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Gender Equality and Economic Growth: Past progress and future potential

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An early version of working paper was revised:
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Abstract

Despite women's increased participation in the labour market significantly contributing to past economic growth, persistent gender gaps across OECD labour markets hinder full realization of women's productive potential. This paper analyses the economic implications of these gaps and evaluates the potential for future growth through greater gender equality in labour market outcomes. Utilising two methodological frameworks, we first employ growth accounting to measure the contribution of women's employment to past economic growth. We then use a simplified version of the OECD Long-Term Model in conjunction with projections on future labour force dynamics to estimate the impact of greater gender equality on the labour market. These analyses provide insight into the potentially significant economic benefits of closing persistent gender gaps across OECD countries.

Résumé

Malgré le fait que la participation accrue des femmes au marché du travail ait contribué de manière significative à la croissance économique passée, des écarts de genre persistants sur les marchés du travail de l'OCDE entravent la pleine réalisation du potentiel productif des femmes. Ce document analyse les implications économiques de ces écarts et évalue le potentiel de croissance future grâce à une plus grande égalité de genre dans les résultats du marché du travail. En utilisant deux cadres méthodologiques, nous employons d'abord la comptabilité de croissance pour mesurer la contribution de l'emploi des femmes à la croissance économique passée. Nous utilisons ensuite une version simplifiée du Modèle à Long Terme de l'OCDE, conjointement avec des projections sur la dynamique future de la main-d'œuvre, pour estimer l'impact d'une plus grande égalité de genre sur le marché du travail. Ces analyses fournissent un aperçu des avantages économiques potentiellement importants de la réduction des écarts de genre persistants dans les pays de l'OCDE.

Acknowledgements

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Table of contents

Tables

Figures

1 Introduction and main findings

Across OECD countries, a stubborn gap persists between labour market outcomes for men and women. This discrepancy not only challenges the fundamental principle of gender equality but also incurs significant economic costs, resulting from an untapped talent pool and the obstacles that prevent numerous women from reaching their full productive potential (OECD, 2023[1]). The pursuit of gender equality on the labour market therefore extends beyond a moral imperative. In a world characterized by rapid population ageing and decreasing fertility rates, greater inclusion of women in the labour market is vital to foster long-term economic growth (Bertay, Dordevic and Sever, 2020[2]). Indeed, past progress in closing gender gaps in employment has been a significant driver of economic growth (see e.g. OECD (2023[1]; 2022[3]; 2018[4])).

This paper examines the economic implications of these trends in greater detail. By investigating employment patterns for men and women in each OECD country over the past two decades, the paper examines the contribution of different components on economic growth since 2000, such as women's labour market participation and hours worked alongside demographic changes and increases in productivity. Furthermore, the paper projects future labour force developments and assesses the economic potential of closing gender gaps in employment outcomes beyond what can be expected today.

The paper employs two analytical frameworks for this analysis. The first is growth accounting, an established methodology to identify and decompose the components of past economic growth (Shorrocks, 2013[5]). This approach can quantify the contribution that increased female labour market participation has made to economic growth over past years to offer a comprehensive understanding of the impact that changes in women's employment outcomes have had across OECD countries. The second framework used in this paper introduces projections of future labour force development and combines them with a simplified version of the OECD's Long-Term Model (Guillemette and Château, 2023[6]). Along with different scenarios for future labour force participation rates and working hours of men and women in OECD countries, these models can project the potential impact of enhanced gender equality in the labour market on future economic output.

By providing a comprehensive analysis, this paper illustrates how closing gender employment gaps has contributed to past growth in economic output and how continued efforts to eradicate gender gaps in employment can offer substantial economic returns in times of rapid population ageing and a decline in the working-age population in many countries. The main findings of the paper include:

- On average across the OECD, employment rates of women have risen by 11 percentage points (p.p.) over the past 22 years, reducing the gender employment gap from 18 percentage points in 2000 to 11 percentage points in 2022. Over this period, the number of hours worked per week for both men (by almost 3 hours per week) and women (by an hour) have declined. The working-age population in the OECD has grown by 12% for men and 10% for women since 2000, yet some OECD countries have seen a decline in the working-age population because of population ageing or significant outward migration, reducing overall labour input by men and women.
- Changes in women's labour market outcomes have had a substantial impact on GDP per capita growth in OECD countries between 2000 and 2022. Increases in women's headcount employment have added 0.37 p.p. to average annual economic growth, compared to a 0.14 p.p. addition from changes in male employment. Reductions in total labour input per worker through decreases in working hours, generally reduced economic growth across the OECD. However, through

compositional effects on the total employed population, women's aggregate working hours moderately increased economic growth on average (+0.06 p.p.), whereas men's aggregate working hours substantially decreased growth (-0.36 p.p.). Overall, increasing labour productivity had the largest effects of average annual growth (+1.73 p.p.), while a shrinking of working-age populations dampened growth by 0.16 p.p. per year.

- Projections on the future development of labour force participation rates of men and women in OECD countries show that, by 2060, some countries are already on the path of closing gender gaps in labour force participation, while gender gaps in others are projected to remain relatively large. Alongside demographic dynamics, these projections also highlight that the size of the headcount labour force is on a path of stagnation or decline in many countries over the coming decades, while only few countries will see increases in their labour force. However, while increasing women's labour market participation could be one avenue to increase overall activity, even closing gender gaps in labour force participation fully by 2060 would not be enough in most countries to avert labour force stagnation or decline.
- Closing gender gaps in labour force participation and working hours can have substantial effects on output growth by 2060. On average across the OECD, closing labour force participation gaps could add 0.10 p.p. of additional economic growth per year, culminating in a 3.9% boost to GDP per capita by 2060. The effects of closing average annual working hours gaps are, on average, of a similar magnitude. Closing labour force participation and working hours gaps simultaneously could increase annual growth by 0.22 p.p., boosting GDP per capita by 8.8% by 2060. Countries with larger baseline gender gaps stand to benefit more from closing these gaps, while those with smaller gaps would see more limited effects.

2 Looking at the past: Growth accounting

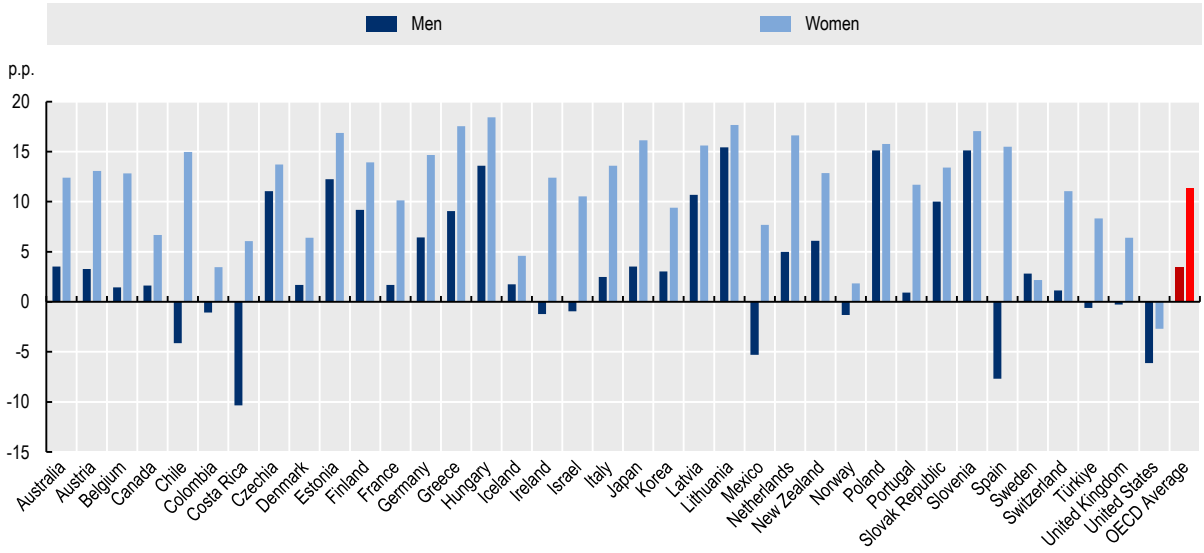
How have increases in female employment impacted economic growth in OECD countries? To answer this question, this section draws together historical time-series on economic and labour market outcomes and integrates them into a growth accounting analysis. With this approach, average annual growth GDP per capita is disaggregated in components attributable to changes in labour productivity, the changing size of the working-age population (aged 15 to 64), and the employment and total annual working hours of both men and women of working age. The analysis primarily relies on National Accounts data (OECD, 2023[7]), which is, in the absence of data disaggregated by gender, adjusted with estimates from Labour Force Survey data on the share of men and women among in the population and among the employed, as well as among total working hours. Based on the availability of data, primarily on working hours, the growth accounting exercise considers the period from 2000 to 2022 (see OECD (2018[4]) for a longer analysis horizon among select countries).

Past trends in employment outcomes

With a steady convergence toward men's employment rates, most working-age women across the OECD are in gainful employment today, leading to a decline in gender employment gaps (Fluchtmann and Patrini, 2023[8]). Based on adjusted national accounts data – which form the basis of the growth accounting exercise (more below) - the average employment rate among working-age women (aged 15-64) in the OECD has increased by 11 percentage points (p.p.) over the past 22 years, while only increasing by 3 p.p. for men. As a result, the gender employment gap narrowed from 18 p.p. in 2000 to 11 p.p. in 2022. In all OECD countries, except for the United States (-2 p.p.), women have seen their employment rate increase since 2000 (Figure 1). However, for Iceland and Norway, which already had high female employment well before 2000, employment rates of women only increased by 2 p.p. between 2000 as in 2022. The largest increases in female employment rates were in Greece and Hungary (+18 p.p.). For men, employment rates increased much less with an average increase of 3 p.p. between 2000 and 2022 across the OECD. In Chile, Colombia, Costa Rica, Ireland, Israel, Mexico, Norway, Spain, Türkiye, and the United States, employment rates for men decreased.

Figure 1. The total employment input has increased in most countries

Changes in employment rates, percentage points, 2000 to 2022, adjusted National Accounts data*



Note: Estimates based on National Accounts data adjusted with labour force survey estimates. The figure excludes Luxembourg, as the domestic concept of total employment in the National Accounts data is confounded by a large number of frontier workers (about 45% of all employment). For Ireland, the results need to be viewed with caution. In 2016, the Central Statistics Office Ireland published revised GDP data, which show significant upward revisions for the 2015 figures following the relocation of large multinationals to Ireland (see OECD (2016[9])). The OECD total is a weighted average.
Source: OECD estimates primarily based on data from the OECD National Accounts Database and the OECD Employment Database.

Total labour input in OECD countries has also been affected by changes in the composition and size of the working age population (ages 15-64). Across the OECD, the working-age population has grown by 12% for men and 10% for women (Annex Figure A A.1). In a number of countries in Central and Eastern Europe - which have experienced significant outward migration since the 1990s (Batog et al., 2019[10]) - but also in Germany, Italy, Greece, Finland, Japan, Portugal, the working-age population has declined since 2000, reducing the overall number of men and women that can engage on the labour market and contribute to economic output. In Czechia, Estonia, Hungary, Latvia, Lithuania, and Slovenia, the proportion of women of working age declined faster than for men.

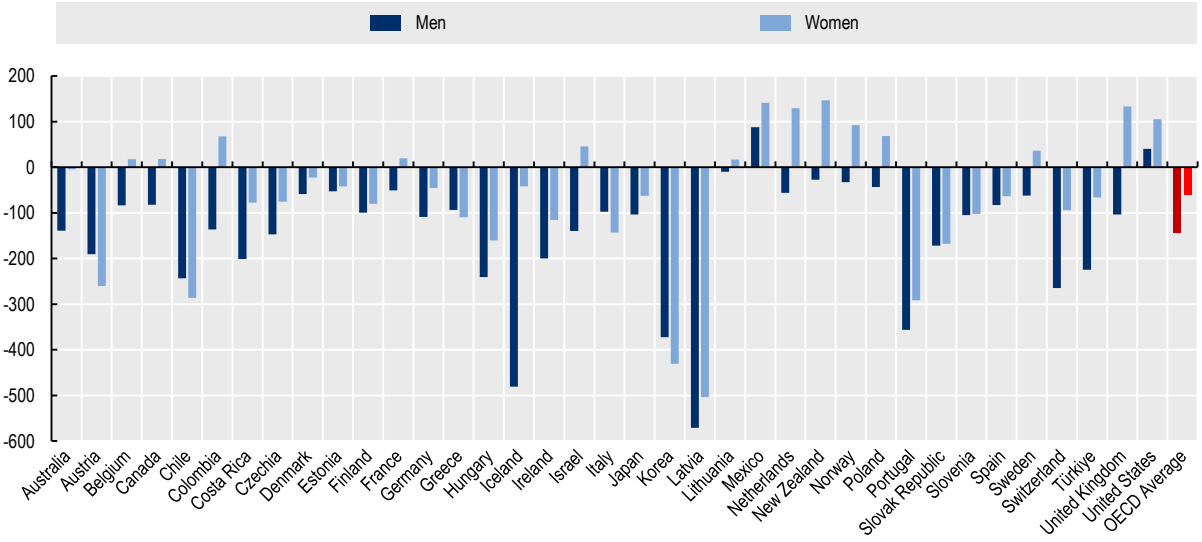
In contrast to rising employment rates among women, the number of hours in paid work per person for both men and women have declined, though the pace of change has slowed down somewhat recently (OECD, 2021[11]). As shown in Figure 2, the average annual number of hours worked per person across the OECD decreased by 144 hours for men and 59 hours for women between 2000 and 2022, subject to considerable variation across countries.

Since 2000, Korean and Latvian women, for example, decreased their annual hours in paid work per person by 431 and 504 hours, respectively, and thus substantially more than women in Portugal (- 291 hours), which has the third-highest decrease in working hours among women. In Latvia, these strong declines in reported hours in paid work may be a result of an increasing underreporting of hours in paid work, particularly since the pandemic (OECD, 2022[12]). For Korean women, the changes are related to a decrease in the standard working week to 40 hours, as implemented between 2004 and 2011 (with exceptions for the self-employed and employers), along with a general downward trend in working time (Park, Kim and Han, 2017[13]; OECD, 2019[14]). Despite these regulations, Korean women still have the third longest hours in paid work per year (2 008 hours), only topped by Colombia (2 355 hours), Mexico (2 115 hours), and Poland (2 020 hours). In contrast to Korea, these three countries have seen paid working

hours of women increase between 2000 and 2022. In Norway, Poland, and the United Kingdom have, for example, the increase in paid working hours among women was related to an increase in full-time employment relative to part-time employment (see e.g. Roantree and Vira (2018[15])).

Figure 2. Hours worked have declined in most OECD countries, especially for men

Changes in average annual hours worked per employee, 2000 to 2022, adjusted National Accounts data*



Note: See notes to Figure 1.
Source: OECD estimates primarily based on data from the OECD National Accounts Database and the OECD Employment Database.

Accounting for the link between employment outcomes and economic growth

To identify and decompose the sources contributing to economic growth in OECD countries between 2000 and 2022, this paper uses a growth accounting approach. The basic principle of growth accounting is to decompose economic growth into its components related to labour, capital, and total factor productivity (Solow, 1956[16]). Data permitting, the contribution of each of these main components can then be further decomposed into sub-components, such as gender-specific employment rates and average annual working hours.

A simple Cobb-Douglas production function with constant returns to scale serves as the foundation for the growth accounting exercise. Total economic output, measured by Gross Domestic Product (GDP), can be expressed using the following function:

$$Y = \left(A \cdot E \cdot \frac{H}{E}\right)^{\alpha} \cdot K^{1-\alpha} \quad (1)$$

where Y is GDP, K is physical capital, A is total factor productivity, E is headcount employment, H is total hours worked, H/E is average hours worked per person employed, and α is the labour share of output.

Economic output per capita can be expressed of as the result of labour utilisation, which takes into account the share of the population that is of working age, the employment-to-working-age-population ratio, and the number of hours worked per person employed, and labour productivity, which is measured as output per hour worked and takes into account all factors of productivity (physical capital, technological progress, and human capital):

$$\frac{Y}{P} = \left(\frac{WP}{P} \cdot \frac{E}{WP} \cdot \frac{H}{E}\right) \cdot \left(\frac{Y}{H}\right) \quad (2)$$

Where Y is GDP, P is the total population, WP is the working-age population, E is headcount employment, H is total hours worked, $^{Y}/_{P}$ is GDP per capita, $^{Y}/_{H}$ is output per hour worked (labour productivity), $^{WP}/_{P}$ is the working age share of the population, $^{E}/_{WP}$ is the employment-to-working-age population ratio, and $^{H}/_{E}$ is average hours worked per person employed. Here, employment is limited to those of working-age (15–64-year-olds) to allow for a better analysis of how shifts in the working-age share of the population contribute to output.

Using this framework, GDP per capita can be expressed in growth rates to denote changes in economic output over time, as expressed by the following additive function, where the g is the growth rate for the given components:[1]

$$g_{\frac{Y}{P}} \approx g_{\frac{WP}{P}} + g_{\frac{E}{WP}} + g_{\frac{H}{E}} + g_{\frac{Y}{H}} \tag{3}$$

The decomposition is produced in two stages. First, growth in GDP per capita is decomposed into each of its main components – as shown in equation 3 above. Second, the contributions of growth in both the employment-to-population rate and in average hours worked per person employed are then themselves decomposed by gender. It is these last two decompositions (of the employment and working hours) that are the focus here as they provide information on the extent to which changes in men's and women's employment and working hours have contributed to economic growth. This procedure is run separately for each country. For of growth in the employment-to-population rate this can be written as:

$$g_{\frac{E}{WP}} = \underbrace{g_{\frac{WP_M}{WP}} \cdot g_{\frac{E_M}{WP_M}}}_{Male\ employment} + \underbrace{g_{\frac{WP_W}{WP}} \cdot g_{\frac{E_W}{WP_W}}}_{Female\ employment} \tag{4}$$

Where $g_{^{WP_M}/_{WP}}$ and $g_{^{WP_W}/_{WP}}$ denote growth in the share of men and women among the total working-age population, respectively, while $g_{^{E_M}/_{WP_M}}$ and $g_{^{E_W}/_{WP_W}}$ denote growth in the respective employment-to-population rates for men and women. Together, these components make up the contribution of changes in male and female employment.

Growth in average hours worked is similarly decomposed:

$$g_{\frac{H}{E}} = \underbrace{g_{\frac{E_M}{E}} \cdot g_{\frac{H_M}{E_M}}}_{Male\ working\ hours} + \underbrace{g_{\frac{E_W}{E}} \cdot g_{\frac{H_W}{E_W}}}_{Female\ working\ hours} \tag{5}$$

Where $g_{^{E_M}/_{E}}$ and $g_{^{E_W}/_{E}}$ denote growth in the share of men and women among the total employed population, respectively, while $g_{^{H_M}/_{E_M}}$ and $g_{^{H_W}/_{H_W}}$ denote growth in the respective hours worked per employed men and women.

Equations 4 and 5 show that it is not only growth in the "raw" employment rate or hours worked per employee that make up the overall contribution of male and female employment and working hours to economic growth, but also the shifting shares of women and men among the working-age and employed population. Especially among women, an increasing share among the employed population can therefore have a greater effect on growth than a decline in working hours per employee. Indeed, even though average annual hours worked hours per employed women have decreased in the OECD as a whole, more women are employed today than in 2000, which means that there are more aggregate hours worked per year by women on average across the OECD (OECD Employment Database).

[1] Growth in equation 2, which is a multiplicative function, can be expressed in additive terms when log-transforming the expression. In this case, approximately, when growth in output Y between period t and t+1 is relatively small (less than 5-10%):

$$g_Y = {}^{Y_{t+1}}/_{Y_t} \approx {}^{\ln(Y_{t+1})}/_{\ln(Y_t)} = \ln(Y_{t+1}) - \ln(Y_t)$$

As such, growth in equation 2 and its components can be expressed in additive terms to reach equation 3.

The data used for the growth accounting exercise are based on a combination of official macroeconomic data from national accounts databases and employment and working hours estimates from labour force surveys. Data for the first stage are taken from the *OECD National Accounts Database*. The data series used include Gross Domestic Product (GDP), total population, total employment, and average working hours per person employed (see Annex Table A A.1 for a summary). On occasion, important series are missing in the OECD database. Where this is the case, values are imputed or interpolated using information from alternative national accounts databases, such as those published by national statistical offices.

The second stage of the growth accounting exercise requires data on population, employment, and working hours that are disaggregated by age and gender. Because national accounts databases do not typically disaggregate information by age or gender, these data are estimated using information from labour force surveys – in short, the overall national accounts series on population, employment and hours are split and *'allocated'* across the various gender- and age groups according to the distribution of the given series provided by labour force survey data. The labour force survey estimates for employment and working hours are re-scaled prior to this *'allocation'*, so that the aggregated estimates for the working-age population match exactly those from the National Accounts series.

The labour force survey data used for this second stage are taken primarily from the *OECD Employment Database*. Where data are missing, values are imputed using information from alternative sources, such as national statistical offices, or are estimated by extrapolating the nearest observation back or forward using alternative but similar series (see Annex Table A A.2). Luxembourg is excluded from the analysis, as the domestic concept of total employment in the National Accounts data is confounded by a large amount of frontier workers (about 45% of all employment).[2]

It is important to acknowledge some limitations to the overall growth accounting approach. For example, the calculations presented do not consider the effect of changes unpaid work and household production. Despite increased market-based outsourcing of these tasks to service providers and domestic workers, much of this work remains in the household without financial compensation, despite bearing substantial economic value (see OECD (2021[17])). The growth accounting analysis primarily relies on National Accounts data (OECD, 2023[7]), which does not always fully align with estimates from Labour Force Surveys due to various coverage, definitional, and methodological differences (see, e.g., Ward, Zinni, and Marianna (2018[18]). Further, growth accounting is a descriptive tool rather than a causal model and any results must therefore be interpreted with the necessary caution.

Lastly, estimates of the growth accounting exercise also overlook potential disparities in productivity across the population, implicitly assuming that an additional hour of work yields the same output, regardless of gender, age, education, or any other factor. This approach neglects important facets of the labour market, such as occupational segregation between men and women, which not only contributes to wage disparities, but also confounds the true contribution of working men and women to output. Considering the systemic barriers that distort skill accumulation and career progression for women (see e.g. OECD (2023[1])), the assumption that productivity neutral with respect to gender introduces an upward bias in the resulting estimates.

Results of the growth accounting exercise

With changes in labour input, women's increased labour market participation contributed to the 1.78% average annual GDP per capita growth between 2000 and 2022 across OECD countries, though most of

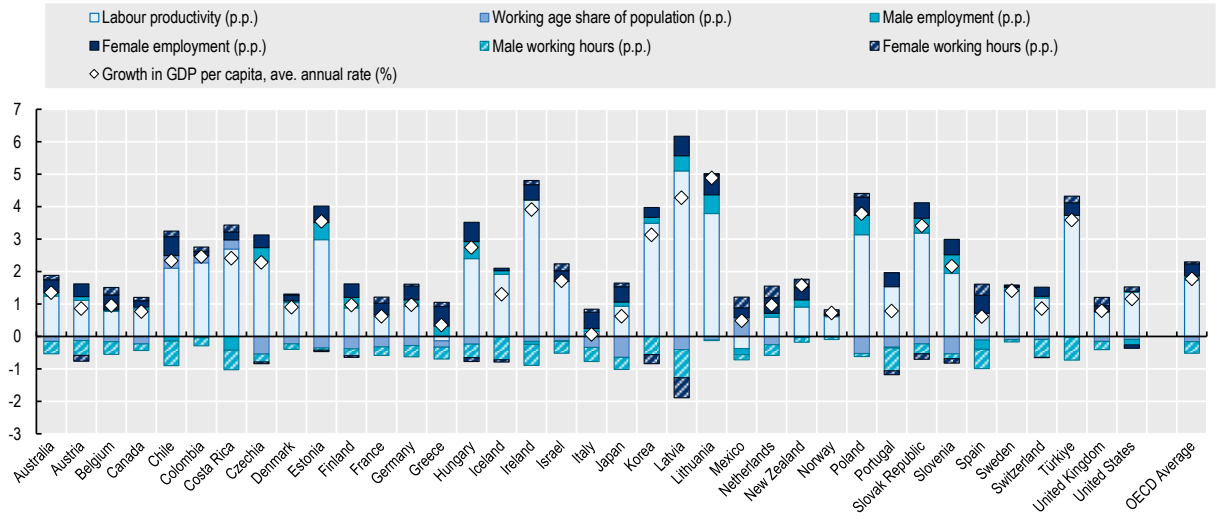
[2] For Ireland, the results need to be viewed with caution as the Central Statistics Office Ireland published revised GDP data in 2016, which show significant upwards revision for the 2015 figures following the relocation of large multinationals to Ireland (see OECD (2016[9])).

this growth can be attributed to increased productivity. Figure 3 and Annex Table A A.3 summarise results from the growth accounting exercise outlined above.

Increases in labour productivity contributed about 1.73 p.p. of economic growth per year. As the share of the working-aged among the total population decreased in most countries, changes in the working-age share of the population reduced growth by 0.16 p.p. per year on average. Changes in female employment played a moderate, but important role as well, adding 0.37 p.p. to average annual economic growth, while changes in male employment added 0.14 p.p. per year.

Figure 3. Accounting for different contributing factors to economic growth across the OECD

Average annual rate of growth in GDP per capita (%) and disaggregation of growth into its primary components, 2000-2022



Note: Estimates based on the decomposition of National Accounts data adjusted with labour force survey estimates. The figure excludes Luxembourg, as the domestic concept of total employment in the National Accounts data is confounded by a large amount of frontier workers (about 45% of all employment). For Ireland, the results need to be viewed with caution: In 2016, the Central Statistics Office Ireland published revised GDP data, which show significant upward revisions for the 2015 figures following the relocation of large multinationals to Ireland (see OECD (2016[9])).
Source: OECD estimates primarily based on data from the OECD National Accounts Database and the OECD Employment Database.

The importance of increases in women's employment for annual economic growth varies strongly across countries. Some countries recorded substantial contributions, primarily because of sizeable increases in the employment rate women, while others experienced limited change, as women's employment increased only marginally or remained stable, such as in Colombia, Iceland, Norway and Sweden. For Lithuanian women, however, substantial increases in employment rates have added 0.62 p.p. of additional economic growth each year, despite noticeable outward migration with a decreasing share of women among the working-age population. With this, Lithuania is the biggest benefactor in the OECD of the contribution of women's employment to GDP growth between 2000 and 2022, closely followed by Chile, Estonia, Greece, Hungary, Latvia, Poland, and Spain, where women's engagement on the labour market also contributed over 0.50 p.p. of annual growth.

In the United States, women's employment had a small negative effect on economic output. This results from a decreasing employment rate among women alone (the "raw" effect of employment rates), coupled with a decrease in the share of women among the working-age population. As both factors together make up the total contribution of employment on economic growth (see equation 4), Figure 4 and Annex Table A A.4 present an additional decomposition of the employment components for men and women

presented in Figure 3. This additional decomposition shows that across most OECD countries, decreases in the share of women among the working-age population have marginally dampened the raw effect of the increases in their employment rates between 2000 and 2022, with little to no change on the overall contribution of women's employment on economic growth overall. For men, a slightly increasing share among the working-age population had marginal positive contributions to the overall employment component.

With decreases in the total labour input per worker, reductions in average annual working hours generally reduced economic growth across the OECD, particularly where it had been strong over the last 20 years. However, as working hours of men have fallen more on average, they were responsible for a reduction of annual growth by 0.36 p.p. on average, with only the United States seeing a small positive contribution of men's working hours (+0.03 p.p.), while women's working hours marginally increased growth by 0.06 p.p. per year.

At first glance, reductions in the average annual working hours of women seem at odds with a positive contribution to economic growth. However, a further decomposition into "raw" changes in hours worked per women and changes in the share of women among the employed population, as presented in Figure 4 and Annex Table A A.4, sheds light on this conundrum. As both components make up the total contribution of working hours to economic growth (see equation 5), the substantial increase in employment noted above resulted in a positive contribution of aggregate working hours of women, despite the negative effect average working hours declines had in most countries (Figure 5, Panel A). For men, the contribution of both components is mostly negative, as the share of men among the employed population has generally decreased alongside a shrinking average number of hours worked per person (Figure 5, Panel B).

The positive effect of an increasing share of women among the employed on the aggregate working hours component is mirrored across many countries (Figure 5, Panel A). A total of 34 countries saw a positive aggregate effect of women's working hours on economic growth, even though most saw a decrease in the average hours worked per employed women between 2000 and 2022. The biggest overall contribution to annual economic growth (around 0.35 p.p.) was recorded in the Netherlands and Mexico, where women increased hours in paid work, and Spain, where women's share of the employed population increased substantially, while actual hours worked per woman decreased slightly. Substantial contributions between 0.20 and 0.30 p.p. per year of the total working hours components for women were also observed in Belgium, Costa Rica, Israel, New Zealand, Türkiye, and the United Kingdom. Except for Costa Rica and Türkiye, each of these countries also saw raw increases in the working hours of women. The strong reductions in working hours among Latvian women have led to a sizeable reduction in average annual growth (-0.62 p.p.), larger than in any other OECD country. However, negative contributions of declining women's working hours to economic growth were also observed in Austria, Czechia, Estonia, Finland, Hungary, Iceland, Korea, Portugal, the Slovak Republic, Slovenia, and Switzerland.

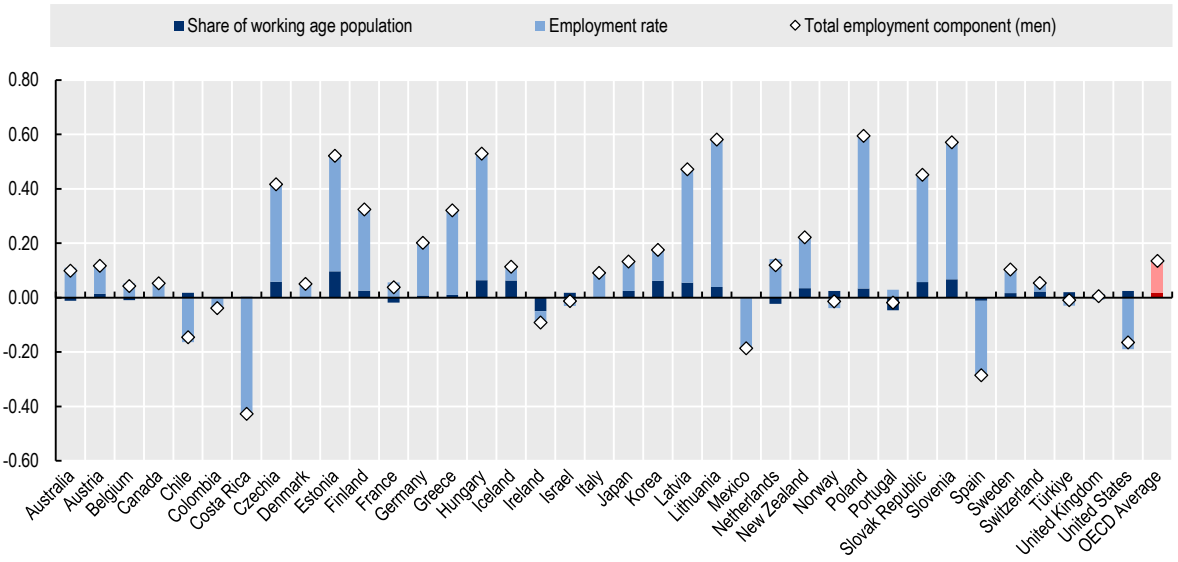
For men, only Mexico and the United States recorded a small positive contribution of hours worked per employed. While the total working hours contribution for men in the United States was marginally positive, the declining share of men among the employed population in Mexico nevertheless led to a negative overall working hours component (Figure 5, Panel B). Iceland and Sweden are the only countries where men marginally increased their share among the employed. However, in both countries, a reduction in hours worked per person means that the overall working hours component for men are negative. Latvia experienced a particularly strong negative contribution of aggregate working hours of men.

Figure 4. Women's rising employment rates have substantially contributed to economic growth

Average annual growth contribution of the employment component, by sub-component, 2000-2022

a. Women

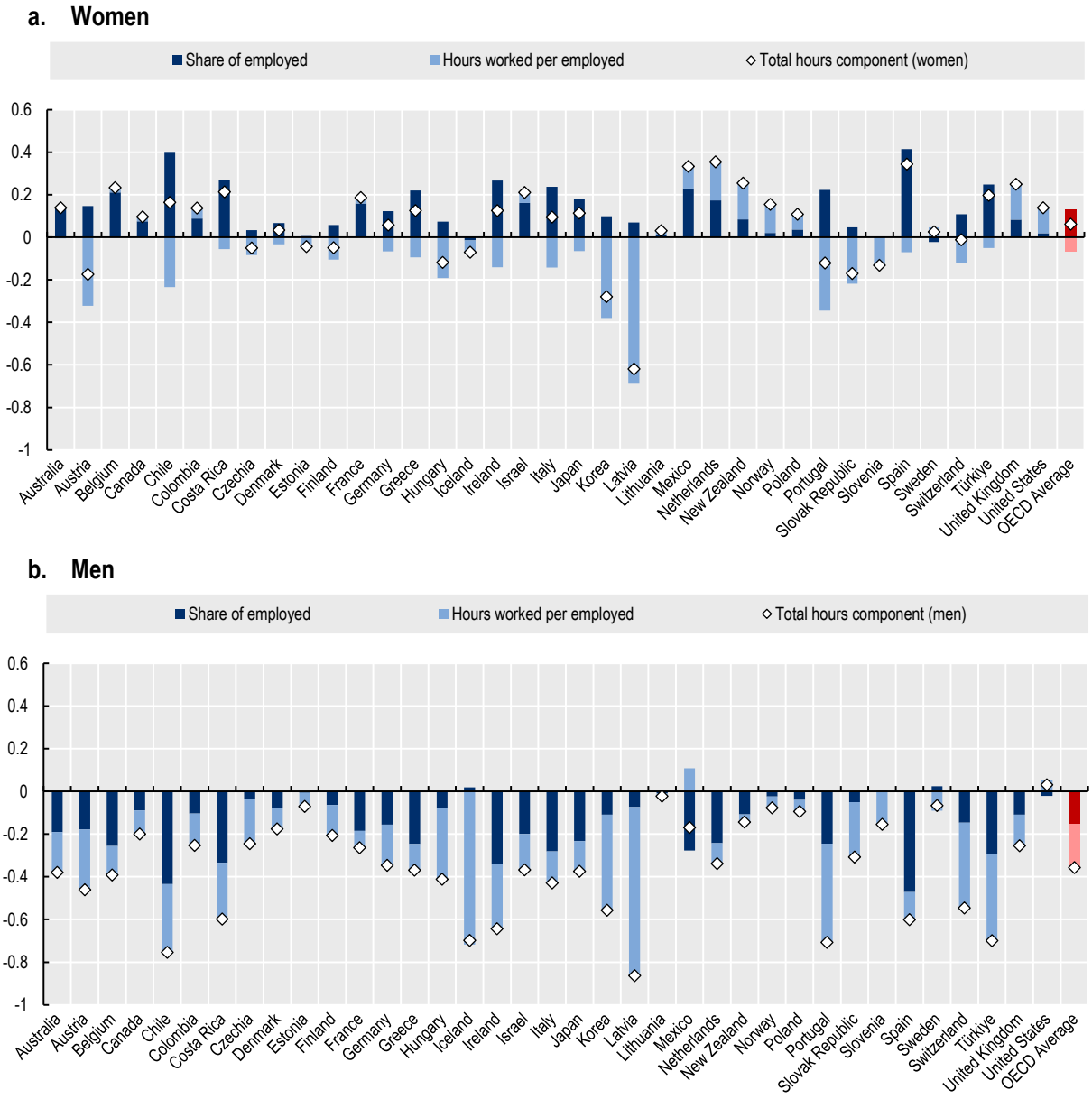
b. Men



Note: See note to Figure 3.
Source: OECD estimates primarily based on data from the OECD National Accounts Database and the OECD Employment Database.

Figure 5. Women's rising share among the employed offsets declines in hours worked per worker

Average annual growth contribution of the working hours component, by sub-component, percentage points, 2000-2022



Note: See note to Figure 3.
Source: OECD estimates primarily based on data from the OECD National Accounts Database and the OECD Employment Database.

3 Looking ahead: Labour force projections and growth scenarios

While previous increases in employment rates among women, and to a lesser extent their working hours, have been an important part of overall economic growth, women still face substantial barriers to employment across the OECD (OECD, 2023[1]). Thus, further efforts to increase women's engagement in paid work promises an additional boost to economic growth by increasing total labour input and making better use of the available pool of talent and productive potential in the economy. To illustrate this, the following sections present economic output projections following different hypothetical scenarios on labour market outcomes by gender until 2060. These projections are based on labour force projections and a simplified version of the OECD Long-Term Model (Guillemette and Château, 2023[6]), where changes in annual growth in GDP per capita are estimated under different labour market scenarios. Previously, this model has also been used to project the long-term economic consequences of different scenarios on fertility- and mortality rates (OECD, 2023[19]; 2022[3]).[3]

Production of these estimates themselves takes place in two stages. First, estimates of the size of the labour force and overall average working hours are produced under different hypothetical scenarios on labour market dynamics. Second, estimates of average annual growth in GDP per capita are produced by combining the labour force and working hours under each scenario with a modified version of the long-term growth models presented in Guillemette and Turner (2023[6]). The theoretical foundation for the long-term model is similar to that outlined for the growth accounting exercise above. The model estimates GDP based on a range of long-term growth determinants and their dynamics within the given country as well as on convergence patterns between countries across the projection period (here, 2023 to 2060).

Projections and hypothetical scenarios on labour force developments

Understanding changing labour force dynamics is important. As shown in the first part of this paper, past changes in the employment rates and working hours of men and women had noticeable impact on growth dynamics in OECD countries. However, gender gaps in employment outcomes and barriers on the labour market remain, which means that there continues to be untapped potential for additional growth when striving for more gender equality in employment. At the same time, technological advancements, demographic shifts, and changes in family supports, societal values and norms are likely to continue to affect labour force developments in the OECD in the coming decades. Especially as many OECD population are ageing rapidly, increasing labour market activity of women may be one of the avenues to avoid or limit declines in the size of the labour force relative to the dependent population.

In this sub-section, we present projections on future labour force development. The growth accounting exercise above, focused on changes in employment for the working-age population (15-64). However, with increasing life expectance and (effective) retirement ages it seems more appropriate to consider the

[3] See Fluchtmann (2023[44]) for a methodology on modelling of projected scenarios on fertility-, migration- and mortality rates in this context.

population age-group 15-74 for the horizon up to 2060 (OECD, 2019[20]; 2023[21]). Furthermore, the projections focus on labour force participation rates (i.e., the employed plus unemployed population), which ensures compatibility with the outputs of the OECD's labour force projections models. Based on labour inputs, all economic production is presented as potential economic output ignoring any unemployment dynamics.

We then establish a baseline projection for the number of people in the labour force (aged 15-74) that accounts for changes in the labour force participation of men and women that are likely to occur even in the absence of any further policy reforms. Rather than assuming fixed participation rates, the baseline scenario assumes constant labour force entry and exit rates by gender for 5-year age groups. This allows for changes in participation rates at younger ages to feed through to higher (or lower) participation rates at older ages.

Entry or exit rates by gender for 5-year age group are calculated as the difference in the participation rate for each group in a given year less the rate 5 years earlier for the corresponding age group that is 5-years younger, i.e., the same age cohort. Exit rates refer to a negative difference in the 5-year participation rates while entry rates refer to a positive difference. The source of the data on participation rates is the *OECD Employment Database* with some adjustments to ensure consistent series over time to take account of statistical breaks in some countries.

These exit and entry rates, held constant at their average for the period 2018-2019 and 2022, are then applied to the average of the participation rates for the corresponding gender and age groups over the same period to obtain the projected rates for 2025 and subsequently for each 5-year period.[4] The rates for the years in between are obtained by linear interpolation. The resulting participation rates are then multiplied by projections of the population by age and gender to obtain the projections of the labour force.[5] Finally, these projections are transformed into projections of employment by assuming that the overall unemployment rate by gender and 5-year age group remains constant at its average level in 2018-2019 and 2022.[6]

In a second stage, these headcount projections of employment are multiplied by average hours worked per worker to obtain projections in terms of total hours worked, i.e. projections of labour volume. Hours worked per worker are based on the *OECD Employment Database.* In the absence of projections of the usual hours worked, the latest data point by gender for each 5-year age group is kept fixed and projected forward till 2060 (i.e. assume that hours worked stay the same until 2060). As such, any future change in average usual weekly working hours across the entire population mainly comes from demographic change, and the convergence in labour force participation of men and women.

Importantly, the approach followed here regarding future working hours abstracts from past trends in the evolution of working hours. For example, recent declines in working hours in Europe have largely been driven by the young men and fathers with young children, reflecting a convergence to preferred working hours levels (Astinova et al., 2024[22]). However, it is not clear whether working hours for men are going to decline further. At the same time a sizeable part of involuntary part-time persists, particularly among

[4] The years 2018-2019 and 2022 were chosen to average the exit and entry rates to avoid the exceptional fall in participation rates that occurred in 2020 and 2021 as a result of the COVID-19 crisis. The projections of the participation rates for women in each age group are constrained to not exceed those for men in the same age group.

[5] The population projections are taken from OECD Data Explorer and refer to national projections where available otherwise Eurostat (for European countries) or UN (non-European countries) projections. These "demographic" projections refer to the total population, including the institutional population, who are usually excluded from the labour force estimates of the population. The projections of the population on a labour force survey basis are obtained by assuming the same growth by gender and age group as for the demographic population projections.

[6] This implies that total employment by gender grows at the same rate as the total labour force by gender.

women. Any further convergence to preferred working hours levels could therefore also mean future working hours among women could increase.

In addition to the baseline projections, we present a set of hypothetical scenarios on labour force developments that assume the closure of participation and working hours gaps. In practice, these scenarios follow the baseline projections for men and women across five-year age groups and adjust the projection upward to close gender gaps in each five-year age group within each country. Starting in 2023, this adjustment happens linearly by 2060, meaning that the gender gap in labour force participation and/or working hours closes by a similar margin each year over this horizon. This means, for example, that if 30- to 34-year-old women have lower participation rates than men of that each group, we let women's participation rates linearly increase over time above the baseline projection, so that they reach men's participation rates by 2060.[7] In most cases, a decrease in the gender gap in working hours therefore implies an increase in the working hours of women, but a few exceptions exist where young men would converge to higher working hours of young women.[8] As mentioned before, even though women's working hour have been on a slight downward trend, alongside stronger declines for men, a reduction in the strongly gendered distribution of part-time work, including involuntary part-time employment, could yield an increase women's working hours (Astinova et al., 2024[22]).

Three different main scenarios are presented:

- *Scenario A*: gender labour force participation (LFP) gaps fully close by 2060. Within each age group, the LFP of the gender with the highest LFP is held at the baseline and the LFP of the gender with the lower LFP is projected to linearly grow, so that the gender LFP gap fully closes by 2060 in each age group relative to baseline.
- *Scenario B*: gender working hour gaps fully close by 2060. Within in each age group, the average usual working hours of the gender with the highest value is held at the baseline and the average usual weekly working hours of the gender with the lower value is projected to linearly grow, so that the gender working hours gap fully closes by 2060 in each age group relative to baseline.
- *Scenario C*: gender LFP and working hour gaps fully close by 2060. This scenario follows the approaches of Scenarios A and B, so that the gender LFP and working hour gaps fully closes by 2060 in each age group relative to baseline.

The projections used in these scenarios are simply mechanical. In other words, they assume that any changes in labour force participation rates or working hours for women or men do not interact with, or have any indirect effects on, other paid labour inputs of household partners or other age groups For example, younger or older relatives may reduce working hours to help out with care commitments for partners and/or relatives, while both partners may share parental leave entitlements and engage in paid work on a part-time basis (OECD, 2017[23]). If any such indirect effects occur, the impact of changes in patterns of paid work on overall labour supply may differ from those estimated here.

Figure 6 and Figure 7 present the baseline projections on labour force participation rates and working hours, while Annex Figure A A.2Figure A A.2. and Annex Figure A A.3 also show headcount labour force developments relative to 2023 to illustrate the overall dynamics that account for demographic trends too. In some countries, labour force participation gaps are projected to narrow substantially, even under the

[7] Across most countries and age groups, men have higher labour force participation rates than women. However, in some cases, especially at relatively young and/or old ages of labour force participation, women occasionally have higher participation rates (see e.g. OECD (2022[3])). In these cases, it is men who increase participation rates to match those of women in that age group.

[8] The working hours of women exceed those of men in a few age-groups for a few countries (particularly for younger employees in the Nordics). As such, while the general convergence in the projections and scenarios would come from increases in women's working hours, men's working hours also marginally increase in a few countries.

baseline projections. Compared to 2023, for example, projected gender gaps in labour force participation are especially small in Australia, Israel, Japan, and Luxembourg. In Chile and Türkiye, labour force participation gaps are projected to close noticeably as well, but the gap in 2060 remains comparatively large. Under scenarios A and C, labour force participation rates of women increase the most in cases where gender gaps in labour force participation in 2022 (the baseline year) were particularly large, such as in Colombia, Costa Rica, Mexico, and Türkiye (Figure 6 and Figure 7). However, in countries where these gaps were small in 2022, there is little to no increase, as for example in Finland, Israel, Luxembourg, Slovenia, and Sweden.

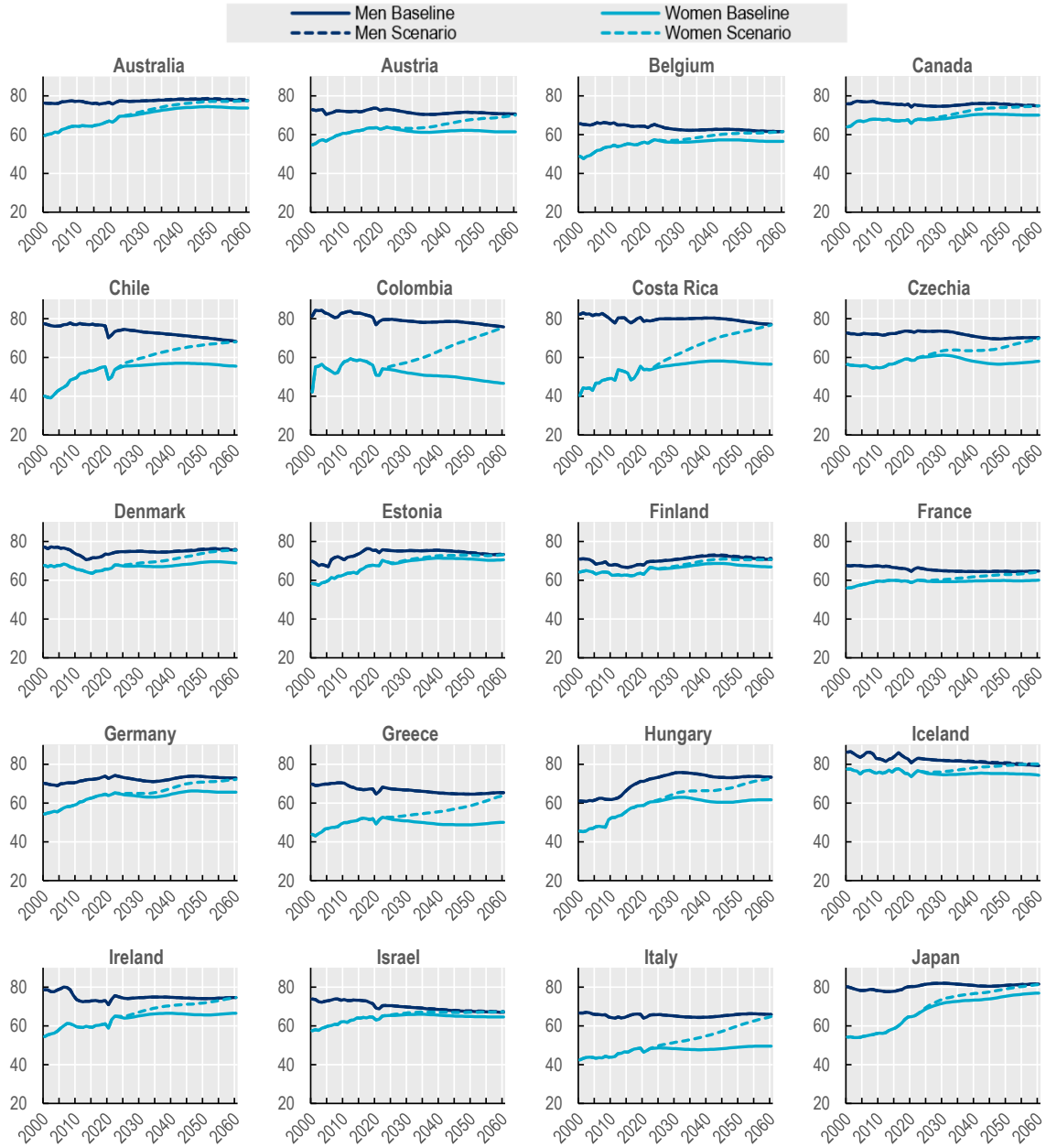
In a few countries, such as Australia, Finland, Sweden, the United Kingdom and the United States, labour force participation rates of men would marginally increase under the scenarios, mainly because the labour force participation of women in 2022 is higher than for men in specific age groups, mainly among 15 to 20-year-olds. However, these gaps are very small, so that the overall effect on aggregate labour force participation rates of men is marginal and barely visible in Figure 6 and Figure 7.

As many countries face stagnation or declines in the headcount labour force, increases in female labour force participation could help to avoid or limit such future dynamics. Where labour force participation rates of women would increase substantially under the scenarios - such as in Colombia, Costa Rica, Mexico, and Türkiye - there would also be strong effects on the total headcount labour force (Annex Figure A A.2 and Figure A A.3). However, in countries where gaps are small in 2022 – such as Finland, Israel, Luxembourg, Slovenia, and Sweden - the overall effect on the total headcount labour force would be very limited. Notably, a closure of gender gaps in labour force participation is not enough to stop strong labour force declines in countries heavily affected by rapid population ageing, such as Japan, Korea Latvia, and Lithuania.

Annex Figure A A.4 and Annex Figure A A.5 also show the scenarios of closing gender gaps in working hours. However, as working hours are kept fixed at the last observed data point, the dynamics are less interesting than for the labour force participation rate projections. As before, where gaps at baseline are large, the scenarios imply a sizeable increase in working hours among women, particularly in Australia, Austria, Colombia, Costa Rica, Germany, Ireland, Japan, Mexico, the Netherlands, New Zealand, Switzerland, and the United Kingdom. In other countries, where baseline gaps are small - such as in Estonia, Hungary, Latvia, Lithuania, Poland, Portugal, the Slovak Republic, and Slovenia – there is little increase in working hours of women under scenarios B and C.

Figure 6. Labour force participation rate scenarios, Part one

Labour force participation rate, ages 15-74, percent, 2000-2022 (historical) and 2023-2060 (projected)

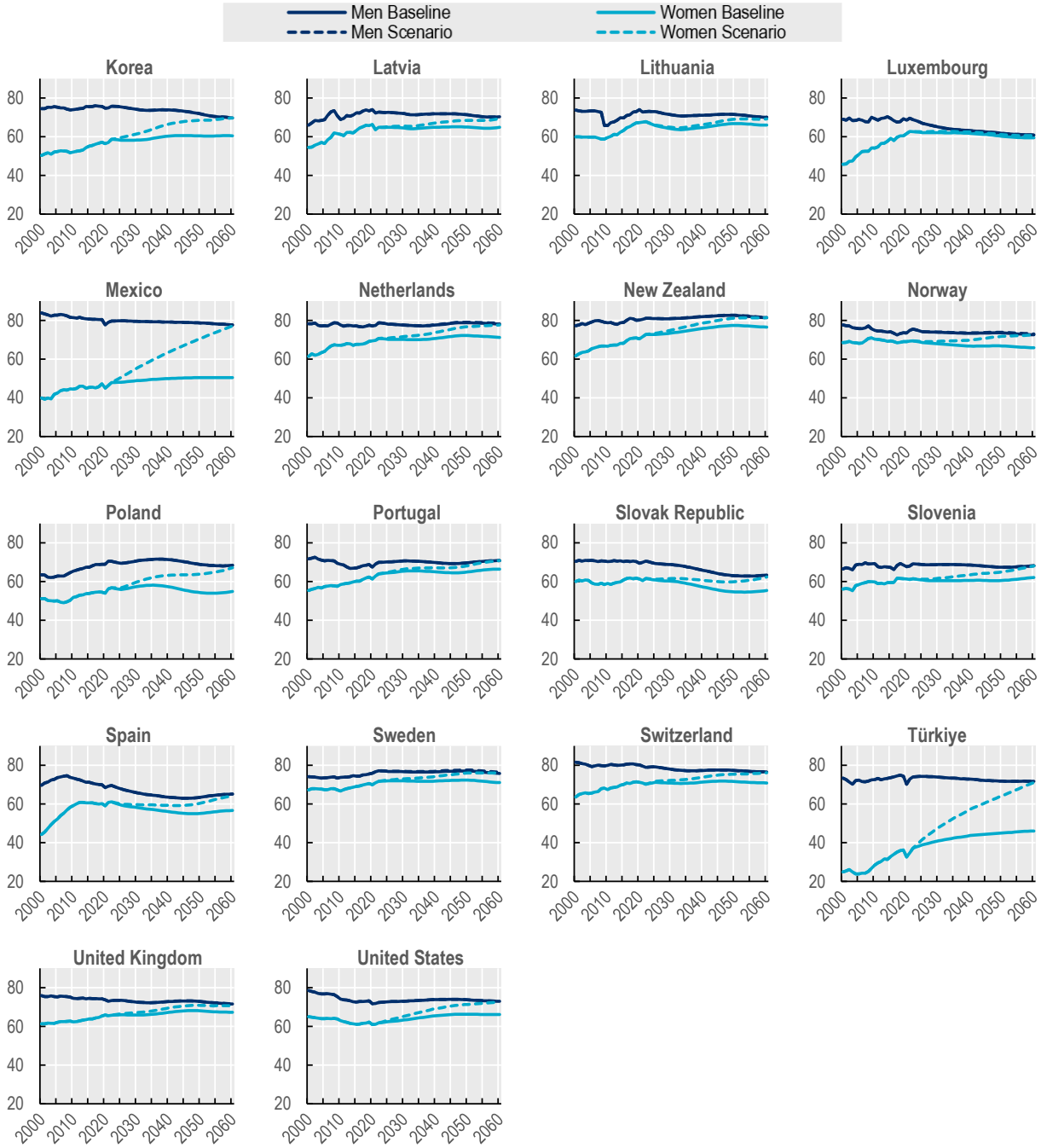


Note: *Men Baseline* and *Women Baseline* refer to the baseline labour force projections based on labour force entry and exit rates. *Men Scenario* and *Women Scenario* refer to a scenario setting where gender gaps in labour force participation (LFP) fully close by 2060. Within each 5-year age group, the LFP of the gender with the highest LFP is held at the baseline and the LFP of the gender with the lower LFP is projected to linearly grow, so that the gender LFP gap fully closes by 2060 in each 5-year-age group relative to baseline. In most cases, this implies an increase in women's LFP, but for a few countries the LFP of men in certain 5-year-age groups increases to match higher LFP among women (e.g. among younger ages in Iceland, Norway and Sweden). The latter therefore implies a marginal increase in the aggregate *Men Scenario* as well.

Source: OECD Labour Force Projection Model

Figure 7. Labour force participation rate scenarios, Part two

Labour force participation rate, ages 15-74, percent, 2000-2022 (historical) and 2023-2060 (projected)



Note: *Men Baseline* and *Women Baseline* refer to the baseline labour force projections based on labour force entry and exit rates. *Men Scenario* and *Women Scenario* refer to a scenario setting where gender gaps in labour force participation (LFP) fully close by 2060. Within each 5-year-age group, the LFP of the gender with the highest LFP is held at the baseline and the LFP of the gender with the lower LFP is projected to linearly grow, so that the gender LFP gap fully closes by 2060 in each 5-year-age group relative to baseline. In most cases, this implies an increase in women's LFP, but for a few countries the LFP of men in certain 5-year-age groups increases to match higher LFP among women (e.g. among younger ages in Iceland, Norway and Sweden). The latter therefore implies a marginal increase in the aggregate *Men Scenario* as well.

Source: OECD Labour Force Projection Model

Projecting future growth under different labour market scenarios

As gender gaps in labour market outcomes close under the presented scenarios, the total labour input in the economy increases by 2060, which, all else equal, would naturally increase economic output. To project the growth effects of these hypothetical developments, this sub-section employs a simplified version of the OECD Long-Term Model (2023[6]). As such, this approach allows to project the economic growth under different inputs, such as labour force participation rates and working hours.

Potential economic output (Y) in the model is based a simple Cobb-Douglas production function with constant returns to scale featuring trend potential employment (E), hours worked (H) and physical capital (K) as production factors, plus trend labour efficiency (A). Trend potential employment, hours worked and labour efficiency enter separately for each gender g and each age group n:

$$Y = {\bar{A}}/{\bar{H}} \sum_{g} \sum_{n} \left(E_{g,n} \cdot P_{g,n} \cdot H_{g,n}\right)^{\alpha} K^{1-\alpha} \quad (5)$$

Where α denotes the labour share and is fixed at 0.67. $E_{g,n}$, $g_{s,n}$ and $H_{g,n}$ are the labour input as presented in the previous section, the population, and the working hours in each group, while $\bar{H}$ and $\bar{A}$ are the total working hours in the economy and the trend labour efficiency per worker at baseline. The OECD Long-Term Model does not model working hours; thus, it expresses trend labour efficiency on a *per-worker* basis. In the simplified model employed here, we include working hours and thus express trend labour efficiency on a *per-hour-worked* basis, dividing trend labour efficiency input from the OECD Long-Term Model by the hours worked per employed person at baseline. It is therefore expressed as trend labour efficiency per hour worked (${\bar{A}}/{\bar{H}}$).

All computations in this model are based on separate input for gender-specific 5-year age groups.[9] GDP per capita under each scenario is estimated by aggregating labour input across both gender and age groups to produce estimates of the size of the workforce and overall average working hours and dividing the resulting Y by the total population. In the following, we describe the model inputs in some more detail (see also Annex Table A A.5).

Labour input is based on the long-run projections on labour force participation rates outlined above, assuming constant unemployment rates by gender and 5-year age group, as well as long-term projections on population dynamics by gender and age group. These baseline demographics, available via the OECD Data Explorer, include historical population data alongside population projections that are based on a number of inputs from national statistical agencies and international data sources.

Hours worked per worker are based on the *OECD Employment Database* and expressed as average annual hours worked per worker per year. In the absence of future projections of the hours worked, the latest data point is kept fixed and projected into the future (i.e. assume that hours worked per worker stay the same until 2060). Trend labour efficiency is taken as fully exogenous based on the OECD Long-Term Model baseline projections presented in the Economic Outlook (see Guillemette et al. (2017[24]) for detail).

Changes in potential trend employment typically lead to changes in the capital stock as well. However, in the long-run, we assume the capital-to-output ratio to be stable with K growing at the same rate as output in both baseline and scenario outcomes. While the OECD Long-Term Model simulates short- and medium-term capital stock adjustment (see Guillemette, De Mauro and Turner (2018[25]) for detail), the simplified version employed here abstracts from such dynamics as they do not substantially affect the long-term projections on economic growth we are interested in here.

[9] Working hours are only available for 4 separate age groups in the *OECD Employment Database*: 15 to 24, 25 to 54, 55 to 64 and 65+. These age groups are therefore simply mapped into the respective 5-year age group, i.e., all 25- to 29-year-olds are modelled as having the same working hours as 25- to 54-year-olds overall.

Putting all these inputs together, we can simply compute the relative difference in economic output per capita between 2023 and 2060, as well as the average annual growth rate in GDP per capita over this period. However, just as with the growth accounting estimates, the projections do not factor in any possible effects of changes in patterns of paid work on household production and economic growth. The model also does not account for potential welfare effects of shifts in labour supply, such as the disutility of increased worked hours.

Results of the growth projection exercise

Based on the nature of the labour market scenarios and growth models introduced above, we would expect positive effects of closing gender labour market gaps in all OECD countries with positive gaps in employment and hours. Nevertheless, and as shown in Figure 8, the effects of the different scenarios on potential output growth by 2060 vary considerably across the OECD, depending strongly on the baseline gender gaps in LFP and working hours (see also Annex Table A A.6 and Annex Table A A.7).

Across the OECD, a closing of the remaining gender gaps in LFP until 2060 (Scenario A), may increase GDP per capita growth by additional 0.10 p.p. per year, resulting in a 3.9% overall boost to GDP per capita relative to the baseline projection in 2060. Similar potential growth paths are projected when closing the working hours gap between men and women (Scenario B), increasing annual GDP per capita growth by 0.11 p.p. (or a 4.3% boost to GDP in 2060).

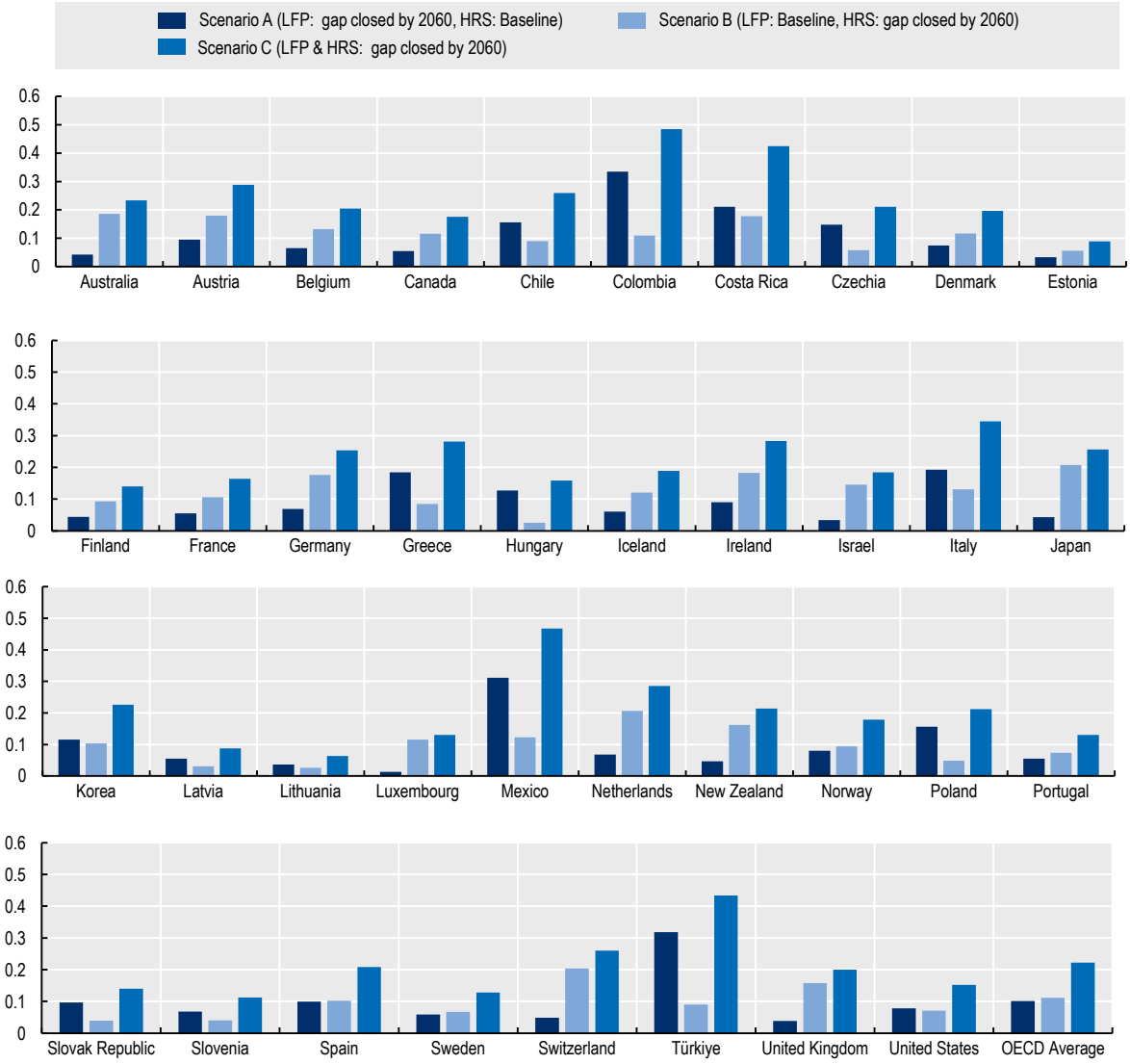
Naturally, countries with larger gender gaps at baseline tend to benefit more from closing said gaps than those with smaller gender differences in LFP and working hours. For example, in terms of additional annual growth, Colombia, Mexico and Türkiye - the OECD countries with the highest gender employment gaps in 2023 (see Figure 6 and Figure 7) - would all benefit strongly from closing gender LFP gaps. On the other hand, countries with particularly small gender gaps in labour force participation, such as Australia, Estonia, Finland, Israel, Japan, Lithuania, Luxembourg, New Zealand, Switzerland, and the United Kingdom would only see a very limited effect on potential output.

Countries with large working hour gaps at baseline would also benefit more from convergence in male and female working time than those with smaller gaps. For example, Japan, the Netherlands, and Switzerland, where part-time employment is common among women and the gender gaps in working hours relatively high, could expect considerably more additional annual growth in GDP per capita than Hungary, Latvia, Lithuania, Poland, the Slovak Republic, and Slovenia, where gender gaps in working hours are comparatively small.

However, a convergence of male and female working hours would not make a big difference if a big gender gap in labour force participation were to remain. For example, Costa Rica and Mexico both have one of the largest gender gaps in working hours, but as mentioned above, also some of the highest LFP gender gaps in the OECD. Closing the working hours gap alone, will only increase the output of those women who are already in the labour force. When both gender LFP and working hours gaps are closed simultaneously, as modelled in Scenario C, Columbia, Costa Rica, Mexico and Türkiye stand to make the biggest gains in annual growth of GDP.

Figure 8. Further gains in growth from closing gender participation and working hours gaps

Estimated difference relative to the baseline in the projected average annual rate of growth in GDP per capita over the period 2023-2060, different gender gap scenarios, percentage points



Note: Estimates are based on labour force participation rates and a 15–74-year-old age group. LFP: Labour force participation; HRS: Working hours. *Baseline* projections refer to the baseline labour force projections and constant working hours in each 5-year-age group. *Scenario A* refers to a scenario setting where gender gaps in labour force participation (LFP) fully close by 2060. Within each 5-year age group, the LFP of the gender with the highest LFP is held at the baseline and the LFP of the gender with the lower LFP is projected to linearly grow, so that the gender LFP gap fully closes by 2060 in each 5-year-age group relative to baseline. *Scenario B* refers to a scenario setting where gender gaps in usual weekly working hours fully close by 2060. Within each 5-year-age group, the working hours of the gender with the highest working hours are held at the baseline and the working hours of the gender with the lower working hours are projected to linearly grow, so that the gender working hours gap fully closes by 2060 in each 5-year-age group relative to baseline. *Scenario C* combines Scenario A and Scenario B.
Source: OECD estimates based on OECD population data, the OECD Employment Database and Labour Force Projections and the OECD Long-Term Growth Model

4 Policy implications

Rapid population ageing is a key issue that most OECD economies will face for decades to come. The old-age support ratio – defined as there number of people aged 20-64 relative to the number of people over 65, will fall from 3.9 in 2022 to 1.9 in 2060 (OECD, 2023[21]). At current employment rates, ageing and fertility trends would significantly curtail GDP per capita. Ageing societies may require prolonging working lives, improving productivity, e.g., through making better use of technology and digital solutions, and tapping into the potential of under-represented groups in the labour market such as women, youth, and older workers. Furthermore, the skill complementarity of workers from different generations can contribute to enhanced firm performance (OECD, 2020[26]).

This paper focuses on identifying past and potential future gains of greater gender equality in labour markets. However, to aim to achieve these economic gains has implications for policy development. While this technical paper cannot discuss these in depth, the following paragraphs summarize key implications whilst referring to relevant literature. The 2013 OECD Recommendation of the Council on Gender Equality in Education, Employment and Entrepreneurship, provides a frame of policy principles (OECD, 2017[27]), while OECD (2023[1]) provides a recent and comprehensive overview of issues.

In general, to attract more women to the labour market, policy and workplaces need to address a range of barriers to women's labour force participation (Adema, Fluchtmann and Patrini, 2023[28]; André et al., 2023[29]). For example, the gender pay gap still stands at 12% at median earnings for full-time workers, so policies and workplace cultures have some way go in making it more attractive and rewarding for women to take up paid work. In fact, the bulk of the gender wage gap is concentrated within firms. About three-quarters of the gender wage gap exists because the same firm pays men more than women, which mainly reflects differences in tasks and responsibilities between men and women despite having similar skills. The remaining one-quarter of the gender wage gap results from the concentration of women in low-wage firms and industries (OECD, 2021[30]).

As the gender wage gap is largely concentrated within firms, there is a need to focus policy intervention to promote employment and pay practices within firms. Antidiscrimination and equal pays legislation is in place across OECD countries, and, indeed, around the world (EPIC, 2021[31]). This legislation is crucial for establishing workers' rights, but in practice, legislation puts the onus on individual workers to ensure that employers adhere to legislation, and therefore does little to close gender pay gaps more broadly. However, there are some policy measures that directly target firms to help curtailing gender pay gaps, and such measures include, quotas and voluntary targets that promote women in senior positions in private enterprises (Denis and Rey, 2023[32]); gender pay gap reporting, equal pay audits and other pay transparency policies that help advance gender equality at the workplace. Such measures provide up-to-date information on a firm's gender pay gap, encourage employers to offer equal pay for work of equal value, and give individual workers and their representatives valuable insights to push for pay equity (OECD, 2023[33]). Furthermore, strengthening wage-setting institutions, such as minimum wages and collective bargaining, can help compressing wage differences between firms and among low-wage workers (OECD, 2022[34]).

To facilitate greater gender-equality in labour market participation, policy should aim to ensure that financial incentives to work are equal for men and women. However, even neutral tax systems can affect gender outcomes. For example, many tax systems provide disincentives for second earners in households (often

women) to enter or re-enter the labour force, as well as their hours in paid work (Argiro, Harding and Jarrige, 2023[35]; OECD, 2019[36]). The cost of childcare to parents is another key aspect of the parental employment participation decision (Alajääskö and Fluchtmann, 2023[37]; OECD, 2023[38]).

Constraints in the availability of and access to good quality childcare often leads women to make use of flexible working opportunities such as part-time employment, teleworking, flexitime or job-sharing. Policy can support these choices by, for example, stipulating "pro-rata" pay arrangements for part-time workers (OECD, 2019[36]), legislative frameworks formalising teleworking, and introducing "right to request policies" that improve access to flexible workplace practices (Fluchtmann and Patrini, 2023[8]). Similarly, the quest for a better work-life balance often motivates women to engage in entrepreneurship (Halabisky and Shymanski, 2023[39]). However, there are considerable risks that these choices negatively affect (long-term) job quality and future labour market opportunities and outcomes as well as pension entitlements with repercussion for poverty risks in old age (OECD, 2023[21]).

The disproportionately high burden of unpaid care and non-care work on women's shoulders reflects stubborn gender inequalities in the labour market and at home. Policy is increasingly aware of this and over the past 10 years, many OECD countries have changed their parental and paternity leave policies to encourage more fathers to take leave to care for children over longer periods (Fluchtmann, 2023[40]). Take-up by fathers has indeed increased over the past decade, but the total duration that fathers take child-related leave pale in comparison to the time that mothers are on maternity- and parental leave (OECD (2024[41]) presents information on the nature and use of parental leave systems in its "child-related leave section").

Traditional notions also affect educational choices that have an important bearing on labour opportunities. Attitudes rather than aptitude continue to constrain the number of girls choosing Science, Technology, Engineering and Mathematics (STEM) topics at school (OECD, 2015[42]). Policy tries to promote girls and young women to "choose STEM", which would affect green and digital transitions (Causa, Soldani and Nguyen, 2024, forthcoming[43]) and their potential contribution to economic growth. Changing attitudes may take time, but there is no reason for delay in policy reform as the decisions taken today help shape outcomes tomorrow.

In sum, a comprehensive policy approach is required to narrow gender gaps in labour force participation and hours worked. This will not only promote greater gender equality in the labour market but also contribute to greater economic growth in the future and thus partly offset the drag on growth because of population ageing.

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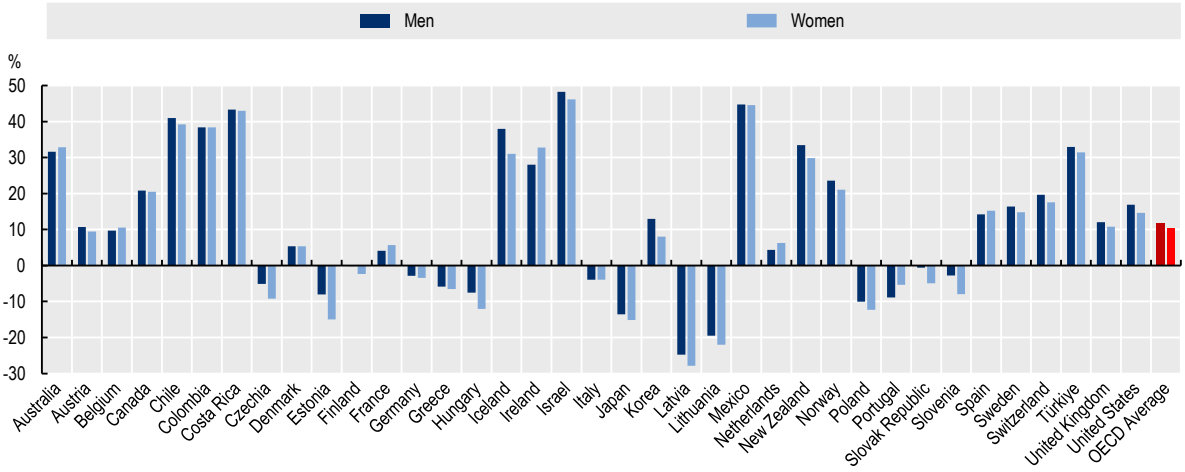
Annex A. Additional Figures and Tables

Figure A A.1. The size of the working age population has grown in most OECD countries

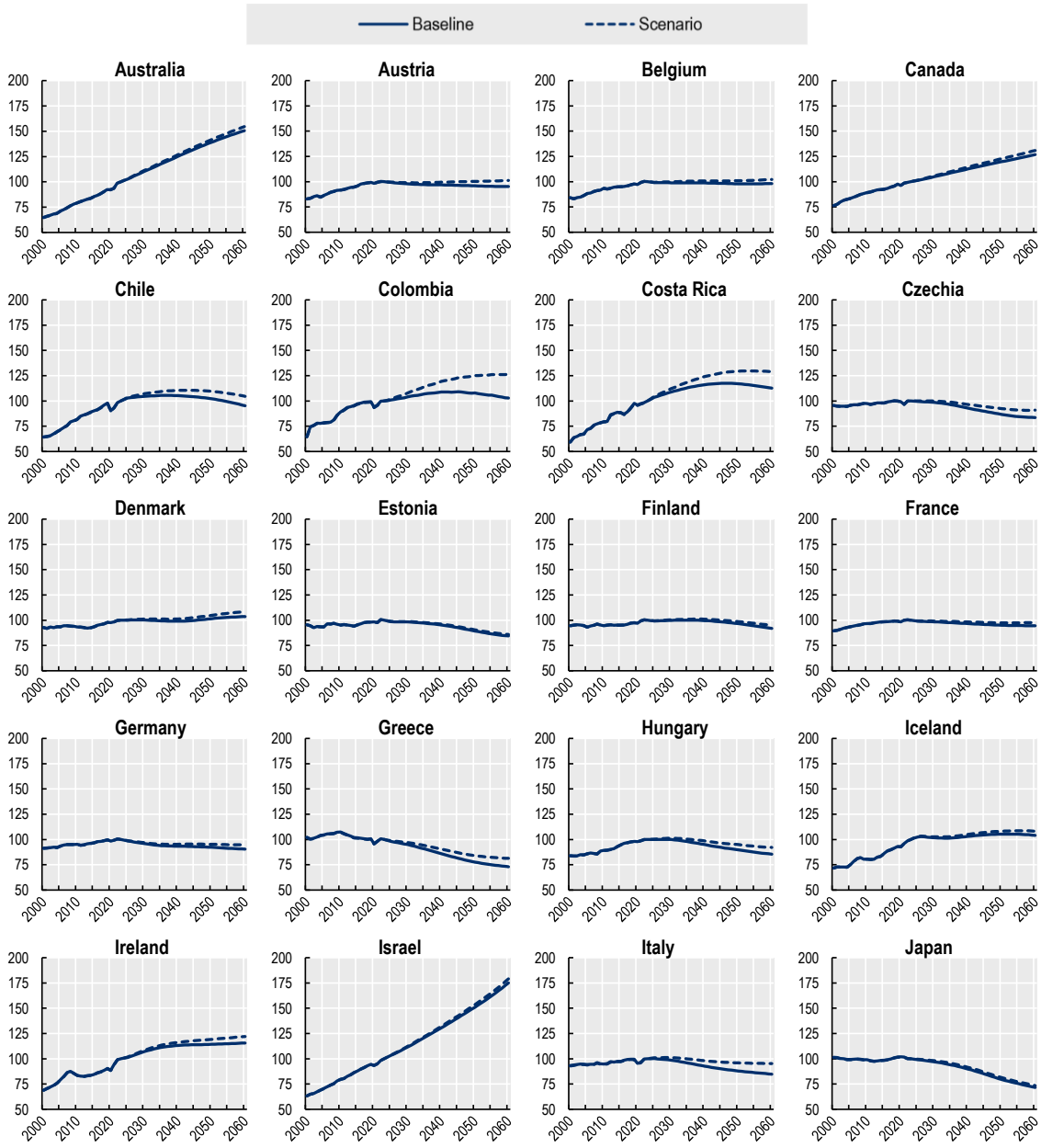
Changes in size of the working age population, percent, 2000 to 2022, adjusted National Accounts data



Note: See notes to Figure 1.
Source: OECD estimates primarily based on data from the OECD National Accounts Database and the OECD Employment Database

Figure A A.2. Total headcount labour force scenarios, Part one

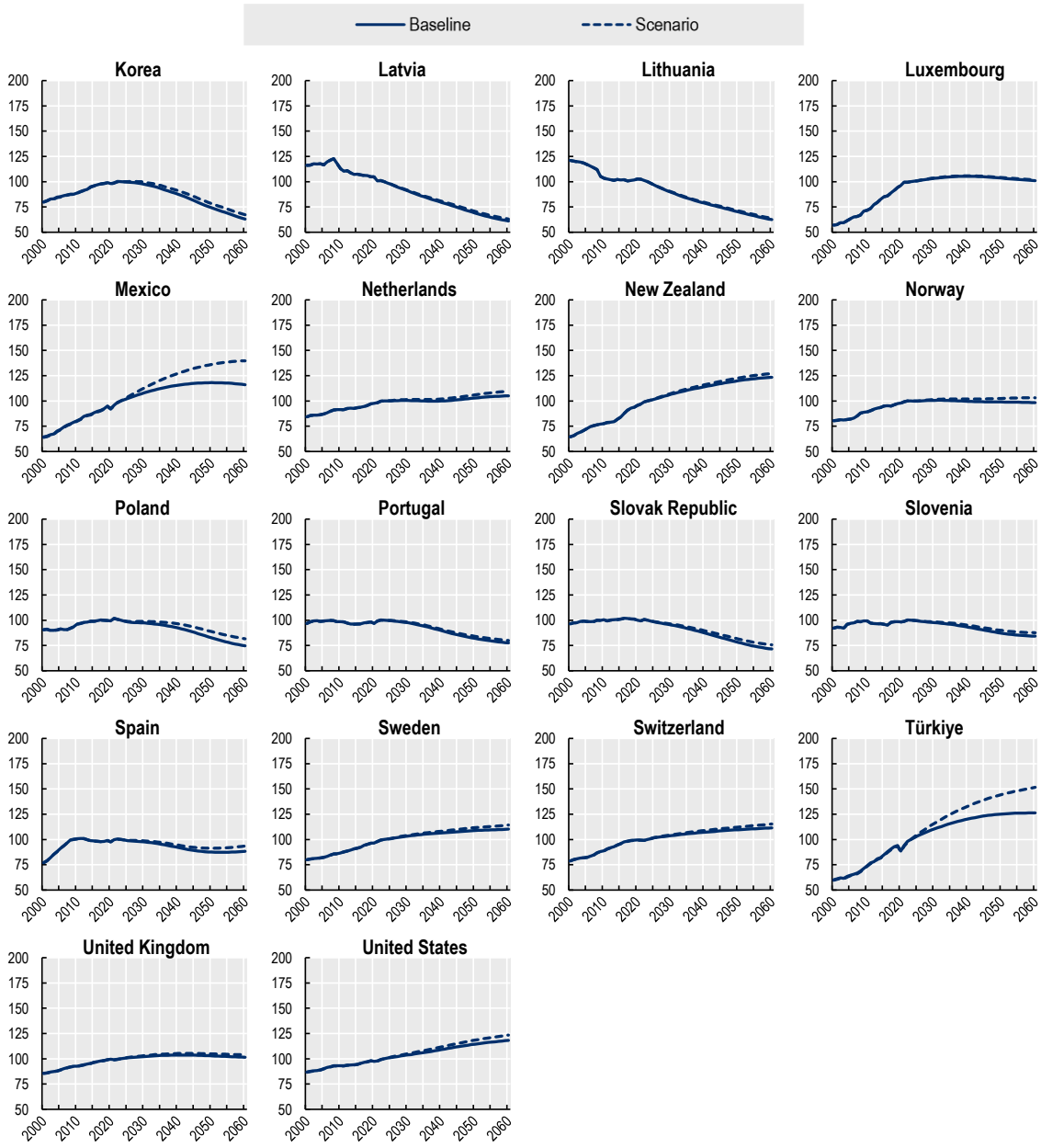
Headcount labour force, ages 15-74, 2000-2022 (historical) and 2023-2060 (projected), indexed (2023 = 100)



Note: *Baseline* refers to the baseline labour force projections based on labour force entry and exit rates. *Scenario* refers to a scenario setting where gender gaps in labour force participation (LFP) fully close by 2060. Within each 5-year age group, the LFP of the gender with the highest LFP is held at the baseline and the LFP of the gender with the lower LFP is projected to linearly grow, so that the gender LFP gap fully closes by 2060 in each 5-year-age group relative to baseline.
Source: OECD Labour Force Projection Model

Figure A A.3. Total headcount labour force scenarios, Part two

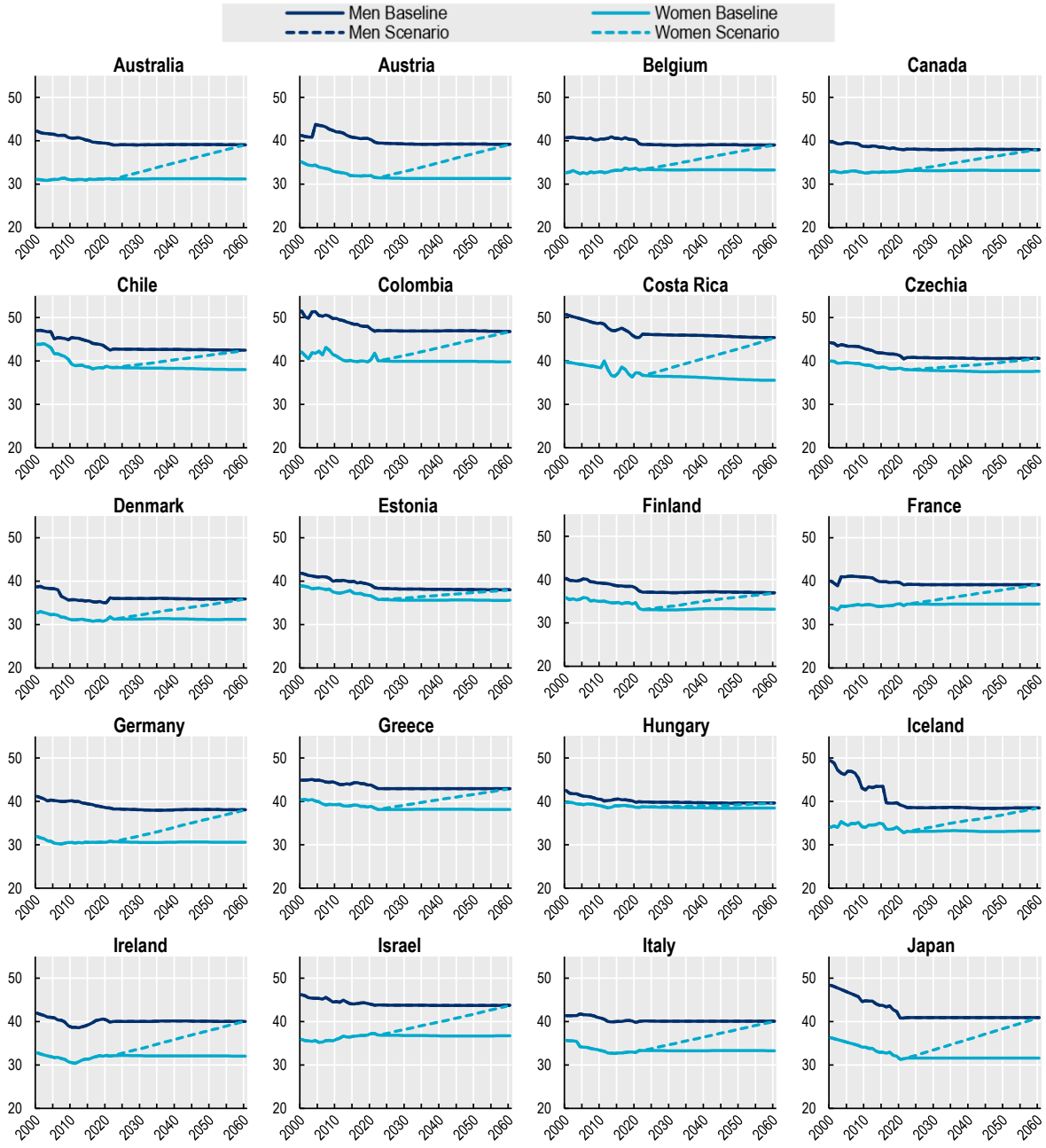
Headcount labour force, ages 15-74, 2000-2022 (historical) and 2023-2060 (projected), indexed (2023 = 100)



Note: *Baseline* refers to the baseline labour force projections based on labour force entry and exit rates. *Scenario* refers to a scenario setting where gender gaps in labour force participation (LFP) fully close by 2060. Within each 5-year age group, the LFP of the gender with the highest LFP is held at the baseline and the LFP of the gender with the lower LFP is projected to linearly grow, so that the gender LFP gap fully closes by 2060 in each 5-year-age group relative to baseline.
Source: OECD Labour Force Projection Model

Figure A A.4. Working hours scenarios, Part one

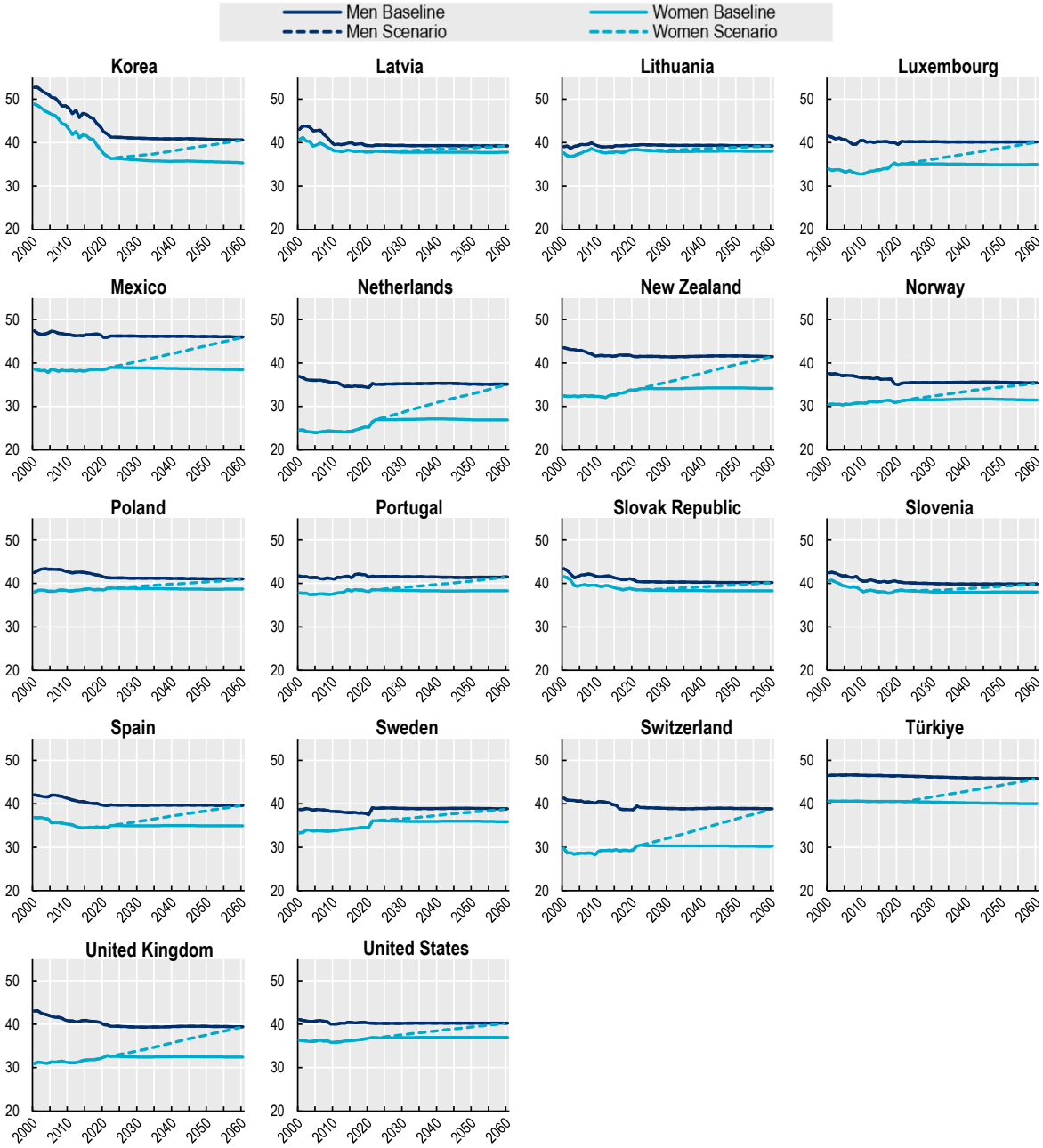
Usual weekly working hours, ages 15-74, 2000-2022 (historical) and 2023-2060 (projected/fixed)



Note: *Men Baseline* and *Women Baseline* refer to stable usual weekly working hours in each 5-year-age group. *Men Scenario* and *Women Scenario* refer to a scenario setting where gender gaps in usual weekly working hours fully close by 2060. Within each 5-year-age group, the working hours of the gender with the highest working hours are held at the baseline and the working hours of the gender with the lower working hours are projected to linearly grow, so that the gender working hours gap fully closes by 2060 in each 5-year-age group relative to baseline. In most cases, this implies an increase in women's working hours, but for a few countries working of men in certain 5-year-age groups increases to match higher working hours among women (e.g. among younger ages in Iceland, Norway and Sweden). The latter therefore implies a marginal increase in the aggregate *Men Scenario* as well. Break in series around 2021 for EU Countries, such as in Sweden, may be caused by the introduction of methodological changes in data collection methods, survey coverage and the definition of employment in the Labour Force Survey - notably excluding employees absent for more than 3 months. Main series are typically backward corrected after this methodological change, but hours are often not. For example, see documented changes and break estimation for Sweden here.
Source: OECD Employment Database, Statistics Canada; E-STAT Japan

Figure A A.5. Working hours scenarios, Part two

Usual weekly working hours, ages 15-74, 2000-2022 (historical) and 2023-2060 (projected/fixed)



Note: *Men Baseline* and *Women Baseline* refer to stable usual weekly working hours in each 5-year-age group. *Men Scenario* and *Women Scenario* refer to a scenario setting where gender gaps in usual weekly working hours fully close by 2060. Within each 5-year-age group, the working hours of the gender with the highest working hours are held at the baseline and the working hours of the gender with the lower working hours are projected to linearly grow, so that the gender working hours gap fully closes by 2060 in each 5-year-age group relative to baseline. In most cases, this implies an increase in women's working hours, but for a few countries working of men in certain 5-year-age groups increases to match higher working hours among women (e.g. among younger ages in Iceland, Norway and Sweden). The latter therefore implies a marginal increase in the aggregate *Men Scenario* as well. Break in series around 2021 for EU Countries, such as in Sweden, may be caused by the introduction of methodological changes in data collection methods, survey coverage and the definition of employment in the Labour Force Survey - notably excluding employees absent for more than 3 months. Main series are typically backward corrected after this methodological change, but hours are often not. For example, see documented changes and break estimation for Sweden here.
Source: OECD Employment Database; TURKSTAT

Table A A.1. Summary of data series used in growth accounting

Series	Details	Main source	Additional sources
GDP (expenditure approach)	Constant prices, constant PPPs, OECD base year (USD 2015)	OECD National Accounts Database	
Total population	National concept, 1000s	OECD National Accounts Database	
Total employment	Domestic concept, 1000s	OECD National Accounts Database	OECD Employment Database
Hours worked for total employment	Domestic concept, hours, millions	OECD National Accounts Database	OECD Employment Database
Population by age and gender	1000s	OECD Employment Database	OECD National Accounts Database, Eurostat
Employment by age and gender	1000s	OECD Employment Database	OECD National Accounts Database, Eurostat
Average usual weekly working hours by age and gender	Total employment, total declared employment	OECD Employment Database	Statistics Canada; Statistics Japan; TURKSTAT

Table A A.2. Country-specific notes for the data series

Series	Country	Details
Total employment	Australia	Data missing in the OECD National Accounts Database for years after 2017. Data for years after 2017 are estimated by trending forward using alternative data from the Labour Force Survey (total employment).
	Chile	Data missing in the OECD National Accounts Database for years before 2013. Data for years before 2013 are estimated by trending backwards using alternative data from the Labour Force Survey (total employment).
	Colombia	Data missing in the OECD National Accounts Database for years before 2015. Data for years before 2015 are estimated by trending backwards using alternative data from the Labour Force Survey (total employment).
	Costa Rica, Israel, Korea, Latvia, Mexico, New Zealand, Portugal, United States	Data missing in the OECD National Accounts Database for 2022 and are estimated by trending forward using alternative data from the Labour Force Survey (total employment).
	Korea	Data missing in the OECD National Accounts Database for years before 2004. Data for years before 2004 are estimated by trending backwards using alternative data from the Labour Force Survey (total employment)
	Türkiye	Data missing in the OECD National Accounts Database and is substituted by Labour Force Survey estimates from the OECD Employment Database.
Hours worked for total employment	Australia	Data missing in the OECD National Accounts Database for years after 2017. Data for years after 2017 are estimated by trending forward using alternative data from the Labour Force Survey (average annual hours worked per worker/year and total employment).
	Belgium	Data missing in the OECD National Accounts Database for 2022 and are estimated by trending forward using alternative data from the Labour Force Survey (average usual weekly hours worked and total employment).
	Chile, Türkiye	Data missing in the OECD National Accounts Database and are estimated using alternative data from the Labour Force Survey (average annual hours worked per worker/year and total employment).
	Colombia	Data missing in the OECD National Accounts Database and are estimated using alternative data from the Labour Force Survey (average annual hours worked per worker/year and total employment). For 2022, usual weekly working hours are used to estimate total hours worked.
	Costa Rica, Israel, Korea, Latvia, Mexico, New Zealand, Portugal, Switzerland, United States	Data missing in the OECD National Accounts Database for 2022 and are estimated by trending forward using alternative data from the Labour Force Survey (average annual hours worked per worker/year and total employment).
	Japan	Data is missing in the OECD National Accounts Database and is estimated using total employment from the OECD National Accounts Database and average annual hours actually worked from the Labour Force Survey.
	Korea	Data missing in the OECD National Accounts Database for years before 2011. Data for years before 2011 are estimated by trending backwards using alternative data from the Labour Force Survey (average usual weekly hours worked per and total employment).
	New Zealand	Data missing in the OECD National Accounts Database for years before 2010. Data for years before 2010 are estimated by trending backwards using alternative data from the Labour Force Survey (average annual hours worked per worker/year and total employment).

Table A A.3. Accounting for different contributing factors to economic growth (2000-2022)*

	Growth in GDP per capita, avg. annual rate (%)	Percentage point contribution of main components (p.p.)				Decomposition of contribution of the employment component (p.p.)		Decomposition of contribution of working hours component (p.p.)	
		Labour productivity	Working age share of population	Employment	Working hours	Male employment	Female employment	Male working hours	Female working hours
Australia	1.35	1.25	-0.15	0.50	-0.24	0.10	0.40	0.01	0.39
Austria	0.87	1.11	-0.12	0.51	-0.64	0.12	0.40	-0.01	0.41
Belgium	0.96	0.77	-0.16	0.50	-0.16	0.04	0.46	0.01	0.45
Canada	0.77	0.85	-0.23	0.26	-0.10	0.05	0.20	0.00	0.21
Chile	2.34	2.10	0.39	0.44	-0.59	-0.15	0.58	-0.01	0.59
Colombia	2.46	2.28	0.20	0.10	-0.11	-0.04	0.14	0.00	0.14
Costa Rica	2.41	2.69	0.29	-0.18	-0.39	-0.43	0.25	0.00	0.25
Czechia	2.29	2.32	-0.54	0.80	-0.30	0.42	0.39	-0.05	0.43
Denmark	0.91	1.04	-0.23	0.23	-0.14	0.05	0.18	0.00	0.18
Estonia	3.56	2.99	-0.35	1.03	-0.11	0.52	0.51	-0.09	0.60
Finland	0.98	0.88	-0.39	0.74	-0.26	0.32	0.41	-0.02	0.44
France	0.63	0.63	-0.32	0.40	-0.08	0.04	0.36	0.02	0.34
Germany	0.99	0.93	-0.28	0.63	-0.29	0.20	0.43	-0.01	0.43
Greece	0.35	-0.13	-0.20	0.93	-0.24	0.32	0.60	-0.01	0.61
Hungary	2.75	2.40	-0.24	1.12	-0.53	0.53	0.59	-0.05	0.65
Iceland	1.31	1.92	-0.02	0.18	-0.77	0.11	0.07	-0.06	0.13
Ireland	3.92	4.21	-0.15	0.38	-0.52	-0.09	0.47	0.04	0.43
Israel	1.72	1.70	-0.14	0.32	-0.16	-0.01	0.33	-0.02	0.35
Italy	0.07	0.16	-0.34	0.59	-0.33	0.09	0.50	0.00	0.50
Japan	0.63	0.93	-0.64	0.60	-0.26	0.13	0.47	-0.02	0.49
Korea	3.14	3.48	0.01	0.48	-0.84	0.17	0.31	-0.05	0.35
Latvia	4.28	5.10	-0.41	1.07	-1.48	0.47	0.60	-0.05	0.65
Lithuania	4.89	3.79	-0.11	1.20	0.01	0.58	0.62	-0.04	0.66
Mexico	0.49	-0.37	0.58	0.12	0.17	-0.19	0.30	0.00	0.30
Netherlands	0.97	0.60	-0.25	0.60	0.02	0.12	0.48	0.02	0.47
New Zealand	1.58	0.91	-0.04	0.60	0.11	0.22	0.38	-0.03	0.41
Norway	0.73	0.61	0.03	0.02	0.08	-0.01	0.03	-0.02	0.05
Poland	3.79	3.14	-0.52	1.16	0.01	0.59	0.56	-0.03	0.59
Portugal	0.79	1.54	-0.33	0.41	-0.83	-0.02	0.43	0.04	0.39
Slovak Republic	3.42	3.19	-0.23	0.93	-0.48	0.45	0.48	-0.05	0.53
Slovenia	2.18	1.94	-0.53	1.05	-0.29	0.57	0.48	-0.06	0.54
Spain	0.62	0.71	-0.11	0.27	-0.26	-0.29	0.56	0.01	0.55
Sweden	1.41	1.40	-0.10	0.15	-0.04	0.10	0.05	-0.02	0.07
Switzerland	0.87	1.19	-0.10	0.33	-0.56	0.05	0.28	-0.02	0.30
Türkiye	3.59	3.73	-0.02	0.38	-0.50	-0.01	0.39	-0.01	0.40
United Kingdom	0.80	0.76	-0.15	0.19	0.00	0.01	0.19	-0.01	0.20
United States	1.16	1.36	-0.09	-0.27	0.17	-0.17	-0.11	-0.02	-0.09
OECD Total	1.16	0.92	0.02	0.27	-0.05	0.03	0.24	-0.01	0.25
OECD Average	1.78	1.73	-0.16	0.51	-0.30	0.14	0.37	-0.02	0.39

Note: Estimates based on the decomposition of National Accounts data adjusted with labour force survey estimates. The table excludes Luxembourg. See Annex 1.B and notes to Figure 3 for more detail.
Source: OECD estimates primarily based on data from the OECD National Accounts Database and the OECD Employment Database. Data is occasionally substituted by selected national sources or estimated from closely related data series where regular sources are missing (see Annex 1.B).

Table A A.4. Decomposition of employment and working hours components (2000-2022)*

	Decomposition of contribution of the employment component (p.p.)						Decomposition of contribution of working hours component (p.p.)					
	Male employment			Female employment			Male working hours			Female working hours		
	Total	Share of working age pop.	Employment rate	Total	Share of working age pop.	Employment rate	Total	Share of employment	Hours worked per employed	Total	Share of employment	Hours worked per employed
Australia	0.10	-0.01	0.11	0.40	0.01	0.39	-0.38	-0.19	-0.19	0.14	0.14	-0.01
Austria	0.12	0.01	0.10	0.40	-0.01	0.41	-0.46	-0.18	-0.28	-0.17	0.15	-0.32
Belgium	0.04	-0.01	0.05	0.46	0.01	0.45	-0.39	-0.26	-0.13	0.23	0.21	0.02
Canada	0.05	0.00	0.05	0.20	0.00	0.21	-0.20	-0.09	-0.11	0.10	0.08	0.02
Chile	-0.15	0.02	-0.16	0.58	-0.01	0.59	-0.75	-0.43	-0.32	0.16	0.40	-0.23
Colombia	-0.04	0.00	-0.04	0.14	0.00	0.14	-0.25	-0.10	-0.15	0.14	0.09	0.05
Costa Rica	-0.43	0.00	-0.43	0.25	0.00	0.25	-0.60	-0.33	-0.26	0.21	0.27	-0.06
Czechia	0.42	0.06	0.36	0.39	-0.05	0.43	-0.25	-0.04	-0.21	-0.05	0.03	-0.08
Denmark	0.05	0.00	0.05	0.18	0.00	0.18	-0.18	-0.08	-0.10	0.03	0.07	-0.03
Estonia	0.52	0.10	0.43	0.51	-0.09	0.60	-0.07	-0.01	-0.06	-0.04	0.01	-0.05
Finland	0.32	0.03	0.30	0.41	-0.02	0.44	-0.21	-0.06	-0.14	-0.05	0.06	-0.11
France	0.04	-0.02	0.06	0.36	0.02	0.34	-0.26	-0.18	-0.08	0.19	0.16	0.03
Germany	0.20	0.01	0.19	0.43	-0.01	0.43	-0.35	-0.16	-0.19	0.06	0.12	-0.07
Greece	0.32	0.01	0.31	0.60	-0.01	0.61	-0.37	-0.25	-0.12	0.13	0.22	-0.09
Hungary	0.53	0.06	0.47	0.59	-0.05	0.65	-0.41	-0.08	-0.33	-0.12	0.07	-0.19
Iceland	0.11	0.06	0.05	0.07	-0.06	0.13	-0.70	0.02	-0.72	-0.07	-0.01	-0.06
Ireland	-0.09	-0.05	-0.04	0.47	0.04	0.43	-0.64	-0.34	-0.31	0.13	0.27	-0.14
Israel	-0.01	0.02	-0.03	0.33	-0.02	0.35	-0.37	-0.20	-0.17	0.21	0.16	0.05
Italy	0.09	0.00	0.09	0.50	0.00	0.50	-0.43	-0.28	-0.15	0.09	0.24	-0.14
Japan	0.13	0.02	0.11	0.47	-0.02	0.49	-0.37	-0.23	-0.14	0.11	0.18	-0.06
Korea	0.17	0.06	0.11	0.31	-0.05	0.35	-0.56	-0.11	-0.45	-0.28	0.10	-0.38
Latvia	0.47	0.05	0.42	0.60	-0.05	0.65	-0.86	-0.07	-0.79	-0.62	0.07	-0.69
Lithuania	0.58	0.04	0.54	0.62	-0.04	0.66	-0.02	-0.01	-0.01	0.03	0.01	0.02
Mexico	-0.19	0.00	-0.19	0.30	0.00	0.30	-0.17	-0.28	0.11	0.33	0.23	0.10
Netherlands	0.12	-0.02	0.14	0.48	0.02	0.47	-0.34	-0.24	-0.09	0.35	0.17	0.18
New Zealand	0.22	0.03	0.19	0.38	-0.03	0.41	-0.14	-0.11	-0.04	0.25	0.08	0.17
Norway	-0.01	0.02	-0.04	0.03	-0.02	0.05	-0.08	-0.02	-0.05	0.16	0.02	0.13
Poland	0.59	0.03	0.56	0.56	-0.03	0.59	-0.09	-0.04	-0.05	0.11	0.04	0.07
Portugal	-0.02	-0.05	0.03	0.43	0.04	0.39	-0.71	-0.24	-0.46	-0.12	0.22	-0.34
Slovak Republic	0.45	0.06	0.39	0.48	-0.05	0.53	-0.31	-0.05	-0.26	-0.17	0.05	-0.22
Slovenia	0.57	0.07	0.50	0.48	-0.06	0.54	-0.15	0.00	-0.16	-0.13	0.00	-0.13
Spain	-0.29	-0.01	-0.27	0.56	0.01	0.55	-0.60	-0.47	-0.13	0.34	0.41	-0.07
Sweden	0.10	0.02	0.09	0.05	-0.02	0.07	-0.07	0.02	-0.09	0.03	-0.02	0.05
Switzerland	0.05	0.02	0.03	0.28	-0.02	0.30	-0.55	-0.15	-0.40	-0.01	0.11	-0.12
Türkiye	-0.01	0.02	-0.03	0.39	-0.01	0.40	-0.70	-0.29	-0.41	0.20	0.25	-0.05
United Kingdom	0.01	0.01	-0.01	0.19	-0.01	0.20	-0.25	-0.11	-0.15	0.25	0.08	0.17
United States	-0.17	0.02	-0.19	-0.11	-0.02	-0.09	0.03	-0.02	0.05	0.14	0.02	0.12
OECD Total	0.03	0.01	0.02	0.24	-0.01	0.25	-0.18	-0.13	-0.05	0.14	0.11	0.02
OECD Average	0.14	0.02	0.12	0.37	-0.02	0.39	-0.36	-0.15	-0.20	0.06	0.13	-0.07

Note: Estimates based on the decomposition of National Accounts data adjusted with labour force survey estimates. For Türkiye the decomposition covers the years 2010-2020. The table excludes Luxembourg. See Annex 1.B and notes to Figure 3 for more detail.
Source: OECD estimates primarily based on data from the OECD National Accounts Database and the OECD Employment Database. Data is occasionally substituted by selected national sources or estimated from closely related data series where regular sources are missing (see Annex 1.B).

Table A A.5. Summary of data series used in growth projections

Input	Details	Main source	Additional sources
Physical capital (K)	Adjusted for stable capital-to-output ratio stable	OECD Long-Term Model	
Trend labour efficiency (A)		OECD Long-Term Model	
Trend potential employment (L)	Projection of future labour participation by gender and five-year age-group using current rates of labour market entry and exit.	OECD Long-Term Employment Projections	OECD Population Statistics
Hours worked (H)	From 2020, assumed to be fixed at 2019 level within each 5-year age group	OECD Employment Database	

Table A A.6. Output projections under different scenarios (annual growth)

	Difference in average annual rate of growth in GDP per capita, 2023-2060, scenario vs. baseline, percentage points		
Scenario:	A	B	C
LFP	Closed	Closed	Closed
HRS	Baseline	50x40, 100x60	Closed
Australia	0.04	0.19	0.23
Austria	0.09	0.18	0.29
Belgium	0.06	0.13	0.20
Canada	0.05	0.12	0.18
Chile	0.16	0.09	0.26
Colombia	0.33	0.11	0.49
Costa Rica	0.21	0.18	0.43
Czechia	0.15	0.06	0.21
Denmark	0.07	0.12	0.20
Estonia	0.03	0.06	0.09
Finland	0.04	0.09	0.14
France	0.05	0.11	0.16
Germany	0.07	0.18	0.25
Greece	0.18	0.08	0.28
Hungary	0.13	0.03	0.16
Iceland	0.06	0.12	0.19
Ireland	0.09	0.18	0.28
Israel	0.03	0.15	0.18
Italy	0.19	0.13	0.35
Japan	0.04	0.21	0.26
Korea	0.12	0.10	0.23
Latvia	0.05	0.03	0.09
Lithuania	0.04	0.03	0.06
Luxembourg	0.01	0.12	0.13
Mexico	0.31	0.12	0.47
Netherlands	0.07	0.21	0.29
New Zealand	0.05	0.16	0.21
Norway	0.08	0.09	0.18
Poland	0.16	0.05	0.21
Portugal	0.05	0.07	0.13
Slovak Republic	0.10	0.04	0.14
Slovenia	0.07	0.04	0.11
Spain	0.10	0.10	0.21
Sweden	0.06	0.07	0.13
Switzerland	0.05	0.20	0.26
Türkiye	0.32	0.09	0.43
United Kingdom	0.04	0.16	0.20
United States	0.08	0.07	0.15
OECD Average	0.10	0.11	0.22

Note: Data based on Labour Force Surveys and OECD in-house labour force projections. These may noticeably differ from National Accounts estimates on employment outcomes as presented above estimates - for various coverage, definitional and methodological reasons (see e.g. Ward, Zinni and Marianna (2018[18])). LFP: Labour force participation; HRS: Working hours.
Source: OECD estimates based on OECD population data, the OECD Employment Database and Labour Force Projections and the OECD Long-Term Growth Model

Table A A.7. Output projections under different scenarios (total growth effect)

	Difference in projected GDP per capita, 2023-2060, scenario vs. baseline, percent		
Scenario:	A	B	C
LFP	Closed	Closed	Closed
HRS	Baseline	50x40, 100x60	Closed
Australia	1.6%	7.2%	9.1%
Austria	3.6%	7.0%	11.4%
Belgium	2.5%	5.1%	8.0%
Canada	2.1%	4.4%	6.8%
Chile	6.0%	3.4%	10.2%
Colombia	13.2%	4.2%	19.7%
Costa Rica	8.2%	6.8%	17.1%
Czechia	5.7%	2.2%	8.2%
Denmark	2.8%	4.5%	7.6%
Estonia	1.2%	2.1%	3.4%
Finland	1.7%	3.5%	5.4%
France	2.1%	4.1%	6.4%
Germany	2.6%	6.8%	10.0%
Greece	7.1%	3.2%	11.1%
Hungary	4.9%	1.0%	6.1%
Iceland	2.3%	4.6%	7.3%
Ireland	3.4%	7.1%	11.2%
Israel	1.3%	5.6%	7.2%
Italy	7.5%	5.0%	13.8%
Japan	1.6%	8.0%	10.0%
Korea	4.4%	4.0%	8.9%
Latvia	2.1%	1.2%	3.3%
Lithuania	1.4%	1.0%	2.4%
Luxembourg	0.5%	4.5%	5.0%
Mexico	12.3%	4.7%	19.0%
Netherlands	2.6%	8.1%	11.3%
New Zealand	1.8%	6.2%	8.4%
Norway	3.1%	3.6%	7.0%
Poland	6.0%	1.8%	8.3%
Portugal	2.1%	2.8%	5.0%
Slovak Republic	3.7%	1.5%	5.4%
Slovenia	2.6%	1.5%	4.3%
Spain	3.8%	3.9%	8.2%
Sweden	2.2%	2.6%	4.9%
Switzerland	1.8%	7.9%	10.3%
Türkiye	12.6%	3.4%	17.6%
United Kingdom	1.4%	6.1%	7.8%
United States	3.0%	2.7%	5.9%
OECD Average	3.9%	4.3%	8.8%

Note: Data based on Labour Force Surveys and OECD in-house labour force projections. These may noticeably differ from National Accounts estimates on employment outcomes as presented above estimates - for various coverage, definitional and methodological reasons (see e.g. Ward, Zinni and Marianna (2018[18])). LFP: Labour force participation; HRS: Working hours.
Source: OECD estimates based on OECD population data, the OECD Employment Database and Labour Force Projections and the OECD Long-Term Growth Model