to strengthen trust in pension institutions, to improve people's understanding of pensions or to influence financial behaviours. They can be linked to the selected policy options (e.g. adjusting Women-40) and cover the pension system as a whole, including both the private and public systems. To reinforce the role of voluntary pension instruments, pension campaigns could be targeted at young people, who would likely be more affected by the selected policy option, less biased against the private pension instruments and more willing to take financial risks due to longer investment horizons. Due to the issue of the 'missing generation', they are also strongly underrepresented among users of private pension instruments, suggesting potentially higher returns to campaign efforts.

Providing tools that help people understand the impact of their financial decisions on future retirement income can also be useful in encouraging participation and contributing to a voluntary pension plan. This can be done through developing comparison and projecting tools such as calculators and dashboards that help people choose the right strategy, given their situation and risk appetite. Examples of countries that have public pension calculators include Chile, France, Iceland, Lithuania, Mexico, Poland, the Netherlands, Sweden and Turkey. A pensions dashboard provides a one-stop shop for individuals to see comprehensive details of their pensions. Depending on how the dashboard is designed, individuals may be able to see their public and private pension entitlements, compare different private

FIGURE 3.5. **Contributions paid into funded and private pension plans are low**

Employer, employee and state contributions paid into funded and private pension plans, 2021 (or latest year available), as % of GDP



Note: The category "Total" shows the cases where the contributions cannot be split precisely between employers, employees (and state). (1) Data on state contributions refer to contributions to mothers.

Source: OECD Global Pension Statistics, 2022. https://www.oecd.org/daf/fin/private-pensions/Pension-Markets-in-Focus-2022-FINAL.pdf

schemes, enter personal information (such as a change of address) just once for transmission to multiple providers and receive regulatory and marketing communications. It may also facilitate obtaining comprehensive income projections from different sources. Denmark, for example, has a pension dashboard called *PensionsInfo*, https://www.pensionsinfo.dk/. It shows individuals' potential income from public and private sources. The dashboard has a tool that allows users to modify parameters such as their retirement age and monthly salary. Based on the inputs, it then estimates retirement incomes from different sources. Users are able to click through the information to get more details on the projections (OECD, 2022[9]).

Changing contribution defaults for employees

If the expected income levels of retirees would decline substantially, Hungary could also consider introducing automatic enrolment to an occupational pension arrangement with an appropriate default contribution rate, with the possibility for individuals to opt-out. In case the introduction of automatic enrollment is combined with an abolishment of the tax credits given to those who currently save through private funds, this option could reduce the overall pension-related spending while maintaining higher replacement rates. Tax incentives for retirement accounts rely on individuals to take action to raise savings. However, individuals often do not take these actions. In contrast, policies that raise retirement contributions if individuals take no action – such as automatic contributions to retirement accounts — increase pension wealth substantially (Chetty et al., 2014[33]) (OECD, 2022[9]).

3.4 MEASURES TO INCREASE FERTILITY RATES

Higher fertility rates could mitigate, to some extent, the decline in employment and lower the pension-related funding imbalance (Table 1.2). Like in other OECD countries, the ideal or intended number of children is higher in Hungary than the actual number of children, suggesting that some improvement in fertility is plausible if effective measures are implemented (OECD, 2016[34]).

The choice to have (more) children is influenced by various factors, including economic and financial security and the continuous availability of family policy supports that help parents combine employment and family responsibilities (OECD, 2023[35]). Following low fertility rates since the early 2000s, Hungary has adopted a decidedly pro-natalist stance

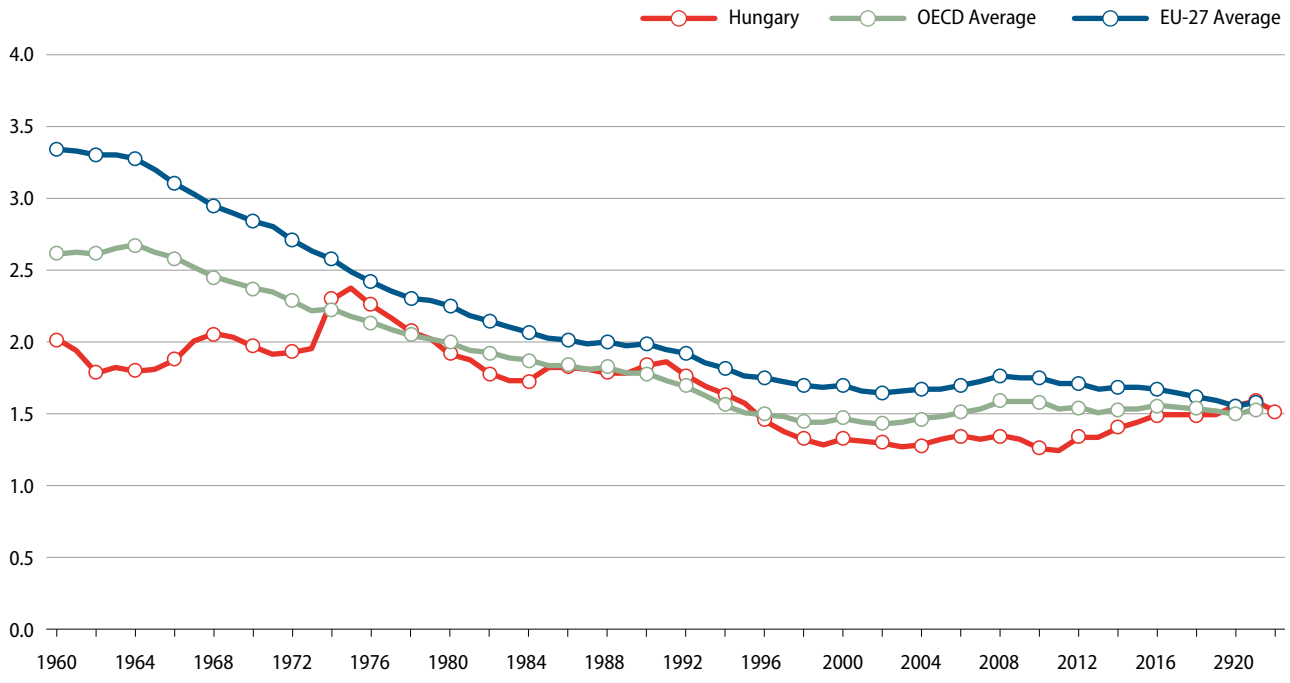
with wide-ranging family support accumulating to one of the highest expenditures on public family benefits across the OECD (3.1% of GDP in 2019), particularly targeting higher-parity births (Box 3.1). These strong family support measures have helped shift the trend in the fertility rate, which is now similar to the EU and OECD averages (Figure 3.6) (Szabo-Morvai et al., 2019[36]).

Nonetheless, to improve cost-effectiveness, spending on family support can be fine-tuned and become more targeted. Further strengthening public investment in childcare, including in smaller municipalities, supporting flexibility in the childcare services offered to parents with young kids and continuing to improve the quality of childcare through staff qualification and training are needed (OECD, 2022[37]) (Olivetti and Petrongolo, 2017[38]). About two-thirds of public spending on family benefits in Hungary is provided through cash benefits and tax exemptions, and only a third is through public spending on services (like childcare), compared with 43% in the OECD average. In 2022, only 13% of children aged less than three were in formal childcare, far below the EU average (Figure 3.7).

A positive impact of Early Childhood Education and Care provision on fertility was found in quasi-experiments in Norway, Sweden, Germany, Japan and Belgium (OECD, 2023[35]). In addition, improving Early Childhood Education and Care could have a positive effect on the labour force participation of parents of young children and grandparents (see above). This would in turn help to raise the contribution base and minimise the imbalance between pension-related spending and contributions. Potential fiscal savings could be achieved by targeting family allowances towards low-income households and lowering tax credits (OECD, 2024[5]). Although spending on early childhood education and cash transfers for families could have similar effects on fertility as both reduce the (opportunity-) costs of childbirth, most empirical research indicates that cash transfers for families with children have no or only moderately positive effects on fertility, perhaps because cash benefits also have substitution effects, such as investing more in children already born, that may suppress the positive effect of the benefits on the opportunity costs. In Hungary, tax benefits (and, more broadly, cash benefits) were also found to be less cost-effective in increasing fertility than, for instance, Early Childhood Education and Care provision (Szabo-Morvai et al., 2019[36]).

FIGURE 3.6. **Fertility rates have improved in the last decade**

Average number of children born per woman over a lifetime given current age-specific fertility rates and assuming no female mortality during reproductive years



Source: OECD Family Database.

BOX 3.1. **MAIN EXISTING INSTRUMENTS FOR HIGHER-PARITY BIRTHS**

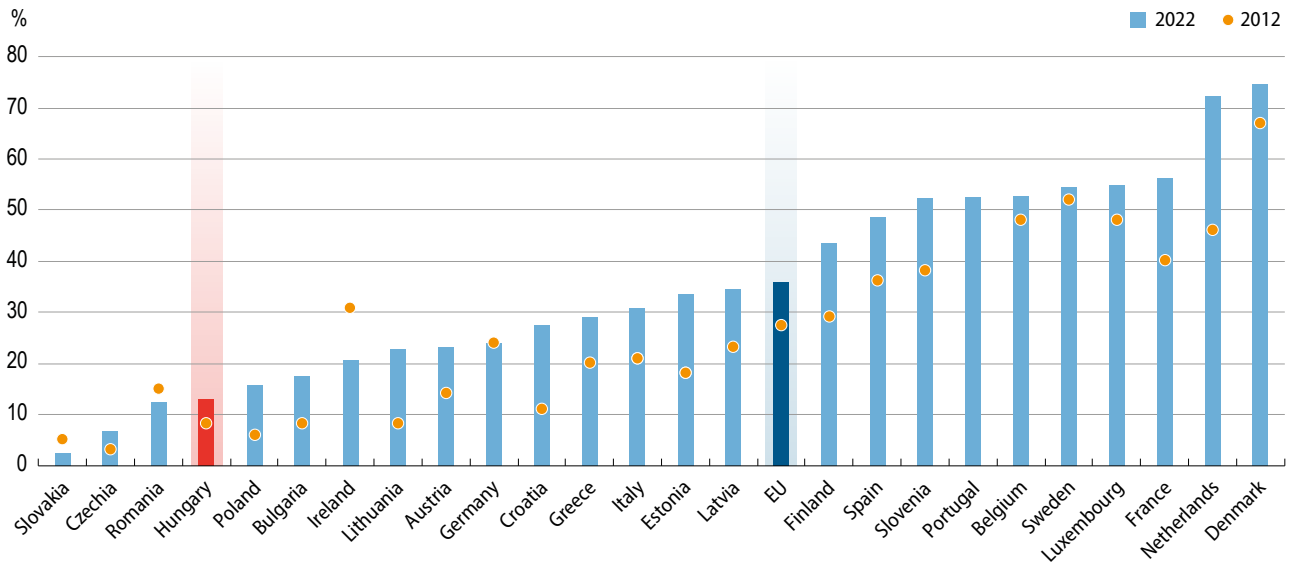
- **Infant care and childcare fee:** Parental leave benefits for parents paid until the child's third birthday. Insured parents receive two years of an earnings-related parental-leave benefit (up to a limit of HUF 234 360, EUR 619) followed by one year of a flat-rate benefit of HUF 28 500 (EUR 75), which is also available for uninsured parents for three years.
- **Family allowance:** A non-contributory, non-means-tested cash benefit available to all families, with payment dependent on family size. In 2022, parents with one child receive 12 200 HUF (EUR 32) per child/month, parents with two children receive 13 300 HUF (EUR 35) per child/month, while those with three or more children receive 16 000 HUF (EUR 42) per child/month.

Source: (OECD, 2023[35]).

- **Housing benefit:** A benefit for the purchase or construction of housing dependent on the number of (planned) children in the family. It consists of a non-refundable subsidy ranging HUF 600 000 (EUR 1 586) in the case of one (planned) child to HUF 10 million (EUR 26 429) for three or more (planned) children. Families with two or more (planned) children are also eligible for an additional loan with reduced interest rates.
- **Tax base allowance:** A per-child non-refundable allowance deductible from taxable income, also increasing with family size. In 2022, families with one child receive a discount of HUF 66 670 (EUR 176) on their tax base, while families with three children receive a discount of HUF 660 000 (EUR 1 744). Mothers who have had four or more children are fully exempt from personal tax on work-related income.

FIGURE 3.7. **Only a minority of children under three have access to formal childcare**

Proportion of children aged less than three in formal childcare (2022, %)



Note: According to national statistics published by the Hungarian Central Statistical Office (HCSO), the proportion of children aged less than three in formal childcare was 18.1% in 2022, vs. 12.9% according to Eurostat statistics based on the EU-SILC survey. The Hungarian authorities consider that the small sample of the EU-SILC survey does not provide an accurate estimate of this ratio. Assuming that the EU average is less sensitive to this issue than country-specific statistics, the proportion of children aged less than three in formal childcare in Hungary remains significantly below the EU average (35.9%) using one measure or the other.

Source: Eurostat Database on the European Pillar of Social Rights.

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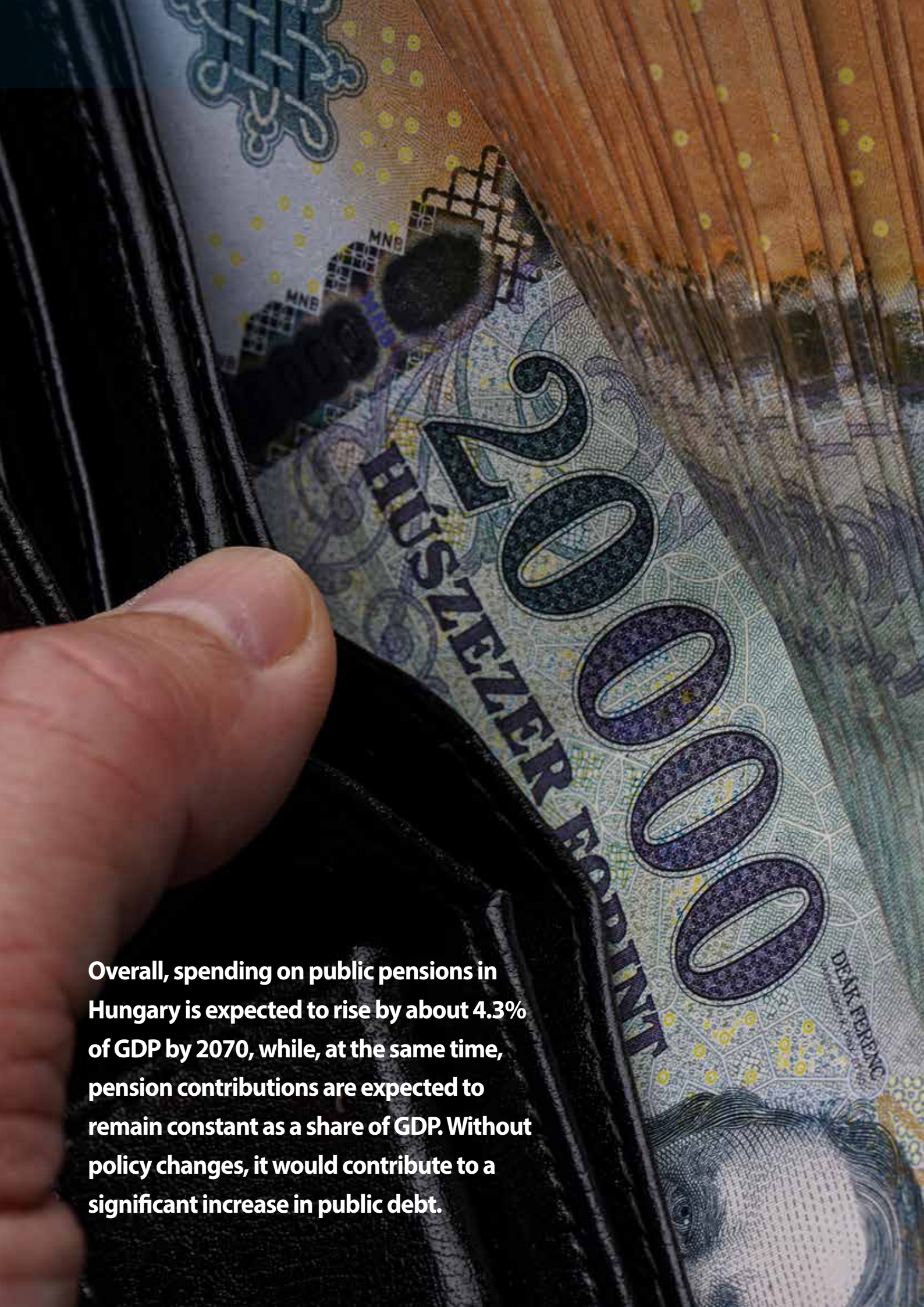

Overall, spending on public pensions in Hungary is expected to rise by about 4.3% of GDP by 2070, while, at the same time, pension contributions are expected to remain constant as a share of GDP. Without policy changes, it would contribute to a significant increase in public debt.

The Hungarian pay-as-you-go public pension system performs well in maintaining the standard of living after retirement. However, like in other EU countries, population ageing challenges the pension system as fewer working-age individuals must finance higher pension-related spending. While past modifications increased the effective retirement age and prolonged careers, partially offsetting some of the adverse fiscal effects of population ageing. Nevertheless, the system continues to face challenges. Spending on public pensions in Hungary is expected to rise by about 4.3% of GDP by 2070, while, at the same time, pension contributions are expected to remain constant as a share of GDP. Without further policy changes, pension expenditures would contribute to a significant increase in public debt.

This expert report presents a diagnostic of the challenges faced by the current system. It looks at the impact of population ageing on fiscal sustainability, discusses the income levels of current and future generations of pensioners, among others, by analysing future pension replacement rates. Building on the diagnostic of the current system, the report describes a set of policy options aimed at adjusting selected pension parameters to improve fiscal sustainability while preserving the pension system's adequacy. The report shows the impact of each policy option on future pension expenditures, pension levels, the tax wedge and expected years in retirement.

The work underlying this report was conducted by an interdisciplinary OECD team bringing together the Economics Department (ECO) and the Employment, Labour and Social Affairs Directorate (ELS), with the support of the Ministry of Finance of Hungary.

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