OECD Employment Outlook 2022

BUILDING BACK MORE INCLUSIVE LABOUR MARKETS



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BETTER POLICIES FOR BETTER LIVES

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Foreword

The *OECD Employment Outlook* provides an annual assessment of key labour market developments and prospects in OECD member countries. Each edition also contains several chapters focusing on specific aspects of how labour markets function and the implications for policy in order to promote more and better jobs. The 2022 edition of the *OECD Employment Outlook* reviews the key labour market and social challenges for a more inclusive post-COVID-19 recovery as well as the labour market risks brought about by Russia's war of aggression against Ukraine. It also addresses a number of long-standing structural issues that have a key relevance for labour market inclusiveness, such as employer market power and its labour market consequences, the role of firms in wage inequality, and the effect of working time policies on well-being and economic outcomes.

The *OECD Employment Outlook 2022* is the joint work of staff of the Directorate for Employment, Labour and Social Affairs (ELS). It has also greatly benefited from comments from other OECD directorates and contributions from national government delegates, national institutions and academic researchers. However, its assessments of each country's labour market prospects do not necessarily correspond to those made by the national authorities and institutions concerned. Chapters 1 and 2 were co-funded by the US Department of Labor. The opinions expressed and arguments employed herein do not necessarily reflect the official views of the US Department of Labor.

This report was edited by Andrea Bassanini. Lead authors for individual chapters were Andrea Salvatori (Chapter 1), Oliver Denk and Sebastian Königs (Chapter 2), Satoshi Araki, Andrea Bassanini, Andrew Green and Luca Marcolin (Chapter 3), Chiara Criscuolo, Antton Haramboure, Alexander Hijzen, Michael Koelle and Cyrille Schwellnus (Chapter 4), and Sandrine Cazes, Clara Krämer, Sebastien Martin and Chloé Touzet (Chapter 5). All chapters, nonetheless, benefitted from specific contributions from other ELS staff members. The report also benefitted from extensive comments from Stefano Scarpetta (Director of ELS), Mark Pearson (Deputy Director of ELS), Stéphane Carcillo (Head of the Jobs and Income Division of ELS), and Mark Keese (Head of the Skills and Employability Division of ELS). The infographic is based on contributions from Alastair Wood. Pascal Marianna was responsible for the statistical annex. Statistical support was provided by Sébastien Martin, Agnès Puymoyen and Dana Blumin. Editorial assistance was provided by Lucy Hulett, Niamh Kinane, Hagai Glebocki and Natalie Corry.

Editorial: Bold action is vital to support living standards of the most vulnerable

The labour market has recovered more than two years after the outbreak of the COVID-19 pandemic but the outlook is highly uncertain amid the clouds of war

The OECD economies and labour markets have bounced back strongly from the COVID-19 pandemic, but Russia's unprovoked, unjustified, and illegal war of aggression against Ukraine is clouding the horizon. The war is first and foremost a human tragedy, causing the loss of innocent lives and the largest humanitarian refugee crisis since World War II. Several million Ukrainians – mostly women and children – have fled their country in search of refuge in other European countries and beyond. The conflict also risks sparking an economic and social crisis, adding significant uncertainty to the global outlook. The OECD has revised its GDP projections in June to 3.0% for 2022 (down from 4.5% in the December 2021 projections). Besides, sustained inflation is projected to erode real household incomes.

So far, labour markets remain tight in most OECD countries. The latest statistics suggest that the OECD unemployment rate is 0.4 percentage points below the level of February 2020 on average, a level that was already the lowest since the global financial crisis. And since the crisis trough of April 2020, OECD countries have created about 66 million jobs, 9 million more than those destroyed in a few months at the onset of the pandemic in 2020.

These aggregate figures hide significant differences across countries and groups, however. In a number of countries, labour force participation and employment rates are still below pre-crisis levels. Moreover, employment is growing more strongly in high-pay service industries, while it remains below pre-pandemic levels in many low-pay, contact-intensive industries.

Across the OECD, companies are confronted with unprecedented labour shortages. For example, in the European Union, almost three in ten firms in both manufacturing and services reported production constraints in the second quarter of 2022 because of lack of labour: an unprecedented level since the start of this type of data collection. Even more impressive, in the United States, in July 2022, employers posted more than 11 million job vacancies for a pool of less than 6 million unemployed. And in almost all countries for which vacancy data are available, this ratio is on the rise.

Tight labour market conditions are creating wage pressures in some countries. In the United States and the United Kingdom annual growth of nominal wages was almost 5% in the first quarter of 2022, and around 3% in Canada. Wage growth is also picking up in the Euro area: the wage agreements that have been concluded by social partners in the first quarter of 2022 increased by 3% compared to the same quarter of 2021.

Nominal wages are nonetheless growing less than inflation and are projected to continue to do so. Inflation increased substantially at the end of 2021 as a result of supply chain disruptions. Russia's invasion of Ukraine is adding strong inflationary pressures. Despite sustained employment growth and widespread labour shortages, real household disposable income was already declining in the last quarter of 2021 and in many countries that decline is continuing in 2022, due to wage growth not keeping pace with inflation.

Dark clouds on the horizon are likely to disproportionally overshadow prospects of those struggling to recover from the pandemic

Even before the onset of the war in Ukraine, the recovery in low-pay industries was significantly lagging behind other sectors. For example, in the first quarter of 2022, employment in accommodation and food services was, on average, 9% below its level before the onset of the crisis. Many of these industries were also among those most severely hit by COVID-19 and repeated lockdowns of 2020.

The disparities in industry trends explain why the labour market consequences of the COVID-19 crisis have been deeper and more persistent for vulnerable labour market groups, such as young people, low-educated workers, migrants, and racial/ethnic minorities, which are overrepresented in low-pay industries. On average, in the first quarter of 2022, two years after the onset of the crisis, the employment rate had recovered for workers with tertiary education, while that of low-educated workers was still about 0.5% lower than in the same quarter of 2019. The initial ravages of the crisis also significantly affected young people: their employment rate was still lower than its pre-crisis level in more than half of the OECD countries. And in most of the countries, which collect data on racial/ethnic minorities, the crisis affected these groups disproportionally and their recovery has often been slower.

Young people, low-educated and racial/ethnic minorities were also overrepresented among frontline workers – those who continued to work in their physical workplace and in proximity to other people during the pandemic. Since the outbreak of the crisis, these workers reported more job insecurity, and lower overall health and mental well-being, while often remaining stuck with low wages and bad working conditions. Evidence also shows that they were much more likely than other workers to become infected with COVID-19, and casualties among this group of workers were larger.

The economic consequences of the war in Ukraine have accentuated inequalities and raised risks for the most vulnerable. Ukraine and Russia are among the largest global agricultural exporters, and the production and export downfall in these countries is triggering hikes in food prices. At the same time, the crisis has sent shockwaves through energy prices, adding to pre-existing inflationary pressure. The impact on energy and food prices is particularly affecting households at the bottom of the income distribution: they devote a large fraction of their income to consumption of energy and food (one fourth on average among the OECD countries for which data are available). In the six largest European countries, for example, it is estimated that, in the 12 months leading to April 2022, the impact of the hike in energy and food prices alone was about 50% higher for the households in the bottom quintile of the distribution than for those in the top quintile. Similar figures are found for Japan and the United States. And in rural areas, where transport costs are larger, the impact on low-income households is much larger. If not cushioned, the inflation shock could be particularly severe for the most disadvantaged who were already most badly hit by the COVID-19 crisis.

Wages are on the rise but not keeping pace with inflation

The current commodity price crisis is reminiscent of the global oil price shock of 1973, which led to a period of global stagflation, with unemployment rising together with double-digit inflation in most OECD countries. There are some similarities with the current situation, but labour shortages are much greater now than in the early 1970s and structural changes have reduced the link between commodity prices and wage growth.

In the 1970s, in fact, wages were automatically index-linked to inflation in many countries and collective bargaining was much stronger. Since then, in most countries, wage indexation mechanisms have been removed, which is now likely to prevent a price-wage spiral.

Collective bargaining has also declined significantly: the proportion of workers who are covered by collective agreements in the OECD has steadily declined over the last three decades (from 1985 to 2019), weakening the bargaining power of workers. At the same time, about one in six employees across the OECD work in local labour markets that are concentrated, which gives them limited outside options. The evidence (contained in this edition of the *Employment Outlook*) suggests that in such situations, in the absence of countervailing power by organised labour, employers typically retain significant power to unilaterally determine wages and working conditions. Bargaining power is typically lower for vulnerable groups: while this is a source of concern even in low-inflation conditions, it becomes more serious in the current relatively high-inflation situation, as these workers are not in a position to negotiate wage increases to keep up with price increases.

Supporting the living standards of the most vulnerable should be a policy priority to ensure they do not suffer a disproportionate double blow from COVID-19 and the cost-of-living crisis

The sharp rise in energy and food prices is a cost that risks falling disproportionally on the most vulnerable, low-income households. Comprehensive negotiations between governments, workers and firms will be key to fairly share this cost: none of them can absorb it alone. The recent negotiation and collective agreement of the German chemical sector offers one possible approach: social partners agreed on a “bridge” solution – a short-term compromise that balances the costs and challenges companies face with employees’ concerns about maintaining their purchasing power. In particular, employers and worker representatives agreed on a one-time payment of EUR 1 400 (about USD 1 400) per employee to help counter rising prices, but they also postponed talks on a formal wage increase until October, hoping the economic outlook will be clearer by then. The fact that all workers received the same lump-sum amount also implies that it was far more generous for low-paid workers. This innovative model has also been replicated in firm-level negotiations in other countries (e.g. in motor vehicle parts manufacturing in Italy).

Beyond their potential role in negotiations with social partners, governments also have other tools to protect the revenues of vulnerable groups. Adjust the minimum wage to maintain effective purchasing power for low-paid workers is among the policy options that could be considered by governments. In many countries, statutory minimum wage adjustments are discretionary policy decisions taken regularly (often once a year). In an environment of rapid price increases, a slow adjustment of the minimum wage inevitably entails significant deterioration of living standards of the low-paid. By contrast, a few OECD countries such as Belgium and France have automatic indexation mechanisms for the minimum wage, which is an effective way to preserve the purchasing power of the low-paid. Whether automatic or not, it is important to adjust statutory minimum wages regularly in the current context of relatively high inflation.

Another way to compensate households and businesses for the increase in energy costs is through temporary energy bonuses. Most OECD countries have taken energy support measures between the end of 2021 and 2022, through price regulations, income support or tax reductions. However, only a small fraction of the additional spending implied by these interventions has been directed to measures targeted to the most affected households and businesses. While urgency and timeliness may justify lack of targeting, governments could consider refocussing spending towards targeted, cost-effective interventions. This would not only provide help to those most in need but also avoid that income support and price relief end up jeopardising carbon-emission goals and the transition towards a greener economy.

Along the same lines of targeted, environment-friendly relief, the tax and benefits system could be used to cushion the shock to the most vulnerable through in-work benefits and other social transfers. However,

they can be effective only if the means tests they rely on are made swiftly responsive to people's changing needs; this requires reducing the reference periods for the needs assessment and putting appropriate weight on the characteristic of the consumption basket of each household type. In certain cases, this may imply bold reforms of means-assessment systems.

Reconnecting low-skilled and other vulnerable groups with jobs is also one of the most effective way to preserve their living standard. This involves supporting job creation but also expanding active labour market policies. About two-thirds of OECD countries have increased their budget for public employment services since the onset of the COVID-19 crisis. However, increasing spending may not suffice. How that money is spent is just as important. Employment and training services need to be integrated, comprehensive and reach out to firms that create jobs and to the most vulnerable.

Protecting living standards also requires rebalancing bargaining power between employers and workers, so that workers can effectively bargain for their wage on a level playing field. This implies a greater attention by antitrust authorities to competition in the labour market. In particular, the consequences of horizontal mergers for the competitiveness of the labour market should be carefully evaluated in merger reviews, even when merging firms belong to different product markets. In addition, a comprehensive strategy to fight labour market collusion should be developed. For example, governments could consider whether no-poach agreements within franchising, usually legal in most OECD countries, are desirable from a policy viewpoint in the current context.

Rebalancing bargaining power, however, also means giving a new impetus to collective bargaining and, therefore, accompanying the efforts of unions and employer organisations to expand their membership and enlarge the coverage of collective agreements. Actions should also be taken to ensure that workers in the grey area between dependent and self-employment have access to collective bargaining, as recently proposed by the European Commission. Recent collective agreements involving platform workers in Denmark, Germany, Italy, Spain, and Sweden are interesting and could be replicated elsewhere. In all these countries, as well as others in which agreements have not been concluded yet (e.g. France, Norway, etc.), platform workers' unions negotiate working conditions for their members even if they are classified as self-employed. And this occurs without triggering interventions from national antitrust authorities, sometimes thanks to explicit derogations to the cartel prohibition enshrined in the law. More generally, the long series of examples of successful collective agreements in the temporary work agency sector and the cultural and creative industries shows that, even in countries where unions are weak, collective bargaining, if sufficiently flexible, can adjust to different and new types of employment relationships.

Tackling labour shortages is critical to supporting living standards in the medium term

The combination of high vacancy rates and less than a full recovery in labour utilisation, in terms of both employment and hours worked in a number of OECD countries, highlights once again a structural problem of effective allocation of labour, which is key to foster growth and, therefore, living standards. Current labour shortages are not just due to lack of high skilled personnel in high-tech industries, but are also widespread in other sectors of the economy, including typically low-pay industries.

Part of this is due to tough working conditions and/or low pay in certain industries or areas within them, which prompt workers to quit their jobs or not to apply for job vacancies in these industries. During the COVID-19 crisis and recovery, governments have taken a variety of measures to make certain low-pay jobs, and in particular frontline jobs, more attractive. But these measures often do not go far enough to improve job quality in a durable way and, therefore, address labour shortages in these industries. For example, in the long-term care sector, more than half of OECD countries have set up some form of one-time rewards to compensate workers for extra work during the health crisis. Yet, new initiatives to

increase pay have been taken only in less than 30% of them. Reducing labour shortage in these industries would require focussing on solving structural issues rather than acting through temporary ad-hoc fixes.

Part of the labour shortage, however, is simply due to the unprecedented speed of the recovery. As economies reopened, the strong uptake in economic activity has fuelled a record surge in labour demand. While this may stimulate job-to-job moves, and therefore career progress for individual workers towards jobs with better pay and working conditions, available national talents and labour force are often insufficient to fill all existing demands. On average across OECD countries, net migration has remained depressed over the course of the crisis and the first stage of the recovery, and while picking up in recent quarters, its growth is still below the levels reached in the second half of the 2010s in many countries. Policies to encourage immigration, talent attractiveness and the integration of migrants could therefore be part of the menu to be considered in order to ease the labour supply crunch.

Recovery plans create opportunities to better match demand and supply

Governments in most OECD countries and beyond are implementing recovery plans that are unprecedented in size and scope. These recovery plans may present an opportunity to put in place policies to address the structural problems affecting the labour market. Yet, the upheaval of the global economy in the aftermath of the Russia's war of aggression against Ukraine is bringing about new priorities concerning national policy, such as greater investment in alternative sources of energy, overcoming bottlenecks in supply chains, transfers to most affected groups and increases in defence spending. All these different priorities may imply that fewer resources than initially planned will be available for sustaining the labour market. Within these greater than anticipated budget constraints, targeting will be of paramount importance. On the one hand, policy should enhance workers' skills and pave the way for a transition to more green jobs. On the other hand, policy should prioritise the most vulnerable. This will ensure that they do not suffer a disproportionate double blow from COVID-19 and the cost-of-living crisis.



Stefano Scarpetta,

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Executive summary

Russia's aggression against Ukraine has heightened short-term economic uncertainty and undermined the strength of the labour market recovery

The Russian invasion of Ukraine has generated a major humanitarian crisis and sent economic shockwaves across the globe. Several million Ukrainian people – mostly women and children – have fled their country in search of refuge in other European countries and beyond. The increase in commodity prices spurred by the conflict has added to the inflationary pressures generated by supply chain disruptions that have hit real incomes in recent times. The economic shock is undermining the strength of the recovery from the COVID-19 crisis, although progress in labour markets continued in the first months of 2022. However, despite sustained employment growth, real household disposable incomes were already declining on a year-on-year basis in the last quarter of 2021, and in many countries that decline is estimated to have continued in the first months of 2022, due to wage growth not keeping pace with inflation.

The recovery from the COVID-19 crisis was stronger than expected, but labour market progress remains uneven across countries and groups of workers

The rebound in economic activity from the COVID-19 crisis was faster than expected, but the labour market recovery has been uneven across countries and sectors and is still incomplete, while its sustainability is made uncertain by the war in Ukraine. The pandemic is not over and it is still shaping the employment dynamics of different industries. In particular, low-pay industries such as accommodation and food services are lagging behind, which has a significant impact on the groups of workers who most often work in them. While some of the initial unequal impact of the crisis across workers has been reabsorbed, young people, the low skilled and low-paid workers still trail behind in the recovery in many countries. The same holds for racial/ethnic minorities in many of the few countries for which data are available. These groups have also been severely hit by the increase in commodity prices: low-income households not only devote a larger fraction of their income to consumption, but energy and food represent a particularly large share of their consumption basket.

Countries' labour market and social policy responses were proportional to the challenges of the unprecedented COVID-19 crisis

OECD countries responded with unparalleled resolve to the COVID-19 crisis, complementing pre-existing employment and social protection measures with rapid and large-scale emergency measures in various areas. These interventions effectively supported workers' jobs and incomes and laid the foundations for a strong labour market recovery. By the end of 2021, the crisis measures had been rolled back in most policy areas following the strong rebound in economic activity. The great urgency with which support had to be provided led to insufficient targeting in some areas, higher-than-needed expenditures and possibly weak incentives to exit support programmes. While the widespread support measures prevented a further rise

in income inequality in many OECD countries, some groups of heavily affected workers outside the reach of the standard system were not sufficiently protected. The war in Ukraine is bringing new challenges for labour market and social policies in OECD countries. In this context, many governments have swiftly taken measures to assist large inflows of refugees from the war in Ukraine and to offset the large increases in energy prices, while other measures are under discussion.

Labour markets are concentrated, which worsens job quality

Labour market concentration, where only few employers compete for workers, is a key cause of monopsony power – the ability of employers to set wages unilaterally, which can lead to inefficiently low employment and wages. The largest cross-country analysis of labour market concentration to date, based on online job vacancies in 16 advanced countries, reveals that at least one in six workers in the business sector are employed in concentrated labour markets, with larger shares in rural areas and among certain groups such as frontline workers. Empirical evidence tends to confirm that concentration negatively affects employment and harmonised data for a subsample of countries show that concentration decreases wages and worsens job security. These findings call for greater policy efforts to curb monopsony power in labour markets by regulating anticompetitive practices such as wage-setting collusion and non-compete agreements, and to rethink other labour market policies, including minimum wages and collective bargaining.

Firm wage-setting practices play a key role in shaping wage inequality

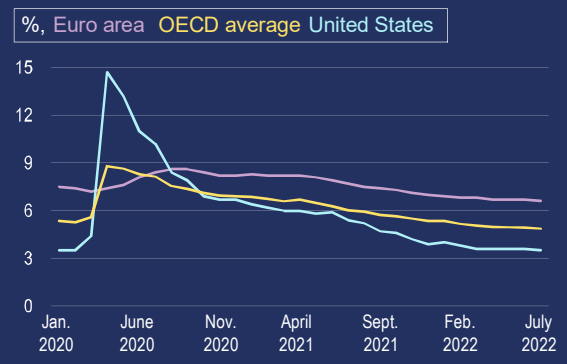
Around one-third of overall wage inequality can be explained by differences in wage-setting practices between firms rather than differences in the level and returns to workers' qualifications. Gaps in pay between firms, in turn, reflect differences in productivity, but also disparities in wage-setting power. To tackle high and in some cases rising wage inequality, worker-centred policies (e.g. education, adult learning) need to be complemented with firm-oriented policies. This involves, notably: policies that help lagging firms catch up with the productivity levels of leading firms; promote job mobility between firms; and limit employers' monopsony power in labour markets. All these policies would raise wages and reduce wage inequality without adverse effects on employment and output.

Carefully designed and implemented working time policies can enhance workers' well-being while preserving employment and productivity

Provided they are carefully designed and implemented, evidence suggests that reductions in normal working hours could enhance workers' well-being without damaging employment and productivity. Analysis of a number of national legislative reforms and firm-level contractual reductions in hours indicate that reducing normal hours (while keeping monthly wages constant) might preserve employment and enhance well-being if the impact on unit labour cost remains limited (either due to induced productivity gains or to public subsidies), or if the reduction takes place in situations where employers enjoy significant monopsony power. These beneficial effects are more likely to occur if social partners have leeway to negotiate working hours, wages and work organisation altogether. Moreover, fostering the use of flexible hours could lead to small positive effects on health, workers' satisfaction, and work-life balance. Teleworking could also improve workers' satisfaction – but its effects on work-life balance and health vary.

Key facts and figures

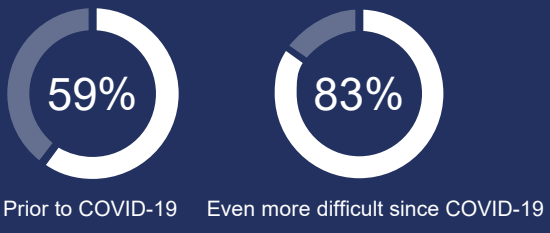
Unemployment below pre-COVID levels



Despite the lowest unemployment levels in decades, there are still about 33 million people unemployed across OECD countries (July 2022).

Vacancies in frontline jobs are harder to fill than before COVID-19

% of OECD countries who said it was difficult to fill frontline jobs



Workers for health care and hospitality are in short supply, with many public employment services finding it much harder to fill vacancies compared to before the COVID-19 pandemic.

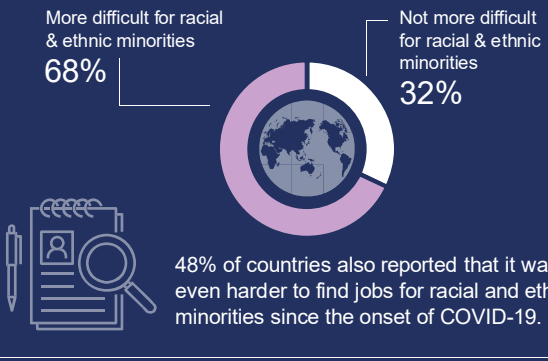
Low-paying industries are lagging behind in the recovery

Average % change in employment by industry, Q1 2022 vs Q1 2019



Racial and ethnic minorities have fewer job opportunities

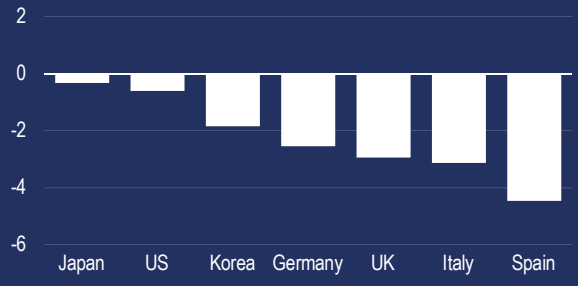
% of OECD countries reporting greater difficulties in finding job opportunities for racial and ethnic minorities



48% of countries also reported that it was even harder to find jobs for racial and ethnic minorities since the onset of COVID-19.

Real wages drop as cost of living continues to increase

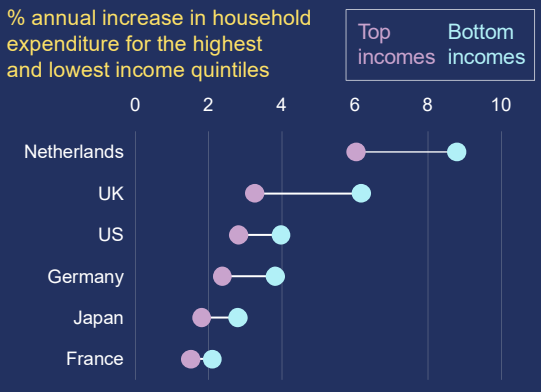
Projected year-on-year real wage growth, 2022, %



The energy and food price hikes following Russia's war against Ukraine are eroding living standards.

Surge in food & energy prices affects low-income households the most

% annual increase in household expenditure for the highest and lowest income quintiles



Note: Data as of April 2022

1 A tale of two crises: Recent labour market developments across the OECD

Andrea Salvatori

Russia's war of aggression against Ukraine has generated a humanitarian crisis affecting millions of people and has sent shockwaves through the world economy. This new crisis threatens the strength of the recovery from the COVID-19 one, which had been more robust than initially expected. Nevertheless, even before the shock of the war, the labour market recovery appeared uneven across countries and groups of workers. While some of the initial very unequal impact of the crisis has been reabsorbed, young people and workers without tertiary education lag behind in the recovery in many countries. Despite an unprecedented surge in labour demand, nominal wage growth was dwarfed by the high inflation of the first half of 2022. The impact of inflation on living standards is larger for the same lower-income households which have already borne the brunt of the COVID-19 crisis.

In Brief

Russia's war of aggression against Ukraine has generated a humanitarian crisis affecting millions of people and has sent shockwaves through the world economy. Europe has seen the largest and fastest growing inflow of refugees since World War II as millions left Ukraine. The economic fallout of the war is threatening the strength of the recovery from the COVID-19 crisis which till early 2022 had turned out to be stronger than initially expected. The disruption of the war on energy and food markets is adding to the significant inflationary pressures that had already emerged at the end of 2021 as a result of supply chain disruptions. In the first of half of 2022, inflation reached levels not seen in decades in many OECD countries eroding workers' living standards as nominal wage growth remained generally modest despite the tight labour markets. The impact of inflation is felt disproportionally by the same lower-income households that have already borne the brunt of the COVID-19 crisis.

The latest available evidence at the time of writing suggests that:

- **Labour market conditions continued to improve across the OECD in the first half of 2022.** Total employment in in the OECD area as a whole returned to pre-crisis levels at the end of 2021, and continued to grow in the first half of 2022. The OECD unemployment rate gradually fell from its peak of 8.8% in April 2020 and stabilised in the first months of 2022. In July 2022, the OECD unemployment rate stood at 4.9%, slightly below the 5.3% value recorded in December 2019.
- **Russia's war of aggression against Ukraine has caused a humanitarian crisis affecting millions in Ukraine and beyond, and has disrupted energy and food markets, putting a drag on world growth and fuelling inflation.** The refugee flows caused by the war will result in additional public expenditure in the short-term in host countries, although this will be offset over time as refugees enter the labour force. Global GDP growth in 2022 is now projected to slow to 3.0% from 4.5% projected by the OECD in December 2021 and remain at a similar pace in 2023
- **Before the new shock of the war in Ukraine, some countries were still lagging behind in the recovery.** In Q1 2022, employment and inactivity rates had improved relative to pre-crisis levels in most countries. However, ten countries still had employment rates below pre-crisis levels, and 11 countries featured inactivity rates higher than just before the crisis. In July 2022, unemployment was below pre-crisis levels in 24 countries, and above that level by more than 0.5 percentage points only in Finland and Estonia.
- **In the second half of 2021 and early 2022, vacancies surged to record highs in many countries and the number of firms reporting labour shortages rose significantly above pre-pandemic levels in many industries and countries.** There is currently no indication of systematic mismatches between supply and demand caused by the asymmetric impact of the crisis on different sectors. Rather, the pervasiveness of reports of labour shortages across countries and industries suggests that, in most industries, the ongoing labour market tensions arise primarily from the sheer speed of the increase in labour demand in recent months supported by a strong global demand and massive recovery plans.

- **Labour shortages have been particularly intense in some low-pay sectors, such as food and accommodation.** The lingering pandemic might have made these low-paid jobs that typically involve direct contact with customers less appealing and might have accentuated the perception of the lower quality of these jobs. The tightening of the labour market may help improve working conditions in these industries. Indeed, in some countries nominal wage growth has been stronger than average in these sectors, while still generally remaining well below the high inflation of the last few months.
- **Despite increasing labour market tightness, nominal wage growth generally remains well below the high inflation of the first half of 2022, causing real wages to fall.** The decline in the real value of wages is expected to continue over the course of 2022, as inflation is projected to remain elevated and generally well above the level expected at the time of collective agreements for 2022.
- **The impact of rising inflation on real incomes is larger for lower-income households which have already borne the brunt of the COVID-19 crisis**. The hike in energy and food prices is hurting low-income households the most because these items represent a higher share of their total spending and because they have more limited scope to draw on savings or to reduce discretionary expenditures. These households disproportionally include low-pay workers who were more likely to have their income reduced during the COVID-19 crisis either through job loss or a reduction in hours worked.
- **Employment dynamics across industries are still heavily influenced by the COVID-19 crisis, as low-pay service industries, in which telework is typically less feasible, lag behind in the recovery.** In Q1 2022, on average across the OECD, employment was still below pre-crisis levels in low-pay services industries. By contrast, some high-pay service sectors expanded over the same period. These patterns have significant implications for the evolution of employment outcomes of different groups of workers during the recovery.
- **After the initial hard blow, women's employment progressively improved during the recovery despite the increased burden of unpaid care work.** The initial impact of the pandemic was felt more strongly among women than men across the majority of OECD countries, but by 2022 the employment gap between men and women had declined in most countries relative to pre-crisis levels. Over the course of the crisis, women have shouldered the bulk of the burden from the increase in unpaid care work when schools and childcare facilities were closed. This has occurred even in households where the father was out of work and the mother employed. The labour market consequences of the increased burden from unpaid care work could emerge over time, as women opt for working arrangements that often translate into slower career progression and wage growth – such as part-time, or more flexible jobs with shorter commutes.
- **Young people have recovered some of the lost ground at the start of the pandemic but are still lagging behind older adults.** Youth employment rate is still below pre-crisis levels in over half of the countries. The protracted joblessness experienced by many young people over the past two years can have repercussions on their career prospects and the quality of the jobs they obtain. However, data from Q1 2022 show no common increases in the share on temporary contracts across countries despite the heightened economic uncertainty of recent times.
- **Across the OECD, the employment rate of highly educated workers was slightly above pre-crisis levels in Q1 2022, while that of low and medium educated workers had not fully recovered yet**. Across countries, the decline in employment for workers with less than tertiary education was mostly associated with an increase in inactivity rather than unemployment.

- **By Q1 2022, on average across OECD countries, the employment gap between native-born and migrants had narrowed relative to pre-crisis levels after its initial widening in 2020.** However, in seven of the 28 countries with available data, migrants' employment was still below pre-crisis levels in Q1 2022 by an average of 2.9 percentage points. In most of these countries, the employment gap between the native-born and migrants widened – on average by 1.9 percentage points.
- Few countries collect data which allow the impact of the crisis on **racial/ethnic minorities** to be assessed. In the United States, the United Kingdom, Latvia, and Estonia, racial/ethnic minorities were hit harder by the crisis and experienced a slower recovery. In Canada and Denmark, racial/ethnic minorities saw their labour market outcomes deteriorate more at the beginning of the crisis, but recovered in the successive months. In New Zealand, racial/ethnic minorities have benefited from the recovery more than the largest racial/ethnic group, reducing their employment gap in Q4 2021 relative to Q4 2019.
- **Frontline workers** – who continued to work in their physical workplace and in proximity of other people during the pandemic – are disproportionately young, low educated, migrants, racial/ethnic minorities and employed in low-paid occupations. During the crisis, they reported more job insecurity, and lower overall health and mental well-being. Evidence show that they were also much more likely than other workers to become infected with COVID-19.

Introduction

Russia's war of aggression against Ukraine is first and foremost a human tragedy with many losses of innocent lives and huge economic and social consequences including the millions who fled their country to escape violence and hunger. The war has also sent shockwaves through the world economy. Europe has seen the largest and fastest growing inflow of refugees since World War II as millions left Ukraine. The economic fallout of the war is threatening the strength of the recovery from the COVID-19 crisis which had been surprisingly robust till the early months of 2022 – in many countries supported by massive recovery plans.[1]

The impact of the war on energy, food, and commodity markets is adding to the significant inflationary pressures that had already emerged at the end of 2021 because of supply chain disruptions. In the first half of 2022, inflation reached levels not seen in decades in many OECD countries eroding workers' living standards as nominal wage growth remained generally modest despite the tight labour markets. The impact of inflation is felt more by the same lower-income households which have already borne the brunt of the COVID-19 crisis.

The economic fallout of the war in Ukraine threatens the strength of the economic recovery from the COVID-19 crisis. However, even before the new shock and uncertainty introduced by the war, the labour market recovery from the COVID-19 crisis appeared uneven across countries. The impact of the pandemic continues to shape employment dynamics across industries, which in turn affect the fortunes of the groups of workers that are more likely to work in them. While some of the initial unequal impact of the crisis across workers has been reabsorbed, young people, workers without tertiary education, and racial/ethnic minorities have been lagging behind in the recovery in many countries.

This chapter provides an examination of the latest developments across labour markets in the OECD and is organised as follows. Section 1.1 reviews the latest labour market developments across the OECD. Section 1.2 assesses the progress made in the recovery from the COVID-19 crisis till the first quarter of 2022, when the new crisis generated by Russia's aggression against Ukraine. Section 1.3 reviews employment developments since the onset of the COVID-19 crisis across industries, laying the ground for Section 1.4 to review the progress made by different socio-economic groups during the recovery. Finally, Section 1.5 describes the labour market experience during the COVID-19 crisis of frontline workers.

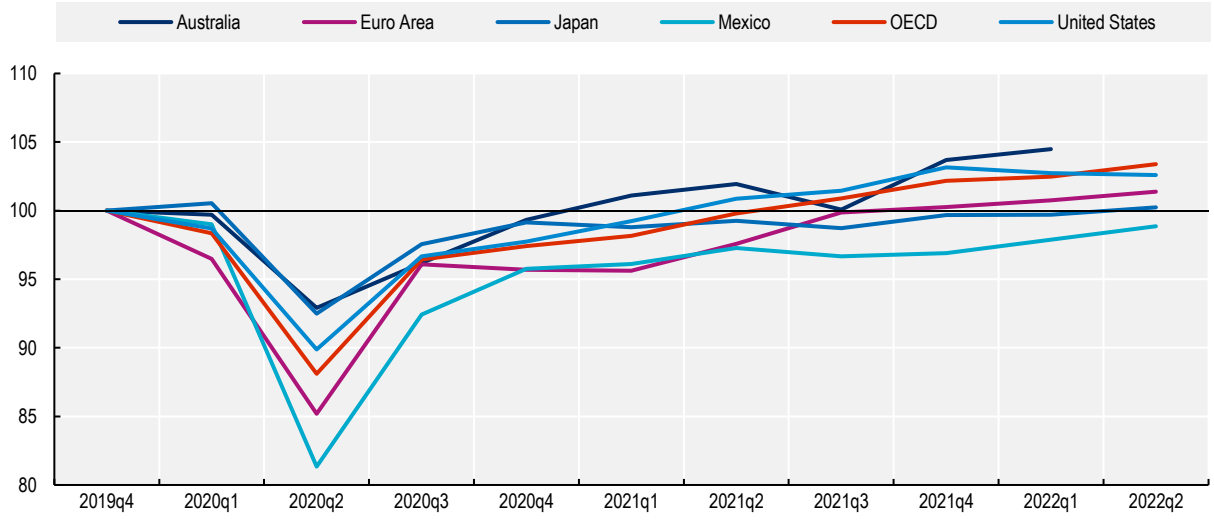
1.1. The economic fallout of Russia's aggression against Ukraine threatens the strength of the economic recovery from the COVID-19 crisis

The economic recovery from the COVID-19 crisis has been faster than expected thanks to the prompt and massive policy support for firms and household deployed throughout the crisis and the rapid rollout of effective vaccines (OECD, 2021[1]). OECD output returned to pre-crisis levels already in Q3 2021 and continued to grow – albeit at slower pace – into the second quarter of 2022, climbing to 3.4 percentage points above its Q4 2019 level. The economic disruptions from the wave of the pandemic driven by the Omicron variant in late 2021 and the early months of 2022 generally proved mild in most countries, despite some weakness in the United States and Japan, where GDP declined in Q1 2022, and the Euro area, where growth slowed. Preliminary data for Q2 2022 suggests that GDP grew in the Euro Area, Mexico and Japan but contracted slightly in the United States – with positive growth recorded for the OECD as a whole.

The recovery in GDP was uneven across OECD countries (Figure 1.1). In Q1 2022, GDP remained below pre-pandemic levels in eight countries – with output in Iceland, Spain and Mexico more than 1 percentage points below the Q4 2019 reference level. By contrast, GDP was at least 2.5 percentage points above pre-pandemic levels in 22 countries, with particularly large gains in Ireland, Chile, Colombia, Türkiye, Israel, and Poland.

Figure 1.1. GDP for the OECD as whole returned to pre-pandemic levels by Q3 2021, but growth slowed down at the start of 2022

Seasonally adjusted real GDP indexed to 100 in Q4 2019, selected OECD countries



Note: Euro Area refers to the 19 EU member states using the euro as their currency.
Source: OECD National Accounts Database.

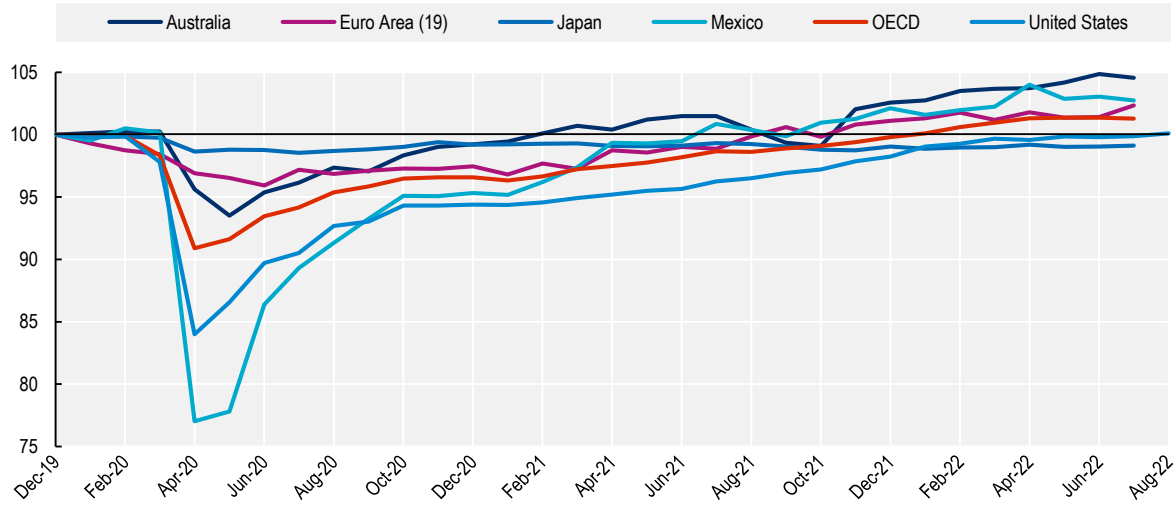
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As the economy recovered, total employment in the OECD returned to pre-crisis levels at the end of 2021 and continued its growth – albeit at a slower pace – into the first half of 2022, reaching a level 1.3% higher than before the crisis in July 2022 (Figure 1.2). Employment growth was particularly strong in Australia – where in July 2022 employment was 4.6% higher than at the end of 2019 – and Mexico – where in July 2022 employment was about 4.5% above its pre-crisis level. Employment recovery was less pronounced in Japan – where employment was 1% lower than pre-crisis in July 2022 - and in the United States – where employment reached pre-crisis levels in August 2022. In the Euro Area,

employment growth slowed down in the spring of 2022, and total employment reached a level around 2.3% higher than before the crisis in July 2022.

Figure 1.2. Employment levels since the onset on the COVID-19 crisis

Monthly total employment, seasonally adjusted, indexed to 100 in December 2019



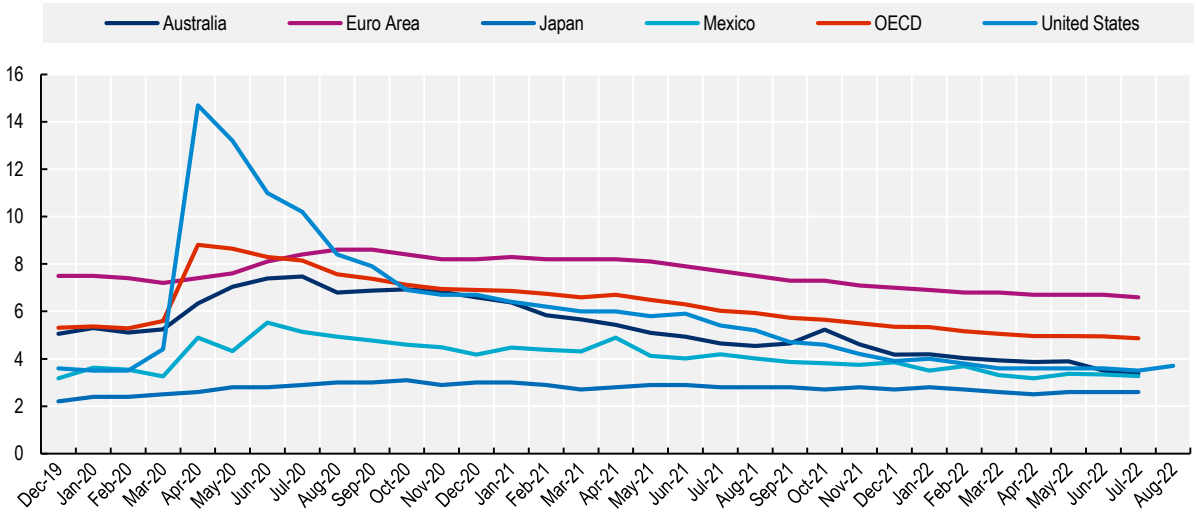
Note: Monthly employment figures for the OECD average, Euro Area (19) and Mexico are estimates derived from the OECD Unemployment Statistics estimated as the unemployment level times one minus the unemployment rate, and rescaled on the LFS-based quarterly employment figures.
Source: OECD Short-term Labour Market Statistics for Australia, Japan, Mexico and the United States. OECD estimates based on the OECD Monthly Unemployment Statistics for the OECD average, Euro Area (19) and Mexico.

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The OECD unemployment rate gradually fell from its peak of 8.8% in April 2020 and stabilised in the first months of 2022. In July 2022, the OECD unemployment rate stood at 4.9%, slightly below the 5.3% value recorded in December 2019 (Figure 1.3). In July 2022, unemployment was below pre-crisis levels in 24 countries, and above that level by more than 0.5 percentage points only in Finland and Estonia. The peak increase in unemployment rate differed substantially across countries: unemployment increased by a larger amount and more quickly in countries that made limited use of job retentions schemes such as the United States, Colombia, Costa Rica and Chile. However, by early 2022 the unemployment rate had returned close to its pre-crisis levels in all countries (Figure 1.4).[2] The reliance on unemployment compensation does not necessarily imply that workers in those countries were worse off compared to workers in countries with job retentions schemes. For example, the United States significantly boosted and expanded the cash support and eligibility criteria during the first year and a half of the pandemic.

Figure 1.3. The OECD unemployment rate also returned to pre-pandemic levels by the end of 2021

Monthly unemployment rate, seasonally adjusted

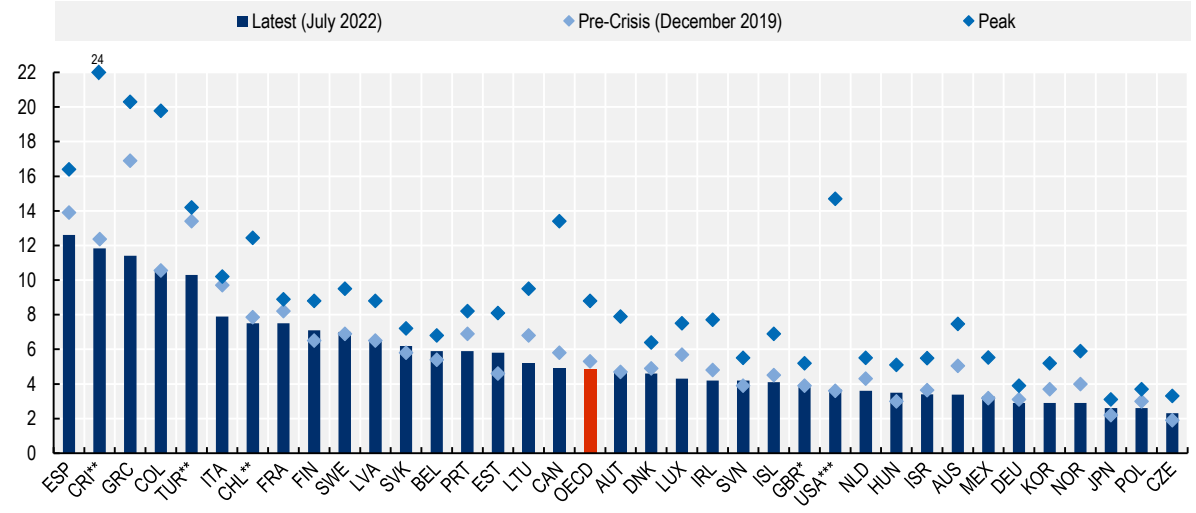


Note: Euro Area refers to the 19 EU member states using the euro as their currency.
Source: OECD Short-term Labour Market Statistics.

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Figure 1.4. Unemployment rate: Pre-crisis, peak, and most recent

Percentage of labour force, seasonally adjusted



Note: For countries marked with * the latest data refer to May 2022, for those marked with ** to June 2022, and for those marked with *** to August 2022.
Source: OECD Short-term Labour Market Statistics.

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1.1.1. Russia's war of aggression against Ukraine generated new adverse shocks and increased the uncertainty of the short-term outlook

The Russian invasion of Ukraine has generated a humanitarian crisis affecting millions of people and caused a new set of adverse economic shocks.[3] Commodity prices have risen substantially, reflecting the importance of supply from Russia and Ukraine in many markets, adding to inflationary pressures and hitting real incomes, particularly for the most vulnerable households. Supply-side pressures have also intensified as a result of the conflict, as well as the impact of continued shutdowns in major cities and ports in China due to the zero-COVID policy.

More than 6.5 million people have already been forced to flee Ukraine to other countries in Europe, and an even greater number have been displaced within the country.[4] The number of people who have already fled Ukraine since the start of the war is several times greater than the annual flow of asylum-seekers into Europe at the height of the Syrian refugee crisis in 2015-16. The refugee flows caused by the war will result in additional public expenditure in the short-term in host countries, although this will be offset over time as refugees enter the labour force. Box 1.1 reviews lessons learned from recent experiences from across the OECD that can help facilitate the process of integrating the refugees into the labour market of the host countries.

Box 1.1. Good principles for the support and integration of refugees

Following the large inflow of humanitarian migrants to OECD countries in 2015, and building on its longstanding work on refugee integration, the OECD established a number of lessons of good practice from OECD countries (OECD, 2016[2]). The following summarises the most relevant lessons that can help the process of integration of the millions who were forcedly displaced from Ukraine to OECD countries (OECD, 2022[3]).

1. Provide reception services as soon as possible

While there remains uncertainty about the actual length of the forced displacement, it is key that the skills of those concerned are not left idle for long. Experiences of many OECD countries suggest, for example, that early labour market entry soon after arrival is one of the best predictors of future outcomes.

2. Factor employment prospects into dispersal policies

Many governments seek to distribute – or disperse – refugees in locations evenly across the country. This is also the case for refugees from Ukraine. At the same time, local labour market conditions on arrival are a crucial determinant of lasting integration. In areas where jobs are readily available, labour market integration is faster and easier. It is thus important to avoid situations in which new arrivals are placed in areas where cheap housing is available but labour market conditions are poor.

3. Promote equal access to services across the country

The Temporary Protection Directive sets minimum standards for reception of refugees from Ukraine in EU countries. However, there are also sharp differences within countries, with special services available in some regions and not in others. So where refugees are eventually settled – something over which they seldom have any control – affects their integration prospects. To limit disparities, it is important to: i) build the necessary expertise in local authorities; ii) ensure adequate financial support and the right incentives; iii) pool resources between local authorities and to iv) set common standards and monitor how local authorities live up to them.

4. Record and assess foreign qualifications, work experience and skills

Initial data suggest that the average education level of the displaced from Ukraine is high, with the majority having tertiary education. Most have also worked in Ukraine. In spite of similarities, the education, training system and labour market in Ukraine is quite different from that in many host countries – or at least, employers are not familiar with it. To make sure that their skills are well used and build further, it is essential to take stock of the skills that they bring with them. To that end, it is important that the qualifications and skills of refugees from Ukraine are assessed and recognised swiftly and effectively.

5. Take into account the diversity of needs and develop tailor-made approaches

While many refugees from Ukraine are women with tertiary education and their children, there remains considerable diversity regarding skills, family situations, special needs and resources. Such diversity in individual profiles makes integration challenging, as there is obviously no "one-size-fits-all" integration trajectory. Reception offers need to account for the specificities of this population, including with respect to childcare.

6. Identify mental and physical health issues early and provide adequate support

A considerable percentage of refugees suffer from psychological complaints like anxiety and depression as a consequence of the traumatic, and often violent, experiences they have endured back in Ukraine. At the same time, poor physical health as a result of abuse and injuries are also common. Such health issues can be a fundamental obstacle to integration, as they impinge on virtually all areas of life and shape the ability to enter employment, learn the host country's languages, interact with public institutions, and do well in school. Host countries must speedily diagnose and address specific health concerns in ways that take into consideration their particular needs.

7. Build on civil society to integrate humanitarian migrants

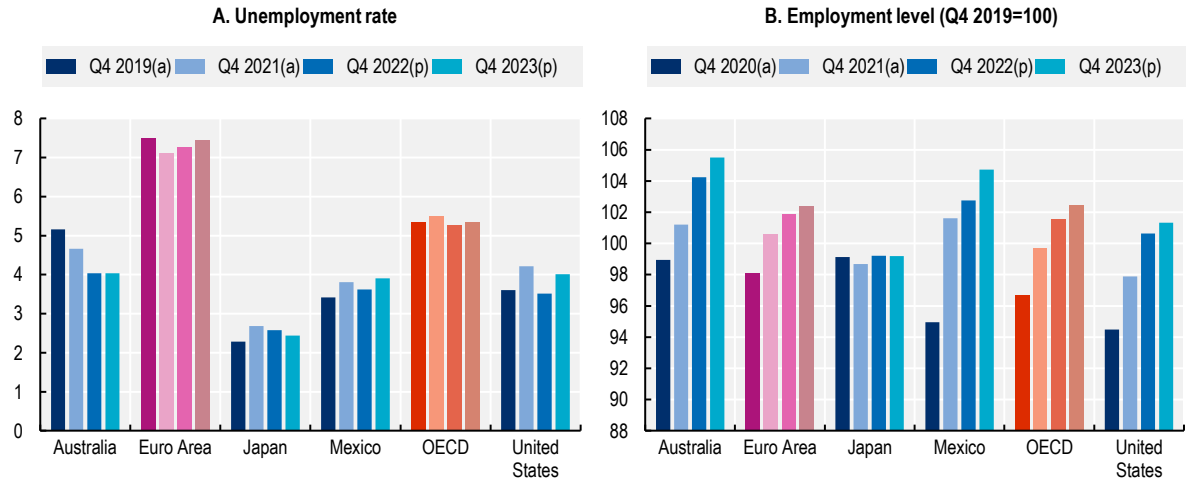
The unprecedented scale of the displacement from Ukraine has meant that public reception and support capacities were quickly stretched to the limit, especially in the neighbouring countries of Ukraine which bore the brunt of the displacement from Ukraine but had little prior experience with refugee situations. As a result, there has been an unprecedented solidarity response by the civil society. More generally, civil society often steps in where public policy does not tread or cannot be up scaled sufficiently or quickly. Such support is also crucial for social cohesion.

Note: Box prepared by Thomas Liebig from the International Migration Division of the Employment, Labour and Social Affairs Department of the OECD.

The OECD economic projections from June 2022 point to a slowdown in global GDP growth as a results of the economic fallout from Russia's aggression against Ukraine. Indeed, global GDP growth is now projected to be around 3.0% in 2022 – against the previous projection of 4.5% from December 2019 – and to remain at a similar pace in 2023 (OECD, 2022[4]).

The normalisation of labour markets is projected to continue during 2022-23, despite the new negative shock of the war in Ukraine, which nevertheless makes the outlook more uncertain (OECD, 2022[4]). As the public health situation improves further, based on rising vaccination rates and improved COVID-19 treatments, labour force participation is projected to increase in almost all economies. Across the OECD, as seen in Figure 1.2, total employment returned to its pre-crisis levels already at the end of 2021, but its growth is now expected to slow. In particular, total employment in the OECD is projected to be above its Q4 2019 level by 1.5 percentage points by the end of 2022 and by 2.5 percentage points by the end of 2023. The unemployment rate is expected to stabilise remaining just above 5% both at the end of 2022 and 2023 (Figure 1.5).

Figure 1.5. Employment growth is projected to slow down and the unemployment rate to stabilise over 2022 and 2023



Note: (a) Actual value. (p) OECD projection. Euro Area refers to the 17 EU member states using the euro as their currency, which are also OECD member states.
Source: OECD (2022[4]), *OECD Economic Outlook, Volume 2022 Issue 1*, https://doi.org/10.1787/62d0ca31-en.

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There are a number of prominent downside risks that could lead to a further deterioration of the economic situation with potential repercussions on labour markets. These risks are linked in particular to an abrupt interruption of flows of oil and gas from Russia to Europe, stronger disruptions to global supply chains or financial contagion. Inflationary pressures could also prove stronger than expected, with risks that inflation expectations move up further away from central bank objectives and become reflected in faster wage growth amidst tight labour markets. Sharp changes in policy interest rates could also slow growth by more than projected. Risks also remain from the evolution of the COVID-19 pandemic: new and more aggressive or contagious variants may emerge, while the application of zero-COVID-19 policies in large economies like China has the potential to sap global demand and disrupt supply for some time to come.

1.2. The labour market recovery from the COVID-19 crisis was stronger than expected but uneven across countries

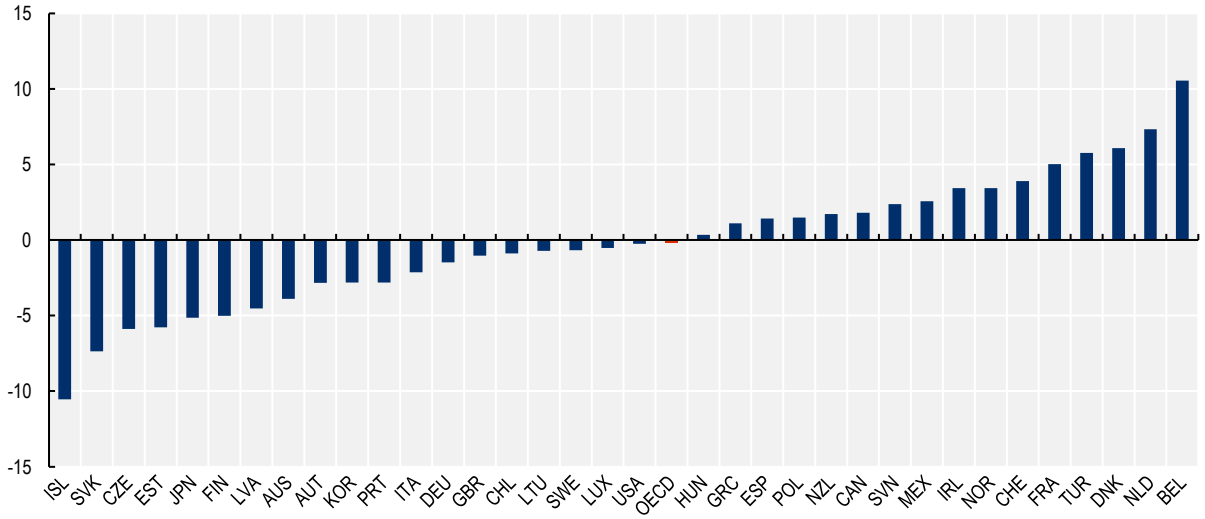
The labour market indicators for the first quarter of 2022 – which were only marginally affected by the consequences of the Russia's invasion of Ukraine – show that the labour market recovery from the COVID-19 crisis was generally stronger than expected, but some countries were lagging behind.

1.2.1. Hours show an incomplete recovery in many countries, and employment and inactivity rates paint a picture that varies across countries

At the beginning of 2022, total hours worked remained below pre-crisis levels in many countries. On average across the OECD countries with data available, hours were 0.2% lower in Q1 2022 compared to in Q1 2019 (Figure 1.6).[5] The recovery in total hours worked was slowed down or even set back in some countries as new restrictions were adopted in the final quarter of 2021 as the Omicron variant drove a new aggressive wave of the pandemic. In early 2022, total hours worked remained below pre-crisis levels in 19 of the 35 countries with data available. In Finland, Japan, Estonia, the Check Republic, the Slovak Republic, and Iceland the gap was particularly large, exceeding 5%.

Figure 1.6. In Q1 2022, hours worked were still below pre-crisis levels in most countries

Total hours worked. Change between Q1 2019 and Q1 2022



Note: The figure reports percentage change in total hours worked relative to Q1 2019. See the main text for a discussion of seasonality effects in these results. To compute the percentage change for GBR, seasonally adjusted data produced by the Office of National Statistics (ONS) was used. OECD indicates the unweighted average of the countries shown.
Source: EU-LFS for European countries, CPS for the United States, for GBR ONS, Canadian LFS, ENE for Chile, ENOE and ETOE for Mexico, Australian Bureau of Statistics, Statistics New Zealand, Statistics Bureau of Japan (Labour Force Survey), Statistics Korea (Economically Active Population Survey).

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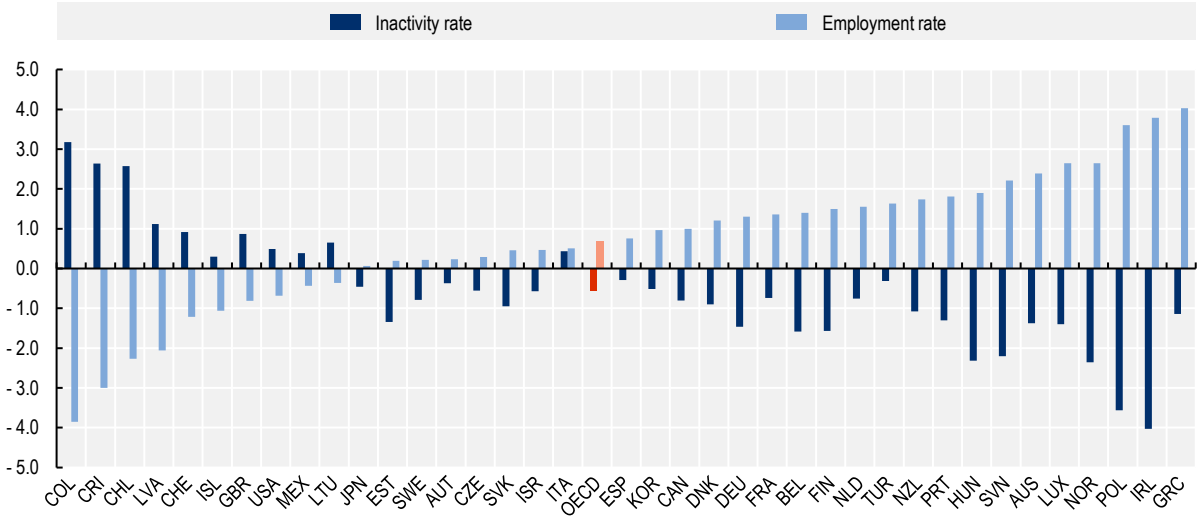
At the start of 2022, employment and inactivity rates had generally improved relative to the pre-crisis situation, but some countries were lagging behind

Employment and inactivity rates in early 2022 had generally improved relative to pre-crisis levels, but some countries were still lagging behind (Figure 1.7). According to the most recent available data (Q1 2022), the employment rate of the working age population was above pre-pandemic level in 28 of the 38 OECD countries by an average of 1.5 percentage points. In the remaining ten, the employment rate was below its Q4 2019 level by an average of 1.6 percentage points, with the gap exceeding 2 percentage points in Colombia, Costa Rica, Chile, and Latvia.

The initial increase in inactivity that took place in all countries in 2020, as the pandemic discouraged active job search (OECD, 2021[1]), had largely been reabsorbed by early 2022. In the most recent data, inactivity rates were lower than just before the crisis by an average of 1.3 percentage points in 27 OECD countries. In the other 11 countries, inactivity was above pre-crisis levels by an average of 1.2 percentage points with the largest increases in excess of 2 percentage points in Colombia, Costa Rica, and Chile.

Figure 1.7. Employment and inactivity rates improved relative to the pre-crisis situation in most countries

Change in employment and inactivity rates among the working age population from Q4 2019 to Q1 2022, seasonally adjusted



Note: Working age population includes all those aged 15 to 64.
Source: OECD Short-term Labour Market Statistics.

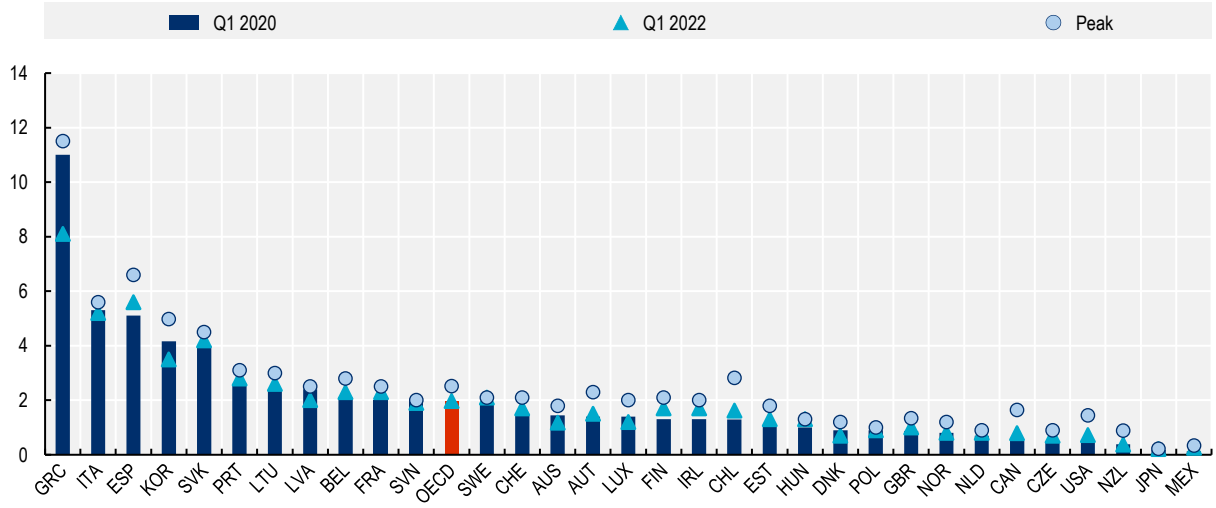
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Long-term unemployment is higher than before the crisis in many countries but generally receding

At the onset of the crisis, long-term unemployment (i.e. 12 months or more) edged down in several countries (OECD, 2021[5]). This was largely the result of a fall in job search activity in the context of the initial lockdowns that were often accompanied by the suspension of job search obligations, leading to many people being classified as inactive rather than unemployed. Over the course of 2021, however, as job search picked up again, long-term unemployment increased in many countries despite the general improvement in labour market conditions. By Q1 2022, long-term unemployment was still above pre-crisis levels but generally receding in most countries (Figure 1.8).[6] In particular, the long-term unemployment rate was above pre-crisis levels in 20 of the 32 countries with data available, but the OECD average had already returned to pre-crisis levels. The increases were above 50% in the United Sates (from 0.5% to 0.7%) and Canada (from 0.5% to 0.8%) – both countries that featured comparatively low levels of long-term unemployment before the start of the crisis.[7] Declines in excess of 15% in the long-term unemployment rates were recorded in Greece, South Korea, Latvia, Australia, and Denmark.

Figure 1.8. By Q1 2022, long-term unemployment was higher than before the COVID-19 crisis in many countries, but generally receding

Share as a percentage of the labour force population



Note: OECD is the unweighted average of countries shown. Germany and Iceland are not included because data for those countries is missing for Q1 2020. See the main text for a discussion of a break in Q1 2021 in the series provided by Eurostat.
Source: EU-LFS for European countries, CPS for the United States, UK LFS, Canadian LFS, ENE for Chile, ENOE and ETOE for Mexico, Australian Bureau of Statistics, Statistics New Zealand, Statistics Bureau of Japan (Labour Force Survey), Statistics Korea (Economically Active Population Survey).

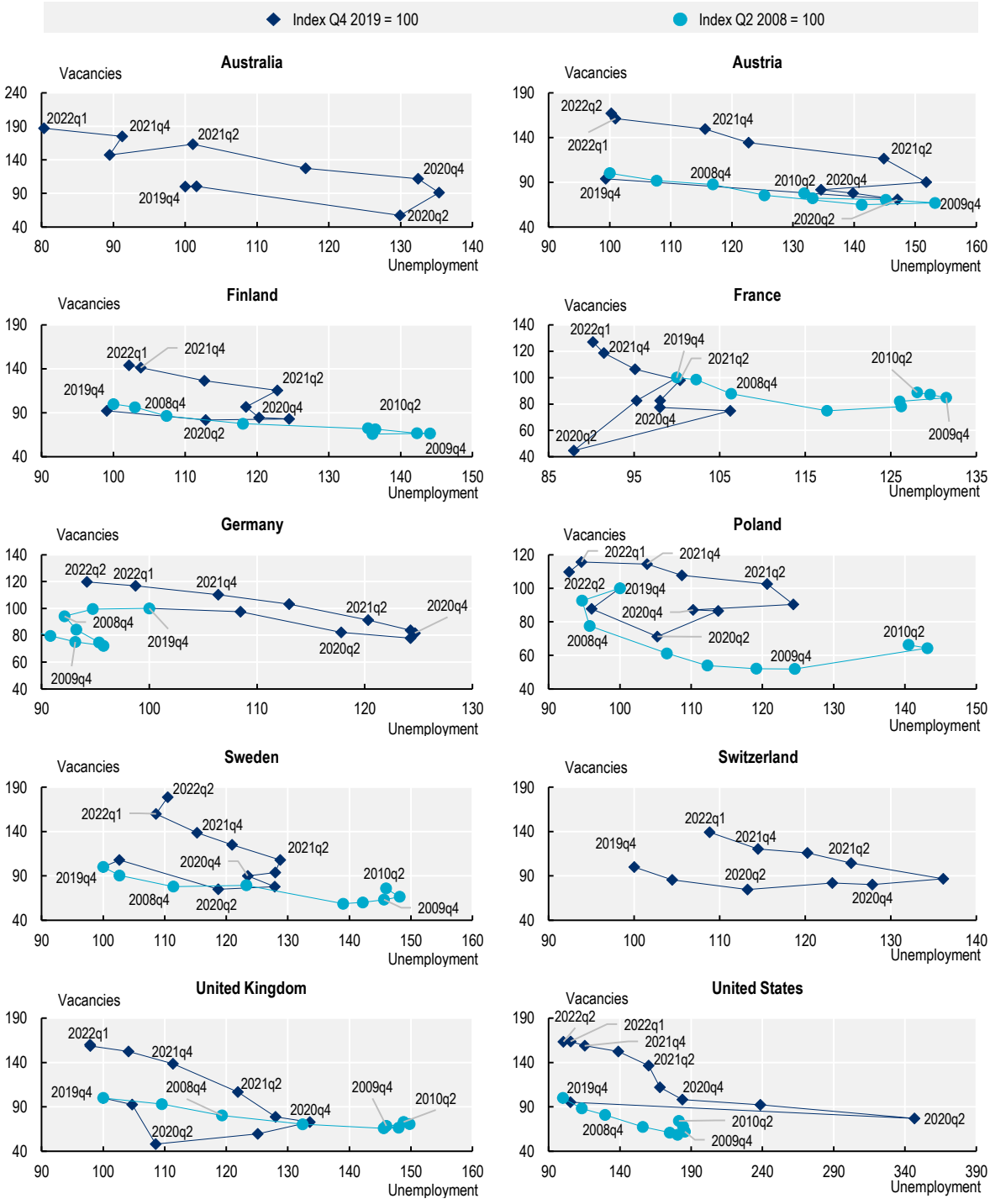
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1.2.2. A surge in vacancies has led to a fast tightening of labour markets with widespread reports of labour shortages

The unprecedented rebound of economic activity recorded in many countries in 2021 was coupled with a surge in labour demand, as indicated by the steep increase in labour vacancies in many countries (Figure 1.9). Indeed, in most countries considered, vacancies reached pre-crisis levels already one year after the on-set of the crisis in Q2 2021 and then continued to increase steadily for the remainder of the year. In the first quarter of 2022, the growth of vacancies generally slowed down, but they remained at historically high levels in many countries. By Q1 2022, vacancies were at least 50% higher than before the crisis in Australia, Austria, Sweden, the United Kingdom, and the United States. Vacancies increased relatively less in Germany and Poland, still reaching a level just under 20% higher than before the crisis by Q1 2022. Among the countries not included in Figure 1.9, vacancies reached record highs in in Canada (80% higher in Q4 2021 than in Q4 2019)[8] and New Zealand (+31% in March 2022 relative to two years earlier).[9] In Italy, the vacancy rate reached record levels in the second half of 2021, stabilising around 1.9 in Q1 2022 (ISTAT, 2022[6]).[10] Also in Q1 2022, vacancies were at least 40% higher than before the crisis in Luxembourg and Portugal, and only slightly above pre-crisis levels in Hungary and the Czech Republic.[11] Data for Q2 2022 are only available for a few countries at the time of writing, but generally confirm that vacancies remained high throughout the first half of the year. By contrast, two years after the start of the Great Financial Crisis, vacancies remained depressed in all countries reported in Figure 1.9 – highlighting the profound difference in the nature of the two crises.

Figure 1.9. Labour demand has increased very quickly

Index of job vacancies and unemployment set to 100 at start of crisis, selected OECD countries



Note: The number of job vacancies and unemployment in Q2 2008 are indexed to 100 for the period of Q2 2008 to Q2 2010, and those in Q4 2019 are indexed for the period of Q4 2019 onwards. The Q2 2022 data are available for Austria, Germany, Poland, Sweden and the United States, while Q1 2022 is the most up-to-date for the remaining countries. All values are seasonally adjusted. For Switzerland, job vacancy data from the Federal Statistical Office are used and are not seasonally adjusted.

Source: OECD Short Term Labour Market Statistics, Job Statistics (Federal Statistical Office of Switzerland).

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Two main factors have likely contributed to the widespread surge in vacancies. First, vacancies rebounded after two or three quarters of unprecedented depression in 2020 when turnover in firms had slowed down considerably due to the health situation. As economies reopened and uncertainty surrounding the economic and health situation decreased over the course of 2021, firms and workers likely pursued (and continue to pursue) hiring and job-moving decisions that had been placed on hold. In countries that made limited use of job retention schemes to preserve jobs – like the United States – the rebound was particularly robust due to the need to re-fill temporarily closed positions after the various waves of the pandemic.

A second factor fuelling the surge in vacancies is the strong growth in product and service demand of the second half of 2021 and early months of 2022. The generous support deployed by many countries during the crisis helped keep many firms in operation and preserve the spending power of many consumers, thus creating the conditions for a jump-start of the economy as restrictions became progressively more targeted and vaccination rates quickly increased. The strong economic recovery was then fuelled by massive recovery plans in many countries. In addition, demand was also supported by the savings accumulated by many consumers in the first part of the crisis as they reduced spending on services in particular due to the restrictions in place or out of fear of contagion (McGregor, Suphaphiphat and Toscani, 2022[7]).

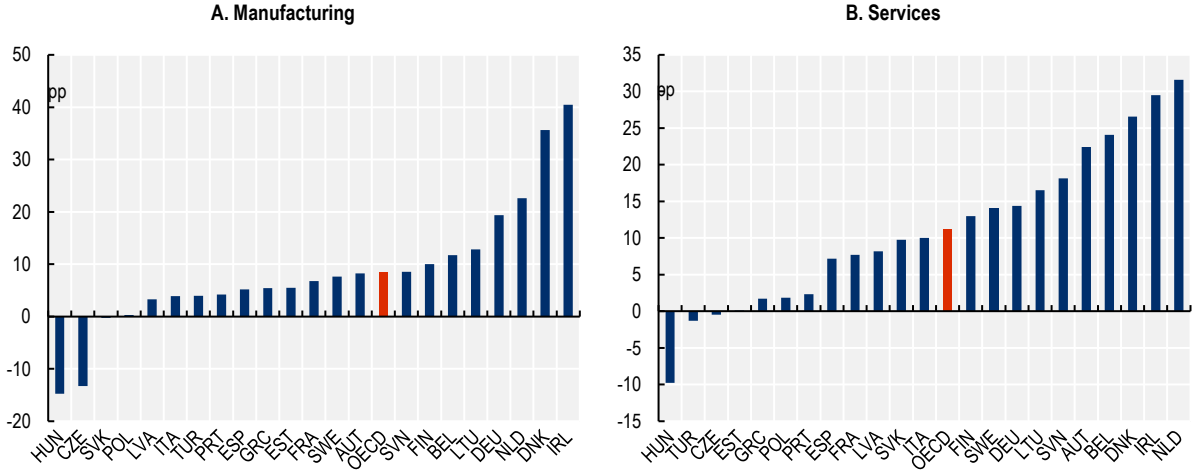
As already seen in Figure 1.3, unemployment rates fell throughout 2021, but the speed of the decline did not match that of the surge in vacancies. Indeed, while vacancies were well above pre-crisis levels by early 2022, unemployment was instead close to pre-crisis levels in all countries. While vacancies do typically grow faster than unemployment falls during recoveries, the unprecedented speed of the vacancy surge during the COVID-19 recovery means that labour market tightness increased in most countries to levels typically seen much later in the cycle (European Central Bank, 2019[8]). Also, many of the Beveridge curves reported in Figure 1.9 – which capture the negative relationship between unemployment and vacancies – exhibit a pronounced outward shift in the second half of 2021, signalling a decrease in the matching efficiency of labour markets. Two notable exceptions are France and Germany where the increase in vacancies has been less pronounced and unemployment fell below pre-pandemic levels at the start of 2022.

Reports of labour shortages by firms are widespread across sectors

The increase in tightness in the labour market and the decrease in matching efficiency is clearly reflected in the growth in the number of firms reporting production constraints from labour shortages (Figure 1.10). In Q2 2022, the proportion of firms in manufacturing that lamented labour shortages was, on average, 8.5 percentage points higher (at about 26%) than before the crisis in the 22 OECD countries that are members of the European Union and Türkiye. In services, the proportion of firms reporting labour shortages was 27.5% on average across the same countries – or more than 11 percentage points higher than before the crisis. Among these countries, reports of labour shortages did not increase only in Hungary, the Czech Republic, the Slovak Republic (in manufacturing) and Türkiye (in services). The proportion of businesses reporting labour as the primary constraint was also at a record high in New Zealand in January 2022.[12] In Canada, in the first quarter of 2022, 37% of firms expected to face labour shortages in the coming three months.[13] An economy-wide indicator of labour shortages in Germany compiled by the Institute of Employment Research (IAB) grew above pre-crisis levels in early 2022, after rebounding from the low levels of 2020 and early 2021.[14]

Figure 1.10. The share of firms reporting production constraints from labour shortages has increased across Europe

Differences in the share of firms reporting labour shortages between the second quarters of 2016-19 and Q2 2022



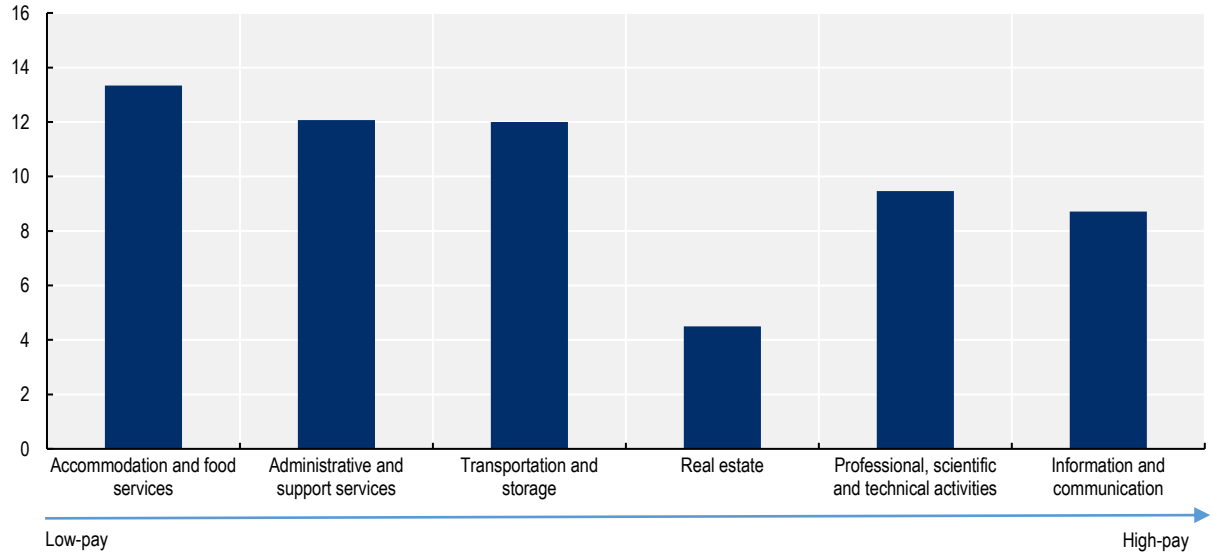
Note: OECD is an unweighted average of countries shown above. Data in the second quarter of the calendar year are collected in the first two to three weeks of April. For instance, the Q2 2022 data were collected in the first two to three weeks of April 2022. Firm responses are seasonally adjusted.
Source: European Commission Business and Consumer Survey.

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EU-level data by finer sectors indicate that recruiting difficulties have been widespread across sectors in recent months, but they are particularly pronounced in relatively low-pay sectors (Figure 1.11). For example, the share of firms reporting production constraints from labour shortages increased by 13 percentage points relative to its pre-crisis level of 20% in accommodation and food services and by 12 percentage points (relative to a pre-crisis level of 23%) in administrative and support services. Firms in accommodation and food services have also been more likely to report labour shortages in the first few months of 2022 in the United Kingdom as well (37% vs an average of 14% in April 2022).[15] In Canada, the proportion of firms expecting labour shortages in the first quarter of 2022 was 65% in the accommodation and food services *vs* an average of 37% across the economy.[16]

Figure 1.11. Difficulties in recruiting are widespread but particularly acute in low-pay sectors

Percentage changes in the number of firms reporting recruiting challenges by service sector in the 27 EU member states from Q4 2019 to Q2 2022, seasonally adjusted



Note: From left to right, the bars are arranged from low-pay sectors to high-pay sectors. Industries are ranked by the median wage in 2019 in the European Structure of Earnings Survey (SES). For more details, see the note of Figure 1.16. The percentage of firms reporting labour shortages as a business constraint in each sub-sector of the statistical classification of economic activities in the European Community (NACE) Rev.2 is aggregated to the broad NACE Rev.2 sector level, based on employment weights at the sub-sector level for those aged 15-64. Both firm responses and employment weights are seasonally adjusted. The Q2 2022 data were collected in the first two to three weeks of April 2022.
Source: The Joint Harmonised EU Services (European Commission), Employment by sex, age and detailed economic activity from 2008 onwards, NACE Rev.2 two-digit level (Eurostat).

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In some countries, quits have increased along with labour market tightness

In the United States, after hovering below pre-pandemic levels for over a year, quits reached record highs in the second half of 2021 and then remained high in the first few months of 2022, prompting talk of a "Great Resignation".[17] Increases in quits were recorded in almost all sectors, but – relative to the size of the sectors – they were particularly pronounced in manufacturing, retail trade and finance and insurance.[18] The evidence on which workers have been quitting varies somewhat depending on the methodology and timing of the survey. A survey covering 4 000 US companies in the summer of 2021 suggested that quits increased more among prime-age workers (Cook, 2021[9]). A recent survey by the Pew Research Center (Parker and Horowitz, 2022[10]) found that workers under the age of 29 were more likely than all other age groups to have quit their job at some point in 2021, but the study does not provide pre-crisis baseline figures to assess which groups saw the largest increases. According to this survey, men and women were equally likely to have quit their jobs in 2021, but quits were more frequent among racial/ethnic minorities groups.

There is no indication that the increase in quits is driven by people falling out of the labour force. Indeed, the employment-to-population ratio in the United States continued its steady growth in the first quarter of 2022 even as quit rates remain elevated and GDP growth turned negative (see Section 1.1).[19] In addition, at the end of 2021 hiring rates were higher than quit rates in all industries, including in low-pay services (Gould, 2022[11]). This suggests high mobility within sectors in a tight labour market, rather than significant outflows from specific industries because of a change in workers' preferences. A survey by the Pew

Research Center finds that the vast majority of those who quit their job in 2021 report having found a new job without significant difficulties and with similar or better conditions than their previous employment (Parker and Horowitz, 2022[10]).

Beyond the United States, the evidence of a significant increase in quits is limited. In the United Kingdom, job-to-job transitions remained below pre-pandemic levels until the summer of 2021 and then reached a record high in Q4, at a level about 30% higher than in Q4 2019 driven by an increase in resignations. In Q1 2022, job-to-job moves declined slightly, while still remaining over 20% higher than in the same quarter of 2019.[20] However, there was no indication of an increase in cross-sectoral mobility that would be expected if the pandemic had motivated workers to leave certain sectors in particular.[21] In France, after a long depression, quits of permanent workers climbed above pre-crisis levels in the third quarter of 2021 – driven by an increase among workers formerly on job retention schemes – and then remained elevated in the last quarter of the year.[22,23] In Germany, however, there was no indication of an increase in quits relative to before the crisis at least until March 2021 (Rottger and Weber, 2021[12]). Similarly, in Australia, the proportion of businesses with open vacancies reporting the need to replace leaving employees was stable over the course of 2021. By February 2022, the figure stood at 79.7% – only 1 percentage point higher than just before the pandemic in February 2020.[24]

The fast tightening of labour markets is likely a consequence of the speed of the economic rebound

The increasing labour market tightness seen in many countries is likely mostly the result of the sheer speed of the surge in labour demand fuelled by the strong uptake in economic activity as economies reopened. The pervasiveness of reports of labour shortages across countries and sectors suggests that the current situation is not driven by the scarcity of a specific type of labour that could arise, for example, from the asymmetric impact of the crisis across sectors (see Section 1.3). In fact, recent studies have found that the mismatch between types of workers and the types of jobs available grew substantially at the onset of COVID-19 crisis but was short-lived and generally smaller than during the Great Financial Crisis (Shibata and Pizzinelli, 2022[13]; Duval et al., 2022[14]). Instead, these studies suggests that the sluggish response of employment to the surge in vacancies in the second half of 2021 was in part explained by a contraction in labour supply of low skilled and older workers. Indeed, in the United States and the United Kingdom, the vacancy surge occurred even as inactivity rates remained above pre-crisis levels. Another potential factor limiting the availability of labour overall might have been the protracted weakness of net migration in many countries. Preliminary evidence suggests that in Q3 2021 the overall size of the labour force in Europe was still below the levels that would have been expected given pre-crisis trends largely due to the fact that net migration remained depressed (European Central Bank, 2022[15]).

The tightening of the labour market per se might stimulates job-to-job moves – as evidenced by the uptake in quits in some countries – and might encourage jobseekers to search for longer for better opportunities. The generous income support provided by many countries during the crisis might have helped jobseekers to prolong their search for better opportunities – though the evidence from the United States point to mostly small effects (Holzer, Hubbard and Strain, 2021[16]; Coombs et al., 2022[17]; Petrosky-Nadeau and Valletta, 2021[18]). The lingering pandemic might have made frontline low-paid jobs that typically involve direct contact with customers less appealing and might have accentuated the perception of the lower quality of these jobs. Pizzinelli and Shibata (2022[13]) argue that an increase hesitancy to return to these jobs might play a role in the United States and the United Kingdom.

In many sectors – both high and low skill – however the current exceptional circumstances exacerbate pre-existing difficulties in recruiting workers. In their responses to an OECD questionnaire (see Chapter 2), over 70% of the countries reported that labour shortages were an issue in the long-term care and health sectors during the COVID-19 crisis – with most indicating that the crisis has aggravated existing problems. Across Europe, reports of labour shortages had been steadily increasing in the aftermath of the financial

crisis (Eurofound, 2021[19]). The Beveridge Curve of several countries had gradually shifted outwards after the Great Financial Crisis, signalling increasing difficulties in matching a large number of vacancies to a large number of unemployed because of skill mismatches or unsatisfactory working conditions (European Central Bank, 2019[8]). As the pandemic broke out in 2020, labour shortages were quickly aggravated in agriculture and in the health and ICT sectors in Europe (Eurofound, 2021[19]; Samek Lodovici et al., 2022[20]).

The coming months will help clarify if underneath the vacancy tide affecting all industries – new tensions are arising (or adding to pre-existing ones) in specific industries linked to qualitative mismatches between labour demand and supply. As discussed below in Section 1.3, industries that have expanded since the onset of the crisis are very different from industries that have seen employment fall, pointing to a potential misalignment in skills between labour demand and the supply that has become available. Geographical mismatches could also be an issue if expanding and retreating sectors are located in different places and as result of changing consumption patterns (for example due to more online spending or to increases in teleworking that shifted some consumption away from urban centres). There is currently very little evidence of mismatches arising in the aftermath of the COVID-19 crisis. Preliminary evidence based on data for Australia, Spain, the United Kingdom, the United States, Canada and Japan suggests that the problem is limited due to the fast rebound of the most-hardly hit sectors (Duval et al., 2022[14]). Finally, in addition to the pressures arising from changes that might have been triggered or accelerated by the pandemic per se, many countries intend to use their recovery plans to accelerate digitalisation and the transition towards a climate-neutral economy – further accelerating structural transformations of the labour market which might also contribute to rising qualitative mismatches.

1.2.3. Despite tight labour markets, real wages are falling as high inflation exceeds modest nominal wage growth

Despite the strong labour markets, workers' wages have declined in real terms in recent months. Indeed, while by the end of 2021 or early 2022 nominal wage growth reached high levels relative to pre-pandemic levels in some countries, the nominal increases have generally remained well below the fast-growing inflation generated by increasing commodity prices (Figure 1.12).

In the United States, nominal wage growth edged up already in the second half of 2021. Even so, real wages fell. Indeed, in the last quarter of 2021, nominal wage growth in the private sector reached 5% – about 2 percentage points higher than in the quarters just before the crisis – while inflation jumped to 6.7%. In the first quarter of 2022, annual nominal wage growth remained stable but inflation reached 8%. Nominal wage growth was particularly strong in leisure and hospitality, reaching 9% in Q1 2022 – in part as a result of increases in minimum wages implemented in a number of states and localities (Box 1.2) – while in the quarters before the start of the pandemic it had hovered around 4% (Figure 1.13).[25]

In Europe, the ECB index for negotiated wages in the Euro Area picked up slightly in the first quarter of 2022 (+2.8%) but remained well below the rate of inflation of 6.1%. In France, nominal gross hourly wages for non-managerial employees grew by 1.9% in Q4 2021 and 2.5% in Q1 2022, outpaced by inflation rates of 2.7% and 3.7% respectively. In Q1 2022, nominal wage growth was above average but still below inflation in two low-pay industries, retail and food and accommodation.[26] In Canada, nominal hourly wage growth remained below pre-pandemic levels for most of 2021 and reached 3% in the first quarter of 2022, remaining well below inflation at 5.8%. In the United Kingdom, growth in nominal average weekly earnings was below inflation both in Q4 2021 and Q1 2022 – but measures of pay including bonuses increased more in line with inflation. Data by sectors for the United Kingdom show similar patterns in wage changes between low-pay service sectors and the whole private sector until the end of 2021, but larger wage growth in low-pay sectors in the first months of 2022 (Figure 1.13).[27] In Japan, the annual growth rate of total cash earnings was slightly below inflation in Q4 2019, but reached 1.1% in Q1 2022 against an inflation rate of 0.9%.

Figure 1.12. Nominal wage growth has generally remained below inflation

Percentage change in nominal wage rates and annual inflation rates in Q4 2021 and Q1 2022, year-on-year

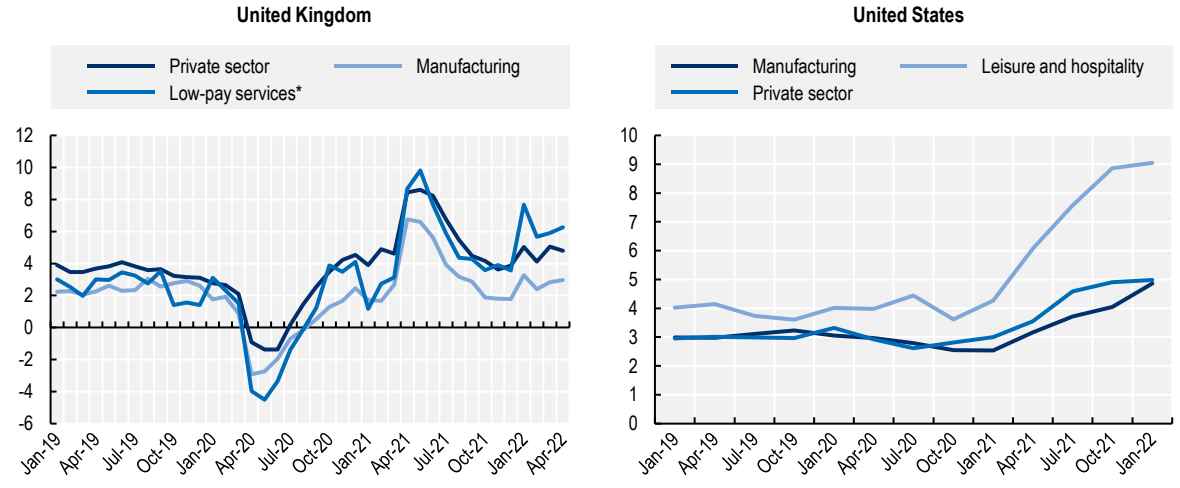


Notes: The measurement of nominal wage rates is not harmonised across countries.
Source: Average hourly earnings from the Survey of Employment, Payrolls, Hours (Statistics Canada), Euro Area 19 – Indicator of negotiated wage rates (European Central Bank), Salaire horaire de base des ouvriers et des employés from l'enquête trimestrielle sur l'activité et les conditions d'emploi de la main-d'œuvre (Direction de l'animation de la recherche, des études et des statistiques, France), Total cash earnings from the Monthly Labour Survey (Ministry of Health, Labour and Welfare, Japan), Average weekly earnings – regular pay: whole economy from the Monthly Wages and Salaries Survey (Office for National Statistics, United Kingdom), Employment Cost Index for wages and salaries for private industry workers (Bureau of Labor Statistics, United States), OECD Key Short-Term Economic Indicators: Consumer Prices, Consumer Price Index (Statistics Bureau of Japan).

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Figure 1.13. Annual nominal wage growth by sector

Year-on-year changes in various nominal wage indicators



Note: * Low-pay services in the United Kingdom include Wholesaling, Retailing, Hotels and Restaurants.
Source: United Kingdom: Average Weekly earnings by sector – Office for National Statistics. United States: U.S. Bureau of Labor Statistics, Employment Cost Index: Wages and salaries for Private industry workers, retrieved from FRED, Federal Reserve Bank of St. Louis.

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Tight labour markets might help improve the working conditions of the most disadvantage groups, but high inflation is likely to continue to erode real wages in the months to come

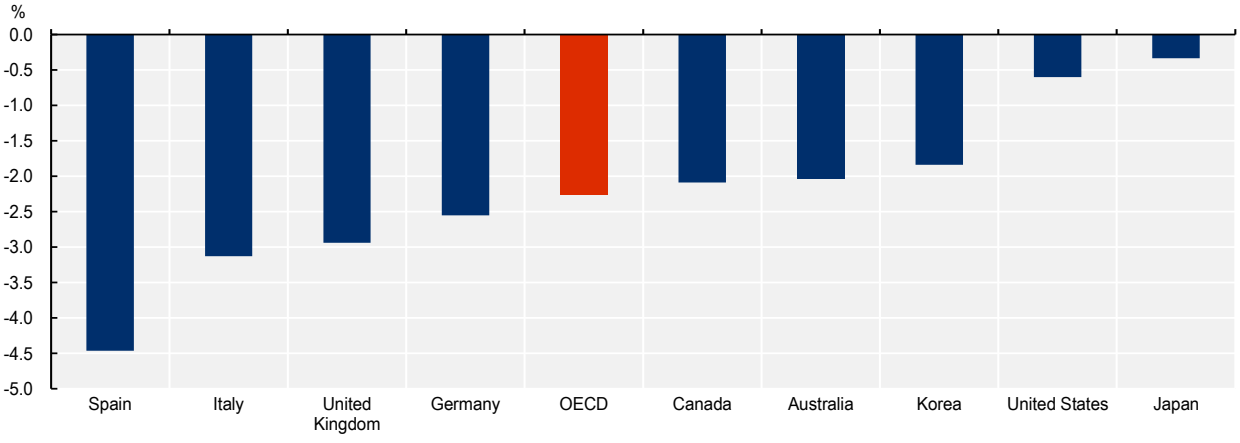
A tight labour market might help improve working conditions in low-pay sectors. Indeed, as mentioned above, there is some evidence that nominal wage growth has been stronger in some low-pay sectors (see Figure 1.13) and Duval et al. (2022[14]) find that wages in low-pay sectors were more responsive to the increasing labour market tightness over the course of 2021. More generally, tight labour markets are associated with improvement in labour market outcomes for vulnerable groups in particular – both in terms of better working conditions for those employed and higher participation to the labour market (Bergman, Matsa and Weber, 2022[21]; Aaronson, Barnes and Edelberg, 2022[22]). In addition, tight labour markets increase opportunities for labour reallocation across firms with a potential beneficial effect for productivity.

Improving working conditions for the most disadvantage groups need not generate significant widespread inflationary pressures (especially in markets where monopsony power is significant – see Chapter 3). Duval et al. (2022[14]) argue that the overall impact on economy-wide wage pressure of rising tightness among low-pay industries in 2021 was limited due to the overall small share of such industries in total labour costs (in the United Kingdom and the United States). Inflationary pressures could arise from the combination of persistent labour shortages across sectors and the high or rising inflation driven by increases in energy and food prices. Faced with increasing wage demands, firms that have seen their profits increase over the pandemic due to an expected increase in demand might be able to accommodate them without significant price increases. However, firms whose profits have instead been eroded by the pandemic or by the increase in the cost of other inputs might not have much room for increasing wages without driving prices up.

OECD (2022[4]) expects real wages to continue to decline over the course of 2022, as inflation is projected to remain elevated. Indeed, the war in Ukraine has already pushed inflation well above the level expected at the time of collective bargaining to set wage rates for 2022. In addition, nominal wage pressures are likely to ease as international migration picks ups and refugees are absorbed into the labour market of the host countries. For the OECD as a whole the pace of wage increases in nominal terms is projected to decline from around 4.25% in 2022 to 3.5% in 2023 (OECD, 2022[4]). In real terms, wage growth over 2022-23 is projected to be negative in most countries (Figure 1.14).

Figure 1.14. Real wages will decline in most OECD countries in 2022

Projected percentage change in real wages, selected countries, year-over-year, 2022



Note: The figure shows projections for 2022 for real compensation per employee.
Source: OECD (2022), The Price of War: Presentation of the Economic Outlook 111, https://www.oecd.org/economic-outlook/.

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The fall in real wages is hitting harder the low-pay groups who have already borne the brunt of the COVID-19 crisis

The impact of rising inflation on real incomes is larger for lower-income households which have already borne the brunt of the COVID-19 crisis. Indeed, the increase in expenditure resulting from recent food and energy price changes represents a larger proportion of total spending for lower-income households, and those households have limited scope to offset this by drawing on savings or reducing discretionary expenditures (OECD, 2022[4]). These households disproportionally include low-pay workers who were more likely to have their income reduced during the COVID-19 crisis either through job loss or a reduction in hours worked (OECD, 2021[5]).

Beyond their role in facilitating collective bargaining, governments have a range of complementary policy tools available to cushion the impact of inflation on low-income households. Available evidence suggests that governments have acted swiftly through temporary energy bonuses and the tax and benefit system, although often with costly, untargeted interventions (see Chapter 2 for a discussion of recent interventions by OECD governments). Statutory minimum wages have also been adjusted in many countries, although they tend to continue to lag behind inflation (Box 1.2).

Box 1.2. High inflation is eroding the real value of statutory minimum wages

Across the OECD, the real value of statutory minimum wages declined in 2021. Indeed, the increases implemented in several countries have mostly been dwarfed by soaring inflation (Figure 1.15). As of 1 January 2022, on average across the 29 OECD countries where they exist and for which comparable data are available, statutory minimum wages were 6.0% higher than a year before in nominal terms, but 0.3% lower in real terms (Figure 1.15). This is a particular cause for concern given the disproportional impact of the recent rise in inflation on the lower-income households (OECD, 2022[4]).

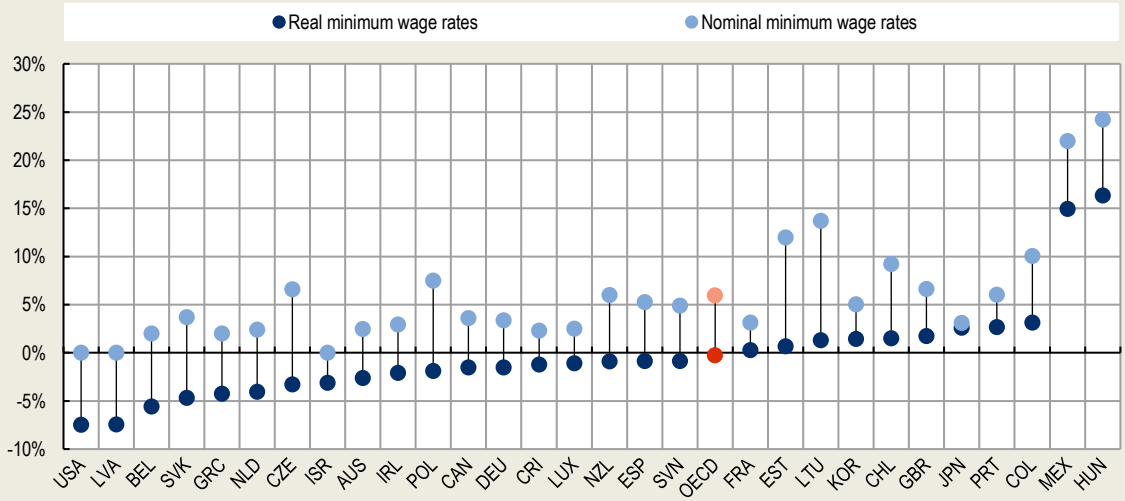
The real value of the statutory minimum wage decreased in 18 of the 29 countries, with particularly large declines in the United States, Latvia – both countries where the nominal value of the minimum wage did not change between 2021 and 2022 – and Belgium – where instead an adjustment was triggered in September 2021 by the high level of inflation. Latvia was the only Eastern European country that left the minimum wage unchanged at the beginning of 2022, following a significant increase the year before and an increase in the non-taxable part of the wage (Eurofound, 2022[23]). In the United States, the federal minimum wage has not increased since 2009, but 21 states increased their minimum wage as of January 2022 – by an (unweighted) average of 7% (EPI, 2022[24]).

The decline of the real value of statutory minimum wages continued in most countries in the first half of 2022. Indeed, only very few countries have rules in place that trigger automatic adjustments in the minimum wage shortly after a sustained increase in inflation. In Belgium, high inflation triggered three minimum wage adjustments in September 2021, March 2022 and May 2022, in addition to an uprating that came into effect in April 2022 as a result of an earlier agreement. Similarly, France adjusted its minimum wage in response to high inflation in May 2022 and then again in August 2022. In Luxembourg, the automatic adjustment was last triggered in September 2021.

Among the countries where high inflation does not trigger immediate adjustments in the minimum wage, most adjust their rates in regular cycles that typically have an annual frequency. Several of these countries directly index minimum wages to some measure of inflation (including Slovenia, Costa Rica and Mexico) or anyway explicitly take inflation into account in the decision process. However, in an environment with prolonged and accelerating inflation, considerable delays in the adjustment of the minimum wage levels can have substantial detrimental effects on the living standards of the low-paid.

Figure 1.15. Nominal minimum wage increases are falling behind ongoing inflation

Percentage change in nominal and real minimum wage rates between January 2021 and January 2022



Notes: OECD is an unweighted average of the countries shown above. The nominal minimum wage rates effective as of 1 January 2022 are used. Year-on-year inflation rates at the end of January 2022 are used to yield the real minimum wage rates. For Spain, the figure reflects minimum wage rates set in February 2022, which came into effect retroactively from 1 January 2022. For Costa Rica, the unweighted average of four daily minimum wage rates differentiated by skill level is used. For Mexico, the unweighted average of minimum wage rates in the Zona Libre de la Frontera Norte and those in the rest of the country is used. For Australia and New Zealand, year-on-year inflation rates in the first quarter 2022 are used.

Source: Nominal minimum wage rates are referenced from OECD Tax-Benefit Database, Ministro del Trabajo (Colombia), Lista de salarios mínimos del sector privado (Ministerio de Trabajo y Seguridad Social, Costa Rica), Tabla de Salarios Mínimos Generales y Profesionales por Áreas Geográficas (Gobierno de México). Annual inflation rates are referenced from OECD Key Short-Term Economic Indicators: Consumer Prices, Consumer Price Index (Australian Bureau of Statistics), Consumer Price Index (Statistics Bureau of Japan), Consumer Price Index (Stats NZ).

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Even within systems that only envisage regular uprating cycles, however, ad-hoc interventions in the face of exceptional circumstances remain a viable option to cushion the impact of inflation on the low-paid in a timelier manner. For example, Greece implemented an exceptional increase in its minimum wage by more than 7% in May 2022 due to inflation concerns (Vacas-Soriano and Aumayr-Pintar, 2022[25]). In Spain, high inflation gave further impulse to the government's plan to increase the minimum wage over time. In February 2022, the government decided a +5.2% increase that came into effect retroactively from the start of the year. In Germany, the minimum wage will increase in nominal terms by over 22% over the course of 2022. This is the result of an increase that came into effect in July following the regular uprating process and one that will come into effect in October as a result of a one-off political decision, which, however, predates the recent inflation concerns.

Increases in the statutory minimum wages can help spread the cost of inflation more equitably between firms and workers, especially in markets where firms have monopsony power (see Chapter 3). The weight of the international evidence suggests that moderate minimum wage increases do not have a substantial negative impact on employment (Dube, 2019[26]; OECD, 2015[27]). Yet, the risk of a negative impact on employment might be higher when the cost of other production factors is increasing steeply, contributing to eroding any margins firms might have to absorb wage increases. In addition, while the minimum wages adjustments are generally effective in raising wages of *individual workers* at the bottom of the wage distribution, they are a relatively blunt tool for supporting low-income *households*, as many

poor families have no one working and, at the same time, many minimum-wage workers live in households with above-average incomes (OECD, 2015[27]). Governments can also mobilise other complementary policy tools to support low-income households, including the tax and benefit system and temporary bonuses to help them deal with the increase of energy prices – see Chapter 2 for a review of the range of interventions implemented across OECD countries.

1.3. Low-pay service industries lag behind in the recovery

The markedly asymmetric impact across sectors is a distinctive feature of this crisis that is well documented (OECD, 2021[1]). Industries where telework was not feasible – such as accommodation and food services, arts, and transportation and storage – saw large reduction in hours and employment losses across countries. By contrast, other service industries such as information and communication, as well as financial and insurance activities, saw an increase in activity already over the course of 2020. As the pandemic protracted into 2021, industries with limited teleworking possibilities continued to be affected disproportionally by more targeted restrictions and persistent changes in consumer's habits even as the overall economic impact of each successive wave became smaller. In the vast majority of countries that made significant use of job retention schemes, the initial impact of the crisis was largely absorbed through reduction in hours, but, as the crisis lingered on, the burden of adjustment moved to the extensive margin, with many on short hours returning to work while jobs destroyed were not fully recovered (OECD, 2021[1]).

The deeply asymmetrical impact across industries and the substantive changes in consumption patterns and in the organisation of work that it prompted raise the concrete possibility that the crisis might lead to some structural and persistent changes in the distribution of employment across firms and sectors. The current phase of rapid developments in the labour markets documented in Section 1.1 makes it difficult to distinguish persistent structural changes from temporary distortions that might subside once the labour market returns to a more ordinary state. Nevertheless, monitoring trends in employment across industries is crucial to highlight possible forthcoming tensions between labour demand and supply. Importantly, the differential impact of the crisis and recovery on different industries remain a significant driver of the impact of the crisis across different groups of workers, as Section 1.4 documents.

To document how different industries and groups of workers have fared in the recovery from the COVID-19 crisis, this section and the next use data from Q1 2022, the most recent data point available for the largest number of OECD countries. Since seasonally adjusted data are not readily available for the outcomes of interest at a disaggregate level, these sections use unadjusted data and take Q1 2019 as the pre-crisis reference point. Checks performed with data on overall employment indicate that results based on seasonally adjusted data for Q4 2019 vs Q1 2022 are consistent with those based on unadjusted data for Q1 2019 vs Q1 2022.

For the countries covered by Eurostat, all the employment series are affected by a statistical break in Q1 2021 (see Eurostat (2022[28])). Whenever available, break-adjusted series provided by Eurostat are used in the analysis. In the other cases, a correction described in Annex 1.B has been applied.

1.3.1. Employment still lags behind in low-pay services, but has grown in high-pay services

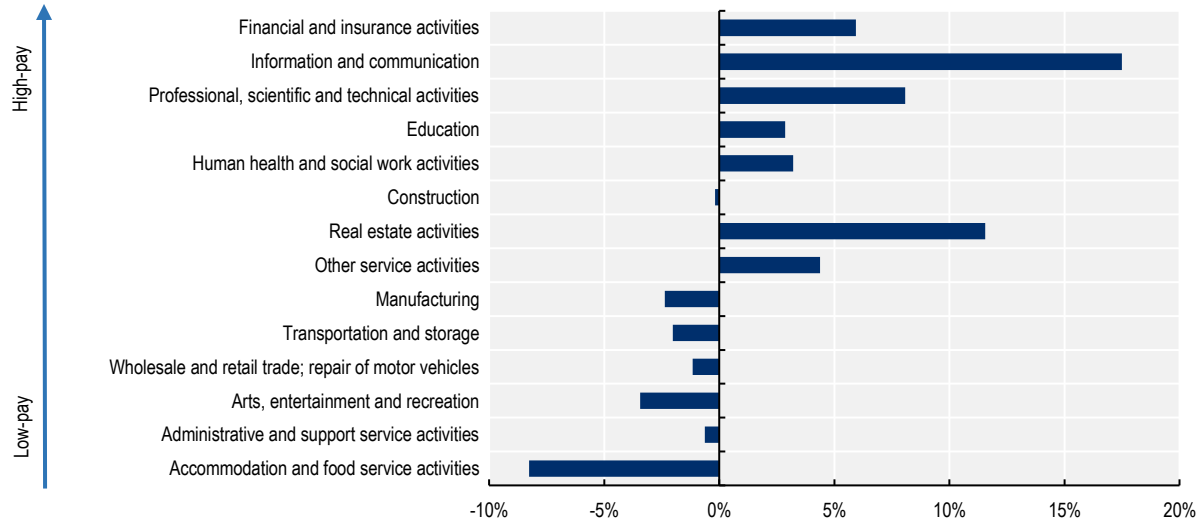
Two years since the onset of the crisis, employment changes by industry across OECD countries are still very clearly shaped by the pandemic (Figure 1.16). Relative to the same quarter of 2019, in Q1 2022, lower-pay industries exhibited employment losses or modest growth, while higher-pay service industries reported larger employment gains. Construction and Manufacturing – two sectors that employ many

medium earners – also recorded employment losses. Employment also increased in Health and Education – two medium pay sectors that have been heavily affected by the pandemic.

In order to offer a manageable overview of employment changes by industry across countries given these aggregate results, Figure 1.17 presents results for selected industries aggregated in four broad groups: low-pay service industries (Accommodation and Food Service Activities, Administrative and Support Service Activities, Arts, Entertainment and Recreation, Wholesale and Retail Trade, and Transportation and Storage), Health and Education, Manufacturing and Construction, and high-pay service industries (Professional, Scientific and Technical Activities, Information and Communication, and Financial and Insurance Activities).

Figure 1.16. Low-pay industries are lagging behind in the recovery

Average percentage change in employment by industry across selected OECD countries, Q1 2022 relative to Q1 2019



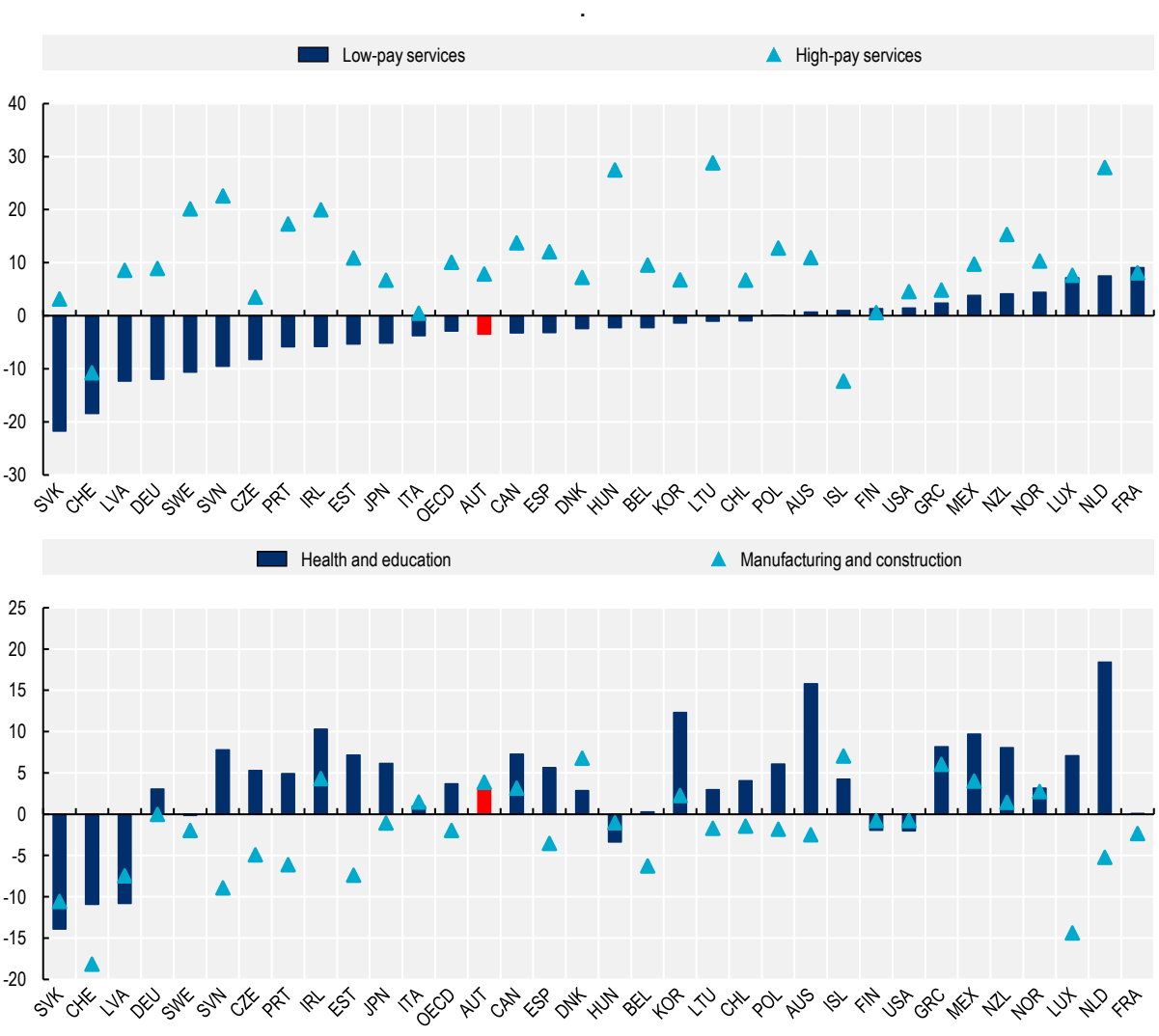
Note: The figure reports the unweighted average of the percentage change in employment by industry relative to Q1 2019. Industries are ranked by the median wage in 2019 in the European Structure of Earnings Survey (SES). The ranking of industries is broadly consistent when 2019 data on median wages from the Current Population Survey of the United States are used. Average of Australia, Austria, Belgium, Canada, Chile, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Japan, Korea, Latvia, Lithuania, Luxembourg, Mexico, New Zealand, Norway, Poland, Portugal, the Slovak Republic, Spain, Slovenia, Sweden, Switzerland, the Netherlands, and the United States. Data for Slovenia are not included in the computation of the change in employment for Real Estate Activities due to data anomalies. The United Kingdom is not included due to anomalies in the data. See the main text for a discussion of the statistical break that occurred in the series provided by Eurostat in Q1 2021.
Source: EU-LFS for European countries, Canadian LFS, ENOE and ETOE for Mexico, ENE for Chile, Statistics Bureau of Japan (Labour Force Survey), Statistics Korea (Economically Active Population Survey), Australian Bureau of Statistics, Statistics New Zealand.

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Employment gains in high-pay service industries and losses in low-pay services were widespread across countries (Figure 1.17). Indeed, high-pay service industries gained employment in 31 of the 33 countries for which data are available, with particularly large changes in the Netherlands, Hungary and Lithuania. Employment in low-pay service industries was below pre-pandemic levels in 21 countries, with the largest falls seen in the Slovak Republic, Switzerland, and Latvia. The loss of employment in manufacturing and construction was also widespread (22 countries) and particularly large in Switzerland,[28] Luxembourg, Slovenia, and the Slovak Republic.

Figure 1.17. Employment gains in high-pay services and losses in low-pay services are widespread across countries

Percentage change in employment for selected groups of industries, Q1 2022 to Q1 2019



Note: The figure reports percentage change in employment relative to relative to Q1 2019 for selected industries: Low-pay service industries (Accommodation and Food Service Activities, Administrative and Support Service Activities, Arts, Entertainment and Recreation, Wholesale and Retail Trade, and Transportation and Storage), Health and Education, Manufacturing and Construction, and high-pay service industries (Professional, Scientific and Technical Activities, Information and Communication, and Financial and Insurance Activities). OECD indicates the unweighted average of the countries shown. The United Kingdom is not included due to anomalies in the data.
See the main text for a discussion of the statistical break that occurred in the series provided by Eurostat in Q1 2021.
Source: EU-LFS for European countries, CPS, Canadian LFS, ENOE and ETOE for Mexico, ENE for Chile, Statistics Bureau of Japan (Labour Force Survey), Statistics Korea (Economically Active Population Survey), Australian Bureau of Statistics, Statistics New Zealand.

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Given the lack of timely and internationally comparable data on workers' transitions, there is no simple way to assess the extent to which these differences in employment performances across sectors are associated with significant reallocation of workers across industries (possibly through unemployment spells).[29] The few studies that have looked into cross-industry transitions for specific countries report mixed results. Rottger and Weber (2021[12]) find an increase in transitions to other industries for workers who had lost employment in accommodation and food services in Germany towards the end of 2020, but not at the time of the first lockdown in the spring of the same year. In April 2021, Aaronson et al. (2021[29]) found no increase in the United States – a country that relied on temporary layoffs rather than job retention schemes – in the probability that unemployed workers move to new industries, nor an indication of an increase in direct flows from heavily impacted industries towards healthier ones. Similarly, in the United Kingdom – where a new job retention scheme was used massively to preserve jobs (OECD, 2021[1]) – Brewer et al. (2021[30]) found that even as job-to-job transitions reached a record high in Q3 2021, the fraction of such transitions occurring across industries was actually the lowest since the early 2000s. They also found no increase in the share of workers who had changed industry within a given year (including through intermediate unemployment spells) which had remained stable at around 5% since 2014. Basso et al. (2021[31]) use data from before the pandemic from Italy to highlight that, because of their skill profile, workers in the hardest-hit sectors have little reallocation potential if demand for in-person services remains depressed. In France, thanks to the massive use of the country's job retention scheme, the number of workers leaving the accommodation and food services between the months of February 2020 and 2021 increased only marginally relative to the years before (DARES, 2021[32]).

The limited evidence of cross-sectoral transitions highlights the risk of growing mismatches in the labour market if the differential employment performance across industries persists. The growth in long-term unemployment might be a symptom of these developments (Section 1.2.1), but there are also indications of a particularly strong growth in labour demand in recent times in industries that have been lagging behind, at least in some countries (Section 1.2.2). While this strong growth might have been somewhat tamed by the Omicron wave affecting many OECD countries in late 2021 and early 2022, the broad trends suggest that these industries might recover some of the lost ground if the general epidemic and economic situation continues to progress towards increasing normalisation. Indeed, as discussed in Section 1.2.2, labour supply – rather than structural changes in labour demand – is likely to have slowed down the recovery of these industries in recent times. Aaronson et al. (2021[29]) observe that much of the disequilibrium in the United States labour market is driven by the severe impact of the crisis on accommodation and food services, expressing scepticism that the crisis might permanently set back a sector that has steadily grown over the past 70 years.

In addition to the possible reallocation of employment across industries, the pandemic might also have seen reallocation of employment within industries towards firms better equipped to withstand the pandemic shock. Indeed, there is some evidence of employment reallocation among small businesses towards high-productivity and tech-savvy firms despite the deployment of new job retention schemes in Australia, New Zealand and the United Kingdom (Andrews, Charlton and Moore, 2021[33]). This type of reallocation – especially when occurring on a large scale over a short period of time – can also present challenges for workers if the type of labour demanded by expanding firms is different from that normally employed in the same industry. In this context, a concern is that labour demand might have shifted towards more highly skilled workers who might be better equipped to deal with the new changes in the workplaces. Again, timely and internationally comparable evidence on this is hard to come by. A first tentative exploration of the data available on the education level of new hires across countries reveal no clear increase in the share of workers with higher education hired in different industries compared to the years immediately before the COVID-19 pandemic. Nevertheless, changes might take more time to appear clearly in aggregate data, or they might affect workers with different skills within the same educational groups. Monitoring the evolution of the demand for different types of skills is an important task for future research that can help inform policies aimed at supporting workers that stand to lose from these potential transformations.

1.4. Much of the initial very unequal impact of the crisis has been re-absorbed, but some vulnerable groups lags behind in the recovery in many countries

The highly sectoral nature of the crisis has meant that some groups of workers shouldered the bulk of the burden when the crisis broke out. OECD (2021[1]) documented how low-paid workers, those with lower education and young people paid a high and more persistent price during the crisis over the course of 2020. As the pandemic continued to shape employment dynamics across industries in 2021, different groups of workers have benefitted to different extents from the unexpectedly robust recovery described in Section 1.2.[30]

1.4.1. Young people have recovered some of the lost ground but are still lagging behind, especially in some countries

Young people were particularly affected by the initial ravages of the crisis (OECD, 2021[1]). Youth unemployment in the OECD surged at the onset of the pandemic, and hours worked by young people fell by more than 26% – close to double the fall seen among prime-aged and older workers (15%).

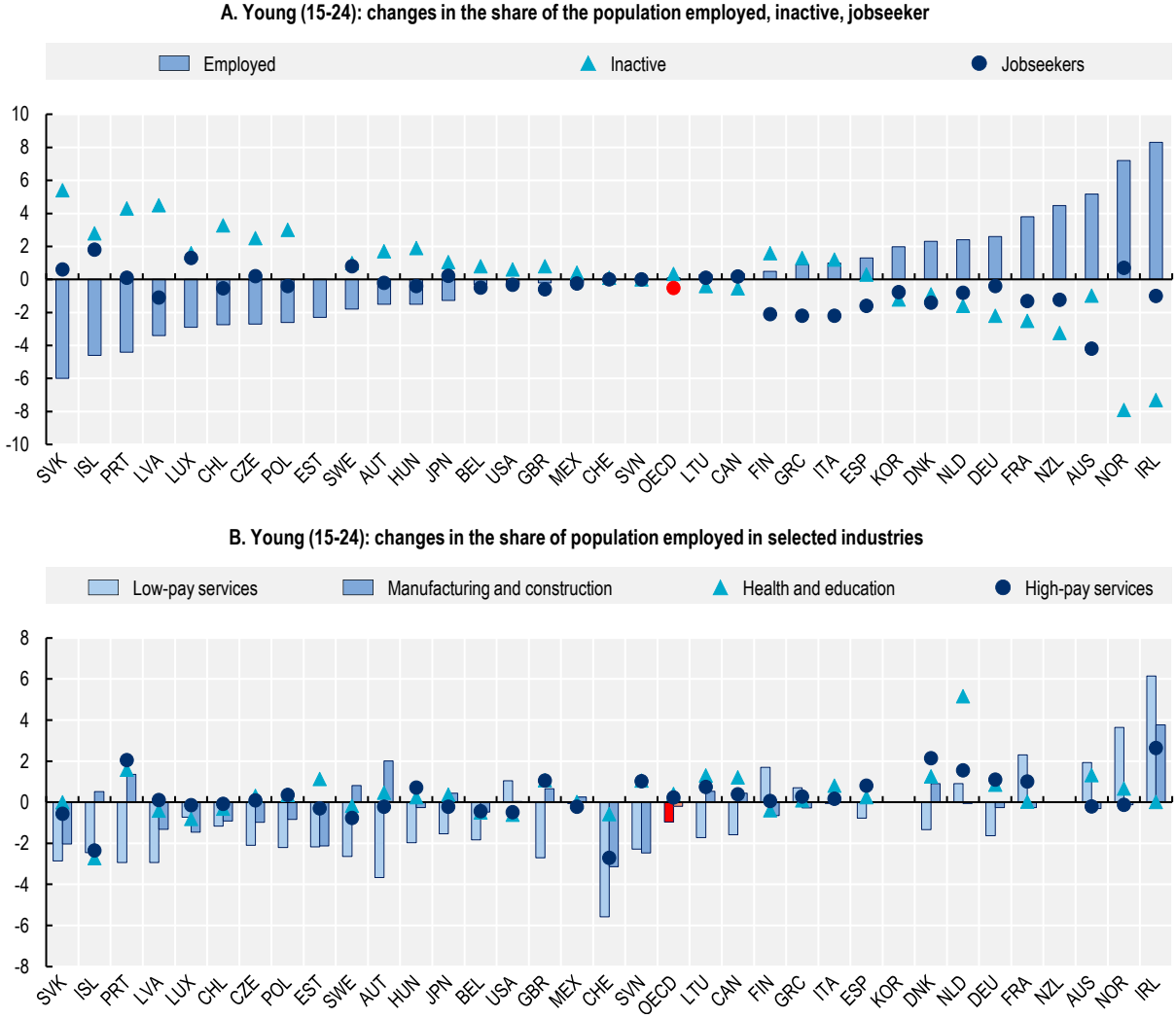
At the start of 2022, on average across the OECD, young people had recovered much of the lost ground, but were still lagging behind older adults. Indeed, on average across the OECD the youth employment rate was 0.1 percentage points above its pre-crisis levels (as measured by employment rates in Q1 2019), but remained below that level in over half the countries by an average of 2.2 percentage points (Panel A of Figure 1.18). By contrast, the employment rate for workers aged 25 to 54 years was on average 1 percentage points higher than before the crisis and still recovering only in eight countries. Among those aged 55 to 64, the employment rate was 3 percentage points higher than before the crisis and lagging behind only in five countries.

In the countries where the employment rate of young people was still below pre-crisis levels, this was mostly associated with an increase in inactivity rather than unemployment. Declines in the employment rate of young people exceeded 2 percentage points in nine countries, and exceeded 4 percentage points in Portugal, Iceland, and the Slovak Republic. In the 15 countries where youth employment grew above pre-crisis levels, this mostly resulted in a decline in inactivity. Employment rates were above pre-crisis levels by 3.5 percentage points or more in France, New Zealand, Australia, Norway, and Ireland.

The large declines in youth employment are mostly accounted for by losses of employment in low-pay service sectors and to a lesser extent in manufacturing and construction (Panel B of Figure 1.18). While results vary across the 15 countries where the employment of young people increased, on average the broad industry groups that contributed the most to these gains were health and education, low-pay services and high-pay services.

Figure 1.18. Youth employment recovered much of the ground lost at the start of the crisis, but is still lagging behind that of older adults

Percentage point changes in shares of total youth population (aged 15-24 years) only, Q1 2022 relative to Q1 2019



Note: The figure reports changes in the number of employed, inactive and unemployed jobseekers (Panel A), as well as changes in the number employed in selected industries (Panel B) as a fraction of total youth population (aged 15-24 years) relative to Q1 2019. Changes in Panel A sum up to zero for each country-group providing an indication of the shifts of the distribution of the youth population across different labour market states. Changes in Panel B do not sum to the net employment change reported in Panel A because they refer only to selected industries. Selected industries: Low-pay service industries (Accommodation and Food Service Activities, Administrative and Support Service Activities, Arts, Entertainment and Recreation, Wholesale and Retail Trade, and Transportation and Storage), Health and Education, Manufacturing and Construction, and high-pay service industries (Professional, Scientific and Technical Activities, Information and Communication, and Financial and Insurance Activities). OECD indicates the unweighted average of the countries included. Data on unemployment and inactivity are missing for Estonia, which is therefore excluded from the OECD average for those two outcomes. This implies that the changes in employment, inactivity and jobseekers do not add up exactly to zero due to the small difference in the countries included. See the main text for a discussion of the statistical break that occurred in the series provided by Eurostat in Q1 2021.

Source: EU-LFS for European countries, CPS, UK LFS, Canadian LFS, Statistics Bureau of Japan (Labour Force Survey), ENOE and ETOE for Mexico. ENE for Chile, Statistics Korea (Economically Active Population Survey), Australian Bureau of Statistics, Statistics New Zealand.

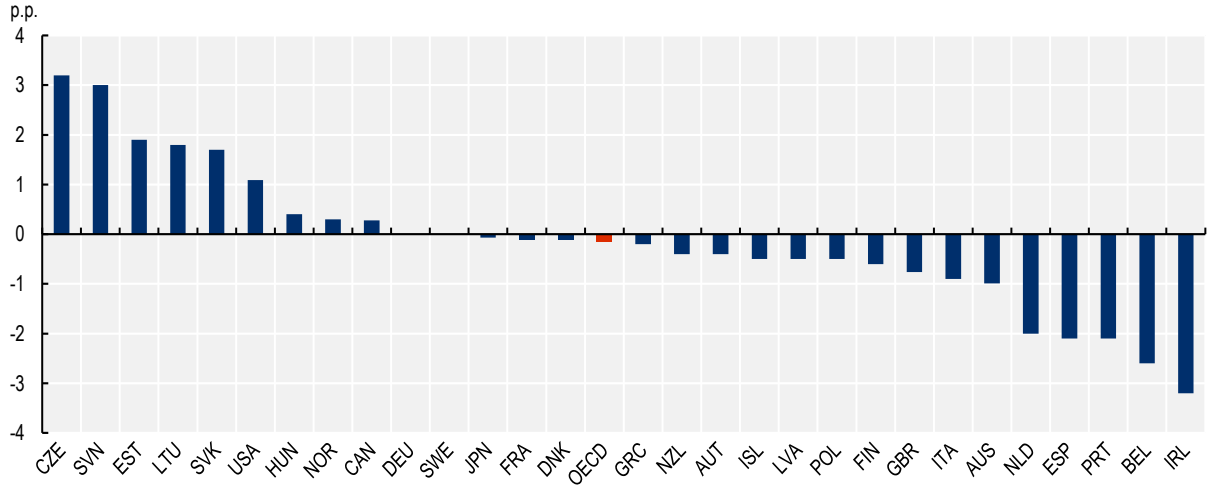
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The share of young people not in employment, education or training (NEET) in Q1 2022 was below its Q1 2019 level by 0.2 percentage points on average (Figure 1.19), having re-absorbed the increase seen at the beginning of the crisis to return to historically low levels (OECD, 2021[1]). This average across 29 countries, however, conceals large cross-country differences and results from declines in 18 countries and increases in 11. Increases in excess of 1.5 percentage points were recorded in the Slovak Republic, Lithuania, Estonia, Slovenia and the Czech Republic.

The declines in NEET rates in 19 countries are in contrast with the increases seen at the start of the crisis – driven by the sudden large drop in job search – but are consistent with evidence of increasing engagement in education during periods of labour market difficulties (Carcillo et al., 2015[34]). Indeed, for some countries – like Spain, Portugal, Belgium and the United Kingdom – the differences between changes in overall inactivity (Figure 1.18) and those in NEET rates (Figure 1.19) suggest that the increase in overall inactivity is explained by an increase in the number of young people in education.

Figure 1.19. Change in NEET rate

Percentage point change, 15-24 years old, Q1 2019 -Q1 2022



Note OECD: average of the countries shown.
Source: OECD calculations based on EU LFS; UK Office for National Statistics (Labour Force Survey); Australian Bureau of Statistics; Statistics Canada (Labour Force Survey),Statistics Bureau of Japan (Labour Force Survey), Statistics New Zealand and US Current Population Survey.

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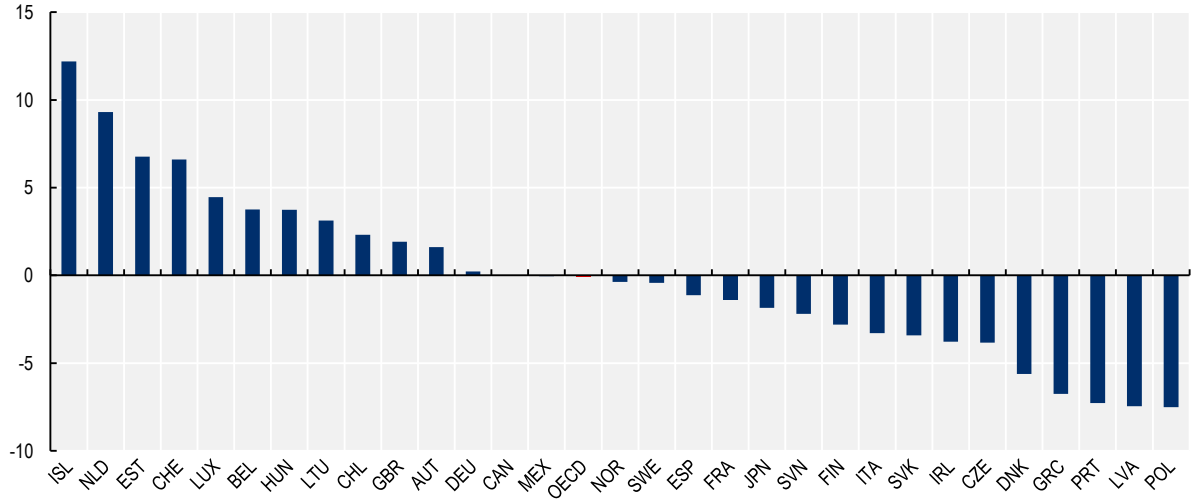
The continuing disadvantage of young workers in some countries is particularly concerning in light of the large body of evidence pointing to particularly significant scarring effects for them. Even in many of the countries where employment has picked up, young people are more likely than older workers to have experienced periods of joblessness over the course of 2020. Studies have found large and persistent reductions in earnings for young people who enter the labour market in a typical recession in the United States, Canada, and Australia (Altonji, Kahn and Speer, 2016[35]; Oreopoulos, von Wachter and Heisz, 2012[36]; Andrews et al., 2020[37]). The scarring effects are particularly significant for lower skilled youth (Kroft, Lange and Notowidigdo, 2013[38]; Altonji, Kahn and Speer, 2016[35]) and might extend to health and well-being (Garrouste and Godard, 2016[39]). High-skill workers might take up lower-skill jobs during a downturn – which might lead to skill depreciation and negatively impact their ability to move to higher skill jobs over time. However, evidence from France suggests that the negative effect of entering the labour market during a recession is short-lived, pointing to a potential important role of labour market institutions – and in particular of the minimum wage (Gaini, Leduc and Vicard, 2013[40]). An important focus of future

analysis will be to monitor the evolution of the quality of the jobs held by the young workers who have been affected by the COVID-19 shock.

One possible concern is a further increase in the incidence of temporary contracts among young people from already high levels (34% in Q1 2019 across the 30 countries in Figure 1.20), as many firms deal with the protracted uncertainty surrounding the health and economic situation and young people struggle to find alternative options. However, the share of young people on temporary contracts was similar in Q1 2022 and Q1 2019 on average across the 30 countries with available data (Figure 1.20). This represented a rebound as the incidence of temporary contracts declined at the beginning of the crisis when workers on such contracts were more likely to lose their job (OECD, 2021[1]).[31] There is no indication that employment growth for young people was linked to an expansion of temporary contracts, as the correlation between the changes in the two indicators was very weak across countries.

Figure 1.20. The share of young people on temporary contracts has returned to pre-crisis levels on average

Percentage point changes in share of employees on temporary contracts, young (15-24) only, Q1 2022 relative to Q1 2019



Note: The figure reports changes in the number of fixed-term contracts as a fraction of the employed population relative to Q1 2019. OECD indicates the unweighted average of the countries included. For Eurostat countries, all the employment series were affected by a statistical break in Q1 2021 – see main text for a discussion. This figure uses uncorrected series provided by Eurostat.
Source: EU-LFS for European countries, UK LFS, Canadian LFS, ENOE and ETOE for Mexico, ENE for Chile, Statistics Bureau of Japan (Labour Force Survey).

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The pandemic has been particularly disruptive for young people well beyond its immediate labour market impact. Although international evidence is still developing, there is some indication that the pandemic had negative effects on learning outcomes of children in schools (Thorn and Vincent-Lancrin, 2021[41]) and particularly so for children from more disadvantaged backgrounds, at least in the United States (Dorn et al., 2021[42]). These facts may have longer-term implications for the labour market outcomes of the young people affected. Many work-based learning and apprenticeship opportunities, which can help smooth school-to-work transitions, have been disrupted, while many young people are experiencing financial insecurity, housing instability and mental health issues. Among the youth, those bearing the brunt of the crisis are those who were already facing difficult circumstances prior to the pandemic (OECD, 2021[43]).

Among older adults, employment is close to pre-pandemic levels in most countries

As the risks linked to COVID-19 grow with age, the pandemic brought the concern that older adults might choose to leave work earlier in large numbers. Two years since the on-set of the pandemic, this prediction has not come to pass as employment rates for the 55-to-64 and 65-to74 age groups are back to or above pre-pandemic levels in most countries (Annex Figure 1.A.3). In particular, for the age group 55-to-64, the share in employment was up 3 percentage points in Q1 2022 relative to the same quarter of 2019 on average across the OECD. Employment rates were above or only slightly below pre-crisis levels in 29 of the 34 countries with available data. For the 65-to-74 age group, the employment rate was 0.1 percentage points above its pre-pandemic level on average across countries, and above that level in 26 of 34 countries. Exceptions to these trends included Chile, Mexico, the United States and the United Kingdom (for the 55-64 age group only) – where employment rates for these age groups were still below pre-crisis levels in Q1 2022. Data for these countries show that the lower employment rate was mostly associated with an increase in inactivity rather unemployment. Inactivity figures for these older groups are not readily available for the majority of the other countries considered here due to a break in the series affecting all European countries, but the overall result on employment is highly suggestive that these countries have not seen significant increases in inactivity rates for older adults.

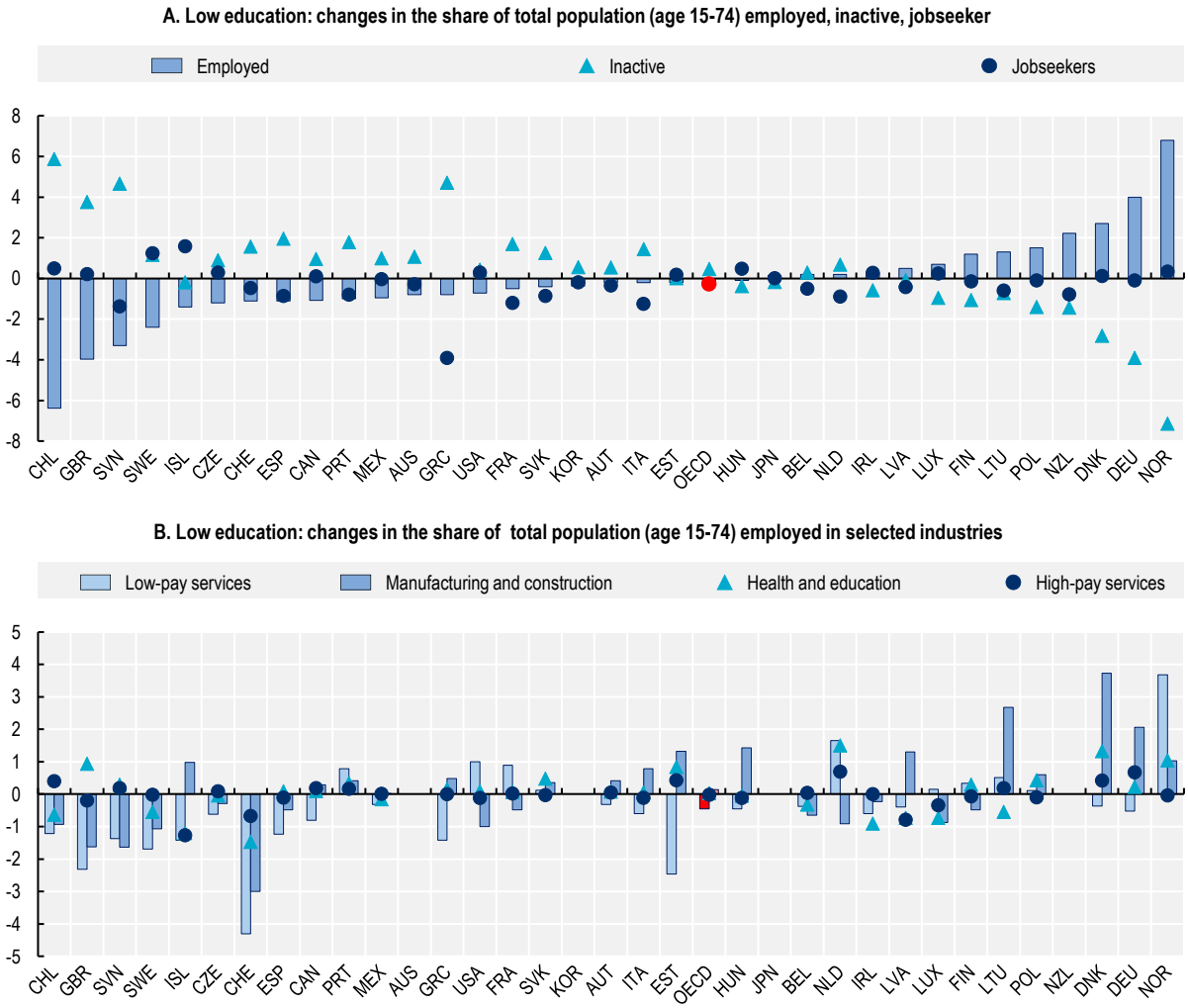
1.4.2. Workers without tertiary education continue to lag behind in the recovery

The initial impact of the crisis differed dramatically across education groups (OECD, 2021[1]). The initial reduction in hours was more than double for workers with low and medium education compared to those with higher education. The contraction in hours worked among the low educated was also more frequently experienced through losses of employment. In fact, already in the second half of 2020, hours worked for those with high education had returned to pre-crisis levels and employment had even begun to increase, while hours and employment remained heavily depressed for workers with less education (OECD, 2021[1]).

By Q1 2022, on average across 34 OECD countries, the employment rate of people with tertiary education was above its Q1 2019 level by 0.4 percentage points, while that for people with low and medium education were still down by 0.3 percentage points (Figure 1.21) and 0.2 percentage points (Annex Figure 1.A.2) respectively. These changes are quite significant for workers with less than tertiary education, as their employment rates are typically much lower than those of the highly educated. Indeed, on average across the countries considered, the pre-crisis employment rates for those with low and middle education were 37% and 64% respectively, against a much higher 78% for the high educated.

Figure 1.21. Employment of people with low education is lagging behind

Percentage point changes in shares of total population (age 15-74), low education only, Q1 2022 relative to Q1 2019



Note: The figure reports changes in the number of employed, inactive and unemployed jobseekers (Panel A), as well as changes in the number employed in selected industries (Panel B) as a fraction of total population (age 15-74) relative to Q1 2019. Following the International Standard Classification of Education, low education comprises lower secondary education or less, medium education includes upper secondary education and post-secondary non-tertiary education, and high education is referred to as short-cycle tertiary education or more. Changes in Panel A sum up to zero for each country-group providing an indication of the shifts of the distribution of the total population (age 15-74) across different labour market states. Changes in Panel B do not sum to the net employment change reported in Panel A because they refer only to selected industries. Selected industries: Low-pay service industries (Accommodation and Food Service Activities, Administrative and Support Service Activities, Arts, Entertainment and Recreation, Wholesale and Retail Trade, and Transportation and Storage), Health and Education, Manufacturing and Construction, and high-pay service industries (Professional, Scientific and Technical Activities, Information and Communication, and Financial and Insurance Activities). OECD indicates the unweighted average of the countries included. See the main text for a discussion of the statistical break that occurred in the series provided by Eurostat in Q1 2021.

Source: EU-LFS for European countries, CPS, UK LFS, Canadian LFS, Statistics Bureau of Japan (Labour Force Survey), ENOE and ETOE for Mexico. ENE for Chile, Statistics Korea (Economically Active Population Survey), Australian Bureau of Statistics, Statistics New Zealand.

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Employment rates among people with low education were down in 21 countries with respect to pre-crisis levels, mostly in association with an increase in the share of inactive people. The largest falls in employment for the low educated were recorded in Chile, the United Kingdom and Slovenia. Net employment losses were driven primarily by reductions in low-pay service sectors and in manufacturing and constructions.

By contrast, in 13 other countries, the proportion of low educated people in employment increased by an average of 1.7 percentage points. This was mostly the result of a reduction in inactivity, while the share of jobseekers generally remained in line with pre-crisis levels in these countries. In the countries with largest increase in employment for the low educated (Norway, Germany, and Denmark), this was mostly the result of growth in manufacturing and construction and in health and education – as in general low educated people did not benefit from the growth of high-pay service sectors.

Results for people with medium education are qualitatively similar to those reported for the low educated (Annex Figure 1.A.2). Indeed, employment rates for the middle educated were below pre-crisis levels by an average of 1.1 percentage points in 21 countries, mostly in the context of rising inactivity rather unemployment. The employment fortunes of the middle educated were largely determined by changes in low-pay service industries, manufacturing and construction.

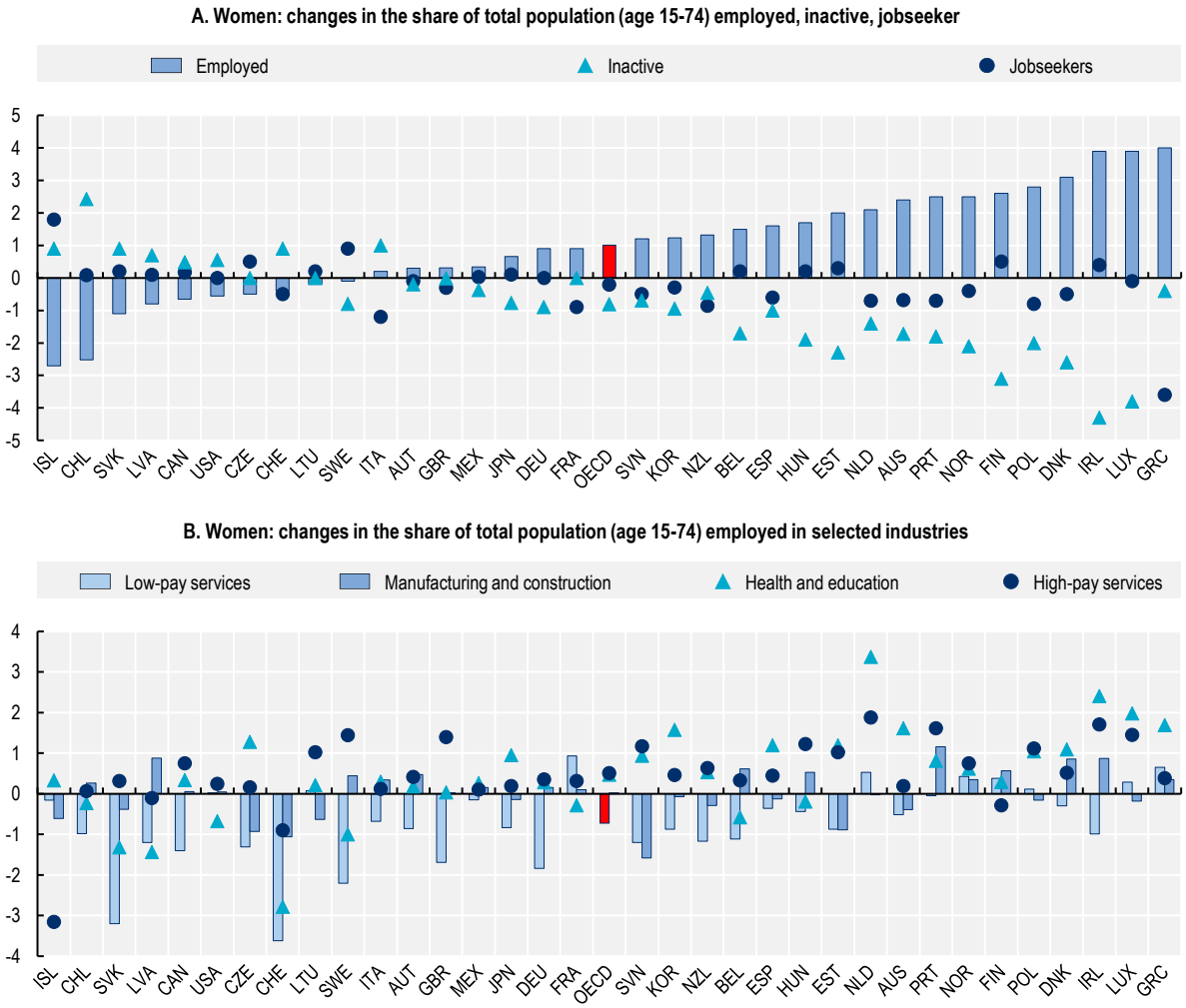
1.4.3. After the initial hard blow, women's employment has progressively improved over the crisis despite the increased burden of unpaid care work

The initial impact of the pandemic was felt more strongly among women than men across the majority of OECD countries, but already in the second half of 2020 women's employment had recovered some of the lost ground relative to men in most countries (OECD, 2021[1]).

By Q1 2022, the proportion of women in employment was 1 percentage point higher than two years earlier on average across the 30-four countries considered (Figure 1.22), with most of the gains accruing from a reduction in inactivity. Over the same period, the proportion of men in employment increased by 0.1 percentage points – resulting in a narrowing of the gender employment gaps (Figure 1.23). Overall, between Q1 2019 and Q1 2022, the employment gap between men and women declined in 23 of the 34 countries considered. Reflecting the general strengthening of the relative position of women, unemployment and inactivity gaps (measured as the difference between men and women) improved in 16 and 26 countries respectively – though this resulted in an average increase (of 0.7 percentage points) across all countries considered only for the inactivity rate, while cross-country average unemployment gap edged down by 0.1 percentage points (Figure 1.23).

Figure 1.22. Women's employment recovered strongly after the initial hard blow in 2020

Percentage point changes in shares of total population (age 15-74), women only, Q1 2022 relative to Q1 2019



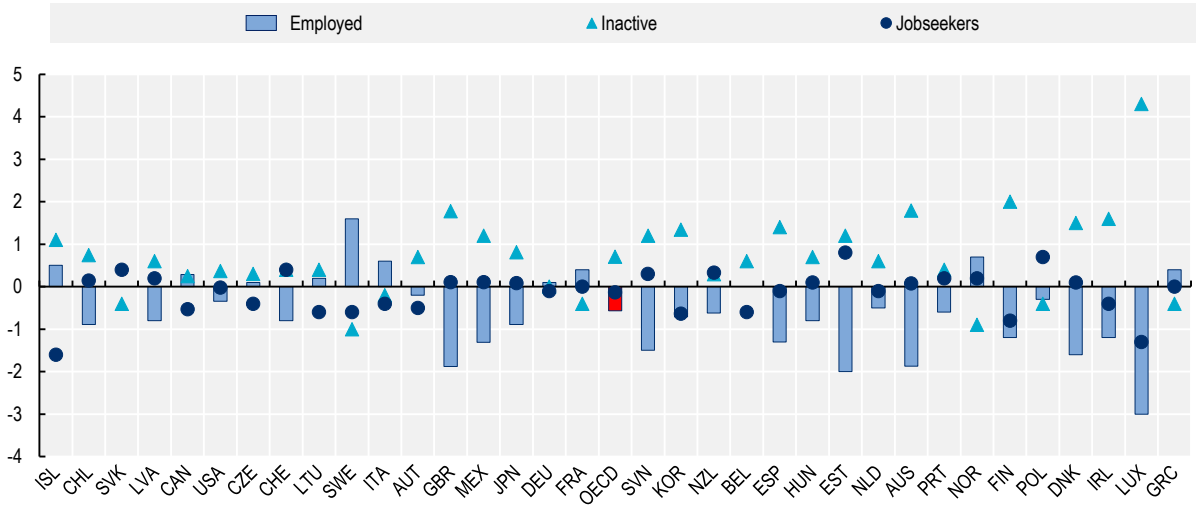
Note: The figure reports changes in the number of employed, inactive and unemployed jobseekers (Panel A), as well as changes in the number employed in selected industries (Panel B) as a fraction of the total population (age 15-74) relative to Q1 2019. Changes in Panel A sum up to zero for each country-group providing an indication of the shifts of the distribution of the total population (age 15-74) across different labour market states. Changes in Panel B do not sum to the net employment change reported in Panel A because they refer only to selected industries. Selected industries: Low-pay service industries (Accommodation and Food Service Activities, Administrative and Support Service Activities, Arts, Entertainment and Recreation, Wholesale and Retail Trade, and Transportation and Storage), Health and Education, Manufacturing and Construction, and high-pay service industries (Professional, Scientific and Technical Activities, Information and Communication, and Financial and Insurance Activities). OECD indicates the unweighted average of the countries included. See the main text for a discussion of the statistical break that occurred in the series provided by Eurostat in Q1 2021.

Source: EU-LFS for European countries, CPS, UK LFS, Canadian LFS, Statistics Bureau of Japan (Labour Force Survey), ENOE and ETOE for Mexico. ENE for Chile, Statistics Korea (Economically Active Population Survey), Australian Bureau of Statistics, Statistics New Zealand.

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Figure 1.23. Over the course of the crisis, labour market outcomes for women have improved relative to those of men in most countries

Changes in the gender gap in labour market outcomes between Q1 2019 and Q1 2022. All outcomes measured as proportion of total population (age 15-74). Countries ranked by changes in the proportion of women in employment



Note: Countries are ranked by changes in women's employment rate as in Figure 1.22. OECD indicates the unweighted average of the countries included. See the main text for a discussion of the statistical break that occurred in the series provided by Eurostat in Q1 2021.
Source: EU-LFS for European countries, CPS, UK LFS, Canadian LFS, Statistics Bureau of Japan (Labour Force Survey), ENOE and ETOE for Mexico. ENE for Chile, Statistics Korea (Economically Active Population Survey), Australian Bureau of Statistics, Statistics New Zealand.

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The average results for women conceal some variation across countries. In ten countries employment for women was down by an average of 1 percentage points. The lower employment levels mostly derived from increases in the proportion of inactive women rather than unemployed. Employment losses were mostly driven by falls in low-pay service industries and health and education. While the share of women in high-pay service industries in these countries was generally stable and sometimes increased, the gains were too modest to offset the losses in other industries.

In the other 24 countries, women's employment was up by an average of 1.8 percentage points, mostly driven by falls in inactivity. The employment progress for women in these countries was largely driven by gains in high-pay service industries and health and education and – in some countries – manufacturing and construction.

Over the course of the crisis, women have shouldered the bulk of the burden from the increase in unpaid care work

These labour market developments took place in a context that laid bare the negative consequences of longstanding gender gaps and norms around caregiving (OECD, 2021[44]). The OECD *Risks that Matter* (RTM) 2020 survey reveals that when schools and childcare facilities closed, mothers took on the brunt of the additional unpaid care work – and, correspondingly, they experienced labour market penalties and stress (OECD, 2021[45]). Mothers of children under age 12 were far more likely to report they took on the majority or entirety of the extra care work than fathers (61.5% vs 22.4%). They were also the group most likely to lose employment at the start of the crisis on average across OECD countries. Studies on the United States also point to a slower recovery than average for mothers with young children (Furman, Kearney and Powell, 2021[46]; Shibata and Pizzinelli, 2022[13]) – especially those with lower education

(Goldin, 2022[47]). By contrast, however, in the United Kingdom the employment rate of women appears to have grown quickly above pre-crisis levels over the course of 2021 (Shibata and Pizzinelli, 2022[13]).

The distribution of unpaid work remained unequal even when mothers were in paid employment. Consistently with existing literature (Hupkau and Petrongolo, 2020[48]; Del Boca et al., 2020[49]), the results of the RTM survey also show that non-employed mothers took up a disproportionate amount of unpaid household work when fathers were employed, but the relationship was not reciprocated where the father was out of work and the mother employed (OECD, 2021[45]). Goldin (2022[47]) finds that in the United States the proportion of total parental childcare hours born by the mother increased substantially (from levels already well above 50%) compared to pre-crisis levels in households where both the woman and the man are employed and have tertiary education.

Public supports may have helped to lessen gender inequality at home. The gap in the distribution of additional care of children during COVID-19 was smaller in countries with historically higher levels of spending on family supports (OECD, 2021[44]) and in a number of countries that have introduced job retention schemes, or specific care leaves, women have been able to request to move to reduced hours to avoid being pulled from the labour market by home schooling and care responsibilities (OECD, 2021[1]) – see also Chapter 2.

The labour market implications of the increased burden from unpaid care work over the past two years might reveal themselves over a longer period of time. Indeed, increased caregiving responsibilities might lead women to move to part-time work, stay away from assignments with more responsibilities or search for jobs with more flexibility or a shorter commute. These choices often translate into slower wage growth – through limiting the pool of jobs, weaker bargaining power and greater exposure to monopsony (see Chapter 3) and scarcer opportunities for promotion once *in situ* – see e.g. (OECD, 2018[50]) and Chapter 4. An important focus for future research will be to monitor the evolution of different dimensions job quality for women to highlight potential sources of gender differentials that might reveal themselves over time.

1.4.4. Across the OECD, migrants have recovered the ground lost at the start of the crisis

The COVID-19 crisis struck after a decade of progress for migrants in the labour market. In all OECD countries except Türkiye and Colombia, which had seen large inflows of refugees, immigrants became more successful in finding and keeping jobs over five years before the crisis, although they were still lagging behind native-born in most countries (OECD, 2021[51]). The crisis hit migrants particularly hard due to their sectoral concentration causing a fall in employment and an increase in inactivity in Q2 2020 that was larger than for the native-born in most OECD countries – leading to a temporary widening of the employment gap between the two groups in many countries (OECD, 2022[52]).

There is also evidence that migrants were disproportionally affected by job losses within the sectors. For example, at the onset of the crisis, in the EU27, the number of migrants employed in hospitality dropped by nearly 15% between 2019 and 2020, compared with 12.5% for the native-born. In the United States, the fall in employment in domestic services was respectively 28% for migrants compared with 12% for the native-born (OECD, 2021[51]). Auer (2022[53]) finds that, in Germany, migrants were less likely to be placed on job retention schemes than native-born at the start of the crisis. Yet, patterns are not uniform across countries: for example, Hijzen and Salvatori (2022[54]) find no significant differences in the risk of losing employment or being placed on a job retention scheme between foreign-born and native-born in Switzerland.

By Q1 2022, the labour market situation of migrants across OECD countries had considerably improved. Indeed, on average across 28 countries, the share of migrants with a job was above its Q1 2019 level by 1.2 percentage points, while both the share in inactivity and unemployment had declined

(by -0.9 percentage points and -0.3 percentage points respectively) (Figure 1.24). For the native-born, the employment rate was 0.3 percentage points above its Q1 2019 level (Annex Figure 1.A.4), implying that the average employment gap between the two groups had narrowed relative to just before the crisis (Figure 1.25). However, this average result masks some variation across countries. In fact, in nine of the 28 countries the employment gap between natives and foreign born increased (by an average of 1.9 percentage points), with particularly large changes in Latvia, Lithuania and Estonia.

In seven of the 28 countries considered, migrants' employment was still below pre-crisis levels in Q1 2022 by an average of 2.9 percentage points (Panel A in Figure 1.24) – mostly associated with an increase in inactivity. The fall in migrants' employment was over 2 percentage points in four countries, and exceeded 4 percentage points in Latvia and Lithuania. In most of the countries where migrants' employment was still down in Q4 2021, employment had not fully recovered for the native-born either, but the deficit was generally larger for migrants, resulting in a widening of the employment gap between the two groups by 1.9 percentage points on average (Figure 1.25).

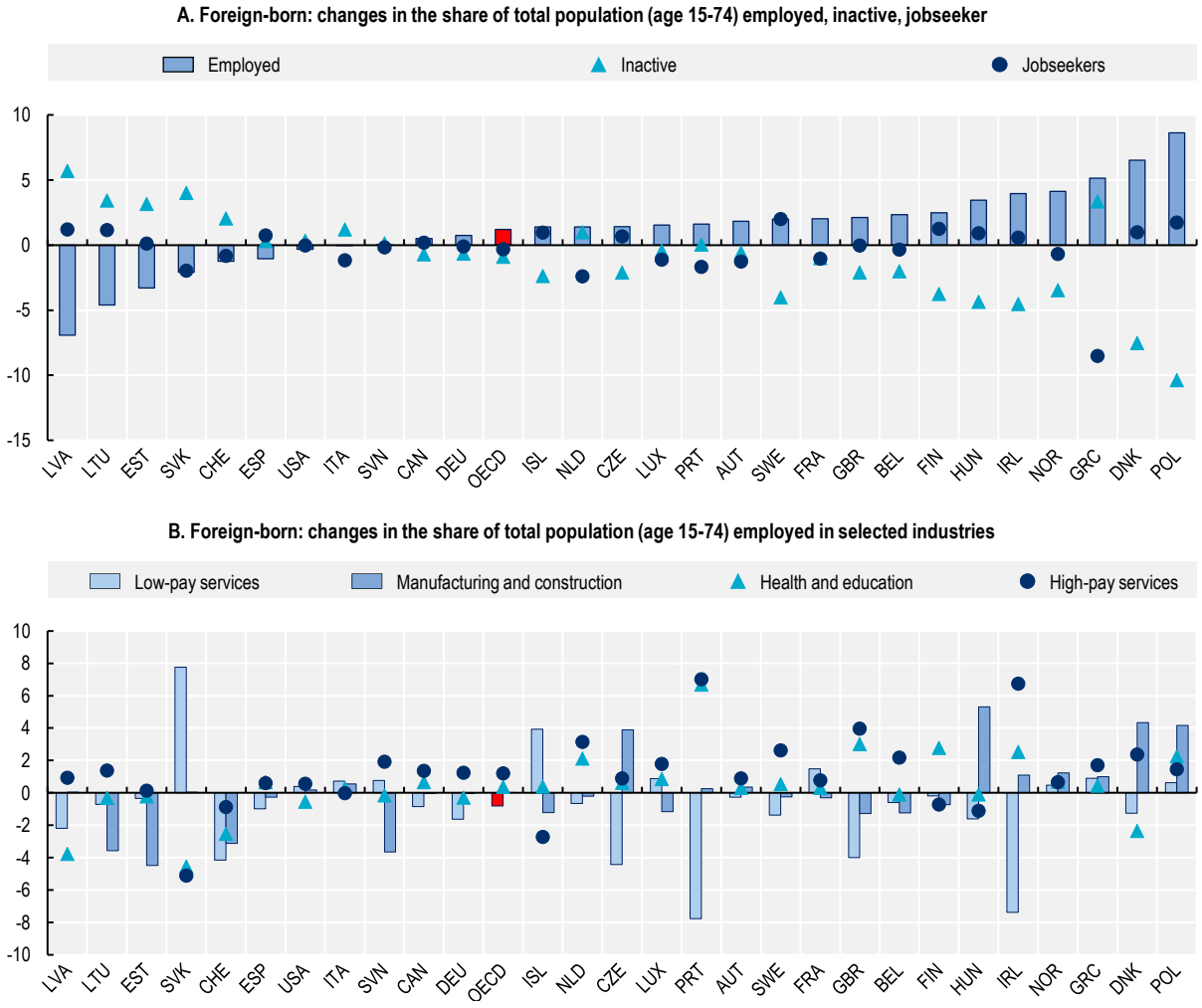
In the other 21 countries, the proportion of migrants in employment was up by about 2.5 percentage points in Q1 2022 relative to the same quarter of 2019 – mostly as a result of a reduction in inactivity (-2 percentage points). To some extent this is due to a change in the composition of the pool of migrants due to selective departures and arrivals during the pandemic – as migrants without employment were more likely to leave and those who arrived were more likely to already have a job (OECD, 2021[51]).[32] However, in most of these countries inactivity decreased among the native-born as well (and therefore in the whole population – see Figure 1.7). Inactivity can decline in a recovery when the improvement of the labour markets activates previously discouraged workers. The increase in the proportion of migrants in employment exceeded 2 percentage points in 11 countries and was above 5 percentage points in Greece, Denmark, and Poland. On average across the 21 countries where the proportion of migrants in employment was higher than before the crisis, the employment gap with the native-born declined by 1.8 percentage points (Figure 1.25).

The share of migrants in low-pay services contracted in most countries. In the countries where their employment increased above pre-crisis levels, this was the result of employment growth in the other sectors – particularly in Health and Education. However, migrants also appear to have benefitted in many countries from the expansion of high-pay services (Panel B in Figure 1.24).

A recovery characterised by a significant amount of reallocation of employment across industries and occupations poses significant challenges for all workers who face the need to reskill to find viable new jobs. These difficulties are compounded for migrants. They are more likely to be affected by the need for reallocation due to their lower tenure and less stable contract situation, among other issues. At the same time, migrants typically have fewer networks to facilitate transitions to different jobs (OECD, 2020[55]; OECD, 2021[51]).

Figure 1.24. Migrants' employment has generally improved, but remains below pre-crisis levels in some countries

Percentage point changes in shares of total population (age 15-74), foreign-born only, Q1 2022 relative to Q1 2019

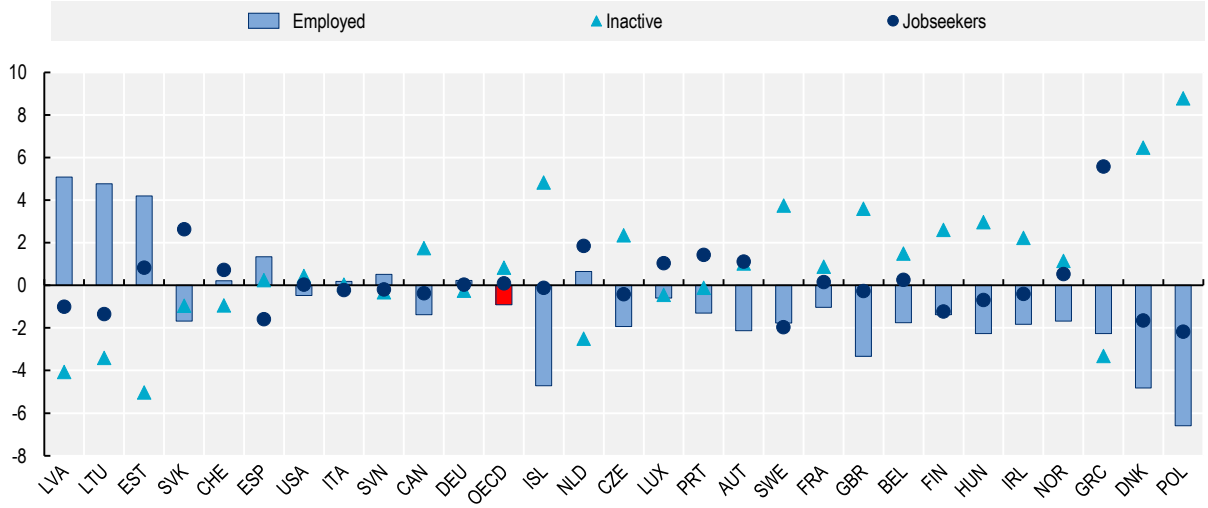


Note: The figure reports changes in the number of employed, inactive and unemployed jobseekers (Panel A), as well as changes in the number employed in selected industries (Panel B) as a fraction of the total population (age 15-74) relative to Q1 2019. Changes in Panel A sum up to zero for each country-group providing an indication of the shifts of the distribution of the total population (age 15-74) across different labour market states. Changes in Panel B do not sum to the net employment change reported in Panel A because they refer only to selected industries. Selected industries: Low-pay service industries (Accommodation and Food Service Activities, Administrative and Support Service Activities, Arts, Entertainment and Recreation, Wholesale and Retail Trade, and Transportation and Storage), Health and Education, Manufacturing and Construction, and high-pay service industries (Professional, Scientific and Technical Activities, Information and Communication, and Financial and Insurance Activities). OECD indicates the unweighted average of the countries included. See the main text for a discussion of the statistical break that occurred in the series provided by Eurostat in Q1 2021.
Source: EU-LFS for European countries, CPS, UK LFS, Canadian LFS.

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Figure 1.25. On average across OECD countries, the employment gap between the native born and the foreign born has narrowed since the start of the COVID-19 crisis

Changes in the native-born vs foreign-born gap in labour market outcomes between Q1 2019 and Q1 2022. All outcomes measured as proportion of total population (age 15-74). Countries ranked by changes in the proportion of foreign-born in employment



Note: the figure reports the changes in the gaps between native-born and foreign born in various labour market outcomes. For example, a positive number for the employment values indicates that the employment rate of natives has increased relative to that of foreign-born. Countries are ranked by changes in foreign-born's employment rate as in Figure 1.24. OECD indicates the unweighted average of the countries included. See the main text for a discussion of the statistical break that occurred in the series provided by Eurostat in Q1 2021.
Source: EU-LFS for European countries, CPS, UK LFS, Canadian LFS.

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1.4.5. Racial/ethnic minorities have often been affected by the crisis disproportionally, and in some countries are they are recovering more slowly

Few OECD countries collect data or information on the labour market performance of racial/ethnic minorities, in some cases to avoid classifying individuals by race or ethnicity for historical reasons. Different to immigrants, racial/ethnic minorities have long been citizens of, or at least been rooted in, their country. There is not a simple definition of racial/ethnic minorities that fits all OECD countries. Racial/ethnic groups are most often characterised by a shared culture or other factors, including language or religion, as well as their physical appearance (for example skin colour) or the country of origin of their ascendants (Balestra and Fleischer, 2018[56])."

In the United States, the main racial/ethnic minorities were more affected by the initial impact of the crisis, and lagged behind in the recovery until December 2021. At the onset of the crisis in April 2020, the (seasonally adjusted) employment-to-population ratio fell by 13 percentage points for Hispanic/Latino people and 10.5 percentage points for Black people (Figure 1.26). For white people, the corresponding figure was 9.5 percentage points. Women and young people belonging to racial/ethnic communities in the United States were particularly hard hit by the pandemic, experiencing exceptionally high levels of unemployment, and slow employment gains in the recovery (OECD, 2021[57]).

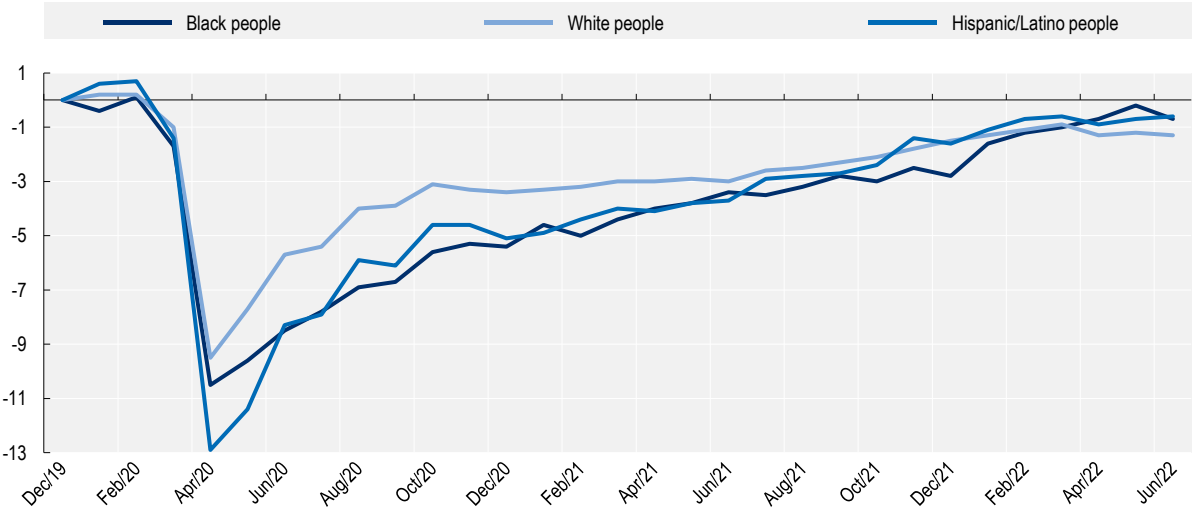
The higher likelihood of employment loss for racial/ethnic minorities was only partially explained by their sectoral and occupational concentration, i.e. minority workers were more likely to lose their employment than white workers in the same industries and occupations over the course 2020 (Cortes, Forsythe and Forsythe, 2021[58]). Indeed, more generally, observable characteristics can explain very little of the highly

persistent labour market disparities between Black people and white people in the United States (Cajner et al., 2017[59]).

Both Black and Hispanic/Latino people lagged behind white people for most of the recovery (Figure 1.26). In particular, relative to white people, employment losses for Hispanic/Latino people remained larger until Q3 2021 and those for Black people until Q1 2022 (1.3 percentage points against 1.1 percentage points). In the second quarter of 2022, the recovery of the employment-to-population ratio slowed down or even receded marginally for all groups. In June 2022, the figure was still below pre-crisis levels for all three groups, standing at 58.6% for Black people, 59.9% for white people and 63.7% for Hispanic/Latino people.

Figure 1.26. In the United States, Black and Hispanic/Latino people lagged behind white people for much of the recovery

Percentage point changes in the employment rate by racial/ethnic group, seasonally adjusted, relative to December 2019



Source: U.S. Bureau of Labor Statistics, Employment-Population Ratio – Black or African American [LNS12300006], Employment-Population Ratio – White [LNS12300003], Employment-Population Ratio – Hispanic or Latino [LNS12300009] retrieved from FRED, Federal Reserve Bank of St. Louis.

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In the United Kingdom, racial/ethnic minorities saw a larger increase in unemployment during the crisis and the differential had not returned to pre-crisis levels by early 2022.[33] The unemployment rate of minorities peaked at 9.8% in Q4 of 2020, with an increase of 4 percentage points (1.1 for white people) relative to a year before. After the peak, the unemployment rate for white people declined slowly but steadily, while that for minorities plateaued in the second half of the year. By the first quarter of 2022, the unemployment rate for minorities stood at 7.1% and that for white people at 3.1%, with a differential 0.5 percentage points larger than in the same quarter of 2019 (ONS, 2021[60]).

In Latvia and Estonia employment of racial/ethnic minorities fell more as the crisis hit and was still lagging behind in 2021. In particular, in Latvia the annual employment rate of minorities stood at 57.1% – 3.7 percentage points lower in 2021 than in 2019 – against a gap of -1.4 percentage points for the large ethnic group. In Estonia, the employment rate of the racial/ethnic minority stood at 63.1% in Q4 2021 – or 2.5 percentage points lower than in the same quarter of 2019, against a drop of 1.1 percentage points for the larger group.[34]

In Australia, Indigenous people were more exposed to the initial shock of the pandemic due to the relatively high levels of casual employment and the relatively young age profile of their population. The high incidence of casual employment among them also meant that Indigenous Australians were less likely to qualify for the Australian job retention scheme (JobKeeper) (Mindaroo Foundation, 2021[61]). Further research is needed to assess the longer-term implications of this shock to Indigenous employment.

In some countries, however, racial/ethnic minorities saw significant improvements in their labour market outcomes over the recovery. In Denmark, employment of descendants from other countries – who are often second (or higher) generation migrants – fell more as the crisis hit in 2020, but by early 2021 it had recovered relative to that of persons of Danish origin. In New Zealand, racial/ethnic minorities have benefitted from the recovery more than people of European origin, the largest racial/ethnic group in the country.[35] Indeed, employment rates of Maori and Pacific people were respectively 1.4 percentage points and 2.6 percentage points higher in Q4 2021 than in Q4 2019, while the corresponding figure for Europeans was 0.7 percentage points. Nevertheless, the employment rate remains higher for Europeans at 69.5%, against 64.8% for Maori and 63.5% for Pacific people. The employment gains were mostly linked to a reduction in unemployment for the Maori and in inactivity for the Pacific people. The significant decline in inactivity for Pacific people reduced the corresponding gap with the Europeans from 5.5 percentage points to 4.1 percentage points, with the respective rates standing at 32.8% and 28.7 in Q4 2021.

In Canada, employment recovery among Indigenous people was initially slower, but more recently, the employment rate among Indigenous people surpassed its pre-pandemic level, reducing the gap previously seen between Indigenous and non-Indigenous people.[36] As of the three months ending in August 2021, the employment rate among Indigenous people was 57.7% against its pre-pandemic level of 56.2% (the three months ending in February 2020). Among non-Indigenous people, it reached 61.2%, a level similar to the pre-pandemic rate. However, employment recovery among older Indigenous adults (55 or older) since the fall of 2021 was much weaker compared with Indigenous youth and core-aged adults. Also, employment recovery has been slightly slower among First Nations, especially First Nations women whose unemployment rate was still much higher (15.5%) in the quarter ending with August 2021 than its pre-pandemic level (4.8%).

1.5. The crisis has drawn attention to the low quality of many frontline jobs

While the crisis has had a significant impact on the life of many through loss of income or employment, it has also deeply affected the experience of many who remained employed throughout the crisis. Some were able to quickly adapt the organisation of their work and carry out their tasks from home. For a large multitude, however, teleworking was never an option. Many workers involved in the delivery of essential goods and services had to continue to work in their physical workplace and in proximity of other people through the various waves of the pandemic. Indeed, the pandemic has highlighted the extent to which society depends upon these “frontline workers”. This section offers a characterisation of these workers and of their experience during the pandemic.

Some studies have attempted to identify frontline workers using ad-hoc lists of “essential” workers who were exempts from restrictions in different countries (Basso et al., 2022[62]; Blau, Koebe and Meyerhofer, 2021[63]), the. Typically frontline workers are identified as the subset of essential workers in industries or occupations that *before* the pandemic had a low-incidence of telework. This approach poses significant challenges in an international comparison because the definition of essential workers varies across – and even within – countries and over time.

This section takes a different two-step approach. First, following Basso et al. (2022[62]), the analysis uses Labour Force Survey data to describe the personal and job characteristics of workers in occupations, that, based on pre-pandemic information, could not be performed remotely and involved considerable interactions with other people. During the crisis, the group of workers employed in these occupations –

which is broader than that of frontline workers – was exposed to a higher risk of income losses (through reductions in hours or job losses) and, when they remained employed, to a higher risk of contagion. For this reason, and similarly to Basso et al. (2022[62]), these occupations are labelled here "at risk".[37]

The second step of the analysis exploits unique data from the Eurofound survey "Living, working and COVID-19" to identify the frontline workers who actually worked in their physical workplace and in close contact with other people *during* the pandemic.[38] While this survey lacks some of the personal and job information typically available in Labour Force Surveys (including occupation), it offers a range of well-being indicators that provide important insights on the experience of frontline workers during the pandemic.

1.5.1. Occupations involving a higher risk of COVID-19 infection employed more low-paid workers, young people, low educated, migrants and ethnic minorities

At the onset of the pandemic, across the OECD, 44% of workers were in "at-risk" occupations – those that, based on pre-pandemic information, could not be performed from home and required physical proximity to other people (Annex Figure 1.A.1). The figure ranges from 40% or less in Lithuania, Germany, the Czech Republic and Luxembourg, to 50% or more in the United States, Spain, Ireland and Greece. Examples of these occupations include health care workers, cashiers, personal care workers, food processing workers, building workers, and assemblers.

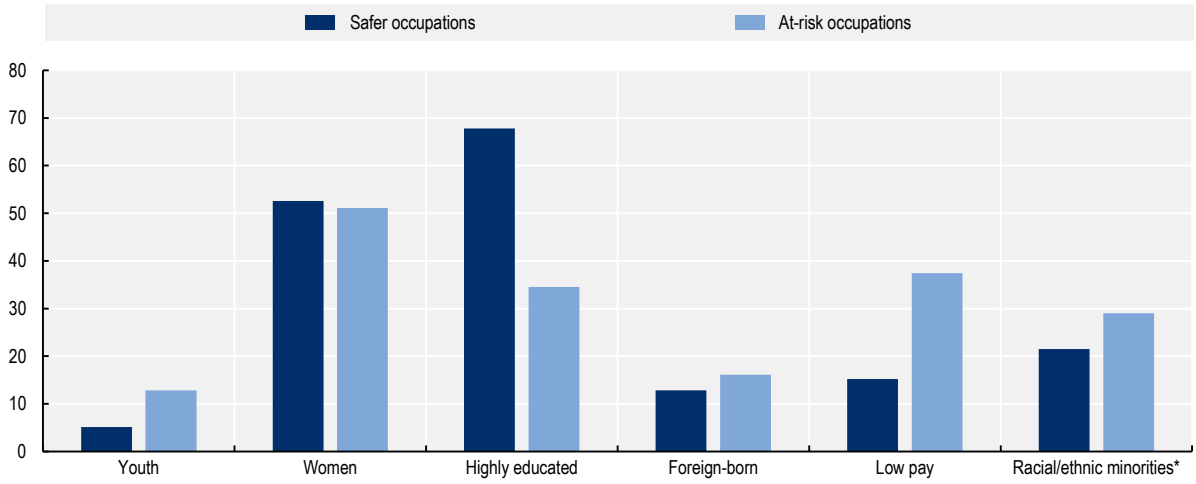
Compared to safer jobs that offered the possibility to telework already before the pandemic, in all countries these at-risk occupations employed more low-pay workers (37% vs 15%), more young workers (12% vs 5% on average across the OECD) and a much lower share of workers with tertiary education (on average 34% vs 67%) (Figure 1.27). Foreign-born workers also held a higher share of at-risk jobs than teleworkable ones in almost all countries (16% vs 13% on average), with the exceptions of Luxembourg and Portugal.

On average across countries the share of at-risk jobs held by women was slightly lower than that of teleworkable jobs (51% vs 53%), but the opposite held true in Finland, Sweden, Denmark, Norway, Switzerland, the United States, the Netherlands and the United Kingdom. In the United States and the United Kingdom, the only two countries where the information is available, ethnic minorities were disproportionally represented in at-risk jobs, although to a much larger extent in the United States than in the United Kingdom. In fact, in the United Kingdom, ethnic minorities held 14% of at-risk jobs and 12% of the teleworkable ones – while in the United States the respective figures were 44% and 31%.

In general, Labour Force Survey data do not allow to verify what proportion of workers in at-risk occupations actually continued to work in their physical workplace during the pandemic. An exception is the United States for which CPS data show that only 11% of workers in at-risk occupations who remained employed were able to telework in the second half of 2020. Other surveys show that the types of workers over-represented in at-risk occupations, such as those with lower qualifications and lower earnings, were much less likely to telework in a number of countries (Ker, Montagnier and Spiezia, 2021[64]; OECD, 2021[5]).

Figure 1.27. Occupations at higher risk of hours reductions or contagion during the pandemic employed more young people, low educated, foreign-born, racial/ethnic minorities and low-paid workers

Share of jobs in each group of occupations held by workers with given characteristics in Q4 2019



Note: Safer Occupations include jobs that, based on pre-pandemic information, could be done remotely. At-risk occupations include jobs that were typically not done remotely before the pandemic and involved a considerable level of physical proximity to other people. See Basso et al. (2022[64]), *Unsafe Jobs, Labour Market Risk and Social Protection* for details on methodology. Low-pay refers to share of workers who fall in the bottom three deciles of the overall wage distribution (for the United States and the United Kingdom) or the overall income distribution (for other European countries).The figure reports the unweighted average of Austria, Belgium, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Norway, Portugal, the Slovak Republic, Spain, Sweden, Switzerland, The Netherlands the United Kingdom, and the United States.,*Information about racial/ethnic minorities is available only for the United Kingdom and the United States.
Source: EU-LFS for European countries, CPS, UK LFS.

StatLink https://stat.link/m3zwp9

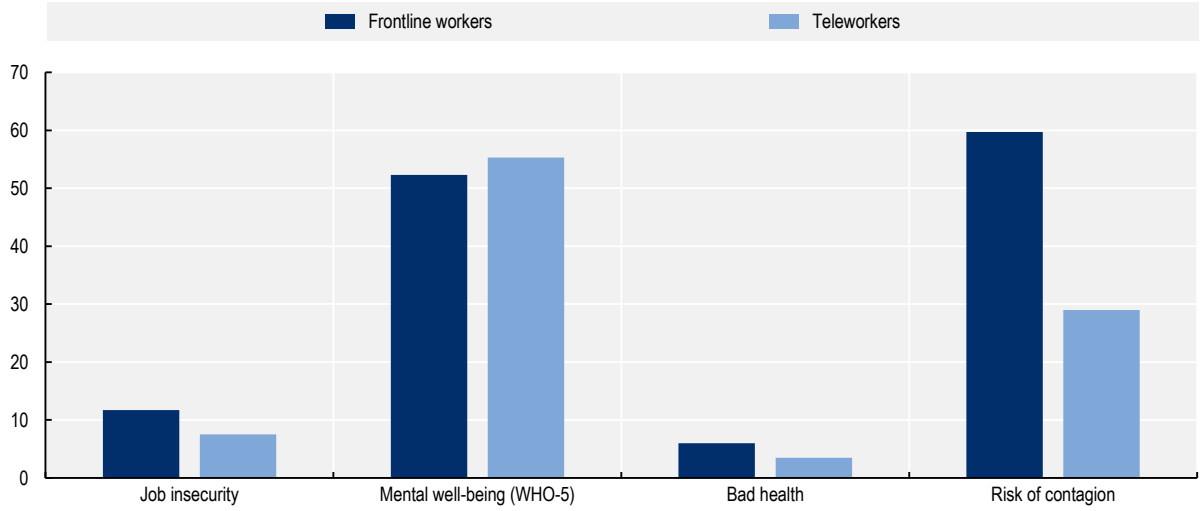
1.5.2. Frontline workers report lower job security, lower health and mental well-being and a much higher risk of contagion

To gather further information on the experience of at-risk workers during the pandemic, this section uses Eurofound data to identify the frontline workers who actually worked in their physical workplace and in close contact with other people *during* the pandemic. The demographic profile of these workers matches that of workers in at-risk occupations in the LFS data based on the characteristics available in both sources, suggesting that they are likely to be employed in the occupations identified in the LFS data. Indeed, both groups feature higher shares of younger workers and workers with lower levels of education, while the gender composition is in line with that of other jobs. In their work on the United States, Blau et al. (2021[63]) use a list of essential industries issued by the Federal Government and offer a very similar characterisation of the group except for the higher representation of men. They also find that migrants and racial/ethnic minorities are over-represented among frontline workers. While the Eurofound data do not provide information on these characteristics, minorities and migrants are over-represented in at-risk occupations in the United States and the United Kingdom, as noted above (Figure 1.27).

Frontline workers were more likely than teleworkers to feel that their job was insecure (12% vs 7%) and to report bad general health (6% vs 4%) (Figure 1.28). They also reported slightly lower levels of mental well-

being (53 vs 55) measured using the WHO-5 mental well-being scale (0-100 – with people with a score below 50 considered at risk of depression), based on the frequency of positive feelings over the previous two weeks (Eurofound, 2021[65]).

Figure 1.28. Frontline workers reported more job insecurity, lower overall health and mental well-being, and a much higher risk of COVID-19 infection



Note: Frontline workers are defined as those answering "Always", "Most of the time" or "Sometimes" to the question: "In your work, are you currently in direct physical contact with people (colleagues, customers, passengers, pupils, patients, etc.)?" and who do not report "home" as a location of work during the pandemic. Job insecurity refers to the share answering "Very likely" or "Rather likely" to the question: "How likely or unlikely do you think it is that you might lose your job in the next 3 months?". The WHO-5 mental well-being scale ranges from 0 to 100, with people with a score below 50 considered at risk of depression. The score is built from a battery of questions on the frequency of positive feelings over the previous two weeks (Eurofound (2021[65]), *Living, working and COVID-19 (Update April 2021): Mental health and trust decline across EU as pandemic enters another year)*. Bad health refers to the share answering "Bad" or "Very bad" to the question: "In general, how is your health?". Risk of contagion refers to the share answering "Yes" to the question "Do you think you are currently at risk of contracting the COVID-19 virus because of your job?". The figure reports the unweighted average of Austria, Belgium, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Poland, Portugal, the Slovak Republic, Slovenia, Spain, Sweden, and the Netherlands.
Source: Eurofound, "Living, working and COVID-19", https://doi.org/10.2806/467608.

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While it is certainly plausible that the pandemic might have exacerbated existing differentials in job security and well-being, the hypothesis cannot be tested due to the lack of comparable information for the same workers from before the pandemic. Whether or not the hypothesis holds, however, these results are consistent with the hypothesis that workers who are likely to have been on the frontline during the pandemic have lower quality jobs and well-being in general.[39]

Indeed, this is consistent with the conclusion reached by other studies that have considered other dimensions of job quality, despite differences in the definition of frontline workers. Amossé et al. (2021[66]) find that frontline workers in France have a (historically) higher risk of job loss and enjoy limited opportunities for career progression. Samek Lodovici et al. (2022[20]) find that, across Europe, frontline workers are more likely to be on temporary contracts and are over-represented in sectors – such agriculture, domestic care and road freight transport – where undeclared work is widespread. Low wages and poor job quality (including a high incidence of non-standard employment forms such as shift or temporary work) have been linked internationally to labour shortages in the long-term care sector, an

important “frontline” sector typically included in the list of essential ones across countries (OECD, 2020[67]). Chapter 3 shows that the labour markets of at-risk occupations tend to be more concentrated, thereby contributing to worsen job quality. Eurofound (2021[68]) finds that collectively agreed weekly working hours are longer than the EU average of 37.8 hours in sectors that have been considered essential in many European countries during the pandemic, reaching 39.2 hours in transport. Many frontline workers saw their working hours increase during the pandemic. For example, Finland, France, Italy, Luxembourg, Poland and Portugal, implemented provisions to extend working hours, limit rest periods and delay annual leave in the health care, transport and logistics sectors (Eurofound, 2021[68]).

Those workers who worked in their physical workplace and in proximity with other people certainly felt like they were on the frontline of the battle against COVID-19. Indeed, they were much more likely to feel at risk of contracting the COVID-19 virus because of their job than teleworkers (60% vs 29%) (Figure 1.28). Available evidence indicates that this was far from an exaggerated perception. In Italy, the COVID-19 work injuries claim process by the national Work Injury Insurance (INAIL) were strongly concentrated in at-risk occupations (Basso et al., 2022[62]). Similarly, sick leave claims increased at the same time as COVID-19 cases only in industries characterised by a high incidence of at-risk jobs. In the United Kingdom, those working in occupations requiring close proximity to others had higher COVID-19 death rates, with the highest rate found for men in elementary occupations (Windsor-Shellard and Nasir, 2021[69]). In the United States, workers in essential businesses were far more likely to test positive for COVID-19 – an effect that was not driven by health workers only (Song et al., 2021[70]).[40]

The higher risk of infection experienced by many frontline workers is likely influenced by a wider set of factors associated with their broader socio-economic situation (Windsor-Shellard and Nasir, 2021[69]). Low-income workers are more likely to live in crowded housing and with other people also employed in occupations with a higher risk of infection.[41] People experiencing poor working conditions are more likely to attend work while sick (Bryan, Bryce and Roberts, 2020[71]), a phenomenon observed even when paid leave sick is available but likely to be more pronounced in places with limited availability of such benefit.[42] When they get sick, people from low-income households report more difficulties accessing health care even in countries with near-universal access (OECD, 2019[72]). These difficulties are often compounded for migrants and undeclared workers (Samek Lodovici et al., 2022[20]).

In Q4 2021, almost two years after the onset of the pandemic, the share of workers employed in at-risk occupations was down by an average of 3.5 percentage points across the 27 countries with data available. The decline occurred in most countries and exceeded 10 percentage points in the Slovak Republic, Ireland, the United Kingdom, and Estonia. In part, the relative decline in the size of these occupations reflect the strong employment performance over this period of high-pay service industries that employ relatively few workers in these occupations (see Section 1.3). However, by drawing a spotlight on the existing working conditions of these occupations and increasing the risks associated with these jobs, the pandemic likely reduced the labour supply to these occupations, exacerbating labour shortages that already affected many of these occupations before the crisis, most notably in health care occupations (see Section 1.2). In fact, in most OECD countries, public employment services report experiencing greater difficulties in filling frontline job vacancies since the start of the COVID-19 pandemic (see Chapter 2).

1.6. Concluding remarks

More than two years since the abrupt start of the COVID-19 crisis, the recovery in economic activity has been stronger than many expected. The strength of that recovery is now threatened by the economic fallout of Russia’ aggression against Ukraine which is projected to slow down economic growth and continue feed inflation over the course of 2022.

European countries in particular face the immediate challenge of integrating the largest number of refugees since World War II into their labour markets. More than 6.5 million people have already been forced to flee Ukraine to other countries in Europe, and an even greater number have been displaced within the country. The refugee flows caused by the war will result in additional public expenditure in the short-term in host countries, although this will be offset over time as refugees enter the labour force. Recent experiences from various OECD countries provide valuable lessons to facilitate the labour market integration of refugees and to ensure that their skills do not remain idle for too long.

The impact of the war on energy, food, and commodity markets is adding to the significant inflationary pressures that had already emerged at the end of 2021 because of supply chain disruptions. The impact of rising inflation on real incomes is larger for lower-income households which have already borne the brunt of the COVID-19 crisis. Indeed, the increase in expenditure resulting from recent food and energy price increases represents a larger proportion of total spending for lower-income households, and those households have limited scope to offset this by drawing on savings or reducing discretionary expenditures (OECD, 2022[4]). These households disproportionally include low-pay workers who were more likely to have their income reduced during the COVID-19 crisis either through job loss or a reduction in hours worked (OECD, 2021[5]). Going forward, it is crucial to monitor closely the differential impact of inflation across household income levels.

Governments have a range of complementary policy tools available to cushion the impact of inflation on low-income households, including facilitating collective bargaining agreements, adjusting statutory minimum wages and the tax and benefit system, or implementing temporary energy bonuses (see Chapter 2 for a discussion of recent interventions by OECD governments).

Even before the new negative shock from the war in Ukraine, the labour market recovery from the COVID-19 crisis remained incomplete and uneven across countries. While some of the initial unequal impact of the crisis across workers has been reabsorbed, young people, and workers without tertiary education have been lagging behind in the recovery in many countries.

There is currently no indication of qualitative mismatches between supply and demand caused by the asymmetric impact of the crisis on different sectors. These mismatches could however emerge more clearly once the current vacancy tide affecting all industries withdraws. This chapter shows that industries that have expanded since the onset of the crisis are very different from industries that have seen employment fall. Furthermore, in addition to the pressures arising from changes that might have been triggered or accelerated by the pandemic per se, many countries intend to use their recovery plans to promote digitalisation and the transition towards a climate-neutral economy. These policies are likely to accelerate further structural transformations of the labour market which might also contribute to rising mismatches.

In this context, monitoring the evolution of skill demands and of labour market outcomes for different workers remain essential to ensure the fine-tuning and targeting of policies aimed at ensuring good matches between workers and jobs to promote an inclusive labour market.

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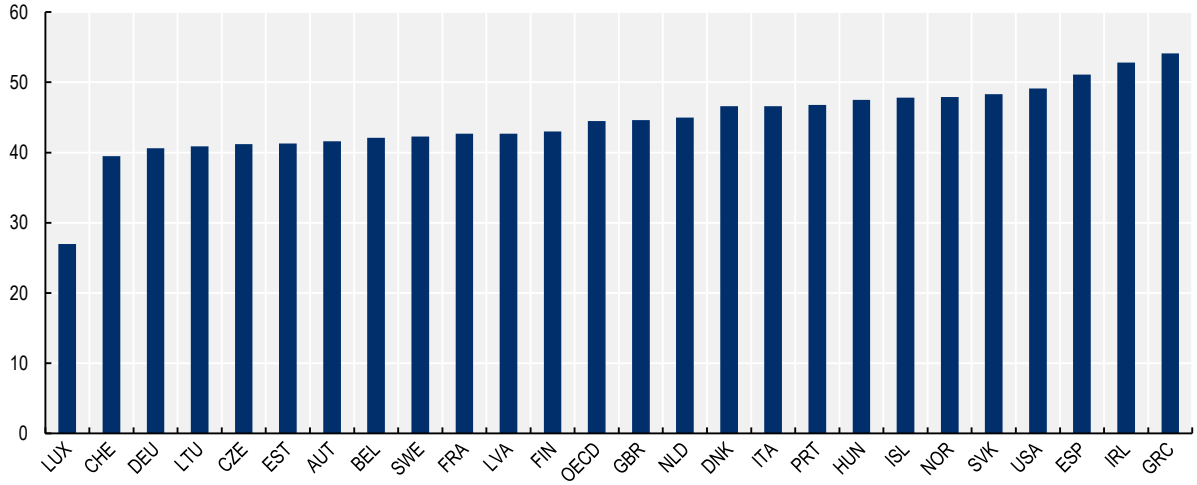
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Annex 1.A. Additional results

Annex Figure 1.A.1. Many workers are in jobs that cannot be done remotely and require physical proximity to others

Share of total employment accounted for by workers in occupations at-risk of COVID-19 infection, Q4 2019

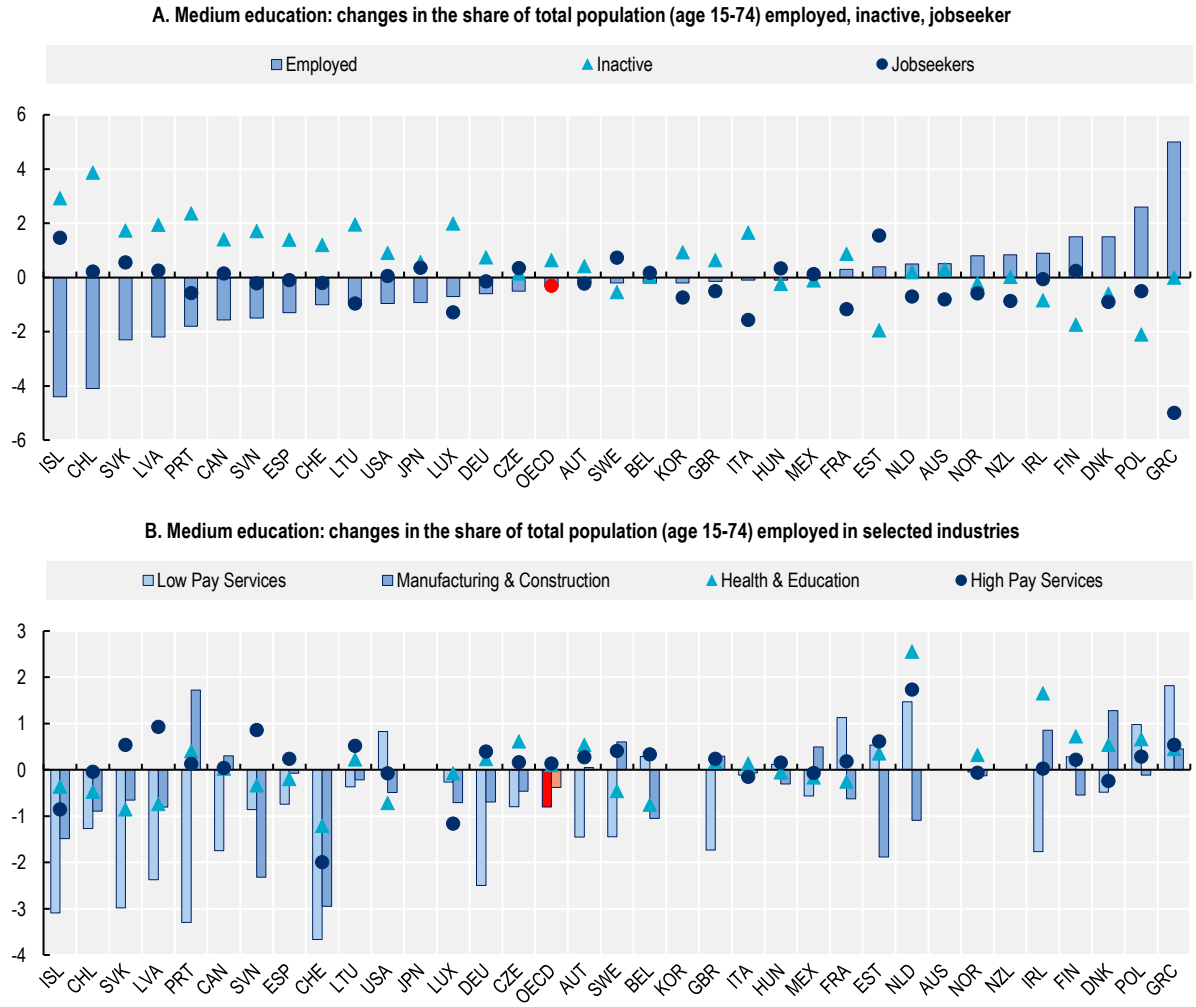


Note: At-risk occupations include jobs that were typically not done remotely before the pandemic and involved a considerable level of physical proximity to other people. See Basso et al., (2022[61]), *Unsafe Jobs, Labour Market Risk and Social Protection* for more details. OECD indicates the unweighted average of the countries included.
Source: EU-LFS for European countries, CPS, UK LFS.

StatLink https://stat.link/vf0tzr

Annex Figure 1.A.2. Medium education's employment is still below pre-crisis levels in half of the countries

Percentage point changes in shares of total population (age 15-74), low education only, Q1 2022 relative to Q1 2019



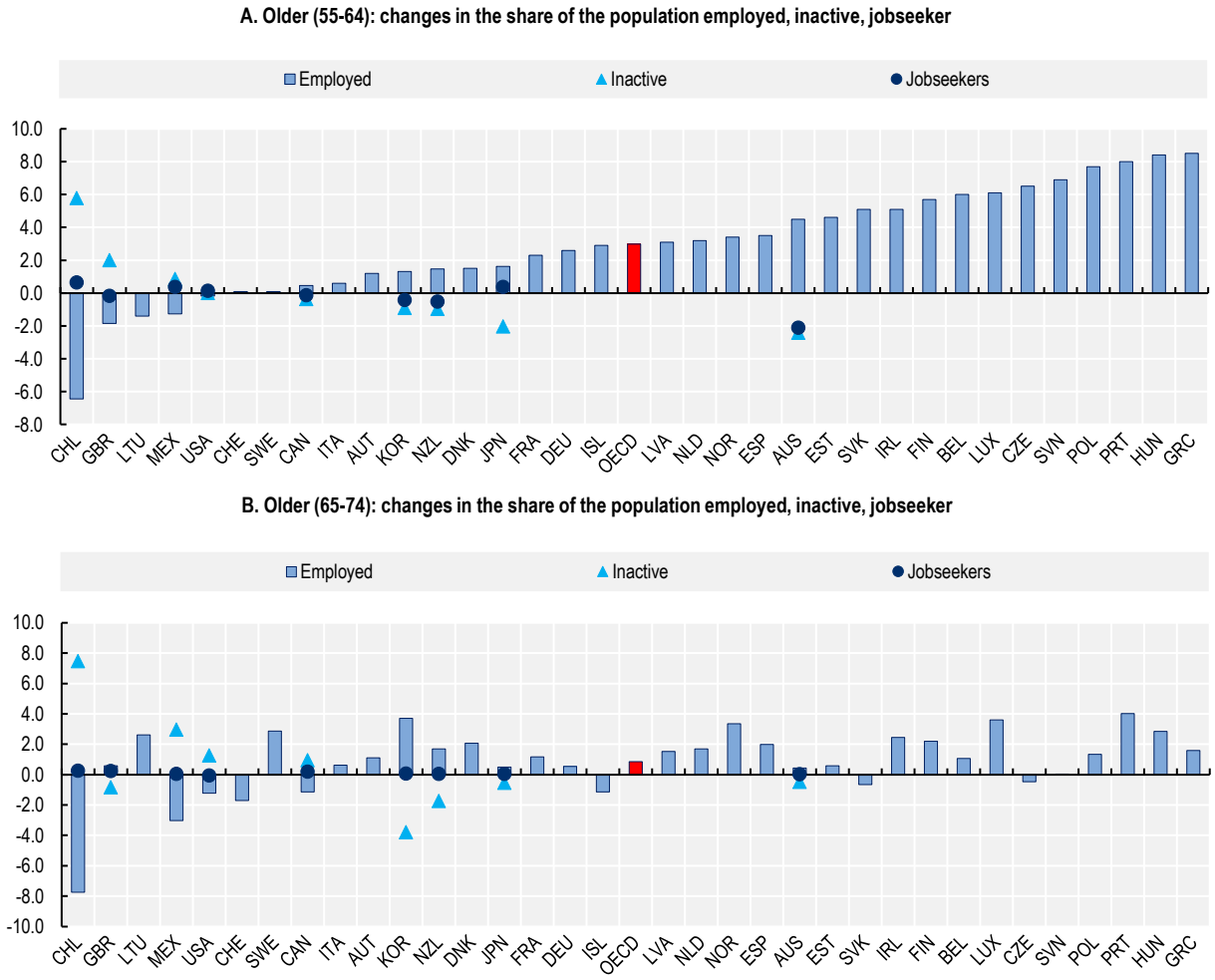
Note: The figure reports changes in the number of employed, inactive and unemployed jobseekers (Panel A), as well as changes in the number employed in selected industries (Panel B) as a fraction of the total population (age 15-74), relative to Q1 2019. Following the International Standard Classification of Education, low education comprises lower secondary education or less, medium education includes upper secondary education and post-secondary non-tertiary education, and high education is referred to as short-cycle tertiary education or more. Changes in Panel A sum up to zero for each country-group providing an indication of the shifts of the distribution of the total population (age 15-74), across different labour market states. Changes in Panel B do not sum to the net employment change reported in Panel A because they refer only to selected industries. Selected industries: Low-pay service industries (Accommodation and Food Service Activities, Administrative and Support Service Activities, Arts, Entertainment and Recreation, Wholesale and Retail Trade, and Transportation and Storage), Health and Education, Manufacturing and Construction, and high-pay service industries (Professional, Scientific and Technical Activities, Information and Communication, and Financial and Insurance Activities). OECD indicates the unweighted average of the countries included. See the main text for a discussion of the statistical break that occurred in the series provided by Eurostat in Q1 2021.

Source: EU-LFS for European countries, CPS, UK LFS, Canadian LFS, Statistics Bureau of Japan (Labour Force Survey), ENOE and ETOE for Mexico. ENE for Chile, Statistics Korea (Economically Active Population Survey), Australian Bureau of Statistics, Statistics New Zealand.

StatLink https://stat.link/vgqno1

Annex Figure 1.A.3. Changes in labour market outcomes for older people

Percentage point changes in shares of total population (age 15-74), Q1 2022 relative to Q1 2019



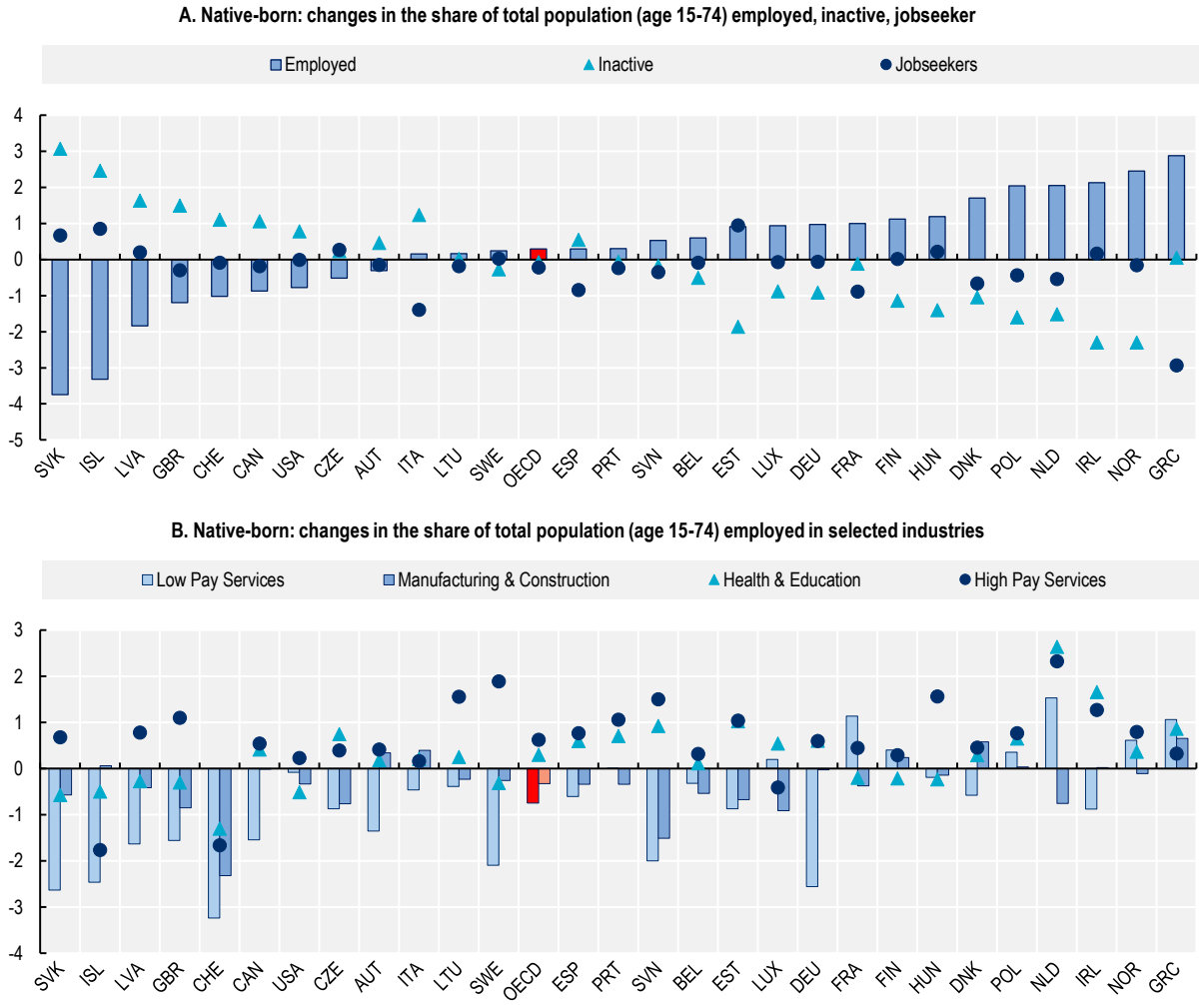
Note: The figure reports changes in the number of employed, inactive and unemployed jobseekers (Panel A) for people age 55-64 (Panel A) and 65-74 (Panel B) as a fraction of the population age 55-64 and 65-74 respectively relative to Q1 2019. Changes sum up to zero for each country-group providing an indication of the shifts of the distribution of the population across different labour market states. Changes in the shares of the population of inactive and jobseeker are not reported for European countries due to anomalies in the data. OECD indicates the unweighted average of the countries included. See the main text for a discussion of the statistical break that occurred in the series provided by Eurostat in Q1 2021.

Source: EU-LFS for European countries, CPS, UK LFS, Canadian LFS, Statistics Bureau of Japan (Labour Force Survey), ENOE and ETOE for Mexico. ENE for Chile, Statistics Korea (Economically Active Population Survey), Australian Bureau of Statistics, Statistics New Zealand.

StatLink https://stat.link/1ah4vf

Annex Figure 1.A.4. Labour market outcomes of the native-born

Percentage point changes in shares of total population (age 15-74), foreign-born only, Q1 2022 relative to Q1 2019



Note: The figure reports changes in the number of employed, inactive and unemployed jobseekers (Panel A), as well as changes in the number employed in selected industries (Panel B) as a fraction of the total population (age 15-74) relative to Q1 2019. Changes in Panel A sum up to zero for each country-group providing an indication of the shifts of the distribution of the total population (age 15-74) across different labour market states. Changes in Panel B do not sum to the net employment change reported in Panel A because they refer only to selected industries. Selected industries: Low-pay service industries (Accommodation and Food Service Activities, Administrative and Support Service Activities, Arts, Entertainment and Recreation, Wholesale and Retail Trade, and Transportation and Storage), Health and Education, Manufacturing and Construction, and high-pay service industries (Professional, Scientific and Technical Activities, Information and Communication, and Financial and Insurance Activities). OECD indicates the unweighted average of the countries included. See the main text for a discussion of the statistical break that occurred in the series provided by Eurostat in Q1 2021.
Source: EU-LFS for European countries, CPS, UK LFS, Canadian LFS.

StatLink https://stat.link/jb6x13

Annex 1.B. Adjustments to the breaks in Eurostat time-series

In 2021, Eurostat implemented a number of methodological changes to the way European Labour Force Survey data are collected and managed as well as some changes to the labour market status definitions. These changes have produced a break in the series for employment and unemployment provided by Eurostat in the first quarter 2021. In the spring of 2022, Eurostat released break-adjusted series for employment and unemployment and some demographic breakdowns. The methodology employed is described in Eurostat (2022[28]). Whenever possible, this chapter uses the recently released break-adjusted series. This is the case, for example, for aggregate employment and unemployment rates, as well as for the series by education, gender and age.

However, for some of the series used in this chapter, Eurostat has not provided the break-adjusted version. This is the case, for example, for employment by industry, employment and unemployment by country of birth and employment by industry and various demographic characteristics. In all these cases, the chapter uses adjusted series using a correction factor calculated exploiting the availability of both break-adjusted and non-break-adjusted series at a higher level of aggregation.

To illustrate the procedure, consider the case of employment by industry. In this case, a correction factor (for each country and quarter) is calculated by taking the ratio between the break-corrected aggregate employment and the uncorrected aggregate employment. The same correction factor is then multiplied by the (uncorrected) employment level of each industry in the relevant quarter. For example, to correct the employment level of a given industry in Q1 2019, the level of employment for that industry reported by Eurostat is multiplied by the ratio between the adjusted *total* employment in Q1 2019 and the unadjusted *total* employment in the same quarter.

A similar procedure is adopted for the other series used in this chapter. When the series of interest is expressed as a ratio, the correction factors are also computed from the uncorrected and corrected ratios. For example, for the series of the proportion of a given demographic population employed in a given industry (for example, the proportion of all women who work in Finance and Insurance), the correction factor is computed using the ratio between the corrected and uncorrected employment rate for that demographic group (continuing the example: the ratio between the adjusted and unadjusted fraction of women in employment).

Eurostat did not provide corrected series for employment by country of birth. The correction factor for the proportion of the foreign-born population in employment is computed as the ratio between the corrected and uncorrected employment rate for the whole population. The same correction factor is then applied to correct the series for employment by country of birth *by industry*.

The main limitation of this approach is the underlying assumption that the outcomes of the various groups to which the correction factor is applied were indeed affected in the same way by the break in the series. For example, in the case of the employment of women by industry, the procedure assumes that the proportional change in employment produced in the aggregate for women by the break also occurred in every single industry.

Annex 1.C. List of at-risk occupations

Annex Table 1.C.1. At-risk occupations according to the classification by Basso et al. (2022)

ISCO – 3 digits	ISCO name
131	Production Managers in Agriculture, Forestry and Fisheries
141	Hotel and Restaurant Managers
221	Medical Doctors
222	Nursing and Midwifery Professionals
223	Traditional and Complementary Medicine Professionals
224	Paramedical Practitioners
225	Veterinarians
226	Other Health Professionals
232	Vocational Education Teachers
234	Primary School and Early Childhood Teachers
312	Mining, Manufacturing and Construction Supervisors
313	Process Control Technicians
315	Ship and Aircraft Controllers and Technicians
321	Medical and Pharmaceutical Technicians
322	Nursing and Midwifery Associate Professionals
323	Traditional and Complementary Medicine Associate Professionals
324	Veterinary Technicians and Assistants
325	Other Health Associate Professionals
335	Government regulatory associate professionals
342	Sports and Fitness Workers
343	Artistic, Cultural and Culinary Associate Professionals
441	Other Clerical Support Workers
511	Travel Attendants, Conductors and Guides
512	Cooks
513	Waiters and Bartenders
514	Hairdressers, Beauticians and Related Workers
516	Other Personal Services Workers
522	Shop Salespersons
523	Cashiers and Ticket Clerks
524	Other Sales Workers
531	Child Care Workers and Teachers' Aides
532	Personal Care Workers in Health Services
541	Protective Services Workers
611	Market Gardeners and Crop Growers
622	Fishery Workers, Hunters and Trappers
632	Subsistence Livestock Farmers
634	Subsistence Fishers Hunters Trappers And Gatherers
711	Building Frame and Related Trades Workers
712	Building Finishers and Related Trades Workers
713	Painters, Building Structure Cleaners and Related Trades Workers
741	Electrical Equipment Installers and Repairers
742	Electronics and Telecommunications Installers and Repairers
751	Food Processing and Related Trades Workers
754	Other Craft and Related Workers
815	Textile, Fur and Leather Products Machine Operators

ISCO – 3 digits	ISCO name
821	Assemblers
832	Car, Van and Motorcycle Drivers
835	Ships' Deck Crews and Related Workers
921	Agricultural, Forestry and Fishery Labourers
931	Mining and Construction Labourers
932	Manufacturing Labourers
933	Transport and Storage Labourers
941	Food Preparation Assistants
961	Refuse Workers
962	Other Elementary Workers

Note: The table reports the classification of at-risk jobs using the ISCO 3-digit occupation.
Source: Basso et al. (2022[62]), Unsafe Jobs, Labour Market Risk and Social Protection, https://doi.org/10.1093/epolic/eiac004.

Notes

[1] This chapter has benefited from statistical support from Isac Olave Cruz and Agnès Puymoyen. Earlier versions of the material covered in Section 1.4 and Section 1.5 also benefitted from statistical analysis by Inbar Amit.

[2] The difference in employment and unemployment figures across countries partly reflect the fact that people on temporary layoff are classified as unemployed in countries like Canada and the United States even when they expect to go back to the same job – while in most countries, workers on zero hours while on job retention schemes are still classified as employed. See Chapter 1 in (OECD, 2021[5]) for more details.

[3] This section draws from OECD (2022[4]).

[4] The information on the number of refugees from Ukraine recorded across Europe was retrieved from https://data.unhcr.org/en/situations/ukraine on 26 August 2022.

[5] To document how hours have recovered from the COVID-19 crisis, Figure 1.6 uses data from Q1 2022, the most recent data point available for the largest number of OECD countries. Since seasonally adjusted data are not readily available unadjusted data are used and Q1 2019 is taken as the pre-crisis reference point. Although this method may overstate the recovery by netting out most of the hours growth in 2019, the results still show that hours recovery is still incomplete in a majority of countries for which seasonally adjusted data are available.

[6] For the countries covered by Eurostat, all the employment series are affected by a break in Q1 2021 (see Eurostat (2022[28])). Whenever available, break-adjusted series provided by Eurostat are used in the analysis. In the other cases, a correction described in Annex 1.B has been applied.

[7] Between Q4 2019 and Q4 2021, Mexico also saw a large proportional increase but from a rather low starting point, as its long-term unemployment rate increased from less than 0.1% to 0.24%.

[8] https://www150.statcan.gc.ca/t1/tbl1/en/tv.action?pid=1410032501&cubeTimeFrame.startMonth=10&cubeTimeFrame.startYear=2019&cubeTimeFrame.endMonth=10&cubeTimeFrame.endYear=2021&referencePeriods=20191001%2C20211001.

[9] https://www.mbie.govt.nz/business-and-employment/employment-and-skills/labour-market-reports-data-and-analysis/jobs-online/using-the-all-vacancies-index-avi-as-main-indicator/.

[10] www.dati.istat.it.

[11] Source: OECD Short Term Labour Market Statistics Database.

[12] https://www.nzier.org.nz/news/nziers-qsbo-shows-weaker-demand-and-confidence.

[13] https://www150.statcan.gc.ca/n1/daily-quotidien/220225/dq220225b-eng.htm.

[14] IAB Labour Market Barometer | IAB.

[15] https://www.ons.gov.uk/businessindustryandtrade/business/businessservices/bulletins/businessinsightsandimpactontheukeconomy/27january2022#worker-shortages https://www.ons.gov.uk/businessindustryandtrade/business/businessservices/bulletins/businessinsightsandimpactontheukeconomy/21april2022#workforce.

[16] https://www150.statcan.gc.ca/n1/daily-quotidien/220225/dq220225b-eng.htm.

[17] In March 2022, seasonally adjusted quits rates were 75% above their level of Dec 2019 in manufacturing (https://fred.stlouisfed.org/series/JTS3000QUR). In retail trade, the figure was 45% (https://fred.stlouisfed.org/series/JTS4400QUR) and in Finance and Insurance 36%.

[18] https://fred.stlouisfed.org/graph/?g=OZ23.

[19] U.S. Bureau of Labor Statistics, Employment-Population Ratio [EMRATIO], retrieved from FRED, Federal Reserve Bank of St. Louis; https://fred.stlouisfed.org/series/EMRATIO, 10 March 2022.

[20] They were also 40% higher than in Q1 2020 – which however was already partially affected by the beginning of the COVID-19 crisis. See https://www.ons.gov.uk/employmentandlabourmarket/peopleinwork/employmentandemployeetypes/datasets/labourforcesurveyflowsestimatesx02.

[21] https://www.ons.gov.uk/employmentandlabourmarket/peopleinwork/employmentandemployeetypes/bulletins/uklabourmarket/february2022.

[22] https://dares.travail-emploi.gouv.fr/publication/mi-2021-un-niveau-eleve-de-demissions-de-cdi.

[23] https://dares.travail-emploi.gouv.fr/donnees/les-mouvements-de-main-doeuvre.

[24] https://www.abs.gov.au/statistics/labour/employment-and-unemployment/job-vacancies-australia/latest-release.

[25] Duval et. (2022[14]) report some preliminary evidence indicating that wages were more responsive to increases in labour market tightness in low pay sectors and that this in turn contributed significantly to aggregate wage growth over the course of 2021.

[26] https://dares.travail-emploi.gouv.fr/donnees/les-indices-de-salaire-de-base.

[27] Similar to the result for the United States reported above, Duval et. (2022[14]) use a regression-based approach to present preliminary evidence that wages were more responsive to increases in labour market tightness in low pay sectors in the United Kingdom and that this in turn contributed significantly to aggregate wage growth over the course of 2021.

[28] The data reported in Figure 1.16 are provided by Eurostat based on EU LFS. Data from the Swiss Federal Office for Statistics show a much smaller contraction of employment in manufacturing of around 2% between Q4 2019 and Q4 2021 (see https://www.bfs.admin.ch/bfs/fr/home/statistiques/travail-remuneration/activite-professionnelle-temps-travail/caracteristiques-main-oeuvre/section-economique.assetdetail.21825634.html).

[29] Importantly, the conclusions of any study of employment reallocation across sectors might hinge crucially on the specific time interval considered. Indeed, the significance of cross-sector transitions might well have

changed over the course of the crisis as the uncertainty surrounding the prospects of the different sectors has evolved non-linearly due to the recurrence of pandemic waves of different intensity, the progress of the vaccination campaigns, and the variation in the nature of the restrictions adopted.

[30] For the countries covered by Eurostat, all the employment series are affected by a break in Q1 2021 (see Eurostat (2022[28])). Whenever available, break-adjusted series provided by Eurostat are used in the analysis. In the other cases, a correction described in Annex 1.B has been applied.

[31] Across the same countries considered here, the share of fixed-term among young people declined on average by more than 2 percentage points in Q2 2020 relative to Q2 2019 – with drops observed in 18 of the 28 countries.

[32] According to European Labour Force Survey data, between Q4 2019 and Q4 2021, the total population of migrants declined by at least 10% in Poland, Ireland, the United Kingdom, Portugal and Greece. By contrast, the Czech Republic, the Netherlands, Hungary, Finland and Iceland – all saw increase in the total migrant population in excess of 10%. By comparison, In all these countries the total population of the native-born remain substantially stable (See https://ec.europa.eu/eurostat/databrowser/bookmark/adc41851-d0c0-48e6-809a-a081f5282e4e?lang=en). In the United States and Canada, the migrant population recorded in the CPS and Labour Force Survey increased by less than 2%.

[33] The race/ethnic groups included are Indian, Pakistani, Bangladeshi, Chinese, Black/African/Caribbean/Black British, and people reporting mixed/multiple ethnic groups.

[34] https://data.stat.gov.lv/pxweb/en/OSP_PUB/START__EMP__NB__NBLB/NBL030/ and https://andmed.stat.ee/en/stat/sotsiaalelu__tooturg__tooturu-uldandmed__aastastatistika/TT332/table/tableViewLayout2.

[35] https://www.stats.govt.nz/information-releases/labour-market-statistics-december-2021-quarter.

[36] Information provided by Canada in response to OECD Questionnaire on Policy Responses to the COVID-19 Crisis (see Chapter 2 for more details on the Questionnaire).

[37] To characterise the workers in these jobs, this chapter replicates the work by Basso et al. (2022[62]) who kindly shared their code. The authors identify “at-risk” occupations as those that, based on pre-pandemic information, could not be performed remotely and involved considerable interaction with other people and therefore a heightened risk of COVID-19 infection on the job, see Basso et al. (2022[62]) for details on methodology. The same classification is also used in Chapter 3.

[38] In practice, frontline workers are defined as those answering “Always”, “Most of the time” or “Sometimes” to the question: “In your work, are you currently in direct physical contact with people (colleagues, customers, passengers, pupils, patients, etc.)?” and who do not report “home” as a location of work during the pandemic. The data used from the analysis are from the second wave from June 2020 and cover European countries only. Data from the first wave (April 2020) do not contain information on close contact at work. While the set of workers returning to their workplace is likely to have increased between the two waves given the different stage of the pandemic and the nature of the restrictions in place, the demographic characteristics of workers who continue to work in their physical workplace across the two waves are the same.

[39] The results do not necessarily imply that these occupations cause lower health or mental well-being. In fact, these differences can at least partly be driven by selection effects if workers with poorer health or

mental well-being struggle to find better jobs. Whatever the precise causal mechanism, the result still points to a disadvantage for workers who are employed in these jobs.

[40] All these studies refer to 2020 and early 2021 – the relative impact of the virus on different occupational categories might have changed as more transmissible variants – such as Delta and Omicron – became dominant. In addition, at the same time as these variants spread, the restrictions in place were generally less strict as vaccination rates reached high levels in most countries. The combination of these factors means that the relative risk of exposure across different occupations might well have changed over the course of the pandemic while remaining – in all likelihood – higher for jobs which involve direct contact with a large number of people.

[41] https://www.oecd.org/housing/data/affordable-housing-database/housing-conditions.htm.

[42] In Korea workers have no statutory right to paid or unpaid sick leave (OECD, forthcoming[74]), while in the United States only 31% of workers in the bottom decile of the wage distribution had access to paid sick leave in March 2019, a figure that had increased to 35% by March 2021 (https://www.bls.gov/ncs/ebs/xlsx/employee-benefits-in-the-united-states-dataset.xlsx). Recent evidence indicates low general awareness of the introduction of the a federal COVID-19 sick leave provision in the United States in March 2020, with particularly low levels of awareness and take-up among foreign-born – a group over-represented in frontline jobs (Jelliffe et al., 2021[73]).

2 Supporting jobs and incomes: An update on the policy response to the COVID-19 crisis

Oliver Denk and Sebastian Königs

Countries' labour market and social policy response to the COVID-19 crisis was fast, decisive and helped to avoid an economic and social meltdown. Two and a half years after the onset of the COVID-19 pandemic, this chapter takes stock of the crisis measures still in place, with a focus on the policy areas where action has been particularly important: job retention schemes; unemployment benefits; paid sick leave; active labour market policies; and specific policies for women, young people, frontline workers and racial/ethnic minorities. It also presents an overview of countries' labour market and social policy challenges and priorities for 2022, including those due to the economic fallout from Russia's unprovoked war of aggression against Ukraine.

In Brief

OECD countries responded with unparalleled resolve to the COVID-19 crisis. Labour market and social policies have been at the forefront of the battle to help to preserve jobs, incomes and livelihoods. By revealing weaknesses in labour markets and gaps in social protection, the crisis has also led some countries to review their long-term policy priorities. Two and a half years after the onset of the COVID-19 pandemic, this chapter takes stock of the measures still in place and presents an overview of countries' labour market and social policy challenges and priorities in 2022.

The chapter relies largely on countries' responses to a policy questionnaire that was circulated in autumn 2021. It focuses on the policy areas where action has been particularly important: job retention schemes; unemployment benefits; paid sick leave; active labour market policies; and specific policies for women, young people, frontline workers and racial/ethnic minorities.

Countries' labour market and social policy response has overall been proportionate to the extraordinary depth of the COVID-19 crisis. Thanks to the ad-hoc emergency measures taken to complement the standard response of labour market policies and social protection systems, countries were able to support workers' jobs and incomes and lay the foundations for a strong recovery. By the end of 2021, crisis measures had largely been rolled back, except in the area of active labour market policies.

The urgency with which support had to be provided led in some areas to limited targeting, higher-than-needed expenditures and possibly incentive issues. Meanwhile, labour market inequalities may have grown as some groups of heavily affected workers outside of the reach of the standard system were not sufficiently covered by emergency measures. In some cases, policy reforms are needed to close such gaps in labour market and social policy and to further improve labour market resilience in the future; in other cases, the peculiarity of the COVID-19 crisis may not justify reform. COVID-19 also disrupted long-prevailing consumption patterns, shifting demand to different sectors, firms and products; hence, policies to support worker reallocation to jobs in high demand will be particularly important.

The main insights by policy area are as follows:

- **Job retention schemes:** At the height of the crisis in 2020, 37 of the 38 OECD countries had a short-time work or related wage subsidy scheme. Since then, as the recovery progressed, the use of these schemes has strongly declined, from 20% of dependent employment to 0.9% in April 2022 (on average among the countries with available data and a scheme in place at some point during the crisis). Thirteen OECD countries had terminated their schemes entirely by November 2021. Other countries began to target their schemes more tightly, by reducing access (i.e. restricting support to firms most affected) or generosity (i.e. lowering subsidy rates).
- **Unemployment benefits:** Most OECD countries extended unemployment benefits by improving access, notably for workers with insufficient contribution records, lengthening maximum durations and raising benefit generosity to account for the great difficulty of finding work during the crisis. Nonetheless, many countries with comprehensive job retention schemes experienced only small increases in unemployment benefit receipt. By January 2022, only few of the benefit extensions introduced were still in place. Most countries also rapidly and pragmatically extended support for self-employed workers, who often did not benefit from job retention schemes and had lesser access to unemployment benefits. In light of this experience, several countries are currently exploring ways of extending income protection for self-employed workers.

- **Paid sick leave:** Particularly in the early phase of the crisis, paid sick leave played a crucial role in containing the spread of the virus and in protecting workers' health, jobs and incomes, and many countries quickly extended their systems to improve coverage and reduce employer costs. Attention has since shifted to providing workers affected by "long COVID-19" with adequate income and employment support.
- **Active labour market policies (ALMPs):** ALMPs have been a crucial component of countries' crisis response. After being expanded in 2020, budgets increased further in 2021 for both public employment services (in some 80% of countries) and active labour market measures such as training and employment incentives (in 60% of countries). To respond to evolving challenges, countries have taken widespread action, including speeding up digitalisation, increasing remote service delivery and adapting policy design. ALMPs continue to play an important role to reduce worker shortages and support worker reallocation post-COVID-19.
- **Labour market and social policies to support women:** While more women than men lost their job in the initial phase of the crisis, women's employment rate has by now improved relative to men's over the crisis period. Yet, through its peculiar nature as a public-health crisis, COVID-19 brought a number of specific challenges for women: they are over-represented in the health care workforce, although not generally among jobs with high COVID-19 exposure; their unpaid work burden at home further increased as formal childcare services were disrupted; and victims of domestic violence were particularly exposed to their abusers during lockdowns. Many countries took measures in the areas of flexible forms of work, leave, childcare and income support to help parents, and often mothers, to cope with the additional unpaid work, and to tackle violence against women and girls.
- **Specific policies for young people:** Young people, although less vulnerable to the virus itself, have been particularly affected by the COVID-19 crisis. Unlike in previous crises, they received immediate policy attention. Youth labour market outcomes improved quickly with the economic recovery, but some young people may require additional attention and support. These include: young people who graduated during the crisis; unemployed or inactive young people who are not registered with public employment or social assistance services; students with insufficient financial means; and young people experiencing poor mental health.
- **Specific policies for frontline workers:** Frontline workers are workers who continued to work in their physical workplace and in proximity to others even at the height of the crisis, such as employees in health care, long-term care or essential retail. Countries have adopted a range of measures to reduce health risks and improve job quality for frontline workers, such as testing or vaccination requirements and initiatives to increase their pay. These measures do not go far enough, however, to permanently improve job quality and to address large worker shortages for frontline jobs.
- **Specific policies for racial/ethnic minorities:** Half of OECD countries with available data have had specific labour market or social policies in place to support racial/ethnic minorities in the crisis. Support often pre-dated COVID-19, but it was particularly valuable in the crisis and sometimes complemented by additional measures. Yet, public employment services have experienced increasing difficulties in finding job opportunities for jobseekers from racial/ethnic minorities. A wider range of programmes, including initiatives to promote upskilling, reduce discrimination and improve labour market attachment, would help jobs of people from racial/ethnic minorities to be more resilient when the next crisis hits.

- **Policy challenges and priorities for 2022:** Countries are having to strike a difficult balance between addressing the labour market challenges resulting from the COVID-19 crisis, mastering the structural transformations underway and supporting a strong and inclusive labour market – all while dealing with the economic and social fallout from Russia's war of aggression against Ukraine. When asked in autumn 2021 about the main labour market challenges, countries' concerns about the immediate crisis consequences trumped longer-term structural challenges. Key priorities in national recovery plans are strengthening employment services for jobseekers, supporting upskilling, improving labour market inclusion and shaping the transformation resulting from digitalisation and the green transition. The rise in inflation and the fallout from Russia's war of aggression against Ukraine have moved up high on the policy agenda: OECD countries have adopted measures to soften the impact of higher prices, notably of energy, on the cost of living and to help to integrate refugees from Ukraine.

Introduction

The COVID-19 pandemic led to an economic contraction not seen in OECD countries in more than half a century. Governments contained the labour market and social fallout from the crisis, shielding many workers and households against job and income losses. As this chapter shows, two and a half years after the COVID-19 pandemic began, policy has moved on from the crisis response: few crisis measures are still in place and few have been converted into permanent policy that is on automatic stand-by in case of another shock.[1]

Yet, some of today's most pertinent labour market and social policy challenges remain connected with the COVID-19 crisis: significant worker shortages, rising prices and fears of scarring for vulnerable groups such as young people. Policy priorities in OECD countries have been shifting from crisis-fighting to tackling such legacies of the pandemic. COVID-19 has also refocused policy makers' attention on the digital and green transformations, while new challenges have emerged or been reinforced because of Russia's war of aggression against Ukraine, in particular further increases in the cost of living and a high number of humanitarian migrants, especially in Ukraine's European neighbours.

The chapter depicts where current labour market and social policy stands and where it is heading. Section 0 provides a detailed update of countries' COVID-19 policy response in the areas where action has been especially important: job retention schemes; unemployment benefits; paid sick leave; and active labour market policies. Section 0 puts the spotlight on specific policies for groups that faced particular difficulties during the COVID-19 crisis: women, young people, frontline workers and racial/ethnic minorities. Section 0 looks beyond the COVID-19 crisis and presents an overview of countries' labour market and social policy challenges and priorities in 2022. Section 0 offers concluding remarks.

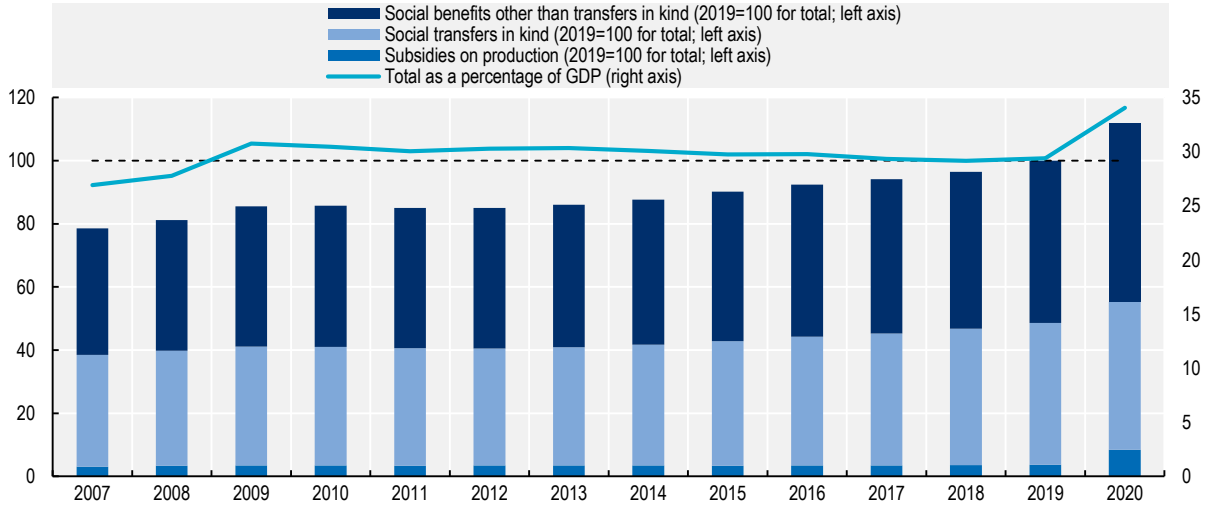
The analysis relies largely on the OECD Questionnaire on Policy Responses to the COVID-19 Crisis that was circulated to all OECD countries in autumn 2021. Responses were received from 36 of the 38 OECD countries, though not all of these countries provided complete information for all policy areas. As the policy questionnaire was circulated before Russia's war of aggression against Ukraine, the parts in the chapter that rely on the questionnaire do not account for the latest geopolitical developments.

An update of countries' COVID-19 policy support to workers and households

The COVID-19 pandemic led to a major rise in government expenditure and public social expenditure. While detailed internationally comparable data on public social expenditure during the crisis are not yet available across OECD countries, national accounts can give a first indication of spending trends. According to these data, social expenditure – very broadly defined – increased by approximately 12% in real terms between 2019 and 2020 across 28 OECD countries on average (Figure 2.1). This figure refers to the sum of social transfers in kind (including for health care and education; +4%), social benefits other than transfers in kind (cash payments to households in form of social insurance, including pensions; +11%) and subsidies on production (+294%, with very large cross-country variation). Subsidies on production go beyond social transfers more narrowly and include government support to help employers to keep employees on their payroll (e.g. expenditure for job retention schemes) and government support to the self-employed (ISWGNA, 2020[1]).

Figure 2.1. A major rise in public social expenditure

Trend in public social expenditure, 2007-20, OECD average



Note: In national accounts social benefits to households are broken down into two categories: social benefits other than social transfers in kind and social transfers in kind. Social benefits other than social transfers in kind are typically in cash and so allow households to use the cash indistinguishably from other income, and include pensions and non-pensions benefits. Transfers in kind are related to the provision of certain goods or services (mainly health care and education) for free or at prices that are not economically significant. Subsidies on production are government payments to support enterprises, including by subsidising the payroll of COVID-19-affected businesses to ensure that the employment relationship is maintained during the crisis. In this figure, the expenditure level is expressed relative to 2019 after adjusting for inflation using the consumer price index. The OECD average is calculated over 28 countries with available data for the entire period.
Source: OECD calculations based on the OECD Annual National Accounts, http://dotstat.oecd.org/Index.aspx?DataSetCode=SNA_TABLE14A.

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The increase in social expenditure for 2020 was considerably larger than during the global financial crisis (+9% between 2007 and 2010). It corresponds to an increase of 4.7 percentage points of GDP, from 29.4% to 34.1%. In percentage changes, this is broadly in line with the increase in government expenditure as a whole, which rose from 42.7% to 49.5% of GDP (OECD, 2021[2]).

The increase in social expenditure likely reflects primarily the rise in spending on unemployment support and job retention schemes. Across a selection of 17 European OECD countries for which early expenditure estimates are available by programme type, spending on unemployment (including job retention schemes)

nearly doubled relative to GDP between 2019 and 2020 (+94%; Eurostat (2022[3])). This is a much larger increase than for the other spending categories, including health (+13%) and family payments (+12%). The large relative expenditure increases on unemployment do not translate into an even more substantial rise in overall social expenditure because, even during crisis times, spending on unemployment only accounts for a small part of overall social spending, about 6% in 2020. Nearly 70% of social spending in 2020 went to pensions as well as health care and sickness benefits.

2.1.1. Job retention schemes

When the COVID-19 crisis erupted in spring 2020, nearly all OECD countries used job retention schemes to provide timely and broad-based support to firms and workers affected by physical-distancing restrictions. These job retention schemes sought to preserve jobs and incomes of workers at hard-hit firms by paying subsidies to lower firms' labour costs against reductions in hours worked. They have taken the form of: i) short-time work schemes that subsidise hours not worked; or ii) wage subsidy schemes that subsidise hours worked but can also be used to top up the earnings of workers on reduced hours. In both cases, contracts of employees remain in force while their work is partially or fully suspended. The analysis of job retention schemes in this section builds on earlier work in the last two *OECD Employment Outlooks* (OECD, 2021[4]; 2020[5]) and two policy briefs (OECD, 2022[6]; 2020[7]).

Job retention schemes limited costly layoffs and re-hiring over a temporary shutdown of economic activity. They are also unlikely to have come at the expense of lost productivity growth initially, since the COVID-19 shock hit high- and low-productivity firms indiscriminately. Hence, it was not only, or mainly, low-productivity firms that received the subsidy, and the subsidy did not distort the survival chances of firms (Cros, Epaulard and Martin, 2021[8]). As the health and economic situation evolved, concerns about the economic costs of job retention schemes increased. Such economic costs may come principally in two forms: government support may go to jobs that do not need to be supported; or support may go to jobs that will anyway not come back, or come back only after an extended period (e.g. certain segments of the entertainment industry), slowing reallocation of jobs across firms. Evidence from job retention schemes in Australia, New Zealand and the United Kingdom suggests that these distortive effects have grown as economies recovered (Andrews, Charlton and Moore, 2021[9]; Andrews, Hambur and Bahar, 2021[10]).

Several countries phased out job retention support, and use has declined in others

Of the 38 OECD countries, all except Mexico operated a universal job retention scheme in the early phase of the COVID-19 crisis. In 17 OECD countries, a scheme had already been in place before COVID-19, while 20 OECD countries did not have a scheme and introduced one during the crisis. The countries that had a scheme in place before COVID-19 often widened its access and increased generosity considerably and in some cases introduced additional schemes (Canada, Denmark). By November 2021, the reference date of the policy questionnaire, 13 of the 20 OECD countries that had introduced a scheme terminated it; hence, 24 of the 38 OECD countries still operated a universal job retention scheme (Table 2.1). Several countries (the Czech Republic, Ireland, the Netherlands, the Slovak Republic), that in November 2021 had operated a scheme, subsequently terminated it.

Countries supported an unprecedented number of workers at the beginning of the COVID-19 crisis through job retention schemes, ten times as many as in the global financial crisis. The ending of the schemes in several countries in the context of a rapid recovery meant that the use of job retention support has fallen strongly: from a peak of 20% of dependent employment to 0.9% in March/April 2022 (on average among the OECD countries with available data and a scheme at some point during the crisis). There has also been a big decline in their use in the countries with schemes that still operated in March/April 2022. Ireland and Belgium were the countries that had the highest numbers of employees on job retention support (Figure 2.2). Belgium continued to make access to its short-time work scheme (*chômage temporaire*) easier, specifically for companies experiencing problems due to the war in Ukraine (for example supply of resources).

The reduced use of job retention support reflects two factors: lower demand by firms and workers for such support as well as reduced access and generosity offered by the programmes. As the recovery has been progressing, countries have increasingly targeted job retention support to firms and workers in two ways: i) by targeting it to firms, sectors or regions that have been particularly hard hit by physical-distancing restrictions; and ii) by reducing its generosity. The remainder of the section takes stock of the approaches that countries, which did not terminate their programme by November 2021, have taken to limit access and to limit generosity with the aim to target and scale down support.

Table 2.1. Job retention schemes in OECD countries over the COVID-19 crisis

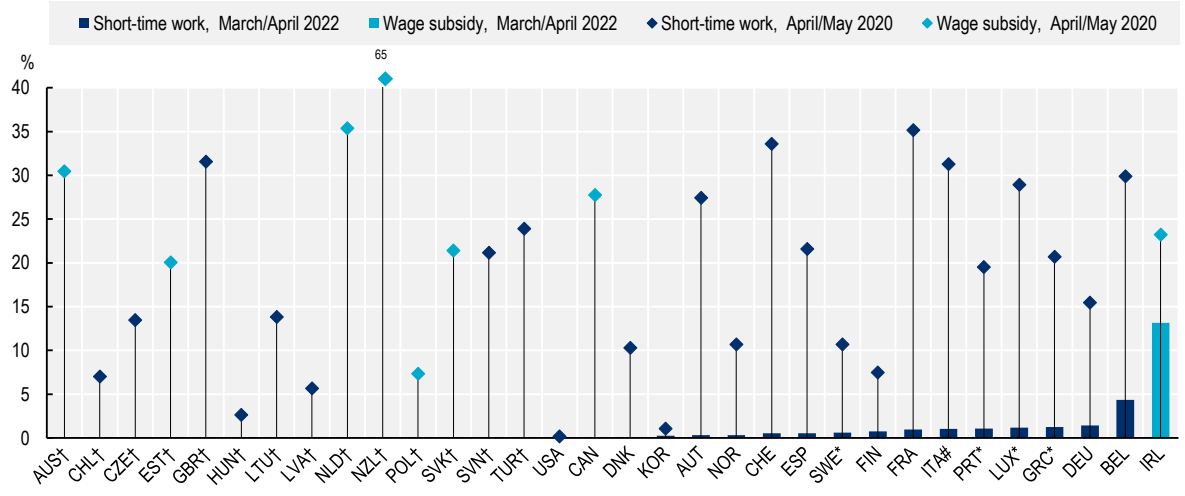
Situation as of November 2021

OECD countries that had a job retention scheme in place already before COVID-19	OECD countries that had introduced a job retention scheme during COVID-19 that still operated in November 2021	OECD countries that had introduced a job retention scheme during COVID-19 that was terminated by November 2021	OECD countries that did not have a job retention scheme during COVID-19
Austria, Belgium, Canada, Denmark, Finland, France, Germany, Italy, Japan, Korea, Luxembourg, Norway, Portugal, Spain, Sweden, Switzerland, United States	Chile, Colombia, Czech Republic, Greece, Ireland, Netherlands, Slovak Republic	Australia, Costa Rica, Estonia, Hungary, Iceland, Israel, Latvia, Lithuania, New Zealand, Poland, Slovenia, Türkiye, United Kingdom	Mexico

Note: Canada and Denmark introduced additional job retention schemes during COVID-19 that were terminated by November 2021. Greece introduced two job retention schemes, one of which was terminated by November 2021. The date for this table is 1 November 2021; countries may have terminated or reintroduced job retention schemes subsequently.
Source: National sources and OECD Questionnaire on Policy Responses to the COVID-19 Crisis.

Figure 2.2. Use of job retention schemes: Nearing zero in most countries

Take-up rate of job retention schemes as a percentage of dependent employment



Note: Take-up rates are calculated as a percentage of all dependent employees in Q1 2020. † Australia, Chile, the Czech Republic, Estonia, Hungary, Latvia, Lithuania, the Netherlands, New Zealand, Poland, the Slovak Republic, Slovenia, Türkiye and the United Kingdom: Scheme no longer operational or not widely available. *Latest data refer to February 2022 (Greece), December 2021 (Luxembourg), September 2021 (Sweden) and August 2021 (Portugal). # Italy: Data estimated based on the number of authorised hours. United States: Data refer to short-time compensation benefits; only 26 states in the United States have such a programme in place and data are not available at the federal level. No information on take-up available for Colombia, Costa Rica, Iceland, Israel and Japan. No scheme present in Mexico.
Source: National sources.

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Limiting access: Some countries restrict job retention support to firms most affected

Among the countries that as of November 2021 still operated a job retention scheme, several differentiated support by firm size, firm profitability, sector or region (Table 2.2). The intention of such differentiation is to target firms that were most affected by physical-distancing requirements, although some eligibility criteria may be the result of poor firm performance relative to competing firms, which reduces the effectiveness of targeting. Portugal, for example, adapted its scheme in mid-2020, so that benefits are more generous for companies with greater turnover losses. In Austria, from mid-2021 only firms in industries directly affected by the lockdown or that encountered a fall in sales of at least 50% between autumn 2019 and autumn 2020 received full job retention amounts. Korea provided special support to firms in 14 hard-hit sectors (including travel and tourism) and 7 "employment-crisis" regions. Japan introduced additional support to firms that shorten business hours in regions with a state of emergency or other government measures. However, half of the countries that as of November 2021 still operated a job retention scheme did not differentiate by firm size, firm profitability, sector or region (Belgium, Chile, the Czech Republic, Denmark, Finland, Germany, Greece, Norway, the Slovak Republic, Sweden, Switzerland and the United States).

Table 2.2. OECD countries that target job retention support to firms and workers most affected by COVID-19 restrictions

Situation as of November 2021

Differentiation of job retention support			
By firm size	By firm profitability	By sector	By region
Colombia, Italy, Japan, Korea, Spain	Austria, France, Ireland, Korea, Netherlands, Portugal	Austria, France, Italy, Korea, Luxembourg	France, Japan, Korea

Note: OECD countries that had a job retention scheme in place in November 2021 but did not differentiate support by firm size, firm profitability, sector or region: Belgium, Chile, the Czech Republic, Denmark, Finland, Germany, Greece, Norway, the Slovak Republic, Sweden, Switzerland and the United States. No information is available for Canada.
Source: OECD Questionnaire on Policy Responses to the COVID-19 Crisis.

Limiting generosity: Some countries have reduced the subsidy rate for job retention

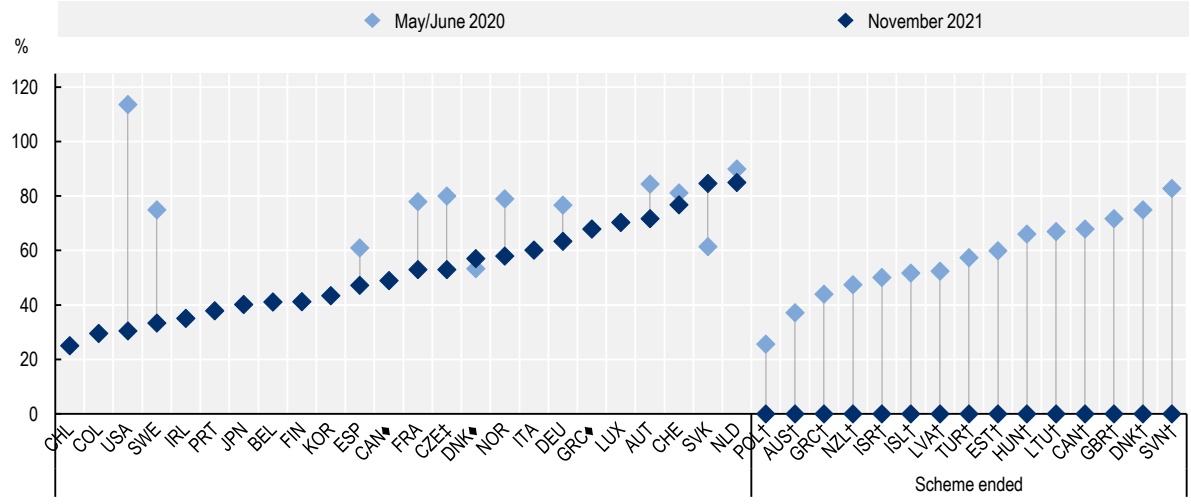
Of the 24 OECD countries that in November 2021 still operated a universal job retention scheme, 10 had reduced its generosity over the course of the COVID-19 crisis. These reductions were especially large in the United States, Sweden, the Czech Republic and France (Figure 2.3). With the exception of the United States, the reduction in support came at least in part about by greater co-financing requirements for firms. Such co-financing has the advantage that it tends to improve the targeting of the financial support to firms and jobs in need and make it less attractive for workers to stay in jobs that will not become viable again. In line with this, take-up rates for job retention support were close to three times as high in countries without co-financing as in countries with co-financing (as of November 2021), although with some heterogeneity across countries within each group. In the four countries that reduced government support the most (the United States, Sweden, the Czech Republic and France), these reductions have also been absorbed by workers in the form of lower incomes. Overall, despite these reductions, the public subsidy in November 2021 still tended to cover 50% of the labour cost of a worker who was on a job retention scheme on average in the countries that had a scheme in place. This is still well above the subsidy rates before the COVID-19 crisis, even in the countries in which the scheme pre-dates COVID-19.

Adapting job retention schemes to the evolving crisis has been a major challenge, due to the high uncertainty about the outlook and varied effects of physical-distancing restrictions across groups of firms. The uncertainty about the future evolution of the health situation has made it difficult to plan ahead. Several countries that started scaling back job retention support had to scale it back up as the health situation worsened again. Adjusting eligibility and generosity too frequently may reduce the predictability of the

system and undermine its effectiveness. At the same time, maintaining generous support and avoiding multiple adjustments runs the risk of unnecessarily increasing fiscal and economic costs. Overall, the crisis does not appear to have led to a greater adoption of permanent job retention schemes, as the majority of OECD countries that introduced a scheme have ended theirs.

Figure 2.3. Job retention support has become less generous

Rate of the public subsidy for one hour not worked, percentage of labour cost



Note: † No scheme in place or scheme not widely available. Canada: There used to be two schemes, the Work-Sharing Program (indicated as ♦, in place in November 2021) and the Canada Emergency wage subsidy (not in place in November 2021). The Czech Republic: May/June 2020 refers to Antivirus Regime 3A, and November 2021 refers to Antivirus Regime B. Denmark: There used to be two schemes, the system of division of labour *Arbejdsfordeling* (indicated as ♦, in place in November 2021) and the Wage compensation scheme *Lønkompensation* (not in place in November 2021). Greece: There used to be two schemes, *Syn-Ergasia* (indicated as ♦, in place in November 2021) and the Special purpose compensation for specific sectors (not in place in November 2021). Norway: The subsidy rate applies to the first 60 days. The calculations do not take mandatory employer contributions for private insurance into account (consistent with the OECD methodology of Taxing Wages). The date for this figure is 1 November 2021; countries may have terminated or reintroduced job retention schemes subsequently.
Source: National sources and OECD Questionnaire on Policy Responses to the COVID-19 Crisis.

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A priority going forward should be to learn from the experience of the COVID-19 crisis and evaluate the effectiveness of job retention schemes in preserving jobs and supporting job creation. A key aspect of such evaluations should be to analyse the effectiveness of job retention schemes in protecting different groups of workers. Breakdowns of job retention support by different socio-demographic groups are often not available, preventing a more formal assessment of the distributional impact of job retention schemes. It would be important in the future that countries collect these statistics.

The OECD has undertaken one country evaluation to date for Switzerland; another evaluation is underway for Spain. Some OECD countries (Australia, Austria, France, Luxembourg, the Netherlands, Sweden) have evaluated their programmes or are planning evaluations for 2022-24, while other countries (Canada, the Czech Republic, Germany, Hungary) have no such plans. The OECD study on Switzerland concludes that the short-time work scheme helped to preserve the jobs and incomes of different socio-demographic groups, including low-educated, temporary-contract and foreign-born workers (Hijzen and Salvatori, 2022[11]). The Treasury evaluated Australia's wage subsidy scheme after three and also six months and found that it was important for macroeconomic stabilisation, productivity and business recovery, and that

it kept employees and employers connected (The Australian Government the Treasury, 2021[12]). The *Cour des Comptes* in France lauds the fast and massive rollout of the short-time work scheme, while pointing to insufficient cost control as a major issue (Cour des Comptes, 2021[13]).

2.1.2. Income support for workers affected by job and earnings losses

Income support for workers affected by job losses was a second pillar of governments' efforts to cushion the effects of the COVID-19 crisis on workers and households. In spite of the rapid introduction or expansion of job retention schemes, the COVID-19 crisis caused massive job losses in the OECD area, although concentrated in a limited number of countries. At the end of 2020, around 22 million jobs had vanished in OECD countries compared with 2019 (OECD, 2021[4]). Finding new employment was difficult or impossible during lockdown periods, including for jobseekers that were already without work prior to the pandemic. Unemployment benefits and other out-of-work income support played a vital role in protecting workers and families' livelihoods during these periods.

As restrictions to economic activity and social life were lifted, jobless numbers fell rapidly, particularly in Canada and the United States, where many millions of workers returned to their jobs following temporary layoffs. Total employment in the OECD returned to pre-crisis levels at the end of 2021 and continued to grow in the first few months of 2022 – see Chapter 1. Still, substantial numbers of workers, including from sectors where the recovery was subdued, did not manage to return to employment and continued to rely on out-of-work support. In several countries, the support provided during the crisis has been shaping reform agendas, for example because the pandemic highlighted gaps in pre-crisis support provisions, or because emergency measures altered perceptions of what constitutes adequate income protection.

Most OECD countries temporarily extended unemployment benefits for dependent workers

The majority of OECD countries (32 out of 38) extended entitlements to unemployment benefits during the COVID-19 crisis. Nearly all of these countries adopted measures during the initial pandemic wave in spring 2020, extending benefit entitlements along one or several of the following three dimensions (Table 2.3):[2]

- *Improving access* (19 countries) by reducing or entirely waiving minimum contribution periods, or by covering groups of workers who had previously not been entitled (such as workers whose contract was terminated during a probationary period, workers on unpaid leave and workers who had quit their job for a new job offer that fell through when the crisis hit). A number of countries also introduced new unemployment assistance benefits or made extraordinary payments to jobseekers who were not entitled to receive any unemployment benefits.
- *Extending benefit durations* (16 countries) by lengthening durations outright, or by automatically extending entitlements that expired during the peak of the crisis.
- *Raising benefit amounts* (12 countries) by introducing temporary lump-sum top-ups to unemployment benefits, raising replacement rates, or by lifting benefit floors or ceilings. A number of countries also suspended progressive reductions in benefit amounts for those with longer unemployment spells.

By lengthening benefit durations and raising generosity, countries accounted for the fact that jobseekers, and notably those who had already been unemployed when the crisis hit, had only poor chances of finding new work at a time when large parts of the economy were effectively at a standstill. The type and scope of countries' benefit extensions depended partly on the accessibility and generosity of their income support systems at the onset of the crisis.

Table 2.3. The majority of OECD countries extended unemployment benefits during the COVID-19 crisis, but most of these changes have expired since

Extraordinary expansions in unemployment benefit entitlements for dependent workers relative to January 2020

	Improved access			Extended benefit duration			Raised benefit generosity		
	Spring 2020	January 2021	January 2022*	Spring 2020	January 2021	January 2022*	Spring 2020	January 2021	January 2022*
Australia**	●	●					●	●	
Austria							●		
Belgium	●						●	●	
Canada	●	●			●			●	
Chile									
Colombia	●						●		
Costa Rica									
Czech Republic									
Denmark				●	●				
Estonia**								●	●
Finland	●						●	●	
France	●	●		●					
Germany				●					
Greece				●	●				
Hungary									
Iceland								●	●
Ireland	●	●	●						
Israel	●	●		●			●	●	
Italy				●	●				
Japan				●	●	●			
Korea		●	●						
Latvia	●	●		●	●				
Lithuania	●	●							
Luxembourg				●					
Mexico									
Netherlands									
New Zealand**	●						●		
Norway	●	●	●	●	●	●	●	●	●
Poland	●						●	●	●
Portugal**	●			●	●			●	
Slovak Republic				●					
Slovenia	●								
Spain	●	●	●	●	●	●		●	●
Sweden	●	●	●				●	●	●
Switzerland				●					
Türkiye	●	●		●	●				
United Kingdom							●		
United States***	●			●	●		●		
# of countries	19	12	5	16	11	3	12	12	6

Note: The table documents changes in either "first-tier" unemployment insurance or "second-tier" unemployment assistance programmes. A black dot for spring 2020 indicates that unemployment benefits were extended relative to the situation in January 2020. A black dot for January 2021 / January 2022 indicates that some of these extensions, or new extensions, were (still) in place, again relative to January 2020. A blank cell indicates that no extensions are in place (anymore) relative to the situation in January 2020. * Data for 2022 are preliminary; shaded cells for Israel indicate that information for 2022 is missing. ** Some unemployment benefit extensions are not shown in the table because they do not directly relate to the COVID-19 crisis: Australia and New Zealand increased earnings disregards and benefit levels after the expiry of their temporary COVID-19 measures in 2021 and 2022; Estonia made it possible for jobseekers to combine temporary work and receipt of unemployment benefits under certain conditions in September 2020; Portugal raised the amount of its Unemployment Social Allowance for households with children from 2022. *** Information for the United States refers to the federal level.

Source: OECD (2020[5]), *OECD Employment Outlook 2020*, https://doi.org/10.1787/1686c758-en, and the OECD tax-benefit database, oe.cd/TaxBEN.

Many unemployment benefit extensions were still in place in January 2021, but they have largely expired since

The benefit extensions carried out at the onset of the crisis were nearly always explicitly temporary, often initially time-limited up to summer 2020. As the pandemic evolved in autumn 2020, many countries extended or reinstated these measures, while others introduced new ones. This included, for example, an extension of the income-related component of unemployment benefits in Iceland, the temporary introduction of an unemployment assistance benefit in Poland (the Solidary Allowance) and lump-sum payments to recipients of unemployment insurance and unemployment assistance benefits in Austria.

By January 2021, over half of all OECD countries (23 out of 38) still had some form of unemployment benefit extensions in place relative to the pre-crisis situation in January 2020. Those were mainly measures initially taken during the first pandemic wave and then extended into 2021, sometimes with adjustments to maintain the greater access and coverage, the longer benefit durations (e.g. the Pandemic Emergency Unemployment Compensation in the United States) or the higher benefit levels (e.g. the Coronavirus Supplement Payments in Australia, the suspension of benefit reductions for longer unemployment spells in Belgium and higher benefit floors and ceilings in Sweden). A few countries replaced earlier extensions through new, more targeted or less generous measures to account for the developing public-health and labour market situation. Canada, for example, phased out its Canada Emergency Response Benefits and instead introduced temporary changes to simplify access, increase benefit durations and raise generosity of its Employment Insurance programme. Some also introduced entirely new measures that were not directly related to those implemented in spring 2020: Estonia increased replacement rates during the first 100 days of benefit receipt, as well as the benefit floor and ceiling; France shortened the minimum contribution period from six to four months; and Korea introduced a new unemployment assistance scheme, the National Employment Support Programme.

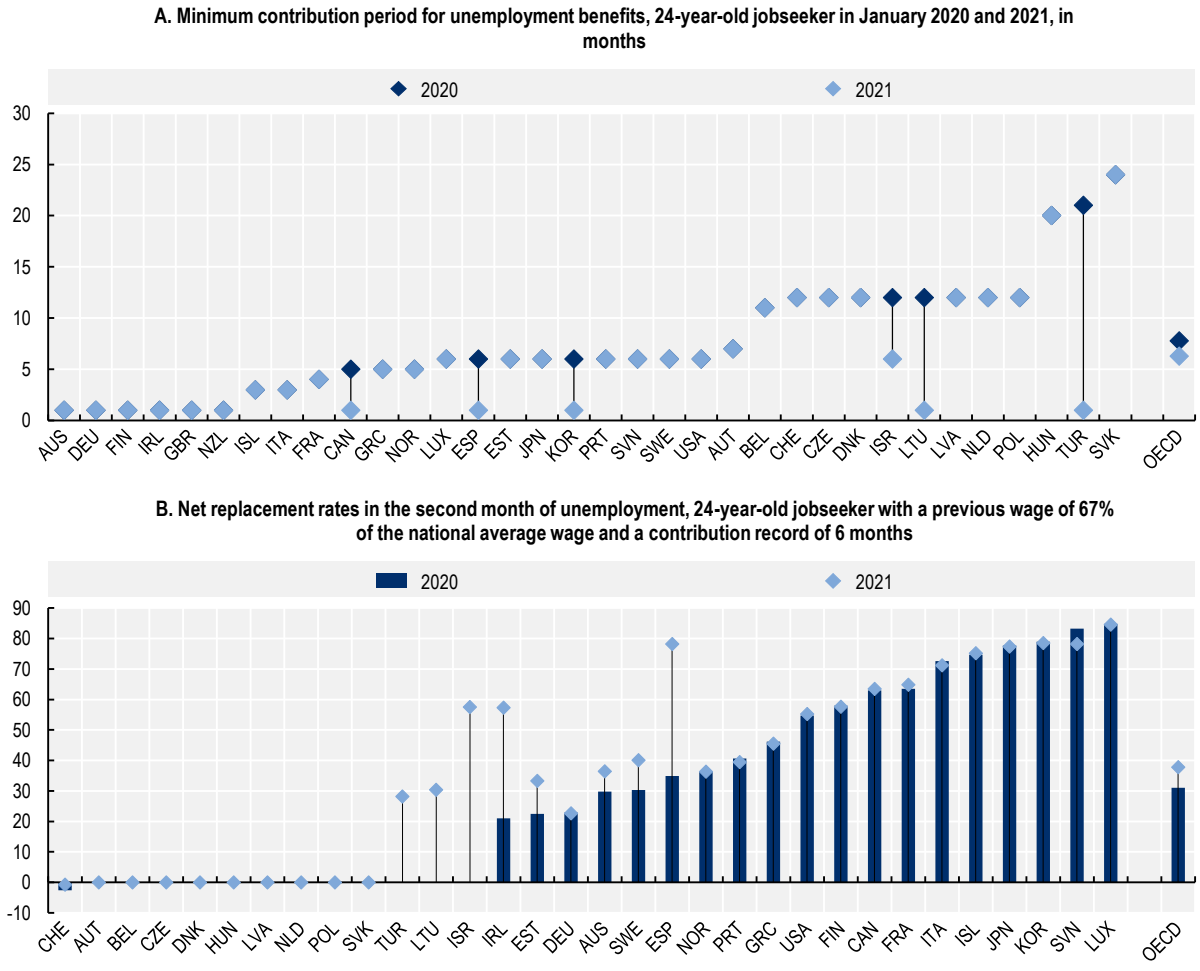
Together, these measures considerably eased access to unemployment benefits for some groups. In January 2021, a 24-year-old jobseeker with a single month of prior work was entitled to unemployment benefits in 11 OECD countries, up from six in January 2020 (Figure 2.4, Panel A). Lithuania, Spain and Türkiye had completely scrapped minimum contribution requirements, and Israel substantially eased them; such reductions in contribution requirements are especially consequential for labour market entrants. In Canada and Korea, benefit entitlements relate to newly introduced unemployment assistance benefits.

In a small number of countries, unemployment benefit levels were still higher in January 2021 than before the crisis, as shown by simulations of the OECD TaxBEN model. Calculations refer to net replacement rates, the share of previous net earnings replaced through unemployment benefits, after two months of unemployment for a 24-year-old jobseeker, assuming a six-month work history (Figure 2.4, Panel B). Substantial increases in the net replacement rate in several countries reflect the fact that this jobseeker would not have qualified for unemployment benefits at all before the crisis. Indeed, relative to its pre-crisis level, the net replacement rate increased most in countries that substantially lowered their minimum contribution requirements (Israel, Lithuania, Spain and Türkiye). The net replacement rate for a young jobseeker was also above pre-crisis levels in Ireland (due to the continued Pandemic Unemployment Payment), Australia (Coronavirus Supplement Payments), and Estonia and Sweden (increased unemployment benefit levels).

By January 2022, a little less than two years into the pandemic, unemployment benefit extensions introduced during the crisis had expired in most of the countries for which information is already available. Exceptions include the Nordic countries, which had maintained reduced work requirements (Norway, Sweden), longer maximum benefit durations (Norway) or higher benefit levels (Iceland, Norway, Sweden). In Japan, the extended unemployment benefit durations introduced in June 2020 were still in place. Ireland's Pandemic Unemployment Payment was briefly reopened for new applications as the country introduced new public-health restrictions in December 2021. In Spain, the generous extensions to unemployment benefits were suspended in March 2022. In three countries, unemployment benefit

extensions carried out during the crisis have been permanent: Korea's new unemployment assistance programme, introduced in January 2021, remains in place; Estonia and Poland have maintained their higher unemployment benefit levels.

Figure 2.4. In a few countries, unemployment benefits remained more accessible and generous for young jobseekers with short contribution periods in January 2021 than before the crisis



Note: Both panels include unemployment insurance and assistance benefits. 24-year-old living alone, with previous earnings at 67% of the national average wage. Data refer to 2019 and 2020 for New Zealand and the United Kingdom (TaxBEN implements COVID-19 emergency measures already in 2020 for these countries as their reference date is at the beginning of their fiscal year in April, in contrast to 1 January for the remaining countries). The negative net replacement rate in Switzerland in Panel B reflects obligatory private health care contributions.
Source: OECD TaxBEN model (version 2.4.0) http://oe.cd/TaxBEN.

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The COVID-19 crisis highlighted the need for unemployment support for self-employed workers

Self-employed workers have been particularly vulnerable to income losses during the crisis as typically they did not benefit from job retention schemes and often had less access to unemployment insurance benefits than dependent workers. At the onset of the crisis, only 11 of 36 OECD countries with available information offered self-employed workers the same unemployment protection as dependent employees;

another seven offered partial access, i.e. with lower amounts and/or more stringent eligibility criteria than for dependent employees. In five countries, the self-employed had the option to join a voluntary unemployment insurance scheme, but membership rates were often low – under 1% of all self-employed workers in Austria and Korea, 3% in the Slovak Republic and 10-15% in Finland (European Commission, 2022[14]; Park, 2020[15]). Thirteen countries did not offer any unemployment insurance benefits for self-employed workers. This incomplete coverage left a significant part of the labour force exposed as the crisis hit: across the OECD on average, one in six workers are self-employed, with self-employment much more frequent in Mexico (one in three workers), Italy and Korea (one in four, Figure 2.5, Panel A).

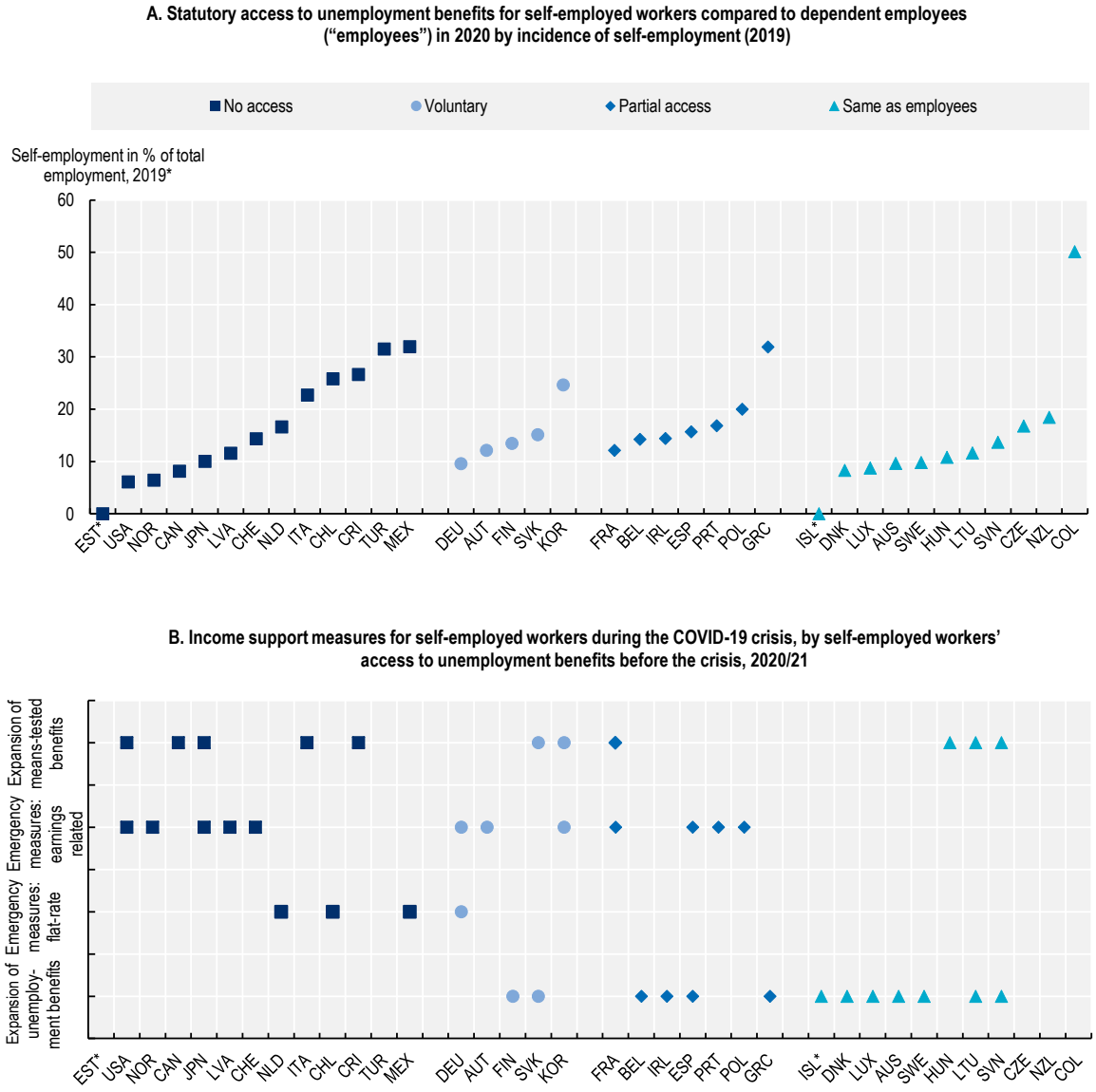
At the onset of the COVID-19 crisis, countries who already provided (some) self-employed workers with unemployment benefits were able to shore up support using existing structures: in Denmark, for example, self-employed workers could retrospectively join an unemployment insurance fund by paying a year's contributions if they were affected by containment measures, and Ireland suspended minimum contribution requirements to its unemployment benefit programme.

Countries that had no systems in place to assess affected workers' previous earnings and entitlements had to either create such structures quickly or to adapt their minimum income benefits. Austria, Norway, Switzerland and the United States, among other countries, introduced new emergency benefits for self-employed workers that were tied to previous earnings or crisis-related losses. But carefully assessing previous income (especially the fluctuating income of the self-employed) takes time, particularly in the absence of established administrative procedures to do so. Some countries therefore relied on the self-certification of losses, especially at the beginning of the crisis (e.g. Austria), risking precision in targeting. Others circumvented time-consuming earnings assessments by providing flat-rate benefits (e.g. Canada, France, Italy). Chile, Germany, the Netherlands and to a lesser extent Mexico extended their existing minimum income programmes to make them more accessible to self-employed workers. These programmes are typically not designed for sudden (albeit catastrophic) income losses, but to support the long-term needs of low-income households, and are therefore often associated with careful means and asset tests. Extensions therefore included the easing or suspension of asset tests (thus allowing self-employed workers to draw benefits while keeping their business capital and any savings) and income tests on partner income (Figure 2.5, Panel B).

Already before the COVID-19 crisis, many countries had been exploring how to shore up access to out-of-work benefits for self-employed and other non-standard workers. The pandemic made the need for equal access to out-of-work support for all labour market groups even more apparent: countries had to develop new programmes quickly without being able to carefully consider their design and implementation, leading to both gaps in emergency protection and overpayments. Unlike insurance-based unemployment benefits, emergency support measures are also not balanced by contributions, perpetuating the existing differences in labour costs between employment forms (OECD, 2019[16]).

In light of this experience, several countries are currently considering extending income protection for self-employed workers. Italy introduced a new unemployment benefit for the previously uncovered group of para-subordinate professionals (unlicensed professionals, such as web-designers, who are legally self-employed but economically dependent on one or very few clients) on an experimental basis from 2021 to 2023. The benefit does not insure against total loss, but significant reductions in income (at least 50% over the last three years) and cushions half of this loss. It is therefore well tailored to the circumstances of freelancers relying on a small number of clients. Similarly, Germany is considering extending access to voluntary unemployment benefits for self-employed workers without an insurance record as dependent employees. In France, there are plans to extend unemployment support to those with unviable businesses (currently only those whose business has been closed by court order are eligible).

Figure 2.5. Access to unemployment benefits for self-employed workers was limited before the pandemic



Note: Panel A: Gaps between dependent employees (full-time open-ended contract) and self-employed workers. If there are several legal forms of self-employment in a country, the chart refers to the most prevalent form, excluding farming and liberal professions. For Italy, the chart refers to craftspeople, shopkeepers/traders and farmers, and not to para-subordinate workers, who are covered by a separate scheme. For Portugal, the chart refers to dependent self-employed workers. For Belgium, "partial access" refers to the *droit passerelle*, a separate non-contribution-based programme for self-employed workers. For Germany, "voluntary access" refers to the unemployment insurance benefit *Arbeitslosengeld I*, not to the needs-based unemployment assistance benefit *Arbeitslosengeld II* that self-employed workers may also claim. In the Czech Republic, self-employed workers are statutorily insured at half of their taxable income but may choose a higher contribution base. Partial access: self-employed workers are insured through a different scheme, receive lower benefit amounts and/or have more stringent entitlement criteria than dependent employees. "No access": compulsory for dependent employees but the self-employed are included. * No data on the incidence of self-employment in Estonia and Iceland. Data on self-employment incidence refer to 2018 for Norway and 2015 for the Slovak Republic. Panel B: "Expansion of unemployment benefits" includes easier access (e.g. shortening of minimum contribution periods), longer durations or higher amounts. In countries that did not cover the self-employed previously, it may also mean that self-employed workers gained access. Similarly, expansion of means-tested benefits includes the easing of means and/or asset tests as well as increased amounts.

Source: OECD Questionnaire on Policy Responses to the COVID-19 Crisis supplemented with information from the OECD Tax-Benefit Database (https://www.oecd.org/social/benefits-and-wages/); MISSOC (2020), *Social protection of the self-employed*, Spasova et al. (2017), *Access to social protection for people working on non-standard contracts and as self-employed in Europe*, and ESPN (2021), *Social protection and inclusion policy responses to the COVID-19 crisis* for European countries; Government of Canada (2022), *EI benefits for self-employed people* for Canada; OECD (forthcoming), *Income security during joblessness in the United States: Design of effective unemployment support* for the United States. Incidence of self-employment: OECD Labour Force Statistics, https://www.oecd-ilibrary.org/employment/data/labour-force-statistics/summary-tables_data-00286-en.

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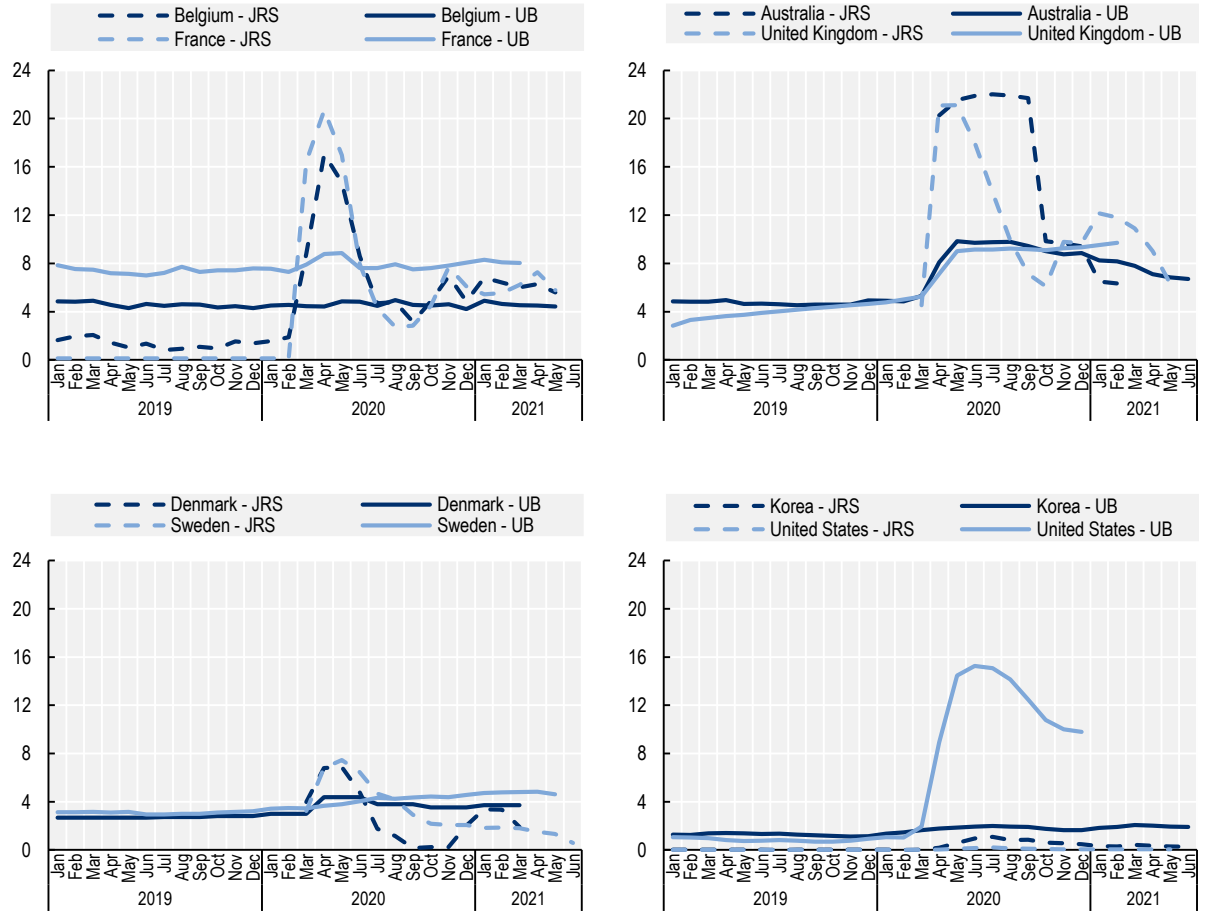
One argument against unemployment protection for the self-employed is that running a business does – and should – imply risk, because self-employed workers control the success of their businesses in ways that employees do not. Providing them with unemployment insurance can therefore be prone to significant moral hazard – with no employer to confirm a layoff it is difficult to establish whether a loss of income is caused by a (prior) lack of effort or external circumstances leading to business failure (OECD, 2018[17]). However, not all self-employed activity is equally entrepreneurial, some self-employed workers are economically dependent on one or very few clients, and moral hazard can also be a challenge for dependent employees. Careful policy design and complementary measures can mitigate moral hazard, e.g. making benefit receipt conditional on active job search and other activation measures, including training (OECD, 2019[16]). As countries seek to ensure effective social protection in a changing world of work, one pragmatic way to circumvent moral hazard problems would be to insure self-employed workers only for income losses during sector- or even economy-wide shocks, as opposed to idiosyncratic ones (Franzini and Raitano, 2020[18]). This would limit moral hazard (although seasonality needs careful consideration), and provide protection in future crises, along with access to activation, training and employment support services. Only partially insuring the risk of job loss can also lower contributions relative to standard workers, an advantage given that the self-employed are necessarily liable for both employee and employer contributions.

Unemployment benefit receipt has remained low in many countries with comprehensive job retention schemes

In spite of countries' measures to improve the access to, and coverage of, unemployment benefits during the crisis, including for self-employed workers, receipt numbers have mostly remained low.[3] This is illustrated in Figure 2.6, which depicts for a selection of countries with available data trends in the monthly number of recipients of unemployment benefits, and job retention support, between 2019 and mid-2021, expressed relative to the working-age population. Countries with comprehensive job retention schemes experienced massive temporary inflows into these systems in the initial phase of the crisis while unemployment benefit receipt rates remained largely stable. This applies to Belgium and France (Panel A), two countries with pre-existing short-time work schemes, where unemployment benefit receipt numbers remained virtually flat. Australia and the United Kingdom experienced even slightly larger inflows into their newly established wage subsidy schemes, while unemployment benefit receipt rose by 4-5 percentage points (Panel B). Also in Denmark and Sweden, two countries where the reduction in working hours during the crisis was lower (OECD, 2021[4]), the pre-existing job retention schemes that got activated (in Sweden) or extended (in Denmark) in March 2020 absorbed most of the labour market shock. At the peak of the crisis, around 7% of the working-age population received job retention support, while the share of unemployment benefit recipients rose by only about 1 percentage point (Panel C). These trends contrast with the numbers observed in the United States, where the pre-existing job retention scheme – the Short-Time Compensation – remained marginal throughout the crisis. Here, the labour market shock was nearly fully absorbed by the generously extended unemployment benefit system, and the number of claimants, including workers on temporary layoff, reached nearly 16% of the working-age population. In Korea, the labour market shock largely translated into reductions in hours worked while the receipt numbers for both job retention support and unemployment benefits remained very low in international comparison (Panel D).[4] This may partly reflect weak benefit coverage of the non-employed in Korea (OECD, 2021[4]).

Figure 2.6. The interplay of unemployment benefits and job retention support across countries

Recipients of unemployment benefits (UB) and job retention scheme (JRS) support as a percentage of the working-age population



Note: In some countries, the figures represent an aggregation across different schemes of the same benefit type. For Denmark, France and Sweden, complete JRS figures are missing before March 2020. For Denmark, JRS numbers refer to two schemes, the pre-existing work sharing scheme and the wage compensation scheme introduced in March 2020; monthly figures for both UB and JRS were interpolated from quarterly time series. For the United States the figures reported are claimant, not recipient, numbers. JRS figures deviate from those shown in Figure 2.2 mainly because they are expressed relative to the working-age population, not dependent employment. For details on the programmes included for each country and methodological notes, please consult the SOCR-HF database.
Source: OECD Social Benefit Recipients – High-Frequency database (SOCR-HF), https://www.oecd.org/fr/social/soc/recipients-socr-hf.htm.

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These trends illustrate the different – and lesser – role that out-of-work income support has played during the COVID-19 crisis compared to previous economic downturns. In previous crises, unemployment insurance benefits represented the "first line of defence" of social protection systems, supporting the incomes of workers who lost their jobs often for extended time periods. During the global financial crisis, for example, the number of unemployment insurance benefit recipients relative to the working-age population rose by 90% between 2007 and 2009 across the OECD and declined only little in 2010 (OECD, 2014[19]). During the current crisis, broadly accessible and generous job retention schemes represented this "first line of defence" in most countries, temporarily protecting jobs rather than just incomes, and taking most of the pressure off unemployment benefit systems.

2.1.3. Paid sick leave

During the COVID-19 pandemic, paid sick leave[5] played a crucial role in containing the spread of the virus and protecting simultaneously workers' health, jobs and incomes (OECD, 2020[20]). First, paid sick leave complemented other epidemic containment measures, reinforcing their action. The introduction of temporary paid sick leave for COVID-19-related diseases in the United States, for example, contributed to an 18% decrease in full-time presence at the workplace and an 8% increase in staying at home, as evident from cellular mobile data (Andersen et al., 2020[21]). Its introduction led to an estimated one daily prevented COVID-19 case per 1 300 workers, or a 56% lower case number (Pichler, Wen and Ziebarth, 2020[22]). Second, paid sick leave contributed to protecting workers' health by providing income support to workers (potentially) exposed to the virus, therefore permitting them to self-isolate. Survey data for Israel collected in the lead-up to the COVID-19 outbreak indicated that 97% of adults reported they would quarantine if their wages were compensated, whilst compliance would drop to 57% without such compensation (Bodas and Peleg, 2020[23]). Third, paid sick leave helped to preserve jobs by reducing pressure on unemployment benefit systems and job retention schemes. Job losses in the United States between 8 March and 25 April 2020, measured by the number of initial unemployment insurance claims, were larger in the 38 states that did not have statutory paid sick leave policies in place (Chen et al., 2020[24]). Fourth, paid sick leave supported workers' incomes by ensuring an uninterrupted continuation in income for those either affected by the virus or otherwise asked to self-isolate. The temporary expansion of paid sick leave in several countries to parents who had to take care of children as schools were closed further strengthened its role as an income security instrument (OECD, 2020[20]).

Many countries expanded paid sick leave during the first pandemic wave, but only few have made additional changes since

Most OECD countries reacted to the outbreak of the COVID-19 pandemic with paid sick leave extensions of various types, improving the accessibility and increasing the generosity of the system. Most of the measures taken, however, were temporary and remained limited to people affected by COVID-19. The main measures included:

- *Easier access and broader coverage:* some countries facilitated access to benefits by delaying or waiving the need for medical certification or allowing online applications. Other countries lowered the qualification requirements to entitlement to paid sick leave. Canada, for example, initially reduced the entitlement requirements from 600 to 120 insurable hours of employment (increased again to 420 hours as of September 2021). Over 25 OECD countries eased or extended access to sickness benefits for self-employed workers who were sick with COVID-19 or in quarantine (OECD, 2020[20]). Before the pandemic, self-employed were entitled to sickness benefits in many countries, but access was often limited or voluntary (OECD, 2019[25]).
- *Access to paid sick leave during quarantine:* more than half of all OECD countries extended benefit coverage also to quarantined workers or introduced new crisis payments for both sick and quarantined workers. Australia, for example, introduced a special unemployment benefit that people who are sick from COVID-19 can claim as soon as they have exhausted their accrued employer-provided sick-pay entitlements (OECD, 2020[20]).
- *Abolition of waiting periods:* about one in three OECD countries temporarily abolished waiting periods, thus improving workers' income security and slightly raising the implied income replacement rates. France, for example, waived its waiting period for both employer-provided sick pay and sickness benefits. Ireland increased benefit levels and the maximum duration of its sickness benefits, and waived the waiting period (OECD, 2020[20]).
- *Exemptions of employer costs:* about one in three OECD countries also introduced measures to support or eliminate employer costs for sick pay (ESPN, 2021[26]). In Luxembourg, for example, a

temporary legal change allowed the National Health Fund to pay for the sick leave from the first day instead of taking over only after the end of the month of the 77th sick day.

- *Introduction of hitherto non-existing entitlements:* before the pandemic, two OECD countries stood out as having no statutory regulations on paid sick leave in place. Both countries decided to react. The United States, which had no federal paid sick leave requirements[6] before the pandemic, introduced two weeks of mandatory paid sick leave for workers with COVID-19-related symptoms or in quarantine, paid by the employer initially but fully reimbursed by the federal government (the programme expired in 2021). Korea provided exceptional sickness benefits through its 2015 Epidemic Act to workers who were hospitalised because of COVID-19 (OECD, 2020[20]).

Limited additional measures were taken to strengthen paid sick leave systems as further waves of the pandemic unfolded, but about half of the extensions made during the first pandemic wave or during the first year were still in place in December 2021 (Table 2.4). A number of countries with only basic sick leave systems, or no such system at all, are considering structural reforms. This includes in particular Ireland, which published a draft Sick Leave Bill with statutory employer-provided sick pay in November 2021 (yet to be approved by parliament at the time of writing), Korea, which is piloting a government-provided sickness benefit from July 2022 onwards, and New Zealand, which is currently developing a government-provided social insurance that will cover both unemployment and temporary sickness.[7]

Table 2.4. About half of the extensions in paid sick leave were still in place two years later

Extensions in paid sick leave for employees (employer-provided sick pay and/or government-provided sickness benefits) since January 2020, situation as of December 2021

	Extensions still in place	Extensions expired
Reduction in waiting period	Chile, Denmark, Estonia, France, Portugal, Spain, Sweden	Canada, Ireland, Latvia
Increase in benefit level	Australia, Belgium, Chile, Finland, Greece, Italy, Korea, New Zealand, Poland, Portugal, Spain	Canada, Czech Republic, Ireland, Slovak Republic, Slovenia, United States
Reduction in employer costs for sick pay	Austria, Denmark, Estonia, Germany, Hungary, Italy, Korea, Norway, Spain, Sweden	Latvia, Luxembourg, Slovak Republic, Slovenia, United States

Note: All changes are limited to COVID-19 except in Belgium, Norway and Sweden where the measures include all types of illness. The changes refer to measures affecting employees though some include self-employed. Countries with missing information are not reported.
Source: OECD Questionnaire on Policy Responses to the COVID-19 Crisis; OECD (2020[20]), "Paid sick leave to protect income, health and jobs through the COVID-19 crisis", https://doi.org/10.1787/a9e1a154-en; ESPN (2021[26]), *Social protection and inclusion policy responses to the COVID-19 crisis,* https://ec.europa.eu/social/main.jsp?langId=en&catId=89&newsId=10065&furtherNews=yes.

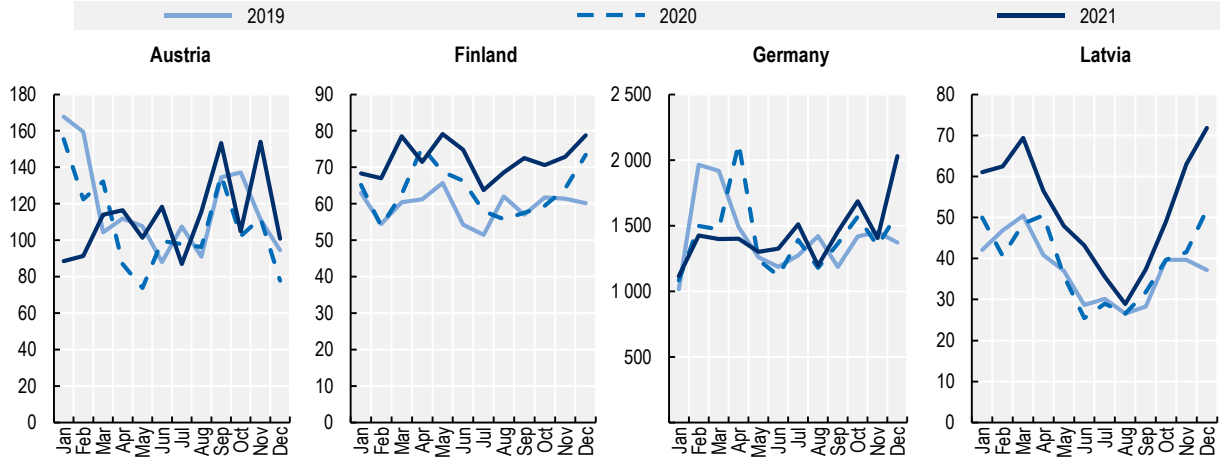
Take-up of paid sick leave reflects the changing role of paid sick leave over the course of the pandemic

The changing role of paid sick leave systems over the course of the pandemic, and their interaction with other policy interventions, is reflected in benefit take-up. Data for four European countries show a notable increase in take-up at the onset of the pandemic in spring 2020 in Finland and Germany and smaller upticks in Latvia and possibly Austria (Figure 2.7). The rapid shift to teleworking in many occupations and the introduction or expansion of generous job retention schemes limited further rises in paid sick leave numbers. Workers became less exposed to the virus, and if they were, many continued receiving job retention support rather than having to go on paid sick leave. As a result, take-up up rates declined again. In the subsequent phases of the crisis, changes in take-up reflect the development of the pandemic and societies' public-health responses – with variation over time and across countries in vaccination, incidence, and hospitalisation rates, the abolition of extensions implemented in paid sick leave systems, and the recognition of "long COVID-19" as an occupational disease (*see below*). The most recent available data, for late 2021, show an increase in take-up of paid sick leave with the emergence of the Omicron variant, when – in the context of high vaccination rates and a much lower hospitalisation risk – higher COVID-19

infection rates did not prompt costly containment measures such as lockdowns. Indeed, many countries responded to rising incidence rates and associated worries about the continuation of essential services and infrastructure by easing quarantining rules rather than further adjusting paid sick leave regulations or introducing further confinement measures. Overall, the take-up of paid sick leave in the four countries has only been a little higher during the COVID-19 pandemic than in 2019, and "traditional" seasonal variation has often been larger than the variation during the pandemic.

Figure 2.7. Take-up of paid sick leave has strongly varied over the course of the pandemic

Monthly recipients (in thousands) of paid sick leave in selected OECD countries over the course of the pandemic, January 2019 to December 2021



Note: Monthly averages for Finland and Latvia, numbers at the beginning of the month for Germany and at the end of the month for Austria. The data for Finland and Latvia exclude recipients of employer-provided sick pay, i.e. the first nine respectively ten days of sick leave.
Source: Administrative data available online (Finland, Germany) or provided by national authorities (Austria, Latvia).

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Policy priorities are changing as countries move out of, and beyond, the pandemic

It is still early days to draw clear lessons for the functioning of paid sick leave systems and the extensions taken during the crisis because empirical evidence on take-up, health outcomes, and the impact on labour markets and poverty prevention are still limited. Simultaneous adaptations and increases in other benefits, such as job retention schemes, limit the specific lessons that can be learned for paid sick leave schemes alone.

One take-away is that a good way of preparing for future pandemics, or even future COVID-19 waves, would be to implement mechanisms that, in times of crisis, automatically and temporarily extend paid sick leave entitlements and reduce employer costs.[8] Only few OECD countries have reacted to the COVID-19 pandemic by introducing, or improving, such legislation. Others could consider to follow their lead.

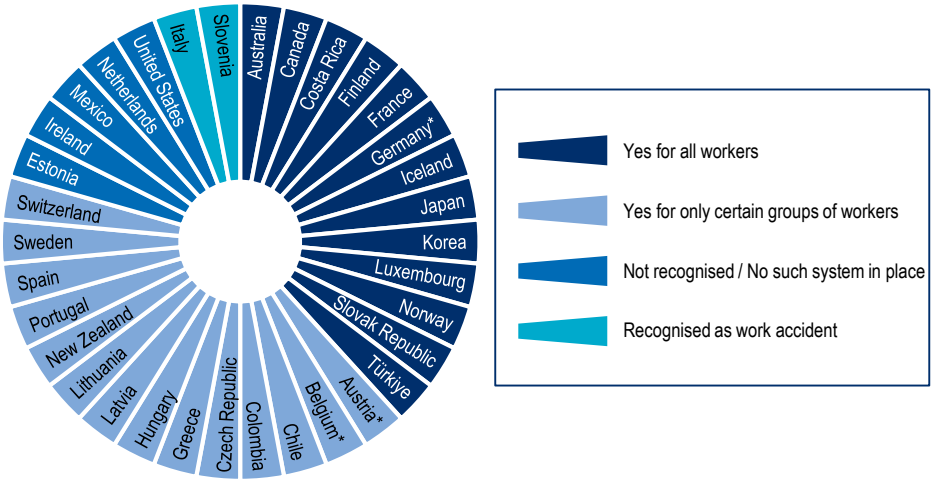
Moving out of the acute phase of the pandemic, the support for the many people with long COVID-19 needs to become a top priority, especially as their return to work appears to be difficult (HSE, 2021[27]). Many OECD countries are moving ahead by recognising COVID-19 as a work injury or an occupational disease (ILO, 2020[28]). This may give workers access to longer-term compensation of lost earnings ("workers' compensation"), better coverage of medical expenses and better return-to-work support.

More than half of all OECD countries now consider COVID-19 to be an occupational disease, at least for specific groups of workers (Figure 2.8). The main economic sectors considered as risk groups for

COVID-19 include health care, residential care, and social work (Eurostat, 2021[29]), all characterised by female-dominated workforces. In Austria, the number of sectors covered is larger and includes occupations in public and private welfare (schools, kindergartens and nurseries), medical laboratories and prisons. In Japan, sick workers are entitled to workers' compensation if they require recuperation care and long-term leave because of "long COVID-19" symptoms. In Italy and Slovenia, contraction of COVID-19 at work entitles workers to compensation under the claim of an accident at work. In Germany, infections with COVID-19 can be recognised as an accident at work for all groups of workers, with rather tight regulations, and as an occupational disease for workers working in health services, welfare services and laboratories. A few other countries make a similar distinction.

Figure 2.8. More than half of all OECD countries recognise COVID-19 as an occupational disease

Recognition of COVID-19 as an occupational disease or work accident, situation as of December 2021



Note: "*" may recognise COVID-19 as an occupational disease or work accident. Countries with missing information are not reported.
Source: Country responses to OECD Questionnaire on Policy Responses to the COVID-19 Crisis and Eurostat (2021), https://ec.europa.eu/eurostat/en/web/products-statistical-reports/-/ks-ft-21-005.

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In practice, access to workers' compensation benefits may be easier, and the number of recognised cases ultimately larger, in countries that recognise COVID-19 as an occupational disease only for workers in certain economic sectors or occupations.[9] In such cases, the requirements for proving infection risks may be, and typically are, lighter, because the risk is high and the infection route often clear. By contrast, in countries that cover all sectors in principle, rules can be much tighter.

2.1.4. Active labour market policies

Active labour market policies (ALMPs) assist jobseekers and people at risk of losing their job in finding or remaining in quality employment. They also support employers in finding employees with the right skills. ALMPs encompass the provision of labour market services (employment services and administration of benefits) and active labour market measures (training, employment incentives, sheltered and supported employment and rehabilitation, direct job creation and start-up incentives).[10] Throughout the COVID-19 crisis and recovery ALMPs have played a crucial role, and they will continue to be of importance in the face of new labour market needs.

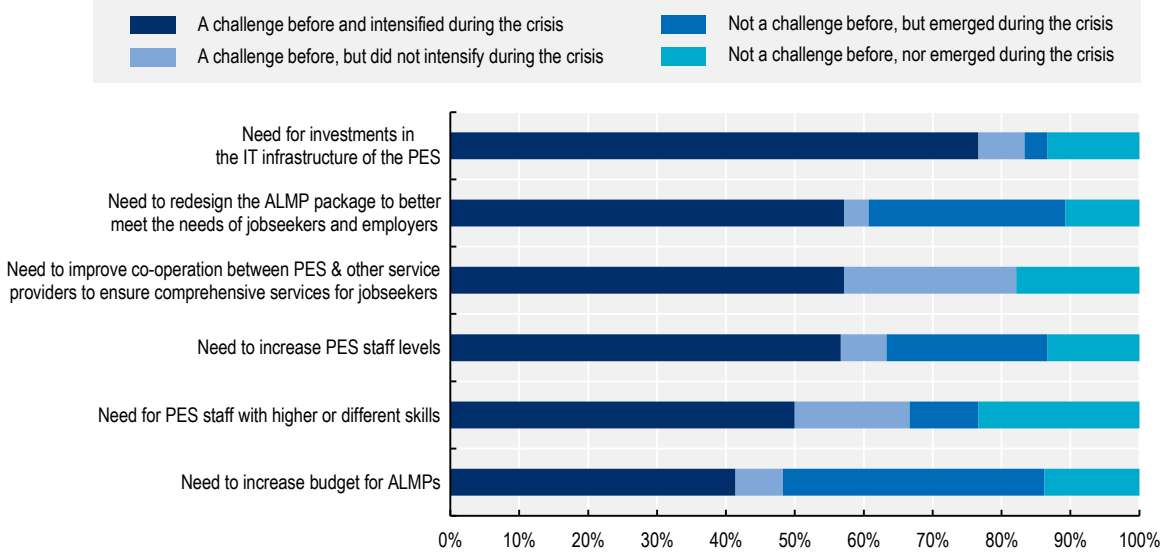
The changed environment: Challenges facing the public employment services

Prior to the onset of the pandemic, the majority of public employment services (PES)[11] already faced significant challenges. For many countries, this took the form of ongoing needs to further invest in the IT infrastructure of the PES, shortages of (skilled) staff and challenges related to effective co-operation with other organisations. Many countries were also struggling with providing appropriate support for jobseekers with multiple or severe employment obstacles (90% of the OECD countries for which data are available) and young jobseekers (83% of countries).

COVID-19 not only brought new challenges, but also exacerbated many pre-existing challenges faced by the PES – see Figure 2.9. In particular, for many countries the COVID-19 crisis contributed to the emergence of, or intensified, the need to redesign the ALMP package to better align it with the labour market situation (86% of countries), to make investments in IT infrastructure (79%), to increase staffing levels (79%) and to further increase the budget for ALMPs (79%). In addition, the pandemic put on hold plans by some PES to change their internal functioning or implement major digital projects which became less of a priority in the actions required to address the consequences of the pandemic (European Commission, 2021[30]).

Figure 2.9. COVID-19 exacerbated pre-existing challenges and brought about new ones for the public employment services

Main challenges facing the public employment services (PES), share of OECD countries



Note: Statistics based on 30 country responses (AUS, AUT, BEL, CHE, CHL, CRI, CZE, DEU, DNK, ESP, EST, FIN, FRA, GRC, HUN, IRL, ISL, ITA, JPN, KOR, LTU, LUX, LVA, MEX, NZL, POL, PRT, SVK, SVN, SWE).
Source: OECD Questionnaire on Policy Responses to the COVID-19 Crisis.

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The need to redesign the package of ALMPs is reflected also in the enhanced difficulties during the crisis in finding job opportunities for, and providing supports to, jobseekers facing major or multiple obstacles and young jobseekers (noted by 79% and 76% of countries respectively). This often requires resource-intensive individualised ALMPs in co-operation with other service providers such as health and social services (OECD, 2021[31]). The COVID-19 crisis also contributed to challenges in supporting employers, with more than four-in-five countries having experienced increased difficulties in filling vacancies in certain frontline occupations.

Spending on active labour market policies further increased in 2021, but to a lesser extent than in 2020

At the onset of the COVID-19 pandemic in 2020, countries responded rapidly by increasing their budgets for PES and other ALMPs (OECD, 2021[32]). Despite the increased needs and budgets, actual spending did not increase in all countries and for all types of ALMPs, as the provision of ALMPs faced significant challenges during the times of stricter confinement and physical-distancing rules. The increase in public spending was generally higher for passive labour market policies (unemployment benefits, job retention schemes). The increases in actual spending on ALMPs and passive labour market policies were in many countries higher than the increase in the number of unemployed, as both types of policies aimed to prevent unemployment and income losses before these could materialise, thus covering groups beyond the (registered) unemployed.

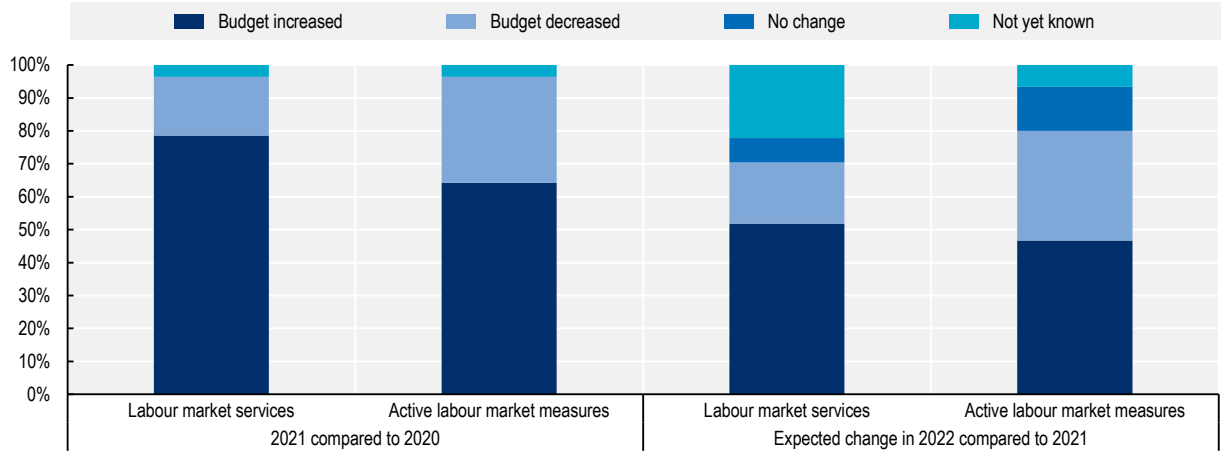
Faced with ongoing high demand for ALMPs in 2021 and having established better ways to provide ALMPs in the context of the challenging health situation, heightened levels of public spending on ALMPs continued in 2021 for many countries (Figure 2.10). Budgets for labour market services increased in almost four-in-five countries in 2021 relative to 2020. This effect was somewhat more muted for active labour market measures, for which public expenditure increased in 64% of countries for 2021. Within the basket of active labour market measures, training and employment incentives saw the highest share of countries increasing expenditure for 2021. Indeed, investing in training measures and well-targeted employment incentives can be particularly effective in supporting the labour market during a crisis and the subsequent recovery (Card, Kluve and Weber, 2018[33]; OECD, 2021[4]; 2021[34]).

However, not all countries opted to tread the same path, with approximately one-in-five countries decreasing expenditure for labour market services in 2021 relative to 2020 (Canada, the Czech Republic, Finland, Luxembourg, Mexico). This trend was sharper for public expenditure on active labour market measures, where one-in-three countries reduced public expenditure in 2021 relative to 2020. This reduced expenditure in some countries was likely due to a combination of factors, including the significant pressure on public finances since the onset of the pandemic and the fact that the peak in unemployment had been reached during 2020 for many countries.

Looking forward, among countries where budgetary decisions for 2022 were known at the end of 2021, two-in-three expect to further increase the budget for labour market services in 2022 relative to 2021, and one-half for active labour market measures. Overall, this means that in 2022 ALMP budgets will be significantly higher than in 2019 before COVID-19, even though OECD-wide employment recovered its 2019 level already at the end of 2021 – see Chapter 1. These trends highlight a broad recognition within many countries of the ongoing role to be played by ALMPs in promoting labour market outcomes. Countries should also be aware of the risks associated with withdrawing budgets too quickly as, for example, truly committing to enhanced digitalisation will take substantial investments before these generate efficiency and effectiveness gains.

Figure 2.10. The majority of OECD countries increased expenditure on active labour market policies in 2021, with many countries planning further increases in 2022

Share of OECD countries



Note: Labour market services includes public (or private, with public financing) provision of employment services and administration of benefits: statistics based on 29 country responses (AUS, AUT, BEL, CAN, CHE, CHL, CRI, CZE, DEU, DNK, ESP, EST, FIN, FRA, GRC, HUN, ISL, ITA, JPN, KOR, LTU, LUX, LVA, MEX, NZL, PRT, SVN, SWE, USA). Active labour market measures includes training, employment incentives, sheltered and supported employment and rehabilitation, direct job creation and start-up incentives: statistics based on 31 country responses (in addition: IRL, TUR).
Source: OECD Questionnaire on Policy Responses to the COVID-19 Crisis.

StatLink https://stat.link/ja7bpx

The significant increase in resources put in place as a result of the pandemic cannot be assumed to have necessarily enhanced effectiveness and coverage of ALMP provision. Continuous monitoring and evaluation of policy measures will be important to ensure that resources are only allocated to those areas which have a proven track record of providing effective support to jobseekers and employers.

Re-orientation of public employment services strategies and operating models, including via greater digitalisation

In response to the COVID-19 crisis, PES across the OECD adapted their strategies and operating models to better deliver their services. In almost three-in-four countries, the PES have made, or plan to make, changes to the way in which they work with employers. This exceeds by far the extent of reported changes in other areas. For example, Lithuania's PES plan to establish a separate employer services team to work strategically with employers on national level. Slovenia is working to further develop its existing formal national partnership with employer associations on a regional and local level to find new solutions for tackling labour market bottlenecks. For many countries, such changes go hand-in-hand with efforts to enhance digitalisation of services and processes, including increased online outreach efforts and implementing online job-matching and recruitment services. Australia, for instance, created a new *Jobs Hub*, which helps to connect jobseekers with employers and provides tools to aid jobseekers in identifying jobs that match their skills profile.

A high share of countries have also adjusted, or plan to adjust, their PES case management strategy, in terms of the frequency or intensity of job search assistance for jobseekers (66% of countries) and in how tasks are allocated among PES staff (57%). In bringing about change in this area, some countries (including France, Iceland, Japan, Lithuania, Mexico, Slovenia) have increased or plan to increase the intensity of supports provided to certain groups of jobseekers, such as individuals at high risk of becoming long-term unemployed, women, young people and migrants. In addition, more than half of countries have

adapted job search requirements for jobseekers. In some cases, this took the form of a temporary suspension or relaxation of job search obligations for jobseekers during confinement periods, while more recently countries have been taking steps to strengthen these requirements again.

Across almost all areas of change to PES operating models and strategies, both implemented and planned, changes are associated with greater digitalisation efforts. This includes developments in reaching out to jobseekers and the inactive (e.g. Italy's development of apps to reach out to young people out of work), improving the profiling of clients (e.g. Luxembourg's use of artificial intelligence in a new jobseeker profiling method) and enhancing the job-matching process (e.g. Flanders' development of a *Talent API* to compare supply and demand of new vacancies with client files and CVs). The United States seeks to reduce administrative burdens across public sector agencies (including employment services) and calls on them to design and deliver services that people of all abilities can navigate, use technology to modernise and simplify processes, and consider ways to reduce the "time tax" in getting people the services they need.

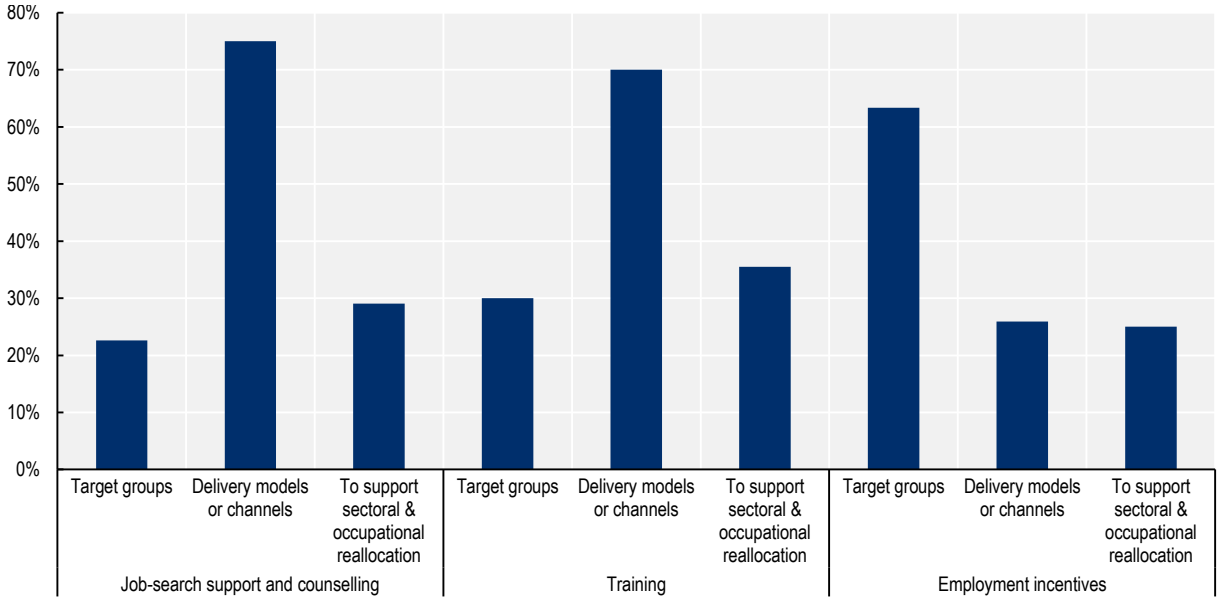
Many countries are also in the process of implementing wider-scale reforms to their PES strategies and operating models. Examples include the new *Nordic labour market service model* in Finland, which came into effect in May 2022 and aims to support rapid employment and re-employment by introducing more intensive support to jobseekers and on an earlier basis than was the case previously. The move to this model precedes an even larger reform, which will see employment services transferred to municipalities in 2024. In Australia, the *Workforce Australia* reform aims to deliver a more modern and sophisticated service, where job-ready jobseekers can self-manage their return to work using digital services. The digital employment services platform will also support upskilling, proactive employer engagement and matching jobseekers with job opportunities. Sweden is scaling up contracting out to private employment services, via an elaborate reform which is expected to begin implementation in 2022.

Adapting the design and mode of delivery of active labour market policies to support an inclusive recovery

Faced with containment measures restricting the ability for in-person service delivery during the pandemic, countries needed to adapt the mode of delivery of ALMPs in order to continue their service provision. The route to solving this problem was most commonly investment in the digitalisation of PES services and processes. While some countries had already taken steps towards a more digital provision in preceding years, the COVID-19 pandemic undoubtedly acted as an accelerant to the digital advancement of many PES (OECD, 2022[35]). Such digitalisation efforts were particularly prevalent in the area of job search support and counselling, where three-in-four countries made changes to the mode of delivery (largely involving increased use of telephone and digital channels) in 2021 relative to pre-pandemic times (Figure 2.11). Examples include the *e-AMS* tool introduced by the Austrian PES (*AMS*) to assist with the online provision of services for jobseekers, including distance counselling, and the introduction of a *Rapid Return to Work Service* in New Zealand which was a phone-based employment service lasting up to six weeks to support clients with work readiness, assessing transferable skills and job interview preparation. The other common area of changes to modes of delivery was training, with 70% of countries implementing changes to deliver these initiatives digitally in 2021.

Figure 2.11. Countries have adapted the design of active labour market policies in response to the crisis

Share of OECD countries where the design is different in 2021 compared to pre-crisis (2019)



Note: For job search support and counselling: statistics based on 32 country responses (AUS, AUT, BEL, CHE, CHL, CRI, CZE, DEU, DNK, ESP, EST, FIN, FRA, GRC, HUN, IRL, ISL, ITA, JPN, KOR, LTU, LUX, LVA, MEX, NZL, POL, PRT, SVK, SVN, SWE, TUR, USA); for training: statistics based on 33 country responses (in addition: CAN); and for employment incentives: statistics based on 30 country responses (not: CRI, DEU, MEX, USA; in addition: COL). Only ALMP categories with the largest changes are shown. The changes might have taken place either in 2020 or in 2021.
Source: OECD Questionnaire on Policy Responses to the COVID-19 Crisis.

StatLink https://stat.link/h7zpbd

Countries also made changes to the targeting of ALMPs. This was most common in the areas of employment incentives and training, where 63% and 30% of countries altered the targeting of these initiatives, focusing on groups most impacted by the crisis and those at risk of long-term unemployment. Examples are the expansion of the coverage of Korea's *Special Employment Promotion Incentive* to include jobseekers registered with the PES already from their first month onwards and changes to the eligibility criteria for Ireland's *JobsPlus* recruitment subsidy to make it available earlier to persons under 30 years of age.

Countries also made changes to ALMPs to support sectoral and occupational reallocation. This was most prevalent in the provision of training, with 35% of countries making changes in this area in 2021. These efforts centred on focussing training efforts on emerging workforce needs and sectors experiencing skills shortages. Going forward, measures to improve skills and support jobseekers who are unlikely to find a job in their previous sector or occupation will be increasingly important to connect people with jobs (OECD, 2021[34]).

These trends in adapting ALMP design are likely to continue during 2022. The most cited areas for intended change are the mode of delivery of job search support and counselling (53% of countries) – much of which is related to further digitalisation initiatives – and the target groups of active labour market measures (39%). Examples include a new youth engagement contract launched in France in March 2022 to offer individualised and reinforced support for young people aged between 16 and 25 who are far from employment (including young people with disabilities) and the future Employment Act in Spain which will extend the list of priority groups for employment policies (to people with limited intellectual capacity,

migrants, beneficiaries of international protection, female victims of gender-based violence, people belonging to ethnic minorities and workers from sectors undergoing restructuring).

Many countries also plan to introduce new ALMPs to meet labour market needs. Some prominent examples include a Portuguese pilot project (*Incubadoras Sociais de Emprego*) to encourage a more active and collaborative approach to job search among jobseekers, a Finnish experiment on recruitment subsidies for sole entrepreneurs and Sweden's plans to introduce an entry jobs programme (*etableringsjobb*) to stimulate employment for newly arrived immigrants and the long-term unemployed. With the aim to improve the targeting of ALMPs, some countries are identifying groups of jobseekers in need of better support (e.g. Mexico intends to place increased focus on certain vulnerable groups such as young people, women, migrants or refugees), while other countries seek to expand supports beyond registered jobseekers by increasing efforts to target those at risk of unemployment (e.g. Latvia).

Post-COVID-19 priorities for active labour market policies and public employment services

Moving forward, countries will need to be mindful of the ongoing role to be played by ALMPs in supporting jobseekers, displaced workers and employers and leverage the investments made during the pandemic to promote a more resilient and inclusive labour market. This includes committing to continued investment in the digital capacity of the PES, while ensuring that steps are taken to ensure that people without digital skills or means of accessing digital services are not excluded from PES support.[12] In addition, countries should continue to invest in programmes that help jobseekers, displaced workers and those at risk of job loss to transition across sectors and occupations.

Due to the wide variety of programmes adapted or introduced over the course of the pandemic, in addition to large-scale increases in public expenditure to enable these changes, it is important that these measures are evaluated to assess their effectiveness. Action should then be taken swiftly on the basis of the evaluation results, to terminate or improve measures found to be ineffective.

As countries take steps to further digitalise, emphasis should be placed on making better use of technology and data. Technology and data have the potential to increase efficiency in administrative processes, enhance jobseeker profiling, target support to individual needs, match jobseekers with vacancies and imbed a monitoring and evaluation framework of ALMPs into the policy making process. As in the case of specific labour market measures and services, it is also vitally important to monitor and evaluate the impact of digital tools beyond their take-up. This will allow countries to better understand their effects on the labour market and service provision, and to fine-tune them.

More recently, Russia's war of aggression against Ukraine has been posing new challenges to the PES in many OECD countries – particularly those neighbouring, or in close proximity to, Ukraine – that have been facing massive refugee inflows. With work and access to the labour market playing an important role in the integration and social inclusion of refugees (see Chapter 1 and OECD (2016[36])), PES will need to adapt their offerings to this rapidly evolving situation. One initiative is to flag vacancies that can be particularly suitable for refugees due to lower requirements for national language skills. Moreover, information provided in Ukrainian (including PES directly hiring Ukrainian refugees and training them to support other refugees), language training, quick recognition of foreign qualifications and skills and fast delivery of work permits are needed. Many countries have already adapted their services along these dimensions.

Spotlights on specific policies for women, young people, frontline workers and racial/ethnic minorities

Women, young people, frontline workers and racial/ethnic minorities are groups that experienced particular difficulties in the COVID-19 crisis – see Chapter 1. This section puts the spotlight on specific policies that OECD countries have had in place to support them.

Spotlight 1: Labour market and social policies to support women during the COVID-19 crisis

The COVID-19 crisis, through its peculiar nature as a public-health crisis, has had a gendered impact on labour market and social outcomes, and brought specific challenges for women. While more women than men lost their job initially, women's employment rate has by now improved relative to men's over the crisis period. And while women are over-represented in health care – globally, they make up two-thirds of the health care workforce (Boniol et al., 2019[37]) – a slightly smaller share of women than men worked in jobs with high COVID-19 exposure (see Chapter 1). Women were also over-represented in the hardest-hit sectors within the informal economy, making them vulnerable to job loss with less access to social protection (OECD, 2021[38]). At home, they continued to do the large majority of unpaid work, resulting in increased care burdens when formal care services were closed or disrupted. During lockdowns, victims of domestic violence were more exposed to their abusers and faced increased risks of violence (OECD, 2022[39]; 2020[40]). These pressures put women under particularly high psychological strain and risks of poorer mental health. Indeed, women were more at risk of depression than men, and mothers of young children were particularly likely to report that the pandemic has negatively affected their mental health (OECD, 2022[39]; 2021[41]; 2021[42]).

Unpaid work increased during the pandemic, especially for women

The closure of formal care facilities brought a commensurate increase in households' care burdens, while the suspension of the food and service industry also meant an increase in non-care housework. Much of this increased unpaid work fell on women, though there are large differences across OECD countries. According to the 2020 OECD *Risks that Matter* Survey (OECD, 2021[43]), mothers with young children were nearly three times as likely as fathers (62% versus 22%) to report that they took on most or all of the additional unpaid care work related to school or childcare facility closures. Even in countries where the additional unpaid work was shared between partners, the prior unequal distribution of housework meant that the additional work weighed much more heavily for women. Before the pandemic, across the OECD on average, women spent about two hours more per day on unpaid work than men (Queisser, 2021[44]).

To help parents to cope with the issues imposed by the additional unpaid work, governments took measures in the areas of flexible forms of work, leave, childcare and income support (OECD, 2022[39]). Governments assisted parents by providing emergency additional paid or unpaid leave, which was crucial to mitigate the impact of childcare and school lockdowns, though the leave periods were often not long enough. Examples include the adjustment and extension of parental leave arrangements and/or the provision of care-related leave entitlements and benefits (e.g. Australia, Canada, Chile, Denmark, Ireland, Israel, Korea, Latvia, Luxembourg, Norway) also in the form of additional part-time parental leave (e.g. Belgium), as well as tax reliefs for small and medium-sized enterprises providing paid sick and family leave wages to their employees (e.g. the United States). Other measures supported childcare availability and accessibility by granting financial assistance to childcare providers during the pandemic (e.g. Ontario in Canada, the Czech Republic, the United Kingdom), by ensuring the availability of different modes of childcare provision (e.g. Hungary), or by strengthening childcare benefits (e.g. Chile, Latvia, Slovenia). Additional interventions include emergency income support to families through extraordinary allowances, one-off payments or the extension of the disbursement of family benefits (e.g. Czech Republic, Hungary).

Working from home can be a double-edged sword for women

While before the COVID-19 pandemic, women seem to have been only slightly more likely to telework than men, women shifted to telework much more quickly than men in the first phase of the pandemic as schools and other childcare facilities were closed. In May 2020, the difference between the shares of male and female workers working from home was 18 percentage points in Australia, and nine in France (Ker, Montagnier and Spiezia, 2021[45]). It is still unclear to what extent these higher rates of teleworking among

female workers reflect gender-related occupational differences, and hence potential differences in the "teleworkability" of male and female jobs, or mainly gender differences in teleworking behaviours within occupations. It also remains to be seen whether the shift to telework is temporary or to what extent it becomes persistent (Queisser, 2021[44]).

Telework has its pros and cons for gender equality. During the COVID-19 crisis, it seems to have helped to protect women, and especially mothers, from completely exiting the labour force (OECD, 2022[39]), and OECD data show that both mothers and fathers are optimistic that technology will improve work-life balance (OECD, 2021[42]). Nonetheless, during the pandemic, teleworking mothers suffered negative consequences in terms of productivity (Alon et al., 2022[46]), interruptions during work hours (Andrew et al., 2020[47]) and higher childcare burden (Boll and Schüller, 2021[48]). Gendered changes in work patterns deriving from telework need to be cautiously considered, as they have implications for gender disparities in labour market outcomes, the work-life balance of women and men, and gender equality more broadly (Queisser, 2021[44]). While reduced commuting times and the flexibility of working around care commitments are obvious advantages, blurred boundaries between work and non-work times and spaces can negatively impact work-life balance, especially for women. Furthermore, there is a risk that women who require this flexibility could be seen as less productive and committed in the workplace (Chung, 2018[49]). Depending on workplace practices, teleworking can also lead to less visibility, especially if teleworking is much more common among women than men.

Women entrepreneurs under strain

The COVID-19 crisis has had a disproportionate effect on female entrepreneurs relative to their male peers. Business closure rates of female-led businesses across the world were about 7 percentage points higher than those of male-led businesses between January and May 2020, at 27% vs. 20% (OECD/European Commission, 2021[50]). Although this gender gap subsequently narrowed, the closure rates for women-led businesses remained higher than those for men-led businesses in October 2020 (16% vs. 14%). Even among businesses that continued to operate, women entrepreneurs were more likely to be affected adversely. For example, self-employed women in Germany were more likely to experience an income loss of more than 35% compared to men (Kritikos, Graeber and Seebauer, 2020[51]), while self-employed women in the United Kingdom were also more likely to experience reductions in hours worked and earnings (Reuschke et al., 2021[52]).

This reflects a number of different factors. Women are overrepresented in many of the industries that have been most affected by the crisis, such as food and beverage services, accommodation services, personal services, arts and entertainment, and the retail trade. And again, there are large gender disparities in the burden of additional unpaid work. Between May and October 2020, about one-in-four women business leaders stated that they spent at least six hours per day on domestic responsibilities such as home schooling and childcare relative to 11% of male business leaders (Facebook/OECD/World Bank, 2020[53]). Women were also sometimes not as well supported by COVID-19 emergency measures for entrepreneurs, which in most countries were designed to be gender-blind. This is partly because women entrepreneurs are less likely to use bank loans (many programmes relied on existing bank products), and because women-led businesses are smaller on average than men-led businesses (some supports have minimum thresholds for income from self-employments). At the same time, women entrepreneurs also typically had less access to resources (e.g. external finance) and networks, and differences in financial knowledge likely played a role (OECD, 2022[39]). However, some countries introduced measures that were explicitly targeted at women business owners. In Costa Rica, for example, the FOMUJERES project supported businesses owned by women or groups of women operating in the areas of agriculture, crafts, textile services.

Victims of domestic violence more exposed to their abusers

The onset of the global pandemic brought an increase in officially reported incidents of domestic violence, of calls to helplines, and of visits to websites offering support and assistance (Leight, 2022[54]; OECD, 2021[38]). In Australia, for example, two-in-three women who experienced physical or sexual violence by a current or former co-habiting partner since the start of the COVID-19 pandemic reported the violence had started or escalated since the pandemic began (Boxall et al., 2020[55]). Many countries correspondingly adopted additional measures during the crisis (OECD, 2022[39]). These range from broad gender-inclusive recovery plans and funds that set the fight against violence against women and girls as one of their objectives (e.g. Australia, Canada, Iceland, Italy and Sweden) to specific (emergency) support for the continuation and adaptation of services for violence survivors. Examples include new or strengthened emergency helplines, websites and web apps (e.g. Canada, Chile, Costa Rica, Greece, Hungary and Portugal); increased assistance through resource centres, crisis intervention units, drop-in services and direct support provision (e.g. Australia, Canada, Costa Rica and Korea); information, outreach and awareness raising activities (e.g. Austria, the Czech Republic, Greece, Latvia and Portugal); as well as capacity building for staff, guidance provision and financial support to organisations operating in the field (e.g. Canada, Costa Rica, Greece, Iceland, Korea, Latvia, Portugal and Sweden). Some also engaged in data collection, the creation of special task forces and increased inter-governmental co-operation (e.g. Canada, Greece, Luxembourg, Sweden and Switzerland); and strengthened judiciary support through, for example, the application of more severe criminal punishment for gender-based violence cases (e.g. Costa Rica, the Czech Republic and Korea).

Spotlight 2: Protecting young people from scarring effects and economic hardship

As in previous crises, young people have borne a disproportionate share of the labour market and social cost of the COVID-19 crisis, although they have been less vulnerable to the virus itself. Recognising the need for rapid action, most OECD governments included in their emergency support packages a range of measures specifically targeted at young people (OECD, 2021[56]). The support reflects not least the lessons learned from 2008-09 global financial crisis, when government support for young people who were not in employment, education or training (NEETs) often came too little, too late. As OECD economies bounced back from the initial COVID-19 shock and labour market outcomes improved, youth unemployment rates also returned to their pre-crisis levels in many – though not all – OECD countries. Meanwhile, the recovery in young people's employment rates still lags that of older adults – see Chapter 1. In the context of these developments, it is important not to lose sight of the young people most heavily affected by the crisis for whom support has not always been adequate. This group includes the cohort of young people who entered the labour market during the crisis; young NEETs who are not registered with public employment or social assistance services (the so-called "hidden NEETs"); students with insufficient financial means; and young people experiencing poor mental health. As highlighted in the Updated OECD Youth Action Plan (OECD, 2021[57]), they will require additional support to avoid long-lasting scars on their careers and life outcomes.

Supporting young labour market entrants

Many OECD countries have deployed measures to support young labour market entrants in finding and keeping jobs since the beginning of the COVID-19 crisis. Around a third introduced new hiring subsidies for employers who recruited young people, or extended existing schemes during the pandemic; another third already had such schemes in place prior to the crisis (OECD, 2021[56]). In Italy, for example, employers can now receive an exemption of up to 100% of employer contributions to social security over a period of three years (up to a maximum EUR 6 000 per year) when they hire on a permanent basis a 15-35 year-old who is NEET. In more than half (54%) of the 24 OECD countries that have hiring or wage subsidies in place, the number of young workers (15-29 year-olds) benefiting from such subsidies increased between October 2019 and October 2021.

While the literature finds mixed results for hiring and wage subsidies for young people, programmes targeted at disadvantaged young people tend to be more cost-effective than those aimed at young people more generally (Bördős et al., 2017[58]; Kluve et al., 2019[59]). Combining hiring subsidies with additional support measures, such as on-the-job training, can further improve the long-term benefits for the subsidised workers. However, stringent training conditions would have to be compensated with sufficiently generous subsidies to cover employers' opportunity cost and enhance their participation (Caliendo, Künn and Schmidl, 2011[60]; Roger and Zamora, 2011[61]). Only few OECD countries have support or conditions attached to their fiscal incentive schemes: out of the 21 countries for which such information is available, eight mention on-the-job training requirements; seven countries request on-the-job mentoring; four countries oblige companies to keep the subsidised employee for a certain period after the subsidised contract ends; only one country (Austria) offers support to the subsidised employee to find a new job opportunity post-subsidy. Going forward, careful evaluation of the newly introduced or expanded measures is necessary, to avoid that the available subsidies go to young people who would have likely found a job also in the absence of the subsidy (deadweight losses). Where needed, general programmes should be adjusted and targeted to those groups who can benefit the most, for example low-skilled young people who have been unemployed for a longer period.

Many countries have used similar fiscal incentive schemes to support apprenticeships during the crisis. Particularly smaller employers have been reluctant to take on apprentices during the crisis because of the economic uncertainty, financial difficulties, and concerns about how to organise work-based training while respecting physical distancing. As a result, young people often faced troubles finding apprenticeships or work experience opportunities. To encourage and support companies who continued training young people during the crisis, eight countries (Australia, Austria, France, Germany, Ireland, New Zealand, Switzerland and the United Kingdom) introduced new incentive schemes for hiring or retaining apprentices, and another eight scaled up existing schemes (Belgium, Greece, Italy, Korea, Luxembourg, the Netherlands, Norway and the United States) (OECD, 2021[56]). There is some evidence that these schemes may have been effective at supporting the provision of apprenticeship positions: at least eight OECD countries with such schemes in place even experienced an increase in the number of apprenticeship enrolments between the school year 2019-20 and 2021-22. In France, where strengthening uptake of apprenticeships has been a priority for the government since before the COVID-19 crisis, the number of apprenticeship placements rose by 42% in 2020 relative to 2019, and by an additional 37% in 2021. By contrast, Germany experienced a substantial decline in the number of apprenticeship contracts signed in 2020 and 2021, which implies that an unusually high number of young people may have left school without a qualification during the crisis (OECD, 2021[62]). As financial incentives for employers to take apprentices likely come with substantial deadweight losses – i.e. apprenticeships are being subsidised that would have been provided even in absence of a subsidy – their use during the recovery period and thereafter should be evaluated carefully and directed to specific sectors or companies where needed (Kuczera, 2017[63]).

Reaching out to the "hidden NEETs"

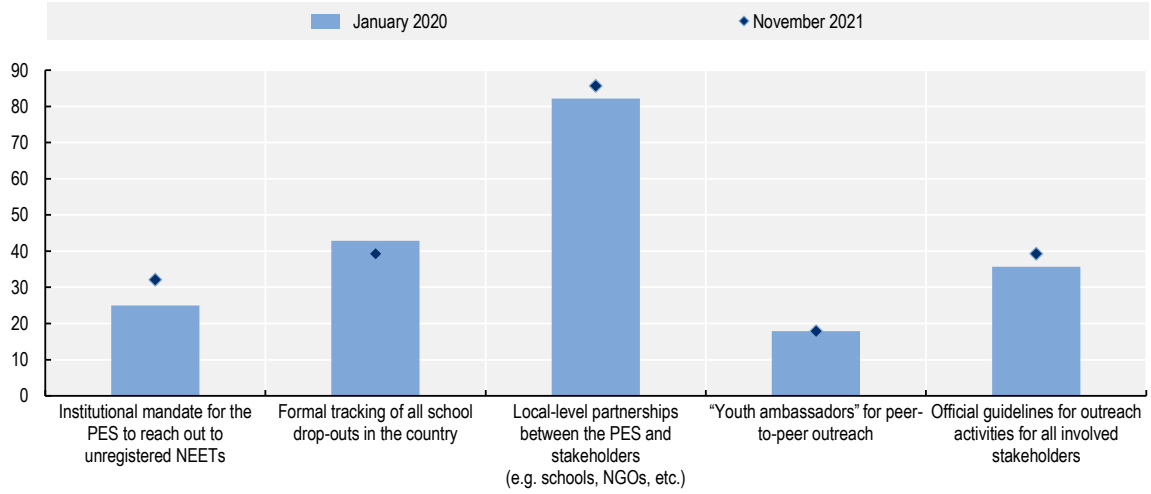
In addition to supporting young labour market entrants, PES quickly adapted their services since the start of the crisis to provide rapid support under very complex labour market conditions to workers who lost their jobs or had to reduce their hours worked (see Section 2.1.4). However, not all young people who are unemployed or inactive reach out to PES for support, for a variety of reasons: they may not be entitled to income support; they may not be aware of the support they can receive; or they may lack trust in public authorities. Pre-crisis data from 2019-21 show that only 40% of unemployed 15-29 year-olds contacted a PES or used their vacancy announcements to find work on average across 29 OECD countries. The shares ranged from less than 15% in Canada, Chile, Mexico and the Netherlands to more than 70% in the Czech Republic, Greece, Lithuania and the Slovak Republic. In comparison, among unemployed 30-64 year-olds, the cross-country average for using PES support as a resource to find work was 53%. The experience from the global financial crisis has illustrated that re-engaging young people in education

or work becomes increasingly difficult after long periods of inactivity (Carcillo et al., 2015[64]; OECD, 2016[65]).

During the COVID-19 crisis, countries have therefore used a combination of outreach tools to establish, and maintain, contact with young people in need of employment support, including to young people not in employment, education or training who are not registered with public employment or social assistance services (the "hidden NEETs"). Across 28 OECD countries for which such information is available, partnerships between the PES and local-level stakeholders (e.g. schools, NGOs, etc.) have been the most popular outreach measure. They are in place in 24 OECD countries (Figure 2.12). Some countries also formally track all school dropouts and provide official guidelines for outreach activities for all involved stakeholders, though the shares are much lower (39% of countries in 2021 in both cases). Only a minority of countries have peer-to-peer outreach in place, one example being the "young marketers" in Sweden (OECD, 2016[65]). A number of countries have made outreach to young people a priority for their employment services during the crisis, including Korea and Spain where the PES were given the institutional mandate to reach out to unregistered NEETs. In Australia, the *Faster Connections and Greater Support for Young People Budget* measure, announced in October 2020, devotes AUD 21.9 million (EUR 14.2 million) to connecting young people with employment services more quickly to encourage earlier intervention and provide greater support for young people in online employment services. In the Netherlands, 35 Crisis Regional Mobility Teams work closely with employment services, employer organisations and trade unions to provide additional support to jobseekers and those at risk of unemployment, with young people being one target group of this scheme.

Figure 2.12. Local-level partnerships are the most widespread tool for reaching out to young people

Percentage of countries with measures in place to reach out to young people who are neither in employment, education or training (NEET) and not registered with the PES, 2020 and 2021



Source: OECD Questionnaire on Policy Responses to the COVID-19 Crisis.

StatLink https://stat.link/anomk3

For many young people who look for a job, basic counselling and job search support will be sufficient, especially with the recent uptake of economic activity. However, young people facing major or multiple employment obstacles may need more comprehensive, tailored measures to support their labour market inclusion. Of the 35 countries for which data are available, 21 mentioned difficulties in finding job

opportunities or providing individualised support to young jobseekers, in 19 of them this challenge further intensified during the COVID-19 crisis. To ensure efficient use of limited resources, (digital) profiling tools can be used to identify and prioritise young people at risk of long-term unemployment. Contracting out employment services to external providers or collaborating with local stakeholders may be an option to increase capacity to deliver individualised support (OECD, 2021[32]). At the end of 2021, three-in-four OECD countries mentioned that they provide individualised support to unregistered NEETs who are brought in contact with the PES.

Providing income support to students affected by job loss

Working students have been among those suffering hardest during the COVID-19 crisis.[13] Many of them worked in sectors heavily hit by the crisis, including hospitality and tourism, with few immediate alternative employment opportunities available. Working often fewer hours, on temporary contracts and with short work histories, these young people have weaker employment protection and less access to social protection. They were also less likely to qualify for some of the emergency support measures introduced or expanded during the crisis, such as job retention schemes not available to part-time workers, unemployment benefits with minimum contribution requirements, or minimum-income benefits with an age threshold. For these young people, the loss of a part-time job can mean a hefty drop in income and bring acute hardship, particularly as they often do not have significant savings that could help to cushion the income shock.

At least 11 OECD countries therefore put in place specific emergency income support measures for students in post-secondary education and at universities at the start of the pandemic (OECD, 2021[56]). These measures usually targeted students who lost part-time jobs, were unable to find work, or experienced financial hardship (Austria, Canada, Colombia, Denmark, France, Germany, Ireland, Japan, the Netherlands, Norway and the United States). Measures taken included the introduction of new allowances, expansion of eligibility of existing measures to students, and adjustments to tuition fees and loan repayments.

The financial hardship experienced by students raised the broader question of the income support measures that countries have in place for this group. At the end of 2021, full-time post-secondary students were entitled to some type of income support in 20 out of 30 OECD countries with available information. However, unemployment benefit and assistance programmes typically come with strict minimum contribution and job availability requirements, for which full-time students would not qualify. In only six OECD countries, a 20-year-old full-time post-secondary student with three months of cumulative work history would be eligible for unemployment benefits or assistance after job loss if actively looking for work. In only seven countries, this young person would qualify for social assistance benefits. Eligibility to social assistance typically depends on household income, for young people often also parents' income. Even young people living on a low income outside their parents' home will generally not be entitled to social assistance benefits below a certain age threshold (e.g. 24 years in Lithuania or 26 years in France). More common income support measures are education grants, low-interest loans, housing support or temporary emergency income support measures, which are available in 12 of the studied OECD countries. In some countries, such support can be substantial, like in Denmark where post-secondary students can receive a state education grant of DKK 6 397 (EUR 860) per month. In other countries, like France, the support consisted of one-off emergency aid worth up to EUR 500 for students in sudden financial difficulty because of the crisis (OECD, 2021[56]). The gaps in income support for students revealed by the crisis sparked discussions in several countries to expand access, including in New Zealand, where the government already increased social benefits for young people.

Ensuring integrated support for young people experiencing poor mental health

The COVID-19 crisis continues to have a significant impact on the mental health of many young people, with young people reporting significantly higher prevalence of symptoms of anxiety and depression than other age groups throughout the pandemic (OECD, 2021[66]; 2021[41]). In March 2021, based on data from a selected number of OECD countries, young people were 30% to 80% more likely to report symptoms of depression or anxiety than adults (OECD, 2021[67]), a pattern that has been confirmed since. For example, in France, 42% of 18-24 year-olds reported symptoms of anxiety in February 2022, compared to 23% in the general population (Santé Publique France, 2022[68]), while in the United States, almost half of 18-29 year-olds were reporting symptoms of anxiety or depression, again in February 2022 (National Center for Health Statistics, 2022[69]). Disruptions to schooling, education and work have not only weakened protective factors for young people's mental health such as daily routines and social interactions, but also resulted in disruptions in access to mental health services and supports (OECD, 2021[70]). In recognition of the challenges posed by the pandemic for young people's mental health, at least half of OECD countries have strengthened mental health supports for young people (OECD, 2021[56]). Yet the scale of these measures has often been insufficient to meet the sharp rise in support needs among young people, which came on top of high levels of unmet need for mental health care that existed from before the pandemic (OECD, 2021[70]).

As outlined in the OECD Recommendation on Integrated Mental Health, Skills and Work Policy, the factors that determine mental health status are diverse, and therefore an integrated approach to mental health policy is required that includes measures to promote better mental health among young people in education, employment and welfare systems in addition to measures within health systems. Even before the pandemic, across OECD countries, students indicating mental distress were 35% more likely to have repeated a grade at school, while adults with mental health issues were 20% less likely to be in work (OECD, 2021[66]). Targeted measures are needed to promote better mental health among young people at risk of long-term social and labour market exclusion, including the inactive, unemployed and early school leavers, given individuals with mental health conditions are overrepresented in such groups.

OECD countries' efforts to strengthen supports for young people with mental health conditions outside of the health system during the pandemic have largely focused on expanding mental health support and increasing awareness of mental health in the education system. In France, the *chèque psy étudiant* scheme, launched in February 2021, provides up to three sessions with a psychologist without charge for all university students and supported more than 180 000 students in 2021. In the United States, the presidential discretionary budget for 2022 more than doubled the funding for mental health support, with grant expansions for schools to connect young people to services, train staff to help them to identify mental health issues, and increase awareness of mental health among students. The United Kingdom's Mental Health Recovery Plan funds mental health support including for children and young people and allocated additional funding for schools and colleges to train mental health leads in February 2022.

Fewer initiatives have been taken across OECD countries that promote the mental health of young people in the workplace and young jobseekers. Most measures to promote good mental health in the workplace do not target young people specifically; besides sick leave and return-to-work policies (see Section 2.1.3), one focus has been on disseminating tools and guidelines to both employees and employers on maintaining good mental health in the context of the pandemic. It is particularly important amidst the pandemic that young jobseekers with mental health conditions receive both employment and mental health support simultaneously. Evidence suggests that such integrated support – often through services based on the Individual Placement and Support (IPS) model – is more effective than standalone mental health or employment support (Killackey et al., 2018[71]; OECD, 2021[66]). A few countries have expanded the provision of such integrated support for young jobseekers, although this often reflects the implementation of commitments that pre-date the pandemic. Australia has continued to expand IPS trials targeted at young people and, as of 2021, IPS-based services were available in 50 headspace centres that provide easy-

to-access mental health support for young people. In Norway, the government is shifting from trials to scale-up of supported employment for individuals with mental health conditions, including through targeted measures at young people at risk of school dropout.

Spotlight 3: Improving job quality for frontline workers

Frontline workers are workers who continued to work in their physical workplace and in proximity of other people even during the heights of COVID-19 – see Chapter 1. The most typical example are health care workers, but other frontline workers are employed in social and long-term care, the police, the fire service, essential retail and certain forms of transport. School teachers and workers in early childhood education and care were often at the frontline as well, although many countries closed schools and care institutions for small children at least in the initial phase of the crisis. Staff employed in restaurants, hotels and tourism-related activities are also in close contact with clients, but many businesses were required to close when health risks were high.

The COVID-19 crisis highlighted the importance of frontline jobs and workers quite plainly for the bare functioning of the economy, during a pandemic like this one, but also more generally. It was the dedication of frontline workers working in hospitals, care homes, supermarkets and elsewhere that avoided an even bigger human and social catastrophe. Nevertheless, frontline workers tend to earn less than other workers, in part due to their lower levels of education and a greater exposure to employers' market power – see Chapters 1 and 3 and OECD (2022[72]). Some frontline workers come from vulnerable groups, such as young people, migrants and racial/ethnic minorities. The public policy concern is that frontline workers are the over-worked and underpaid.

Special provisions for frontline workers: Reducing health risks and improving job quality

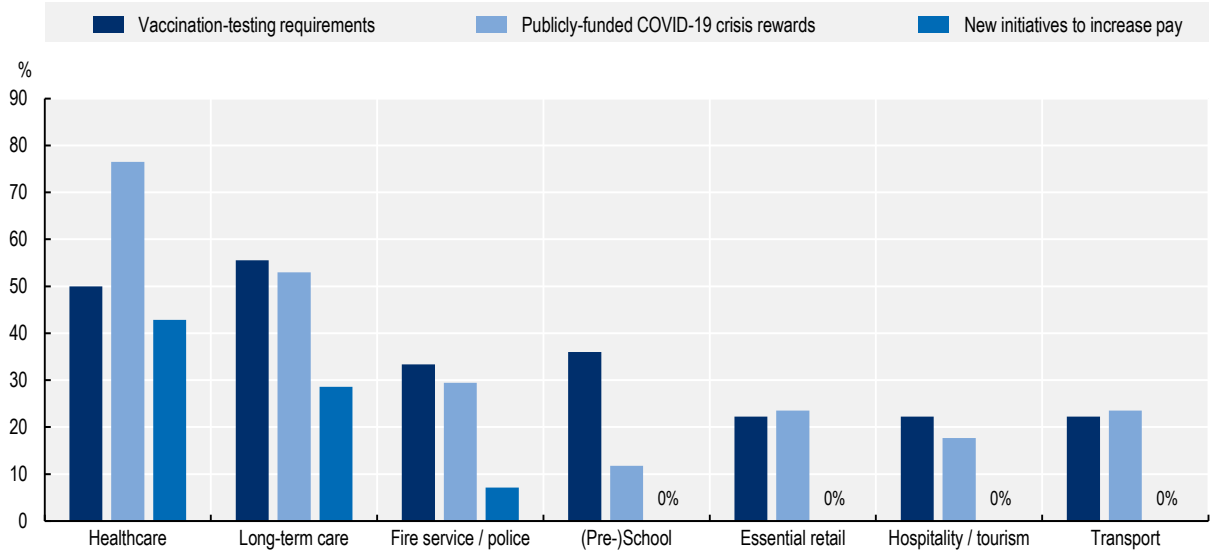
The threat from COVID-19 for frontline workers in health care, social and long-term care, essential retail, etc. was not that of losing their job; quite the contrary, they were needed more than ever. Rather, the problem was that they had high exposure to the virus in the workplace (sometimes also during the commute to the workplace) and that their working hours were often long. Policy measures that increased access or generosity of job retention schemes, unemployment benefits and active labour market policies – discussed in earlier sections of this chapter – were less relevant to them, as they mostly remained in employment. What mattered most to frontline workers were measures to reduce risk of infection and to improve other aspects relevant for the quality of their job, in particular working hours and pay.

To reduce risks of infection at work, many OECD countries strengthened occupational safety and health obligations for different groups of frontline workers. As the ones most exposed to the virus at work, frontline workers also benefited from general restrictions to the economic and social lives of citizens that countries implemented at various points of the crisis to limit the number of infections: closures of schools, workplaces and public transport, cancellations of public events, stay-at-home requirements, restrictions to public gatherings and internal movements, and international travel controls (Ritchie et al., 2020[73]).

Some OECD countries made vaccination against COVID-19 mandatory for health care and long-term care workers (Australia, Costa Rica, Hungary, and Italy). Costa Rica, Hungary and Italy also made vaccination mandatory for police officers, Costa Rica and Hungary in addition for school teachers and workers in early childhood education and care. As of November 2021, one-half of OECD countries required vaccination or vaccinated-recovered-tested certificates for health care and long-term care workers (Figure 2.13) and one-third for firefighters or police officers. These requirements have made hospitals and care homes safer, for patients but also for frontline workers, although some workers object to the state imposing such rules on them.

Figure 2.13. Health care and long-term care workers at the frontline

Share of OECD countries that adopted these policies for selected frontline workers, November 2021



Note: For initiatives to increase pay: statistics based on 14 country responses (AUT, BEL, CHE, CHL, CZE, FIN, HUN, ITA, JPN, LUX, LVA, NLD, SVN, SWE); for publicly funded crisis rewards: statistics based on 17 country responses (in addition: DNK, ISL, PRT); and for vaccination-testing requirements: statistics based on 18 country responses (not: ISL; in addition: DEU, MEX). Several countries are not included for certain policy areas as these policy areas are the competence of subnational jurisdictions, due to the country's federal structure. The category (Pre-)School takes the average of teachers and workers in early childhood education and care for whom policy responses are almost the same.
Source: OECD Questionnaire on Policy Responses to the COVID-19 Crisis.

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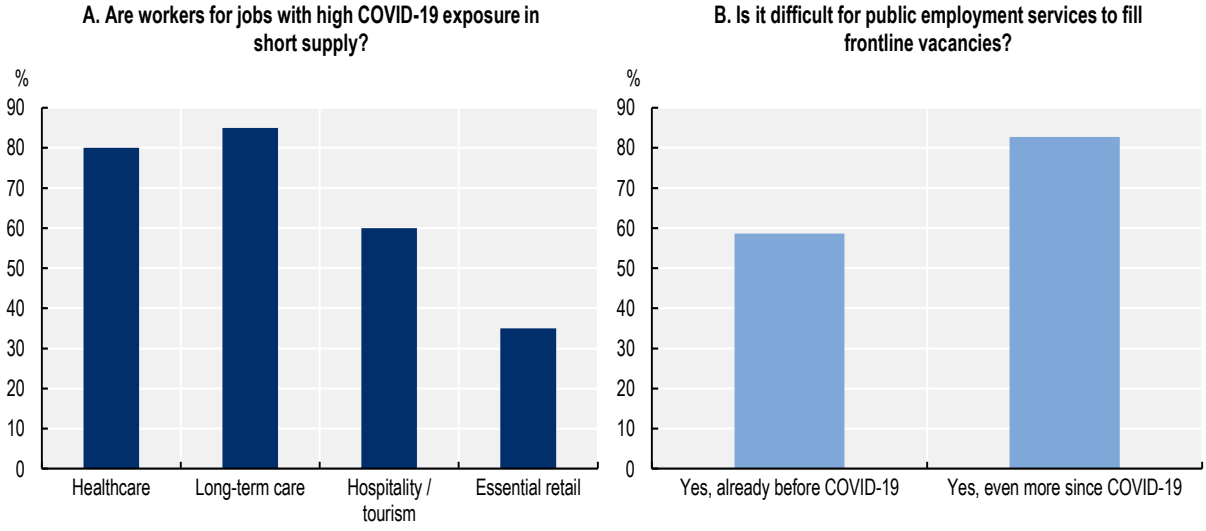
One-off crisis rewards were one way through which countries compensated frontline workers for the elevated health risks at their job during COVID-19 and for exceptional working hours and commitment. Rewards were especially common for health care workers (76% of the OECD countries surveyed) and long-term care workers (53%). Frontline workers in private firms, such as in retail, mostly did not receive publicly funded rewards. The value of the crisis rewards may have been higher than their monetary amount as they served as recognition of the importance of frontline workers' jobs. Belgium is among the OECD countries that have made particularly active use of publicly financed crisis rewards, including for frontline workers: health care and long-term care workers received one-off premiums, health care workers in addition a salary increase and long-term care workers in addition a "corona day of leave"; firms in the hospitality sector could give their employees tax-free consumption vouchers.

Permanently higher pay, rather than one-time crisis rewards, would be an even more powerful way to raise pay and recognise the value of frontline jobs. There have been only few government-led initiatives of this kind, particularly outside health and long-term care, likely as wages in private-sector frontline occupations are not under the government's remit. Belgium, Chile and Slovenia report of initiatives to promote pay in health care and long-term care, Hungary, Latvia and Switzerland for health care, and the Czech Republic for long-term care. More thought will have to be given why pay is low in many frontline jobs and how to achieve pay increases in frontline jobs where pay is inefficiently low. This would help also to reduce shortages in labour supply for these jobs (see also Chapter 1); conversely, the current situation with worker shortages for frontline occupations is conducive to augment wages in these professions.

Worker shortages have arisen in many segments of the labour market – see Chapter 1. One cluster of jobs for which shortages have been large are frontline occupations which is one factor contributing to long working hours in these occupations – see e.g. OECD (2020[74]). Around 80% of OECD countries report that labour supply shortages in health care and long-term care have become more severe since the COVID-19 crisis, in 60% of the countries this is the case in hospitality and tourism (Figure 2.14, Panel A). Shortages appear smaller in other occupations with close contact between persons (the police, the fire service, school, pre-school, essential retail, transport). One commonality of health care, long-term care, and hospitality and tourism is that workers may have become less keen to work in these occupations as health risks on the job have increased. But there are also important differences. Demand for workers has likely increased in health care because of greater needs, while in hospitality and tourism workers, in particular those on short-term contracts, may have re-oriented themselves to jobs in sectors that were affected less by government-imposed business shutdowns.

Figure 2.14. Frontline workers in short supply

Share of OECD countries, November 2021



Note: For Panel A: statistics based on 20 country responses (AUS, AUT, BEL, CAN, CHE, CHL, CRI, CZE, DEU, FIN, HUN, IRL, ISL, JPN, LVA, NLD, NZL, PRT, SVN, SWE); and for Panel B: statistics based on 29 country responses (not from the countries in Panel A: CAN, NLD, NZL; in addition: DNK, ESP, EST, FRA, GRC, ITA, KOR, LTU, LUX, MEX, POL, SVK).
Source: OECD Questionnaire on Policy Responses to the COVID-19 Crisis.

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In another sign of labour supply shortages for frontline jobs, the PES have found it progressively difficult to fill frontline vacancies. In almost 60% of OECD countries, such difficulties existed already before COVID-19, and more than 80% of OECD countries report that these difficulties have further intensified in the COVID-19 crisis (Figure 2.14, Panel B). To reduce supply shortages for frontline jobs, governments have been taking a variety of measures, including some to make their jobs more attractive to existing staff (such as crisis rewards or initiatives to increase pay as mentioned above). Some are specific to the sector – see, for example, the detailed accounts of policy responses for long-term care workers in Rocard, Sillitti and Llena-Nozal (2021[75]) and OECD (2021[76]). In addition, several countries have stepped up recruitment campaigns, eased immigration rules and brought retirees back from old-age pension for specific frontline

jobs, in health and long-term care in particular. To reduce labour supply imbalances for frontline workers across countries, the European Union issued guidelines at the beginning of the pandemic to facilitate the free movement of workers across internal EU borders in essential sectors (Samek Lodovici et al., 2022[77]). Overall, measures do not go far enough, however, to permanently improve job quality and to address large worker shortages for frontline jobs.

Spotlight 4: Supporting racial/ethnic minorities through the COVID-19 crisis

Racial/ethnic minorities have received particular policy attention in several OECD countries, before and during the COVID-19 crisis. One source of their greater vulnerability in the crisis has been that they are more frequently employed on temporary contracts or in frontline jobs with high risk of COVID-19 exposure – see Chapter 1 and OECD (2022[72]). This section highlights the differences between racial/ethnic minorities across OECD countries, in their characteristics and their labour market experience during the COVID-19 crisis and recovery, and the policies that governments have put in place to support them.

Racial/ethnic minorities in OECD countries and their labour market experience in crisis and recovery

Unlike immigrants and foreign nationals, racial/ethnic minorities have long been citizens of, or at least been rooted in, their country. There is not a simple definition of racial/ethnic minorities that fits all OECD countries. Racial/ethnic groups are most often characterised by a shared culture or other factors, including language or religion, as well as their physical appearance (for example skin colour) or the country of origin of their ascendants (Balestra and Fleischer, 2018[78]).

Many of the racial/ethnic minorities that countries highlight in their national context are Indigenous populations (Australia, Canada, Japan, New Zealand) and Traveller communities including Roma people (Austria, the Czech Republic, Greece, Hungary, Ireland, Latvia, Lithuania, Portugal, Slovenia, Spain, Switzerland). Other important racial/ethnic minorities are Black, Asian and Hispanic/Latino people (in the United States), Pacific peoples (in New Zealand) and populations speaking the language of, and identifying themselves with, the culture of a foreign country (e.g. in Estonia, Italy, Latvia, Lithuania, Slovenia). The differences between these groups underline the differences of issues at play for the relevant racial/ethnic minorities in the respective country.

Few OECD countries collect data or information on the labour market performance of racial/ethnic minorities, in some countries to avoid, for historical reasons, classifying individuals by race or ethnicity. For countries with available data, differences in the labour market experiences during the COVID-19 crisis and recovery between racial/ethnic minorities across OECD countries are notable – see Chapter 1 and OECD (2022[72]). Racial/ethnic minorities in Estonia, Latvia, the United Kingdom and the United States have lost out compared with other groups since the crisis began. In Canada and Denmark, they were hit more strongly initially, but also recovered quickly. In New Zealand, they have done better than other groups throughout the crisis.

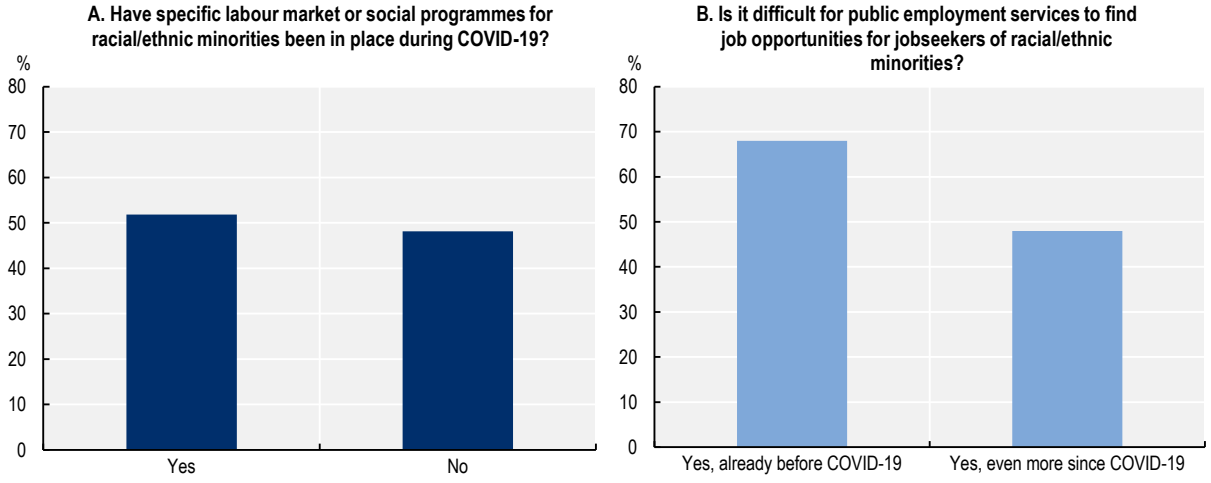
Half of OECD countries with available data have had specific labour market or social policies in place to support racial/ethnic minorities during the crisis

Half of the OECD countries for which data are available – 14 out of 27 – have had specific labour market or social policies in place for racial/ethnic minorities during the crisis to reach out to them and help them with their specific needs (Figure 2.15, Panel A). Some countries have adopted new measures since the start of COVID-19 (Australia, Canada, Greece, Ireland, Portugal, Slovenia, Spain, Switzerland). Not in all cases were these motivated by COVID-19, and the crisis was not the sole trigger to support racial/ethnic minorities in any of these countries. Support for racial/ethnic minorities mostly pre-dates COVID-19, while it has proven particularly valuable during the crisis, and in some cases it has been complemented by

additional schemes. Table 2.5 lists in more detail specific labour market and social policies that OECD countries have in place to support racial/ethnic minorities.

Figure 2.15. Racial/ethnic minorities: Policy measures over the COVID-19 crisis

Share of OECD countries, November 2021



Note: For Panel A: 27 country responses (AUS, AUT, BEL, CAN, CHE, CHL, CRI, CZE, DEU, DNK, ESP, FIN, FRA, GRC, HUN, IRL, ISL, JPN, KOR, LTU, NLD, NOR, NZL, PRT, SVK, SVN, SWE); and for Panel B: 25 country responses (not from the countries in Panel A: CAN, CHL, FRA, NLD, NOR, NZL, PRT, SWE; in addition: EST, ITA, LUX, LVA, MEX, POL).
Source: OECD Questionnaire on Policy Responses to the COVID-19 Crisis.

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One worrying trend in effectiveness of policy support for racial/ethnic minorities is that the PES have been experiencing greater difficulties in finding job opportunities or in providing individualised support to jobseekers from racial/ethnic minorities since the start of the crisis. In 17 of 25 OECD countries for which data are available, the PES experienced such difficulties in job search for people from racial/ethnic minorities already pre-COVID-19, but in 12 of them these difficulties have further intensified in the crisis (Figure 2.15, Panel B).[14] A wide range of programmes, including initiatives to promote upskilling, reduce discrimination and improve labour market attachment, as some countries are doing (see Table 2.5), would help jobs of people from racial/ethnic minorities to be more resilient when the next crisis hits.

Table 2.5. OECD countries with specific labour market or social policies for racial/ethnic minorities

Situation as of 1 November 2021

Country	Racial/ethnic minorities targeted	Specific labour market and social policies
Australia	Aboriginal and Torres Strait Islander people	A wide range of programmes, for example vocational training, specific active labour market policies, traineeships, support for employment in large companies, region-specific measures, a COVID-19 package targeted at Indigenous people
Austria	Roma people	Roma empowerment programme for the labour market, including job search support, motivation to participate training, help in writing job applications
Canada	First Nations, Inuit, Métis and urban/non-affiliated Indigenous people	Indigenous Skills and Employment Training Program for 2021-22 to step up training and supports for Indigenous people, including young people and persons with disabilities, to prepare them for good jobs
Czech Republic	Roma people (as the main ethnic minority)	Several types of social services with ethnic minorities as one target group that provided support before and during the COVID-19 crisis
Greece	Roma people	New National Strategy and Action Plan for Roma Social Inclusion 2021-30, including housing, scholarship, COVID-19 vaccination and many other programmes
Hungary	Roma people	The comprehensive Hungarian National Social Inclusion Strategy which includes dedicated support for the integration of Roma people
Ireland	Roma people and other Traveller communities	National Traveller and Roma Inclusion Strategy 2017-21, followed up with measures for 2021-25, with a wide range of dedicated public employment services
Japan	Ainu people in Hokkaido	Initiatives to promote job security and employment for Indigenous people living in the Ainu District, in place since 1975
Lithuania	Roma people	Schemes to promote the labour market integration of Roma people (Working with the Roma and Vilnius Roma Community Integration into Society Programmes)
New Zealand	Māori and Pacific peoples	Employment Strategy from 2019 with employment action plans for groups with consistently poor employment outcomes, including Māori and Pacific peoples
Portugal	Roma people	National Plan to Combat Racism and Xenophobia for 2021-25, which includes specific measures to promote the labour market integration of Roma people
Slovenia	Roma people	Several social policy programmes to promote the labour market and social inclusion of Roma women and young people
Spain	Gypsy people	National Strategy for Equality, Inclusion and Participation of the Gipsy people 2021-30, including measures to support job security and employment of Gipsy people
Switzerland	Yenish, Sinti and Roma people	Yenish, Sinti and Roma action plan which during the COVID-19 crisis was complemented with measures to support self-employed leading a nomadic life

Note: Other OECD countries did not report specific labour market or social policies for racial/ethnic minorities, but it is possible that some may have such programmes in place.
Source: OECD Questionnaire on Policy Responses to the COVID-19 crisis.

Emerging from COVID-19: Challenges and priorities for labour market and social policy in 2022

Even as many OECD labour markets have recovered quickly from the shock of the COVID-19 crisis, the upswing remains fragile and uneven. Unemployment rates have in many countries returned to their pre-crisis levels, but employment remains low in certain sectors – see Chapter 1. Simultaneously, many sectors have been dealing with labour shortages, reflecting an increase in the demand for workers with particular skills over the crisis or a drop in labour supply as workers have moved sectors or quit the workforce (e.g. in transport or hospitality). Meanwhile, the COVID-19 crisis may have accelerated structural labour market transformation as a result of digitalisation and automation, and further profound changes will be needed over the next years as OECD economies advance on their path of rapid decarbonisation.

Russia's war of aggression against Ukraine – first and foremost a human tragedy – has heightened uncertainty and brought new challenges to labour market and social policy. It has contributed to the highest inflation in decades, notably through increases in the prices of energy and some key commodities. These

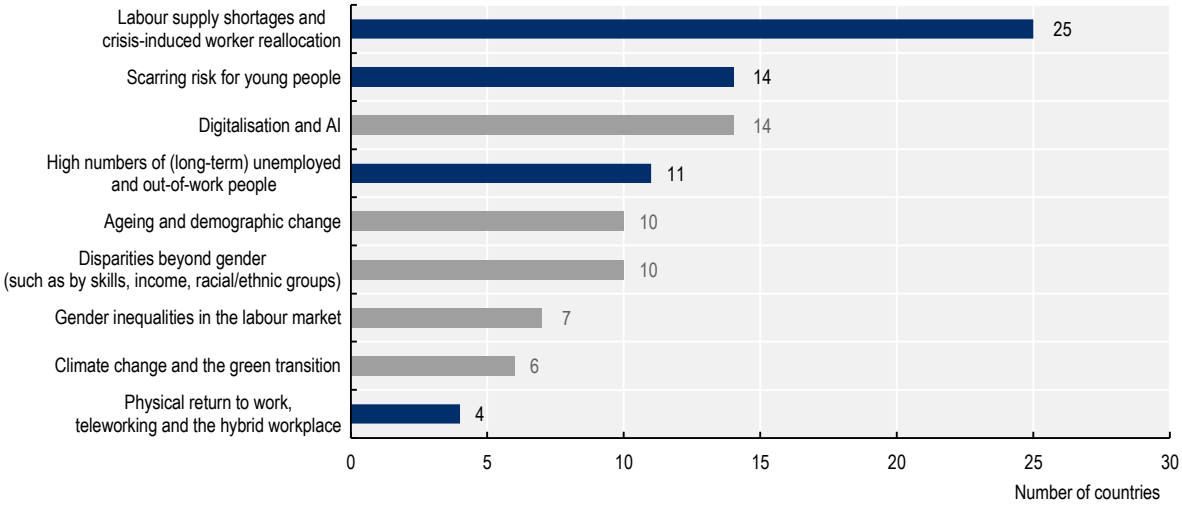
price increases have been hurting particularly low-income households, who spend a large share of their tight budgets on energy and food, with often little capacity to reduce consumption, or substitute away from it. The war has also brought the largest number of humanitarian migrants seen in Europe since the Second World War, a challenge particularly for Ukraine's Central European and Baltic neighbours who have shown great resolve and generosity in welcoming these refugees.

Against this backdrop, OECD countries are therefore having to strike a difficult balance between addressing the remaining labour market challenges resulting from the COVID-19 crisis, mastering the ongoing and upcoming structural transformation, and supporting a strong and inclusive labour market – all while dealing with the economic and social fallout from the war in Ukraine.

When asked in autumn 2021 – i.e. well before Russia's war of aggression against Ukraine – about the main perceived labour market challenges for 2022, most OECD countries were still primarily concerned about the immediate crisis consequences (Figure 2.16). Three-in-four countries (25 out of the 34) pointed to labour supply shortages and the crisis-induced worker reallocation as one of the top-3 challenges for 2022. Around one-in-three countries expressed concern about potential scarring risks for young people (14 out of 34) and high numbers of unemployed workers (11 out of 34); also about one-in-three (14 out of 34) countries pointed to the labour market transformation brought about by digitalisation and artificial intelligence as a main challenge. Climate change and the green transition did not yet make it among the key labour market challenges for 2022 in most countries (6 out of 34).

Figure 2.16. Among countries' main labour market challenges for 2022, direct crisis consequences trump longer-term structural challenges

Countries' reported top-3 labour market challenges for 2022, broken down into challenges that have arisen directly from the crisis (in blue) and longer-term structural challenges (in grey)



Note: The figure shows results for 34 OECD countries. Some countries indicated fewer or more than three challenges.
Source: OECD Questionnaire on Policy Responses to the COVID-19 Crisis.

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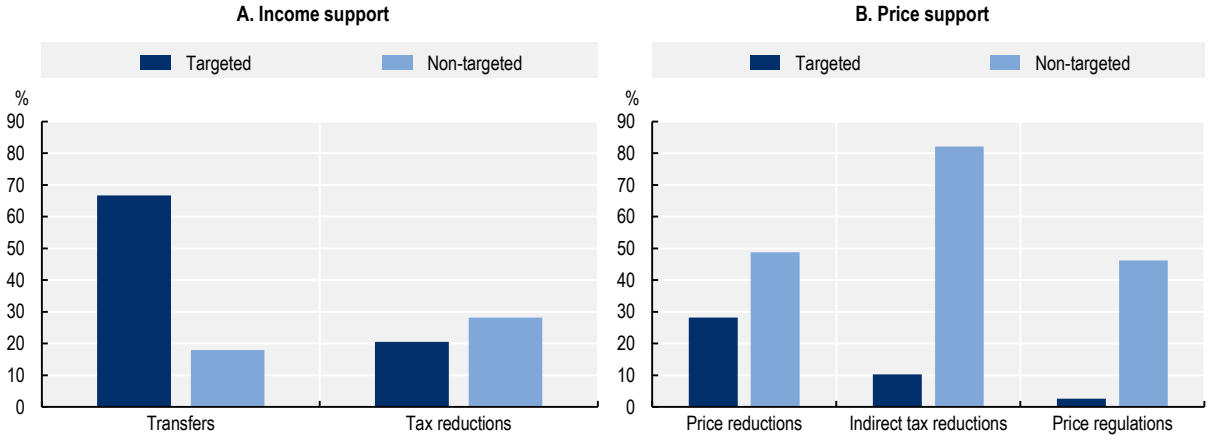
Countries' priorities for their national recovery plans for 2022 – expressed again in autumn 2021 – reflect the need to address the crisis consequences and shape an inclusive recovery while preparing labour markets for the upcoming transformation. A number of key priority areas stand out:

- *Modernising public employment services and strengthening employment support for jobseekers*. Improved support for unemployed workers is one of countries' top priorities coming out of the COVID-19 crisis, notably in southern European, Nordic and Baltic countries. Measures foreseen include changes to the profiling of jobseekers and the targeting of services (Latvia, Spain), the further digitalisation of service provision (Finland, Ireland, Latvia, Lithuania, Poland, Spain, Switzerland), increases in staff numbers (Finland, Ireland), decentralisation of service delivery (Finland) and the improved collaboration with private employment services (Spain, Sweden). In Italy, a national programme to strengthen support for jobseekers and workers in companies undergoing restructuring (*Garanzia di Occupabilità dei Lavoratori*) also foresees a comprehensive reform of public employment support with the aims of reducing geographic disparities in service provision and improving regional integration, strengthening the co-operation with private providers, better tailoring and targeting, and improving monitoring and evaluation.
- *Supporting worker reallocation and the upskilling of the workforce*. Labour market transformation and population ageing have been causing skill shortages in certain sectors in many countries, and the COVID-19 crisis has exacerbated this trend. Policies to support workers of all education levels to develop their skills and help them to move into sectors with high skill demand are therefore a priority in the recovery plans of many countries. One focus is strengthening and modernising vocational education (Germany, Hungary, Poland, Portugal) and adult learning (Portugal, Slovenia). Belgium and the Czech Republic plan the introduction of individual learning accounts; France further increased the budget of its national skills investment initiative (*Plan d'Investissement dans les Compétences*) to EUR 15 billion over five years to support the (re-)training of young people, jobseekers and workers in jobs affected by structural transformation. Countries are also responding to labour shortages through initiatives to attract and retain skilled workers from abroad (Australia, Denmark, Germany, New Zealand, the Slovak Republic, Switzerland).
- *Improving labour market inclusiveness*. Given persistent labour market inequalities, the uneven impact of the crisis, and arising labour and skill shortages, many OECD countries are planning to extend their support for specific disadvantaged labour market groups to improve their employability and labour market outcomes. Addressing the scarring effects for young people is one main priority, including by intensifying outreach (Austria), expanding active labour market support or training (Australia, Ireland, Korea, Mexico, Norway) and offering financial incentives for hiring or training young people (Australia, France, Germany, Slovenia). A few countries (the Czech Republic, Korea, Iceland, Latvia, New Zealand, Norway) have initiatives to improve labour market inclusion more broadly by supporting the employment of women and parents with small children, older workers, people with disabilities, and migrants or racial/ethnic minorities.
- *Shaping structural labour market transformation.* The megatrends of digitalisation and the green transition will profoundly transform labour markets in OECD countries, and in a few countries monitoring, forecasting and managing this process is high up on the policy agenda for 2022. Most notably, Denmark's decision to dramatically accelerate its path to a low-carbon economy through a legally binding target to cut greenhouse gas emissions by 70% by 2030 means that climate policy is a top priority in all policy areas, including labour market and social policy. According to the government's own assessment, for the ambitious goal to be realistic, all major political decisions towards that target will have to be taken by 2025 at the very latest. In Korea, policy initiatives relating to both digitalisation and the green transition are among the priority actions for 2022. This includes a plan to create service centres that provide counselling and coaching to support labour market transitions as part of the green transition, and initiatives to develop future-oriented industries in the areas of data, networks and artificial intelligence and to strengthen vocational education at leading employers in digital industries.

Given the geopolitical developments, and the rise in inflation, the main perceived challenges will have certainly shifted since the end of last year, putting the labour market and social impact of high prices and the challenge of integrating millions of refugees from Ukraine high up on the policy agendas. OECD countries have taken widespread action to soften the impact of rising energy costs using measures that increase household disposable incomes, e.g. through transfers or income tax reductions, or reduce energy prices. Both income and price support measures can be designed so that they target households on low incomes or certain groups of consumers; in practice, most income support measures have been targeted, while price support measures, which have been the more widely used form of support to date, have been mostly non-targeted (Figure 2.17). Targeted support may take more time to implement, but comes at lower fiscal costs and expands demand less at a time when inflation is running high. It is also less at odds with the ambition of transitioning to carbon neutrality (OECD, 2022[79]).

Figure 2.17. A majority of OECD countries has taken measures to soften the increase in energy costs

Share of OECD countries adopting each type of support measure, May 2022



Note: The figure is based on data collected for 35 OECD countries plus Bulgaria, China, India and Romania. Targeted measures are means-tested or benefit only certain groups of consumers based on their energy consumption or other criteria. Non-targeted measures apply to all consumers with no eligibility conditions.
Source: OECD (2022[79]), *OECD Economic Outlook, Volume 2022 Issue 1*, https://doi.org/10.1787/62d0ca31-en and OECD calculations.

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Concluding remarks

Two and a half years after the onset of the COVID-19 pandemic, even as the public-health situation has much improved and most crisis measures have expired, the economic and political environment remains challenging in many OECD countries. The pandemic continues to cause uncertainty, including by affecting trade with China, and could flare up again in the second half of 2022. And while OECD economies and labour markets have been recovering remarkably swiftly from the crisis and significant worker shortages have arisen, Russia's unprovoked war of aggression on Ukraine is bringing new, massive challenges. First and foremost a human tragedy, the war has caused large numbers of humanitarian migrants, notably in Central Europe, contributed to the highest inflation in decades, which affects particularly low-income households, and is impacting supply chains in many sectors.

Labour market and social policy is once again at the forefront to address these challenges. Smart action through collective bargaining, minimum wages, taxes and transfers can lessen the impact on the cost of living of low earners, while also reducing the risks of a wage-price spiral. Budgets for active labour market policies, which are expected to remain at COVID-crisis levels in 2022 despite tight labour markets, are testimony that policy makers recognise the importance of necessary support for labour reallocation and upskilling.

Meanwhile, lessons from the COVID-19 pandemic, which revealed weaknesses in labour markets and gaps in social protection, point to an "unfinished policy agenda" to make labour markets more resilient and inclusive. The crisis brought to the fore the poor job quality in many frontline occupations and large worker shortages for frontline jobs. Support for the self-employed, young people and workers with short contribution records was often insufficient and in some cases fixed with emergency measures most of which have now expired. The comprehensive policy support rapidly rolled out during the crisis in various areas of labour market and social policy provides an opportunity to learn for the next crisis, but evaluations of the effectiveness of these policies, and their distributional impact, will be important. As this chapter shows, policy makers in several countries are taking a hard look at these issues to draw lessons from the crisis and assess where reforms are needed to reduce weaknesses and gaps that the COVID-19 crisis evidenced. Policy makers in other countries may consider to follow their lead.

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Notes

[1] This chapter has benefited from drafting contributions by experts across the Directorate for Employment, Labour and Social Affairs: Raphaela Hyee (unemployment support for the self-employed); Rachelle Cohen and Christopher Prinz (paid sick leave); Ailbhe Brioscú, Anne Lauringson and Theodora Xenogiani (active labour market policies); and Veerle Miranda and Shunta Takino (spotlight on young people). Statistical analyses were provided by Dana Blumin, Rodrigo Fernandez, Maxime Ladaique, Jongmi Lee, Eliza-Jane Pearsall and Agnès Puymoyen.

[2] The *OECD Employment Outlook 2020* (OECD, 2020[5]) provides a more detailed discussion of early crisis responses.

[3] Recipient numbers of means-tested minimum-income benefits and of disability benefits have also remained largely unchanged in most countries with available data (see https://www.oecd.org/social/soc/recipients-socr-hf.htm).

[4] However, the role of the job retention scheme in Korea was not marginal. On average about 5 900 workers benefited from the employment maintenance subsidy in Q1 2020; by Q3 2020, the number of beneficiaries had risen to more than 330 000.

[5] The term paid sick leave refers to both employer-provided sick pay and government-provided sickness benefits. Most OECD countries offer a combination of both, with large variation in the duration of employer-provided sick pay.

[6] State requirements exist in nearly one-third of US states, including some which introduced these requirements during the COVID-19 epidemic (e.g. Colorado (Colorado State Legislature, 2020[80]), New Mexico (New Mexico Office of the Governor, 2021[81]) and New York (New York State, 2021[82])). However, not all employers are required to provide sick leave and some states require coverage only when the employer has more than a certain number of employees (typically 50 employees) for example.

[7] In Ireland, the new statutory sick pay fills a gap for many workers not currently entitled to voluntary sick pay before becoming entitled to Illness Benefit. In New Zealand, the entitlement to the new social insurance payment would replace current entitlements to income-tested Jobseeker Support and supplement employer sick pay which was also extended during the pandemic.

[8] Such pandemic laws could even go further and include automatic extensions for other types of social protection, such as workers' compensation and job retention schemes.

[9] The criteria for the recognition of COVID-19 as an occupational disease differ between countries. For example, in the Czech Republic, the disease must be clinically manifested and the requirements for occupational disease must be met (Eurostat, 2021[29]). In Korea, the scope of work-related activities and the infection route must correspond, and the worker must be recognised as exposed to the virus and not be infected from other sources besides work-related settings. In Japan, health care and long-term care workers are entitled to workers' compensation when the infection route is clearly or very likely work-related.

[10] Classification according to the methodology of the OECD Employment and Labour Market Statistics database (https://doi.org/10.1787/data-00312-en) and the European Commission Labour Market Policy database (https://ec.europa.eu/social/main.jsp?catId=738&langId=en&pubId=8126&furtherPubs=yes).

[11] Public employment services are public organisations implementing employment services and private organisations implementing employment services using public funding.

[12] These issues are also considered as the top priorities among the PES in the EU (European Commission, 2021[30]).

[13] In the fourth quarter of 2021, more than half (55%) of students in higher education below the age of 30 worked while studying on average across 29 OECD countries, an additional 3% were actively looking for a job. The shares are 35% and 3% for students in upper-secondary education.

[14] These 12 OECD countries are: Australia (Aboriginal and Torres Strait Islander people), Belgium, Costa Rica, Estonia, Finland, Germany, Greece, Hungary, Iceland, Ireland, the Slovak Republic and Slovenia. In Germany, as well as possibly in other countries, these trends may reflect patterns stemming from immigrants, since public organisations, including the public employment services, do not normally collect information by race or ethnicity.

3 Monopsony and concentration in the labour market

Satoshi Araki, Andrea Bassanini, Andrew Green and Luca Marcolin

There is evidence that monopsony power is pervasive and substantial in OECD economies. Monopsony is the situation that arises where firms have the power to set wages unilaterally, leading to inefficiently low levels of employment and wages. This chapter reviews the causes, incidence, consequences and policy responses to labour market monopsony, focusing especially on labour market concentration, which is a key determinant of monopsony because in concentrated markets, few firms offer employment opportunities for workers. Using a harmonised dataset of online job vacancies, the chapter provides the largest cross-country comparison of the incidence of labour market concentration to date. It also presents original estimates of the consequences of labour market concentration on job quality, using employer-employee data. The chapter concludes by reviewing policy responses available to address monopsony and help labour markets function closer to the competitive ideal.

In Brief

Monopsony describes the situation in which employers possess unilateral wage-setting power, and use it to set wages and employment below the levels that would prevail in a competitive market, where firms have to pay workers a "market rate" aligned with their productivity. Monopsony does not just imply lower wages for affected workers, but also a misallocation of resources: wages, employment and social welfare are lower when firms have monopsony power, compared to competitive labour markets.

This chapter explains why some firms have wage-setting power, in particular in the case of labour market concentration where only a few employers compete in a market for workers. It provides novel statistics on the incidence of employment in concentrated labour markets, as well as the implications for job quality. Finally, the chapter discusses policies that directly reduce monopsony, improve the job quality of workers in uncompetitive labour markets and help labour markets function better for all workers.

Employers in monopsonistic labour markets are likely to depress employment and pay lower wages in order to reap higher profits. Labour market frictions that make it difficult to reallocate labour, employers offering unique sets of working conditions that tie workers to their workplace and highly concentrated markets (very few employers) are all reasons why firms may exercise monopsony power.

Key empirical findings include:

- The empirical literature suggests that firm monopsony power is pervasive and substantial in OECD economies. One popular approach for measuring monopsony is to estimate the labour supply elasticity a given firm faces, namely the percentage reduction in the number of workers willing to work for the firm if it lowers the offered wage by 10% independently of other firms. Estimates of this elasticity found in the literature are often quite low. In other words, firm-level employment is far less responsive to wage changes than it would be if there were perfect competition. Even in markets where one would expect high competition – such as online labour markets – employer wage-setting power is often substantial. However, while these estimates suggest the existence and pervasiveness of monopsony power, they do not identify the channels through which it affects the labour market.
- This chapter finds that labour market concentration, one of the key determinants of monopsony power, is pervasive in a wide range of OECD countries. Using harmonised data of online job vacancies and the same labour market definitions across countries, this chapter finds that 16% of business-sector workers in 15 OECD countries are in labour markets that are at least moderately concentrated – according to the conservative definition frequently used by antitrust authorities – and 10% are found in highly concentrated markets. These figures can be considered a lower bound to the share of workers in concentrated markets.
- Workers are not evenly distributed across concentrated markets. Workers in rural labour markets are more likely to be in concentrated labour markets, for example.
- Workers who have been on the front line during the COVID-19 crisis – those with substantial contact with colleagues or customers and thus with a higher than average risk of infection (see Chapter 1) – are more likely to work in concentrated labour markets. By contrast, workers in occupations amenable to telework tend to be found in much less concentrated markets.

- A year into the COVID-19 pandemic, labour market concentration was 10% higher, on average, in OECD labour markets. The rise was sharp at first, and probably driven by a significant drop in job openings at most firms during the first lockdown, with the remaining vacancies being posted by a few resilient employers. Since then, concentration has begun to fall back towards pre-pandemic levels, in line with a progressive normalisation of hiring by firms.
- Available evidence suggests that monopsonistic labour markets tend to be associated with lower employment, but more research is needed. Studies based on mergers tend to find that employment falls after a merger. The few studies using measures of labour market concentration also find that mergers reduce overall employment in the affected labour market. However, quantitative estimates remain very heterogeneous between studies, and there are unresolved methodological issues in the literature.
- New evidence provided in this chapter relying on harmonised linked employer-employee data for a number of European OECD countries, confirms results from the literature, showing in particular that more concentrated markets result in lower wages. Estimated elasticities of wages to concentration are similar in Denmark, France, Germany and Portugal. A 10% increase in concentration from the average level is estimated to reduce daily wages of full-time workers by 0.2% to 0.3%. These estimates imply that the 10% of workers who are employed in the most concentrated labour markets experience a wage penalty of at least 5% compared with a worker in a labour market with the median level of concentration.
- Other aspects of job quality are also affected. Regression analysis suggests that labour market concentration tends to increase the use of flexible contracts. In France, Germany and Portugal increasing concentration is estimated to reduce the probability of being offered an open-ended contract at hiring. The effect of a 10% increase in concentration can be up to 2.3% (for both Portuguese men and women).
- Evidence from Spain and Italy suggests that, for those hired on a temporary contract, labour market concentration clearly depresses their chances of accessing a more stable position within the calendar year after hiring. The effect appears particularly large for Italy, where a 10% increase in concentration reduces the conversion rate by 2.5% for both men and women.
- Another dimension affected by monopsony power is skill requirements. Monopsonistic employers tend to curb their labour demand, allowing them to be more selective when hiring. Regression analysis on online job postings finds that labour market concentration often increases skill requirements in posted job vacancies, both in the number of skills that are required, and the frequency with which cognitive and social skills are expected.

Policy can help make labour markets more competitive:

- Existing evidence from the United States and Austria suggests that facilitating the enforceability of Non-Compete Agreements (NCAs) unambiguously reduces job mobility and often depresses wages. NCAs are clauses in contracts that prevent workers from working to a competitor after they separate from their employer. There is evidence that employers frequently use NCAs to limit the outside options of their workers, even when they have no access to the employers' confidential information or other intangible assets. The chapter discusses several options governments could consider to limit the spread of NCAs.
- Other areas of regulatory and enforcement interventions concern occupational licensing, labour market collusion and horizontal mergers. In all these areas, regulators should devote more attention to the consequences of employers' actions for the competitiveness of the labour market. In many cases, interventions could be undertaken by antitrust authorities, as well as labour authorities.

- Interventions to promote collective bargaining could have a strong impact on monopsony power. Under collective bargaining, if workers have sufficient countervailing power, the parties may internalise the position of the firm in the product market so that negotiations may lead to a more efficient labour market outcome, with the greater rents generated in this way shared among the parties. In fact, the negative impact of concentration on wages has been found to be smaller where trade unions are stronger.
- Minimum wages can also be used to curb the negative effects of monopsony and concentration. Under monopsony, minimum wages, if set at a reasonable level, lower the marginal cost of hiring at the lower end of the wage distribution. Therefore, minimum wages can raise both employment and wages in monopsonistic labour markets. Consistently, available evidence shows that existing minimum wages have minimal disemployment effects in concentrated markets.
- Policies to promote telework may help workers in concentrated markets. For workers in occupations suitable for teleworking, increased telework may allow them to accept positions in a wider geographic radius, increasing the set of employers who can bid for their labour. A simulation performed for this chapter suggests that opening jobs to full-time telework could decrease labour market concentration by about 20%, on average.
- A simulation performed in the chapter suggests that aggregate labour market concentration would decrease by 18% on average across the OECD countries considered if workers could retrain and seek employment in alternative occupations. Reskilling and training policies therefore can play a role in improving labour market conditions when markets are monopsonistic.

Introduction

If your employer threatens to lower your compensation, would you be able to quit, and quickly find a new job elsewhere with similar working conditions? For many workers, in the absence of policy intervention or some form of collective action, the ability to credibly quit for a higher-paying job is the main bargaining power they have. Moving from one employer to another is one of the strongest sources of wage growth because it allows workers to move up the "job ladder" to higher-paying firms (Topel and Ward, 1992[1]; Haltiwanger, Hyatt and McEntarfer, 2018[2]; Wang, 2021[3]) – see also Chapter 4. The ability to shop around easily for a new employer is a core mechanism for ensuring pay keeps pace with productivity, and it is one of the foundations of competitive labour markets.

When a worker is confronted with a labour market with many similar workers (sellers of labour) but only one or a few employers (buyers of labour), their bargaining power is greatly diminished, and it may be difficult to find a new employer. A classic and extreme example is a coal company that employs miners and also owns the only mine within a reasonable commuting distance. In such "company towns" there is really only one employer, so workers seeking a different employer would need to move to a different town often at considerable expense. The firm knows this, and unless there are some countervailing forces, it leaves workers at a disadvantage when bargaining for wages or working conditions. In labour markets, a worker's compensation is not solely determined by their skills or productivity, but what they have the power to negotiate.

Monopsony is the situation that arises when competitive markets break down and workers cannot easily find enough suitable employment offers. The term encapsulates the situation of markets where few employers exist – labour market concentration. However, monopsony is more general, and arises even in markets with many employers. For example, a single mother whose employer provides subsidised childcare and flexible working hours may find many potential employers, but few offering the same set of working conditions tailored to her personal situation. Alternatively, a low-wage worker who has multiple

jobs to make ends meet may simply not have the time to search for jobs effectively and attend interviews with prospective employers. In both of these situations, workers cannot profit from a market of many competing employers to bid wages up to their level of productivity, and instead must negotiate with a limited set of employers who therefore retain some unilateral wage-setting power.

In line with the literature, this chapter defines monopsony as the situation that arises when firms retain discretion in setting wages and working conditions as opposed to the case of competitive markets where firms must pay workers the "market rate", which aligns with their productivity.[1] Employers in monopsonistic labour markets may use their bargaining power to inefficiently lower wages and depress employment in order to reap larger rents. This not only affects the distribution of rents between workers and firms, but the economy-wide allocation of resources. Monopsonistic labour markets should lead to lower employment and output than what would prevail if labour markets were perfectly competitive.

Policy, however, can directly address the misallocation of resources wrought by monopsony through direct interventions to realign bargaining power (regulation, antitrust policy, the role of social partners), as well as other, more indirect, policy tools (such as minimum wages). In addition, uncompetitive markets themselves may have important implications for other, only tangentially related, labour market policies such as employer-sponsored training. The resulting misallocation of resources from monopsony also justifies policy interventions regardless of labour market conditions: labour market tightness may result in better salaries and working conditions – although there is little evidence of this in the current recovery (see Chapter 1) – but it is unlikely to restore the outcomes of a competitive labour market.

Although research on monopsony goes back decades, the assumption that labour markets are competitive has persisted in most policy circles. The recent availability of high-quality data covering the near-universe of workers, firms, online job vacancies or mergers is forcing a re-examination of this assumption. Researchers are now better able to compute the concentration of firms in a well-defined labour market directly. Concentration is a key source of monopsony power because in concentrated markets, workers' outside options are limited. Concentration indexes are used by antitrust authorities as a rough proxy for market power to identify markets where action may be required – see e.g. US Department of Justice and Federal Trade Commission (2010[4]). However, much of the current research on labour market concentration looks at the United States, and focuses on the effect of concentration on employment, wages or earnings while neglecting other job characteristics such as job insecurity, opportunities for promotion and progression, commuting distance and training. The cross-country studies that do exist, furthermore, have light country coverage and often use data which make cross-country comparisons challenging.

This chapter fills the gaps in this evolving literature by providing a cross-country evaluation of labour market concentration with an emphasis on policy. The first question of interest is the proportion of a country's workers who are employed in concentrated labour markets. Using harmonised data on both online vacancies and matched employee-employer data, the chapter provides the largest cross-country comparison to date of the share of workers facing concentrated labour markets. In addition to national averages, the chapter shows how certain vulnerable groups such as front-line workers may be disproportionately working in concentrated markets, as well as how market concentration has evolved over the COVID-19 pandemic. The chapter then analyses the effect of concentrated markets on various aspects of labour market performance including employment, earnings, job security and skill demand.

Finally, the chapter reviews the current literature around policy responses to labour market monopsony and concentration. The discussion touches on policies that have a direct impact on the relative power of workers and employers, as well as on policies that can be mobilised to counteract the negative effects of power imbalances on labour market outcomes.

The chapter begins with the definition and examples of monopsony, before proceeding to considerations of measurement, economic consequences and policy responses. Section 3.1 defines monopsony first broadly as the likelihood of a worker quitting when faced with a reduction in wages – monopsonistic competition (Manning, 2003[5]) – but then more specifically for the case of concentrated labour markets

characterised by a limited number of employers for many workers. Section 3.2 then presents cross-country estimates of concentration including a focus on key occupations and demographic groups, and an examination of how concentration has evolved over the COVID-19 pandemic. Section 3.3 shows the effects of concentrated labour markets on employment, wages, job security and skill demand.[2] Section 3.4 then reviews some direct policy responses as well as other policies which may have indirect consequences for monopsony in the labour market. Section 3.5 offers concluding remarks and identifies avenues for further policy research.

3.1. The general case of monopsony

In monopsonistic labour markets, employers depress labour demand in order to reduce labour costs and reap higher profits from paying works less than their marginal productivity – see e.g. Boal and Ransom (1997[6]), Manning (2003[5]), Ashenfelter, Farber and Ransom (2010[7]) and Blair and Harrison (2010[8]). In other words, employment and wages are set at a lower level than what would be achieved in competitive markets, where employers must pay workers the market rate which aligns with their productivity. The misallocation induced by unilateral employer power suggests a role for governments to intervene and limit the scope of monopsonistic labour markets (see Section 3.4).

Monopsony encompasses the case of firms that have large discretion in setting wages (and, by extension, employment). Technically, the term characterises markets with one buyer of labour (employers) but many sellers (workers). However, at least as used in labour economics, the term monopsony encompasses a more general definition, where employers have wage-setting power over workers and labour markets therefore deviate from the competitive ideal. In competitive labour markets, firms take wages as given by the market, and if any firm attempted to offer wages lower than the market-determined price, all of their workers would quit and/or hiring would be rendered impossible. In practice, labour markets exist on a spectrum between purely competitive (firms take wages as given), and completely monopsonistic (firms have complete wage-setting power). Research on labour market monopsony concerns itself with theorising why firms may exercise unilateral wage-setting power, and measuring its extent.

There are three broad reasons why firms may have unilateral wage-setting power in the labour market. First, there may simply be too few firms relative to available workers. In a simple model in which few employers compete in a market with each other, firms employ fewer workers than in the competitive equilibrium and offer a lower wage (Boal and Ransom, 1997[6]). This is analogous to product markets where there are few buyers and many sellers. Labour markets of this type are often concentrated – they have too few employers. The measurement of labour market concentration constitutes one avenue of research on monopsony.

While this model is widely used in industrial organisation and retains salience for empirical work in labour economics, it does not take into account the specific characteristics of the labour market. Employers can have monopsony power even if markets are not concentrated, e.g. because of clauses in labour contracts which limit workers' ability to look for alternative jobs (such as non-compete agreements, see Section 3.4.1).[3] Alternatively, workers may have preferences for specific job attributes provided by the employer (see below).

For these reasons, another strain of thought, referred to as "Dynamic Monopsony" or "Modern Monopsony", posits that workers must search for suitable employment opportunities. In these models, workers cannot immediately quit an employer and instantaneously find a new one, or instantaneously find a new job if unemployed. These search frictions imply that workers must wait for a suitable job offer, which provides firms with some wage-setting power (Burdett and Mortensen, 1998[9]; Manning, 2003[5]). In addition to such "natural" search frictions, firms may actively introduce additional frictions in their labour market (e.g. through collusion among employers and non-compete agreements), thereby increasing their monopsony power vis-à-vis their workers (see Section 3.4.1).[4]

A third explanation derives monopsony power from workers' preferences for firms besides the offered wage. For example, if employers offer different health insurance plans, or access to childcare, which vary in their generosity, workers may prefer certain firms even if they offer identical wages. Such preferences also extend to amenities such as "company culture", or employer attributes like commuting distance (Card et al., 2018[10]). With such differentiated employers, workers may find it difficult to quit and find a suitably similar firm. Regardless of why firms offer different amenities, models that rely on workers' preferences for differentiated firms result in wage-setting power for firms.[5]

In all of the explanations for monopsony, firms obtain the ability to decrease wages while retaining most of their workers and their ability to hire. This relationship, the change in available workers for a given change in the wage offered, is called the elasticity of labour supply to a firm. Research on these elasticities represents one classical way to measure firm monopsony power. When this elasticity is low – changes in offered wages result in small changes in hires, quits or employment – this is evidence of some degree of monopsony power.

3.1.1. Firms retain ample wage-setting power, even in what should be competitive markets

What is becoming increasingly evident from the literature is that monopsony is far more prevalent in labour markets than previously expected. In the language of labour economics, estimates of the labour supply elasticity facing the firm are small. In the ideal case of perfect competition own-firm labour supply elasticities would be infinite. Normally, single-digit estimated elasticities, or lower, are considered to be evidence of monopsony power – see e.g. Manning (2003[5]).

In one of the largest reviews of the literature so far, the consensus estimates of the own-firm labour supply elasticity are in the single digits. Sokolova and Sorensen (2021[11]) examine 1 320 recent estimates of labour supply elasticities reported in 53 studies. They report own-firm labour supply elasticities around 3 for women and 4.2 for men on average among the most rigorous estimates. This corresponds to a 22% wage markdown from the worker's marginal productivity, on average.

Reported own-firm elasticities tend to be lower in Australia, Canada and the United States than in Europe (Sokolova and Sorensen, 2021[11]). An OECD analysis of linked employer-employee data of 10 OECD countries[6] finds the weighted average of the country-level estimates to be 2 (OECD, 2021[12]), which again, implies pervasive monopsony in the labour markets of these countries. Finally, Webber (2016[13]) finds significant variation in the firm's wage-setting power across the wage distribution, with the elasticity in the lowest quartile being only 0.22 (against an average estimate of 1.08).

Firms may hold unilateral wage-setting power even when search frictions are considered to be a priori minimal, and the labour market in question appears to be perfectly competitive. Dube et al. (2020[14]) conclude that the elasticity of labour supply facing the requester on Amazon Mechanical Turk ("MTurk") – a prominent online job market matching task requesters and workers – amounts to 0.14, suggesting substantial market power of requesters (firms) despite the apparent absence of search frictions – see also OECD (2019[15]), which dealt extensively with issues on monopsony for the own-account self-employed. Similarly, Caldwell and Oehlsen (2018[16]) run a field experiment in which they randomly assign higher wage rates to Uber drivers in the United States for one week. They estimate labour supply elasticities below 1 for both those who can work for a rival platform and those who cannot. Overall, there is growing evidence that monopsony power is pervasive, even in what one would assume to be the most competitive labour markets.

3.1.2. Monopsony may fall disproportionately on certain groups

Monopsony power may affect women more than men, on average. The estimates of labour supply elasticities generally find a lower elasticity for women, and the wage markdown to a worker's marginal

productivity is around 6 percentage points higher for women than men (Sokolova and Sorensen, 2021[11]). There are plausible reasons for that. For example, there is evidence that women have different and more marked preferences for certain job amenities, especially in the case of mothers with young children, which reduces their bargaining power (Mas and Pallais, 2017[17]; Wiswall and Zafar, 2017[18]). In addition, women tend to search for jobs closer to their home, and they are ready to accept a significant wage penalty for a closer job, which exposes them to greater monopsony power (Le Barbanchon, Rathelot and Roulet, 2020[19]; Jacob et al., 2019[20]). Lastly, women's caregiving responsibilities are also linked to their occupation choices. Women may choose occupations with less working hours and more flexibility (Goldin, 2014[21]), which may lead them into more concentrated labour markets.

More generally, one could expect that historically disadvantaged groups (such as youth, migrants and ethnic/racial minorities) are more exposed to monopsony power than insiders. Monopsony models predict that employment should be below what would prevail in a competitive market. Firms may therefore have their choice of workers and they may have discretion on whom they choose to hire for the jobs they make available. This could mean that they may prefer to employ workers with more labour market experience which would disadvantage youth (see Section 3.3.2). They can also choose to pay workers with comparable productivity but worse prospects for employer-to-employer job mobility less than others, as shown for non-white workers in Brazil by Gerard et al. (2021[22]). In addition, in models of dynamic monopsony where even a small fraction of firms may discriminate against certain groups, workers in these groups are penalised with larger wage markdowns even in non-discriminating firms (Lang and Lehmann, 2012[23]; Cahuc, Carcillo and Zylberberg, 2014[24]). In most models of discrimination (assuming competitive or monopsonistic markets), firm entry *should* drive discriminating firms out of the market. However, concentrated labour markets likely have some barriers to firm entry, and one should expect they therefore contain a lower share of disadvantaged groups.

3.2. How concentrated are OECD labour markets?

As mentioned in the previous sub-section, labour market concentration – i.e. the situation wherein labour markets are dominated by a few firms – is expected to result in monopsony power for these firms. When few firms dominate a given labour market, they may be able to affect wages through their own labour demand. It also means that workers are less likely to find similar suitable employers, or are more likely to meet the same firms while searching for suitable jobs (Manning, 2020[25]). Lastly, fewer employers are more likely to implicitly (or explicitly) co-ordinate their wage setting – see Section 3.4.1. To the extent that the variety of suitable job offers depends on the number and relative size of the firms in a market, the elasticity of own-firm labour supply can be seen as a decreasing function of labour market concentration (Jarosch, Nimczik and Sorkin, 2019[26]).

In short, labour market concentration is likely one of the major sources of monopsony, and it therefore makes for an imperfect, easy-to-measure, empirical proxy for employer wage-setting power.[7] Namely, there should be a positive correlation between labour market concentration and employer wage-setting power across markets (Jarosch, Nimczik and Sorkin, 2019[26]; Azar, Marinescu and Steinbaum, 2019[27]; Boal and Ransom, 1997[6]).

For this reason, among others, the use of concentration as an empirical measure of monopsony has exploded. In just the last few years, studies using labour market concentration to measure monopsony have appeared, using data from the United States (Azar et al., 2020[28]; Benmelech, Bergman and Kim, 2022[29]; Yeh, Hershbein and Macaluso, forthcoming[30]; Qiu and Sojourner, 2019[31]; Rinz, 2022[32]), the United Kingdom (Abel, Tenreyro and Thwaites, 2018[33]), France (Marinescu, Ouss and Pape, 2021[34]), Austria (Jarosch, Nimczik and Sorkin, 2019[26]), Portugal (Martins, 2018[35]), Norway (Dodini et al., 2020[36]), and more recently, cross-country studies (OECD, 2021[12]; Bassanini et al., 2022[37]) for a limited number of countries.[8]

One open question is whether the results of these studies reflect differences in data or methodology, or if they reflect real cross-country differences in the competitiveness of labour markets. This chapter builds on this previous work by presenting the largest cross-country coverage of labour market concentration in OECD countries with the greatest uniformity in the definition of a labour market.

Using data on the universe of online job vacancies, this section reports estimates of the share of workers in concentrated labour markets for 15 OECD countries, as well as for Singapore.[9] This is the largest cross-country study of labour market concentration to date, and it is the only cross-country study to use a large harmonised dataset and labour market definition for cross-country comparability. In addition to country-level averages, the section shows how concentration impacts certain segments of the labour market including specific occupations, gender and youth, among others. The section concludes by analysing concentration dynamics over the COVID-19 pandemic.

3.2.1. A sizeable share of workers are in concentrated labour markets

Whether a labour market is concentrated depends on how one defines the local labour market where a potential worker can reasonably expect to quickly find a suitable job. The literature typically defines labour markets with the combination of detailed economic classes (industry or occupation), and geography. In theory, the local labour market is an area that captures all employers to which a potential worker could reasonably commute. Some studies of labour market concentration use commuting zones or functional urban areas which are often designed empirically to capture observed home-to-work flows (Foote, Kutzbach and Vilhuber, 2021[38]). Due to data limitations, this chapter uses Territorial Level 3 (TL3) regions, which are a higher level of geographic aggregation than commuting zones (see Box 3.1). Designed by the OECD, TL3 regions cover every OECD country, are generally stable over time, and are designed to be roughly comparable across OECD countries (OECD, 2016[39]).

In addition to TL3 regions, this chapter defines the relevant labour market using occupations instead of industries. Industries are designed based on the economic activity carried out in an establishment. Occupations are classified based on the skills and qualifications required of the worker, and are therefore portable across industries in most cases. Occupations are thus more suitable to define workers' job search patterns, and to measure labour market concentration as a consequence. Using occupations is also consistent with evidence presented in certain famous cases of unlawful no-poaching agreements in the United States in the mid-2000s (Koh, 2013[40]), which show that companies can produce different products while competing for the same workers. Hovenkamp and Marinescu (2019[41]) provide further examples. For Continental European countries, this chapter uses 4-digit ISCO-08, and 6-digit SOC-2010 for Anglophone countries.[10]

The standard measure of concentration in the labour market is the Herfindahl-Hirschman Index (HHI) of either vacancies, new hires or employment in a local labour market. This is defined as the sum of the squared percentage shares of each firm in the market. The index ranges from 0, no market concentration, to 10 000, the case of a single firm controlling the entire market.[11] Markets are considered concentrated according to the threshold for action used by antitrust authorities for product market concentration, which are typically very conservative (Nocke and Whinston, 2022[42]; Affeldt et al., 2021[43]). According to US antitrust authorities, high concentration markets display an HHI of 2 500 and above, and moderately concentrated markets an HHI of 1 500 to 2 500 – see e.g. US Department of Justice and Federal Trade Commission (2010[4]).[12] These can be considered to yield a lower bound to the share of workers in concentrated markets.

This chapter uses data on online job postings from Emsi Burning Glass (EBG) to measure labour market concentration. EBG collects online job postings in many OECD countries, which contain information on the posting's occupation, geography and firm (including industry), in addition to other characteristics such as skills and educational requirements. The data have been shown to have an almost full coverage of vacancies, and is increasingly representative of overall employment in the United States (Hershbein and

Kahn, 2018[44]; Azar et al., 2020[28]). This chapter then validated the data coverage on the remaining OECD data for which EBG data are available and Singapore. Fifteen OECD countries and Singapore were assessed to have suitable coverage for inclusion in the chapter.[13] With the exception of the analysis of concentration dynamics during the pandemic, the analysis in this section uses data from 2019.

After calculating HHI at the occupation by TL3 level, the cells were aggregated to the ISCO-3 level using job posting weights and then they were weighted to employment using the occupation distribution in the business sector (omitting industries where public employment is sizeable)[14] in each country available from labour force surveys (see Annex 3.B for a full description of data validation, construction and analysis). The final country-level estimates are adjusted to account for heterogeneity in the average population size of TL3 regions across countries (see Box 3.1).

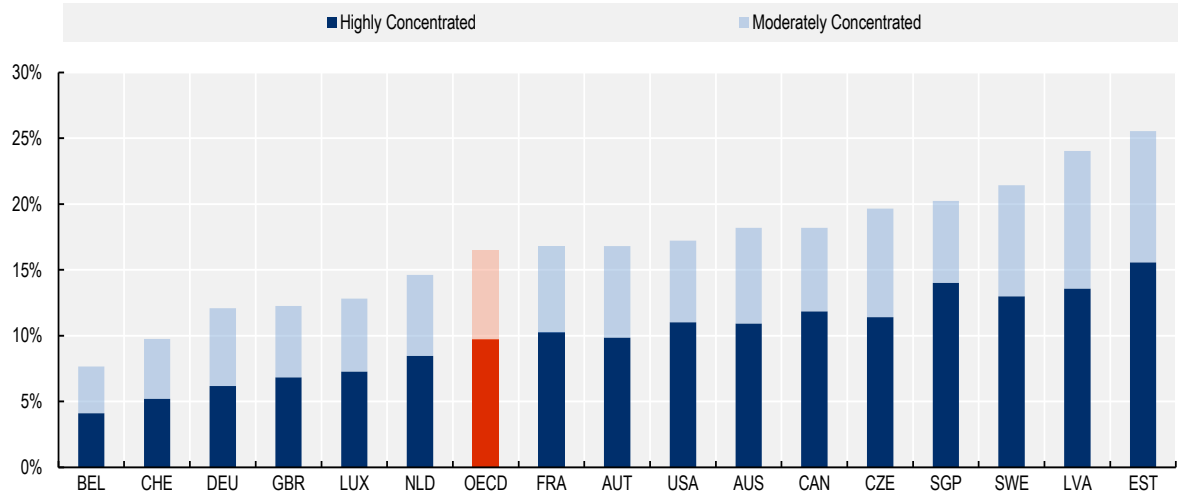
This chapter finds a sizeable share of workers in OECD countries work in markets that are moderately to highly concentrated. Figure 3.1 shows the share of workers in moderately concentrated labour markets (light blue) and the subset of those who are in highly concentrated labour markets (dark blue), as derived from estimates of HHI at the national level (Annex Figure 3.A.1). Just over 16% of workers find themselves in labour markets that are at least moderately concentrated, on average across OECD countries in the sample. Of those, more than half, or about 10% of the total, work in highly concentrated labour markets. The highest shares of workers in markets that are at least moderately concentrated are found in Estonia and Latvia with shares above 24%, while the smallest shares are found in Belgium and Switzerland with shares under 10%. The results in this section confirm that cross-country differences in labour market concentration are not simply due to differences in data or labour market definitions.[15]

Over a longer time series, concentration tends to be stable across OECD countries. The Emsi Burning Glass job posting data used in this chapter do not allow for the comparison of HHI over a long time period. However, using administrative data on new hires, OECD (2021[45]) finds that HHI is relatively stable from 2003 to 2017 in an average of 7 OECD countries.[16] There is likely variation across countries in this trend, however. For example, Rinz (2022[32]) finds a modest decrease in local labour market concentration in the United States from around 2000 to 2009, and then a modest increase during the financial crisis.

These results are relevant because, all else equal, workers in these markets are likely paid wages below what their productivity would suggest in a competitive market. A similar argument can be made for other measures of job quality (see Section 3.3.2). While this applies to all workers whether they find themselves in concentrated markets or not, one should be especially careful for workers in markets which are moderately or highly concentrated.

In addition, one needs to place these estimates in their proper context. First, the thresholds used in this analysis to determine whether a market is concentrated are high (see the discussion of HHI above), and these estimates can therefore be viewed as a lower bound of workers in concentrated markets. Second, these estimates are of labour market concentration, and they therefore only represent one source of monopsony power. Even in markets that do not meet the thresholds for concentration, workers may still be subject to other sources of monopsony power (see Section 3.1). Finally, this chapter does not analyse the causes of the reported cross-country differences in labour market concentration. Countries differ, for example, in the composition of the labour market in terms of occupations, sectors, and commuting patterns which can directly affect concentration (see below). A structured analysis of the determinants of labour market concentration is left to future analyses.

Figure 3.1. The share of business sector employment in moderately to highly concentrated labour markets, 2019



Notes: OECD average is an unweighted average of countries in the sample excluding Singapore. Moderately concentrated markets are markets with a Herfindahl-Hirschman Index (HHI) between 1 500 and 2 500. Highly concentrated markets have an HHI greater than 2 500. Labour markets are defined by job vacancies in 6-digit SOC by TL3 regions for Anglophone countries and 4-digit ISCO by TL3 regions for remaining countries. Shares are adjusted to a uniform population size of 200 000 of TL3 regions following Azar et al., (2020[28]). Employment shares are obtained by weighting HHIs using 2019 employment data from labour force surveys at the ISCO 3-digit level (omitting ISIC sections O, Public administration and defence; P, Education; Q, Human health and social work activities; and T, Activities of households) and job postings at the same level of disaggregation at which HHIs are defined. Singapore's weights include all ISIC sections.
Source: OECD analysis of Emsi Burning Glass data, European Union Labour Force Survey (European Union countries, Switzerland and the United Kingdom), Current Population Survey (United States), Canadian Labor Force Survey (Canada), Australian Labour Force Survey (Australia), The Ministry of Manpower (Singapore).

StatLink https://stat.link/7vsrq1

Box 3.1. Defining the relevant labour market to measure labour market concentration

The demarcation of local labour markets to identify monopsony power is challenging, especially in a cross-country context, and a consensus on methodology is yet to be reached (Azar et al., 2020[28]; Manning, 2020[25]; Naidu, Posner and Weyl, 2018[46]; Hovenkamp and Marinescu, 2019[41]). Too narrow a market restricts the set of workers' outside options and inflates firms' wage-setting power, while the opposite holds true for too large a market. The definition of a local labour market involves a labour market statistics interacted with the combination of geographical units and economic units (occupations or industries).

Frequently used geographic units are commuting zones – e.g. Azar et al. (2020[28]), Marinescu, Ouss and Pape (2021[34]), Benmelech et al. (2022[29]), Berger et al. (2019[47]), Rinz (2022[32]) – or administrative units – e.g. Modestino, Shoag and Ballance (2016[48]). While administrative units may not fully capture travel-to-work flows in an area, definitions of commuting zones are not necessarily comparable across countries. EU-OECD functional urban areas (FUA) are defined using the same methodology for all countries as urban centres and catchment areas thereof (Dijkstra, Poelman and Veneri, 2019[49]). As such, FUAs leave out rural areas. Ascheri et al. (2021[50]) use FUAs, but their analysis is therefore limited to urban areas.

In light of these considerations and the availability of information in the EBG dataset, HHIs in this chapter are calculated based on TL3 regions, unless otherwise specified. TL3s correspond to sub-national administrative units[1] that are roughly comparable across countries (OECD, 2021[51]), even though their size and number can differ across countries. In order to improve their comparability further, however, an adjustment factor is obtained by regressing aggregate concentration statistics on the logarithm of the country-specific population average of TL3 regions. This adjustment factor is then applied to each statistic in order to obtain figures for an average regional population of 200 000 people, which roughly corresponds to commuting zones in the United States, and allows therefore an easy comparison with figures obtained by Azar et al. (2020[28]) – see also Annex 3.B.

As far as the economic unit is concerned, Berger et al. (2019[47]), Benmelech et al. (2022[29]), Rinz (2022[32]) and OECD (2021[45]) calculate HHIs by industry, whereas Azar et al. (2020[28]), Martins (2018[35]), Marinescu, Ouss and Pape (2021[34]), and Azar, Marinescu and Steinbaum (2022[52]) do so by occupation.[2] This chapter calculates HHIs by occupation[3] for two reasons. First, empirical evidence shows occupation switches imply a wage penalty even controlling for employer and industry switches – see Kambourov and Manovskii (2009[53]), Gathmann and Schonberg (2010[54]) – they cause losses in occupation-specific human capital. Second, the use of industries is likely to conflate product market and labour market concentrations, even though one can exist without the other – see Manning (2020[25]), Hovenkamp and Marinescu (2019[41]), Redding and Rossi-Hansberg (2017[55]).[4] In fact, there is evidence that firms operating in different industries can still collude to control the labour market of the same occupation (Hovenkamp and Marinescu, 2019[41]; Gibson, 2021[56]).

Two additional elements need to be chosen to compute the HHI. The variable over which firm shares are computed (usually employment, hires or vacancies), and the relevant time period. Due to data availability, the analysis in this chapter is based on quarterly vacancies, except in Section 3.3.2. An HHI based on employment seems to be a reasonable measure of concentration both in a classical, static model of monopsony and in a stationary search and matching model with granular search, where concentration affects workers' outside options (Boal and Ransom, 1997[6]; Jarosch, Nimczik and Sorkin, 2019[26]). However, in a non-stationary environment, downsizing firms may have a positive share of employment without hiring so that they do not effectively contribute to the number of outside options in the labour market. In this case, a measure based on job vacancies or new hires better captures the fact that labour market concentration is a key determinant of monopsony power (Marinescu, Ouss and Pape, 2021[34]; Bassanini, Batut and Caroli, 2021[57]; Azar, Marinescu and Steinbaum, 2022[52]).

Finally, this chapter computes HHIs on a quarterly basis. Many papers compute flows over annual intervals due to data availability. However, Azar et al. (2020[28]) compute HHI quarterly, arguing that that an annual interval is manifestly too long to capture outside options. This chapter follows on that lead and computes HHIs on a quarterly basis.

1. For Australia, Canada and the United States, TL3 corresponds to groups of sub-national administrative units. For Luxembourg, there is only one TL3 region assigned to the whole country. One TL3 region is assigned to the whole of Singapore for the current analysis.
2. Other dimensions are sometimes explored in some studies – see e.g. Azar et al. (2020[28]) Dodini et al. (2020[36]).
3. Four-digit ISCO-2008 is used for European countries (excluding the United Kingdom) and 6-digit US SOC-2010 is used for Australia, Canada, Singapore, the United Kingdom and the United States.
4. For example, evidence exists that product market concentration has a negative impact on productivity. Neglecting to take this into account when estimating the impact of labour market concentration on wages may underestimate the effect of concentration on wages.

Some blue-collar and health-related occupations are in more concentrated labour markets

A few blue-collar occupations and health-related labour markets tend to be more concentrated. Figure 3.2 depicts the average share in concentrated markets by 2-digit ISCO occupation.[17] The occupations which are the most concentrated, on average, are handicraft and printing workers, and health professionals, where over 50% of business-sector employment in these occupations is found in concentrated markets.[18] In addition to those two occupations, the top five most concentrated occupations include other blue-collar occupations – such as agricultural, forestry and fishing labourers and refuse workers.

The least concentrated occupations are information and communication technology professionals, sales workers and business administration professionals where less than 7% of workers in these occupations are found in concentrated markets. The least concentrated occupations are not confined to high-skill, high-wage professionals. General cleaners and helpers and sales workers are also present in the least concentrated occupations, likely because workers in these occupations are typically employed in numerous small establishments and shops. In short, occupations in the least concentrated markets appear to be employable in a wide variety of industries, which would grant them more employment options.

The analysis in this chapter also finds that workers in middle-skill occupations are the most likely to be in concentrated labour markets. Low-skill workers face the lowest concentration and high-skill workers the next highest after middle-skill workers. This pattern is not particularly robust across countries, however (Annex Figure 3.A.2). The declining employment share of middle-skill jobs, and the rise in job polarisation and deindustrialisation is a well-documented fact across many OECD countries (OECD, 2017[58]; OECD, 2020[59]). As the employment shares of middle-skill jobs shrink, the remaining workers may face a smaller and smaller pool of potential employers who continue to use the production technologies to employ them.

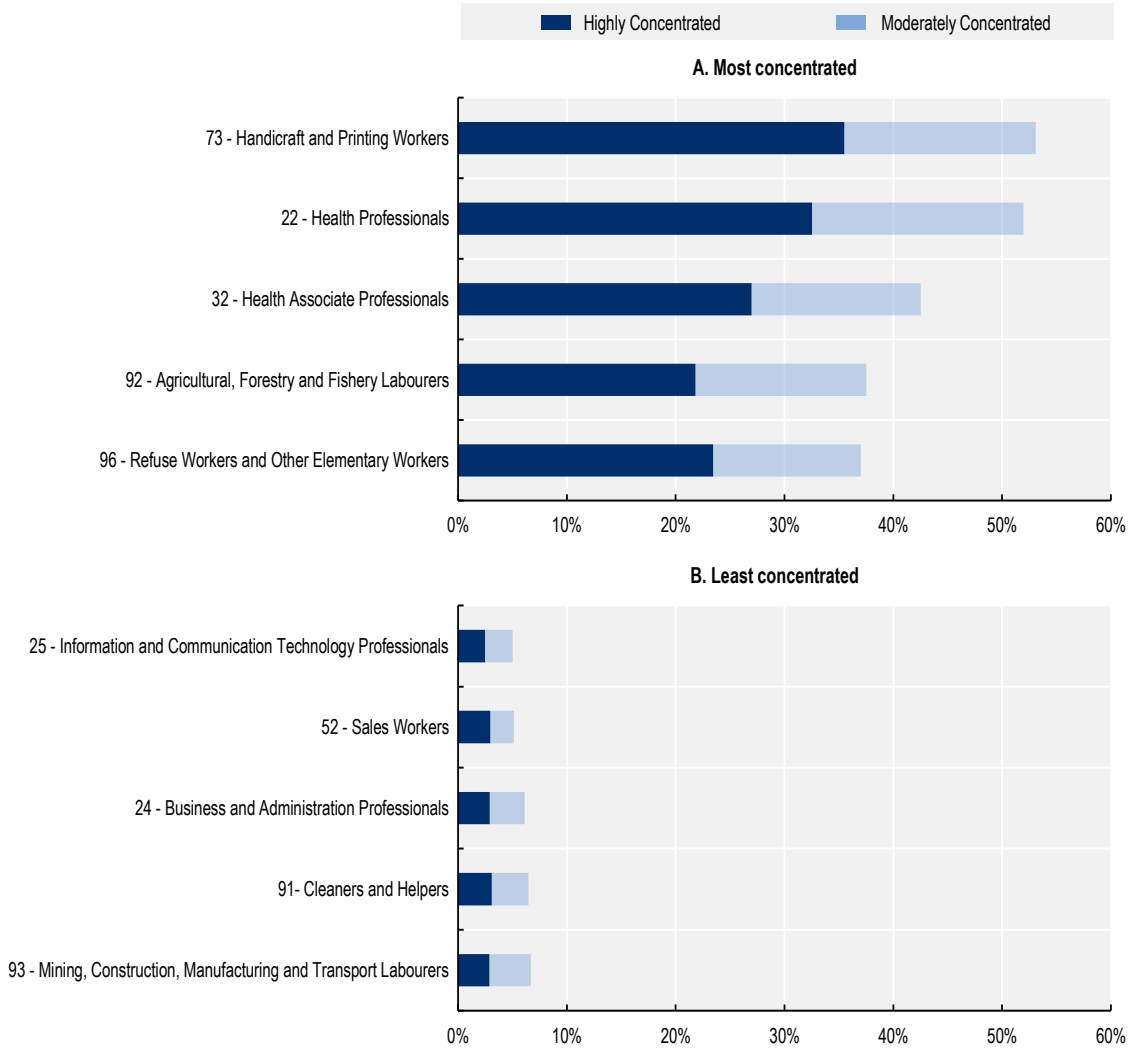
Concentration is lower in urban areas

In addition to occupation, the other key dimension of a labour market is geography. Larger labour markets, in particular cities, have long been hypothesised (with increasing empirical evidence) to allow more efficient matches between firms and workers (Petrongolo and Pissarides, 2006[60]; Andersson, Burgess and Lane, 2007[61]; Bleakley and Lin, 2012[62]; Dauth et al., 2018[63]). A worker searching for job is more likely to find a suitable employer when there are many potential employers, and vice versa. Labour markets are more efficient when they are thick. The same logic applies to market concentration as measured by HHI: workers should find it easier to quit and find a new employer when there are more potential employers.

Urban areas are less concentrated than rural geographies in all countries for which data are available. Figure 3.3 uses the OECD definition for metropolitan regions, which includes TL3 regions that have more than 50% of their population living in a functional urban area of over 250 000 people (Fadic et al., 2019[64]). On average across OECD countries in the sample, rural regions (29%) have about two and half times more people working in moderately concentrated markets than urbanised regions (11%). The largest differences are in Canada and Australia, two countries with large urban centres but also geographically large, but sparsely populated provinces including remote areas.

Figure 3.2. The occupations facing the most and least concentrated labour markets, 2019

Share of employment in moderately to highly concentrated labour markets in the business sector by ISCO 2-digit occupation



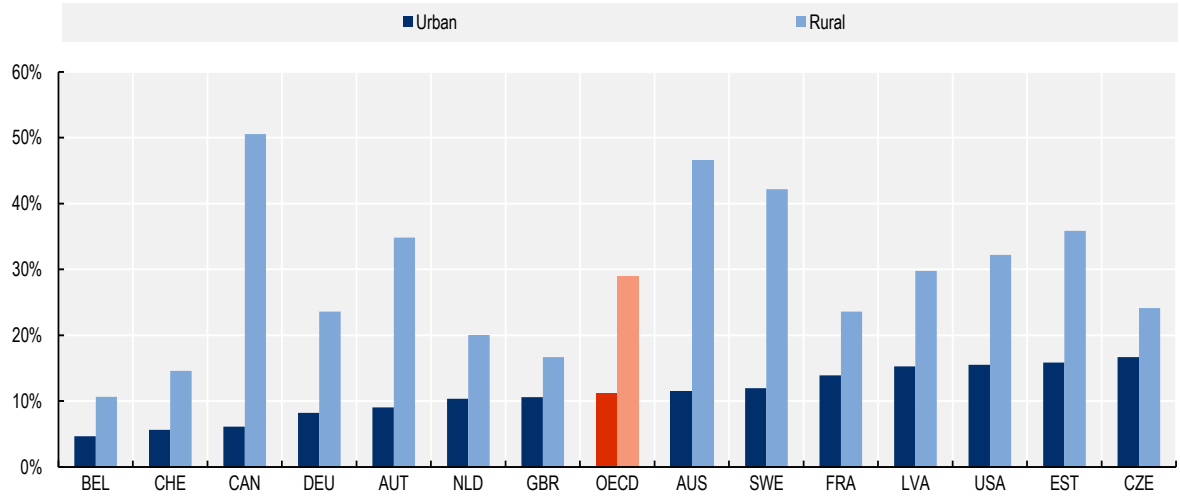
Notes: Average of Austria, Belgium, the Czech Republic, Estonia, France, Germany, Latvia, Luxembourg, the Netherlands, Sweden, Switzerland, the United Kingdom and the United States. ISCO 2-digit occupations "61" and "95" omitted due to irregular cross-country coverage. Moderately concentrated markets are markets with a Herfindahl-Hirschman Index (HHI) between 1 500 and 2 500. Highly concentrated markets have an HHI greater than 2 500. Labour markets are defined by job vacancies in 6-digit SOC by TL3 regions for Anglophone countries and 4-digit ISCO by TL3 regions for remaining countries. Employment shares are obtained by weighting HHIs using 2019 employment data from labour force surveys at the ISCO 3-digit level (omitting ISIC sections O, Public administration and defence; P, Education; Q, Human health and social work activities; and T, Activities of households) and job postings at the same level of disaggregation at which HHIs are defined.
Source: OECD analysis of Emsi Burning Glass data, European Union Labour Force Survey (European Union countries, Switzerland and the United Kingdom) and Current Population Survey (United States).

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The finding confirms results from the literature that rural labour markets are more concentrated. Azar et al. (2020[28]) and Bassanini, Batut and Caroli (2021[57]) find a decrease in HHI as the size of commuting zones increases in the United States and France, respectively. Using the same urban-rural definition as this chapter (but different data and definition of labour market), OECD (2021[45]) similarly finds a large urban-rural difference in the share of workers in concentrated labour markets.

Figure 3.3. Rural regions are more concentrated than urban ones

The share of employment in moderately to highly concentrated labour markets in the business sector by urban geography, 2019



Notes: The OECD average is an unweighted average of all countries in the sample. Luxembourg and Singapore have no rural regions and are omitted. Urban regions are TL3 regions that have more than 50% of their population living in a functional urban area of over 250 000 people (Fadic et al., 2019[64]). Moderately to highly concentrated markets are markets with a Herfindahl-Hirschman Index (HHI) of 1 500 or more. Labour markets are defined by job vacancies in 6-digit SOC by TL3 regions for Anglophone countries and 4-digit ISCO by TL3 regions for remaining countries. Shares are adjusted to a uniform population size of 200 000 of TL3 regions following Azar et al., (2020[28]). Employment shares are obtained by weighting HHIs using 2019 employment data from labour force surveys at the ISCO 3-digit level (omitting ISIC sections O, Public administration and defence; P, Education; Q, Human health and social work activities; and T, Activities of households) and job postings at the same level of disaggregation at which HHIs are defined.
Source: OECD analysis of Emsi Burning Glass data, European Union Labour Force Survey (European Union countries, Switzerland and the United Kingdom), Current Population Survey (United States), Canadian Labor Force Survey (Canada), Australian Labour Force Survey (Australia).

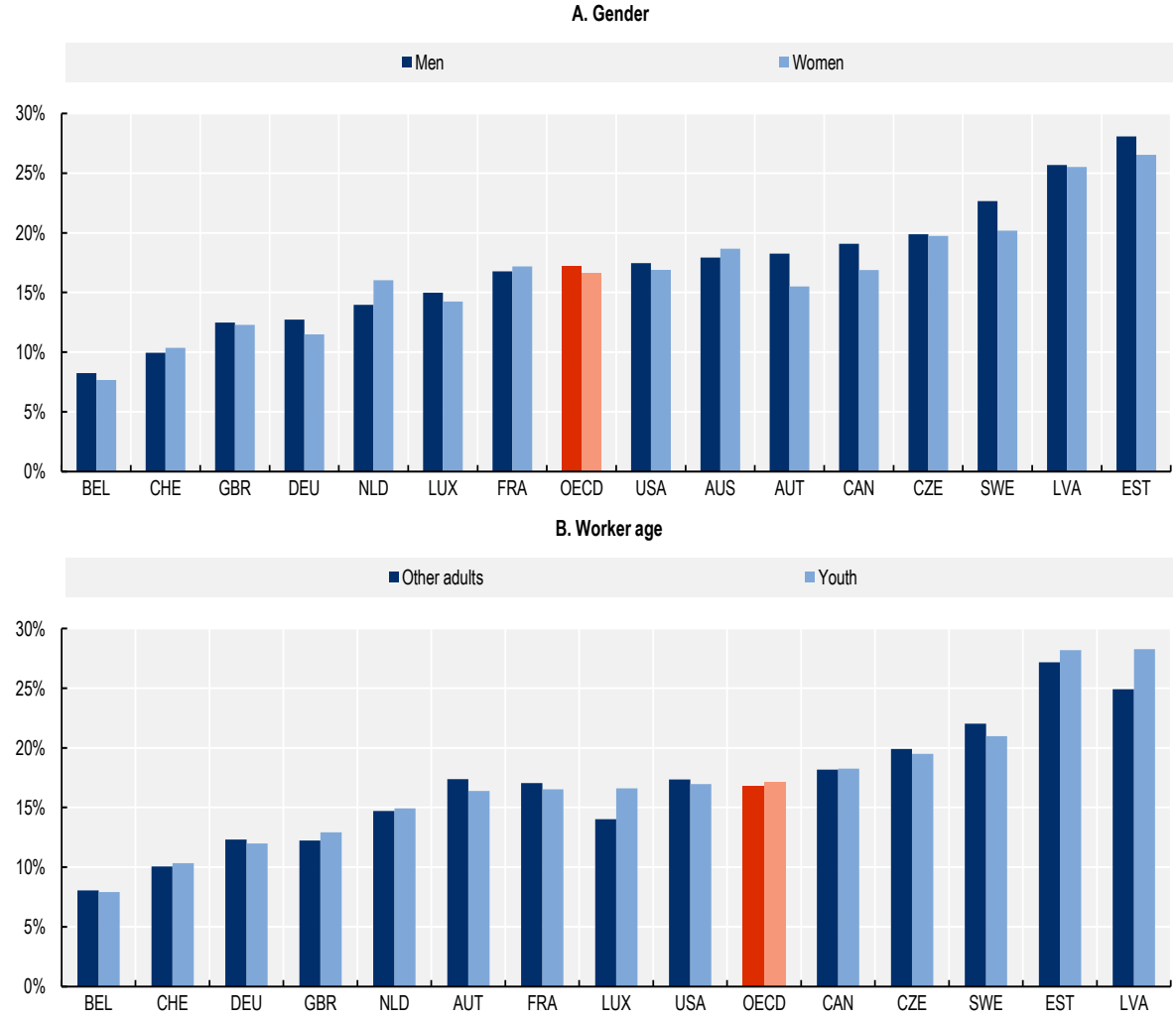
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3.2.2. Concentration does not vary substantially by demographic groups

This chapter finds little evidence that women are more likely than men to work in concentrated labour markets. Figure 3.4 (Panel A) shows the share of men and women in moderately to highly concentrated labour markets. On average, 16.6% of women are in labour markets that are at least moderately concentrated, compared to 17.2% of men. Estonia, Latvia and Sweden have the highest shares of women in markets that are at least moderately concentrated, each with shares over 20%. However, in those countries, the share of men in concentrated markets is also high and even exceeding the share of women.

Just as with women, there is little difference in the share of youth in moderately to highly concentrated labour markets compared to other adults. The share of youth and other adults in labour markets that are at least moderately concentrated is around 17% for both, on average (Figure 3.4, Panel B). The highest shares of youth in concentrated labour markets are also in Latvia, Estonia and Sweden.

Figure 3.4. The share of employment in moderately to highly concentrated labour markets in the business sector by selected demographic characteristics, 2019



Notes: OECD average is unweighted average across countries in sample. Youth employment is defined as ages 15-29, and other adults age 30 and above. Moderately to highly concentrated markets are markets with a Herfindahl-Hirschman Index (HHI) of 1 500 or more. Labour markets are defined by job vacancies in 6-digit SOC by TL3 regions for Anglophone countries and 4-digit ISCO by TL3 regions for remaining countries. Shares are adjusted to a uniform population size of 200 000 of TL3 regions following Azar et al., (2020[28]). Employment shares are obtained by weighting HHIs using 2019 employment data from labour force surveys at the ISCO 3-digit level (omitting ISIC sections O, Public administration and defence; P, Education; Q, Human health and social work activities; and T, Activities of households) and job postings at the same level of disaggregation at which HHIs are defined.

Source: OECD analysis of Emsi Burning Glass data, European Union Labour Force Survey (European Union countries, Switzerland and the United Kingdom), Current Population Survey (United States), Canadian Labor Force Survey (Canada), Australian Labour Force Survey (Australia).

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While the share of workers in concentrated markets does not differ appreciably by gender or age (or level of education – see Annex Figure 3.A.3), concentration is only one measure of monopsony power. As discussed in Section 3.1, there are other aspects of monopsony apart from concentration that may differentially affect vulnerable groups. Furthermore, concentration may still impact some labour market outcomes unevenly across groups of workers, as shown in Section 3.3.2.

3.2.3. Labour market concentration and the COVID-19 pandemic highlighted existing inequalities in the labour market

The onset of the COVID-19 crisis saw workers split into three groups: those who were able to work from home (telework), those who found themselves unemployed or on reduced working hours, and those who continued to work in their physical workplace and in proximity of other people during the pandemic, or front-line workers – see Chapter 1. The gradual abatement of lockdowns and the recovery of the labour market have greatly diminished the ranks of the unemployed and those on short-time work (OECD, 2021[65]). However, more than two years after the onset of the pandemic, the dichotomy between those who must work in person, and workers who may work from home, is still relevant – see Chapter 1.

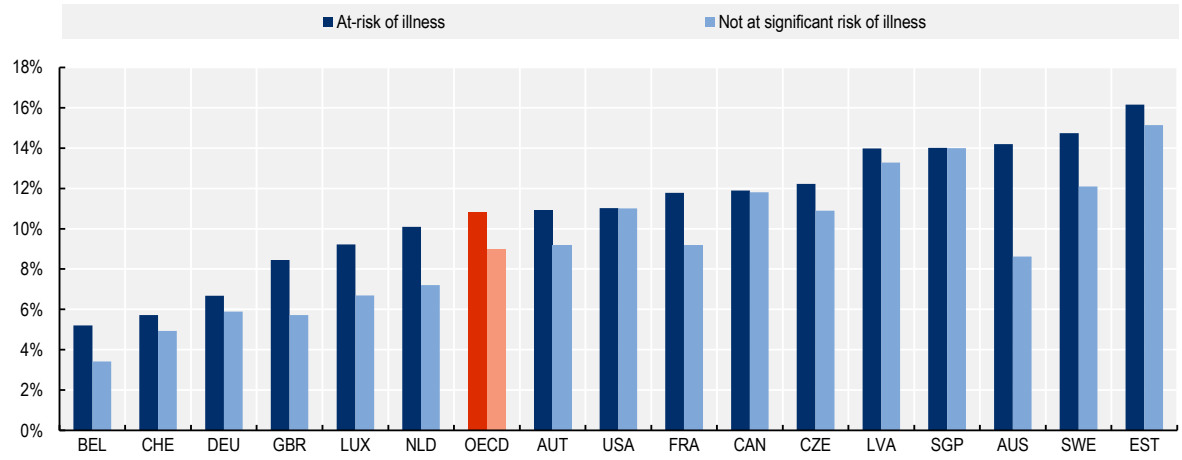
Labour market concentration may degrade occupational safety if investing in a safe work environment is costly for employers. Employers in concentrated markets may not need to offer a safe work environment to attract and retain good workers. If front-line workers are in concentrated markets, therefore, they could face a heightened risk of infection. Many OECD governments have instituted various protective measures for workers who are required to work, and therefore stand a chance of infection (OECD, 2020[66]) – see also Chapter 2. In countries or regions where such precautions are not mandated, or where workers nonetheless find them inadequate, often one's only recourse is to quit, and find a job with an employer with better safety measures. Moreover, the ease with which a worker can credibly quit can by itself spur greater safety measures. Whether front-line workers face monopsonistic labour markets is, all things equal, an important aspect of their occupations' safety and job quality.

Figure 3.5 depicts the share of workers in highly concentrated labour markets by whether their occupation is required to work in person, and whether, because of close contacts with colleagues or customers, they have a high risk of infection with COVID-19 on the job compared to those who do not (Basso et al., 2022[67]). On average, about 11% of these workers at significant risk of COVID-19 infection are found in highly concentrated labour markets compared to a little over 9% of those who are not. The largest gaps are found in Australia, the Netherlands and the United Kingdom. In contrast, there is little difference in the shares in highly concentrated markets in the United States and Singapore. Women, the low-educated and workers on temporary contracts among other more economically vulnerable groups are over-represented among at-risk workers (Basso et al., 2022[67]; DOL, 2022[68]).

The other defining feature of labour markets during the pandemic were workers who had the option of working from home. Workers who are able to telework are those in occupations where one can work from home without physically interacting with co-workers or customers, based on the tasks that are typically performed on their job according to the US Occupational Information Network database (Dingel and Neiman, 2020[69]; Basso et al., 2022[67]).

Figure 3.5. Occupations where workers face significant risk of COVID-19 infection tend to be more concentrated

The share of employment in highly concentrated labour markets by whether an occupation is at-risk of infection on the job, 2019



Notes: The OECD average is an unweighted average of countries in the sample excluding Singapore. ISCO 3-digit level Occupations are defined as "unsafe" or "at risk of infection" following Basso et al. (2022[67]). ISCO group 951 is omitted due to poor suitability of conversion from O*NET to ISCO. Highly concentrated markets are markets with a Herfindahl-Hirschman Index (HHI) of 2 500 or more. Labour markets are defined by job vacancies in 6-digit SOC by TL3 regions for Anglophone countries and 4-digit ISCO by TL3 regions for remaining countries. Shares are adjusted to a uniform population size of 200 000 of TL3 regions following Azar et al., (2020[28]). Employment shares are obtained by weighting HHIs using 2019 employment data from labour force surveys at the ISCO 3-digit level (omitting ISIC sections O, Public administration and defence; P, Education; Q, Human health and social work activities; and T, Activities of households) and job postings at the same level of disaggregation at which HHIs are defined. Singapore's weights include all ISIC sections.
Source: OECD analysis of Emsi Burning Glass data, European Union Labour Force Survey (European Union countries, Switzerland and the United Kingdom), Current Population Survey (United States), Canadian Labor Force Survey (Canada), Australian Labour Force Survey (Australia), The Ministry of Manpower (Singapore).

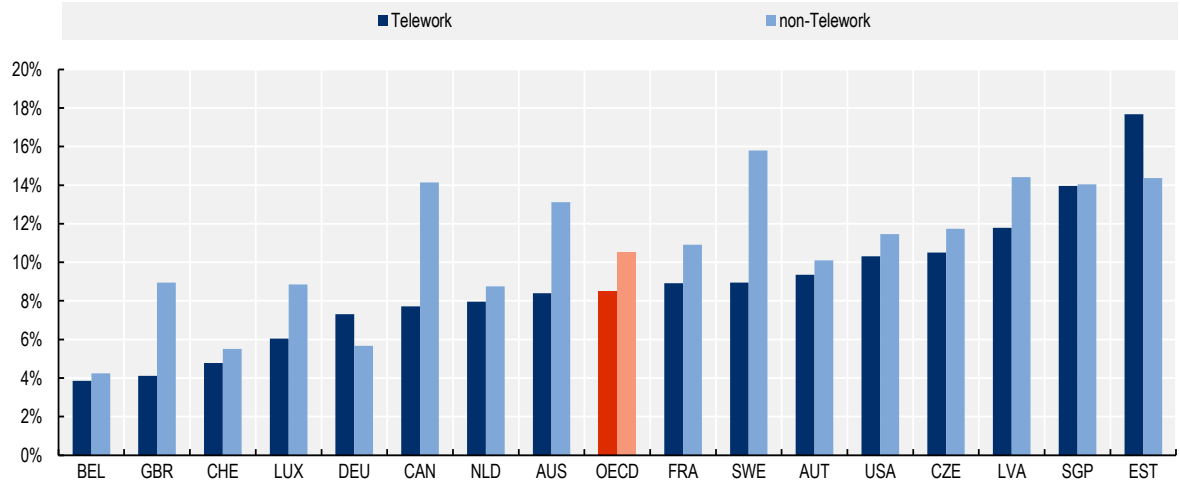
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Compounding the a priori occupational health disparity with front-line workers, workers who are able to telework are found in less concentrated labour markets. On average, 9% of workers in occupations amenable to telework are in highly concentrated markets on the eve of the COVID-19 crisis, compared to 11% of those workers who cannot telework (Figure 3.6).

In addition to protecting workers from the virus, the shift to telework during the pandemic may have improved the labour market prospects of these workers. Workers who can telework may search in a wider labour market than simply their local living area. This has the potential to further lower local employers' monopsony power, and increase bargaining power for workers who can telework (Section 3.4.2).

Figure 3.6. Workers who can telework face less concentrated labour markets

The share of employment in highly concentrated labour markets in the business sector by whether the occupation is amenable to telework, 2019



Notes: The OECD average is an unweighted average of countries in the sample excluding Singapore. Whether an occupation is amenable to telework is defined as "safe" occupations in Basso et al. (2022[67]) at the ISCO 3-digit level. ISCO group 951 is omitted due to poor suitability of conversion from O*NET to ISCO. Highly concentrated markets are markets with a Herfindahl-Hirschman Index (HHI) of 2 500 or more. Labour markets are defined by job vacancies in 6-digit SOC by TL3 regions for Anglophone countries and 4-digit ISCO by TL3 regions for remaining countries. Shares are adjusted to a uniform population size of 200 000 of TL3 regions following Azar et al., (2020[28]). Employment shares are obtained by weighting HHIs using 2019 employment data from labour force surveys at the ISCO 3-digit level (omitting ISIC sections O, Public administration and defence; P, Education; Q, Human health and social work activities; and T, Activities of households) and job postings at the same level of disaggregation at which HHIs are defined. Singapore's weights include all ISIC sections.
Source: OECD analysis of Emsi Burning Glass data, European Union Labour Force Survey (European Union countries, Switzerland and the United Kingdom), Current Population Survey (United States), Canadian Labor Force Survey (Canada), Australian Labour Force Survey (Australia), The Ministry of Manpower (Singapore).

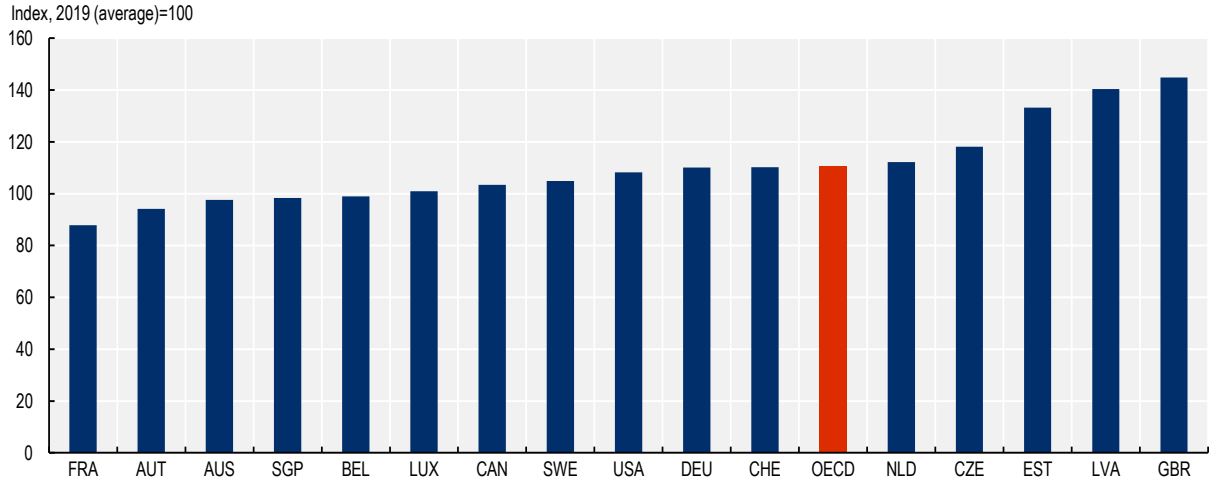
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3.2.4. Concentration rose at the onset of the crisis, but it has largely returned to pre-COVID-19 levels

One year into the pandemic, labour market concentration increased. Figure 3.7 shows the change in concentration from 2019 to the average of 2020Q2-2021Q1.[19] Concentration increased by 10% over this time period on average across the OECD countries in the sample, with the United Kingdom, Latvia and Estonia recording the largest growth. In France, Austria, Australia and Belgium, the HHI in the year following the onset of the pandemic was on average below its pre-crisis level.

Figure 3.7. A year into the pandemic, concentration settled slightly above pre-COVID-19 levels

Change in Herfindahl-Hirschman Index (HHI) from 2019 to the beginning of 2021.



Notes: Average of the four quarters of 2019=100 for each country. The beginning of 2021 is an average of 2020Q2-2021Q1. OECD average is an unweighted average of countries in the sample excluding Singapore. Labour markets are defined by job vacancies in 6-digit SOC by TL3 regions for Anglophone countries, and 4-digit ISCO by TL3 regions for the remaining countries. HHI estimates are adjusted to a uniform population size of 200 000 for TL3 regions following Azar et al., (2020[28]). Employment shares are obtained by weighting HHIs using 2019 employment data from labour force surveys at the ISCO 3-digit level x quarter level (omitting ISIC sections O, Public administration and defence; P, Education; Q, Human health and social work activities; and T, Activities of households) and job postings at the same level of disaggregation at which HHIs are defined. Singapore's weights include all ISIC sections.

Source: OECD analysis of Emsi Burning Glass data, European Union Labour Force Survey (European Union countries, Switzerland and the United Kingdom), Current Population Survey (United States), Canadian Labor Force Survey (Canada), Australian Labour Force Survey (Australia), The Ministry of Manpower (Singapore).

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These average values of concentration one year into the pandemic mask dynamics at the quarterly level. The average HHI grew by over 20% year over year in the second quarter of 2020 (Annex Figure 3.A.4). By the third and the fourth quarter of 2020, HHIs continued to grow, on average, but many countries were experiencing year-over-year *declines* in their aggregate HHI. By the first quarter of 2021, HHIs had decreased sharply in most countries.[20] This suggests that the run-up in concentration at the beginning of the pandemic is starting to abate, and the HHI is converging back toward pre-pandemic levels.

These patterns likely reflect the limited number of firms posting job vacancies during the acute stages of the pandemic, and the progressive normalisation of hiring in more recent periods. For example, some firms not hit by mandatory foreclosures, kept posting job openings even during the peak of the pandemic, causing a temporary increase in labour market concentration. The dynamics could also reflect an initial stark increase in concentration in certain sectors that represented a larger share of employment in 2019,[21] e.g. retail. However, as a large share of workers who would have otherwise sought new job opportunities refrained from doing so because of the pandemic (OECD, 2021[65]), it is not clear that the described movements in labour market concentration translated into actual changes in the wage-setting power of employers.

3.3. The effects of labour market concentration on labour market performance

The analysis in the previous section finds that labour market concentration is pervasive across OECD countries. However, if labour market concentration leads to monopsony power, one should expect concentration to be associated with changes in employment and wages. This section presents evidence of the effect of concentration on job quantity (employment) and quality (wages). The section begins by reviewing the literature on changes in employment in more concentrated markets, as well as how concentration affects wages. In addition to the literature, this section provides new cross-country empirical estimates of the effect of concentration on earnings, job security and job stability using matched employer-employee data. The estimates also disentangle the effects of concentration on different groups including youth and women. The section concludes by showing how labour market concentration affects the skill composition of labour demand.

3.3.1. Labour market concentration tends to reduce employment

Monopsony in the markets for inputs (including labour) can have a negative impact on prices (wages and benefits) and quantities (overall employment). In principle, one would expect to find a clear relationship between measures of monopsony or labour market concentration and employment (see Section 3.1). In practice, however, few studies have documented this relationship due to the difficulty of identifying the effect of labour market concentration independently from other confounding factors while simultaneously solving potential reverse causality issues.

Most of the studies in the literature focus on plant takeovers and mergers. These studies typically find a negative effect of mergers or takeovers on employment at merged firms or acquired plants. A number of early studies have looked at takeovers and found negative effects on employment – for example Lichtenberg and Siegel (1990[70]). Takeovers, however, may not result in greater concentration and market power if they are simply the result of a change in ownership with the acquiring entity operating in other, unrelated markets. More recent studies have focused directly on horizontal mergers, which are more likely to result in increased concentration, with similar results – that is, negative effects of mergers on employment levels of merged firms, see Conyon et al. (2001[71]), for the United Kingdom, Lehto and Böckerman (2008[72]) for Finland, Siegel and Simons (2010[73]) for Sweden, Arnold (2021[74]) for the United States, and the cross-country study of Gugler and Yurtoglu (2004[75]), covering European countries and the United States.[22]

The limit of merger studies is that they usually cannot disentangle changes in *product market* competition and, often, efficiency gains from mergers from changes in *labour market* competition. Policy responses are obviously different when the effect on employment derives from efficiency gains instead of inefficient demand restraints. In one of the very few studies trying to isolate directly the economy-wide effect of labour market concentration on employment, Marinescu, Ouss and Pape (2021[34]) examine its impact on new hires in France, controlling for both productivity and product market concentration. Relying on a standard leave-one-out instrumental variable strategy for identification (see Box 3.2 below), they find a very large negative effect of concentration on new hires: taking their estimates at face value, increasing the concentration index at the sample mean by 10% would imply a reduction in the number of new hires in a given local labour market by as large as 3%.[23] However, such large effects could suggest a problem of misspecification, related for example to the fact that the number of new hires is indirectly an input into the measure of concentration.[24] For this reason, these results should be taken with some caution.

Overall, these results suggest that labour market concentration tends to have a negative impact on employment, although more research is needed to establish the magnitude of this effect. However, job quantity is only one aspect of labour market performance and job quality is equally important. The next section analyses the possible effects of concentration on job quality.

3.3.2. Labour market concentration also has an adverse impact on job quality

Labour market concentration reduces earnings

There is a large empirical literature that has tried to estimate the effect of employers' market power on job quality, although most available studies focus only on the impact on wages and earnings. The literature on the effects of mergers on wages in the merging firms has yielded mixed results – see e.g. Lichtenberg and Siegel (1990[70]), Currie, Farsi and Macleod (2005[76]) and Siegel and Simons (2010[73]). More recent studies have shown that the impact of mergers on wages in a labour market tend to be larger, the greater the impact of the merger on labour market concentration – see e.g. Prager and Schmitt (2021[77]) and Arnold (2021[74]). Recent studies have also looked at the impact of reforms leading to enhanced firm entry, divestitures or greater outside options, thereby unambiguously increasing competition, and have typically found positive effects of these reforms on wages – see e.g. Hensvik (2012[78]), Hafner (2021[79]), Thoresson (2021[80]) and the literature on non-compete agreements discussed in Section 3.4.1 below.

A large recent literature has estimated directly the impact of local labour market concentration on wages in the United States.[25] There is also a growing body of recent evidence covering other OECD countries.[26] Most of these studies use instrumental variable techniques to deal with potential endogeneity issues (see Box 3.2). The estimated elasticity of wages to concentration typically ranges between -0.01 and -0.05. That is, when concentration doubles the wage falls by between 1% and 5%, with larger estimates being found only in a few of the US studies.[27] However, the heterogeneity of the measures of concentration and the differences in the specifications used make it difficult to compare point estimates across countries.[28]

In order to present comparable cross-country estimates, this section relies on Bassanini et al. (2022[37]), who analyse the impact of labour market concentration on wages and job security using harmonised linked employer-employee data for a number of European OECD countries (see Box 3.2 for a detailed discussion of the specification).[29]

In the four countries for which comparable wage data are available (Denmark, France, Germany and Portugal) the estimated elasticity of wages to labour market concentration varies between -0.02 (in Germany) and -0.03 (in Denmark) in the case of daily wages for full-time workers (Figure 3.8).[30] In other words, at the sample average, increasing labour market concentration by 10% lowers the daily wage by 0.2% to 0.3%.[31] This may seem low at first glance, but these results must be interpreted considering that concentration distributions are quite dispersed. In all these four countries, the ratio of the 9th decile of the distribution of HHIs to the median HHI is between 6.7 (in Denmark) and 8.8 (in Germany and France, see Annex Figure 3.A.5). Taken at face value, these estimates therefore imply that, all other things equal, the 10% of workers who are employed in the most concentrated labour markets experience a wage penalty of at least 5% with respect to the median worker. And a few of them, those in markets with concentration well above the 9th decile, suffer from a much greater wage penalty.[32]

Overall estimated elasticities for different countries remain close to one another. This is remarkable, given the significant differences across the labour markets of these countries – see e.g. OECD (2018[81]). These estimates also appear close to most of the other estimates in the literature, including for countries not included in our sample.[33] These two observations, taken together, cautiously suggest that the pattern presented in Figure 3.8 is likely to be more general, and rigorously estimated average wage elasticities are likely to belong to this range in other OECD countries not shown in the chart.

Box 3.2. Estimating the impact of concentration on wages and job security

Bassanini et al. (2022[37]) estimate the effect of labour market concentration on wages and job security on samples of linked employer-employee data on the following groups: all workers, full-time workers and new hires. They use the following specification:

$$Y_{i,j,f,l,s,t} = \beta \log(HHI_{l,t}) + \gamma X_{i,j,f,l,s,t} + \mu_{ft} + \mu_l \ (+\mu_i) + \varepsilon_{i,j,f,l,s,t}$$

where Y stands for the dependent variable, X is a vector of individual and plant-level controls, μ are fixed effects (with parentheses indicating fixed effects that are not included when the equation is estimated only on the sample of new hires), i indexes the worker, j the plant, f the firm-by-municipality couple,[1] l the local labour market, s the industry and t is the year. HHI stands for the Herfindahl-Hirschman Index calculated using the share of each employer in new hires in the local labour market defined by 4-digit occupation and cross-country comparable functional geographical areas, so that $l = (o, z)$, where o is the occupation and z is the geographical area.[2] The dependent variables include: the logarithm of daily and hourly wages; and dummy variables for having started an open-ended contract at hiring, or having the contract converted into an open-ended one within one year. Due to data limitations, wage equations are estimated only for Denmark, France, Germany and Portugal, while job security equations are estimated for France, Germany, Italy and Spain. In each country, household workers, self-employed, and those working in agriculture and outside the business sector are excluded from the sample.

Ordinary least squares (OLS) cannot consistently estimate the above equation if there is a time-varying factor that is correlated with both the local HHI and the dependent variables and is not proxied for by existing control variables. For example, positive or negative shocks to local labour supply are likely to affect the wage offers that workers are ready to accept and the number of firms that find it attractive to operate in the local labour market, thereby biasing OLS estimates of the above equation. To solve this problem, many papers[3] resort to a leave-one-out instrument à la Hausman, which is popular in the trade and industrial organisation literatures.[4] In practice, $\log(HHI)$ in local labour market $l = (o, z)$ at time t is instrumented with the average of $\log(1/N_{o,z',t})$ in all other functional areas z' for the same occupation o and time period t – where $N_{o,z',t}$ is the number of firms with positive number of hires in a given year. The same strategy is followed as regards estimates presented in this chapter.

1. The firm-by-municipality fixed effect plays a key role as it allows controlling for labour productivity and product market competition at both the national and local level. The only other study using the same fine-grained control for productivity and product market competition is Bassanini, Batut and Caroli (2021[57]). Qiu and Sojourner (2019[31]), Marinescu, Ouss and Pape (2021[34]) and Benmelech, Bergman and Kim (2022[29]) include labour productivity, as measured by accounting data, as a control variable without, however, addressing its endogeneity.

2. In the main specification functional geographical areas are composed of OECD functional urban areas (OECD, 2012[82]) and remaining large portions of NUTS3 regions, the latter being added to ensure a mixture of urban and rural areas. Results are however robust to using either functional urban areas or NUTS3 regions only.

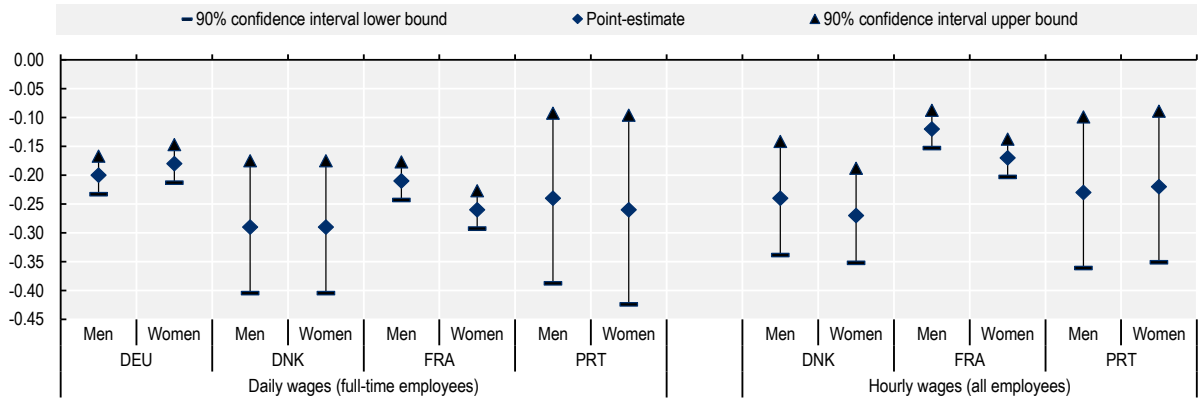
3. Azar, Marinescu and Steinbaum (2022[52]), Rinz (2022[32]), Martins (2018[35]), Qiu and Sojourner (2019[31]), Marinescu, Ouss and Pape (2021[34]), Bassanini, Batut and Caroli (2021[57]), OECD (2021[12]) and Popp (2021[83])

4. See e.g. Hausman, Leonard and Zona (1994[84]), Nevo (2001[85]), and Autor, Dorn and Hanson (2013[86]).

Source: Bassanini et al. (2022[37]), "Labour Market Concentration, Wages and Job Security in Europe", https://docs.iza.org/dp15231.pdf.

Figure 3.8. Estimated wage effect of labour market concentration

Percentage wage effect of a 10% increase in labour market concentration from the average level, selected countries, 2010-19



Notes: The chart shows point-estimates and confidence intervals of wage elasticities to changes in the Herfindahl-Hirschman Index (HHI) of the local labour market, defined as couples of 4-digit occupations and functional areas. The estimates are obtained from a linear regression including individual fixed effects, firm-municipality-year fixed effects, industry and plant fixed effects (where different from firmXmunicipality), annual dummies for workers' age, being employed in the previous year, being a new hire and working part-time. The logarithm of HHI is instrumented with the average of the log inverse number of firms in other functional areas for the same occupation. Standard errors are clustered at labour-market year level.
Source: Bassanini et al. (2022[37]), "Labour Market Concentration, Wages and Job Security in Europe", https://docs.iza.org/dp15231.pdf.

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The similarity of the estimated wage elasticities across countries, and their close alignment with the literature, suggest that it is possible to use the literature to infer how these elasticities might have changed over time. The estimates in this chapter were obtained on a limited number of years which does not allow studying trends in the wage elasticity over time. Given the close conformity of these estimates, one can use the wider literature as a guide as to how these elasticities may have evolved over time. For example, using a different concentration measure, OECD (2021[12]) find that this elasticity has become on average more negative in the last two decades. In other words, even though labour market concentration has not increased – see Section 3.2.3, its impact has become stronger over time. One possible explanation might be the concomitant reduction of collective bargaining and the weakening of trade unions (OECD, 2019[15]), which may be increasingly less able to act as a countervailing power – see Section 3.4.1.

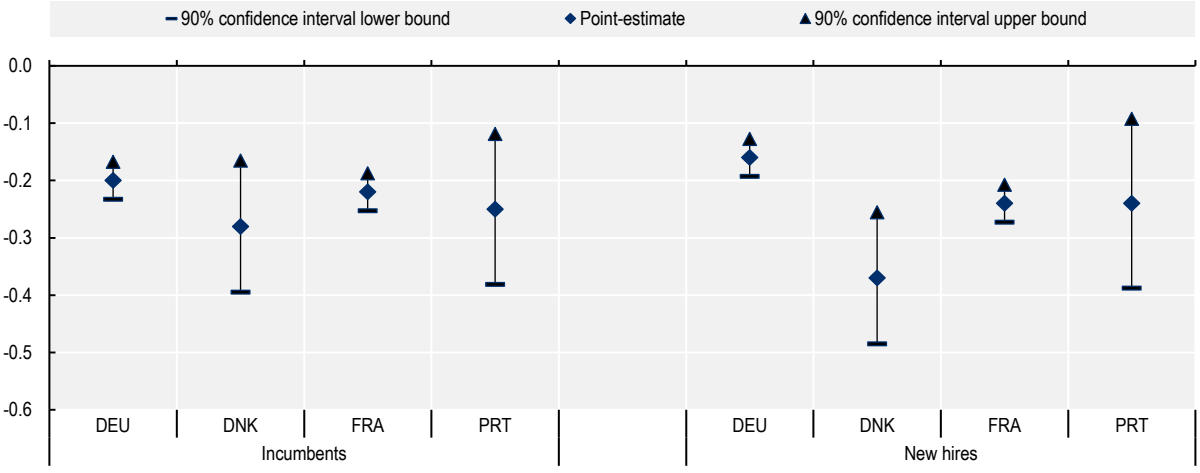
In the four countries for which the analysis is possible, there is no systematic gender difference in wage elasticities to labour market concentration. This may appear surprising in view of the literature on separation elasticities that has tended to find smaller elasticities for women than for men (Manning, 2003[5]; Hirsch, Schank and Schnabel, 2010[87]; Webber, 2016[13]; Vick, 2017[88]). The estimates in Figure 3.8, however, should not be interpreted as implying that women are exposed to the same degree of monopsony power as men. As discussed in Section 3.1, women tend to search for jobs closer to their home and are ready to accept a significant wage penalty for a closer job. As a result, the same level of concentration implies fewer acceptable alternative jobs for women, and therefore lower wages. But increasing concentration may still have a similar percentage effect on the rarefication of available alternatives for both men and women, consistent with the gender pattern shown in Figure 3.8.

The negative impact of labour market concentration on wages as presented above is the aggregation of the average effects on two different groups of employees: those who have been hired over the previous year (the new hires) and those who were already employed by the firm the year before (the incumbents). It has been conjectured in the literature that the effect on new hires should be larger than that on incumbents (Marinescu, Ouss and Pape, 2021[34]) since the latter's wage is considered to be less sensitive

to changing labour market conditions (Pissarides, 2009[89]; Haefke, Sonntag and van Rens, 2013[90]; Kudlyak, 2014[91]). Disaggregating the effect of labour market concentration between new hires and incumbents, the effect on the former's wages, while always significant, does not appear systematically larger than that on incumbents' (Figure 3.9).[34] For incumbents, one can conjecture therefore that the impact of concentration on wages occurs mainly through reduced rates of promotions and lack of wage increases – that is upward wage rigidity, rather than downward wage flexibility, which might more easily concern new hires. This is consistent with recent findings by Grigsby, Hurst and Yildirmaz (2021[92]), who suggest that incumbents' wages appear no less flexible than those of new hires once the characteristics of the latter are properly accounted for. From a policy perspective, this is important since incumbents represent a large share of employment and their wage dynamics have been found to be driving aggregate wage growth in recent years (Hahn, Hyatt and Janicki, 2021[93]; Hijzen, Zwysen and Lillehagen, 2021[94]).[35]

Figure 3.9. Estimated wage effect of labour market concentration for incumbents and new hires

Percentage effect on daily wages of full-time workers of a 10% increase in concentration from the average level, selected countries, 2010-19



Notes: The chart shows point-estimates and confidence intervals of wage elasticities to changes in the Herfindahl-Hirschman Index (HHI) of the local labour market, defined as couples of 4-digit occupations and functional areas. Incumbents (resp. new hires) are defined as employees who were (resp. were not) in the firm the year before. The estimates are obtained from a linear regression including individual fixed effects, firm-municipality-year fixed effects, industry and plant fixed effects (where different from firmXmunicipality), annual dummies for workers' age, being employed in the previous year, being a new hire and working part-time. The logarithm (HHI) is instrumented with the average of the log inverse number of firms in other functional areas for the same occupation. Standard errors clustered at labour-market year level.
Source: Bassanini et al. (2022[37]), "Labour Market Concentration, Wages and Job Security in Europe", https://docs.iza.org/dp15231.pdf.

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Employers in more concentrated markets tend to use less stable contracts

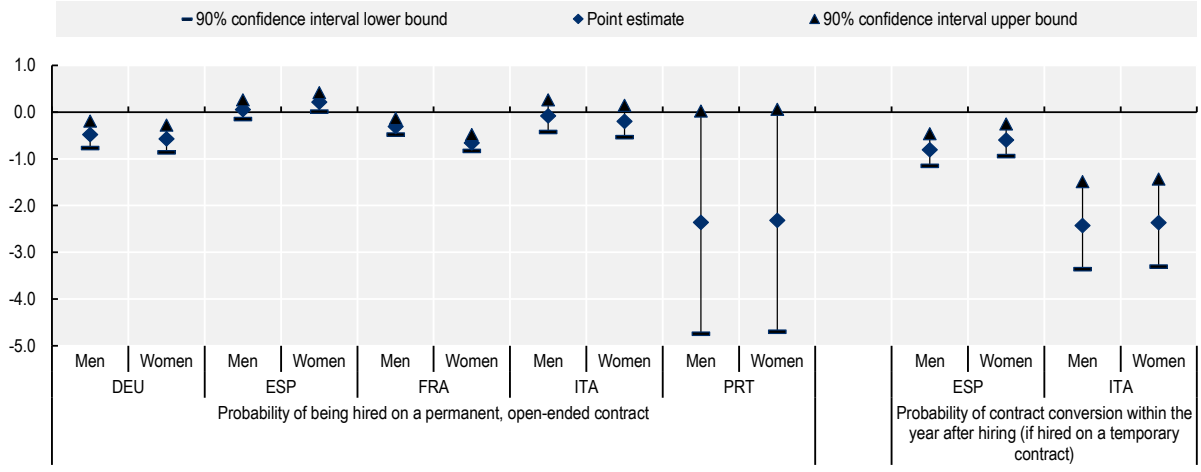
There is a large literature showing that workers consider wages and working conditions together when evaluating jobs and job offers, and are ready to trade off part of their wage for terms and conditions of employment that they consider to be better – see e.g. Mas and Pallais (2017[17]), Taber and Vejlin (2020[95]) and Kesternich et al. (2021[96]) for recent evidence. If delivering better terms and conditions of employment is costly for employers, it can be expected that monopsonistic employers will tend to offer jobs with worse terms and conditions (Manning, 2003[5]). Yet, there is surprisingly little literature on the effect of labour market concentration on the terms and conditions of employment. Qiu and Sojourner (2019[31]), who find a negative effect of concentration on the probability of being covered by employer-provided health insurance, represents one of the few exceptions.

There is evidence that, all things equal, employees often have a preference for stable jobs and firms need to offer a wage compensation for more unstable or insecure jobs – see e.g. Bassanini et al. (2013[97]) and Albanese and Gallo (2020[98]). Dynamic monopsony theory would predict, therefore, that employers in more monopsonistic labour markets would be more likely to offer temporary contracts at the margin in an attempt to shift most of the labour adjustment onto workers.[36] One could expect this mechanism to be particularly important in countries with stringent employment protection rules, which imply higher termination costs for employees on open-ended contracts than on temporary contracts (OECD, 2020[99]; 2021[100]).

Regression analysis suggests that labour market concentration tends to increase the use of flexible contracts. Figure 3.10 reports estimates of the effect of labour market concentration on the probability of starting a permanent contract at the time of hiring, and the probability of having the contract converted into an open-ended one if hired on a temporary contract.[37] In Germany and France, increasing concentration by 10% from the average level is estimated to reduce significantly the probability of being offered an open-ended contract at hiring, with effects that vary between 0.35% (for French men) and 0.7% (for French women). In other words, in these two countries, taking into account the dispersion of the distribution (see Annex Figure 3.A.5), the 10% of workers in the most concentrated markets are estimated to be at least 10% less likely to be hired on a permanent contract than those in a labour market with median concentration. The estimated effect of a 10% increase in concentration is much higher in Portugal (about 2.3% for both men and women), but it is imprecisely estimated. By contrast, the effect is insignificant in Italy and Spain. The latter finding probably reflects the fact that most employees are first hired on temporary contracts in these two countries,[38] even in low concentration labour markets, which reduces the scope for further increasing temporary contracts for firms with market power.

Figure 3.10. Estimated effect of labour market concentration on contract type

Percentage effect of a 10% increase in concentration from the average level on the probability of starting a permanent contract at the time of hiring and on the probability of being converted if hired on a temporary contract, selected countries, 2010-19



Notes: The chart shows point-estimates and confidence intervals of percentage elasticities to changes in the Herfindahl-Hirschman Index (HHI) of the local labour market, defined as couples of 4-digit occupations and functional areas. The sample is restricted to new hires. Conversion is defined as a change of contract from temporary to open-ended (and the sample is further restricted to new hires on temporary contract) in the calendar year following new hires. The estimates are obtained from a linear regression including firm-municipality-year fixed effects, industry and plant fixed effects (where different from firmXmunicipality), educational attainment, gender, annual dummies for workers' age, being employed in the previous year and working part-time. The logarithm (HHI) is instrumented with the average of the log inverse number of firms in other functional areas for the same occupation. Standard errors clustered at labour-market year level.
Source: Bassanini et al. (2022[37]), "Labour Market Concentration, Wages and Job Security in Europe", https://docs.iza.org/dp15231.pdf.

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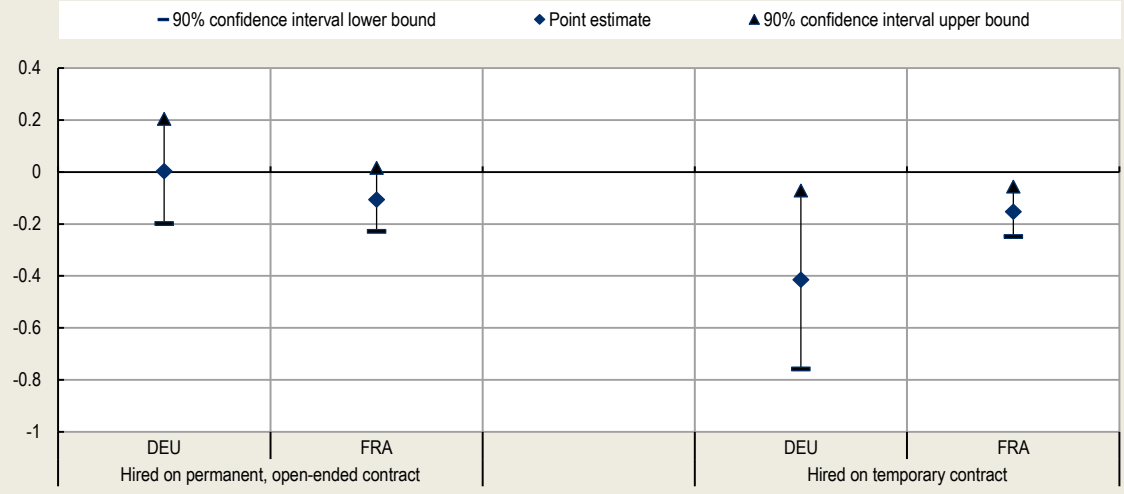
Box 3.3. Labour market concentration and job stability: Evidence from France and Germany

What is the expected effect of monopsony and labour market concentration on job stability? On the one hand, to the extent that employees have fewer outside options, it can be expected that job spells become longer as employees find it more difficult to quit for another job. On the other hand, to the extent that employers with market power impose lower wages and worse working conditions, a greater share of their employees might be tempted to quit (Manning, 2003[5]). The overall effect is therefore ambiguous.

Figure 3.11 shows estimated percentage point effects of labour market concentration on the probability of working with the same employer 12 months after hiring in France and Germany. In the case of workers hired on permanent, open-ended contracts the impact of labour market concentration is insignificant (and very close to 0 in Germany), reflecting the offsetting mechanisms outlined above. A negative effect emerges for those hired on temporary contracts. In this case, a 10% increase in labour market concentration results in lower retention rates 12 months after hiring by 0.2 to 0.4 percentage points. Whatever the factors behind this pattern,[1] in France and Germany, labour market concentration appears to depress job security by both affecting contract characteristics and job spells.

Figure 3.11. Estimated effect of labour market concentration on job stability

Percentage-point effect of a 10% increase in concentration from the average level on the probability of working with the same employer 12 months after hiring, by type of contract. Selected and countries, 2010-18



Notes: The chart shows point-estimates and confidence intervals of percentage elasticities to changes in the Herfindahl-Hirschman Index (HHI) of the local labour market, defined as couples of 4-digit occupations and functional areas. The estimates are obtained from a linear regression including firm-municipality-year fixed effects, industry and plant fixed effects (where different from firmXmunicipality), educational attainment, gender, annual dummies for workers' age and working part-time. The logarithm (HHI) is instrumented with the average of the log inverse number of firms in other functional areas for the same occupation. Standard errors clustered at labour-market year level.
Source: Calculations by the OECD Secretariat and the Institute for Employment Research (IAB) based on data from Bassanini et al. (2022[37]), "Labour Market Concentration, Wages and Job Security in Europe", https://docs.iza.org/dp15231.pdf.

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1. The negative effect on job stability in the case of temporary contracts is likely to reflect smaller conversion rates combined with upper limits on duration and number of renewals of temporary contracts in the absence of contract conversion – see e.g. OECD (2020[99]) – and/or the fact that employers may take advantage of the greater flexibility of these contracts to terminate them in the case of unexpected negative shocks.

Available data also allow the examination of the impact on contract conversion in Italy and Spain. For those hired on a temporary contract, labour market concentration clearly depresses their chances of accessing a more stable position within the calendar year after hiring (Figure 3.10). The effect appears particularly large for Italy where a 10% increase in concentration reduces the conversion rate by 2.5% for both men and women.[39] In France, Germany and Portugal, the structure of the data prevents this type of analysis,[40] but one can have an indication of the impact of concentration on the precariousness of temporary contracts in these countries by looking at retention rates one year after hiring (Box 3.3).[41] Overall, the findings presented in Figure 3.10 and Box 3.3 provide evidence that labour market concentration has a negative effect on job security. Employers with market power tend to shift adjustment costs onto workers by either hiring more workers on temporary contracts or reducing the conversion rate of these contracts.

Is labour market concentration particularly bad for youth?

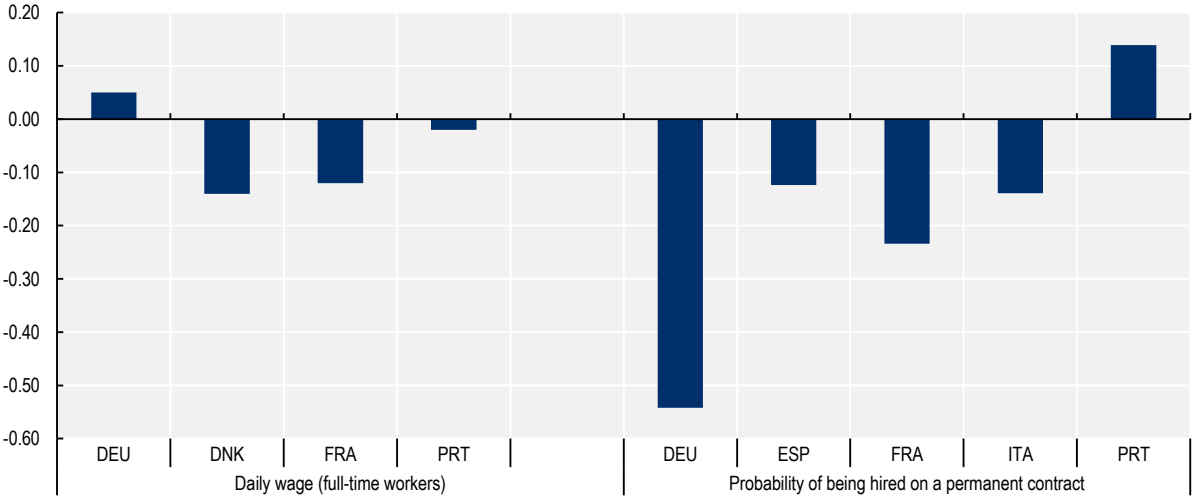
The evidence presented above suggests a strong effect of labour market concentration on job quality, and it is consistent with the idea that employers with market power inefficiently reduce labour demand in order to dampen the cost associated with wages and non-wage attributes. However, employers depressing their labour demand could also be expected to become more selective in hiring. For example, they may prefer job candidates with work experience – whose competences are therefore less noisily signalled by their resume – to those with more uncertain productivities, such as young labour market newcomers. Figure 3.12 shows that, in three out of four of the countries for which data are available, the wage elasticity to labour market concentration is stronger for youth than for older adults. In particular, in France and Denmark, the wage elasticity difference between employees aged 24 years or less[42] and their older peers is estimated to be at least 50% larger, in absolute terms, than the economy-wide wage elasticity (cf. with Figure 3.8 above).

Germany is the only country for which the estimated wage elasticity is smaller for youth than for their older peers. While the positive estimated wage elasticity differential in the case of Germany may be surprising, it cannot be interpreted without looking at the effect of concentration on other dimensions of job quality. Labour market concentration appears to have consistently a stronger negative impact on the probability of starting a permanent, open-ended contract at the time of hiring for youth than for other adults in all the countries for which this effect can be estimated, with the exception of Portugal. But the impact is particularly large for Germany where the differential effect between youth and older adults is as large as the economy-wide effect (cf. Figure 3.12 with Figure 3.10 above). In other words, this pattern is consistent with German youth trading off wages and type of contract differently with respect to other countries. This could be due to the fact that a large share of temporary contracts in Germany are apprenticeships, which tend to be considered better than other temporary contracts.[43] This points to the importance of examining several different margins together in order to appreciate the full impact of labour market concentration. Looking only at wage effects may indeed provide a biased picture.

Taken together and interpreted with caution, these results suggest that employers in concentrated labour markets tend to become more selective, and that this may have a particularly negative impact on the job quality of young workers. The next section analyses the possible effects of this increased selectivity on skill demand.

Figure 3.12. Estimated differential effect of labour market concentration between youth and adults

Difference between youth and adults in the percentage effect of a 10% increase concentration from the average level on daily wages (for full-time workers) and the probability of starting a permanent contract at the time of hiring. Selected countries, 2010-19



Notes: The chart shows percentage-point differences in point-estimates of percentage elasticities to changes in the Herfindahl-Hirschman Index (HHI) of the local labour market, defined as couples of 4-digit occupations and functional areas. For example, in Germany, a 10% increase concentration implies that the probability of being hired on a permanent contract falls by 0.54 percentage points more for youth than for other adults. The estimates are obtained from a linear regression including firm-municipality-year fixed effects, industry and plant fixed effects (where different from firmXmunicipality), annual dummies for workers' age, being employed in the previous year and working part-time. The wage equation (restricted to full-time workers) also includes individual fixed effects and a dummy for being new hire. The contract equation, restricted to new hires, includes education and gender dummies. The logarithm (HHI) is instrumented with the average of the log inverse number of firms in other functional areas for the same occupation.
Source: Bassanini et al. (2022[37]), "Labour Market Concentration, Wages and Job Security in Europe", https://docs.iza.org/dp15231.pdf.

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3.3.3. The effect of concentration on skill demand

Employers operating in monopsonistic markets may leverage the presence of limited outside options to become more selective in their recruitment, hire workers with greater skills, or become more demanding vis-à-vis incumbent employees. The limited existing literature finds supporting evidence of a positive association between labour market concentration and demand for skills in US online job advertisements (Macaluso, Hershbein and Yeh, 2019[101]). Other studies on the United States data also find that skills requirements within occupations increase (respectively, decrease) when labour markets are slack (tight) and more (less) talent is available on the market (Modestino, Shoag and Ballance, 2016[48]; Modestino, Shoag and Balance, 2020[102]), but they do not associate the phenomenon to changes in the relative market power of employers.[44]

This section provides new empirical evidence of the effect of labour market concentration on skill demand, as reported in online job advertisements. It expands on the existing literature by covering countries other than the United States, and by presenting first-time causal estimates of the relationship of interest, as opposed to correlations.

Multiple proxies of (online) skill demand are used: the number of distinct skill categories demanded in a job posting, an indicator of the fact that the job posting requires cognitive skills, and a similar indicator for social skills. The focus on cognitive and social skills is motivated by their importance in explaining wage heterogeneity across labour markets and firms (Deming and Kahn, 2018[103]), and the fact that they are

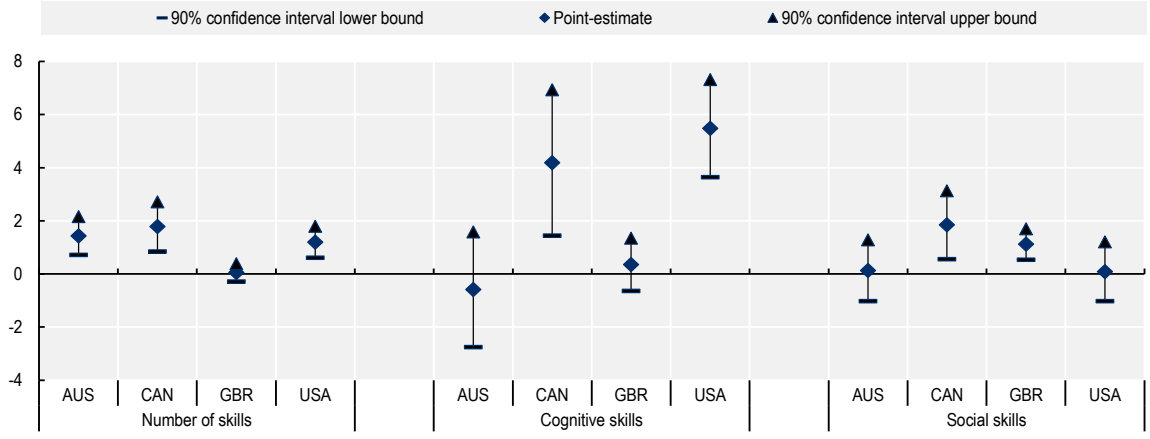
largely in demand, both separately and jointly (Deming, 2017[104]; Deming and Kahn, 2018[103]). The construction of these skill demand indicators restricts the analysis to four countries for which data are available (Australia, Canada, the United Kingdom, the United States). More information on the construction of the skill indicators and the empirical specification is proposed in Box 3.4.

The regression analyses tend to confirm that employers in more concentrated markets demand more skilled workers (Figure 3.13). In Australia, Canada and the United States, a 10% increase in labour market concentration from its average level in the country significantly increases the number of skill categories mentioned as requirements in the job advertisement by 1.2% (United States), 1.4% (Australia) or 1.8% (Canada) of the average number of skill categories in the country's job postings. The same change in concentration would increase the probability that an employer requires at least one social skill by 1.1% (United Kingdom) and 1.8% (Canada) of the initial average probability. The result for cognitive skills, when significant, is larger (although more imprecisely estimated), reaching 4.2% (Canada) to 5.5% (United States) of the average probability for a posting to require at least one such skill. In the remaining instances, the estimated effects are statistically insignificant and with magnitude close to zero, but there is no consistent country-specific pattern. The lack of a significant finding could reflect the absence of a relationship between concentration and skills demand in those countries, conditional on the large number of fixed effects included. However, it could also reflect a context where firms offering low wages can only attract low-skill workers, if their wage elasticity is lower than that of high-skill workers.

These exceptions notwithstanding, the analysis documents that monopsony power, as proxied by labour market concentration, induces not only a reduction in wages and job security, but also an increase in the skills that workers are required to mobilise while performing their job.

Figure 3.13. Estimated effect of labour market concentration on skill demand in online job advertisements

Percentage effect of a 10% increase in concentration from the average level, on the average number of skills mentioned in a job ad and on the probability that a job ad mentions at least one cognitive skill or one social skill. Selected countries, 2017-19



Notes: The chart shows point-estimates and confidence intervals of percentage elasticities to changes in the Herfindahl-Hirschman Index (HHI) of the local labour market, defined as couples of 4-digit ISCO occupations and TL3 regions. The estimates are obtained from a linear regression including firm-geography-time fixed effects and geography-occupation fixed effects. They are presented as a percentage of the average value of the indicator of skill demand in the sample. The logarithm of HHI is instrumented with the average of the log inverse number of firms in other TL3 regions for the same occupation. Standard errors are clustered at the labour market by quarter-year level.
Source: OECD analysis of Emsi Burning Glass data.

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Box 3.4. Estimating the impact of concentration on skill demand in job advertisements

This chapter estimates the effect of labour market concentration on indicators of demand for skills, as reported in job advertisements. The following specification is used:

$$Y_{i,f,l,s,t} = \beta \log(HHI_{l,t}) + \gamma X_{i,f,l,s,t} + \mu_{f,z,t} + \mu_l + \varepsilon_{i,f,l,s,t}$$

where Y stands for the dependent variable, X is a vector of posting-level controls, μ are fixed effects, $X_{i,f,l,s,t}$ stands for classes of education attainment and work experience that are used as extra controls, and HHI stands for the Herfindahl-Hirschman Index as calculated using the share of each employer in total postings in the local labour market defined by 4-digit occupation and TL3 regions, as in Section 3.2.The letter i indexes the posting, f the employer, l the local labour market, s the industry and t is the quarter in a year. $l = (o, z)$, where o is the occupation and z is the geographical area. In light of the fixed effects used, empirical results are identified by differences in job postings of the same establishment across occupations, and their variation over time.

The dependent variables of interest are alternatively the number of skill categories mentioned in the job advertisement, an indicator variable signalling that the posting requires at least one cognitive skill, and a similar indicator for one social skill. The database used for the analysis lists thousands of distinct skills, which cannot be easily or meaningfully described, if not grouped in an appropriate way. Furthermore, some of this variation is fictitious, as it originates from synonyms, differences in spelling, or from country-, occupation- or employer-specific practices in writing the advertisements. The skill keywords reported in the database are therefore grouped in 61 mutually exclusive skill categories following Lassébie et al. (2021[105]), ahead of performing the analysis. This allows identifying cognitive skills from job advertisements containing keywords related to quantitative abilities, reasoning, problem solving, learning and originality; and social skills via keywords related to co-ordination, decision-making, persuasion and negotiation, social perceptiveness, speaking, writing, communication, or active listening. In the sample considered for the analysis, 20 to 28% of job advertisements explicitly require at least one cognitive skill, and 40 to 45% require at least one social skill.

The availability of the classification of skills into skill categories according to Lassébie et al. (2021[105]) constrains the analysis to Australia, Canada, the United Kingdom and the United States. Outliers and postings from firms operating in agriculture, household production, and the public sector (education, health care and social security, public administration and defines) are excluded.[1] Within each country, the analysis is performed on a panel of 5 000 randomly chosen employers covering the years 2017-19, where the sampling enables significant savings in computing power and time. The time series is kept short to limit possible biases emerging from changes in the representativeness of a dataset of online job postings over long periods.

Obtaining consistent estimates of the effect of labour market concentration on skill demand requires, however, an instrumental variable approach. Following a standard practice in the literature (see Box 3.2), a given market's HHI is therefore instrumented by the inverse of the number of firms posting ads in the same occupation but in all other TL3 regions, averaged over all these alternative regions.

1. Outliers are postings that alternatively (i) report more than 20 skill requirements, or (ii) are advertised for an occupation that accounts for less than 1% of total postings in the year.

3.4. Monopsony and labour market policy: Direct and indirect policy considerations

The previous sections have shown that employers' market power is likely to be large in many labour markets. In particular, the analysis has shown that about one sixth of workers in the business sector of 15 OECD countries find themselves in moderately or highly concentrated labour markets and that this is likely to have a negative impact on both job quantity and quality. This section discusses labour market policy in light of labour markets with monopsony power.

The discussion will touch on both direct and indirect policy considerations. Direct policy considerations concern first-order levers to counteract the power imbalance between workers and firms. The two main direct policy interventions include the role of competition and labour policy with regard to labour market concentration and abuses of monopsony power, and the role of trade unions to counteract firms with strong bargaining power. Other policy considerations concern how policy makers should view labour market policies in a world where labour markets are not perfectly competitive and how these policy levers can be mobilised to counterbalance the adverse effects of monopsony. This section will discuss three examples of such indirect policy levers: minimum wages, geographical mobility and teleworking, and reskilling.

3.4.1. Direct policy interventions

At its simplest, monopsony in labour markets tilts the balance of power towards employers and away from workers. Logically, policies which directly limit concentration or counteract uneven employer power in the employment relationship can improve labour market outcomes for incumbent workers in the firm as well as job seekers and similar workers employed at competing firms. This section discusses two categories of such policy interventions: explicit regulation to limit employer concentration and fight abuses of monopsony power, and the role of trade unions.

Regulation to address labour market monopsony

Historically, legislators and enforcement authorities (including labour inspectorates and antitrust authorities) have paid little attention to employers' market power in the labour market. However, this issue, as well as how to enhance competition in the labour market, is receiving increasing attention – see e.g. US Department of Justice; Federal Trade Commission (2016[106]; 2022[107]), US Department of Treasury (2022[108]), and Vestager (2021[109]). There are four areas of action, in which a more active role of regulators could be considered. Ranking them in terms of their links with the competences of labour authorities, they are: i) non-compete agreements; ii) occupational licensing; iii) no-poaching agreements and wage-setting collusion; and iv) mergers.[45]

Non-compete agreements

Non-compete agreements or covenants (NCAs) are clauses in contracts that prevent workers from working for a competitor after they separate from their employer.[46] In most countries, NCAs are lawful and justified by the need to protect trade secrets and specific investment in the employment relationship by the employer (such as investment in knowledge).[47] Where statistics on NCA use are available, they suggest that they are widespread. According to an establishment survey of 2019, between 28% and 47% of US private-sector workers are subject to NCAs (Colvin and Shierholz, 2019[110]). Vuorenkoski (2018[111]) reports that 45% of workers belonging to the Finnish trade union Akava are bound by an NCA. A 2015 Dutch survey shows that about 19% of employees were covered by NCAs (Streefkerk, Elshout and Cuelenaere, 2015[112]). Young (2021[113]) reports that over 35% of private sector workers in Austria were bound by an NCA in 2005-06.

NCAs are often considered to have a positive impact on employers' investment in intangible capital and training, in particular when incumbent companies cannot protect their investment in knowledge through patents or other types of contracts (such as training pay-back clauses). However, NCAs may lead to negative spillovers resulting in a tax on future employers, thereby discouraging market contestability, firm entry and entrepreneurship. This explains why there is no unambiguous evidence on their impact on innovation and productivity – see e.g. Starr, Balasubramanian and Sakakibara (2018[114]); Shi (2020[115]); Lavetti (2021[116]); and Jeffers (2021[117]). By discouraging entrepreneurship and firm entry, NCAs use tend to increase labour market concentration – see Hausman and Lavetti (2021[118]).

There is also evidence that employers tend to use NCAs to limit the outside options of their employees. They are in fact frequently used in many countries even when the employee has no access to the employers' trade secrets or other intangible assets. For example, Starr, Prescott and Bishara (2021[119]) find, using a large sample of US workers, that more than 40% of the workers bound by an NCA neither worked directly with clients nor had access to client information or other trade secrets.

Existing evidence from the United States suggests that facilitating the enforceability of NCAs unambiguously reduces job mobility and often depresses wages – see e.g. Marx, Strumsky and Fleming (2009[120]); Starr (2019[121]); McAdams (2019[122]); Lipsitz and Starr (2022[123]), except in firms and occupations where employers can credibly commit to share with employees the returns from enhanced investments in intangibles – see e.g. Lavetti, Simon and White (2019[124]). The negative effect of NCAs on job mobility and wages tends to be stronger for women, likely due to stronger preference for shorter commuting (Johnson, Lavetti and Lipsitz, 2021[125]).[48] Research from Austria confirms that, even in other countries, reducing the enforceability of NCAs enhances job to job transitions to better paid jobs (Young, 2021[113]).

Most jurisdictions impose that, to be enforceable by courts, NCAs need to respect a number of reasonableness conditions, which are designed with the purpose of limiting abuse – see e.g. Meritas (2017[126]) for an overview of existing rules in OECD countries. However, courts typically assess the reasonableness of non-compete agreements on a case-by-case basis, and costly litigation by workers often results in simply waving unenforceable covenants, with no additional gain for plaintiff workers (Krueger and Posner, 2018[127]). For this reason, governments could consider banning NCAs, or establishing a rebuttable presumption of abusive use.[49] This would be particularly important in the case of certain type of positions, pay levels or skill requirements, for which a clear justification, such as the protection of trade secrets, seems implausible.[50]

However, even when NCAs are unenforceable, they may still be included in employment contracts as a way to put pressure on uninformed employees. For example, 19% of employees in California and North Dakota report having signed an NCA, despite the fact that these clauses are legally not enforceable in these states (Starr, Prescott and Bishara, 2020[128]), suggesting that employers still use them to deter mobility despite their formal lack of enforceability. This strengthens the case for a proactive role of enforcement agencies, including labour inspectorates, to curb abuses, but in order to be effective, they should have the possibility of imposing sanctions or taking the case to courts, which should be empowered to impose them. Governments could also consider imposing minimum compensation schedules during the period after separation in which the NCA binds, as done for example in Denmark, France, Norway and Sweden (Vuorenkoski, 2019[129]; Berjot, 2021[130]) and enacted recently in Finland (Autio, 2021[131]).

Occupational licenses

Over 20% of jobs in many OECD countries require some form of occupational license (Koumenta and Pagliero, 2018[132]; Hermansen, 2019[133]). By imposing minimum standards of competence to practice for pay, occupational licensing limits entry into the occupation to those practitioners whose skills have been recognised to be at or above the minimum requirements. Consequently, it reduces the pool of practitioners, thereby potentially giving them (or their employers) significant market power in the service

market (Pagliero, 2011[134]), which tends to yield higher service prices (Wing and Marier, 2014[135]; Kleiner, 2017[136]). Conversely, licensing may improve service quality and customers' protection, as well as wages and working conditions of workers in that occupation. Available research indeed suggests that licensing generates a wage premium in licensed occupations (Kleiner and Krueger, 2013[137]; Gittleman, Klee and Kleiner, 2017[138]; Zhang, 2018[139]; Koumenta and Pagliero, 2018[132]).

Recent research in the United States, however, has pointed out a more subtle effect of licensing in the labour market. Certain occupations are closer substitutes and similar tasks can be performed by workers in more than one occupation. Moreover, workers with similar competencies can work in multiple occupations. Imposing licensing requirements in one of them has a negative effect on wages in other, closely-related occupations, as in Kleiner et al. (2016[140]) and Dodini (2020[141]). This is consistent with a monopsony model, in which licensing, by reducing outside options for workers in closely related, non-licensed occupations, increase monopsony power of employers in these occupations (Kleiner and Park, 2010[142]). Dodini (2020[141]) further shows that his results cannot be explained by the labour supply shock induced by licensing in one occupation in closely related occupations.

Although more research is needed to confirm this evidence, policy makers may want to consider these cross-market effects when evaluating costs and benefits of occupational licensing. A valid substitute for licensing could be certification, which offers practitioners the option to join a scheme that verifies and guarantees their skills but without imposing any legal restriction (Koumenta and Pagliero, 2018[132]).

Labour market collusion

In most jurisdictions, competition law forbids collusion among buyers of intermediate goods or services, including labour services – see e.g. Blair and Wang (2017[143]).[51] General statistics on collusion are difficult to collect, since figures on those illicit behaviours that escape investigation are typically not available. Statistics on non-poaching covenants exist for franchising agreements, where these covenants are not necessarily unlawful – see OECD (2019[15]) for a discussion. Krueger and Ashenfelter (2022[144]) estimate that more than 50% of major franchise companies in the United States use no-poaching clauses in their franchising agreements. Theory and empirical evidence also suggests that collusion is more likely to occur in concentrated markets, since co-ordination among few actors is typically easier to sustain – see e.g. Asker and Nocke (2021[145]). Moreover, as it can more easily cover all or most of the actors, collusion is likely to be more damaging in concentrated markets: in the only academic study evaluating the impact on wages of major no-poaching agreements investigated by US antitrust authorities, Gibson (2021[56]) finds that each agreement among any two firms operating in the mid-2000s, in the highly concentrated Silicon Valley high-tech sector, suppressed about 2.5% of annual wages.

Providing explicit guidance about labour market collusion is crucial to guide and set priorities for enforcement agencies. For example, US antitrust authorities have issued guidelines that explicitly refer to collusion in the labour market, present clear examples of illicit behaviours, and underline the importance of fighting them for their effects in the labour market (US Department of Justice; Federal Trade Commission, 2016[106]). Whistleblower protection and adequate leniency programmes, which offer immunity to the first cartel member that blows the whistle, are also important for effective enforcement since collusion is often discovered based on information provided by insiders (Dyck, Morse and Zingales, 2010[146]; Yeoh, 2014[147]; Luz and Spagnolo, 2017[148]). Last, but not least, public enforcement action by antitrust authorities has a key role to play in this context, as they are usually able to impose sanctions for collusive behaviours (OECD, 2020[149]). Private enforcement actions may also be brought by individual employees. However, individual employees often do not have the resources or incentives to sue employers for these types of antitrust violations since an antitrust standalone suit is usually much more costly than the individual damage compensation that may be awarded by the court (OECD, 2019[15]).

Mergers

Potentially colluding companies, however, could avoid unlawful labour market collusion by simply merging. If the merger substantially lessens or significantly impedes effective competition in a specific labour market, including by leading to the creation of a dominant employer, the merged entity would likely use its market power to reduce employment and wages in that market, similarly to what non-merging colluding companies would do – see e.g. Hovenkamp and Marinescu (2019[41]). Antitrust authorities and courts have, however, usually paid relatively little attention to the effects of mergers in the labour market.[52] Typically, the attention of antitrust authorities has been triggered only when the merger increased concentration above the threshold for high concentration. However, evidence suggests that horizontal mergers do not need to create dominant employers to have a significant effect in the labour market – see e.g. (Arnold, 2021[74]; Prager and Schmitt, 2021[77]) – and that undesirable effects of a merger may be induced also by very small increases in concentration (Nocke and Whinston, 2022[42]; Affeldt et al., 2021[43]).

In recent years, however, antitrust authorities, particularly in the United States, are reflecting on how to better incorporate the labour market in the analysis of mergers and on how to take a more proactive role (US Department of Justice; Federal Trade Commission, 2022[107]). Yet, one difficulty in assessing the impact of mergers on buyer power in the labour market has to do with the shortage of specific tools to analyse labour competition and, in particular, the difficulty of identifying the relevant market. Another difficulty is the evaluation of merger effects when merging firms are not direct competitors in downstream product markets – see OECD (2019[15]). This is an area in which more research is needed and more investment in developing adequate tools by governments and enforcement authorities would be welcome.

Collective bargaining and social dialogue

There is an older and sizeable literature on trade unions as counterbalancing the excess bargaining power with monopsony. Bilateral monopolies can typically yield efficient bargaining results (see for example Blair and Wang, (2015[150]) for a discussion.[53] With the countervailing power of strong trade unions, concentration per se is unlikely to be sufficient to impose a situation of labour market monopsony – see e.g. MaCurdy and Pencavel (1986[151]) and Espinosa and Rhee (1989[152]). Sectoral collective agreements may also introduce a sectoral minimum wage which, if not too high, would make the relationship between marginal labour costs and employment less steep, thereby increasing both employment and wages (Ashenfelter, Farber and Ransom, 2010[7]) – see also the discussion on the anti-monopsonistic effects of the minimum wage in Section 3.4.2 below.

To the extent that the bargaining power of unions and collective bargaining coverage has faded over time in certain countries (OECD, 2019[153]), however, organised workers may not be as effective as before in exerting a sufficient counterbalancing force through social dialogue. Indeed, as mentioned above, OECD (2021[12]) finds that the elasticity of wages to concentration has increased over time. Benmelech et al. (2022[29]) also find the same pattern for the United States. The latter study also finds that this elasticity is higher where unionisation is lower. Similar results on the interaction between concentration and unionisation are found by Marinescu, Ouss and Pape (2021[34]) for France, and Abel, Tenreyro and Thwaites (2018[33]) for the United Kingdom. This literature tends to suggest that direct interventions to facilitate collective bargaining and social dialogue could have a strong impact on monopsony power – see OECD (2019[153]) for a discussion of policies to enhance collective bargaining and Chapter 5 for an application to working time issues.

Employers may, however, put in place organisational strategies to reduce the countervailing power of organised labour. For example, domestic or international outsourcing and franchising could be used as a way to split up one firm's workforce and reduce co-ordination among workers doing different jobs (OECD, 2021[65]). This could be particularly relevant in the case of firm-level bargaining, or in countries where firm-level employment thresholds trigger the possibility of collective action for employees.[54] For example, franchising allocates workers into many separate legal entities (the franchisees), thereby preventing

workers from co-ordinating and bargaining together, even if these entities are de facto vertically integrated in the production and distribution structure of the franchisor (Callaci, 2018[154]).

3.4.2. Other policies

Minimum wages may counterbalance the adverse impact of monopsony

Minimum wages are often justified as a policy to reduce wage inequality and raise incomes at the bottom of the distribution – see e.g. Dube (2019[155]). Yet, in a standard model with competitive labour markets, the impact of the minimum wage on employment is unambiguously negative – see e.g. Brown (1999[156]) – which would make it difficult to attain its primary objective. Despite this theoretical prediction, the empirical evidence is much less conclusive and many studies have found no or small disemployment effects of minimum wage increases when it is maintained at moderate levels – see e.g. OECD (2015[157]) and the very complete recent survey of Dube (2019[158]).

Monopsony models provide a simple explanation for the lack of negative impact of moderate minimum wage hikes on employment (Manning, 2003[5]).[55] The existing evidence therefore suggests the potential of the minimum wage to limit the negative effects of the employers' market power on employment and wages.[56] This conclusion is supported by three other pieces of evidence: Azar et al. (2019[159]) look at the impact of changes in minimum wages in the US retail sector using granular data on labour market concentration. They find that increases in the minimum wage significantly decrease employment of workers in low concentration markets while minimum wage-induced employment changes become less negative as labour concentration increases, and are even estimated to be positive in the most highly concentrated markets. Popp (2021[83]) finds similar results as regards the impact of universally-binding but collectively negotiated sectoral minimum wages in Germany. Moreover, Johnson and Lipsitz (2022[160]) find that minimum wages have a less negative (more positive) impact on employment in low-wage occupations where non-compete agreements are more strictly enforced, thereby reducing more extensively the potential outside options for workers (see Section 3.4.1). These three results together confirm that where labour markets are more concentrated or outside options are artificially curbed, employers have greater market power and inefficiently reduce employment. By the same token, these results suggest that the objective of contrasting the negative effects of monopsony on labour market performance provide another justification for raising the minimum wage where it is too low, or introducing one where it does not exist, in particular when workers are not already covered by effective collective bargaining. Yet, as within the same country, the level of monopsony and concentration is heterogeneous (see Section 3.2.1), policy makers need to take into account that raising the minimum wage could hurt employment in some local labour markets while improving it in others.

Policies to promote remote work may make labour markets more competitive

Reducing barriers to geographic mobility beyond the worker's travel-to-work area can expand the worker's set of outside options. First-order tools in this sense are housing policies such as rental regulation, land-use and planning reforms, taxation on housing purchases, or investments in social housing (OECD, 2021[161]). Active labour market policies can also provide incentives for geographical mobility, by presenting jobseekers with opportunities that are not limited to their region of residence (OECD, 2005[162]). Caliendo, Mahlstedt, and Künn (2017[163]) exploit a natural experiment in Germany and find that a relocation subsidy for the unemployed also increases subsequent wages and job stability.[57] Geographic mobility is further enhanced when workers' qualifications and skills are recognised across regions, which relies on the existence of a national qualification framework, and of mechanisms for the recognition, validation or certification of workers' prior learning (OECD, 2021[164]).

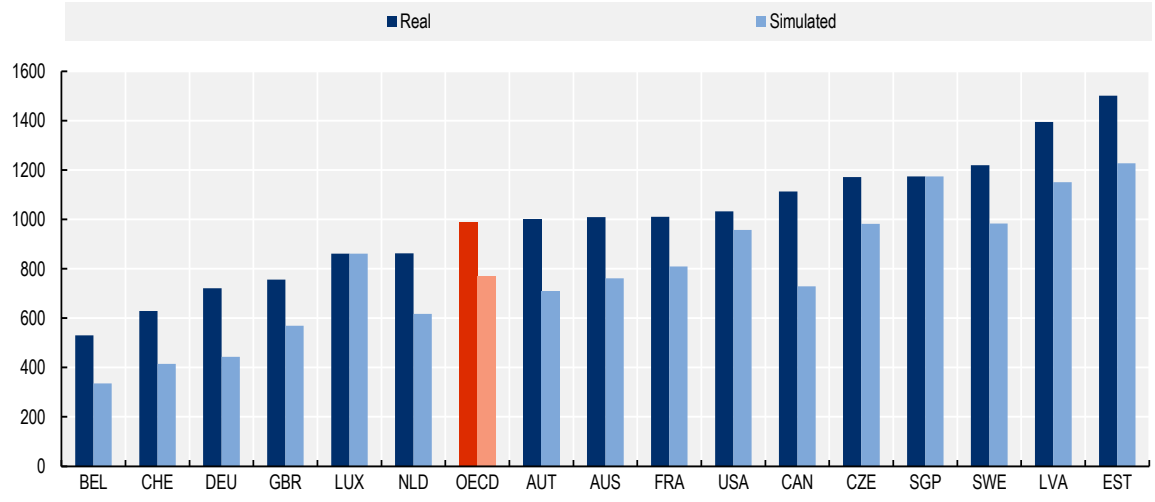
Policies to promote remote work can contribute to the same goal. There is increasing evidence that the upward trend in remote work made possible by telework – see e.g. OECD (2021[165]) is making labour

markets more competitive. In the United States, the share of job applicants for local vacancies, who also apply to jobs in other labour markets, has risen steadily the past two years (Zhao, 2021[166]). Employers are also starting to report that remote work is increasing competition for workers who normally would not attract offers outside of their local labour market (Federal Reserve Board, 2021[167]).

If certain jobs could be practised fully remotely, workers could accept positions in a given occupation in the national (and even international) labour market, regardless of where the company is located. To assess the potential of teleworking to reduce labour market concentration, Figure 3.14 simulates average HHI if remote work were fully available for all vacancies in occupations for which telework is possible. The simulation assumes that for those occupations amenable to telework, all vacancies allow remote work, and the relevant geographical market for that occupation is therefore the entire country, rather than the region. As such, one should regard this as an upper bound on the efficacy of remote work to make labour markets more competitive. Occupations for which telework is possible are based on Basso et al. (2022[67]), who follow Dingel and Neiman (2020[69]), as in Section 3.2.3.

Figure 3.14. Teleworking may make labour markets less concentrated

Herfindahl-Hirschman Index (HHI), and simulated HHI when occupations amenable to telework can search for job vacancies nationally rather than only locally



Notes: OECD average is an unweighted average of countries in the sample excluding Singapore. Whether an occupation is amenable to telework is defined in Basso et al. (2022[67]) at the ISCO 3-digit level. ISCO group 951 is omitted due to poor suitability of conversion from O*NET to ISCO. Labour markets are defined by job vacancies in 6-digit SOC by TL3 regions for Anglophone countries, and 4-digit ISCO by TL3 regions for the remaining countries. In the simulation, for occupations amenable to telework, labour markets are defined by job vacancies in 6-digit SOC cells nationally for Anglophone countries, and 4-digit ISCO cells nationally for the remaining countries. HHI estimates are adjusted to a uniform population size of 200 000 of TL3 regions following Azar et al., (2020[28]). Disaggregated HHIs are weighted using 2019 employment data from labour force surveys at the ISCO 3-digit level (omitting ISIC sections O, Public administration and defence; P, Education; Q, Human health and social work activities; and T, Activities of households) and job postings at the same level of disaggregation at which HHIs are defined. Singapore's weights include all ISIC sections.

Source: OECD analysis of Emsi Burning Glass data, European Union Labour Force Survey (European Union countries, Switzerland and the United Kingdom), Current Population Survey (United States), Canadian Labor Force Survey (Canada), Australian Labour Force Survey (Australia), The Ministry of Manpower (Singapore).

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On average across OECD countries in the sample, HHI would decline by a little over 20% if all vacancies allowed remote work, and workers could then search nationally within their occupation. The largest reductions were in Germany and Canada. In contrast, Singapore and Luxembourg see no effect of telework on HHI as both countries contain only one TL3 region.

Overall, these results suggests that incentivising full-time telework can make labour markets more competitive by enlarging outside options for workers. However, telework cannot be seen as a panacea – see OECD (2021[65]). In many countries the potential fall in concentration following a large swing towards teleworking would remain somewhat limited, and it may reinforce existing labour market inequalities. In addition, full-time telework may have other consequences on productivity and worker well-being that must be carefully assessed (see Chapter 5).

Skills may contribute to enlarge outside options policies

Training and skill policies can play an important role in enlarging outside options for workers. Workers who have retrained for a different occupation can search for jobs in an enlarged market represented by their origin occupation and the new occupation for which they have trained. This section presents a second simulation exercise, where workers are allowed to search for work not in a different geographical area, but in a different occupation from the one in which they are currently employed.

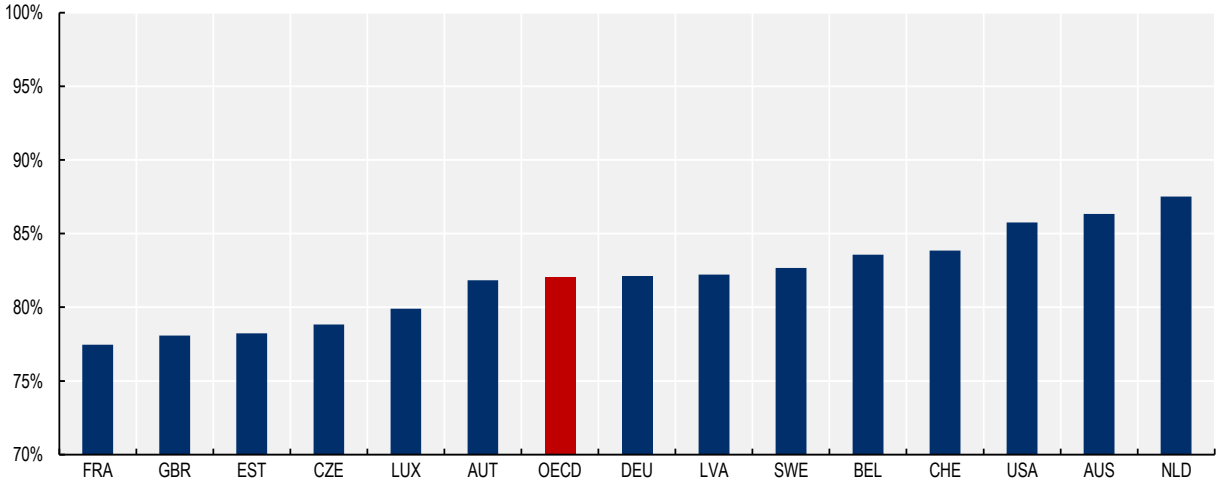
In the simulation, workers search for a new job in their occupation of origin or in one alternative occupation, for which they have trained. For a given occupation of origin, a destination occupation is only available after applying a strict set of criteria: a destination occupation should not be associated with significantly lower average wage or significantly higher educational attainment than in the origin occupation to ensure that the potential transition does not entail welfare losses. For the purpose of this simulation, a destination occupation is defined as that which minimises the retraining effort to do the transition, as long as this does not require more than 6 months of retraining.[58] More details on the construction of the neighbourhoods of occupations are reported in Annex 3.C. A new HHI is then calculated for each TL3 region and jointly considering the postings of the occupation of origin and its associated destination. The analysis is performed for 2019 at the 3-digit ISCO-08 occupation level for Australia, Switzerland, the United Kingdom, the United States and all the European Union countries included in the main analysis.[59]

Figure 3.15 shows that allowing workers to search for employment not only in the occupation of origin but also in the occupation with the most similar skill bundle (within the limit of 6 months of retraining) has the potential to reduce aggregate labour market concentration by 18% on average across the OECD countries considered. For some occupations, the gain can be much larger than average, as shown in Annex Figure 3.A.6**.** For the occupations with a valid transition away from the occupation of origin, the average worker should retrain for 2.9 months to make the transition.[60]

These results suggest that reskilling and retraining policies can play a role in improving labour market conditions when markets are monopsonistic, but that their impact is limited by the extent of the retraining effort workers are willing or able to sustain in exchange for a gain in salary and other work amenities if moving to a less concentrated labour market. An important role is potentially played by career guidance counsellors. By providing individuals with information on skills requirements and on available retraining opportunities, they can help workers target training towards the most suitable alternative occupation. Crucially, career guidance for workers that seek to change jobs should be designed differently from that for the unemployed (OECD, 2021[168]).

Figure 3.15. Retraining can make labour markets somewhat less concentrated

Ratio of Herfindahl-Hirschman Index (HHI) and simulated HHI when it is possible to retrain and also seek employment in the occupation with the most similar skill bundle (within the limit of 6 months of retraining). 100%= Standard HHI.



Notes: 100%= Standard HHI. OECD average includes only the reported countries. Labour markets are defined by job vacancies in 3-digit ISCO by TL3 regions for all countries. The simulated HHI is estimated expanding the market boundaries to the 3-digit ISCO occupation that requires the most similar skill bundle, conditional on a maximum retraining effort of 6 months, approximately the same educational attainment and at most a 10% decrease in wage. Disaggregated HHIs are weighted using 2019 employment data from labour force surveys at the ISCO 3-digit level (omitting ISIC sections O, Public administration and defence; P, Education; Q, Human health and social work activities; and T, Activities of households).

Source: OECD analysis of Emsi Burning Glass data, European Union Labour Force Survey (European Union countries, Switzerland and the United Kingdom), Current Population Survey (United States), Australian Labour Force Survey (Australia), US Occupational Employment Survey, US Occupational Information Network (O*NET).

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The gains from training in terms higher salaries and better job quality should be assessed against the cost of retraining workers to switch occupations, which can be non-negligible (OECD, 2019[169]; Andrieu et al., 2019[170]). A review of successful adult learning reforms in Europe estimated the direct costs of delivering education and training to adults to reach EUR 200 to 2 500 per participant, while reforms that covered indirect costs of training (i.e. the salary of workers in training) were more expensive (OECD, 2020[171]). This emphasises the importance of deciding how the cost of training is shared between workers, employers and governments, which can vary a lot with the policy design (OECD, 2017[172]; OECD, 2019[173]).

Curbing employers' monopsony power may reduce the provision of training by employers. Theoretical contributions by Acemoglu and Pischke (1998[174]; 1999[175]) show that firms are more likely to invest in general training when labour markets are monopsonistic, as workers cannot easily switch employer after training. Similarly, enhancing the enforceability of non-competes has increased firm-sponsored training in the United States (Starr, 2019[121]), even though, because of monopsony, it has simultaneously resulted in lower wages. Governments can intervene by designing programmes that strengthen the incentives of firms to invest in skills, from financial support tools (training subsidies and tax credits) to instruments that foster the co-ordination of retraining programmes among firms with similar skill needs. For an extensive discussion of best policy practices to support firms' supply of training – which falls beyond the scope of this chapter – see OECD, (2021[176]). More broadly, national skills policies should ensure that policy efforts to reduce monopsony do not impinge on the provision of firm-sponsored training.

3.5. Concluding remarks

This chapter reviews the measurement, consequences and policies concerning monopsonistic labour markets – markets where employers have power to set wages unilaterally. Whether due to job search frictions, differentiated workplace amenities or employer concentration, when employers find themselves with discretion in wage setting, theory predicts they will depress labour demand and wages in order to reap higher profits. In short, monopsony is likely to result in inefficiently low levels of employment and wages.

Using harmonised data, this chapter finds that a sizeable share of workers in OECD countries work in concentrated labour markets. On average, 16% of workers are in markets that are at least moderately concentrated and 10% are in highly concentrated markets, according to the conservative definition of concentrated markets used by US antitrust authorities. The distribution of workers across levels of market concentration is not even: workers in rural regions and those who worked on the front line during the COVID-19 pandemic are more exposed to concentrated labour markets. Finally, the COVID-19 crisis appears to have raised labour market concentration in many OECD labour markets, but the effect appears to be diminishing in the recovery. This is probably the result of fewer vacancies being posted during the peak of the pandemic by less resilient firms or firms affected by mandatory foreclosures. These evolutions in concentration may not have translated into actual changes in the wage-setting power of employers, however.

Labour market concentration has a negative effect on job quality. Using matched employer-employee data, this chapter finds that, all other things equal, workers in more concentrated labour markets have reduced wages and job security. In addition, employers in concentrated labour markets can become choosier and turn to more skilled workers. Combined with a growing empirical literature on these issues, the results of this chapter suggest that monopsony is pervasive.

Monopsonistic labour markets can be considered a widespread market failure, and like most market failures, policy has an essential role to play in addressing them. Non-compete agreements between workers and firms, labour market collusion between employers, and often horizontal mergers, directly reduce workers' outside options. Occupational licensing may also reduce outside options for workers in related, but non-licensed, occupations. By contrast, collective agreements and social dialogue can increase employment and raise wages by offsetting monopsony power by firms. In monopsonistic markets, minimum wages can also raise both employment and wages for workers at the bottom of the wage distribution, and could likewise be considered as a way of reducing the inefficiencies that result from monopsony.

These are just a few of the tried and tested policies for dealing with monopsony, but there are a wider suite of policies that require more consideration. For example, many OECD countries choose, to varying degrees, to give firms tax incentives to provide and pay for social spending such as health insurance, childcare and pensions. If firms are not strictly required to provide these benefits, and the benefits are not portable, this can make it difficult for employees to find suitable employers offering the same advantages. As a result, compared to a government programme that provides the social benefit directly to all employees, such social spending through employers may have the unintended consequence of making firms more differentiated and, therefore, making labour markets less competitive.

Similarly, all employment protection provisions that are increasing with job tenure – such as severance pay in most countries, see OECD (2020[99]) – can potentially tie the employee to his/her employer and yield ambiguous effects on market power.[61] This argument also applies to all mandatory benefits and protections which increase with job tenure and are lost upon separation.

More generally, any programme that ties workers to firms will limit their outside options and likely reduce the competitiveness of labour markets. For example, some OECD countries have training programmes where a firm provides training for a worker and, in exchange, the worker is required to continue working for the firm for a particular length of time in order to "pay back" the cost of training. Leaving the firm before

the end of this period is only possible at significant monetary cost to the worker. While better than a generic non-compete clause, such constraints on the worker's mobility still enhance employer monopsony power. At the same time, there is an understanding that firms are more likely to invest in training when labour markets become monopsonistic, although the evidence is not clear-cut. More empirical research is, therefore, needed before drawing any policy conclusions.

In addition, it is not uncommon to find countries that require a mandatory notice period in the case of voluntary quits. There may be good reasons for such notice periods but, at the margin, they may make employers more reluctant to hire if they lead to long delays before a new recruit can actually start work. Hence, extended notice periods may also reduce workers' outside options.

In addition to policy research, there are still some basic economic questions surrounding monopsony that require further attention. Theoretically, monopsonistic labour markets should result in inefficiently low employment, and wages marked down from the level which would have prevailed in competitive markets. The evidence in this chapter and the previous empirical literature confirms the theory that monopsonistic labour markets (at least as measured by concentration) result in lower wages. However, direct empirical proof for lower employment resulting from monopsony generally, and concentration specifically, is less abundant, often due to data limitations. More research is therefore needed on this issue. More generally, national statistical offices could invest to make available to researchers and policy makers exhaustive linked employer-employee data that could be used to, among others, track the evolution of concentration and its effects over time.

Lastly, this chapter did not examine the fact that employer power can also manifest itself in other input markets, as well as in output markets. Increasing levels of product market power have also been associated with lower demand for labour, lower labour force participation and lower wages – see e.g. De Loecker, Eeckhout and Unger (2020[177]). Future research could therefore explore how product and labour market power can co-exist and interact to affect labour market outcomes.

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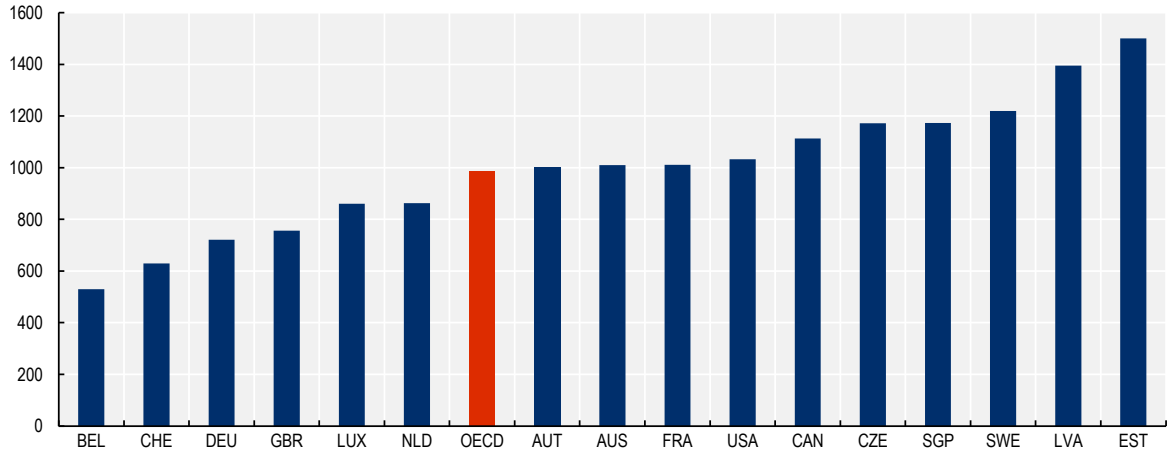
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Annex 3.A. Additional figures

Annex Figure 3.A.1. Average concentration in OECD labour markets for the business sector, 2019

Average Herfindahl-Hirschman Index (HHI) by country, 2019

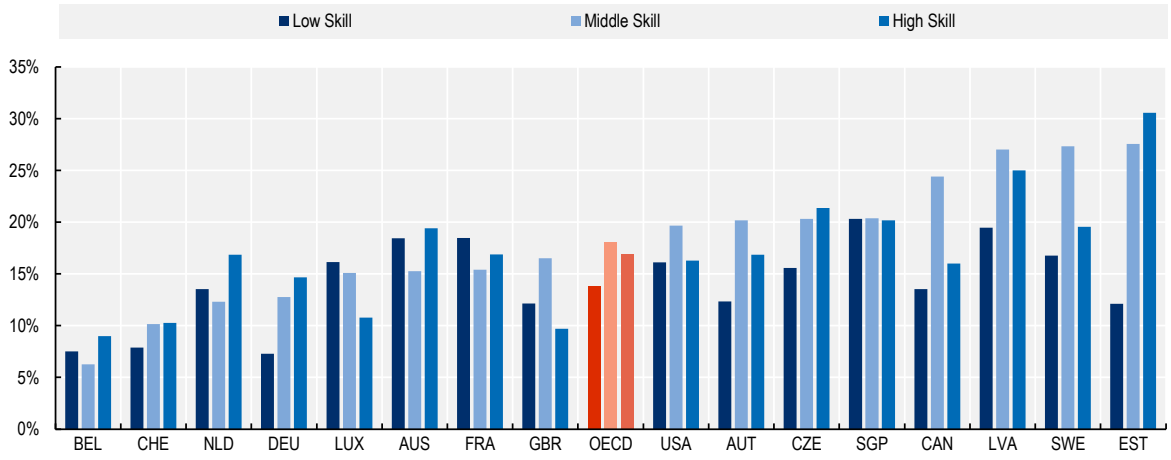


Notes: OECD average is an unweighted average of countries in the sample excluding Singapore. Labour markets are defined by job vacancies in 6-digit SOC by TL3 regions for Anglophone countries and 4-digit ISCO by TL3 regions for remaining countries. Shares are adjusted to a uniform population size of 200 000 of TL3 regions following Azar et al., (2020[28]). Employment shares are obtained by weighting HHIs using 2019 employment data from labour force surveys at the ISCO 3-digit level (omitting ISIC sections O, Public administration and defence; P, Education; Q, Human health and social work activities; and T, Activities of households) and job postings at the same level of disaggregation at which HHIs are defined. Singapore is weighted to all ISIC sections.

Source: OECD analysis of Emsi Burning Glass data, European Union Labour Force Survey (European Union countries, Switzerland and the United Kingdom), Current Population Survey (United States), Canadian Labor Force Survey (Canada), Australian Labour Force Survey (Australia), Ministry of Manpower (Singapore).

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Annex Figure 3.A.2. Share of employment in moderately concentrated labour markets in the business sector by skill level, 2019

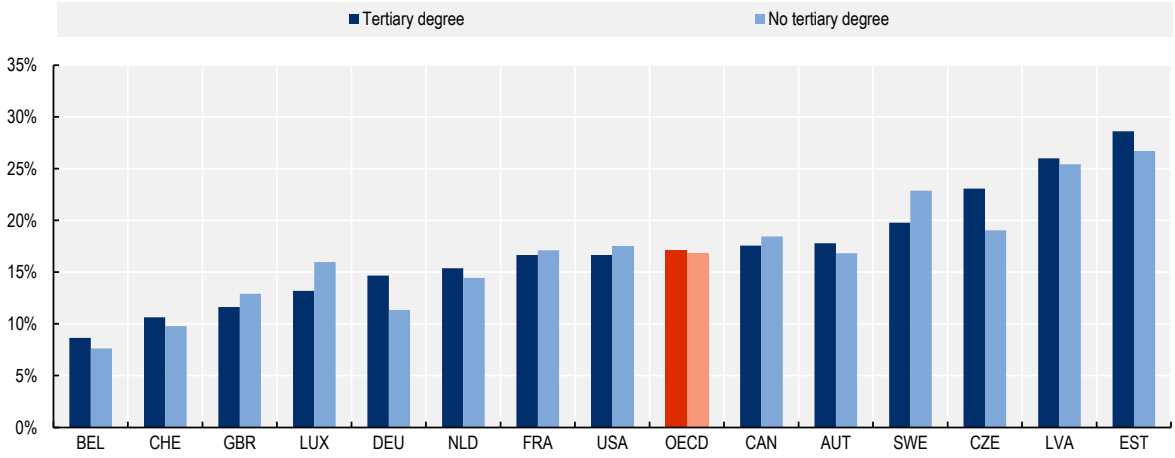


Notes: Skill level is defined by ISCO-08 1-digit occupation following Goos, Manning and Salomons, (2014[178]): High-skill, 1-3; Middle-skill, 4, 7, 8; Low-skill, 5, 9. Moderately to highly concentrated markets are markets with a Herfindahl-Hirschman Index (HHI) of 1 500 or more. Labour markets are defined by job vacancies in 6-digit SOC by TL3 regions for Anglophone countries and 4-digit ISCO by TL3 regions for remaining countries. Shares are adjusted to a uniform population size of 200 000 of TL3 regions following Azar et al., (2020[28]). Employment shares are obtained by weighting HHIs using 2019 employment data from labour force surveys at the ISCO 3-digit level (omitting ISIC sections O, Public administration and defence; P, Education; Q, Human health and social work activities; and T, Activities of households) and job postings at the same level of disaggregation at which HHIs are defined. Singapore is weighted to all ISIC sections.

Source: OECD analysis of Emsi Burning Glass data, European Union Labour Force Survey (European Union countries, Switzerland and the United Kingdom), Current Population Survey (United States), Canadian Labor Force Survey (Canada), Australian Labour Force Survey (Australia), Ministry of Manpower (Singapore).

StatLink https://stat.link/vlan8z

Annex Figure 3.A.3. Share of employment in moderately concentrated labour markets in the business sector by education, 2019

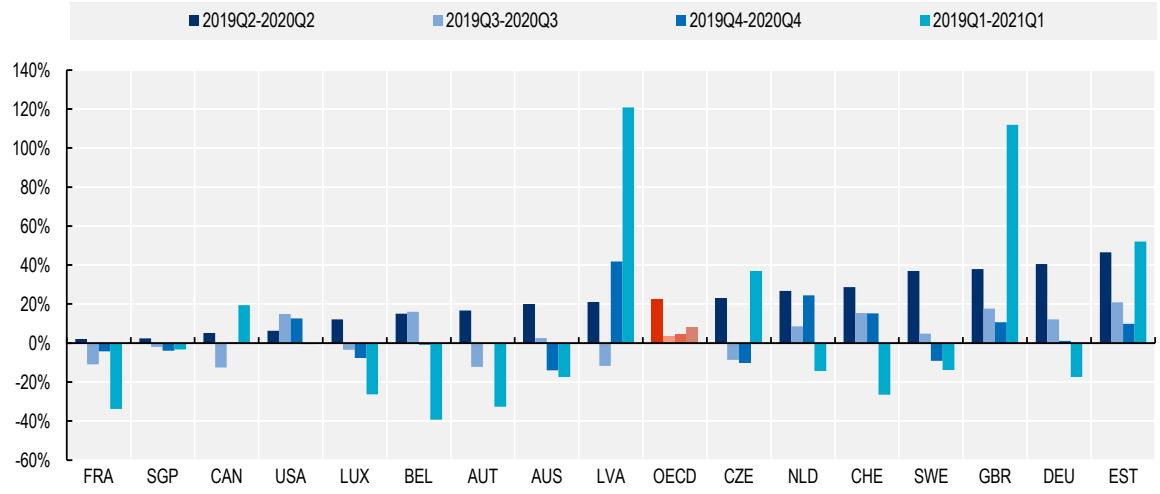


Notes: The OECD average is an unweighted average of countries in the sample. Tertiary degree includes all workers who have a minimum of a tertiary degree. No tertiary degree includes workers whose highest level of education is less than a tertiary degree. Moderately to highly concentrated markets are markets with a Herfindahl-Hirschman Index (HHI) of 1 500 or more. Labour markets are defined by job vacancies in 6-digit SOC by TL3 regions for Anglophone countries and 4-digit ISCO by TL3 regions for remaining countries. Shares are adjusted to a uniform population size of 200 000 of TL3 regions following Azar et al., (2020[28]). Employment shares are obtained by weighting HHIs using 2019 employment data from labour force surveys at the ISCO 3-digit level (omitting ISIC sections O, Public administration and defence; P, Education; Q, Human health and social work activities; and T, Activities of households) and job postings at the same level of disaggregation at which HHIs are defined.

Source: OECD analysis of Emsi Burning Glass data, European Union Labour Force Survey (European Union countries, Switzerland and the United Kingdom), Current Population Survey (United States), Canadian Labor Force Survey (Canada).

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Annex Figure 3.A.4. Year-on-year quarterly change in Herfindahl-Hirschman Index (HHI), 2019-21

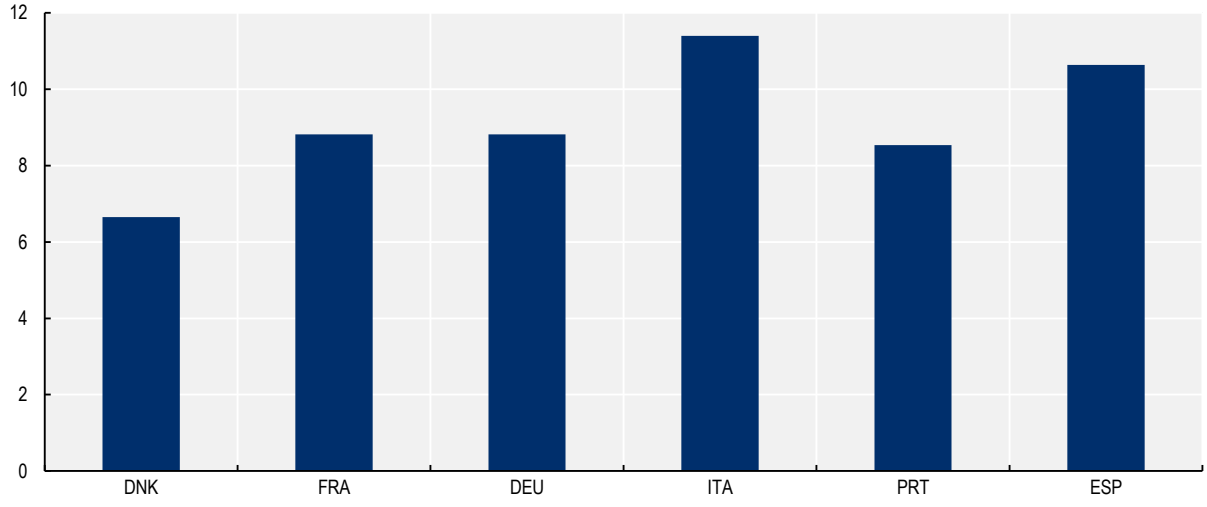


Notes: The OECD average is an unweighted average of countries in the sample. Moderately to highly concentrated markets are markets with a HHI of 1 500 or more. Labour markets are defined by job vacancies in 6-digit SOC by TL3 regions for Anglophone countries and 4-digit ISCO by TL3 regions for remaining countries. Shares are adjusted to a uniform population size of 200 000 of TL3 regions following Azar et al., (2020[28]). Employment shares are obtained by weighting HHIs using 2019 employment data from labour force surveys at the ISCO 3-digit level (omitting ISIC sections O, Public administration and defence; P, Education; Q, Human health and social work activities; and T, Activities of households) and job postings at the same level of disaggregation at which HHIs are defined.
Source: OECD analysis of Emsi Burning Glass data, European Union Labour Force Survey (European Union countries, Switzerland and the United Kingdom), Current Population Survey (United States), Canadian Labor Force Survey (Canada), Australian Labour Force Survey (Australia), Ministry of Manpower (Singapore).

StatLink https://stat.link/himbtz

Annex Figure 3.A.5. Ratio of the 90th percentile to the median of labour market concentration

Herfindahl-Hirschman Index (HHI) based on hires. Selected countries, 2010-19.

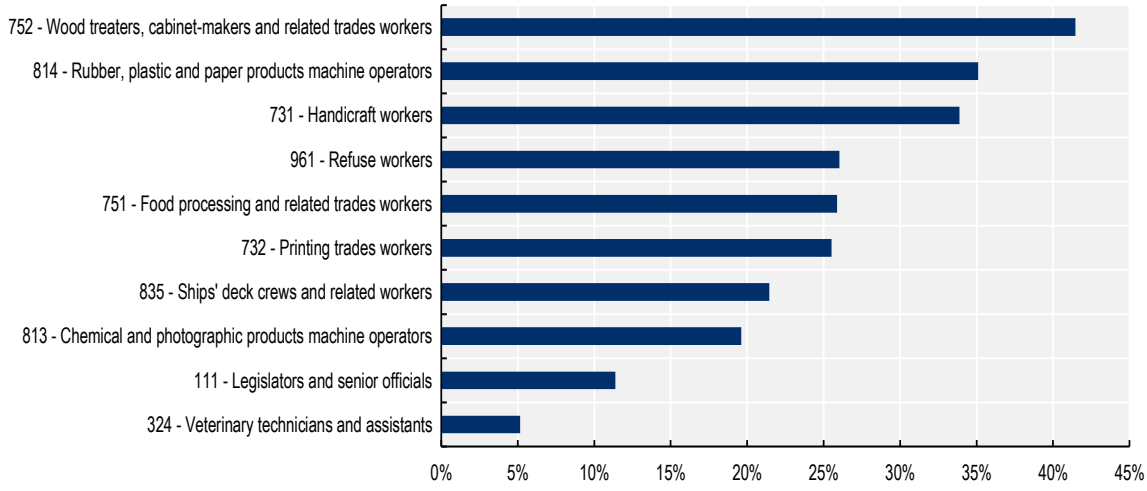


Notes: The chart shows the ratios of 90th percentile to the median of the HHI of local labour markets, defined as couples of 4-digit occupations and functional areas. HHIs are computed using hires over a full year.
Source: Bassanini et al. (2022[37]), "Labour Market Concentration, Wages and Job Security in Europe", https://docs.iza.org/dp15231.pdf.

StatLink https://stat.link/yd3j42

Annex Figure 3.A.6. Some occupations benefit of large decreases in concentration when workers can retrain towards close-by occupations, 2019

Ratio of Herfindahl-Hirschman Index (HHI) and simulated HHI when it is possible to retrain and seek employment in the occupation with the most similar skill bundle. 100%= Standard HHI



Notes: 15 OECD countries are included in the analysis. Occupations sorted by the unweighted cross-country average of the ratio between simulated and standard HHI. ISCO occupations "61" and "95" omitted due to irregular cross-country coverage. Labour markets are defined by job vacancies in 3-digit ISCO by TL3 regions for all countries. The simulated HHI is estimated expanding the market boundaries to the 3-digit ISCO occupation that requires the most similar skill bundle, conditional on a maximum retraining effort of 6 months, approximately the same educational attainment and at most a 10% decrease in wage.

Source: OECD analysis of Emsi Burning Glass data, European Union Labour Force Survey (European Union countries, Switzerland and the United Kingdom), Current Population Survey (United States), Australian Labour Force Survey (Australia), US Occupational Employment Survey, US Occupational Information Network (O*NET).

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Annex 3.B. Country selection, standardisation and aggregation

In this chapter, the Herfindahl-Hirschman Index (HHI) is constructed from online job postings data web-scraped by Emsi Burning Glass (EBG). Hence, the validity of the estimates in the cross-country context relies upon the exhaustiveness of the EBG data. This annex illustrates the validation process of the EBG data, including the selection of the country sample, with the United States set as a benchmark. It also lists steps taken to standardise the data and make aggregated statistics comparable across countries.

EBG data have been previously used in the US literature on labour market concentration – see Azar et al. (2020[28]), Schubert, Stansbury and Taska (2021[179]) and Yeh, Hershbein and Macaluso (forthcoming[30]). Hershbein and Khan (2018[44]) show that the occupational distribution in EBG data is close to that emerging from Job Openings and Labour Turnover Survey (JOLTS), despite the fact that the former only contains online job postings. More importantly, Azar et al. (2020[28]) report that EBG data capture approximately 85% of the job openings estimated through JOLTS.

The data validation process used for this chapter is based on five steps:

1. Calculation of the new hire to vacancy ratio for each occupation in each country;
2. Calculation of the benchmark ratio for representativeness from the US data;
3. Selection of countries for the HHI calculation based on the benchmark ratio;
4. Calculation of the raw HHI at the local labour market (region by occupation) and quarter level for selected countries; and
5. Comparison of the raw HHI and a predicted HHI constructed by extrapolating information only drawn from local labour markets whose new-hire-to-vacancy ratio is below the benchmark ratio.

Ultimately, out of 29 countries for which data are available, 16 countries (12 European OECD countries, three non-European OECD countries and one non-OECD country) have been retained.

In the first step, quarterly ratios of new hires to job postings for each occupation in 2-digit ISCO (hereinafter referred to as “ratios”) are computed, and annual values are obtained averaging quarterly ratios using information from LFS and EBG data, for new hires and job postings respectively. Observations with either missing employer names or missing regions (TL3 regions or more granular units) are not taken into account. New hires are defined here as those whose job tenure is shorter than 3 months. Both new hires and vacancies in Armed Forces Occupations (ISCO 0) and Skilled Agricultural, Forestry and Fishery Workers (ISCO 6) are excluded. ISCO 0 is not recorded in many LFS. ISCO 6 is severely underrepresented in EBG data, according to the finding of Cammeraat and Squicciarini (2021[180]). The treatment of English-speaking countries required the use of a crosswalk to convert SOC-6 to ISCO-08 3-digit occupations.

Some country-specific treatments were applied. The reference period is 2018-19 for Australia, Canada, Singapore and the United Kingdom and 2019 for 24 European countries. Data for 2018 are not used for European countries as available data only contain postings from July to December. For European countries, job tenure with the current employer is not directly recorded in the EULFS microdata and thus it is inferred from the difference between the timing of the interview and the start year/month of employment. For the United States, job tenure is reported only on a two-year basis by the January Current Population Survey (CPS) supplement and so job tenure refers only to the situation in January of even years. Accordingly, the EBG sample in a given year is constructed to contain observations from the beginning of the previous year to the January CPS supplement’s reference week. The quarterly average of vacancies is then obtained by dividing the number of these observations by four. The province of Quebec in Canada

is excluded, as online job postings in French are under-scraped – see Lameb et al. (2019[181]). As for Germany, some TL3 regions corresponding to single-municipality enclaves within larger regions are merged.[62] Lastly, oversea territories are excluded to ensure comparability.

In the second step, a benchmark ratio is obtained by calculating the unweighted mean of quarterly ratios at the 2-digit ISCO level in the EBG data of the United States. The unweighted mean of the 37 ratios (excluding ISCO 0 and ISCO 6) in the United States is 6.78, which is then used as benchmark threshold to test the representativeness of other countries' EBG data.

In the third step, the percentage of those employed in occupations whose mean of quarterly ratios is lower than the US benchmark threshold is computed in each country. In the United States, for instance, 80.5% of the employed persons work in such 2-digit occupations. Countries where less than 50% of the employed work in those occupations whose mean ratio is below the US benchmark thresholds are dropped. This leaves 20 countries in the sample. For Australia and Singapore, data regarding the number of new hires in 2-digit occupations are not available. While their country-level ratio (i.e. the ratio of the total number of new hires to the total number of vacancies) is below 6.78, in practice the validation test is obviously much weaker for these two countries. For this reason, HHI statistics on these two countries must be taken with more caution. For Australia, Korbel (2018[182]) notes that the distribution of EBG job postings across occupations is different than the employment distribution as obtained from the labour force survey (LFS). While this may suggest further caution in using data from Australia, it must be noted that employment stock data represent a less rigorous benchmark for validating vacancy data than new hires, as done here.

In the fourth step, the HHI is calculated for the countries selected in the previous step.[63] Six-digit SOC occupational categories are used for Australia, Canada, the United Kingdom, the United States and Singapore and 4-digit ISCO occupational categories are used for the other countries.

When postings report the name of a job board[64] instead of the true employer, the employer is considered missing. Missing employers are treated as individual, unique employers with one single posting. This is in line with what done by Azar et al. (2020[28]) and likely leads to underestimating concentration, but can be considered a conservative choice. In a robustness check, in order to reduce errors due to misreporting of employer names and imperfect cleaning, truncated employer names composed of the first word of the cleaned employer names are used with, nonetheless, similar results.

As a last step, the computed HHI aggregated at the 3-digit ISCO-2008 level is regressed on country and occupation dummies including only occupations whose ratio is below the benchmark threshold. The regression is estimated by employment-weighted OLS, excluding Australia and Singapore. Then, a HHI is predicted for excluded occupations. A country is selected for the analysis if the discrepancy between the mean of the actual HHIs and that of the predicted HHIs for a given country is lower than 10%. As a result, the number of retained countries goes down from 20 to 16: i.e. Australia, Austria, Belgium, Canada, the Czech Republic, Estonia, France, Germany, Latvia, Luxembourg, the Netherlands, Singapore, Sweden, Switzerland, the United Kingdom and the United States.

Raw HHIs are then computed at the most disaggregate level for the 16 countries that have been retained. Aggregation at the country or subnational level is based on a two-step weighting scheme. First, based on available LFS data, the most disaggregated occupational level for which employment data is available is determined (usually 3 digits in the ISCO classification). Raw HHIs are then aggregated up to this level using the number of online job postings of each local labour market as weight. HHIs are then further aggregated at the national or subnational level using total employment of each occupation as weight.

To make comparable concentration statistics across countries, despite the cross-country heterogeneity in terms of average size of TL3 regions, the logarithm of aggregate measures of HHI is regressed on the logarithm of the country average population of TL3 regions, and the predicted value of the HHI for an average population of 200 000 individuals is obtained. Then the ratio of the predicted to the actual value is applied to adjust all concentration statistics obtained from online job posting used in this chapter.

Annex 3.C. Defining occupational transitions based on skill distances

The simulation exercise in Section 3.4.2 ("Skills policies") requires identifying a set of potential alternative occupations a worker can work in (or destination occupations), given her own current occupation of employment (or occupation of origin), and some indicator of the skill distance between the two occupations.

There is no single, internationally agreed methodology to define such set of potential neighbouring occupations, but previous efforts in this direction were proposed at the OECD in OECD (2013[183]; 2019[169]), and Bechichi et al. (2018[184]; 2019[185]). As in those contributions, the current exercise imposes that a viable occupation of destination should not offer an average wage that is more than 10% lower than the average wage in the occupation of origin, and should not require an education attainment that is more than one year longer than that of the occupation of origin. Among the remaining possible occupations of destination, the worker chooses the occupation that minimises the skill distance between the two occupations and therefore the retraining effort, as long as the latter does not exceed 6 months in length.

The skill distance between origin and destination occupation, $dist^{o\_d}$ is a function of the weighted average of the distance for each skills characterising the occupations. More precisely:

$$dist^{o\_d} = \sqrt{\sum_{i=1}^{35} w_i^d (x_i^o - x_i^d)^2}$$

where o identifies the occupation of origin, d that of destination, and $i = \{1, 2, \ldots 35\}$ stands for one of the 35 skills that are used to describe occupations by the United States Occupational Information Network (O*NET). x_i^o is the value of skill *i* in the origin occupation, corresponding to O*NET's level of proficiency for that skill in the occupation, and w_i^d is a weight measured as the importance of skill i in occupation d according to O*NET, relative to the skill's importance in all possible occupations. Negative terms for $(x_i^o - x_i^d)$ are set to zero to introduce an asymmetry in retraining between moving from o to d and the viceversa.[65]

A larger distance corresponds to a longer retraining effort if the worker chooses to move away from her occupation of current employment. The correspondence between distance and retraining time is obtained by regressing all skill distances on the difference in education requirements between origin and destination occupations. The coefficient on the education term estimates the number of points of skill distance that can be bridged with one extra year of education. This estimate is not used to define the one occupation of destination the worker may decide to retrain towards (for that, the skill distance is sufficient), but to limit the choice set of possible occupations of destination to those that require at most 6 months of training.

The information for the average educational requirement and the skill requirements of occupations is sourced from the United States O*NET, that for wages is from the United States Occupational Employment Survey. Patterns of transitions across occupations are therefore in common across all countries considered, which is equivalent to assuming – for the scope of this exercise – that patterns of potential transitions in the US labour market apply to other countries as well.

Notes

[1] This chapter will refer to the situation describing wage-setting power of employers using the terms "monopsonistic competition", "monopsony" and "monopsonistic labour market" interchangeably. Similarly, the terms "wage-setting power", "monopsony power" and "employer market power" are used synonymously.

[2] The estimates of the effect of labour market concentration on wages and job security presented in this chapter are the result of a collaboration with the Bank of Italy and the Institute for Employment Research (IAB) and are based on work by Giulia Bovini, Eve Caroli, Federico Cingano, Jorge Casanova Fernando, Paolo Falco, Florentino Felgueroso, Marcel Jansen, António Melo, Pedro Martins, Michael Oberfichtner and Martin Popp. The OECD Secretariat remains, however, the sole responsible of the views expressed in this chapter.

[3] At the same time, concentration needs not imply monopsony power, where there exists countervailing market power on the part of workers. For example, in the mid-20th century, small towns in the United States typically had only one newspaper, so the local labour markets of typographers, who physically set-up and printed each edition, would have been considered to be very concentrated. And yet, at least until the 1970s, typographers were organised in a single, powerful union, and enjoyed significant wage premia with respect to workers in other manufacturing industries (MaCurdy and Pencavel, 1986[151]).

[4] Certain policies also affect the degree of monopsony power that persists in the economy, as well as the way such employer power can reduce employment or wages. Non-compete covenants, for instance, respond to a specific policy objective, but limit the number of employers a worker can look to in order to find alternative employment. Regulatory provisions for social dialogue, conversely, are likely to limit the unilateral wage setting power of employers. As a consequence, policies are an extra source of monopsony power.

[5] Models that depend on workers' preferences over heterogeneous firms, and "dynamic" models of monopsony are not mutually exclusive. Manning (2020[25]), for instance, shows in a simple model that combining both approaches yields stronger monopsony power for firms.

[6] Countries include Austria, Costa Rica, Estonia, Finland, France, Hungary, Italy, Portugal, the Slovak Republic and Spain.

[7] Potentially one could rely on direct estimations of own-firm labour supply elasticities. However, this would require an instrument for wage changes, which would then complicate the estimation of the impact of labour supply elasticities on labour market performance (and in particular on wages).

[8] A large number of European countries is covered in Ascheri et al. (2021[50]), who however restrict the statistical coverage to urban markets only.

[9] Included countries are Australia, Austria, Belgium, Canada, the Czech Republic, Estonia, France, Germany, Latvia, Luxembourg, the Netherlands, Singapore, Sweden, Switzerland, the United Kingdom and the United States. Country selection is due to data availability.

[10] Azar et al., (2020[28]) argue that the most disaggregated classification of occupation used in this chapter is still too broad, and that job titles may actually be the correct measure. The results in this chapter may therefore understate the extent of concentration.

[11] Labour market concentration is measured using the Herfindahl-Hirschman index (HHI) computed on the basis of hiring, that is $HHI_{l,t} = \sum_{f=1}^{F} s_{f,l,t}^2$, where $HHI_{l,t}$ is the HHI in local labour market l at time t; F is the total number of firms on local labour market l; t denotes time and $s_{f,l,t}$ is the share of firm f in employment, hiring or vacancies in local labour market l at time t. The index's lower limit of 0 is reached only in the limit theoretical case in which there is an infinite number of firms. In a market with a finite number of firms *n*, the index is bounded from below by *1/n* (the case of equal shares for each firm in the market).

[12] Thresholds used by the European Commission are lower, however: 2 000 for high concentration and 1 000 for moderate concentration (European Commission, 2003[189]).

[13] The countries considered suitable for the present analysis are: Australia, Austria, Belgium, Canada, the Czech Republic, Estonia, France, Germany, Latvia, Luxembourg, the Netherlands, Singapore, Sweden, Switzerland, the United Kingdom and the United States. Countries were selected based on data availability and a data validation exercise presented in 0. Due to data limitations, no such validation exercise could be performed for Australia and Singapore, and results for these countries should be taken with more caution.

[14] These are ISIC Rev. 4 sections O, Public administration and defence; P, Education; and Q, Human health and social work activities. The omission of industries where public employers often play a large role is motivated by the lack of robust evidence on whether public-sector employers use their wage setting power in the same way as private businesses.

[15] In general, the results in this chapter accord well with the literature in most respects, especially when one considers that the definition of a labour market usually differs across studies in at least one dimension. The study using the closest definition of local labour market and HHI as in this section (See Box 3.1), reports an average HHI of 1 361 for the United States (Azar et al., 2020[28]), slightly higher but close to the US average found here (1 033). Remaining differences are likely due to data cleaning procedures (see 0).

[16] That time series is drawn from data on Austria, Costa Rica, Denmark, Finland, France, Portugal, and Spain.

[17] These results are robust across individual countries. In particular, each occupation appearing in the top five most and least concentrated also appears in the top five at the country level in a majority of the 15 countries in the sample.

[18] The number of workers in health-related occupations that are outside ISIC section Q (Human health and social work activities) is limited. Yet, health professionals and health associate professionals remain among the most concentrated occupations even when omitted industries are re-included in the sample.

[19] The chosen average encompasses all four quarters to absorb any seasonal variation separate from the effects of the pandemic. The average omits 2020Q1 due to the ambiguity over whether that quarter reflects dynamics before or after the onset of the crisis in all OECD countries.

[20] Notable exceptions are Latvia and the United Kingdom, which both saw the largest increases in COVID-19 case counts up until that point in each country, respectively.

[21] The weights used to aggregate market-level concentration to the national level are kept constant and based on 2019 and do not therefore reflect e.g. changes in mandatory closures between 2020 and 2021.

[22] Other studies looking at specific markets find more mixed results. For example Currie, Farsi and Macleod (2005[76]) and Prager and Schmitt (2021[77]) find no impact of mergers on employment in the US hospital industry.

[23] In perhaps the only other study of this type, Popp (2021[83]) finds somewhat smaller but still large effects (1.5%), without controlling for product market competition and productivity.

[24] The greater the number of new hires in a market, the greater the maximum number of firms that can hire in that market and the lower the theoretical minimum of the Herfindahl-Hirschman Index used to measure concentration.

[25] Azar, Marinescu and Steinbaum (2022[52]), Rinz (2022[32]), Benmelech, Bergman and Kim (2022[29]), Arnold (2021[74]) and Schubert, Stansbury and Taska (2021[179]).

[26] Martins (2018[35]), Abel, Tenreyro and Thwaites (2018[33]), Jarosch, Nimczik and Sorkin (2019[26]) Dodini et al. (2020[36]) Marinescu, Ouss and Pape (2021[34]), Bassanini, Batut and Caroli (2021[57]), Popp (2021[83]) and OECD (2021[12]).

[27] Large estimates emerge only in studies not controlling for firm and individual fixed effects (Qiu and Sojourner, 2019[31]; Arnold, 2021[74]; Azar, Marinescu and Steinbaum, 2022[52]).

[28] More precisely, OECD (2021[12]) estimates wage elasticities for several countries. However, as acknowledged in that study, the large confidence intervals for each country-specific estimate prevent country-by-country comparisons, and individual country estimates are used only to derive an average cross-country elasticity.

[29] While the data on online job postings used in Section 3.2 allow for a greater country coverage, they do not contain information on individual wages or individual trajectories and characteristics. For this reason they are not used here. The analysis on skill demand in Section 3.3.3, focusing directly on the content of posted vacancies, will resort again to the online job posting data used above.

[30] In the case of full-time workers, daily and hourly wages are likely to yield similar elasticities, which turns out to hold true also in the data used here. By contrast, the impact on daily wages beyond full-time workers is difficult to interpret as it is confounded by the effect of concentration on hours worked and the incidence of very short part time.

[31] Larger standard errors for Denmark and Portugal are due to a “small country effect”. As in these countries the number of geographical areas is small, the instrument is somewhat weaker.

[32] These values are obtained by multiplying the estimated wage elasticity by the logarithm of the ratio of the 9th decile to the median of the distribution of concentration (see Annex Figure 3.A.5). It must be noted, however, that these estimates are more reliable at the sample average. Even more striking, in a few countries, the wage elasticity is even higher when estimated only on local labour markets with concentration below the average. Overall this implies that the negative effect of concentration materialises even in markets that are far less concentrated than the thresholds commonly used by antitrust authorities.

[33] A few US studies (Qiu and Sojourner, 2019[31]; Arnold, 2021[74]; Azar, Marinescu and Steinbaum, 2022[52]) find elasticities lower than -0.1 in absolute terms, but other US studies, with closer specifications to those adopted here, find much smaller elasticities, comprised between -0.01 and -0.05 (Schubert, Stansbury and Taska, 2021[179]; Benmelech, Bergman and Kim, 2022[29]; Rinz, 2022[32]), which compare well to what found in European studies: Marinescu, Ouss and Pape (2021[34]) and Bassanini, Batut and Caroli (2021[57]) find an elasticity of -0.020 and -0.024, respectively, for France, while Martins (2018[35]), Dodini et al. (2020[36]) and Popp (2021[83]) obtain point estimates of -0.028, -0.010 and -0.043 for Portugal, Norway and Germany, respectively. Finally, OECD (2021[12]) finds an elasticity of -0.028, by pooling data for Austria, Denmark, France, Finland and Spain and Costa Rica.

[34] This is consistent with results reported by Arnold (2021[74]), Bassanini, Batut and Caroli (2021[57]) and Thoresson (2021[80]) who find significant effect on incumbents' wages in the United States, France and Sweden, respectively.

[35] Interestingly, cross-country differences in terms of wage elasticities are small for incumbents while they are large for new hires: in fact the elasticity for Denmark (-0.037) is more than twice as large as that of Germany (-0.016), and the difference is significant, which suggests different wage adjustment patterns across countries.

[36] While in specific cases, temporary contracts are sometimes associated to stable, good-quality jobs, the evidence suggests that on average they are associated with lower job security – see e.g. OECD (2014[191]) – and the incidence of the former represents therefore a good proxy for the latter.

[37] Due to data limitations, the analysis is restricted to new hires as, in general, information on the type of contract for incumbents is missing in the available data. More precisely, in Germany and Spain it is always unavailable, while in Italy it is available only for workers hired after the beginning of the sample window (2012 for Italy).

[38] 85% and 70% of new hires are on temporary contracts in the data in Spain and Italy, respectively.

[39] While these effects are large in percentage terms, they are nonetheless small in percentage-point terms, given the very low rate of conversions in these countries.

[40] In these countries, contract type information is not regularly updated over the employment calendar.

[41] This cannot be done with Portuguese data, however.

[42] This definition of youth is slightly different than that offered earlier in the chapter reflecting the different data used in this section.

[43] Removing apprentices from the sample would indeed reduce the point estimate of the effect of labour market concentration on the probability of being hired on a permanent contract by about 25%.

[44] Modestino et al. (2016[48]; 2020[102]) explain the evidence with changes in recruitment intensity, i.e. the strategic behaviour of employers that invest greater resources in recruitment procedures when the supply of talent on the market is larger. Hershbein and Kahn (2018[44]) show that employers' demand for skills increases permanently after demand shocks related to changes in technology or capital increases.

[45] This subsection draws from and updates the discussions in OECD (2019[15]) and OECD (2020[149]).

[46] Sometimes the literature distinguishes between "non-compete" and "garden leave" clauses, the difference being that in the latter the worker is compensated after separating from the employer for the period of validity of the covenant, while in the former she is not – see e.g. Nicandri (2011[193]). For the purpose of this chapter, the term "non-compete agreement" refers to both type of clauses, since there is an increasing number of countries and states in which a clause without worker compensation is not enforceable.

[47] Mexico and certain few US states, including California, North Dakota and Oklahoma, are long-standing exceptions (OECD, 2019[15]). In 2020, the District of Columbia also enacted legislation banning non-compete agreements for employees (D.C. Law 23-209: Ban on Non-Compete Agreements Amendment Act of 2020).

[48] In almost all jurisdictions, NCAs must be limited in geographical scope to be enforceable. As a consequence, and particularly in low-skilled jobs, commuting to another city is often enough to overcome the constraint imposed by the clause.

[49] A rebuttable presumption of abusive use means that the burden of proving that the use is not abusive is on the employer. If courts do not consider the alleged proofs convincing, the standard would be to consider the clause abusive.

[50] A number of US states have introduced reforms in this direction in recent years, notably exonerating workers below a specified (and sometimes high) earnings threshold (Lewi et al., 2021[186]). In Europe, similar partial bans exist in Austria, Belgium and Luxembourg – see OECD (2019[15]).

[51] Illicit collusion occurs, for example, when companies competing for the same type of workers agree on refraining from hiring those employed by the others (so-called “non-poaching agreements”) or when firms competing in the same labour market agree to apply a common compensation policy to employees (wage collusion), except when this occurs in the framework of sectoral collective bargaining.

[52] The debate among regulators remains open on how to weigh the effects in labour and downstream product markets, in the cases where they are of opposite sign – see OECD (2019[15]) – although, in certain jurisdictions, there are clear guidelines suggesting that a merger in an upstream market should not be evaluated with reference to its consequences in the downstream market (US Department of Justice; Federal Trade Commission, 2010[4]).

[53] The original formulation of the model of bilateral monopoly dates back to 1928 (Bowley, 1928[188]).

[54] When international outsourcing is feasible, multinational corporations may threaten to relocate part of their production chains abroad with the objective to weaken the power of organised labour in their country of origin (OECD, 2021[192]).

[55] In practice, in a monopsony model, in the unconstrained equilibrium, employment is lower than in the competitive equilibrium because the curve representing the marginal cost of labour is above (and steeper than) the supply curve. Moderate levels of the minimum wage shift down the marginal cost curve and make it flatter. As a result, employment is higher than in the unconstrained equilibrium and more reactive to changes in labour demand.

[56] The fact that estimated effects of the minimum wage in the United States tend to become less negative (or even positive) when more recent sample windows are used (Dube, 2019[158]) may suggest that monopsony has become more pervasive over time.

[57] Subsidies, however, are not necessarily cost-effective, in particular if targeting the employed, and may generate competition effects for workers in the destination region (Schmutz and Sidibé, 2019[190]).

[58] An alternative unreported exercise assumes instead that the occupation of destination is the one that maximises the worker’s wage gain, conditional to at most 6 months of retraining.

[59] Canada and Singapore are excluded because of missing data on employment at the 3-digit ISCO 2008 level. The calculation of transitions at the 3-digit ISCO-08 level is standard (Bechichi et al., 2018[184]; Bechichi et al., 2019[185]) and a requirement in the present context, so as to associate the same transitions to the Australian, United Kingdom and the United States data (originally in SOC-2010) as to the European data (originally in ISCO-08). SOC occupations are converted in ISCO categories before calculating the HHI. Standard HHIs are also recalculated at the 3-digit ISCO level for the purpose of this exercise.

[60] Almost two-thirds of all 3-digit ISCO occupations do not find a valid transition to another occupation within the limit of 6 months of retraining.

[61] On the one hand, as job tenure increases, greater dismissal costs reduce the employer's bargaining power. On the other hand, however, the greater unwillingness to quit of more senior employees (because they would lose tenure-related protections upon quitting) increases their employer's monopsony power.

[62] Merged TL3 regions are: Heilbronn (Stadtkreis) and Heilbronn (Landkreis); Baden-Baden (Stadtkreis) and Rastatt; Rosenheim (Kreisfreie Stadt) and Rosenheim (Landkreis); Landshut (Kreisfreie Stadt) and Landshut (Landkreis); Passau (Landkreis) and Passau (Kreisfreie Stadt); Straubing (Kreisfreie Stadt) and Straubing-Bogen; Regensburg (Kreisfreie Stadt) and Regensburg (Landkreis); Bamberg (Kreisfreie Stadt) and Bamberg (Landkreis); Bayreuth (Landkreis) and Bayreuth (Kreisfreie Stadt); Coburg (Kreisfreie Stadt) and Coburg (Landkreis); Ansbach (Kreisfreie Stadt) and Ansbach (Landkreis); Schweinfurt (Kreisfreie Stadt) and Schweinfurt (Landkreis); Würzburg (Landkreis) and Würzburg (Kreisfreie Stadt); Kaufbeuren (Kreisfreie Stadt) and Ostallgäu; Kempten (Allgäu – Kreisfreie Stadt) and Oberallgäu; Cottbus (Kreisfreie Stadt) and Spree-Neiße; Bremerhaven (Kreisfreie Stadt) and Cuxhaven; Wilhelmshaven (Kreisfreie Stadt) and Friesland (DE); Bonn (Kreisfreie Stadt) and Rhein-Erft-Kreis; Trier (Kreisfreie Stadt) and Trier-Saarburg; Flensburg (Kreisfreie Stadt) and Schleswig-Flensburg; Weimar (Kreisfreie Stadt) and Weimarer Land.

[63] The quarterly HHI of job postings can be written as follows:

$$HHI_{t,ij} = \sum_{k=1}^{K} \left(\%\ share\ of\ vacancies_{t,ijk}\right)^2$$

where *t* is denoted for a quarter, *i* for a TL3 region, *j* for an occupation in 6-digit SOC or 4-digit ISCO and *k* for a firm. In other words, the HHI in the sample can be uniquely defined by a quarter, region and occupation (which is the definition of local labour market here – see Box 3.1).

[64] A significant proportion of online job postings are by job boards and true employers are not observable, as EMG data do not indicate whether an employer is a job board or a true employer. Hence, the process of cleaning employer names adopted for this chapter requires the identification of job boards. In each country, the top 50 employer names are selected based on their share of vacancies. Reported employer names are then checked to assess whether they are job boards or not by identifying globally active recruiters and recruiting websites (e.g. Robert Walters, Michael Page, Adecco, Völker, Grafton, Hays, CV-Online, Page Personnel), systematically flagging words related to human resources (e.g. "career", "headhunt", "HR", "job", "manpower", "personal", "personnel", "recruit") and manually verifying their business activities on the Internet.

[65] The functional form for the skill dissimilarity indicator follows Robinson (2018[187]) and is one of a range of options that are used in the literature. This metrics combines simplicity (in the use of Euclidean geometry) and the possibility to estimate bidirectional skill distances.

4 The role of firm performance and wage-setting practices in wage inequality

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Around one-third of overall wage inequality can be explained by differences in wage-setting practices between firms rather than differences in the level and returns to workers' qualifications. Gaps in firm pay, in turn, reflect differences in productivity, but also disparities in wage-setting power. To tackle rising income inequality, worker-centred policies (e.g. education, adult learning) need to be complemented with firm-oriented policies. This involves, notably: (1) policies that promote the productivity catch-up of lagging firms, which would not only raise aggregate productivity and wages but also reduce wage inequality; (2) policies that promote job mobility, which would reduce wage inequality at a given level of productivity dispersion while enhancing the allocation of jobs across firms; and (3) policies that curtail the wage-setting power of firms with dominant positions in local labour markets, which would raise wages and reduce wage inequality without adverse effects on employment and output.

In Brief

This chapter examines the role of firm performance and wage-setting practices in wage inequality, including the gender wage gap, and discusses the policy implications. The evidence is based on a new set of harmonised linked employer-employee data covering 20 OECD countries and, as such, represents the most ambitious effort to date to make use of administrative data in a cross-country context in this area. The chapter provides comprehensive evidence that firms tend to have considerable power to set different wages for similarly qualified workers, with important implications for policies aiming to promote broadly shared economic growth. The main message is that complementing worker-centred skills policies with policies centred on firms' wage-setting practices would go a long way towards addressing wage inequality while promoting economic growth.

The main findings of the chapter can be summarised as follows:

- On average across the 20 countries covered in this chapter, differences in wage-setting practices between firms, as reflected by firm wage premia (differences in pay between firms unrelated to workforce composition), account for around one-third of overall wage inequality (the variance of wages across all workers). Moreover, differences in wage-setting practices account for one-quarter of the gender wage gap (the difference in average wages between similarly qualified men and women). These findings suggest that firms have considerable leeway to set wages independently from their competitors and that wages are not exclusively determined by skills. The firm where someone works matters for their wages.
- When firms have wage-setting power, those with low productivity can compete on the basis of low wages without the risk of losing all their workers, while those with high productivity offer higher wages than low productivity ones to attract workers and grow larger. On average across the countries covered by the analysis, around one-sixth of productivity gaps between firms translate into gaps in firm wage premia. High-skilled workers and men benefit more from good firm performance in terms of higher wages than low-skilled workers and women overall.
- The transmission of productivity gaps to firm pay gaps is particularly pronounced when there is a low rate of job mobility (workers moving jobs voluntarily). In such a situation, low-pay firms face a more limited risk of seeing their workers move to high-pay ones. An increase in the rate of job mobility from that of a low-mobility country such as Italy to that of a high-mobility country like Sweden is estimated to lead to a 15% drop in overall wage inequality. Limited job mobility for women, moreover, contributes to the gender wage gap by limiting access to jobs in high-wage firms and weakening their bargaining power.
- More centralised collective bargaining and higher minimum wages weaken the pass-through of productivity to wage premia by limiting the scope of low-performing firms to compete on the basis of low wages, and hence reduce wage dispersion between firms.

Tackling high wage inequality requires complementing worker-centred skills policies with policies centred on firms' wage-setting practices. This involves:

- Policies that narrow productivity gaps between firms could significantly reduce overall wage inequality. This could be achieved by helping low-performing firms to adopt new technologies, digital business models and high-performance management practices.

- Reducing barriers to job mobility would narrow wage gaps between firms by reducing the capacity of low-performing firms to compete on the basis of low wages. Job mobility could be enhanced by strengthening adult learning and activation policies, reforming labour market regulation, and supporting geographical mobility (e.g. via transport and housing policies) and telework.
- Collectively agreed or statutory wage floors represent a complementary policy response – provided that wage floors are not set too high – because they reduce the ability of firms to exploit the consequences of limited job mobility by competing on the basis of low wages.

Introduction

Many OECD countries have been grappling with low productivity growth and rising income inequality over the past few decades.[1] Meanwhile, gaps in business performance have widened, with a small number of high-performing businesses continuing to achieve high productivity growth while others have been increasingly falling behind (Andrews, Criscuolo and Gal, 2016[1]; Berlingieri, Blanchenay and Criscuolo, 2017[2]). Moreover, high-performing firms are also pulling away in terms of sales and profitability, and industry concentration is growing in many countries (Bajgar et al., 2019[3]). The COVID-19 crisis risks reinforcing these trends, as some unprofitable businesses have been kept afloat and the digitalisation of business models has accelerated. An emerging body of evidence suggests that growing productivity gaps between businesses can at least partly account for low aggregate productivity growth (Berlingieri, Blanchenay and Criscuolo, 2017[2]), but evidence about their implications for wage inequality is still limited. While some degree of wage inequality may simply be the by-product of differences in incentives to work, skill acquisition and job mobility, excessively high levels can become an obstacle to social cohesion by raising overall income inequality and undermining equality of opportunities.[2]

Until recently, a large part of research into the causes of wage inequality focused on differences in skills between workers in an analytical framework that disregarded differences between firms. In the standard skill demand and supply framework, increases in wage inequality can, to a large extent, be explained by increases in the demand for skills, which are in turn driven by technological progress, including automation and digitalisation, and globalisation. Labour markets are assumed to be perfectly competitive and wages of high-skilled workers are bid up irrespective of the firm in which they work. Consistent with this framework, policy has mainly focused on ensuring that workers have the skills that are demanded by employers through investments in education and adult learning. While this standard framework remains very useful, it cannot account for a number of empirical facts. First, there is large wage inequality even within narrowly defined skill categories, including between similarly qualified men and women (Autor, Katz and Kearney, 2008[4]; Goldin, 2014[5]; Lemieux, 2006[6]). Second, there are large cross-firm differences in average pay for workers with similar qualifications (Card, Heining and Kline, 2013[7]; Song et al., 2018[8]). Third, workers' mobility decisions are fairly unresponsive to wages, allowing employers to bid them down (Sokolova and Sorensen, 2020[9]), especially in labour markets with a high degree of employer concentration (see Chapter 3) or for specific groups of workers, including women, with fewer job options to balance work and family responsibilities.

This chapter places the firm at the centre of the analysis into the causes of wage inequality by explicitly taking account of differences in firms' wage-setting practices. Wage-setting practices in this chapter refer to the ability and incentives of firms to set wages differently from those of their competitors for similarly qualified workers, for example depending on their performance, their wage-setting power and the nature of wage-setting institutions. The analytical framework explicitly takes labour market frictions and firm heterogeneity into account. In this framework, firms benefit from some degree of wage-setting power in the sense that wage differences between them are not immediately neutralised by competition between firms hiring perfectly mobile workers. The implication is that between-firm differences in product market

performance and specific features of the labour market, such as employer concentration and differences in mobility between specific groups, notably men and women, can lead to wage differences between workers with similar skills. From a policy perspective, placing firms at the centre of the analysis broadens the scope of policies to address wage inequality, coupling worker-centred policies, such as education and adult learning policies, with firm-based policies, including policies to narrow productivity gaps, promote job mobility and limit firms' wage-setting power.

The chapter makes three key contributions. First, it quantifies the contribution of differences in firm wage-setting practices to wage inequality in a cross-country context using a novel set of harmonised linked employer-employee data that contain information on the characteristics of workers and the firms for which they work. Firm wage-setting practices are captured empirically by firm wage premia, i.e. the part of average firm wages that is not due to the composition of the workforce. Previous research using linked employer-employee data has typically focused on individual countries. A comparison of results based on single-country studies is unreliable as cross-country differences might reflect variation in data treatment (e.g. data sampling procedures and variable definitions) and empirical methodologies rather than genuine variation in institutional settings and structural conditions across countries. This chapter harmonises the data treatment as far as possible and uses a unified empirical methodology in order to allow direct comparability of results across countries. Second, the chapter analyses the firm, market and policy determinants of firm wage-setting practices in terms of firm performance, the degree of job mobility and the nature of wage-setting institutions by taking advantage of the cross-country dimension of the data. Third, the chapter draws policy conclusions from the empirical evidence, highlighting the need to complement worker-centred policies with firm-centred measures to boost productivity and for a broad sharing of these productivity gains with all workers through higher wages.

The remainder of this chapter is structured as follows. Section 4.1 presents the conceptual framework, the empirical methodology and the harmonised linked employer-employee data used to analyse the role of firms in wage inequality. Section 4.2 presents the results of the analysis. Section 4.3 draws out the policy implications. Section 4.4 concludes.

4.1. Framework

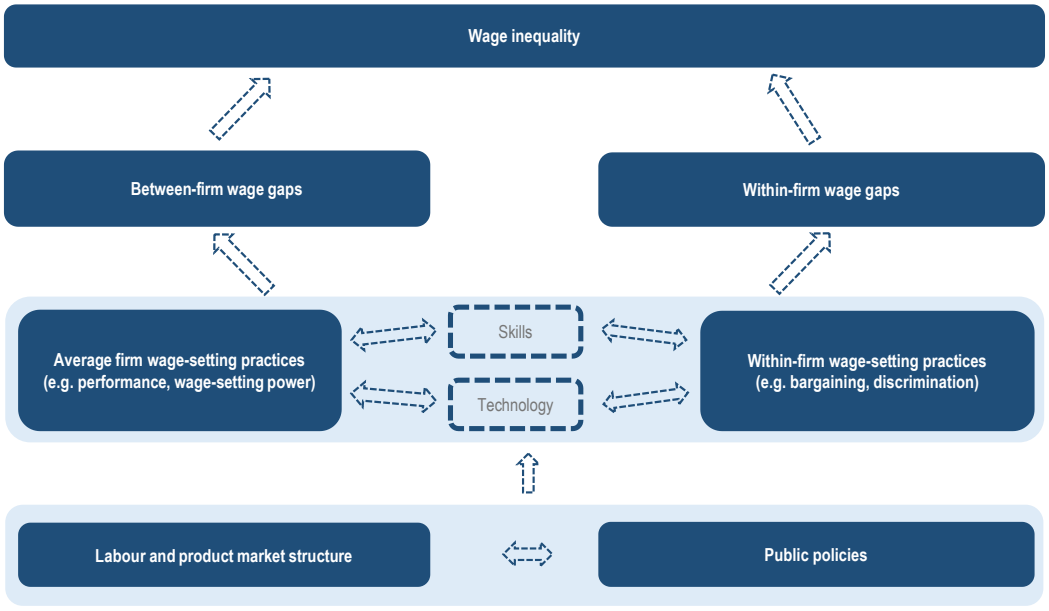
4.1.1. Conceptual framework and scope

Aggregate wage inequality arises from wage gaps between firms and wage gaps within them (Figure 4.1). To some extent, wage gaps *between* firms can be explained by differences in the skill composition of the workforce. For instance, firms employing above-average shares of high-qualified workers generally pay higher wages than the average firm. But wage gaps between firms are also the result of differences in average wage-setting practices between them. These may result from differences in performance between firms, differences in wages set unilaterally by employers (as in monopsony or wage-posting models) or differences in their bargaining position (as in wage-bargaining and rent-sharing models). For instance, low-wage firms could compete on the basis of low wages without the risk of losing all their workers, while high-productivity firms could offer higher wages to attract workers and grow their business. Wage gaps *within* firms largely reflect differences in worker skills, such as education and experience. However, even within firms, wage gaps may to some extent be explained by firm wage-setting practices unrelated to workers' qualifications. For instance, firms may pay men and women differently despite having similar qualifications. This could be due to differences in women's bargaining position relative to men, but also to employers' perceptions of differences in productivity, or employers' conscious and unconscious biases, leading to discriminatory behaviours.

Given skills and non-wage working conditions, differences in wages across firms can only arise in labour markets with frictions. In a labour market without frictions – where job search, job mobility and hiring are costless – a worker with a given set of characteristics (e.g. formal qualifications, experience,

motivation, etc.) would immediately move if they were offered a higher wage by a competing firm with similar non-wage working conditions. In this case, workers' wages are wholly determined by their specific skill set, with firms bidding up wages until they equal workers' marginal productivity. Firms with high average productivity employ more workers than their lower-productivity competitors but, since marginal productivity tends to decline with employment and equalise across firms, they do not pay higher wages given the skills of workers and non-wage working conditions. Hence, pay differences in the case of a frictionless labour market entirely reflect differences in skill composition or compensating differentials related to differences in non-wage working conditions. For instance, one firm may mainly employ high-skilled workers at high wage rates, whereas another one may mainly employ low-skilled workers at low wage rates, because they perform different economic activities or use technologies with different skill requirements.

Figure 4.1. The role of firms in wage inequality



In a labour market where job search, job mobility and hiring are costly (or workers differ in their preferences regarding the non-wage aspects of jobs), marginal productivity differences persist across firms and similar workers may be paid differently in different firms. This can be the case when wages equal marginal productivity but marginal productivity is not equalised across firms (competitive wage-setting), when wages are set unilaterally by employers as a markdown from marginal productivity (monopsonic wage-setting) or when workers and firms bargain over the rents associated with the job match (wage bargaining or rent-sharing). Low productivity firms will tend to be too large from an efficiency point of view in the sense that even by paying a low wage they do not lose all their workers. Conversely, high productivity firms will tend to be too small since they need to offer higher wages to attract sufficient workers for achieving their optimal size. Consequently, limited job mobility is likely to increase wage differences between firms, thus contributing to higher wage inequality, while weakening the efficiency of job reallocation across firms.[3] Moreover, in a labour market with frictions, it becomes possible for firms to set differentiated wages for similarly qualified groups of workers within the firm, if workers' job search and mobility costs differ and hence their bargaining position, as may be the case, for instance, for similarly skilled men and women.

Differences in firm wage-setting practices have an immediate impact on overall wage inequality whereas differences in skill composition between firms have no direct impact on overall wage inequality. For instance, at a given composition of skills, it is irrelevant for overall wage inequality whether high-skilled workers cluster in the same firms (which would lead to high between-firm wage inequality and low within-firm wage inequality) or whether they are evenly distributed across firms (which would lead to low between-

firm wage inequality and high within-firm inequality). By contrast, differences in firm wage-setting practices directly raise overall wage inequality even between workers with similar levels of skills. Differences in wage-setting practices may also lead to differences in skill composition having an indirect impact on overall wage inequality if high-wage workers sort into firms setting high wages. This is more likely to be the case when high-productivity firms use technologies that rely heavily on specific skills.

The analysis focuses on the relevance of firm performance and firm wage-setting practices in wage inequality (including the gender wage gap) by looking at some of their main determinants – namely firms' productivity, the degree of job mobility and the nature of wage-setting institutions. The determinants of returns to skills, skill composition and between-firm productivity gaps are outside the scope of this chapter and have been analysed extensively in previous work (Box 4.1).

Box 4.1. Public policies influence the drivers of wage inequality beyond firm wage-setting practices

While this chapter focuses on the link between public policies and firm wage-setting practices, a large body of work analyses the effect of public policies on returns to skills, skill composition and productivity gaps between firms.

Returns to skills. At a given skill composition of the workforce, within-firm wage inequality reflects the dispersion of returns to skills. For instance, within-firm wage inequality tends to increase when the wage premium associated with a tertiary education degree increases. A large body of work has analysed the structural and policy determinants of returns to skills in the framework of a race between education and technology (Katz and Murphy, 1992[10]; Autor, Goldin and Katz, 2020[11]). The main role of public policies in this framework is to support the supply of skills to meet the increasing demand resulting from technological change. Indeed, the evidence suggests that a more abundant supply of skills relative to demand reduces the skills premium and therefore wage inequality (OECD, 2015[12]). However, the supply and demand framework appears to be less relevant at the extremes of the wage distribution. At the bottom of the wage distribution policies and institutions may be more important than market forces in setting the wages of low-skilled workers, while at the very top superstar effects may be particularly important (Autor, Goldin and Katz, 2020[11]).

Skill composition. An emerging body of evidence analyses the effect of public policies on firms' skill composition. One strand of work has focused on the increased sorting of workers into firms with similar co-workers which may be linked to domestic outsourcing, including to independent contractors of on-line platforms (Goldschmidt and Schmieder, 2015[13]; OECD, 2021[14]; Weil, 2014[15]), Firms increasingly resort to specialised firms for the provision of low-skilled labour services, such as cleaning, security and restauration. Such worker-to-worker sorting does not have a direct effect on wage inequality, as increased between-firm wage inequality is offset by reduced within-firm wage inequality. But it may weaken lower-qualified workers' bargaining position and upward mobility, and hence increase the persistence of inequality over the life course. Policies to strengthen collective bargaining and training in firms providing outsourced services could reduce the adverse effects of worker-to-worker sorting. Another strand of work has focused on complementarities between workers' skills and technologies, which may lead to the sorting of the highest-skilled workers into the highest-paying firms (Card, Heining and Kline, 2013[7]). Such worker-to-firm sorting may be efficiency enhancing but directly raises wage inequality.

Productivity gaps. Between-firm productivity gaps have tended to widen in several OECD countries (Andrews, Criscuolo and Gal, 2016[1]; OECD, 2015[16]), which has contributed to widening firm-wage gaps (Berlingieri, Blanchenay and Criscuolo, 2017[2]) and rising wage inequality. Public policies can directly influence the extent of between-firm productivity gaps and the extent of pay gaps at a given level of productivity gaps.

4.1.2. Empirical framework

The role of firms in wage inequality – measured using the variance of logarithmic wages – is analysed in three steps. In a first step, the contribution of firms in overall wage inequality is measured by focusing on the role of firm wage premia, i.e. the part of wages that is determined by the characteristics of firms rather than those of their workers. In a second step, the role of firm performance is analysed by focusing on the link between labour productivity and wage premia at the firm level. In a third step, the role of structural and policy factors in the link between firm performance and wage premia is analysed. See Box 4.2 for the technical details.

To measure the component of wage inequality that is due to firms, the analysis focuses on firm wage premia i.e. the part of average firm wages that is unrelated to the characteristics of the firm's workforce. Firm wage premia are captured by the estimated firm-fixed effects in an otherwise standard traditional human-capital wage equation with controls for gender, age and education/occupation.[4] Overall wage inequality is then decomposed into three components: (i) the contribution of differences in firms' wage-setting practices as measured by the *dispersion in firm wage premia*; (ii) the contribution of worker sorting as measured by *the dispersion of average firm wages that can be attributed to differences in workforce composition*, including workers' skills; (iii) the contribution of within-firm inequality as measured by *the average dispersion of wages within firms*, which captures returns to skills and possibly also within-firm differences in wage-setting practices between similarly qualified workers within firms (e.g. between men and women).

The link between productivity and wages at the firm level (productivity pass-through) is analysed empirically by directly relating firm wage premia to firm labour productivity.[5] This approach is used to document differences in pass-through between countries as well as differences between different groups of workers such as low-skilled and high-skilled workers or men and women. A drawback of this approach is that it is only feasible for the subset of countries covered in this chapter where information on firm productivity is available in the worker-level data, making it difficult to systematically relate the degree of pass-through to industry and country characteristics. The firm-level approach is therefore complemented with an industry-level approach that relates between-firm dispersion in wage premia within industries to between-firm dispersion in labour productivity, using external data sources on productivity dispersion from the OECD MultiProd database (Berlingieri et al., 2017[17]). Given the significant variation across countries, industries and over time, the industry-level approach is employed for analysing the structural and institutional determinants of firm-level productivity-wage pass-through.

The analysis of the structural and policy determinants of firm-level wage pass-through concentrates on the role of: i) job mobility, which captures the responsiveness of voluntary worker mobility to firm wages and hence provides a measure of the wage-setting power of firms; and ii) that of wage-setting institutions, in the form of statutory minimum wages and collective bargaining systems, which tend to constrain the extent to which productivity differences between firms translate into wage differences between firms. Job mobility is proxied by the share of annual job-to-job transitions in total employment using external data by country and industry from the European Labour Force Survey constructed by Causa et al. (2021[18]). The advantage of focusing on direct job-to-job transitions instead of all worker transitions is that such transitions are most likely to be voluntary, while transitions to non-employment, which are more likely to be involuntary, are excluded.[6] The role of collective bargaining is analysed by focusing on the level of decentralisation in collective bargaining systems by distinguishing between fully or largely decentralised systems based on firm-level bargaining and organised decentralised or more centralised systems with a stronger emphasis on sector or national level bargaining (OECD, 2019[19]).[7] The level of the statutory minimum wage is expressed as a ratio of the median wage of full-time workers.

Box 4.2. Methodology

The role of firms in wage inequality

Wage inequality is measured as the total variance of logarithmic wages,[1] which can be decomposed into the variance of average wages between firms and the variance of individual wages within firms:

$$V^{total} = V(\overline{w}_j) + V(w_{ij} - \overline{w}_j) = V^{between} + V^{within} \quad \text{Equation 4.1}$$

where *V* denotes the variance, w_{ij} the logarithmic wage of worker *i* in firm *j* and $\overline{w}_j$ the average logarithmic wage in firm *j*.

To disentangle the role of wage premia and workforce composition in between-firm wage dispersion, firm wage premia are estimated using a traditional human-capital earnings equation augmented with firm fixed effects (Barth et al., 2016[20]):

$$w_{ij} = x_{ij}\beta + \gamma_j + \varepsilon_{ij} \quad \text{Equation 4.2}$$

where w_{ij} denotes the logarithmic wage of worker *i* in firm *j*; x_{ij} denotes a vector of observable worker characteristics; β denotes the estimated return to these characteristics; γ_j denotes firm fixed effects; and ε_{ij} denotes the error term. The observable worker characteristics considered in the empirical model generally include education and/or occupation, age, gender, indicators for part-time work and interaction terms between these variables. This equation is estimated separately for each country and year. The estimated firm fixed effects provide a measure of firm wage premia.

Based on Equation 4.2, denoting estimated coefficients and variables with superscript ^ and defining $\hat{s} \equiv x_i\hat{\beta}$ (workers' predicted wages based on observable earnings characteristics) the total variance of w_{ij} can be written as follows:

$$V^{total} = V(\hat{s}) + V(\hat{\gamma}) + 2cov(\hat{s},\hat{\gamma}) + V(\hat{\varepsilon}) \quad \text{Equation 4.3}$$

where $V(\hat{s})$ is the variance of predicted wages based on observable earnings characteristics; $V(\hat{\gamma})$ is the variance of firm-specific wage premia; $cov(\hat{s},\hat{\gamma})$ is the covariance of predicted wages with firm-specific wage premia and $V(\hat{\varepsilon})$ is the variance of residual wages.

As proposed by Barth et al. (2016[20]), defining $\rho_\gamma \equiv \frac{cov(\hat{s},\hat{\gamma})}{V(\hat{s})}$ and $\rho \equiv \frac{cov(\hat{s},\hat{S})}{V(\hat{s})}$, where $\hat{S}$ is the average of all individual workers' $\hat{s}$ in the firm, the total variance of $\ln w_{ij}$ can be re-written as:

$$V^{total} = \left[V(\hat{s})\rho + 2V(\hat{s})\rho_\gamma + V(\hat{\gamma})\right] + \left[V(\hat{s}) + V(\hat{\varepsilon}) - V(\hat{s})\rho\right] = V^{between} + V^{within} = V^{wage\ premia} + V^{composition} + V^{within} \quad \text{Equation 4.4}$$

where ρ_γ is a measure of similarity between the workers' predicted wages based on observable earnings characteristics and the estimated firm fixed effects (a measure of worker-to-firm sorting) and ρ is a measure of similarity between the workers' predicted wages and the average predicted wage in their firm (a measure of worker-to-worker sorting).

The between-firm variance can thus be decomposed into contributions of wage premia (variance of firm-specific wage premia $V(\hat{\gamma})$) and workforce composition (worker-to-worker sorting $V(\hat{s})\rho$ and worker-to-firm sorting $2V(\hat{s})\rho_{\gamma}$). The within-firm variance can be decomposed into contributions from the returns to observed and unobserved earnings characteristics $V(\hat{s}) + V(\hat{\varepsilon})$ minus that from worker-to-worker sorting $-V(\hat{s})\rho$.

As a robustness check, Annex 4.C reports results of the decomposition based on a version of Equation 4.2 that includes in addition worker fixed effects, following Abowd et al. (1999[21]). This ensures that firm wage premia do not capture unobserved differences in worker composition across firms related to time-invariant characteristics such as talent or ability.

The firm-level link between productivity and wage premia

When information on productivity is available, productivity-wage pass-through at the firm-level can be estimated using the following firm-level equation:

$$\hat{\gamma}_{jt} = \pi y_{jt} + \delta_s + \delta_t + \varepsilon_{jst}$$

Equation 4.5

where $\hat{\gamma}_{jst}$ denotes the estimated firm wage premium in firm *j*, and year *t*; y_{jt} logarithmic labour productivity; π the estimated pass-through parameter; δ_s and δ_t industry and year fixed effects; and ε_{jst} the error term. Labour productivity is either measured as value added per worker or, if information on value added is not available, as sales per worker. This equation is estimated using employment weights for each country and group of workers within these countries (by skill and gender).[2] A significant relationship between wage premia and productivity at the firm-level suggests that wage premia do not merely reflect compensating differentials but also capture the role of labour market frictions.

When there is no information on productivity in the linked employer-employee data but there is external data on productivity dispersion by industry and year, one could alternatively estimate firm-level productivity-wage pass through using industry-level data pooled across countries. More specifically, assuming non-zero productivity-wage pass-through, taking the variance of Equation 4.5 and pooling across countries provides yields:

$$Var(\hat{\gamma}_{jt})_{sct} = \pi^2 Var(y_{jt})_{sct} + \delta_c + \delta_s + \delta_t + \nu_{sct}$$

Equation 4.6

where $Var(\hat{\gamma}_{jt})_{sct}$ denotes the employment-weighted variance of wage premia across firms; π^2 the squared pass-through elasticity; δ_c, δ_s and δ_t denote country, industry and time fixed effects; and ν_{sct} the error term.

The structural and policy determinants of pass-through

To identify factors associated with productivity wage pass-through, the coefficient on productivity dispersion is allowed to vary according to structural and institutional characteristics:

$$Var(\hat{\gamma}_{jt})_{sct} = \gamma_0 Var(y_{jt})_{sct} + \gamma_1 Z_{sct} + \gamma_2 Var(y_{jt})_{sct} \cdot Z_{sct} + \delta_c + \delta_s + \delta_t + \nu_{sct}$$

Equation 4.7

where the parameter γ_1 captures the association between wage premia dispersion and the structural and institutional characteristics Z_{sct}, while the parameter γ_2 on the interaction term between the structural and institutional characteristics Z_{sct} and the variance of firm productivity $Var(y_{jt})_{sct}$ captures the association with the squared pass-through elasticity. The structural and institutional characteristics are measured using dummy variables to limit the role of outliers.[3]

1. The variance as a measure of inequality has a number of properties that are useful in the present context, including that it is additively decomposable, scale independent and more comprehensive than alternative measures of inequality, such as the 90th/10th percentile ratio.
2. This specification effectively uses variation in wage premia and labour productivity within firms over time as well as between firms at any given point in time (and in a given industry) to estimate pass-through. The advantage of using cross-sectional variation on top of the within-firm variation is that the estimated pass-through captures the long-term link between wage premia and productivity rather than the short-term response of wage premia to productivity shocks. Since labour productivity is an equilibrium outcome, there is a potential endogeneity issue, which should be borne in mind when interpreting the results.
3. More specifically, if the underlying variable is continuous, it is set to one when its value exceeds the sample median and zero otherwise. Results using continuous variables yield very similar results (OECD, 2021[22]).

4.1.3. Data

Empirically distinguishing the effects of firm performance and firm wage-setting practices from that of skill composition requires the use of linked employer-employee data. The linked employer-employee data used in this chapter are drawn from administrative records designed for tax or social security purposes or, in a few cases, mandatory employer surveys. As a result, these data are very comprehensive, often covering the universe of workers and firms in a country, and of high quality, given the financial implications of reporting errors for tax and social security systems.

The analysis in this chapter is based on linked employer-employee data for up to 20 OECD countries (see the Annex 4.B for details on the data used).[8] Since tax and social security systems differ in their administrative requirements across countries, with potentially important implications for their comparability across countries, considerable effort has been made to harmonise the data (see Box 4.3). The resulting harmonised dataset generally covers the past two decades except for Costa Rica, Hungary, Japan, Norway and the Slovak Republic, where the sample period is about one decade. Moreover, it is broadly consistent with other national and cross-country data sources in terms of levels and changes in overall wage inequality (OECD, 2021[22]).[9]

The countries covered in this chapter differ widely in terms of the level of wage inequality as well its dynamics over time. The sample encompasses low-inequality countries (e.g. Sweden) as well as high-inequality ones (e.g. United States), and countries with large increases in wage inequality (e.g. Germany) as well as countries with pronounced declines (e.g. Estonia). See Annex 4.B for details on the evolution in wage inequality during the period analysed.

Box 4.3. Harmonisation of national linked employer-employee data

Considerable efforts were made to harmonise the national employer-employee data used in this chapter and enhance their cross-country comparability.

- The analysis is restricted to dependent employees in firms with two employees or more in the private sector. Self-employed are excluded directly where possible, while own-account workers are excluded by focusing on firms with two or more employees. Public sector firms are excluded based on their public status or when no such information is available by excluding the "public government and defence" and "education" sectors. Including the self-employed and public-sector firms would increase the importance of between-firm wage inequality at the expense of the within component, since the self-employed constitute overwhelmingly single-worker firms and the distribution of public sector wages is typically highly compressed.
- The analysis focuses on total monthly earnings since information on working time is not available in several countries. In an attempt to exclude part-timers in a consistent manner, all workers with monthly earnings below 90% of the full-time minimum wage are dropped and in the absence of a minimum wage, those below 45% of the full-time median wage. Using hourly wages for the subset of countries where this is possible does not change the qualitative results of this chapter. Earnings information is reported in gross terms, i.e. total labour cost minus employer social security contributions and based on all taxable earnings, including overtime and other bonuses. To deal with the issue of top coding at the contribution threshold in social security data, censored wages are imputed based on methods developed by Dustmann et al. (2009[23]) and Card, Heining and Kline (2013[7]).
- The analysis tends to focus on the firm, the level at which wages tend to be set, rather than establishments. While most datasets link workers to their firms, some link them to their establishments (Vilhuber, 2007[24]). Although this could matter for decomposing wage dispersion into between and within-employer components, empirical work suggests that in practice the unit of observation only has a limited impact, partly because most firms have only a single establishment (Barth, Davis and Freeman, 2018[25]; Skans, Edin and Holmlund, 2009[26]; Song et al., 2018[8]).
- The data typically cover the universe of workers and their employers, but in some cases represents large representative samples of workers or firms. Worker-based samples only cover a fraction of workers in a firm, introducing measurement error in average firm wages. This tends to bias within-firm wage dispersion down relative to between-firm wage dispersion. The analysis corrects for sampling error in worker-based samples using the correction proposed by (Håkanson, Lindqvist and Vlachos, 2015[27]).

4.2. Main findings

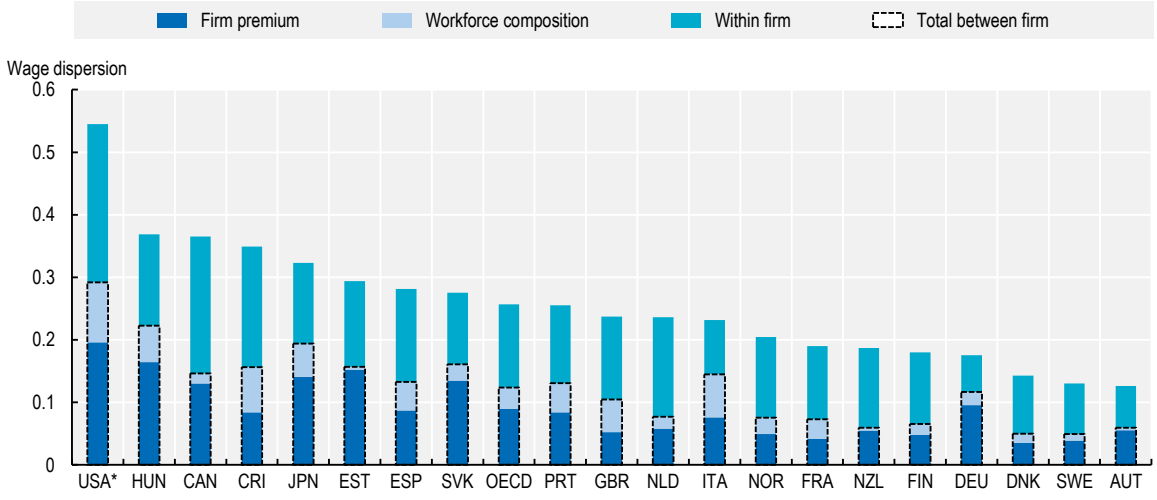
4.2.1. The role of wage premia dispersion for overall wage dispersion

Firm wage-setting practices play a key role in shaping wage inequality

Between-firm wage inequality represents a sizeable component of overall wage inequality and this mainly reflects between-firm differences in pay for workers with similar levels of skills rather than differences in the composition of workers (Figure 4.2). On average across the 20 countries covered by this part of the analysis, between-firm wage inequality accounts for about one-half of overall wage inequality. Firm wage premia dispersion in turn accounts for around two-thirds of between-firm wage inequality. The remaining one-third of between-firm wage inequality is accounted for by differences in workforce composition, i.e. the fact that firms paying higher average wages typically also employ more highly educated and experienced workers.[10] Taken together, the results suggest that firms have significant leeway to set wages independently from their competitors, with firm wage-setting practices accounting for around one-third of overall wage inequality. Consequently, identifying and quantifying the key determinants of firm wage-setting practices is crucial for the design of public policies to address wage inequality. A similar decomposition of the gender wage gap is presented in Box 4.4.

Figure 4.2. Firm wage premia account for about one-third of overall wage inequality

Contributions to overall wage dispersion, latest available year (2015-18)



Note: The height of the bars denotes the level of overall wage dispersion in the latest available year (2015-18), with the coloured parts denoting the contributions of firm premia, workforce composition and within-firm inequality. The between-firm component is equal to the sum of the firm premium and workforce composition components. OECD refers to the average of the 20 countries shown. * Figures for the United States are based on Barth et al. (2016[20])" It's Where You Work: Increases in the Dispersion of Earnings across Establishments and Individuals in the United States", https://doi.org/10.1086/684045.

StatLink https://stat.link/duzx6l

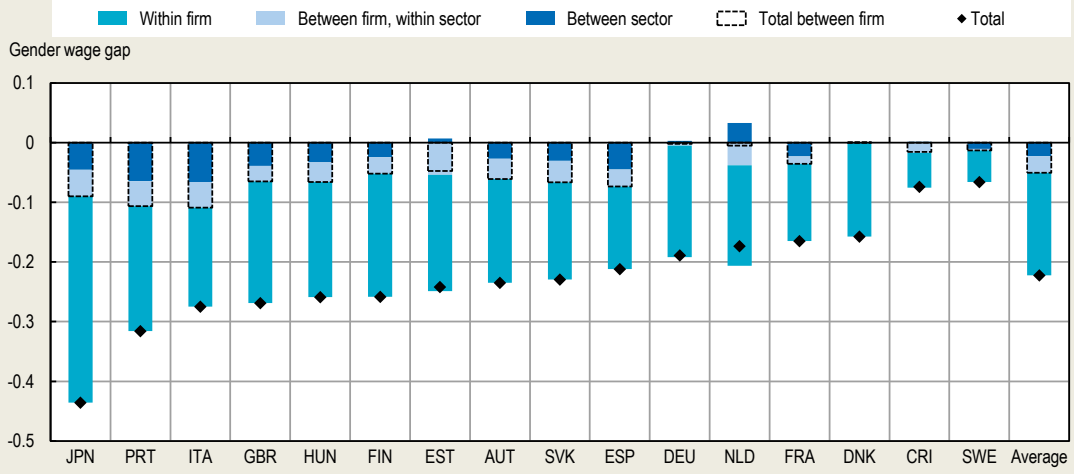
Box 4.4. Firm wage-setting practices contribute to wage gaps between men and women

A large part of this chapter focuses on differences in wage-setting practices *between* firms, i.e. differences in average pay between firms for similarly qualified workers. To the extent that men and women sort into firms with different wage-setting practices, this can also have important implications for the gender wage gap. Additionally, there can also be important differences in pay between similarly qualified men and women *within* firms. Indeed, recent studies have shown that the bulk of the gender wage gap persists even after controlling for differences in skills (Goldin, 2014[5]). Systematic differences in pay between men and women with similar skills within firms reflect differences in tasks and responsibilities or differences in pay for equal work, which may result, amongst other things, from discrimination by employers or unequal opportunities for career progression more generally.

To analyse the role of firms in gender disparities, the wage gap between similarly qualified men and women is decomposed within and between firms (Figure 4.3), in a similar way as was done for overall wage inequality in the main text. About three-quarters of the wage gap between similarly qualified men and women reflect pay differences within firms. As shown in OECD (2021[22]), this is mainly due to differences in tasks and responsibilities (e.g. men are more likely to have management or supervisory roles) and, to a lesser extent, also differences in pay for work of equal value (e.g. discrimination, bargaining). One-quarter of the gender wage gap is accounted for by differences in pay between firms due to higher employment shares of women in low-wage firms. The latter reflects both differences in wage-setting practices between firms within industries and differences in wage-setting practices between industries. The concentration of women in low-wage firms may be the result of a variety of factors including discriminatory hiring practices by employers or women finding it necessary to work for firms with flexible working-time arrangements despite paying lower wages. The concentration of women in particular low-wage industries may also reflect the role of past educational choices and gendered socialisation processes earlier in life.

Figure 4.3. Three-quarters of the gender wage gap is concentrated within firms while the remaining quarter reflects the sorting of women in low-wage firms

Difference in wages of women relative to men with similar qualifications, percentage, early-2000s to mid-2010s



Note: Decomposition of gender wage gap between similarly qualified men and women within firms, between firms within sectors and between sectors. The wage gap between-similarly qualified men and women is obtained from a regression of log wages on a gender dummy and flexible earnings-experience profiles by education (education is not available for Austria and Estonia) as well as decade-of-birth dummies to control for cohort effects.

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In the majority of countries, the gender wage gap between and within firms increases throughout the working life (OECD, 2021[22]). This reflects important gender differences in opportunities for career advancement, particularly around the age many women become mothers (see Box 4.6), but also the role of career breaks around the age of childbirth. Career breaks following childbirth tend to be associated with significant wage losses and consequently account for an important fraction of the "motherhood penalty", i.e. the shortfall in wage growth following childbirth.

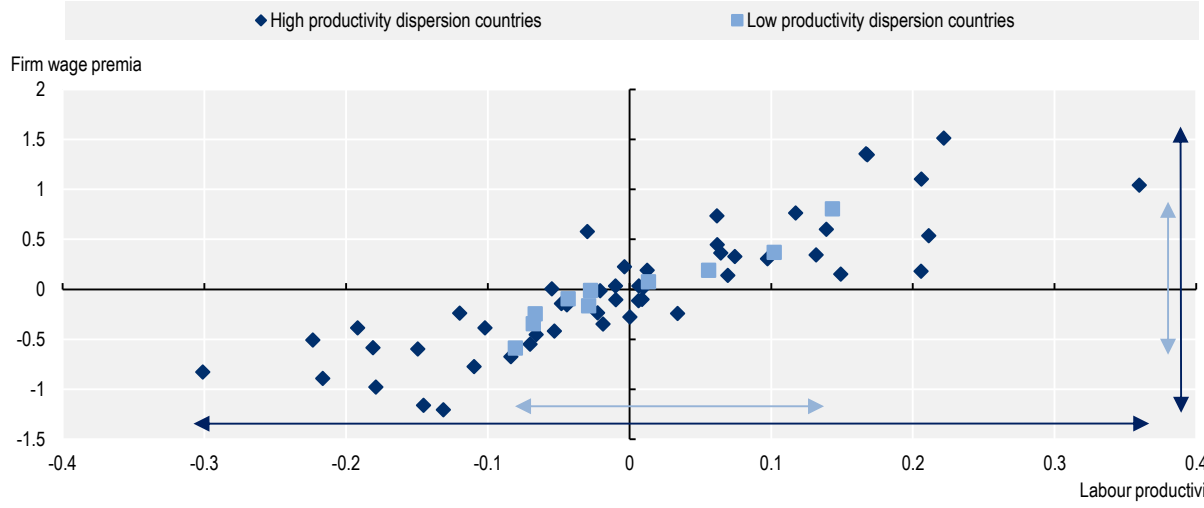
4.2.2. The role of firm performance for wage premia

Differences in wage premia dispersion across countries reflect differences in productivity dispersion

Descriptive evidence suggests that gaps in firm productivity are a key determinant of gaps in firm wage premia and that these are higher in countries with higher productivity dispersion (Figure 4.4). The figure shows that firms with higher productivity tend to pay higher wage premia. It also shows that in countries where gaps in productivity are larger (dark blue dots) – the deciles of the productivity distribution are more dispersed – there are larger gaps in wage premia between firms – the deciles of the wage premia are more dispersed.

Figure 4.4. The dispersion of firm wage premia tends to be higher in countries with high productivity dispersion

By decile of labour productivity, deviation from country-specific means, log points, selected countries



Note: The figure shows average wage premia and average labour productivity by decile of the within-industry productivity distribution. Data are reported as deviations from country-specific means to ensure cross-country comparability and can be interpreted as percentage deviations from the country mean. Productivity is defined as log output per worker. Wage premia are the estimated firm fixed effects from a regression of log monthly earnings on firm fixed effects and observable worker characteristics. Included countries are: Costa Rica, Finland, France, Germany, Hungary, and Portugal.

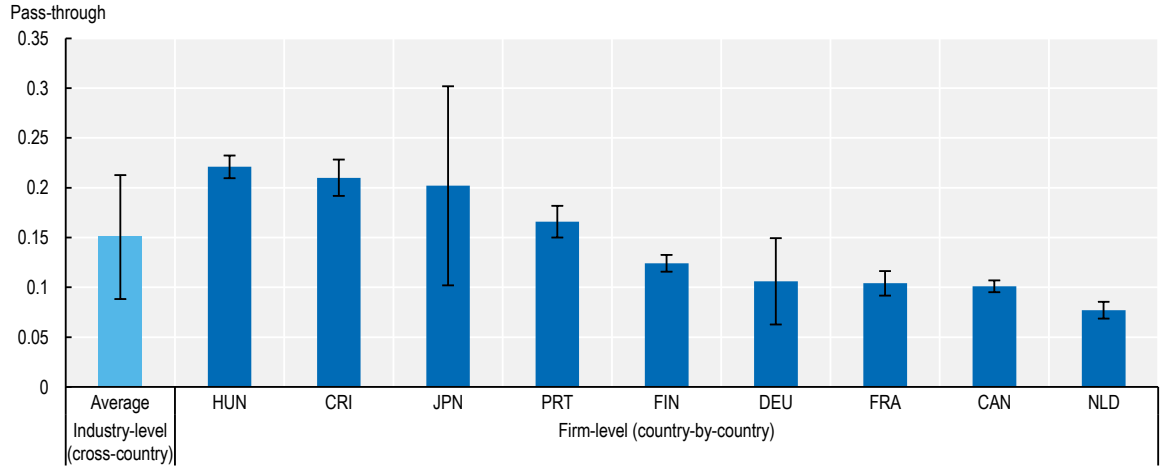
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More detailed analysis shows that on average across the covered countries, around one-sixth of productivity gaps between firms are passed on to gaps in firm wage premia, which corresponds to a pass-through coefficient of about 0.15 (Figure 4.5). This is in the range of estimates of firm-level productivity-wage pass-through in previous research (Card et al., 2018[28]).[11] These estimates suggest that wage premia do not merely reflect compensating differentials related to differences in non-wage working. conditions, but also the role of labour frictions by creating a link between pay and productivity at the firm level. In such a context, low productivity firms can afford to pay lower wages and still retain workers and remain in the market, while high-productivity firms need to offer higher wages than low-productivity ones to attract the desired number of workers to overcome barriers to job mobility. Unlike in a perfectly competitive labour market, productivity differences between firms do not only translate into differences in employment but also to some extent in differences in wage premia.

One interpretation of a pass-through coefficient smaller than one is that more productive firms markdown wages more strongly from marginal productivity than less productive firms (Manning, 2020[29]). More productive firms may have more wage-setting power because they represent a larger share of the market or because they face less competition for workers from other firms (Berger, Herkenhoff and Mongey, 2022[30]; Card et al., 2018[28]). Importantly, this not only leads to larger wage markdowns in more productive firms but also less employment in those firms, and hence a less efficient allocation of employment across firms.

Figure 4.5. Firm-level productivity-wage pass-through

Productivity-wage pass-through at the firm level estimated using the industry- and firm-level approach, percentage, 2000-15



Note: Productivity-wage pass-through at the firm-level refers to the elasticity of wage premia to labour productivity. The figure shows the percentage increase in wage premia associated with a 1% increase in labour productivity. The cross-country model (industry-level approach) is based on Equation 4.6 and estimated for 13 countries. The country-by-country model (worker-level approach) is based on Equation 4.5 and is estimated for a subset of countries where firm productivity is available in the linked employer-employee micro data. Error bars denote 95% confidence intervals based on cluster-robust standard errors. Countries included in the cross-country analysis are as follows: Austria (2008-15), Canada (2001-12), Finland (2000-12), France (2002-15), Germany (2003-13), Hungary (2003-11), Italy (2001-15), Japan (1995-2013), the Netherlands (2001-15), New Zealand (2001-11), Norway (2004-12), Portugal (2004-12) and Sweden (2002-12). Sample periods for the country-by-country analysis are as follows: Canada (2001-16), Costa Rica (2006-17), Finland (2000-17), France (2002-15), Germany (2000-16), Hungary (2003-11), Japan (1995-2013), the Netherlands (2001-16), Portugal (2002-17).

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But differences in wage premia dispersion across countries also reflect differences in the extent to which productivity differences translate into wage premia differences

There are further significant differences across countries in the extent to which productivity differences translate into differences in wage premia, with over one-fifth of productivity gaps passed on in some countries (e.g. Hungary) but less than one-tenth in others (e.g. the Netherlands), pointing to a potentially important explanatory role for country-wide characteristics related to the structure of product and labour markets as well as policies and institutions. The next sub-section will analyse to what extent differences in job mobility and wage-setting institutions can help to explain cross-country differences in wage premia dispersion and cross-country differences in the link between firm performance and wage premia, such as those documented in the figure below. Another potentially important factor is the degree of wage-setting power due to the concentration of local labour markets. This is analysed in Chapter 3 of this publication as well as in OECD (2021[22]).

There are also significant differences in the extent to which productivity is reflected in wage premia across different groups of workers, contributing to wage dispersion within firms

Across firms within the same industry, productivity-wage pass-through tends to be higher for high-skilled workers than low-skilled workers and higher for men than women (Box 4.5). Differences in pass-through across different groups of workers contribute to both wage inequality between firms and inequality within them. With homogeneous pass-through across different groups of workers, larger productivity dispersion only raises between-firm wage inequality. By contrast, when pass-through is heterogeneous, it may additionally raise within-firm wage inequality if pass-through is larger for high-skilled workers and men who typically earn higher wages to begin with.

Box 4.5. Productivity-wage pass-through by education and gender

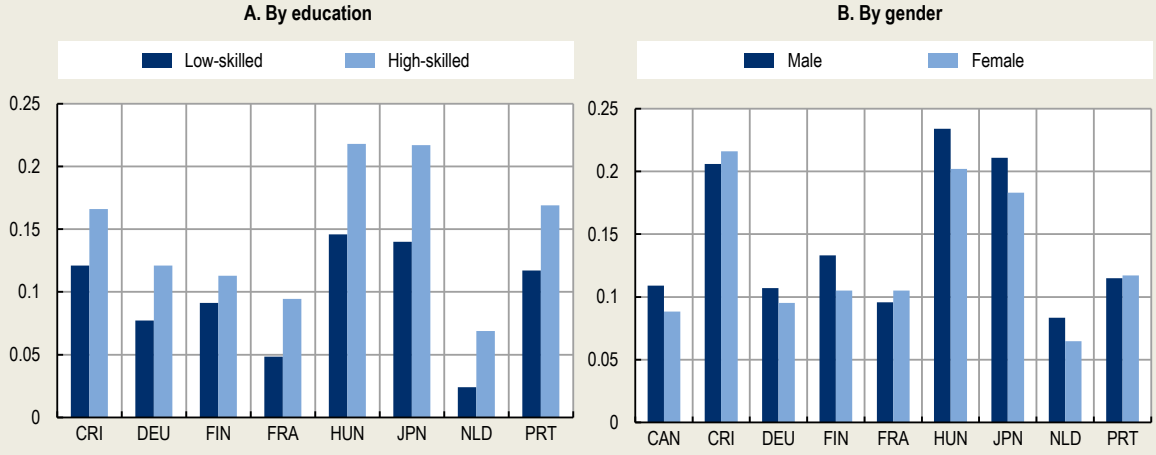
Pass-through is typically larger for high-skilled workers and men (Figure 4.6). On average across the countries analysed, pass-through for high-skilled workers is about 15% compared with about 10% for low-skilled workers. Similarly, pass-though is 15% for men compared with 13% for women. These averages hide some important differences across countries, particularly in the case of gender where the pattern is reversed in Costa Rica, France and Portugal.

Differences in pass-through across groups of workers may partly reflect differences in the responsiveness of labour demand and supply to wages. For instance, a number of empirical studies suggest that low-skilled and women workers are less mobile (Matsudaira, 2014[31]). Less mobile workers receive a larger mark-down from productivity, but also benefit less from productivity increases, as these are disproportionately shared with the most mobile groups of workers in the firm.[1]

Higher pass-through for skilled workers and men could also reflect complementarities between technology and skills or worker flexibility. For instance, recent evidence suggests that the gender wage gap tends to be larger in exporting firms (which tend to be more productive) than in non-exporting ones (Bøler, Javorcik and Ulltveit-Moe, 2018[32]). A related explanation could be that high-skilled workers and men have a stronger bargaining position and may be able to negotiate higher wages in high-productivity firms.

Figure 4.6. Higher pass-through for high-skilled workers and men

Productivity-wage pass-through at the firm-level, percentage, 2000-15



Note: Productivity-wage pass-through at the firm-level refers to the elasticity of wage premia to labour productivity. The figure shows the percentage increase in wage premia associated with a 1% increase in labour productivity. Productivity-wage pass-through is estimated using a modified version of Equation 4.5 where productivity is interacted with the worker characteristic in question. Separate regression models are estimated for each country. Skills are measured by education (tertiary, secondary and less than secondary) where available, otherwise by occupation. Each regression controls for industry fixed effects so that the coefficients can be interpreted as within-industry pass-through for different types of workers. Education and occupation not available for Canada. Sample periods for each country: Canada (2001-16), Costa Rica (2006-17), Finland (2000-17), France (2002-15), Germany (2000-16), Hungary (2003-11), Japan (1995-2013), the Netherlands (2001-16), Portugal (1991-2009).

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1. Low mobility is associated with less pass-through in the group-specific analysis, but more pass-through when focusing on productivity differences between firms. Job mobility reduces the transmission of productivity differences *between* firms into wage differences between firms because it reduces differences in marginal labour productivity across firms. This channel is switched off when focusing on differences in firm wage premia for different groups of workers *within* firms. Instead, firms have a tendency to align wages with outside options of different groups of workers and the ease with which they change jobs between firms.

Addressing productivity gaps between firms would not only raise growth but also reduce inequality

The new evidence on the transmission of productivity gaps to gaps in firm wage premia in this chapter is particularly relevant in light of previous research showing that productivity dispersion has tended to rise in many OECD countries (Andrews, Criscuolo and Gal, 2016[1]; OECD, 2015[16]). OECD research by Berlingieri et al. (2017[2]) already pointed to a relationship between dispersion in productivity and wages, but could not establish whether this is because higher-productivity firms tend to employ higher-skilled workers or because they pay higher wages to all workers. The new evidence in this chapter suggests that productivity gaps and gaps in firm wage-setting practices are directly linked, implying that rising productivity gaps between firms contribute to rising wage inequality.

The strong relationship between firm performance and firm pay has important implications for policies that seek to enhance inclusive growth. Before the COVID-19 crisis, increasing productivity gaps between firms mainly reflected stagnating productivity growth among low-productivity firms rather than exceptionally high

productivity growth among high-productivity ones. Hence, business-focused initiatives that help lagging firms catch up with leading firms, or leading firms to expand and create new jobs, would support growth of aggregate productivity and wages. Such initiatives may be particularly important in the wake of the COVID-19 crisis, which may have widened productivity gaps between firms with different access to digital technologies and business models. By directly reducing gaps in firm wage-setting practices between firms, such initiatives would also contribute to lower wage inequality.

4.2.3. The role of job mobility and wage-setting institutions

The presence of significant differences across countries in the contribution of firm wage-premia dispersion to overall wage dispersion raises important questions about the role of policies and institutions. At a given level of labour market frictions, policies and institutions may shape the dispersion of firm productivity and thereby the dispersion of firm wage premia (Andrews, Criscuolo and Gal, 2016[1]). But policies and institutions may also shape the transmission of productivity to firm wage premia at a given level of productivity dispersion, either by affecting the degree of frictions in the labour market or by setting institutional limits on the dispersion of wage premia. The transmission of productivity gaps between firms into wage gaps could be more pronounced in labour markets where frictions reduce the rate of job mobility. In such a context, low-productivity firms have more scope for paying lower wages than their competitors while retaining their workers and high-productivity firms need to offer higher wage premia than low-productivity firms to overcome barriers to job mobility and achieve their optimal size. However, the extent to which wage premia vary across firms, and low-productivity firms can pay lower wage premia, also depends on the presence of wage-setting institutions in the form of collective bargaining or minimum wages.

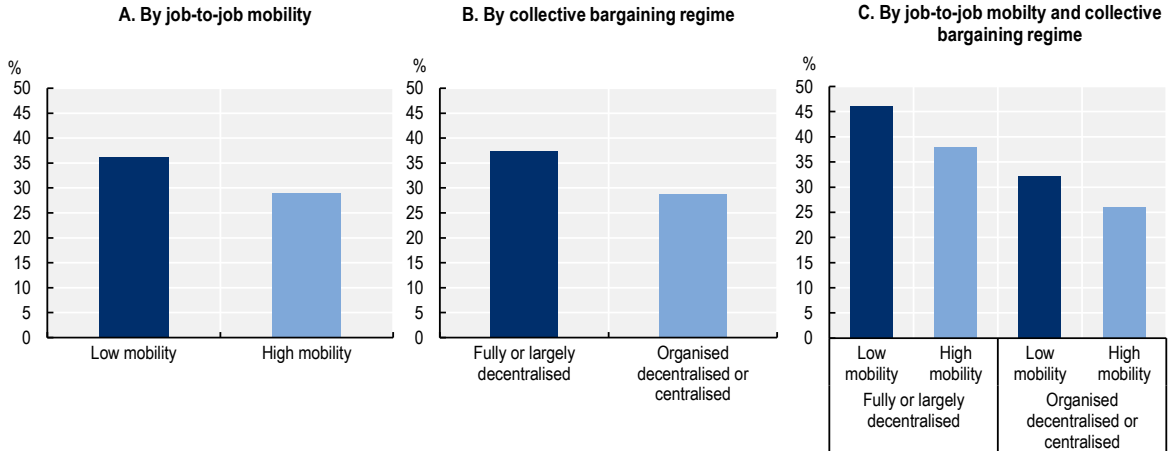
High job mobility and strong wage-setting institutions are associated with smaller wage premia differences

To provide a first indication of the possible role of policies and institutions in the dispersion of firm wage premia, Figure 4.7 compares the contribution of firm wage premia dispersion to overall wage inequality across different groups of countries according to the degree of job-to-job mobility between firms and the degree of centralisation of their collective bargaining systems. This suggests that job-to-job mobility – which is mainly voluntary as it excludes layoffs followed by non-employment – and collective bargaining systems characterised by predominantly sector-level bargaining and relatively high coverage are associated with a lower contribution of wage premia dispersion to overall wage dispersion (Panel A and B). Moreover, conditional on the system of collective bargaining, the share of firm wage premia dispersion tends to be higher in countries with low job mobility (Panel C).[12] This is consistent with the view that low-productivity firms can survive by offering lower wages than high-productivity firms without risking to lose all their workers and that high-productivity firms offer higher wages than their low-productivity counterparts to overcome barriers to job mobility that make it harder for them to attract the desired number of workers. The results are qualitatively similar when using the level of wage premia dispersion instead of its share in overall wage dispersion.

The role of job mobility and wage-setting institutions is analysed in more detail by combining data on firm wage premia dispersion with data on productivity dispersion at the industry level in a regression framework. This allows establishing whether the descriptive statistics presented above reflect the role of job mobility and collective bargaining for the transmission of productivity differences to wage premia or rather the extent of productivity differences in the first place. The use of a regression framework also allows controlling for a number of confounding factors and hence can provide additional credence to the associations shown.

Figure 4.7. The role of job mobility and collective bargaining in firm wage premia dispersion

The share of wage premia dispersion in overall wage dispersion by country group, percentage



Note: This figure plots the share of wage premia dispersion in overall wage dispersion (based on Figure 4.2) averaged by group of countries. Countries with low job mobility: France, Germany, Hungary, Italy, Norway, Portugal and the Slovak Republic; countries with high job mobility: Austria, Denmark, Estonia, Finland, the Netherlands, Spain, Sweden, United Kingdom. Countries with largely or fully decentralised bargaining regimes: Canada, Costa Rica, Estonia, Japan, Hungary, New Zealand, the Slovak Republic, United Kingdom, United States; countries with organised decentralised or centralised bargaining regimes: Austria, Denmark, Germany, Finland, France, Italy, Portugal, the Netherlands, Norway, Spain, Sweden.

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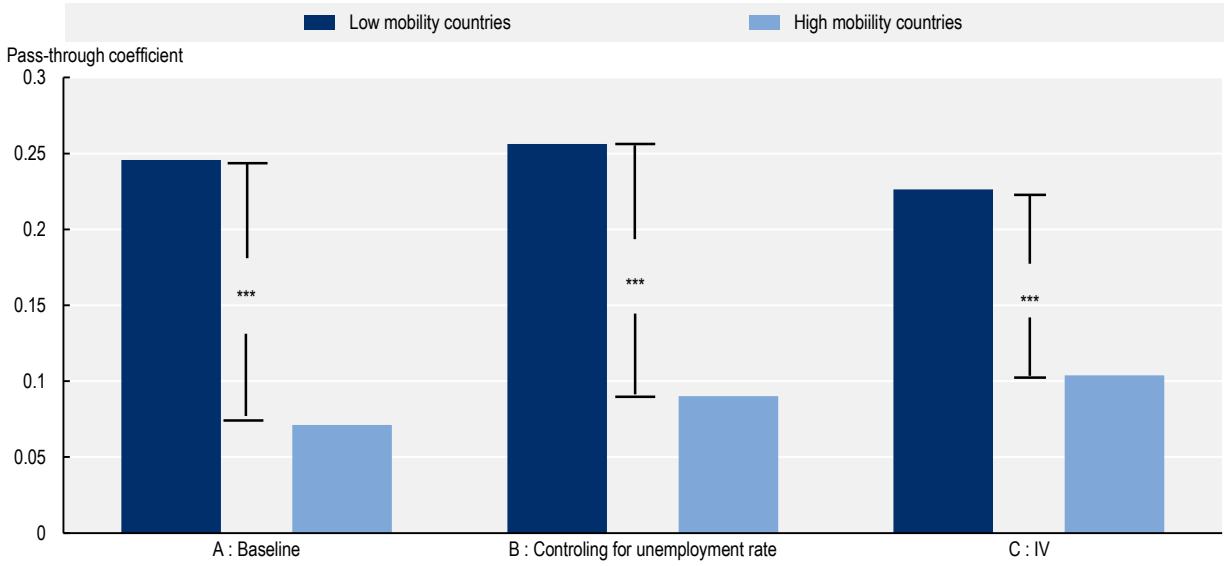
High job mobility limits the transmission of productivity differences to wage premia differences, and hence contributes to lower wage inequality

Productivity-wage pass-through is lower the higher the degree of job mobility (Figure 4.8, Panel A). As workers do not easily move from one job to another, low-productivity employers can afford paying low wages relative to high-productivity ones. Conversely, high-productivity employers need to raise wages well above those offered by low-productivity ones to attract workers from them. The effect of raising job mobility on overall wage inequality through the pass-through channel is quantitatively significant: raising job mobility from the average of countries with low job mobility to the average of those with high mobility – roughly equivalent to an increase from the 20th percentile of job mobility (Italy) to the 80th percentile (Sweden) – may reduce overall wage inequality by as much as 15%. To put this reduction in perspective, the median increase in wage inequality across countries over the period 1995-2015 was around 10% (OECD, 2021[22]).[13]

The importance of job mobility for productivity pass-through is confirmed in a variety of sensitivity checks. First, job-to-job transitions may be positively correlated with the business cycle so that it may pick up the effects of low unemployment rather than the degree of labour market frictions (omitted variable bias). However, while the estimated coefficient on the interaction between productivity dispersion and unemployment is indeed statistically significant, the rate of job-to-job transitions continues to be negatively related to productivity pass-through (Panel B). Second, job-to-job transitions may be endogenous to the wage structure (endogeneity bias). For a given level of productivity dispersion, a more compressed wage structure may reduce incentives for job-to-job mobility. To address endogeneity, an instrumental variable approach is adopted that uses as instrument the product of average job mobility in all other industries in the same country and average job mobility in the same industry in all other countries. This instrument can reasonably be considered as exogenous to the wage structure in a specific industry and country. The results using this instrumental variable approach are again qualitatively unchanged (Panel C).[14]

Figure 4.8. The role of job mobility in firm-level productivity-wage pass-through

Productivity-wage pass-through at the firm-level in low and high job mobility countries, percentage, 2000-15



Note: Productivity-wage pass-through at the firm-level refers to the elasticity of wage premia to labour productivity. Job mobility is measured by the industry-level share of job-to-job transitions in employment. This variable is noted high when its value exceeds the sample median and zero otherwise. The baseline results (Specification A) are based on Equation 4.7 where a dummy for job mobility is interacted with productivity. Specification B additionally controls for the interaction of the unemployment rate and productivity. Specification C instruments job mobility by the product of average job mobility in all other industries in the same country and average job mobility in the same industry in all other countries. Countries included in the cross-country analysis are as follows: Austria (2008-15), Canada (2001-12), Finland (2000-12), France (2002-15), Germany (2003-13), Hungary (2003-11), Italy (2001-15), Japan (1995-2013), the Netherlands (2001-15), New Zealand (2001-11), Norway (2004-12), Portugal (2004-12) and Sweden (2002-12). *** denotes a statistically significant difference across the groups at the 10%, 5% and 1% levels. For the full results, see Annex 4.C.

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Similarly, by constraining the transmission of productivity differences to wage premia, more centralised collective bargaining systems and higher minimum wages contribute to lower wage inequality

The decentralisation of collective bargaining tends to increase the pass-through of firm-level productivity to wages (Figure 4.9, Panel A).[15] Collective bargaining systems characterised by a predominance of industry-level bargaining (labelled "organised decentralised or centralised") focus on industry-wide productivity in wage setting, whereas systems based on a predominance of firm-level bargaining (labelled "fully or largely decentralised") allow for a larger differentiation of wages according to firm-specific productivity.[16]

Country-specific evidence on decentralisation of collective bargaining in Germany supports the cross-country evidence on the positive link between decentralisation and productivity-wage pass-through at the firm-level. In Germany, there has been a tendency towards more flexibility in wage setting at the firm-level over the past three decades, driven by an increased scope for differentiation at the firm-level within sector-level agreements and declining collective bargaining coverage. This has tended to raise the pass-through of firm-level productivity to wages (Criscuolo et al., 2021[33]).

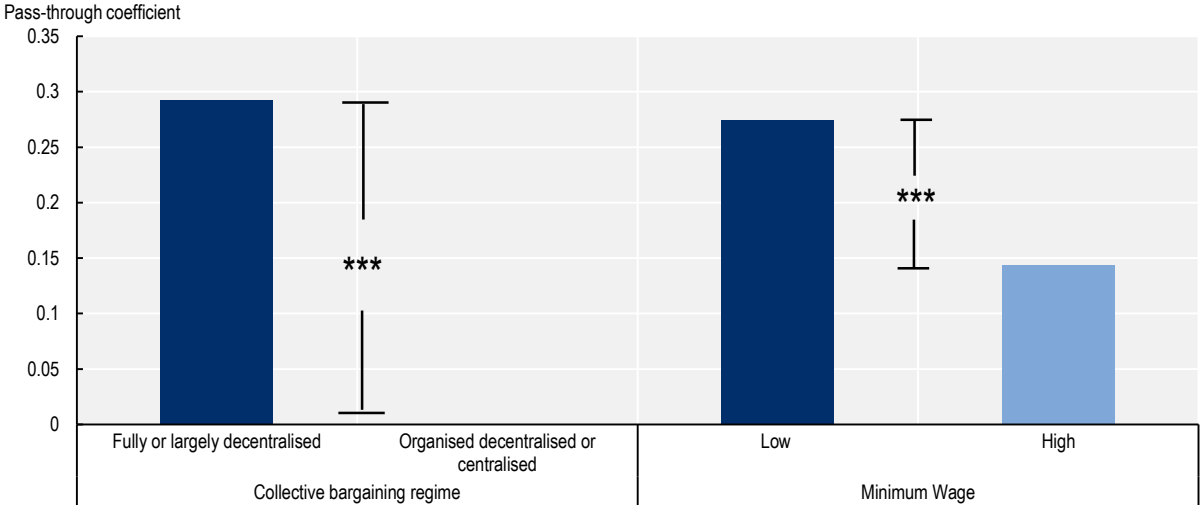
Inversely, relatively high statutory minimum wages (relative to the median wage) tend to reduce productivity pass-through at the firm-level (Figure 4.9, Panel B). A key argument for the use of minimum wages is to contain the wage-setting power of employers in imperfectly competitive labour markets. This

ensures fair wages for workers with limited skills or a weak bargaining position, and if not set too high, also can have a positive effect on employment – see Chapter 3.[17] The results presented in the figure suggest that the impact of minimum wages on overall wage dispersion, as documented for example in OECD (2018[34]), is partly driven by a reduction in wage dispersion between firms for a given level of productivity dispersion.

While strong wage-setting institutions are likely to reduce wage inequality between firms, they could also have adverse effects. If wage floors are set too high they could reduce employment by pricing low-skilled workers out of the market. There is also a risk that they worsen the efficiency of labour allocation by dampening job mobility between firms. By suppressing wage signals in a frictional labour market, it may be more difficult for high productivity firms to attract workers and expand employment. However, recent evidence for Germany and Israel suggests that this may not necessarily be the case. Higher minimum wages may force low-productivity firms to raise productivity or exit the market, thereby reducing productivity dispersion, without any adverse effects on overall employment (Drucker, Mazirov and Neumark, 2019[35]; Dustmann et al., 2021[36]).

Figure 4.9. The role of wage-setting institutions in firm wage premia dispersion

Productivity-wage pass-through at the firm-level in countries with fully or largely decentralised/organised decentralised or centralised collective bargaining systems and low/high statutory minimum wages, percentage, 2000-15



Note: Productivity-wage pass-through at the firm-level refers to the elasticity of wage premia to labour productivity. The graph plots the predicted pass-through elasticity when collective bargaining is centralised or decentralised and the statutory minimum wage is relatively high or low based on Equation 4.7 where a dummy accounting for wage-setting institutions is interacted with productivity. The minimum wage incidence is measured by the ratio of the statutory minimum wage to the median wage of full-time workers. It is denoted high when its value exceeds the sample median, and zero otherwise. Collective bargaining regimes are differentiated only at the country level following the OECD taxonomy of collective bargaining regimes (OECD, 2018[34]). Country coverage: Austria (2008-15), Canada (2001-12), Finland (2000-12), France (2002-15), Germany (2003-13), Hungary (2003-11), Italy (2001-15), Japan (1995-2013), the Netherlands (2001-15), New Zealand (2001-11), Norway (2004-12), Portugal (2004-12) and Sweden (2002-12). *** denotes a statistically significant difference across the groups at the 10%, 5% and 1% levels. For the full results, see Annex 4.C.

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Lowering barriers to job mobility helps to reduce wage inequality while enhancing the allocation of resources across firms, but is not a silver bullet

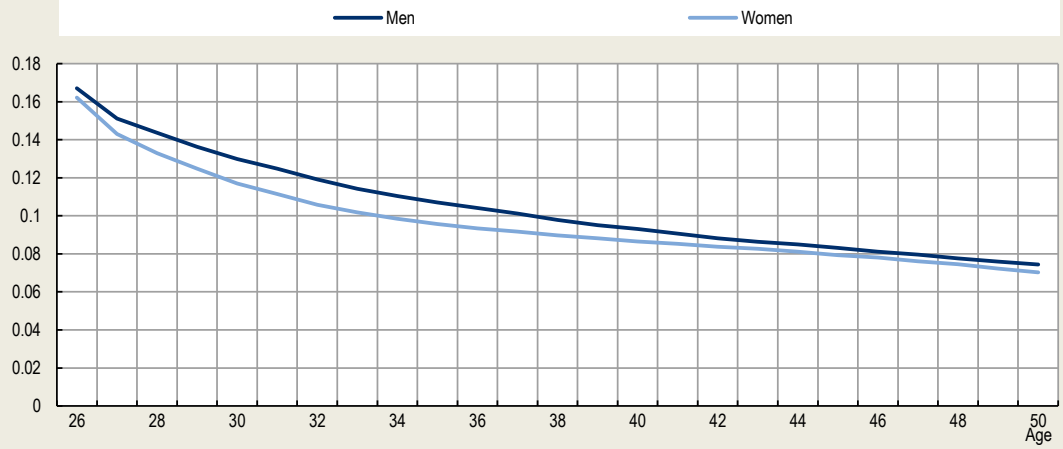
While job mobility is determined by a range of factors, some of which are outside the scope of public policies (discussed in detail in the next section), these findings nonetheless suggest that policies to promote job mobility could make significant inroads in narrowing gaps in firm pay policies, further reinforcing the importance of job mobility in the recovery from the COVID-19 crisis. By allowing high-productivity firms to expand more easily, they would also raise the efficiency of labour allocation and thereby aggregate productivity, employment and wages. However, some barriers to job mobility are likely to remain even after addressing policy distortions. Workers differ in their preferences for jobs in different firms, industries and geographical areas as well as their ability to perform the tasks involved, and firms differ in terms of non-wage working conditions and skill requirements, which creates inherent barriers to job mobility. Hence, mobility-promoting policies should not be seen as a silver bullet but rather as a complement to policies that aim directly at narrowing productivity gaps between firms and wage-setting policies such as collective bargaining or statutory minimum wages.

Box 4.6. The gender gap in job mobility between firms

Throughout their careers, women tend to change firm less often than men. The gender gap in job-to-job mobility significantly increases around the age of motherhood, before becoming negligible after the age of 45. At the age of 32, when the mobility gap is at its highest, women are more than 10% less likely than men to change firms. Moreover, when women change firms, this is less likely to take the form of promotions. Compared with men, job transitions among women appear less often motivated by wage increases and more often by personal reasons (e.g. having more flexible working-time arrangements, working closely from home or following a partner). These differences in the incidence and nature of job mobility account for a significant fraction of the increase in the gender wage gap between firms over the working life (OECD, 2021[22]).[1]

Figure 4.10. Women are less likely to change firms than men

Share of workers who experience a job-to-job transition between consecutive years by gender



Note: The figure plots the share of worker who experience a job-to-job mobility between age t and t+1 among workers present on the labour market at age t by gender. It is the average of 15 OECD countries. Reference period: 2001-13 for Japan; 2002-17 for Portugal; 1996-2015 for Italy; for Hungary; 2004-16 for Finland; 2003-18 for Estonia; 2000-18 for Austria; 2014-19 for the Slovak Republic; 2006-18 for Spain; 2002-18 for Germany; 2010-19 for the Netherlands; 2002-18 for France; 2001-17 Denmark; 2006-17 for Costa Rica; and 2002-17 for Sweden.

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1. The lower sensitivity of women to wages can, in turn, induce monopsonistic gender discrimination based on differences in the bargaining position between men and women in the same firm (see also Chapter 3).

4.3. Policy discussion

The findings in this chapter suggest that a comprehensive strategy to tackle excessive wage inequality requires complementing worker-centred policies with firm-centred policies. Narrowing productivity gaps between firms, promoting worker mobility between them and curtailing the wage-setting power of firms with dominant positions in local labour markets would reduce gaps in wage-setting practices between firms, gender pay gaps and overall wage inequality, while likely also raising productivity, wages and employment.

4.3.1. Firm-centred policies to contain the dispersion in productivity and pay policies across firms

Firm-centred policies that reduce the productivity gap between lagging and leading firms would not only strengthen aggregate productivity growth, but also contribute to lower wage inequality by reducing pay differences between firms. The COVID-19 crisis has put the importance of these policies into stark relief as firms with digital business models may have pulled away from those with insufficient access to digital technologies and skills. Policies that support investment in intangible assets, promote framework conditions for the digital age and improve access to digital infrastructures can help to close gaps in productivity and wages, while supporting the digital transformation (OECD, 2021[37]).

- Support **investment, particularly in intangible assets** (e.g. managerial talent, software and R&D) that are complementary to new technologies. Easing financial market imperfections, accelerating the development of equity markets and providing more generous and targeted support to intangible investment can allow more firms, especially small ones, to seize the opportunities offered by the digital transformation (Bajgar, Criscuolo and Timmis, 2021[38]; Nicoletti, von Rueden and Andrews, 2020[39]; Demmou and Franco, 2021[40]). Scaling up public support to innovation, for instance through public procurement, grants, loans and loan guarantees, can disproportionately benefit lagging firms (Berlingieri et al., 2020[41]).
- Promote **framework market conditions**. This involves reducing market entry barriers and strengthening the enforcement of competition policy to counter widespread declines in business dynamism and increases in market concentration, especially in digital-intensive industries where incentives for digital adoption are key (Nicoletti, von Rueden and Andrews, 2020[39]; Berlingieri et al., 2020[41]) It may also involve levelling the playing field between multinational and domestic firms in terms of tax policies and reducing differences in the scope for tax optimisation across borders (Johansson et al., 2017[42]). Appropriately designed insolvency regimes can facilitate restructuring or the orderly exit of underperforming firms (Adalet McGowan and Andrews, 2018[43]), promoting their catching up or the reallocation of resources from low to high-performing firms (Adalet McGowan and Andrews, 2016[44]).
- Improve **access to digital infrastructures.** Digital infrastructure is a necessity for exploiting the opportunities offered by digital technologies and a strong determinant of productivity gains (Gal et al., 2019[45]). However, access to communication networks is still uneven, hampering the take up of digital technologies and technology diffusion. Fiscal incentives to encourage private investment in underserved areas, direct public investment where private investment is not commercially viable, and ensuring competition in telecommunication markets would improve and widen access to communication networks and support the digital transformation of lagging firms (OECD, 2020[46]).

4.3.2. Policies to promote job mobility and reduce avoidable labour market frictions

Policies that promote job mobility between firms reduce between-firm wage gaps while enhancing the allocation of employment across firms. Job mobility could be enhanced by strengthening adult learning and activation policies, reforming labour market and housing policies, and supporting telework. Enhancing

job mobility is particularly important for the recovery from the COVID-19 crisis to mitigate labour shortages and support the reallocation of employment from shrinking or unviable businesses to those with better growth prospects.

- Strengthening **adult learning** and taking a more comprehensive approach to **activation** that goes beyond promoting access to employment would help workers find better jobs in other firms and at the same time reduce productivity gaps between them, yielding double dividends (OECD, 2021[14]). For instance, public employment services in the form of job-search assistance, training and career counselling could be made available to workers in jobs who would like to progress in their careers but face significant barriers in moving to better jobs, including people in non-standard forms of work, workers who are currently employed but lack relevant skills or live in lagging regions and workers in jobs supported by job retention schemes. This would require a more active role of public employment services in advising workers on adult learning opportunities and monitoring evolving skills requirements and a better co-ordination between public and private providers of employment services (Langenbucher and Vodopivec, 2022[47]). At the same time, continued investments are needed to enhance the training infrastructure, including through individual training accounts, and promote a culture of learning more generally.
- Limiting **regulatory barriers to job mobility** in labour and housing markets can foster transitions across firms, occupations and regions. This includes reforming overly restrictive occupational entry regulations (Bambalaite, Nicoletti and von Rueden, 2020[48]); promoting the portability of social benefits and severance pay entitlements (Kettemann, Kramarz and Zweimüller, 2017[49]); limiting the inappropriate use of non-compete or non-poaching agreements (Krueger and Ashenfelter, 2018[50]; OECD, 2019[51]) (see Chapter 3).
- **Mobility across geographical areas** could be fostered by reforming housing policies, including by redesigning land-use and planning policies that raise house price differences across locations, reducing transaction taxes on selling and buying a home, and relaxing overly strict rental regulations (Causa and Pichelmann, 2020[52]). Social policies in the form of cash transfers and in-kind expenditure on housing could also support residential mobility by raising the affordability of housing for low-income households, especially if such expenditure is designed in such a way that benefits are fully portable across geographical areas.
- An expansion of **telework** could partly compensate for limited geographical mobility. A significant fraction of jobs can potentially be conducted remotely – between one-quarter and one-third of all jobs according to some estimates (Dingel and Neiman, 2020[53]; Boeri, Caiumi and Paccagnella, 2020[54]; OECD, 2020[55]) – potentially raising job opportunities for workers and reducing costs to move from one job to another. Promoting telework will require regulating the right to request telework – where this does not exist – and the conditions under which telework arrangements are implemented (OECD, 2021[56]); strengthening digital infrastructure to increase network access and speed for all workers as well as digital adoption by firms; enhancing workers' ICT skills through training; as well as raising employers' management capabilities through the diffusion of managerial best practices (Nicoletti, von Rueden and Andrews, 2020[39]; OECD, 2020[55]). Notably, the use of teleworking during the pandemic was higher in countries where there was an enforceable right to request teleworking, and highest in countries where this right to access was granted through collective bargaining (OECD, 2021[56]).

4.3.3. Policies that can help to contain the wage-setting power of firms in labour markets with limited job mobility

While removing barriers to job mobility can reduce wage inequality and enhance the allocation of jobs across firms, some barriers to job mobility are likely to remain even after addressing policy distortions. Jobs differ in the skills they require and the way they are organised. At the same time, workers differ in

their preferences for different jobs and the ability to perform the tasks involved, which create inherent barriers to job mobility. Hence, mobility-promoting policies should be complemented with policies that aim directly at containing the excessive wage-setting power of dominant firms (see also the discussion in Chapter 3).

- **Wage-setting institutions** in the form of minimum wages and collectively negotiated wage floors could help to contain the wage-setting power of firms in labour markets with limited job mobility (OECD, 2019[19]). In areas and occupations where wages are well below workers' productivity, this could even increase employment by raising labour market participation among people who are unwilling to work at current wages.[18] However, it is important to set wage floors at levels that are consistent with workers' productivity, so as not to have dis-employment effects. This risk could be reduced by combining centralised collective bargaining with sufficient scope for further negotiation at the firm level, and allowing for regional variation in minimum wages and specific minima for very young workers. Ongoing research based on a comparison between Norway and the United States further suggests that wage compression between firms does not necessarily reduce the efficiency of labour allocation between firms (Hijzen, Lillehagen and Zwysen, 2021[57]). The key to achieve high productivity through an efficient allocation of labour is to complement wage-setting institutions that constrain the ability of firms to pay different wages for similar workers with measures that promote innovation in low productivity firms and strengthen job mobility.
- Competition authorities could step up **enforcement efforts against anti-competitive agreements** in labour markets, including wage fixing, no-poaching agreements and non-compete covenants (OECD, 2019[51]). Such anti-competitive agreements reduce opportunities for job mobility and increase the wage-setting power of firms. Wage-fixing represents a form of collusion in which employers agree on the wages and non-wage benefits of specific groups of workers. This may involve an explicit agreement or tacit co-ordination, based on the exchange of information on compensation with potential competitors. Another way employers may collude is by agreeing to refrain from poaching each other's workers. A third form of employer collusion is the use of non-compete covenants in employment contracts that prevent employees from working for their employer's competitors, usually for a limited time or in a specific geographical area. These issue are discussed in detail in Chapter 3.
- The excessive wage-setting power of dominant firms in local labour markets could further be addressed by explicitly **integrating labour market power considerations into merger control**. If merger control authorities focus exclusively on product market developments, this may not be sufficient to limit employers' wage-setting power when the definition of the relevant labour market does not perfectly track the definition of the relevant product market. For instance, a competition authority concluding that a merger between two companies does not constitute a threat to competition because there is a sufficient number of competitors (including from abroad) may fail to detect the fact that two companies are hiring in the same local labour market.

4.4. Concluding remarks

This chapter examines the role of differences in performance and wage-setting practices across firms in wage inequality. The main finding is that, on average across the 20 countries covered in the analysis, differences in wage-setting practices across firms account for around one-third of overall wage inequality and one-quarter of the gender wage gap. To some extent, gaps in firm wage-setting practices reflect gaps in productivity that are transmitted to pay when frictions prevent workers to move costlessly between firms. But to some extent, they also reflect differences in the wage-setting power of firms operating in labour markets with different competitive environments and wage-setting institutions.

From a policy perspective, the main insight is that firm-centred policies should be a key element of a comprehensive strategy to promote broadly shared economic growth. Supporting the productivity catch-up of lagging firms would not only raise aggregate productivity and wages but also reduce wage inequality. Promoting worker mobility between firms would reduce wage inequality at any given level of productivity dispersion while enhancing the allocation of employment across firms. Curtailing the wage-setting power of firms with dominant positions in local labour markets would reduce gaps in wage-setting practices between firms, gender pay gaps and overall wage inequality, while likely also raising productivity, wages and employment.

By placing firms at the centre of the analysis, this chapter helps to broaden the policy debate on wage inequality and in doing so fosters a whole-of-government approach to wage inequality and inclusive growth more generally. While skills policies remain crucial to ensure that skill demands and supplies remain well aligned, many other policies can have significant implications for wage inequality and these need to be taken into account when designing policies that seek to promote inclusive growth.

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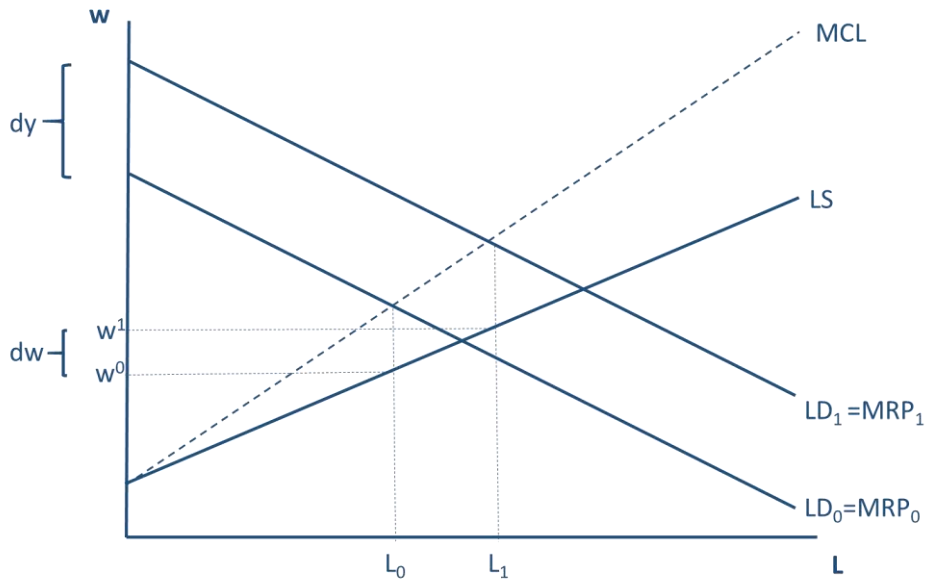
Annex 4.A. Productivity pass-through in the static monopsony model

In a perfectly competitive labour market, there are no frictions related to the costs of finding and changing jobs that limit workers' job options outside of their firms. In such a setting, all firms pay the single market wage irrespective of their productivity since no worker would accept a lower wage and paying a higher wage would reduce firms' profits. In formal terms, this implies that firms are price-takers in labour markets, with the labour supply curve faced by the firm being flat ("perfectly elastic"). Workers receive a wage equal to the market wage, which is in turn equals to workers' marginal product and equalised across firms. Importantly, differences in productivity between firms do not translate into differences in wages between firms.

In imperfectly competitive labour markets with frictions related to the cost of finding and changing jobs, or heterogeneous worker preferences over jobs' non-wage characteristics, workers' job options outside of their firms are limited. Consequently, not all workers quit when paid less than their marginal product and individual firms face an upward-sloping labour supply curve, which describes the reservation wages of marginal workers (Annex Figure 4.A.1).[19] Similarly, workers may accept a job even if it pays less than their marginal product. Assuming that firms are unable to observe the outside options of individual workers (i.e. they cannot price discriminate between them), the cost of attracting additional workers (i.e. the marginal cost of labour) typically exceeds their reservation wage.[20] Firms set wages so that labour supply to the firm corresponds to the profit-maximising employment levels, i.e. where the marginal revenue product of labour (MRP) and the marginal cost of labour (MCL) are the same. Employment level is lower than what they would have chosen with perfectly elastic labour supply, while wages are marked down relative to marginal labour productivity. Workers earn less in the imperfectly competitive equilibrium than in the perfectly competitive one.[21]

A more productive firm, with higher productivity, is willing to pay a higher wage at each level of employment (i.e. labour demand shifts outwards) than low-productivity firms, since higher productivity allows it to absorb higher labour costs. Thus, firm-level wages co-move with productivity even for workers with identical earnings characteristics. Labour demand of the high-productivity firm (firm 1) is above that of the low-productivity firm (firm 0), resulting in a positive wage gap between the high-productivity and the low-productivity firm (w1 – w0). In other words, there is positive pass-through of productivity to wages at the firm level, leading to dispersion in wages that is proportional to productivity dispersion.

Annex Figure 4.A.1. Firm-level productivity-wage pass-through in imperfectly competitive labour markets



Note: w: log wage; dw: log wage dispersion; dy: log labour productivity dispersion; L: log employment; LS: (inverse) labour supply curve; LD: (inverse) labour demand curve; MRP: log marginal revenue product of labour; MCL: log marginal cost of labour.
Source: Adapted from Card et al. (2018[28]), "Firms and Labor Market Inequality: Evidence and Some Theory", https://doi.org/10.1086/694153.

The degree of productivity pass-through (i) declines with the elasticity of labour supply; (ii) declines with the level of institutional wage floors.

1. A decline in the elasticity of labour supply rotates the labour supply curve anti-clockwise, so that a given total factor productivity difference between firms translates into a larger equilibrium wage difference. The elasticity of labour supply increases with job mobility, which is in turn partly determined by labour market frictions.
2. Collectively agreed wage floors at the industry level or statutory minimum wages may raise wages of low-productivity firms above their profit-maximising levels, which would reduce wage differences between firms at any given productivity difference.

Productivity pass-through declines with the elasticity of labour supply

A reduction in the elasticity of labour supply rotates the labour-supply curve anti-clockwise, giving rise to an upward-sloping labour-supply curve (Annex Figure 4.A.2). The difference in total factor productivity between a less productive firm 0 and a more productive firm 1 – as reflected by the vertical distance between their labour demand curves, LD0 and LD1 – translates into a difference in firm wage premia (w1(B)-w0(B)). The pass-through of productivity to wages (and wage dispersion at any given level of productivity dispersion) declines with the elasticity of labour supply, i.e. the flatter the labour supply curve.

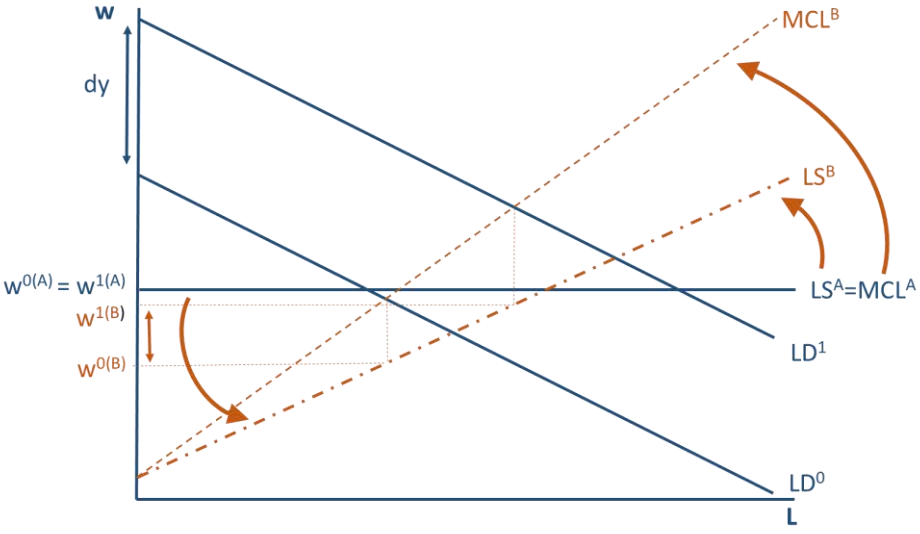
The dependence of productivity-wage pass-through on the elasticity of labour supply hinges on the focus on total factor productivity as a shifter of the labour demand-curve. When focusing on labour productivity instead, as done in the empirical analysis of this chapter, productivity-wage pass-through in this model will be one irrespective of the elasticity of labour supply (Manning, 2020[29]). This is the case because the response of the wage gap between firms to a gap in total factor productivity will be perfectly matched by the endogenous response in the gap in labour productivity. A pass-through coefficient smaller than one is

only obtained when more productive and hence larger firms face less elastic labour supply. This could be the case when labour supply elasticity is a function of the match surplus as in Card et al. (2018[28])or the market share of the firm as in Berger et al. (2022[30]). The increase in market power for larger firms in turn is likely to be more important in less competitive labour markets with a lower average elasticity of labour supply across firms.

The (average) elasticity of labour supply to the individual firm is partly determined by job mobility, which in turn depends, among other things, on local labour market concentration; the number of job vacancies per firm; hiring and firing costs (e.g. employment protection); the availability of easily accessible information on job opportunities (e.g. on-line platforms, public employment services); and regulatory barriers to mobility such as occupational licensing or distortions in the housing market (e.g. high taxes on housing transactions). In some cases, job mobility may also be held back by tacit agreements between firms not to hire workers from each other (no-poaching agreements) or contract clauses that prevent workers from moving to competing firms during a certain period (non-compete clauses) – see Chapter 3.

Annex Figure 4.A.2. Firm-level productivity-wage pass-through declines with the elasticity of labour supply

More elastic labour supply reduces pass-through



Note: w: wage; L: employment; LS: Inverse labour supply curve; LD: Inverse labour demand curve. Initially labour supply LSA is perfectly elastic and equals the marginal cost of labour MCLA. Then labour supply rotates clockwise to LSB (less elastic) and a wedge opens up with the marginal cost of labour MCLB that tilts even more.

Wage-setting institutions constrain productivity pass-through at the firm level

Collectively agreed wage floors at the industry level or statutory minimum wages may raise wages of low-productivity firms above their profit-maximising levels. This would reduce wage premia dispersion between firms at any given level of productivity dispersion, i.e. it would weaken the degree of firm-level productivity-wage pass-through. The co-ordination of collective bargaining outcomes across sectors by means of wage norms or wage ceilings would also tend to reduce wage premia differences but mainly between industries rather than between firms (OECD, 2019[19]). By contrast, the decentralisation of collective bargaining from the industry to the firm level is likely to increase firm-level productivity-wage pass-through with respect to either industry-level or national-level collective bargaining.

Annex 4.B. Data annex

Annex Table 4.B.1 Data sources

	Name	Earnings data source	Sample structure	Longitudinal	Hourly wages	Worker skills	Firm productivity	Time coverage
Austria	AMS-BMASK Arbeitsmarktdatenbank	Social security administration	Universe	Yes	No	No information	No	2002-17
Canada	Longitudinal Worker Files (LWF)	Tax administration	Universe	Yes	No	No information	No	1991-2016
	Canadian Employer-Employee Dynamics Database (CEEDD)	Tax administration	Universe	Only workers, not firms	No	No information	Yes	2001-15
Costa Rica	Register of Economic Variables (REVEC) from the Central Bank of Costa Rica (BCCR)	Social security administration combined with register data	Universe	Yes	No	Occupation	Yes	2006-17
Denmark	IDA, IDAN, UDDA	Tax administration combined with register data	Universe	Yes	Yes	Education and Occupation	Yes	2001-17
Estonia	Data from the Tax and Customs Board Register	Tax administration	Universe	Yes	No	No information	No	2003-17
Finland	FOLK employment data from Statistics Finland, Employer Payroll Report from Tax Administration	Tax administration	Universe	Yes	No	Education	Yes	2004-18
France	Déclaration annuelle des données sociales unifiée (DADS) panel linked with FARE/FICUS	Mandatory employer survey	1/12th random worker sample	Yes	Yes	Occupation	Yes	2002-17

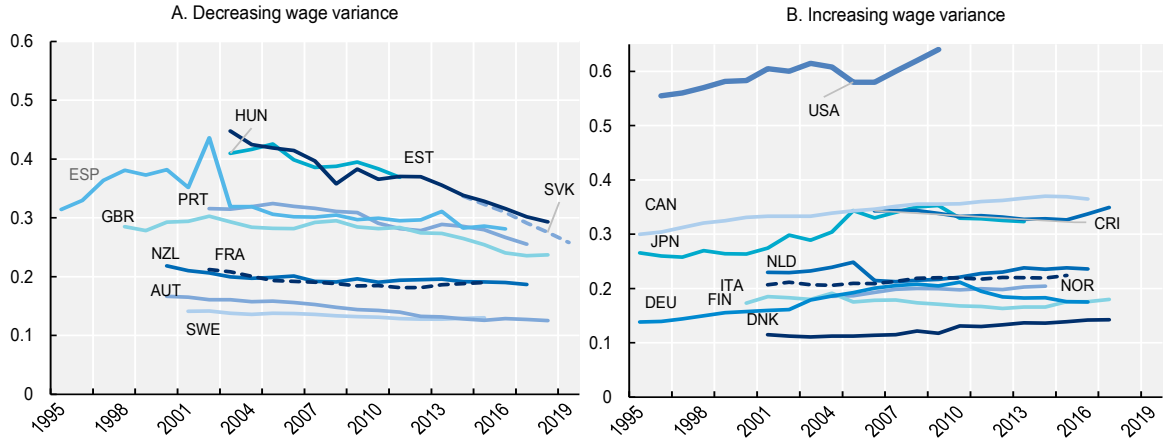
	Name	Earnings data source	Sample structure	Longitudinal	Hourly wages	Worker skills	Firm productivity	Time coverage
Germany	LIAB linked with BHP (Linked labour market biographies and establishment panel)	Social security administration	All workers who have ever worked in the ca. 16 000 BHP establishments	Yes	No	Education and Occupation	Yes	1996-2016
	Integrierte Erwerbsbiographien (IEB)	Social security administration	Universe (sampling due to computational constraints)	Yes	No	Education and Occupation	No	1996-2016
	SIEED (Sample of Integrated Employer-Employee Data)	Social security administration	1.5% random establishments sample	Yes	No	Education and Occupation	Yes	2002-18
Hungary	ADMIN II – Panel of administrative data (OEP, ONYF, NAV, NMH, OH)	Social security administration	50% random sample of population, taken in 2003.	Yes	Yes	Occupation	Yes	2003-18
Italy	Longitudinal Sample social security INPS (LoSai)	Social security administration	1/15th random worker sample	Yes	Yes	Limited measure of occupation	No	2002-15
Japan	Basic Survey of Wage structure, Basic Survey of Japanese Business Structure and Activities	Survey	Sample stratified by prefectures and industry	Only establishment, not worker	Yes	Education	Yes	2001-16
Netherlands	SPOLIS, POLIS, GBA, ABR and Hoogsteopltab.	Social security administration	Universe	Yes	Yes	Education (for about half of the sample)	Yes	2010-19
New Zealand	Integrated Data Infrastructure (IDI) – Inland Revenue (IR) & Business Register data	Tax administration	Universe	Yes	No	No	Yes (but currently not available in LinkEED)	2000-17

	Name	Earnings data source	Sample structure	Longitudinal	Hourly wages	Worker skills	Firm productivity	Time coverage
Norway	Earnings data (Tax Register), augmented with employment history (National Education database)	Tax administration	Universe	Yes	Yes	Occupation	Yes (but currently not available in LinkEED)	2004-14
Portugal	Quadros de Pessoal	Mandatory employer survey	Universe	Yes	Yes	Education and Occupation	Yes	2002-17
Slovak Republic	Slovak Linked Employer-Employee database	Social security administration	Universe	Yes	No	Education	No	2014-19
Spain	Muestra Continua de Vidas Laborales con Datos Fiscales (MCVL-CDF)	Social security and tax administration	4% random worker sample	Yes	No	Education and Occupation	No	2002-17
Sweden	RAMS, LISA, Job Register. SES	Tax administration	RAMS: Universe. SES: 100% of the public sector; stratified sample covering 50% of all private sector firms	Yes	No, use of fulltime equivalent	Education and Occupation	Yes (but currently not available in LinkEED)	2001-15
United Kingdom	Annual Survey of Hours and Earnings (ASHE)	Mandatory employer survey	1% random sample of national insurance records	Yes	Yes	Occupation	Yes (but currently not available in LinkEED)	1997-2019
United States	Longitudinal Business Database (LBD)	Business Register, Economic Census and other surveys	Universe	Only firms, not workers	No	No	No	1976-2015

Annex 4.C. Additional material

Wage inequality developments

Annex Figure 4.C.1. Total log wage variance, all years and countries



Note: This graph shows the variance of log real wages for each country and year in the data used for this paper, for 20 OECD member and accession countries. Countries are identified by the ISO-3 codes: Austria (AUT), Canada (CAN), Costa Rica (CRI), Denmark (DNK), Estonia (EST), Finland (FIN), France (FRA), Germany (DEU), Hungary (HUN), Italy (ITA), Japan (JPN), Netherlands (NLD), Norway (NOR), New Zealand (NZL), Portugal (PRT), Slovak Republic (SVK), Spain (ESP), Sweden (SWE), United Kingdom (GBR) and the United States (USA). The data for the USA are based on Barth et al. (2016[20]), "It's Where You Work: Increases in the Dispersion of Earnings across Establishments and Individuals in the United States", https://doi.org/10.1086/684045.

StatLink https://stat.link/m0ywgz

Controlling for unobserved worker characteristics

When estimating the firm wage premia only the observed workers' characteristics are controlled for. However, workers might also sort between firms based on unobserved characteristics resulting in a correlation between firm fixed effect and the omitted variable. If that is the case, the firm wage premia estimated with Equation 4.2 will suffer from an omitted variable bias and partly reflect the average unobserved characteristics of firm's workforce. In our sample of countries, the bias is expected to be bigger in countries with no information on occupation and education. Still, ultimately, the quantitative importance of the bias and its effect on the variance of firm wage premia presented in this paper is an empirical question.

As a robustness check, this annex present, for a subset of countries, the results from an alternative worker-firm model which controls for the unobserved time-invariant characteristics of workers (Abowd, Kramarz and Margolis, 1999[21]):

$$w_{ij} = x_{ij}\beta + \gamma_j + \delta_i + \varepsilon_{ij}$$

Equation 4.8

where w_{ij} denotes the logarithmic wage of worker *i* in firm *j*; x_{ij} denotes a vector of time-varying observable worker characteristics (e.g. age, part-time); β denotes the estimated return to these characteristics; γ_j denotes estimated firm fixed effects; δ_i denotes worker fixed effects and ε_{ij} denotes the error term. This equation is estimated by block of 4 to 5 years for each country. Since it can only be estimated on the subset of observations included in the connected set of firms, the results presented in the main chapter and the annex rely on somewhat different samples.

Controlling for the unobserved characteristics of workers reduces the estimated variance associated with firm wage premia (Annex Table 4.C.1, Panel A), and particularly so in countries for which no information on education or occupation is available (Annex Table 4.C.1, Panel B). As expected, for the two sets of countries, the variance of firm wage premia is reduced in absolute terms and relative to both the total wage variance and the variance between firms. In countries where the information on education or occupation is available, the variance of the firm wage premia is almost 30% lower. In comparison, it is reduced by more than 45% in countries lacking the information. Altogether, the results show that although the firm's direct role in explaining wage inequality is reduced when controlling for workers' unobserved characteristics, it remains sizeable. Furthermore, this reduction is entirely offset by an increase in the sorting of workers across firms offering high wage premia (assortative matching), pointing to the indirect role of firms in wage inequalities between firm.

Annex Table 4.C.1. The role of unobserved worker characteristics in firm wage premia dispersion

		Specification	
		1 – Barth et al.	2 – AKM
A. Countries with education and/or occupation information			
PRT	a – Total wage variance	0.260	0.260
	b – Between-firm wage variance	0.130	0.140
	c – Firm wage premia variance	0.080	0.050
	c/a	33%	21%
	c/b	64%	39%
FRA	a – Total wage variance	0.190	0.220
	b – Between-firm wage variance	0.070	0.110
	c – Firm wage premia variance	0.040	0.020
	c/a	22%	10%
	c/b	57%	20%
ITA	a – Total wage variance	0.230	0.250
	b – Between-firm wage variance	0.145	0.160
	c – Firm wage premia variance	0.076	0.070
	c/a	33%	28%
	c/b	52%	45%
Average	a – Total wage variance	0.227	0.243
	b – Between-firm wage variance	0.115	0.137
	c – Firm wage premia variance	0.065	0.047
	c/a	29%	20%
	c/b	58%	35%
B. Countries with no education or occupation information			
EST	a – Total wage variance	0.290	0.290
	b – Between-firm wage variance	0.157	0.150
	c – Firm wage premia variance	0.150	0.090
	c/a	52%	30%
	c/b	96%	60%
AUT	a – Total wage variance	0.126	0.120
	b – Between-firm wage variance	0.059	0.060
	c – Firm wage premia variance	0.055	0.020
	c/a	44%	13%
	c/b	94%	30%
Average	a – Total wage variance	0.208	0.205
	b – Between-firm wage variance	0.108	0.105
	c – Firm wage premia variance	0.103	0.055
	c/a	48%	22%
	c/b	95%	45%

Note: This table shows estimates of firm wage premia using two alternative estimation procedures (Barth et al. and AKM).
In column (1 – Barth et al.), the variance of firm wage premia is computed using the firm fixed effects recovered from the estimation of Equation 4.2, in which the log wage is regressed on observed worker characteristics and firm fixed effects using the full sample of observations. In column (2 – AKM), the variance of firm wage premia using the firm fixed effects recovered from the estimation of Equation 4.8, in which log wage is regressed on time-varying worker characteristics, worker fixed effects and firm fixed effects using the connected set. The variances are computed for the last year of available data in each of the countries.

Regression results on firm-level productivity-wage pass-through and the role of job mobility and wage-setting institutions

Annex Table 4.C.2. Productivity pass through – Robustness

Based on Equation 4.7,1995-2015

	Dependent Variable: Var(Firm Wage Premia)							
Model:	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	OLS	OLS	OLS	OLS	IV-2SLS	OLS	OLS	OLS
Var(Firm Productivity)	0.06***	0.06***	0.05***	0.07***	0.05***	0.08***	0.01	0.01
	(0.01)	(0.01)	(0.01)	(0.02)	(0.01)	(0.01)	(0.01)	(0.01)
Var(Prod) x High rate of industry job-to-job transitions	-0.06***	-0.06**	-0.04***	-0.07***	-0.04***			-0.02**
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)			(0.01)
Var(Prod) x Unemployment rate		-0.33**						
		(0.16)						
Var(Prod) x Employment rate			-0.33***					
			(0.09)					
Var(Prod) x Decentralised collective bargaining country							0.07***	0.07***
							(0.02)	(0.01)
Var(Prod) x High minimum wage relative to median wage						-0.05***	-0.01	
						(0.02)	(0.01)	
Country fixed effects	YES	YES	YES			YES	YES	YES
Industry fixed effects	YES	YES	YES			YES	YES	YES
Year fixed effects	YES	YES	YES			YES	YES	YES
Country-year fixed effects				YES	YES			
Sector-year fixed effects				YES	YES			
Non-interacted determinant	YES	YES	YES	YES	YES	YES	YES	YES
Observations	2 823	2 823	2 823	2 823	2 823	2 823	2 823	2 823
Adjusted R^2	0.72	0.74	0.74	0.74	0.78	0.78	0.80	0.81

Note: Variances of productivity and firm wage premia within each industry-country-year cell are weighted by employment of each firm. Productivity refers to value added per worker. Each regression is estimated by ordinary least squares and contains a full interaction with an indicator for any missing values on the independent variables. Standard errors clustered at the country-sector in parentheses. *, ** and ** denote statistical significance at the 10%, 5% and 1% levels. Following Equation 4.7, implied productivity pass-through can be calculated from these coefficients as $\sqrt{\tilde{\rho}}$ for the reference group, and $\sqrt{\tilde{\rho} + \gamma_1} - \sqrt{\tilde{\rho}}$ for the difference with respect to the reference group.

Notes

[1] This chapter builds on the OECD LinkEED project, which seeks to enhance our understanding of the role of policies in productivity and inequality using linked employer-employee data. It is a joint initiative between the Directorate for Employment Labour and Social Affairs (ELS), the Directorate for Science, Technology and Innovation (STI) and the Economics Department (ECO). The chapter provides an overview of the main findings of the OECD report *The Role of Firms in Wage Inequality: Policy Lessons from a Large Scale Cross-Country Study* that was published in December 2021 (OECD, 2021[22]). The chapter has benefited from contributions by: Erling Barth (Institute for Social Research Oslo, Norway), Antoine Bertheau (University of Copenhagen, Denmark), Wen-Hao Chen (Statcan, Canada), Richard Fabling (independent, New Zealand), Priscilla Fialho (OECD, Portugal), Katarzyna Grabska-Romagosa (Maastricht University, Netherlands),, Ryo Kambayashi (Hitotsubashi University, Japan), Valerie Lankester and Catalina Sandoval (Central Bank of Costa Rica, COSTA RICA), Balázs Murakőzy (University of Liverpool, HUNGARY), Andrei Gorshkov and Oskar Nordström Skans (Uppsala University, SWEDEN), Satu Nurmi (Statistics Finland/VATT, Finland), Vladimir Peciar (Ministry of Finance, SLOVAK REPUBLIC), Agnes Puymoyen (OECD), Duncan Roth (IAB, Germany), Nathalie Scholl (OECD), Richard Upward (University of Nottingham, United Kingdom) and Wouter Zwysen (European Trade Union Institute, formerly OECD).

[2] It is not easy to determine what level of wage inequality should be deemed acceptable or excessive. A recent OECD report (OECD, 2021[58]) suggests that a growing share of people is concerned about the level of earnings. However, there is considerable disagreement about what policy makers should do about it.

[3] These welfare effects come on top of the potential negative effects of limited job mobility on wages and employment under unilateral wage-setting as analysed in Chapter 3. For a graphic discussion of the role of firm performance and wage-setting power in employment, wages and wage dispersion in a static monopsony model based on Card et al. (2018[28]), see Annex 4.A.

[4] As a robustness check, Annex 4.C further augments the human capital earnings equation by including worker in addition to firm fixed effects (Abowd, Kramarz and Margolis, 1999[21]). This controls for unobserved factors such as talent or ability.

[5] A significant relationship between wage premia and productivity at the firm-level suggests that firms wage premia do not merely reflect compensating differentials related to differences in non-wage working conditions, but are also used as a wage signal by firms to attract workers in a frictional labour market.

[6] Since job mobility is likely to be endogenous with respect to wage premia dispersion, an instrumental variable approach is employed in an effort to address this issue in one of the specifications.

[7] More precisely, the distinction between the two broad families of collective bargaining systems is based on the OECD taxonomy of collective bargaining systems which consists of three main building blocks (OECD, 2019[19]): i) the level of bargaining at which collective agreements are negotiated (e.g. firm level, sector level or even national level); ii) the role of wage co-ordination between sector-level (or firm-level) agreements to take account of macroeconomic conditions; iii) the degree of flexibility for firms to modify the terms set by higher-level agreements.

[8] To overcome confidentiality issues that limit direct data access in many countries, the analysis in this chapter is partly based on a “distributed microdata” approach that relies on a network of partners based in participating countries who provide relevant aggregations of individual-level data using a harmonised statistical code.

[9] In Costa Rica, Hungary, Japan, Norway and the Slovak Republic, the sample period is significantly shorter than two decades, implying that overall changes in wage inequality may not be directly comparable across all countries.

[10] Note that these estimates reflect an upper bound on the importance of firm wage premia dispersion for overall wage dispersion because of the role of unobserved differences in worker composition. Controlling for unobserved worker differences reduces the role of wage premia dispersion for overall wage inequality but does not affect the main insight that firms shape wage inequality developments to an important extent (see Annex 4.C). Wage premia dispersion is reduced by about a third in countries with information on the education/occupation and somewhat more in countries where such information is not available. The overall between-firm component of wage dispersion is largely unchanged as the reduction in firm wage premia dispersion is now reflect for a greater role of sorting across firms (worker composition).

[11] Since many of the studies reviewed in Card et al. (2018[28]) control for the role of unobservable worker characteristics through the inclusion of worker fixed effects, it is unlikely that the present results would change much when accounting for this in the estimation of wage premia. Yet, one would expect the present results to slightly overestimate the link between productivity and wage premia due to the tendency of more productive firms to employ workers who with higher unobservable skills.

[12] Moreover, the difference in wage premia dispersion between high-mobility and low-mobility countries tends to be particularly pronounced where productivity dispersion is high. Consequently, raising job mobility can play an important role in reducing wage inequality, especially where productivity dispersion is high (e.g. Germany, Hungary, Portugal).

[13] The average annual rate of job-to-job transitions is about 5.8% when job mobility is low (roughly corresponding to the value for Greece), while it is around 10% when job mobility is high (roughly corresponding to the value for Sweden).

[14] For a number of additional robustness tests, see OECD (2021[22]).

[15] The associations are effectively based on comparisons of the average degree of productivity pass-through within sectors across groups of countries with different collective bargaining systems. Since collective bargaining systems tend to be deeply embedded in a countries' broader institutional set-up, it is difficult to isolate the impact of specific collective bargaining systems in the present framework.

[16] For the purposes of the econometric analysis underlying Figure 4.9, "centralised" and "organised decentralised" collective bargaining systems are grouped together. Centralised countries include France, Italy and Portugal; organised decentralised countries include Austria, Germany, the Netherlands, Norway and Sweden, and largely or fully decentralised countries include Canada, Costa Rica, Hungary, Japan and New Zealand.

[17] The use of minimum wages has also been justified based on arguments i) to promote work incentives by making work pay; ii) boost tax revenue and/or tax compliance by limiting the scope of wage under-reporting; and iii) anchoring wage bargaining.

[18] For example, this may be the case in local labour markets that are strongly concentrated. See Chapter 3 for details.

[19] Firm-level and aggregate labour elasticities are fundamentally different concepts. Firm-level elasticities capture the degree of competition between firms for workers (or opportunities of workers outside of the firm) whereas aggregate elasticities capture the decision to participate in the labour market.

[20] The inability or unwillingness of firms to price discriminate between workers implies that existing workers are paid the same wage as newly hired workers. This means that labour costs increase more quickly when expanding employment than is suggested by the labour supply curve. If firms could perfectly observe workers' reservation wages, the marginal cost of labour and the labour supply curve would coincide.

[21] The markdown of the wage below the marginal revenue product of labour (i.e. wages are "marked down") increases in proportion to the elasticity of labour supply to the firm. If firms could perfectly observe workers' reservation wages, equilibrium wages would be equal to the marginal revenue product of labour but, since marginal revenue products are not equalised across firms, wages would nonetheless be proportional to the firm's average productivity. In other words, firm-level productivity-wage pass-through does not hinge on the assumption of unobservable reservation wages and marked down wages, but on an upward-sloping labour supply curve.

5 Well-being, productivity and employment: Squaring the working time policy circle

Sandrine Cazes, Clara Krämer, Sebastien Martin and Chloé Touzet

Working time is both a key element of workers' lives and a production factor. Understanding how working time policy relates to well-being and economic outcomes is thus crucial to design measures balancing welfare and efficiency concerns. Evidence so far has largely focused on the use of maximum hours' regulation to prevent detrimental effects on workers' health, and the effect of normal hours reductions on employment levels. This chapter brings two new perspectives: first, it accounts for the fact that workers' well-being is an increasingly central societal objective of working time policies, and therefore considers well-being effects alongside productivity and employment effects. Second, it accounts for the use of flexible hours and the development of teleworking in the aftermath of the COVID-19 crisis and considers their impact on well-being, productivity and employment. Building on these analyses, the chapter discusses the potential of various working time policies to enhance non-material aspects of workers' well-being such as health, work-life balance and life satisfaction while preserving employment or productivity.

In Brief

Working time is a key component of people's working lives. Regulating its duration and its organisation is necessary to correct market failures leading to an inefficient allocation of working time and inadequate workers' protection and to prevent negative externalities linked to long hours or variable schedules. Further, working time regulation can help − and historically has helped − enhancing non-material aspects of workers' well-being. At the same time, working time being a production factor, policies affecting it will also impact employment, wages and productivity, and ultimately workers' material well-being. On that basis, this chapter discusses the potential of various working-time policies to enhance workers' well-being, while accounting for their possible effects on employment and productivity. Although data availability and heterogeneity across countries prevent generalisations, interesting insights emerge.

Working hours

- The empirical literature suggests a close relationship between working long hours and poor health outcomes (particularly when workers have little control on their work schedule), but offers less-clear-cut results for other aspects of workers' non-material well-being, such as life satisfaction. The literature moreover usually points to beneficial effects of reducing normal weekly hours on non-material aspects of workers' well-being, if the reduction does not result in higher work intensity.
- New empirical evidence for selected OECD countries confirms that working long hours (e.g. more than 45 hours per week) tends to be associated with a lower probability to report good health outcomes in the majority of selected countries. Yet, working a reduced amount of hours (e.g. less than 35-30 hours per week) is not necessarily associated with a higher probability to report good health outcomes across countries. In fact, an inverse U-shape pattern emerges in Australia, Switzerland, the United Kingdom and pooled European data, where working less than 35-30 hours is also associated with lower health outcomes. By contrast, the relationship between working hours and other non-material well-being outcomes is generally linear, e.g. working long hours decreases the probability that a worker is satisfied with her life, job, and free time, while working a reduced amount of hours increases these probabilities, except for France.

These results suggest that besides regulating maximum hours and overtime, a reduction of normal hours may also be considered as a possible lever of working time policy to enhance workers' non-material well-being under certain conditions. In particular, such reductions in normal hours should be considered taking into account their potential impact on employment and productivity. To shed light on this, the chapter next analyses the effects of **legislative reforms reducing normal hours** on employment and productivity in European countries, as well as the relationship between episodes of **reductions of contractual hours at firm level** observed in the data and the growth in employment, average wage and productivity in Germany, Korea and Portugal.

- Results from the analysis of **legislative reforms** implemented in Belgium, Italy, France, Portugal and Slovenia between 1995 and 2007 reveal a significant reduction of average yearly working hours for those who were affected by the reform, but no significant effects on employment, and similar −yet still insignificant effects− on wages and productivity. The absence of significant effect on employment may at least in part stem from heterogeneous effects cancelling each other at the aggregate level. Importantly, these reforms took place with constant monthly wages, thus leading to higher hourly wages, but they did not systematically include compensatory measures (such as e.g. public subsidies) for firms to limit possible adverse impacts of rising labour costs.

- Firm-level analyses of the relationship between observed **contractual hours reductions** and economic outcomes in Germany, Korea and Portugal − point to contrasted results, but suggest that virtuous circles might exist in some instances, whereby the reduction in hours generates a productivity increase that limits the rise of unit labour cost and therefore prevents the potentially negative effect on employment growth. Understanding why such virtuous circles manifest in some cases and not in others should be investigated in future research, but could be explained by national differences in the institutional context of the decision-making process, notably well-functioning collective bargaining and strong social dialogue.

These two empirical approaches assess two different types of hours reduction. The first one looks at the employment and productivity effects of national legislative reforms generally applying to all firms and sectors and widely anticipated by employers. The second one focuses on contractual hours reductions at firm-level that might result from legislative reforms, collective bargaining or unilateral decisions from employers. Yet, despite their differences, the results emerging from these approaches are consistent and aligned with the majority of the existing literature. Reducing working hours (at constant monthly wage) might preserve employment on average if the impact on unit labour cost remains limited (either due to sufficient induced productivity gains or to public subsidies to affected firms/sectors). These results may also arise if the reduction of hours takes place in a pre-existing situation of labour market monopsony (where the existence of a profit rent means that firms can absorb higher labour costs, see Chapter 3).

Outside the case of firms enjoying monopsony power, the results of this chapter point to the need to fully factor in the possible impact on unit labour costs when considering reductions of normal hours. This could be done through dedicated accompanying measures, or by designing the reduction so that it taps into the productivity-enhancing potential of the reform. Careful attention should also be devoted to the timing, conditions of implementation and scope of the reduction which are all likely to influence the effect of the reduction.

Flexible hours and teleworking

- Workers' ability to work **flexible hours**, i.e. to autonomously decide their starting and finishing times, is associated with better non-material well-being for all outcomes considered – both in the literature and in new individual-level evidence available for Australia, Germany, Korea, Switzerland and the United Kingdom (although to varying degrees between countries). The literature to date also points to positive associations with employment, wages and productivity. New evidence on German firms adopting flexible hours suggests that this arrangement might indeed boost employment without significantly affecting productivity per worker. Firms choosing flexible hours also see a decrease in average wage growth – suggesting a possible trade-off between wage increases and higher autonomy in determining hours.
- In contrast to flexible hours, the link between **teleworking** and workers' non-material well-being varies for different outcomes and across countries – both in the literature and in the new empirical evidence presented for Australia, Switzerland and in the United Kingdom. Empirical results show a negative association with self-assessed health, positive associations with life- and job satisfaction and contrasting associations with work-life balance, which is particularly high for teleworkers in Australia, but very low for teleworkers in Switzerland. As for productivity and employment, associations with teleworking in the empirical literature to date are generally positive, especially in terms of attracting and retaining workers, as well as increasing female labour force attachment.

Introduction

Working time is a defining aspect of working lives.[1] How many hours workers spend at work, how their working hours are scheduled, and how much control they have over them can affect their physical and mental health, work-life balance, job satisfaction and performance. More generally, working time directly affects workers' allocation of time between work and other activities, such as leisure, which itself is likely to influence their life satisfaction. At the same time, working time is a key production factor that can affect economic outcomes such as employment, productivity and wages, which in turn impact workers' material well-being. Therefore, understanding how working time policy relates to workers' well-being and economic outcomes is crucial to identify and carefully design measures balancing welfare and efficiency concerns.

Regulating working time duration and organisation is necessary to correct possible market failures (due e.g. to asymmetry in market power between workers and employers) leading to an inefficient allocation of working time and an inadequate protection of workers' health and work-life balance, and to prevent negative externalities linked to excessive working hours or variable schedules. Historically, it has also helped enhancing several aspects of workers' well-being, notably through regulations reducing working time. Yet, this historical trend towards shorter working hours which has been accompanied by productivity gains and could be traced back to the 19th century in most OECD countries has considerably slowed down – if not almost halted in a number of countries (OECD, 2021[1]). While working time is regulated at various levels across OECD countries, statutory regulations on working time have the most effect on actual working time in OECD countries, even where derogations at lower levels of governance are possible (OECD, 2021[1]).

Policy makers interested in using working time measures as a lever to influence workers' well-being outcomes have several tools at their disposal: they can regulate the maximum number of hours that a worker can legally work in a given period of time and define a premium wage for overtime work; they can regulate the number of normal hours regarded as representing a full-time job; they can allow for greater flexibility in working time arrangements and provide or modify incentives for using various working time arrangements – see OECD (2021[1]). The pros and cons attached to each of these tools, and how they might affect workers' well-being as well as employment, wages and productivity need to be factored in when designing working time policy.

Policy debates and related empirical evidence on working time policy so far have generally focused on the regulation of maximum hours to prevent any detrimental effects on workers' health, and on the reduction of normal weekly hours, with a view to increasing employment. This chapter brings in two new perspectives: first it accounts for the fact that workers' well-being is an increasingly central societal objective of working time policies, and therefore considers well-being effects alongside productivity and employment effects. In particular, in line with the OECD well-being framework, it distinguishes material aspects (earnings, job status, etc.) and non-material aspects (health, work-life balance, life satisfaction, etc.) of workers' well-being (OECD, 2015[2]). Second, it accounts for the use of flexible hours and the development of teleworking, given its prevalence and relevance in the aftermath of the COVID-19 crisis, and considers the impact of these schemes on non-material well-being, productivity and employment. Identifying virtuous circles between welfare and efficiency objectives could help square the working time policy circle.

The chapter starts by exploring the relationship between working time (maximum and normal hours, part-time, flexible hours, and teleworking[2]) and a set of selected measures of non-material well-being, namely health status (both mental and physical), work-life balance and life and job-satisfaction. Drawing on a combination of literature reviews and on analyses of individual-level data, it first investigates how hours worked, flexible hours arrangements, part-time work and teleworking relate to the above-mentioned non-material well-being outcomes, to identify potential levers of well-being enhancement (Section 5.1). As results suggest that reducing normal weekly hours and fostering the use

of flexible hours and teleworking might in some circumstances lead to well-being gains, the chapter next turns to analysing the impact of these policies on employment, wages and productivity (Section 5.2). To shed some light on these key issues, Section 5.2 next analyses the effects of national legislative reforms that reduced normal weekly hours on employment and productivity in various European countries, before studying the relationship between concrete episodes of reductions of contractual hours at firm level and the growth of productivity, average wage and employment, in Germany, Korea and Portugal where data are available. Finally, the chapter concludes by bringing together all the results and discussing policy options while outlining the importance of timing, scope and careful design and implementation.

5.1. Working time and workers' non-material well-being

The amount of time spent at work, how hours are scheduled and the relative flexibility workers have in determining these schedules – see OECD (2021[1]) – have direct implications for several outcomes of workers' non-material well-being, such as health status, work-life balance and life and job satisfaction. Working time policy might be able to improve these outcomes. Drawing on a mix of literature reviews and new analyses using individual-level data in OECD countries, this section explores the relationship between working hours (both normal hours and overtime), flexible hours, part-time work and teleworking and a set of non-material well-being measures (health status, work-life balance and job- and life satisfaction), to identify possible levers of well-being gains.

5.1.1. How do working hours relate to workers' non-material well-being?

The relationship between time spent working and workers' well-being (both material and non-material) has initially been investigated in the epidemiology and occupational health literature that assesses the effects of working long hours[3] on both mental and physical health (Beswick and White, 2003[3]; Sparks et al., 1997[4]). This literature is plagued by the identification problem known as "the healthy worker effect" – a problem of reverse causality when assessing the impact of working time on health, since healthy workers are more likely to be in employment and to be able to work long hours than unhealthy ones – and by the difficulty of dealing with unobserved confounding factors.[4] Nonetheless results usually suggest a close relationship between long hours and poor health outcomes. Working long hours and overtime are associated with unhealthy behaviours, such as alcohol consumption, smoking and lack of exercise (Ahn, 2016[5]). Long hours are also directly related to poor physical health outcomes, such as cardiovascular diseases or stroke (Kivimäki et al., 2015[6]) and considered as one of the major risk factors for workplace accidents (Dembe, 2005[7]; Vegso et al., 2007[8]). Beyond physical health and workers' safety, long working hours are also associated with stress, depression, and suicidal ideation in young Korean employees (Park et al., 2020[9]) and also more generally with negatively impacted cognitive functions (Virtanen et al., 2008[10]). Research has also explored the relationship between long hours and other well-being outcomes, such as life satisfaction, and found less clear-cut results. Hamermesh at al. (2017[11]) find for instance beneficial effects of overtime reduction on workers' life satisfaction in Japan and Korea; but other studies find that long hours are not necessarily related to lower well-being outcomes, notably for men or fathers (Hewlett and Luce, 2006[12]; Gray et al., 2004[13]). On the other side of the hour spectrum, working a low number of hours also has an impact on workers' well-being, mainly because it results in insufficient earnings – see for example Friedland and Price (2003[14]) and Heyes and Tomlinson (2021[15]). This idea is also mentioned in the literature on involuntary part-time work, which is further discussed in the next section on working time arrangements.

Beyond the negative well-being impacts of both long and insufficient working hours, authors have also explored the relationship between a reduction of normal weekly working hours and well-being outcomes. While results vary by outcomes considered, the scope of the hours reduction and the extent to which wages are adjusted, studies find that reducing hours tend to positively affect non-material well-being.

Lee and Lee (2016[16]) exploit a quasi-natural experiment in Korea, where normal hours were reduced gradually from 44 to 40 hours at different times by industry and establishment size between 2004 and 2011, and find that on average a one-hour reduction in normal weekly working hours in Korea significantly decreases the injury rate by about 8%. Berniel and Bietenbeck (2020[17]) provide causal evidence on smoking reduction and lower body mass index for France in the context of the reduction of the 35 hours reform. Lepinteur (2019[18]) shows beneficial effects of normal hours reduction on job and leisure satisfaction of workers in France and Portugal, especially for women and workers with heavy family burden. However, other studies point to less clear effects on well-being should the working time reduction result in a higher time pressure on workers (Askenazy, 2004[19]). Rudolf (2013[20]) finds for instance that a reduction of normal hours in Korea did not have the expected positive impact on workers' job and life satisfaction and suggests that the reduction in hours was offset by greater work intensity.

Further, other factors beyond work intensity are found to interact in the relationship between working time and workers' non-material well-being, including workers' control of their schedules and the mismatch between their desired and actual working hours. The extent to which workers can choose or control the number of hours they work is key in determining how detrimental long hours might be for their health (Bassanini and Caroli, 2015[21]; Bell, Otterbach and Sousa-Poza, 2012[22]; Burke et al., 2009[23]; Caruso et al., 2006[24]; Frijters, Johnston and Meng, 2009[25]). Salo et al. (2014[26]) for instance find that for those working 40 hours a week, less control over working time is associated with greater sleep disturbances in Finland (while sleep disturbances were high irrespective of the degree of workers' control for those working longer hours). Looking then at the link between working hours mismatch (i.e. the difference between workers' preferred working hours and their actual hours) and job satisfaction, Grund and Tilkes (2021[27]) find a negative link between working time mismatch and a positive − moderating − link between working time autonomy and job satisfaction in Germany. Moreover, Holly and Mohnen (2012[28]) find that the desire to reduce hours has a negative impact on satisfaction although if overtime is appropriately compensated, satisfaction rises and working time mismatch decreases.

In order to shed further light on the results of this literature review, Figure 5.1 and Figure 5.2 present new OECD empirical evidence exploring the relationship between actual weekly hours in the main job and several measures of workers' non-material well-being, namely self-assessed health outcomes, life and job satisfaction and satisfaction with free time (as a proxy for work-life balance). Pooled results for European countries are based on European Social Survey (ESS) data, while results for Australia, France, Germany, Japan, Korea, Switzerland and the United Kingdom draw on country-specific, individual-level panel data. Results presented in the figures correspond to the marginal effect of working *less* (or more) than a particular threshold, compared to those working *more* (or less) than this threshold: for instance, the left light blue bar in the first graph in Figure 5.1 corresponds to the difference in likelihood (in percentage) of being satisfied with one's health when working less than 20 hours per week, compared to when working more than 20 hours per week in European countries represented in the ESS data.

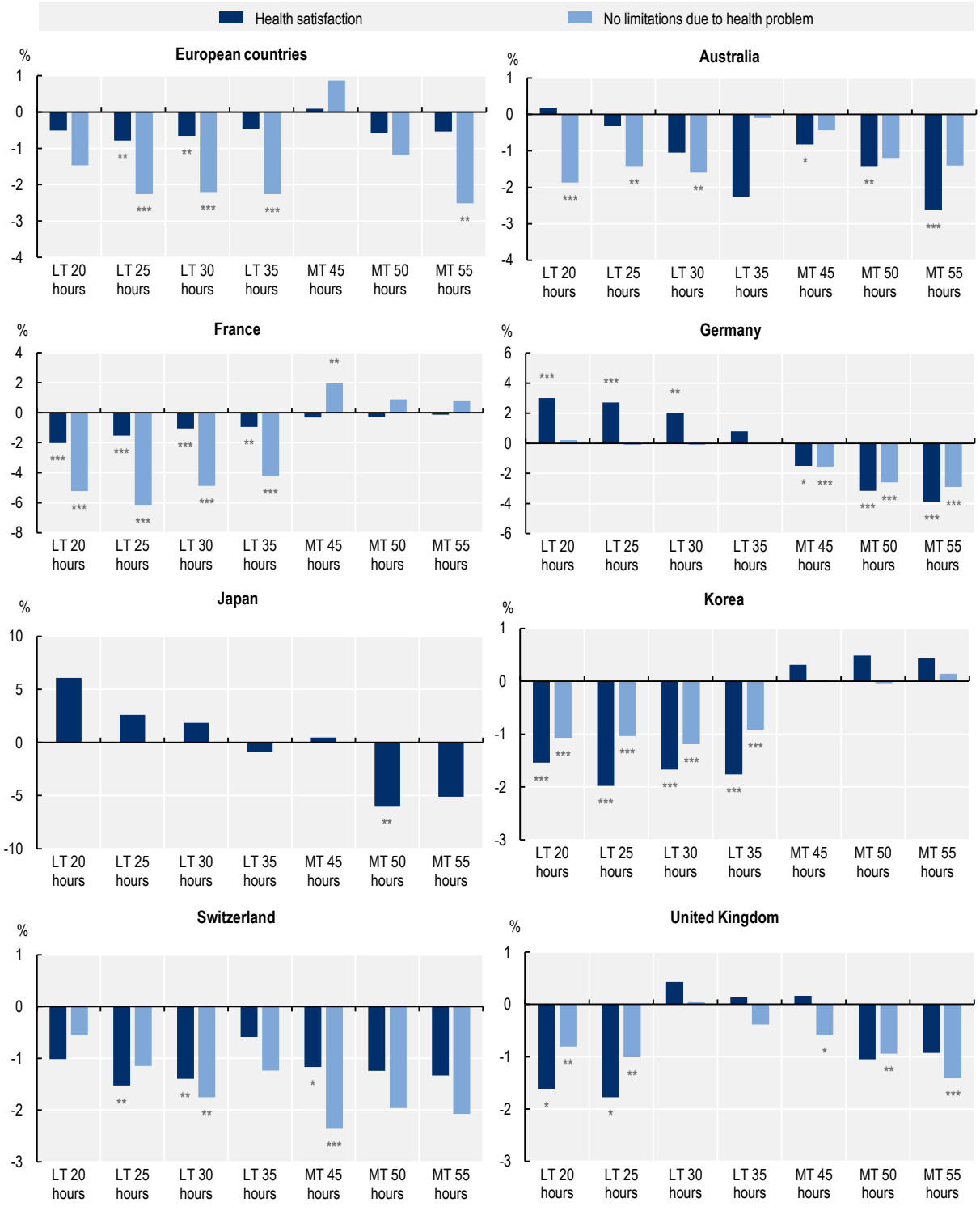
In terms of workers' health, (Figure 5.1), results generally confirm the negative relationship found in the literature between working long hours and poor health outcomes in the majority of selected countries. Working more than 45 hours reduces one's probability to be satisfied with one's health in Australia, Germany, Switzerland and Japan (for those working more than 50 hours). Those working more than 45 hours are also less likely to report facing no limitations in their work due to health problems in Germany, Switzerland, the United Kingdom, and countries covered by the ESS data (for those working more than 55 hours). At the same time, there is no significant effect of working long hours on workers' health when it is measured by health satisfaction in the ESS data, France, Korea and the United Kingdom, or by health-related limitations in Australia and Korea. Surprisingly, working more than 45 hours even increases the probability of reporting no health-related limitations in France – which might be due to the self-selection issues discussed in note 4, survey biases, or cultural differences affecting subjective well-being survey items differently in different countries.

The relationship with health outcomes is however less clear-cut on the other side of the hours spectrum, and working a short amount of hours (starting from less than 35 hours in some cases) is not associated with a linear improvement of workers' health across countries. The probability to be satisfied with one's health is higher for those working less than 30, 25 or 20 hours in Germany, compared to those working more than these thresholds. Health satisfaction is not significantly related to any of the short hours' threshold in Australia. By contrast, the probability to be satisfied with one's health is lower for those working less than 25 hours in France and Korea, 30 hours in the ESS data and Switzerland and less than 25 hours in the United Kingdom, compared to those working more than these respective thresholds. Similarly, workers doing less than 35 hours a week in the ESS data and France, 30 hours a week in Australia and Switzerland and less than 25 hours a week in the United Kingdom are less likely to declare facing no health-related limitations, compared to those working more than these respective thresholds (while the relationship is not significant in Germany). Of course, these results at the bottom of the hours distribution could be due to some form of healthy worker effect: workers in poor health may be more likely to work fewer hours.

Overall, these findings primarily emphasise heterogeneity across OECD countries. Yet they also confirm the existence of a link between long hours and poor health outcomes in the majority of the selected countries. In addition, they reveal that health outcomes are not linearly related to hours, and not always improving for those working shorter hours. Rather, an inverted U-shaped pattern emerges in some countries (ESS data, Australia, Switzerland and the United Kingdom) when considering health outcomes, with a lower likelihood to be satisfied with one's health, and to declare no health-related limitations at both ends of the spectrum.

Figure 5.1. Self-assessed health by working hours thresholds in selected OECD countries

Marginal effects (in percentage) of actual weekly hours worked in main job (employees aged 15-64), 2000s-2010s



Note: Marginal effects (at the mean) are derived from individual probit regressions (i.e. regression of an individual's actual hours worked, measured as a dummy variable capturing whether the individual is in a particular hours bracket, on this individual's self-assessed health outcome). Regressions are estimated using repeated cross-section data with robust standard errors and controlling for year fixed effects, demographic characteristics, household composition and income, job characteristics (including contract duration) and life events. Categories of actual hours worked shown in this chart refer to dummy variables defined using an increasing threshold of actual hours worked, from 20 hours to 55 hours. Health satisfaction is also coded as a dummy variable; employees are considered satisfied with their health if their answer to the health satisfaction question is between 6 and 10 on a scale from 0 "not at all satisfied" to 10 "completely satisfied". For the "European countries" (Panel A) France and Korea, health satisfaction refers to employees assessing that they are in good or very health condition. There are no data on limitations due to health problems for Japan. For further details on definitions of health satisfaction, limitations due to health problems and regression specifications by country, see Annex 5.A. "European countries" (Panel A) refers to pooled data of 24 countries: Austria, Belgium, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Hungary, Iceland, Ireland, Israel, Italy, Lithuania, Netherlands, Norway, Poland, Portugal, the Slovak Republic, Slovenia, Spain, Sweden, Switzerland and the United Kingdom. ***, **, *: statistically significant at the 1%, 5% and 10%, respectively. LT: Less than; MT: More than.

Reading example: In Australia, employees working more than 55 hours per week are expected to be 2.6% less likely satisfied by their health compared to those working 55 hours or less per week.

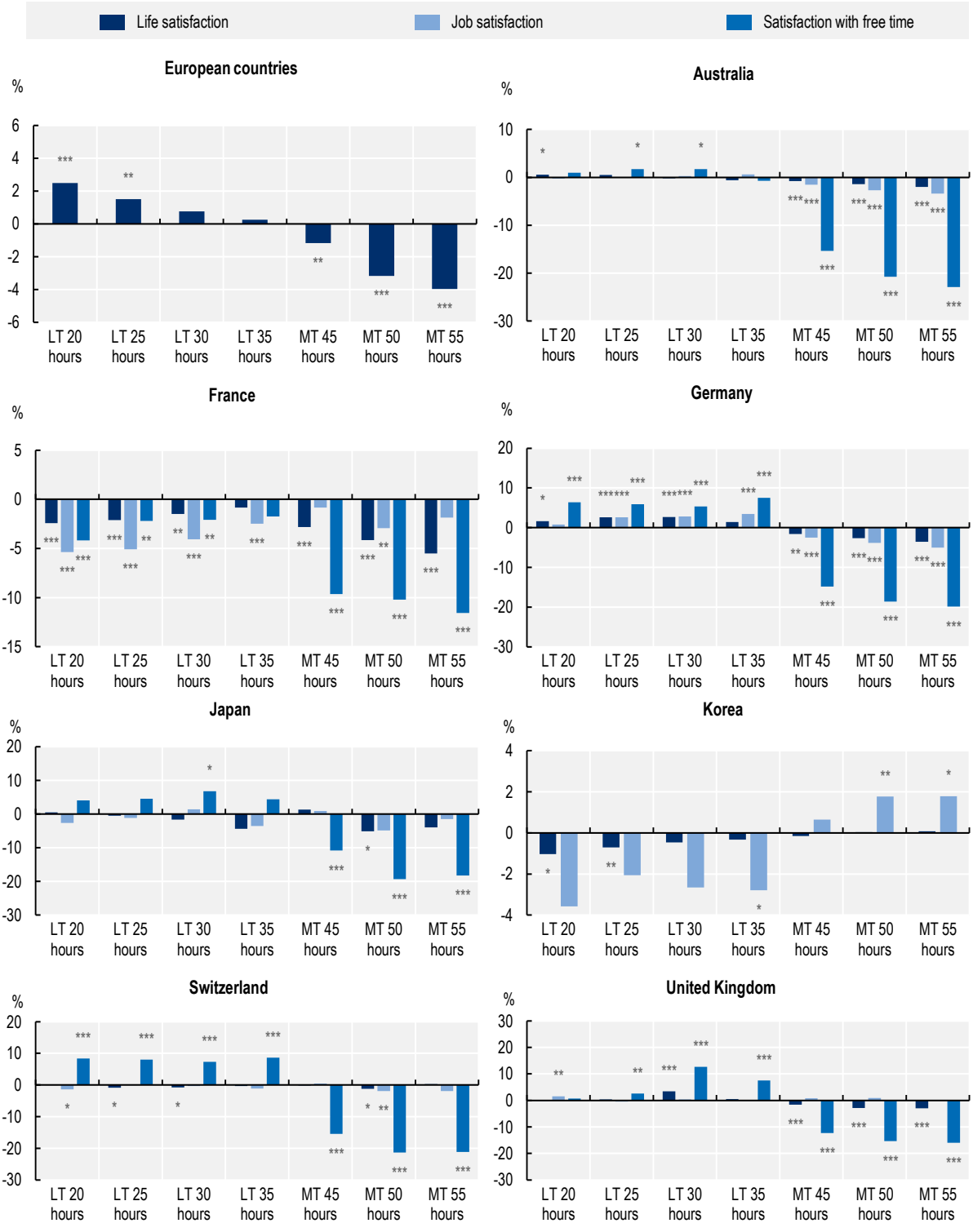
Source: OECD estimates based on the European Social Survey (ESS, 2010, 2012, 2014, 2016 and 2018) for the European countries; the Household, Income and Labour Dynamics in Australia (HILDA, 2005-19) for Australia; the enquête Statistiques sur les ressources et conditions de vie (SRCV, 2010-19) for France; the German Socio-Economic Panel (SOEP, 2002, 2004, 2006, 2008, 2010, 2012, 2014, 2016 and 2018) for Germany; the Japan Household Panel Survey (KHPS/JHPS, 2010-17) for Japan; the Korean Labor and Income Panel Study (KLIPS, 2005-19) for Korea; the Swiss Household Panel (SHP, 2004-19) for Switzerland; and University of Essex, Institute for Social and Economic Research, Understanding Society: Waves 2, 4, 6, 8 and 10 (2010, 2012, 2014, 2016 and 2018) for the United Kingdom.

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In terms of other non-material well-being outcomes, Figure 5.2 shows the marginal effect of working less than (or more than) particular thresholds on the likelihood of being satisfied with one's life, job, and free time, the latter as a proxy for work-life balance (effects on different outcomes are tested separately). Results are more linear than for health outcomes, with long hours reducing the probability to be satisfied with all three outcomes (e.g. job, life or free time), and short hours increasing these probabilities in most countries. In particular, the probability to be satisfied with one's free time is higher for those working less than 30 hours (in Australia and Japan) and less than 35 hours (in Germany, Switzerland and the United Kingdom), while it is lower for those working more than 45 hours (Australia, France, Germany, Japan, Switzerland and the United Kingdom). As for life-and job satisfaction, relationships generally follow a similar pattern but the marginal effects of working shorter hours are generally smaller and less significant. France is again an outlier in that regard, since the marginal effects of working shorter hours show a reverse pattern: the probability to be satisfied with one's job, life or free time is lower for those working less than 30 hours (and less than 35 for job satisfaction) compared to those working more than these thresholds.[5] Another outlier is Korea, where people working shorter hours have a lower probability to be life-satisfied, and those working long hours a higher probability to be job satisfied, which might again be due to cultural differences affecting subjective well-being survey items differently in different countries.

Figure 5.2. Life, job and free time satisfaction by working hours thresholds in OECD countries

Marginal effects (in percentage) of actual weekly hours worked in main job (employees aged 15-64), 2000s-2010s



Note: Marginal effects (at the mean) are derived from individual probit regressions (i.e. regression of an individual's actual hours worked, measured as a dummy variable capturing whether the individual is in a particular hours bracket, on this individual's satisfaction outcome). Regressions are estimated using repeated cross-section data with robust standard errors and controlling for year fixed effects, demographic characteristics, household composition and income, job characteristics (including contract duration) and life events. Categories of actual hours worked shown in this chart refer to dummy variables defined using an increasing threshold of actual hours worked, from 20 hours to 55 hours. Life satisfaction, job satisfaction and satisfaction with free time are also coded as dummy variables; employees are considered satisfied if their answer to the satisfaction question is between 6 and 10 on a scale from 0 "not at all satisfied" to 10 "completely satisfied". Satisfaction with free time refers to satisfaction with leisure for France. No data on satisfaction with free time for Korea and on job satisfaction and satisfaction with free time for the "European countries" (Panel A). For further details on definitions and regression specifications by country, see Annex 5.A. "European countries" (Panel A) refers to pooled data of 24 countries: Austria, Belgium, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Hungary, Iceland, Ireland, Israel, Italy, Lithuania, Netherlands, Norway, Poland, Portugal, the Slovak Republic, Slovenia, Spain, Sweden, Switzerland and the United Kingdom. ***, **, *: statistically significant at the 1%, 5% and 10%, respectively. LT: Less than; MT: More than.

Reading example: In Australia, employees working more than 55 hours per week are expected to be 22.9% less likely satisfied by their free time compared to those working 55 hours or less per week.

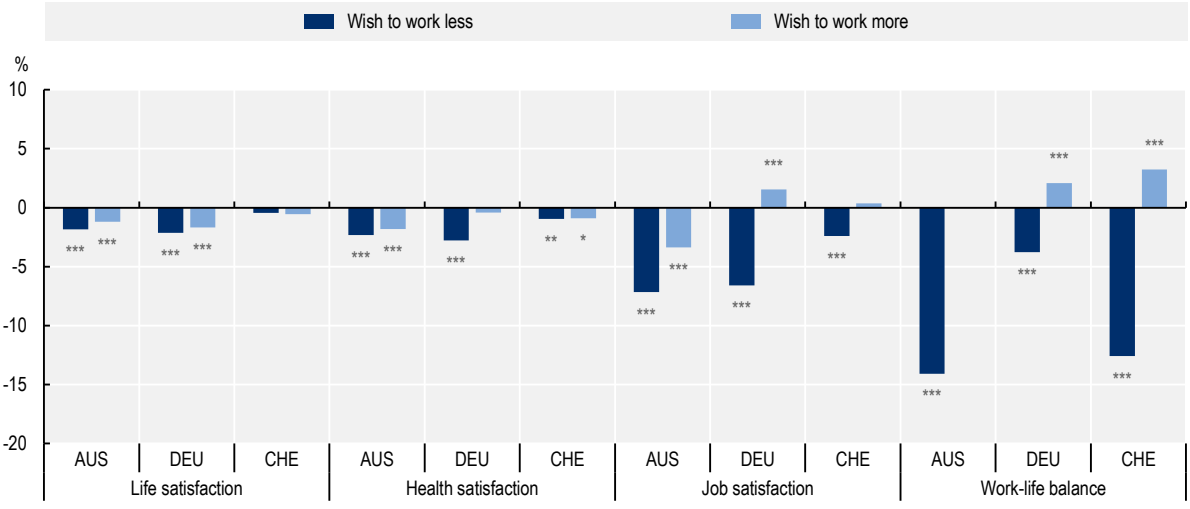
Source: OECD estimates based on the European Social Survey (ESS, 2010, 2012, 2014, 2016 and 2018) for the European countries; the Household, Income and Labour Dynamics in Australia (HILDA, 2005-19) for Australia; the enquête Statistiques sur les ressources et conditions de vie (SRCV, 2010-19) for France; the German Socio-Economic Panel (SOEP, 2002, 2004, 2006, 2008, 2010, 2012, 2014, 2016 and 2018) for Germany; the Japan Household Panel Survey (KHPS/JHPS, 2010-17) for Japan; the Korean Labor and Income Panel Study (KLIPS, 2005-19) for Korea; the Swiss Household Panel (SHP, 2004-19) for Switzerland; and University of Essex, Institute for Social and Economic Research, Understanding Society: Waves 2, 4, 6, 8 and 10 (2010, 2012, 2014, 2016 and 2018) for the United Kingdom.

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Finally and in line with the literature, OECD estimates available for Australia, Germany and Switzerland also reveal a significant negative relationship linking the mismatch between workers' preferred working time and their actual working time on the one hand, and the selected measures of non-material well-being on the other hand. Interestingly, this negative relationship is mostly driven by those wanting to work *less* rather than *more*: evidence shows that the marginal effects of working *more* hours than one would like to (excessive hours) are negative for all non-material well-being outcomes, while the marginal effects of working *less* hours than one would like to (insufficient hours) are also negative but smaller for life and health satisfaction, and are positive for job satisfaction and work-life balance (Figure 5.3). While the data for Australia and Germany in this analysis are based on a precise survey question that asks respondents their preference while stating that their income would be unaffected, this precision is missing for Switzerland. This might bias estimations downward for Switzerland compared to Australia and Germany, if most workers assume that working less would come with a pay cut. The limits inherent to a fixed effects regression analysis also apply, which calls for caution in causally interpreting the results, as the analysis cannot address selection effects, e.g. the fact that workers with different life- and health satisfaction might select into jobs with different normal hours.

Figure 5.3. Working time mismatch and non-material well-being in selected OECD countries

Marginal effects (in percentage), employees aged 15-64, 2000s-2010s



Note: Marginal effects (at the mean) are derived from individual probit regressions (i.e. regression of an individual's hours mismatch on this individual's satisfaction outcome). Regressions are estimated using repeated cross-section data with robust standard errors and controlling for year fixed effects, demographic characteristics, household composition and income, job characteristics (including contract duration) and life events. Hours mismatches are based on preferred weekly hours worked that employees wish to work taking into account that this change may affect their income. However, for Switzerland, the question asked does not explicitly take into account how income may be affected ("How many hours a week would you like to work as regards your main activity?"). Work-life balance refers to employees for which work as no or few impact on their family life. For Germany this indicator is based on satisfaction with housework. See Figure 5.1 and Figure 5.2 for a description of satisfaction outcomes shown in this Chart and Annex 5.A for further details on definitions and regression specifications by country. ***, **, *: statistically significant at the 1%, 5% and 10%, respectively.

Reading example: In Australia, employees wishing to work less than their usual hours are expected to be 1.8% less likely satisfied by their life compared to those wishing to work more or the same number of hours.

Source: OECD estimates based on the Household, Income and Labour Dynamics in Australia (HILDA, 2005-19) for Australia; the German Socio-Economic Panel (SOEP, 2002, 2004, 2006, 2008, 2010, 2012, 2014, 2016 and 2018) for Germany; and the Swiss Household Panel (SHP, 2004-19) for Switzerland.

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5.1.2. Flexible working time arrangements and workers' non-material well-being

In contrast, the literature generally[6] points to positive effects on non-material well-being of working time arrangements that provide *employee-oriented* flexibility, namely flexible hours (e.g. an arrangement whereby workers decide their starting and finishing times), teleworking and, to a lesser extent, part-time work – highlighting again the importance of workers' control over their schedules as an important factor for their well-being. The underlying mechanism is twofold: on the one hand, flexible working time arrangements help reconcile work with private life and, in the case of flexible hours and teleworking, also coping with job demands and increasing autonomy. Teleworking additionally reduces commuting time. On the other hand, flexible working time arrangements may increase work intensity, (unpaid) overtime hours and work-life conflict (Tucker and Folkard, 2012[29]; Hurtado et al., 2015[30]; Tavares, 2017[31]; Charalampous et al., 2019[32]; Samek Lodovici et al., 2021[33]). Which of these mechanisms outweighs the other likely differs between groups of workers and work contexts, but some patterns emerge from the – mainly correlational – empirical evidence to date.

Overall, the non-material well-being effects of flexible hours, tend to be largely positive − see for example the review by Tucker and Folkard (2012[29]). Moen et al. (2011[34]) for instance find that the introduction of flexible working hours in an experimental setting in the United States improved workers' health, because

it enabled them to get more and better sleep, reduced the postponement of doctors' appointments and increased the time workers spent on physical activity. Measures of life- and job satisfaction are also reportedly higher for workers with flexible hours in Europe and the United States (Atkinson and Hall, 2011[35]; Golden, Henly and Lambert, 2012[36]; De Menezes and Kelliher, 2017[37]; Angelici and Profeta, 2020[38]; Kröll and Nüesch, 2019[39]). At the same time, some studies report none or negative effects, mainly because they find that flexible hours are linked to increases in working hours, particularly for men (Lott and Chung, 2016[40]; Krug, Kemna and Hartosch, 2019[41]), and increases in work-life conflict, particularly for women (Kim et al., 2020[42]). Importantly however, such negative side effects may diminish when analysing flexible hours in connection with supporting policies such as parental leave (see for example, Wanger and Zapf (2021[43])).

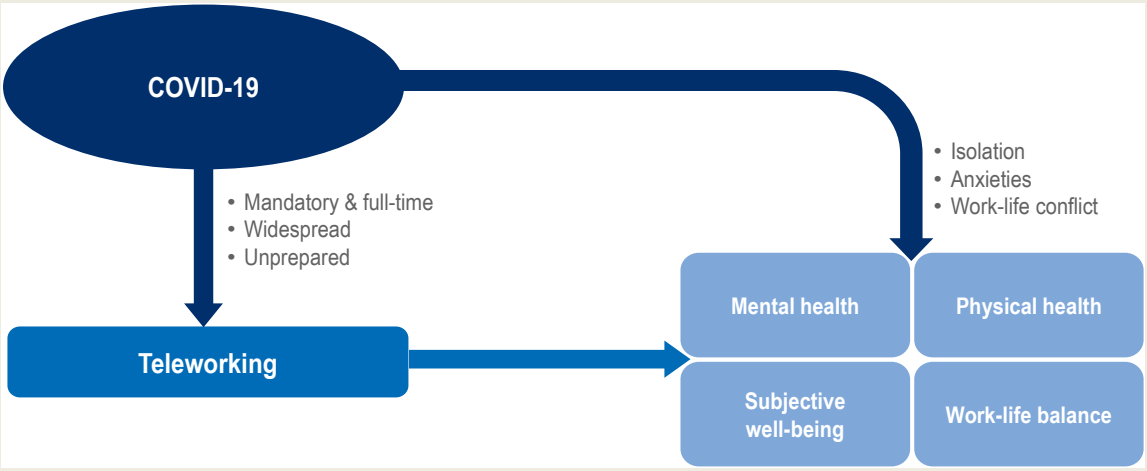
Contrary to flexible hours, the use of teleworking spread only recently because of COVID-19-induced lockdown measures in most OECD countries − for a detailed overview, see OECD (2021[1]) – but is often linked to flexible hours as a package deal. Since hybrid arrangements mixing teleworking and work in the office are likely to stay,[7] research increasingly investigates the effects of teleworking on well-being during the COVID-19 pandemic. Yet, drawing on resulting evidence would be ambivalent as a number of confounding factors are at play (see Box 5.1). Pre-pandemic evidence suggests that the impact of teleworking on workers' non-material well-being is generally positive but more mixed than for flexible hours − see for example the reviews by Tavares (2017[31]) and Charalampous et al. (2019[32]). Henke et al. (2016[44]) find for instance that teleworking improves a number of health outcomes in the United States, such as lower risks of obesity, alcohol abuse, physical inactivity, tobacco use and depression. Teleworking has also positive effects on work-life balance, but mainly if it is occasional and home-based (instead of highly mobile) (Kim et al., 2020[42]; Rodríguez-Modroño and López-Igual, 2021[45]; Pabilonia and Vernon, 2022[46]). This is because the resulting regularity mitigates some of the negative consequences of teleworking on work-life balance through increased working hours and intensity – as found for instance by Felstead and Henseke (2017[47]) and Song and Gao (2020[48]). The beneficial effects of teleworking also appear to be at least partially mediated by workers' attitude towards teleworking (Adamovic, 2022[49]) and perceived autonomy (Gajendran and Harrison, 2007[50]), which is found to decrease stress and buffer teleworking-induced increases in work intensification (Curzi, Pistoresi and Fabbri, 2020[51]). The moderating effect of autonomy on teleworkers' non-material well-being should be contrasted with the risks of new supervision mechanisms, for instance in the form of surveillance software, being deployed to compensate for the lack of physical supervision, and their possible adverse effect on privacy, autonomy and ultimately well-being.

In terms of commuting time, Frazis (2020[52]) and Pabilonia and Vernon (2022[46]) estimate that teleworking saves workers in the United States an hour to 75 minutes per day of commuting and grooming time, which they instead spend on leisure. While objective health measures (e.g. diagnosed health problems) are barely affected by commuting, subjective health measures (e.g. self-perceived health satisfaction and status) are clearly higher for those commuting less, particularly for women and those commuting by car (Künn-Nelen, 2016[53]). Giménez-Nadal et al. (2019[54]) find that the saving in commuting time also improves life satisfaction, but with larger increase for men than for women, one potential reason being that the former use their saved time primarily on leisure, while women also increase their household production on a workday (but not over the entire work week) – at least according to time-use data from the United States (Pabilonia and Vernon, 2022[46]). This is in line with findings from Arntz et al. (2019[55]) in Germany and Song and Gao (2020[48]) in the United States, who find positive and non-negative teleworking effects on life satisfaction only for men and women without children.

Box 5.1. Mixed effects of teleworking on well-being during the COVID-19 pandemic

The outbreak of the COVID-19 pandemic in spring 2020 led to a massive shift to teleworking, and an increasing number of studies make use of this exogenous shock to analyse the link between teleworking and workers' well-being. Yet, COVID-induced restrictions significantly affected both the experience of teleworking and workers' well-being, thus results from these studies cannot simply be extrapolated to post-pandemic teleworking arrangements. One important issue is that teleworking during COVID-19 was a forced experiment. Yet, pre-pandemic evidence suggests that teleworkers' well-being is higher in occasional and voluntary arrangements (Rodríguez-Modroño and López-Igual, 2021[45]; Adamovic, 2022[49]). Moreover, COVID-19-induced teleworking was widespread, concerning also occupations for which it is feasible but suboptimal – see e.g. Eurofound (2021[56]) while the support of colleagues physically co-located in the office can be important to reap the well-being benefits of teleworking (Raghuram et al., 2019[57]), such support was often lacking during the pandemic. The full-time and widespread nature of teleworking during the pandemic also exacerbated risks of work-life conflict, as some had to telework in limited physical space, with insufficient technical equipment, and with other household members also teleworking or following distance schooling (DeFilippis et al., 2020[58]; Bertoni et al., 2021[59]). Finally, the shift to teleworking happened abruptly in many workplaces, without much consideration for health and safety requirements that would otherwise apply (ILO, 2020[60]). Because of this, workers also faced an unprecedented challenge in quickly adapting to teleworking, for example by learning new IT skills, which is a source of mental distress particularly for senior workers (Bertoni et al., 2021[59]).

Figure 5.4. Confounders of teleworking and well-being during COVID-19



Against this backdrop, a few studies have already attempted to isolate the effect of teleworking on worker's well-being from that of other confounders, finding mixed and heterogeneous results for different groups of workers. Sasaki et al. (2020[61]) find positive effects of teleworking on workers' psychological distress in Japan, but their cross-sectional data is very limited. Using email meta-data from over 3 million workers worldwide, DeFilippis et al. (2020[58]) find an increase in the average workday span, but their analysis is subject to aggregation bias and has unclear implications for workers' well-being. This is in line with a recent online Eurofound survey (2021[56]), in which over one-fifth of teleworkers reportedly worked during their free time every or every other day during the pandemic, but at the same time appreciated the absence of commuting to the office; spending more time with their children and spouses; and the flexibility of working hours. Using longitudinal European data, Bertoni et al. (2021[59]) find positive effects of teleworking on mental health only for men and women with no co-residing children.

While flexible hours and teleworking are compatible with full-time employment, part-time work by definition is not. In this respect, part-time jobs in most OECD countries tend to be associated with many labour market disadvantages including lower income, lower job security and reduced access to unemployment benefits, training and promotion (OECD, 2020[62]), which are important factors for job-quality and well-being (Cazes, Hijzen and Saint-Martin, 2015[63]). On the one hand, the disadvantages associated with working part-time appear to be compensated by better health and work-life balance – see for instance the OECD Employment Outlook (2010[64]). On the other hand, part-time workers tend to work more unpaid overtime hours relative to full-time workers (Fernández-Kranz and Rodríguez-Planas, 2011[65]; Chung and van der Horst, 2020[66]), which may hamper some of the non-material well-being effects associated with part-time. More recent evidence confirms positive effects of part-time work on both objective and subjective health measures in the United States and the United Kingdom (Benson et al., 2017[67]; Cho, 2018[68]), and on workers' satisfaction with work-life balance, but primarily in more gender egalitarian countries (Beham et al., 2019[69]) or where part-time work is more likely to be the norm (Nikolova and Graham, 2014[70]).[8] Yet in practice, part-time work is not the norm in most OECD countries, where women make up the vast majority of part-time workers (OECD, 2021[1]) and experience negative impacts on their career progression as a result (OECD, 2018[71]).

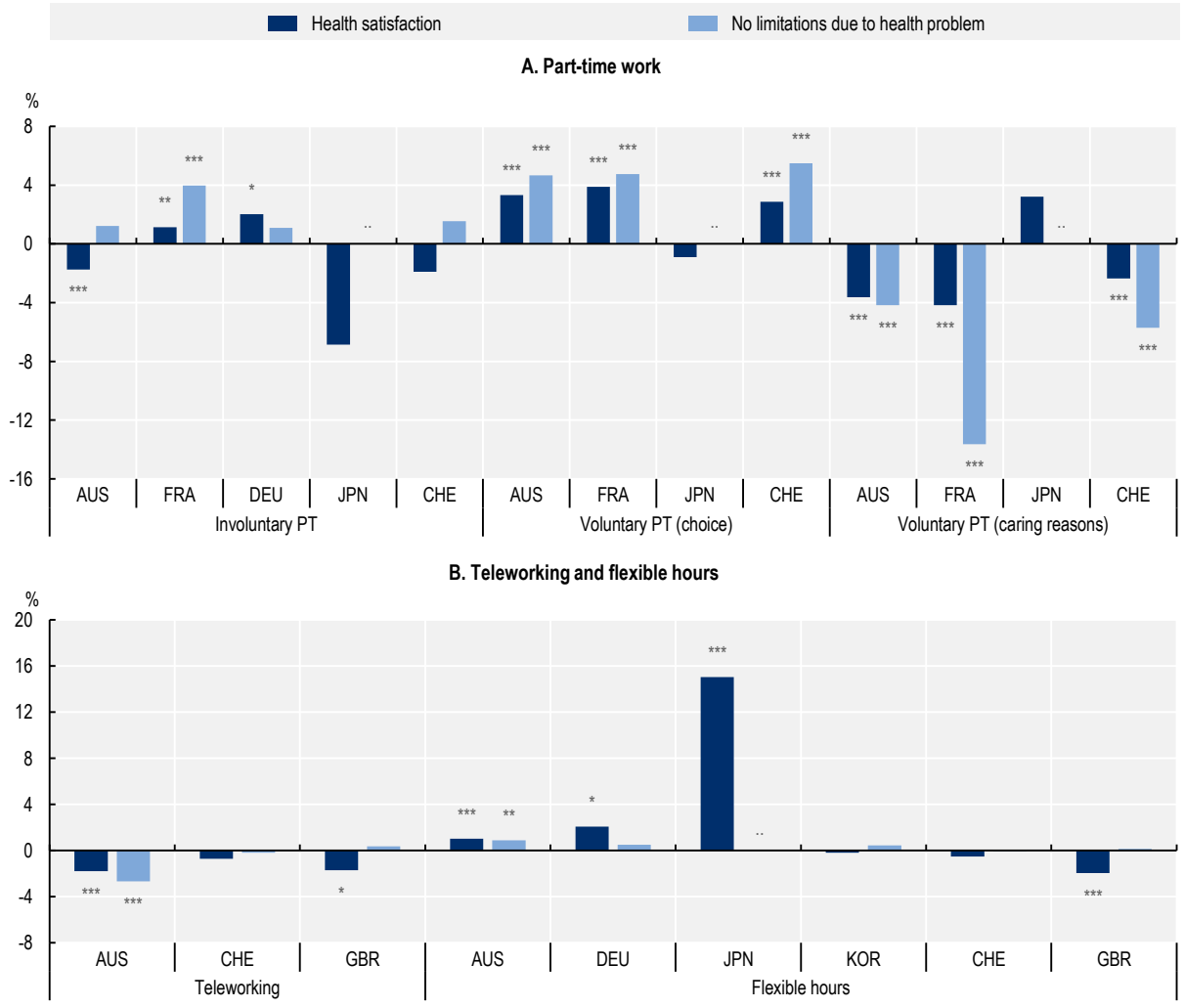
Finally, a crucial factor ensuring positive well-being effects of flexible hours, teleworking and part-time work is that they are adopted voluntarily (Joyce et al., 2010[72]; Nikolova and Graham, 2014[70]; Pirani, 2015[73]; Bell and Blanchflower, 2019[74]; Adamovic, 2022[49]). Moreover, workers may have different reasons as to why they voluntarily take up flexible working time arrangements, which can impact well-being differently and be shaped by employers' reasons to offer these arrangements in the first place. Scholars have pointed out for instance that flexible arrangements lead to more negative side effects like increased overtime hours if they are primarily offered to cut costs or incentivise workers to increase their performance (Chung and van der Horst, 2020[66]). Along these lines and beyond the firm level, promoting part-time work for instance is not only part of countries' efforts to help workers reconcile work with private life, but also to reduce unemployment and increase labour market flexibility in low-paid occupations (Carrillo-Tudela, Launov and Robin, 2018[75]; Biewen, Fitzenberger and de Lazzer, 2018[76]; Barbieri et al., 2019[77]). Such and other forms of involuntary part-time work can be problematic, because they not only hamper well-being through the lower living standards resulting from income losses associated with part-time work (Bell and Blanchflower, 2019[74]), but also prevent any of the offsetting effects on health and work-life balance discussed above. Those who take-up a part-time job but would prefer to work more are especially likely to experience negative well-being effects, as insufficient working hours negatively affects their material well-being as discussed in the previous section. Moreover and related to the gendered nature of part-time jobs, women tend to be more constrained in their adoption of flexible working time arrangements, having to opt most often for part-time work, while men tend to be able to use flexible working time arrangements with a greater degree of choice, and to opt most often for flexible hours (Wheatley, 2017[78]).

New OECD individual-level evidence presented here (Figure 5.5 and Figure 5.6) explores the relationship between three flexible working time arrangements that promote employee-oriented flexibility (part-time, flexible hours and teleworking) and the same aspects of workers' non-material well-being than above (e.g. health, work-life balance and job-and life satisfaction). As data are only available for three to seven OECD countries depending on the working arrangement considered (Australia, France, Germany, Japan, Korea, Switzerland and the United Kingdom), caution is needed in generalising the results. Nonetheless, they point to interesting results. First, the results confirm the general patterns in the literature: out of the three working time arrangements considered, flexible hours are positively associated with all non-material well-being outcomes, namely self-assessed health, life and job satisfaction, and work-life balance (proxied by satisfaction with free time in Japan and the United Kingdom). Second, the relationship between teleworking and non-material well-being is more mixed, indicating a negative association with self-assessed health, small but positive associations with life- and job satisfaction and contrasting associations with work-life balance: while work-life balance is particularly high for teleworkers in Australia, it is particularly low in Switzerland. Finally, both voluntary and involuntary part-time work are negatively

associated with all non-material well-being indicators. Interestingly though, distinguishing voluntary part-time workers into those who simply prefer it over full-time work and those who (have to) opt for it because of caring reasons reveals that the latter is associated with negative impacts on well-being, while truly voluntarily adopted part-time work is associated with high well-being. Such granular information is not (yet) available in many surveys and in any case not regarding teleworking and flexible hours, but points to a very important avenue of future research.

Figure 5.5. Self-assessed health by flexible working time arrangements in selected OECD countries

Marginal effects (in percentage) of flexible working time arrangements (employees aged 15-64), 2000s-2010s



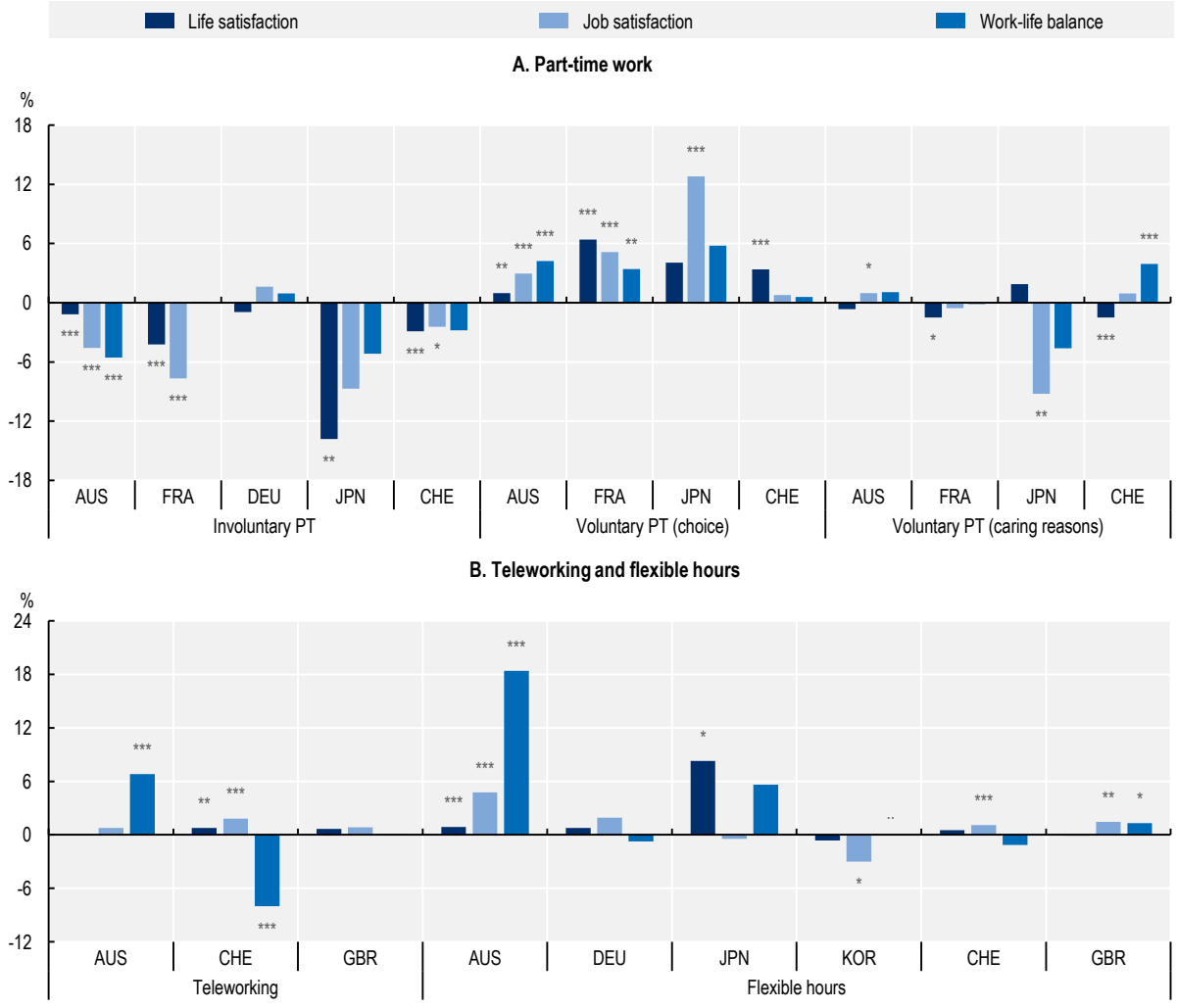
Note: Marginal effects (at the mean) are derived from individual probit regressions (i.e. regression of an individual's flexible working time arrangements, on this individual's self-assessed health outcome). Regressions are estimated using repeated cross-section data with robust standard errors and controlling for year fixed effects, demographic characteristics, household composition and income, job characteristics (including contract duration) and life events. "Involuntary PT" refers to part-time employees who could not find a full-time job; "Voluntary PT (choice)" refers to part-time employees who prefer part-time job or are not interested in full-time job; and "Voluntary PT (caring reasons)" refers to employees holding a part-time job due to own illness or disability, cares for children, disabled or elderly relatives or other personal or family responsibilities "Telework" refers to employees working any hours at home. "Flexitime" refers to employees who can decide, within certain limits, when to start and finish work each day. See Figure 5.1 for a description of the self-assessed health outcomes and Annex 5.A for further details on definitions of the flexible working time arrangements and regression specifications by country..: not available. ***, **, *: statistically significant at the 1%, 5% and 10%, respectively. PT: part time.

Reading example: In Australia, involuntary part-time employees are expected to be 1.8% less likely satisfied by their health compared to full-time workers and other part-time workers.
Source: OECD estimates based on the Household, Income and Labour Dynamics in Australia (HILDA, 2005-19) for Australia; the enquête Statistiques sur les ressources et conditions de vie (SRCV, 2010-19) for France; the German Socio-Economic Panel (SOEP, 2002, 2004, 2006, 2008, 2010, 2012, 2014, 2016 and 2018) for Germany; the Japan Household Panel Survey (KHPS/JHPS, 2010-17) for Japan; the Korean Labor and Income Panel Study (KLIPS, 2005-19) for Korea; the Swiss Household Panel (SHP, 2004-19) for Switzerland; and University of Essex, Institute for Social and Economic Research, Understanding Society: Waves 2, 4, 6, 8 and 10 (2010, 2012, 2014, 2016 and 2018) for the United Kingdom.

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Figure 5.6. Life-job satisfaction, work-life balance and satisfaction with free time by flexible working time arrangements in selected OECD countries

Marginal effects (in percentage) of flexible working time arrangements (employees aged 15-64), 2000s-2010s



Note: Marginal effects (at the mean) are derived from individual probit regressions (i.e. regression of an individual's flexible working time arrangements, on this individual's self-assessed health outcome). Regressions are estimated using repeated cross-section data with robust standard errors and controlling for year fixed effects, demographic characteristics, household composition and income, job characteristics (including contract duration) and life events. Work-life balance refers to satisfaction with free time for Japan and the United Kingdom. No data on work-life balance for Korea. Figure 5.3 for a description of the well-being indicators (life satisfaction, job satisfaction and work-life balance) and Figure 5.5 for the working-time arrangement indicators (involuntary PT, voluntary PT by choice, voluntary PT for caring reasons, telework and flexitime) and Annex 5.A for further details on definitions of the flexible working time arrangements and regression specifications by country..: not available. ***, **, *: statistically significant at the 1%, 5% and 10%, respectively. PT: part time.
Reading example: In Australia, involuntary part-time employees are expected to be 1.2% less likely satisfied by their life compared to full-time workers and other part-time workers.
Source: OECD estimates based on the Household, Income and Labour Dynamics in Australia (HILDA, 2005-19) for Australia; the enquête Statistiques sur les ressources et conditions de vie (SRCV, 2010-19) for France; the German Socio-Economic Panel (SOEP, 2002, 2004, 2006, 2008, 2010, 2012, 2014, 2016 and 2018) for Germany; the Japan Household Panel Survey (KHPS/JHPS, 2010-17) for Japan; the Korean Labor and Income Panel Study (KLIPS, 2005-19) for Korea; the Swiss Household Panel (SHP, 2004-19) for Switzerland; and University of Essex, Institute for Social and Economic Research, Understanding Society: Waves 2, 4, 6, 8 and 10 (2010, 2012, 2014, 2016 and 2018) for the United Kingdom.

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5.1.3. Scope for improvement? Working time policy levers to enhance workers' non-material well-being

Results from the literature and new OECD empirical evidence on working time and workers' non-material well-being presented in the previous paragraphs suggest that some levers of working time policies exist that might enhance workers' non-material well-being, such as policies regulating working hours (maximum and normal). While limits on maximum hours and overtime are already in place in most OECD countries to prevent their detrimental effect on workers' health (OECD, 2021[1]), the regulation of normal weekly hours has less often been considered as a potential instrument to foster workers' well-being. Yet, available evidence on the link between actual working hours and various non-material well-being outcomes presented above cautiously suggests that a reduction of normal weekly hours could enhance workers' non-material well-being. Other options to improve workers' non-material well-being discussed above include flexible hours, teleworking and part-time work. Yet, as shown in Figure 5.5 and Figure 5.6, part-time, even when voluntary, might be associated with negative well-being outcomes, in cases where it is chosen for caring reasons – which is likely to be the case for a large proportion of female workers in particular. In addition, the already existing extensive research on part-time work also suggests that even voluntary forms have limited potential for increasing workers' non-material, let alone material well-being. By contrast, results in Figure 5.5 and Figure 5.6 suggest that flexible hours might be a more promising means of improving workers' non-material well-being – and one that has been less researched so far.

Beyond assessing their impact on non-material well-being, the effect of these policy options on employment and productivity should also be evaluated, since these two outcomes have ripple effects on workers' material well-being. A crucial element to consider in this analysis is the extent to which a reduction in normal working hours would maintain the same monthly/weekly income for workers, thus inducing an increase of hourly pay and potentially on labour cost if increases in hourly productivity do not offset increases in pay. Effects on employment levels should also be carefully assessed.

The remainder of this chapter sets out to investigate the effect of normal hour reductions and flexible hours on employment and productivity. While the effect of teleworking on non-material well-being outcomes is less clear-cut, its effect on employment and productivity are also evaluated, on account of its increased prevalence and relevance in the aftermath of the COVID-19 crisis – and since teleworking and flexible hours often come as a package deal.

5.2. Working time, productivity and employment

In order to carefully discuss the feasibility of the policies identified above as potentially well-being enhancing, this section starts by presenting comprehensive literature reviews on the employment and productivity effects of changes in normal hours. This assessment of the literature is complemented by new evidence analysing the effects of national legislative reforms reducing normal hours in European Union countries and of firm-level episodes of contractual hours reductions in Germany, Korea and Portugal. This two-pronged empirical approach helps understanding the effect of concrete episodes of hours reductions implemented in different ways. Finally, the section reviews the literature on the employment and productivity effects of flexible hours and teleworking (the latter, as explained above, on account of its increase prevalence in the aftermath of the COVID-19 crisis), and presents new evidence on the productivity and employment effect of flexible hours in German firms.

5.2.1. The economic impact of reducing normal hours: A literature review

The employment effect

This section presents a summary of the most salient theoretical arguments and of the most robust empirical findings – a more comprehensive literature review is available in Annex Table 5.C.1. Theoretical predictions on the effect of reducing normal hours on employment depend on the underlying mechanisms and assumptions at play on the labour demand side. In this respect, two factors are of particular importance: whether the reduction of hours takes place at *constant* monthly (or annual) pay – which would lead to a rise in hourly labour cost, and could have adverse effect on employment − or not, and whether hourly productivity gains may be generated and mitigate this potential detrimental employment effect.

Theoretical papers for instance generally assume that working time reductions take place at constant monthly (or annual wage).[9] Under this assumption, a reduction of normal hours has an ambiguous effect on employment.[10] Simplified versions of the main arguments are as follows (see e.g. Kapteyn et al. (2004[79]) for a more thorough review). Following a simple logic, one could assume that in firms not usually resorting to overtime (i.e. firms where the pre-reform normal working time was equivalent to the optimal working time), reducing normal hours could incentivise firms to hire more workers in order to meet orders, thus leading to a *positive* effect on employment. Yet, this logic[11] assumes that the optimal working time remains the same after the change, and that hours and workers are substitutable (notably ignoring the fixed costs associated with each additional worker). In firms already using overtime before the reduction in normal hours, the marginal cost of hiring an additional worker goes up after the change (since a larger proportion of her time now has to be paid the overtime premium), while the marginal cost of an additional hour is left unchanged: to compensate for the reduction in normal hours these firms might then choose to pay for more overtime rather than hiring new workers, leading thus to a negative effect on employment (Cahuc et al., 2014[80]; Calmfors and Hoel, 1988[81]).[12] More generally, the increase in the hourly labour cost following a normal hours reduction could lead firms to substitute capital for labour, leading to a reduction in employment. However, higher hourly pay could be compensated by gains in hourly productivity induced by the reduction in hours – for instance through productivity-enhancing organisational changes, higher investment, the recruitment of more productive workers, or through labour supply responses (more rested workers could have a higher hourly productivity). Gains in hourly productivity would at the same time limit the negative effect on employment, but also suppress the incentives to hire more workers, therefore preserving employment.

Turning to empirical results, purely correlational studies (i.e. studies that do not account for any possible endogeneity, and that focus on measuring the statistical significance of covariations[13]) tend to yield mixed results, ranging from studies finding a *negative* impact of hours reduction on employment (Steiner, Peters and Steiner, 2000[82]; Sagyndykova and Oaxaca, 2019[83]), to the majority of correlational studies finding *non-significant* effects (Andrews, Schank and Simmons, 2005[84]; Hunt, 1999[85]; Trejo et al., 2016[86];

Kramarz et al., 2008[87]; Brown and Hamermesh, 2019[88]),[14] to those finding a *positive* effect (Fiole, Roger and Rouilleault, 2002[89]; Husson, 2002[90]; Kapteyn, Kalwij and Zaidi, 2004[79]). Among authors using a quasi-causal research design (which, by contrast to purely correlational ones, aim to account for some forms of endogeneity, although they do not correct for all of it), Crépon and Kramarz (2002[91]) find a negative effect of the 1996 statutory reduction of working time from 40 to 39 hours in France on employment. Raposo and van Ours (2010[92]) find that the reduction of working hours in Portugal decreased the separation rate of workers affected by the working time reduction. Crépon et al. (2004[93]) find that employment increased in firms reducing their hours in France (they argue that at least part of this increase is likely to be driven by a concomitant reduction in social security contributions and to wage restraint, rather than by the hours reduction – although on this issue, the meta-analysis by Gubian et al. (2004[94]) attributes a larger positive effect to the reduction itself). Finally, a majority of quasi-causal studies finds non-significant results – see e.g. (Estevão and Sá, 2006[95]; Costa, 2000[96]; Skuterud, 2007[97]; Sánchez, 2013[98]; Chemin and Wasmer, 2009[99]; Kawaguchi, Naito and Yokoyama, 2017[100]).

Of course, different studies are based on the analysis of different reforms and/or contexts. Hence, differences in results might be due to differences in the parameters of the reforms analysed, such as their size and starting point, and their implementation. Similarly, non-significant results in country-specific analyses could stem from heterogeneous effects in the pool of firms observed. Hence, while the review of existing literature presented above suggests that in most cases, there were no significant effect on employment, it does imply that a reduction of normal hours should not be considered without paying careful attention to its design and implementation.

As explained above, the theoretical prediction that reducing normal hours might have adverse effects on employment rests on two assumptions: first, that monthly (or annual) wages are kept constant; second, that hourly productivity does not increase sufficiently to keep unit labour cost approximately constant. The non-significant results observed in many empirical papers could be explained by the fact that either of these assumptions does not hold in practice.[15] Regarding the first assumption, two of the papers reviewed in Annex Table 5.C.1 that use a quasi-causal research design and consider wages as an outcome indeed find evidence of wage cuts or wage restraint (meaning that wage growth was slowed down): Sanchez (2013[98]) in the case of Chile, and Crépon, Leclair and Roux (2004[93]) in the case of France. However, all other papers find that reducing working hours increased hourly wages, but without negatively affecting employment (Estevão and Sá, 2006[95]; Raposo and van Ours, 2010[92]; Kawaguchi, Naito and Yokoyama, 2017[100]). One possible explanation for the results of this second group of papers is that the second assumption does not actually hold and that hourly productivity may have increased sufficiently to maintain unit labour cost approximately constant. This possibility is considered in the literature review on productivity effects below (Sections 5.2.2 and 5.2.3 then present new evidence on this issue).

Another potential explanation for studies finding no negative effect on employment despite an increase in hourly labour cost is that the hours reduction takes place in a context where wages have not fully adjusted to *past* productivity growth: in that situation, firms can absorb higher labour costs while preserving employment thanks to their accumulated rent. Such rents can typically exist in monopsonistic labour markets. In these contexts, characterised by an asymmetry in market power between employers and workers leading to an inefficient allocation of working time, or a suboptimal wage growth, a reduction in hours inducing a rise in hourly wage can in fact have a similar impact as a minimum wage increase in standard monopsony models, e.g. counteract excessive employers' market power without creating additional unemployment – see e.g. Manning (2020[101]) and Chapter 3. The possibility that working hours reduction might preserve employment in monopsonistic labour markets is in fact acknowledged and discussed in the literature[16].

The productivity effect

Compared with employment, the link between working hours and productivity remains understudied in the empirical literature. From a theoretical point of view, reducing normal hours could result in an increase in hourly productivity per worker, sustaining total productivity per worker[17] through at least two channels. First, reducing working hours could reduce workers' fatigue and increase their work engagement, hence resulting in an increase in hourly productivity. Second, reducing working hours could prompt firms to rethink their production processes and implement productivity-enhancing investments as well as organisational and managerial innovations – including potentially through replacing less productive workers with more productive ones to compensate for reduced hours. Beyond these two channels, productivity could also be enhanced at a more aggregate level if the time freed from work helps spark innovation and new firms creation (Gomes, 2021[102]).

However, the limited number of existing studies on working hours and productivity focuses almost exclusively on the potential productivity effect of reducing workers' fatigue through regulation on *maximum* hours and overtime. On the latter, the evidence in the literature is rather unanimous:[18] productivity decreases with long hours. The evidence on the productivity effect of reducing normal hours is scarcer.[19] Delmez and Vandenberghe (2017[103])'s analysis on total hours (which therefore linearly averages effects of normal hours and overtime) shows clear evidence of a declining productivity of hours in Belgian firms (with a 1% increase in firm-level hours leading to a 0.8% increase in firm-level value added). Crépon et al. (2004[93]), however, observe a slight decrease in total factor productivity following the reduction in normal hours from 39 to 35 hours in France in the early 2000s. By contrast, Park and Park (2019[104]) exploit the stepwise reduction in normal hours from 44 to 40 hours between 2004 and 2011 in Korean manufacturing firms, and find that it even increased total output per worker (i.e. not only hourly productivity). Evidence of decreasing marginal returns to normal working hours has been found in cross-country (Cette, Chang and Konte, 2011[105]) as well as micro-level analyses (Collewet and Sauermann, 2017[106]). This last study, based on an experiment – and therefore with particularly robust results – with Dutch call-centre workers in the 2010s, is particularly enlightening. Indeed, it exploits variation in the effective working time (i.e. excluding breaks, slack or training hours) due to random changes in weekly schedules, of workers paid by the hour and employed on average for 6 hours per day, 4 days a week (and effectively working 17.7 hours per week). Using these precise data, Collewet and Sauermann find strong evidence of a fatigue effect, with hourly productivity decreasing with hours, even for workers in intensive part-time jobs.

All of the above suggests that there could be some potential for working time policy to be productivity-enhancing over and above reducing long hours and overtime and also focusing on the reduction in normal working hours. Quests for the "optimal" length of the workday are therefore not over, and answers are likely to vary with job characteristics (Pencavel, 2016[107]; Dolton, Howorth and Abouaziza, 2016[108]).

5.2.2. Evidence on the effects of European national legislative reforms reducing normal hours

As outlined above (and see also Annex Table 5.C.1), much of the empirical literature on the impact of working time reforms, and in particular on working time reduction, concentrates on the employment effect. When productivity effects are considered, this is often done in isolation from employment effects, so that the broader economic impact of working time reforms (and the potential interaction between employment and productivity effects) remains poorly understood. To overcome these limitations, this section draws on results from Batut, Garnero and Tondini (2022[109]) to consider the employment and productivity effect of several working time reforms that took place in Europe between 1995 and 2007 allowing for general equilibrium effects.

The analysis focuses on national working time reductions reforms that were implemented in five European OECD countries; while these reforms kept monthly wages constant, thus leading to higher hourly wages,

they did not all include compensatory measures for firms to buffer the impact on labour cost (see Table 5.1 for an overview of the reforms). By lumping several reforms together in a relatively short time period, in countries with a similar legislative framework (the EU Working Time Directive) and relatively similar societal preferences, this analysis allows presenting average effects and minimise the idiosyncrasies linked to specific national reforms. The causal effect of working time reductions on the outcomes of interest (hours worked, employment, hourly wage and hourly productivity) is identified via a difference-in-difference approach that exploits the initial differences in the share of workers exposed to the reforms across sectors.[20] The treatment group is composed of sectors in reforming countries above the median of the share of affected workers before the reform, i.e. those previously working more hours than the new threshold specified in the reform (see Box 5.2 for a discussion of the specification). The analysis uses information from multiple sources to document working time reforms in European Union countries.[21] It relies on sectoral data in 22 countries for hours worked, employment, wages and productivity from EU KLEMS, since they are among the most reliable cross-country comparable sources for industry-level data. Out of 22 countries, 17 serve as full control.

Results are presented in Figure 5.7 for a discrete treatment variable (as in Equation 5.1 in Box 5.2) and for both a discrete and a continuous measures of exposure (Panel A and Panel B in Annex 5.A, as defined in Equation 5.1 and Equation 5.2 in Box 5.2). They show that the reforms examined appear to reduce significantly the share of workers who were working more than the new threshold introduced by the reform (by around 5 percentage points with the specification with the discrete treatment variable i.e. a reduction of one-third compared to the pre-reform difference between more and less exposed sectors) and the yearly number of hours worked on average by workers (by 1.3%, relative to sectors below the median, with the discrete treatment variable i.e. a reduction of two-thirds compared to the pre-reform difference[22]). However, reforms had no significant effects on employment, on workers' compensation nor on hourly productivity (Figure 5.7). Although insignificant, the evidence displayed on employment reduction suggests that effects varied a lot across industries, reflecting perhaps different degrees of monopsonistic labour market situations; so overall, the absence of significant effect for employment is likely to be the average of heterogeneous positive and negative effects.

Results do not vary when the estimation is run only on the sample of countries implementing a reform (i.e. Belgium, France, Italy, Portugal and Slovenia, thus exploiting sectoral differences in the exposition to reforms in these countries only) and are robust to extended checks of alternative specifications, samples and estimators.[23]

Table 5.1. Overview of reforms reducing normal working hours in Europe, 1995-2007

Country	Year	Implementation	Reduction of weekly working time	Monthly wage	Compensations for firms
Portugal	1996	1997-98	44h -> 40h	Constant	None
Italy	1997	1998	48h->40h	No specific adjustment.	None
France	1998	2000	39h->35h	Constant	Reduction in Social Security contributions
Belgium	2001	2002	40h->38h	Constant	Reduction in Social Security contributions
Slovenia	2002	2003	42->40h	Constant	None

Note: Adoption refers to the year of adoption of the legislation, while implementation refers to the year in which the legislation was actually implemented. In 1997 and 2002, Poland also reduced weekly working time but the LFS data for Poland do not cover these years and therefore these reforms are not part of the analysis in this section.
Source: Batut C., Garnero A., and Tondini A. (2022[109]) "The Employment Effects of Working Time Reductions: Sector-Level Evidence from European Reforms", FBK-IRVAPP Working Papers Series.

Box 5.2. Estimating the impact of working time reductions in Europe

Batut, Garnero and Tondini (2022[109]) estimate the effect of reductions in working hours on value-added per hour worked, employment and wages, using the following specification:

$$Y_{i,c,t} = \gamma_{i,c} + \beta Treated_{i,c} \times Post_{c,t} + \gamma_{i,c} + \Theta_{c,t} + \Theta_{i,t} + X'_{i,c,t} + \varepsilon_{i,c,t} \quad \text{Equation 5.1}$$

where Y stands for the dependent variable (e.g. productivity, employment, etc.), X' is a vector of sector and time-varying controls at the country level (share of self-employed, gender, part-time, temporary contract, occupation, education and age), γ and Θ are fixed effects (respectively sector × country, sector × year and country × year fixed effects), ε is the error term, i indexes the sector, c the country and t is the year. $Treated$ is a binary variable indicating whether a sector is above the median of the share of affected workers before the reform (e.g. those working more hours than the threshold specified by the reform) interacted with $Post$ which indicates the staggered implementation of the reform across countries. The coefficient of interest, β, is identified by the evolution of more affected sectors relative to less-affected sectors in reforming countries at the moment of the reform.

There are two important caveats to point out about the β coefficient: first, it is identified only through variation within reforming countries, hence non-reforming countries play a role only in the estimation of the set of sector × year fixed effects; second, it only identifies a relative effect, i.e. the effect of more treated sectors relative to less treated sectors.

Moreover, a second specification is tested that introduces a continuous measure of sectoral exposure to the reform (and not a discrete one as in Equation 5.1. This also allows to recover a relative effect, leveraging the full variation in exposure to the reform, at the price of assuming a linear relation between the effect and the measure of exposure. Equation 5.1 is rewritten as follows:

$$Y_{i,c,t} = \gamma_{i,c} + \beta Exposure_{i,c} \times Post_{c,t} + \gamma_{i,c} + \Theta_{c,t} + \Theta_{i,t} + X'_{i,c,t} + \varepsilon_{i,c,t} \quad \text{Equation 5.2}$$

where exposure indicates the share of workers above the reform level in each sector.

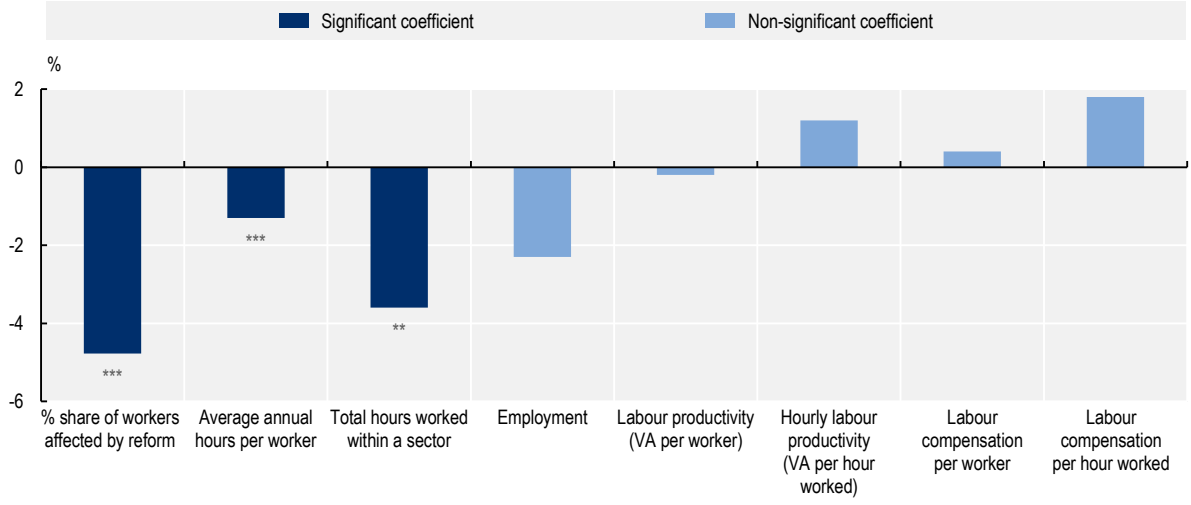
Source: Batut, Garnero and Tondini (2022[109]), "The Employment effects of Working Time Reductions in Europe", FBK-IRVAPP Working Papers Series.

Several potential explanations could be behind these results, echoing the theoretical arguments discussed in Section 5.2.1. First, between 1995 and 2007, all European countries (with the exception of Italy) experienced relatively robust growth, together with productivity and wage growth (although with a lot of heterogeneity across sectors/countries) and stable, low inflation. It is therefore possible that, even in the context of a standard competitive model, the reduction of working time and the increase in labour cost per hour worked might have been quickly absorbed with no effect on employment (in line with the observed results of insignificant but positive effect on productivity). Second, an alternative partial explanation would be that the classical hypotheses do not hold, and the reductions in working time with constant monthly wage act like an increase in the minimum wage in a monopsony model (e.g. the increase in hourly labour cost induced by the reduction in hours counteracts pre-existing excessive employers' market power as described in Section 5.2.1). A third potential explanation could be that some mechanisms limited the rise of labour costs in practice, such as a decrease in social security contributions (as in the French and the Belgian reforms[24]) or some voluntary wage restraint by social partners in wage negotiations. Finally, as

outlined before, even if statistically insignificant, the average estimated employment effect is negative and not small: employment is estimated to have decreased by 2.3% in more exposed industries with respect to less exposed industries. These results suggests that the average estimated effect could result from the aggregation of heterogeneous positive and negative effects in different industries and local labour markets, for example because certain local labour markets are more monopsonistic while others are more competitive (see Chapter 3).

Figure 5.7. Average differential impact of normal hour's reductions between sectors with above and below median intensity of long hours, 1995-2007

Effect of being in a sector above the median of exposed workers before the reform



Note: This Chart shows estimates based on Equation 5.1 presented in Box 5.2 (i.e. discrete treatment variable) with standard errors clustered at the country × sector level and including controls at sector level (2-digits NACE Rev.1.1. from an ad hoc extraction by EUROSTAT) by age, education, gender, type of contracts, tenure and occupation. Share of workers affected by reform indicates the share of workers working more than the value specified by the existing legislation (for countries without a reform) or introduced by the reform (for countries with reform). Sectors are weighted by the within – country share of employment in the pre-reform period.

Source: Batut, Garnero and Tondini (2022[109]), "The Employment Effects of Working Time Reductions: Sector-Level Evidence from European Reforms", FBK-IRVAPP Working Papers Series.

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5.2.3. Going to the firm-level: How do contractual hours reductions affect productivity, wage and employment?

In order to get additional evidence on the relationships between normal hours reduction, employment and productivity, this section looks at how these relationships materialise at the firm level. Exploiting firm-level panel data, it explores the effect of observed episodes of reductions in average contractual hours on the growth of productivity per worker, employment, and average wage, in three countries where data are available, namely Germany, Korea and Portugal. The analysis adopts a difference-in-difference framework, comparing log changes in productivity per worker (using information on value added and number of workers in the data), in number of employees, and in average wage, between firms that reduced their contractual working hours and similar firms that did not,[25] around the time of the change. Treated firms are matched to control firms based on a series of firm-level descriptive variables, including their pre-change trajectories in terms of value added per worker, total employment and average wage. The detailed identification strategy is presented in Box 5.3.

Box 5.3. How do reductions in contractual hours relate to productivity and employment? A firm-level identification strategy

The identification strategy implemented in this analysis requires access to firm-level panel data with information on contractual normal hours (as opposed to effective hours, which take into account overtime and sick leave, and therefore are not a good means of measuring the impact of a change in normal hours). This information is available in three countries: Germany, Portugal and Korea.

For Germany, the analysis uses data from the *IAB Establishment Panel*, a nationwide representative survey of employers conducted by the German Institute for Employment Research (IAB). Data on individual establishment characteristics as well as on many employment policy related topics are collected annually from employers in 15 500 German firms, from all industries and firm sizes categories. The longitudinal dataset goes back to 1993 in Western Germany and 1996 in Eastern Germany and allows deriving information on year-on-year changes in value added per worker (from information on business volume and medium-term inputs), number of employees, and average annual wage (which is the total wage bill divided by the number of workers in a given year).

The dataset used in the Portuguese analysis is a merge from two sources, the *Quadros de Pessoal* (QP) and *Sistema de Contas Integrado das Empresas* (SCIE). The QP dataset is a matched employer-employee administrative dataset covering all Portuguese firms with at least one wage earner in the private sector. Individual level data on firms' employees, as well as some data on firms (e.g. industry, sales, ownership, size, legal form…) have been collected annually since 1985. Firm-level information is completed with data from SCIE, a dataset compiled by Statistics Portugal (INE) from the online Simplified Business Information (IES) system used by the tax authority, Ministry of Justice, Banco de Portugal and Statistics Portugal. All non-financial firms are included in the dataset, which has existed since 2004[1]. The SCIE dataset covers detailed information on firms' annual balance sheet and income statement, and includes variables on annual value added, annual total employment, and annual gross staff expenses which allow deriving the three dependent variables used in the analysis (year-on-year changes in value added per worker, average annual wage, and number of employees). The final sample therefore covers all private-sector, non-financial firms between 2004 and 2019.

Finally, data on Korea comes from the *Koran Workplace Panel Survey* (WPS), a longitudinal survey of 4 300 firms with more than 30 employees in all industries except agriculture and mining, conducted every two years by the Korean Labour Institute since 2005. The WPS collects information on the various characteristics of individual workplaces, and covers a wide-range of employment related topics, including business volume, employment, and wage bill, which allows deriving information on wave-on-wave change in business volume per worker, employment, and average wage (total wage bill divided by the number of workers).

Treatment is defined as a firm-level reduction in contractual hours and identified by spells: a treated spell is made of a 4-year period[2] around the year when the reduction in contractual hours is observed, with one pre-year and two post-years without changes in contractual hours. Several treatments spells can therefore be identified for the same firm. Spells during which hours are *increased* are excluded from the sample, but the possibility that firms increase their use of overtime as a result of the contractual hours reduction is taken care of by matching firms according to their use of overtime before the change as well as adding a dedicated control in the regression below – see Equation 5.3.

To estimate the effect of treatment on productivity and employment, a control group is identified through the following matching procedure. Spells are grouped in clusters by set of four years[3], industry and firm size. Each cluster contains treated and non-treated spells. Event dummies (t-1, t, t+1, t+2)[4] allow for a common identification of time across clusters. Within clusters, a nearest-neighbour algorithm is used to

match treated spells with the five closest non-treated spells. The matching algorithm uses the following firm characteristics at t-1[5] in all three countries: the year-on-year percentage change[6] in the number of employees, in value added per employee[7], and in average wage, a dummy capturing whether the firm is using overtime, and a categorical variable describing the firm's profit situation. Additional variables include a dummy capturing the presence of worker representation (e.g. a work's council) in Germany and Korea, the collective bargaining level of the collective agreement covering the firm and the share of exports in business volume in Portugal and Germany, the share of highly-educated employees in Portugal and the average level of education of workers in the largest occupational group in Korea, as well as the share of permanent workers and of full-time workers, the share of investment in value added and the change in business volume in Portugal. This allows obtaining three balanced[8] samples made of pooled treated spells and their matched controls – Annex Table 5.D.1 presents descriptive statistics of the balanced sample in each country.

Equation 5.3 is then estimated on each balanced sample (one per country):

$$Y_{f,t} = \alpha Treatment_f \times Post + \mu X_{f,t} + \gamma t + \delta f + \beta matchgroup + \varepsilon_{f,t} \quad \textbf{Equation 5.3}$$

Where α is the coefficient of interest, Y represents the outcome variable analysed (i.e. either log change in value added per worker, in number of employees, or in average annual wage per worker) in firm f at time t; $Treatment_f$ is a dummy variable identifying treated spells; $Post$ is a vector of post-treatment time dummies. $X_{f,t}$ is a vector of time-varying observable firm characteristics and potential confounding factors, namely: annual log change in real wage compensation per worker, change in the firm's use of overtime, investment in communication technology/data processing, level of the applicable collective agreement, and region. Finally, γt represents year fixed effects, δf "spell fixed effects", $\beta matchgroup$ is a fixed effect for each group of one treated spell and its five matched controls, and $\varepsilon_{f,t}$ is an idiosyncratic error term. Errors are clustered at the spell level.

There are three main sources of errors attached to this identification strategy. First, self-selection: firms that *already have a higher productivity growth* might decide to reduce their contractual hours. However, since treated spells are matched with non-treated spells with comparable productivity trajectories in the year before the change, this source of error should be largely neutralised. Second, reverse causality: an increase in the growth of productivity per worker might cause, rather than follow from, a reduction in working hours. This issue should also be partly dealt with by using pre-change outcomes in the matching algorithm – although this is insufficient to exclude the possibility that a change in productivity growth *simultaneously* causes a reduction of working time. Third, unobserved confounding factors: time-invariant confounding factors are in principle neutralised by the introduction of spell fixed effects, and by matching firms on the outcome variables; however, *time-varying* unobserved confounding factors might also be at play. For example, certain firms may introduce working time reductions together with (or just after) a reorganisation process which also makes them more productive (through e.g. more efficient processes or the hiring of more productive workers). This last source of error cannot be solved with this identification strategy.

1. Through merging the two datasets, the Portuguese sample is de facto reduced to the period 2004-19.
2. Except in the Korean data, for which spells are periods of five years identified over at least three consecutive waves in the four that are available (2007, 2009, 2011 and 2013).
3. Five years in the Korean data.
4. In the Korean data this can only be done for t-2, t and t+2.
5. t-2 in the Korean data.
6. Since the analyses focuses on growth rates rather than levels, growth rates variables (rather than levels) are also used in the matching algorithm.
7. In Korea, productivity is measured as log change in *business volume* per worker, since the variable on value added has too many instances of missing value.

8. At t-1, there are no statistically significant differences in the dependent variables of interest, namely log changes in value added per worker, in number of employees and in average wage between the pool of treated observations and that of control observations in any of the three countries, meaning that the pre-change trends in independent variable between t-2 and t-1 (t-4 and t-2 in Korea) are parallel. As shown in Annex Table 5.D.1, samples for the three countries are balanced when considering levels and percentage changes in total number of employees, firm size, industry, change in business volume, profit situation, share of export in business volume, share of full-time employees, share of permanent workers, use of overtime and change in the use of overtime, education level, level of the applicable collective agreement, and, for Germany and Korea only, coverage by a collective agreement on wage and presence of a works council, and for Germany and Portugal only, investment growth, share of investment in value added or business volume, and investment in technology. The Korean and German samples are also balanced regarding levels and percentage change in value added per worker and average wage. In Portugal, the sample is balanced for percentage and log changes, but not when considering *levels* of value added per worker and average wage: firms that reduce their hours have a significantly higher level of value added per worker and pay a higher average wage at t-1. This does not affect the identification strategy, since the analysis is based on *growth* rather than levels. Yet, to correct for this imbalance, controls for pre-change levels of value added per worker and average wage are added in the baseline analysis for Portugal and therefore reflected in the results presented in Figure 5.8 below.

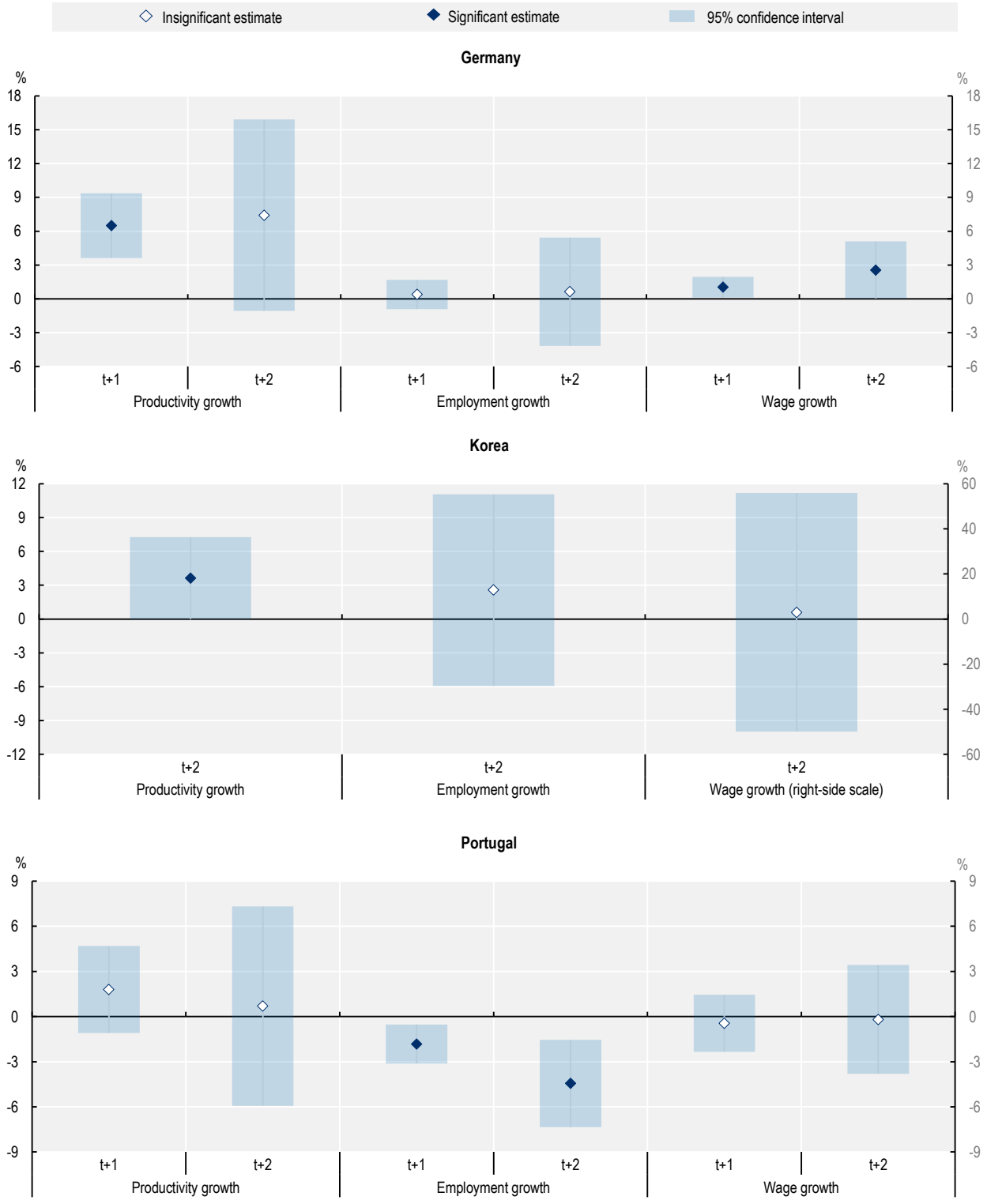
Results for all three countries are presented in Figure 5.8. They show positive and significant associations with productivity growth in two countries out of three (Germany and Korea, although the cumulative effects at t+2 [26] disappears in Germany; results are positive but insignificant in Portugal). On employment growth, results show insignificant associations in two countries out of three (Germany and Korea), but a negative significant association in one (Portugal). Finally there are insignificant associations with wage growth in Korea and Portugal, and positive significant results on wage growth in Germany.

Looking at country-specific results, Figure 5.8 suggests that in Germany, episodes of contractual hours reduction observed in the data on average led to an increase in productivity and wage growth, while they did not significantly affect employment growth. The analysis exploits the variation in employment, productivity per worker and average annual wage observed in 204 spells (3.7% of total spells in the sample)[27] of hours reduction (on average amounting to a 2.1 hours reduction per week), compared to the variation observed in matched control spells. The association between contractual hours reduction and log change in employment is insignificant in both post-change years. Change in productivity per worker, by contrast, is significantly and positively related to contractual hours reduction at t+1 – but the association becomes insignificant at t+2. Log change in real average wage is positively and significantly related to contractual hours reduction at t+1, and this association remains statistically significant at t+2. Spells of hours reductions are more concentrated in 2002, 2004 and 2006;[28] results hold when excluding 2004 and 2006 from the analysis as a robustness test, however when excluding 2002, the effect on average wage growth becomes insignificant in both years, and the positive productivity effect observed at t+1 still holds at t+2. Results are also robust to adding a control for the presence of a works council, for organisational change, and for total investment.

To test for the hypothesis that the positive association with productivity is mediated by an increase in investment prompted by the change in contractual hours, Equation 5.3 is also estimated with growth in total investment as outcome variable. The association between contractual hours reduction and the growth of total investments is positive and significant at t+1 (and loses significance at t+2), which lends support to the idea that the positive effect on productivity might be mediated by a spike in firms' investment following the reduction in hours.

Figure 5.8. How do reductions in contractual hours relate to changes in productivity, employment and wages in Germany, Korea and Portugal?

Log change expressed in percentage



Note: Results from a regression measuring the association between the interaction of being in the treated group and time on the one hand, and log change in value added per worker, number of employee and change in average wage on the other. Effects at t+1 reflect changes between t and t+1, while effects at t+2 reflects the cumulative effect observed at t+2 (i.e. the change between t and t+2). See Box 5.3 for the detailed specification.
Germany: The regression is estimated with 2 955 observations for log change in real value added per worker (of which 434 are treated); 3 305 observations for log change in number of employees (470 treated); and 3 316 observations for log change in average real wage (472 treated).
Korea: The regression is estimated with 498 observations for log change in real business volume per worker (of which 74 are treated); 506 observations for log change in number of employees (76 treated); and 506 for log change in average real wage (76 treated). In the Korean data, outcomes can only be measured at t+2. Productivity is measured as log change in business volume per worker (data on value added has too many instances of missing variables). Data is only available every other year, so that we can only measure effects two years after the change.
Portugal: The regression is estimated with 15 745 observations for log change in real value added per worker (of which 2 625 are treated observations); 15 503 observations for log change in number of employees (2 594 treated); and 15 745 observations for log change in average real wage (2 625 treated). To avoid issues when calculating log productivity related to the presence of negative instances of the value added variable in the SCIE data, the merged QP and SCIE panel is trimmed (before matching) by 5.8% at bottom; to ensure sample balance, the same percentage of observations is dropped at the top of the value added distribution (i.e. in total 11.6% of the data is dropped – this corresponds to 339 038 observations).
Source: OECD estimates based on IAB Establishment panel (1993-2018) for Germany; the Workplace Panel Survey (2007-13) for Korea; and Quadros de Pessoal (1986-2019) and Sistema de Contas Integradas das Empresas (2004-19).

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The Korean story emerging from Figure 5.8 is aligned with the German one: episodes of contractual hours reduction observed in the Korean data on average led to an increase in the growth of productivity per worker, while it did not significantly affect the growth of employment. In contrast with the German case, wage growth was also insignificantly affected. The sample behind these results contains 31 spells (5.5% of total spells in the sample) of hours reduction – by 4 hours per week on average. The structure of the Korean data (survey waves of limited sample size) only allows looking for spells of contractual hours reductions in two years, 2009 and 2011. This corresponds to the implementation period of a reform reducing normal working hours in Korea: between 2004 and 2011, normal weekly hours were reduced from 44 to 40 hours per week – which is in line with the average reduction observed in our sample. The reform was implemented gradually to give small firms more time to adjust (Hijzen and Thewissen, 2020[110]). Since treated and controls are matched within similar firm-size and industry groups, this staggered implementation does not invalidate the identification strategy detailed in Box 5.3.

The association between contractual hours reduction and log change in productivity per worker in Korea is positive and significant at t+2. By contrast, the associations with log change in number of workers, and log change in average real wage are insignificant. The small sample sizes for the Korean analysis should be kept in mind when interpreting results, however results are robust to using an alternative specification of the collective bargaining variable and adding a control for organisational change.

Finally, the story observed in the Portuguese data differs from that emerging from the German and Korean analyses. In Portugal, on average in the data, observed episodes of contractual hours reduction did not significantly affect productivity and wage growth, but they negatively affected employment growth. This is based on data from 668 spells of hours reduction observed in the Portuguese sample (4.2% of total spells in the sample), during which contractual hours were reduced by 3 hours per week on average. The association between reductions of contractual hours and growth in value added per worker is insignificant in both post-change years. Similarly, there are no significant associations between average real wage growth and reductions of contractual hours. By contrast, growth in employment is significantly and negatively associated with reductions of contractual hours when considering both changes between t and t+1, and those between t and t+2).[29] Results hold when excluding 2012 and 2013 − which display a higher concentration of cases[30] − from the analysis, and when replacing the control for investment in technology with a more precise control for investment in software (to test for the possibility that digital solutions are adopted to compensate for the lost hours of work).

Regarding insignificant results, while those observed in the Korean analysis (on employment growth and average wage growth) might be difficult to interpret due to the limited sample sizes available, the panel data used for the German and Portuguese analyses are rich enough to cautiously interpret the results that are non-significant (i.e. the results on employment growth in Germany, and on the growth of value added per worker and average wage growth in Portugal) as an actual absence of statistical relationship on average (possibly due to heterogeneous effects cancelling out each other) rather than as the effect of a weak statistical power. Overall, these results show that reductions of contractual hours can yield positive results in terms of productivity growth and leave employment growth unaffected on average in some cases (e.g. the German case), while they can leave productivity growth unaffected and yield negative results in terms of employment growth in others (e.g. the Portuguese case). Considered together, these results suggest (although they do not prove) that there could be a virtuous circle in some cases – which does not however materialise in all instances – with productivity increases potentially limiting the rise of unit labour cost and therefore the potentially negative effect on employment growth.

Regarding the causes of increased productivity following a reduction of contractual hours, the analyses above do not allow giving a definitive answer. There are some suggestive evidence that investment growth induced by the hours reduction might be at play (e.g. in Germany) although other mechanisms might be at play as well, e.g. organisational change, workforce re-composition, or reduced worker fatigue. Independently of the mediating factors behind the increase in productivity, the reason why reducing hours led to an increase in productivity growth in Germany and Korea but not in Portugal should be explored further in the future; tentatively, one can perhaps posit that it might have to do with differences in firm-level institutions of collective representation and negotiation between these countries, and/or to the different institutional contexts in which contractual hours rseduction happened.

Beyond increased productivity growth, other factors (discussed in Section 5.2.1 above) could have limited the impact on unit labour cost and therefore explain the absence of negative effects on employment in Germany and Korea, namely wage restraint or public subsidies compensating the rising hourly wage for workers. While wage restraint can be ruled out in Germany and Korea (since average wage growth is not negatively affected), there is no information on whether public subsidies played a role or not. While this is unlikely in the German case, which exploits episodes of spells reduction scattered over more than 20 years, in Korea, as explained above the majority of reductions spells observed are the result of a legislative reform, which included accompanying measures for firms – although no direct subsidies (Hijzen and Thewissen, 2020[110]).[31] Finally, beside cases of limited impact on unit labour cost, the absence of significant effect on employment growth in Korea and Germany might be explained if the increase in hourly pay induced by contractual hours reductions was absorbed by a pre-existing profit rent in firms, generated for instance if wage growth and working time did not follow previous productivity increases – which would typically be the case in the monopsonistic labour markets described in Chapter 3.

5.2.4. The economic impact of fostering the use of flexible hours and teleworking: A literature review

The employment effect

In the literature, flexible hours and teleworking are theoretically expected to have a positive impact on employment, mainly since they might allow workers to stay in full-time employment when they face schedule constraints or family responsibilities – see for example Chung and van der Horst (2018[111]) and Fuller and Hirsh (2019[112]). Flexible hours and teleworking might notably represent ways to increase female labour force attachment – and may also lead to higher earnings for women, see below. The expected effect of teleworking and flexible hours on career progression is, however, less clear-cut – and might depend on whether their use is exceptional or relatively mainstreamed in a given firm.

The empirical evidence on flexible hours and teleworking to date remains mainly correlational, with overall[32] positive effects for employment outcomes. Offering flexible hours and teleworking in particular is consistently shown to have positive effects on worker attraction (He, Neumark and Weng, 2021[113]; Wiswall and Zafar, 2016[114]; Mas and Pallais, 2017[115]; Maestas et al., 2018[116]) and also to partly reduce attrition rates (Bloom et al., 2015[117]; Kröll and Nüesch, 2019[39]). Workers across OECD countries value flexible hours and teleworking – which might be of increasing importance for firms seeking to attract talent in times of labour shortages. In accordance with expectations, flexible hours and teleworking indeed appear to be a successful means of increasing female labour force attachment, especially after childbirth (Chung and van der Horst, 2018[111]; Arntz, Sarra and Berlingieri, 2019[55]). Yet, robust evidence of the (gender-differentiated) effect of teleworking and flexible hours on long-term career progression is still missing today and would be a welcome focus for future research.

The wage effect

The theoretical effect of teleworking and flexible hours on wages is unclear. They may reduce wages if they are costly for employers, but may increase wages if they also increase productivity (Arntz, Sarra and Berlingieri, 2019[55]). In terms of gender, flexible hours and teleworking are ways to increase female labour force attachment and may thus lead to higher earnings for women. Yet, these arrangements may also increase the gender wage gap if women view flexibility as a job amenity and accept lower pay in exchange, while men may view flexibility as a job demand and select into jobs that pay a flexibility premium (Pabilonia and Vernon, 2022[46]).

Empirical studies in Canada and Germany find positive wage effects of both flexible hours and teleworking for women but suggest that these operate largely by reducing barriers to their employment in higher wage establishments: whereas women do seem to receive higher wages when switching into jobs that allow for flexible hours and teleworking, this is less the case when they opt for these arrangements while remaining in the same firm (Fuller and Hirsh, 2019[112]; Arntz, Sarra and Berlingieri, 2019[55]). The authors conjecture that this could be due to a flexibility stigma that adheres more to women or that the bargaining power of women within firms is weaker for re-negotiating wages than it is for men. Overall however, while generalisable estimates of wage effects are difficult to derive because of the concentration of flexible hours and teleworking in a limited number of jobs, existing estimates for the wage effects of both arrangements tend to be positive in general (Bonacini, Gallo and Scicchitano, 2020[118]; Weeden, 2005[119]; Pabilonia and Vernon, 2022[46]; Oettinger, 2011[120]; White, 2019[121]; Fuller and Hirsh, 2019[112]) – but mixed for women and parents.

On flexible hours alone, while Weeden (2005[119]) finds that wage premia for flexible hours in the United States do not vary by gender, more recent evidence from Germany suggests that only men receive financial rewards for working flexible hours (Lott and Chung, 2016[40]). Giménez- Nadal et al. (2019[54]) find a U-shaped relationship between flexible hours and both mothers' and fathers' wage rates in the United States, with wages being highest for parents who work either very flexible or very inflexible hours. In parallel, Yu and Kuo (2017[122]) find that the wage penalties often experienced by women after childbirth (OECD, 2018[71]), is smaller in workplaces with flexible hours.

Regarding teleworking, experimental evidence from the United States suggests that the average worker is willing to give up 8% of wages for the option to telework – but even though women value teleworking up to twice as much more than men, this preference cannot explain a large part of existing gender wage gaps (Mas and Pallais, 2017[115]). Yet, in contrast to exploiting an experimental setting but analysing detailed time use data from the United States instead, Pabilonia and Vernon (2022[46]) do find wage premia from actual teleworking uptake but not for everyone: for fathers regardless of how often they telework and women without children who occasionally telework. In this respect, evidence from Italy shows that without dedicated policies, an increase in teleworking would boost the wage of male, older, high-educated, and high-paid employees but not of others, thereby increasing income inequalities (Bonacini, Gallo and Scicchitano, 2020[118]).

The productivity effect

Both the employment and wage effects of teleworking and flexible hours partly depend on how they affect workers' productivity. The effect of teleworking and flexible hours on productivity has been the object of more attention in recent years, although evidence is still patchy. The majority of pre-pandemic[33] studies look at the effect of flexible hours and teleworking together (since the two are usually offered together and therefore hard to separate), analysing the effect on productivity of firms allowing workers to choose both *where and when* to work. Since the integration of teleworking and flexible hours in standard work practices imply transitioning from a system of input control, and working time registration, to a system of output control, in which performance is evaluated through measurable objectives other than the amount of time workers spend at work, these arrangements have sometimes been labelled "trust-based" arrangements. Viete and Erdsiek (2018[123]) for example find that German firms using "trust-based" working practices experienced enhanced productivity returns to mobile ICT equipment as a result. Moreover, a randomised experiment on a sample of workers in a large Italian company causally shows that workers engaging in "smart working" (another term for the combination of teleworking and flexible hours) one day per week have a higher productivity (Angelici and Profeta, 2020[38]). Beckmann (2016[124]) similarly finds a positive effect on firm productivity of introducing "self-managed" working practices, whereby workers have control over the duration, scheduling and location of their work. In a subsequent paper, Beckmann et al. (2017[125]) explain this positive productivity effect by the fact that workers with such flexible working arrangements exert higher effort levels than their peers with fixed working hours. Accordingly, Godart et al. (2017[126]) find that German firms adopting trust-based working practices (regarding hours and place) are more likely to improve products and engage in process innovation.

On teleworking[34] alone, Bloom et al. (2015[117]) conducted an experiment in a Chinese call-centre where they randomly assigned workers to telework or work in the office, and found that teleworking led to a 13% performance increase. By contrast, Monteiro et al. (2019[127]) found a small but significantly negative effect on productivity in Portuguese firms allowing teleworking, albeit with a large degree of heterogeneity: the effect was positive for firms undertaking R&D activities, but negative in others, and in particular in small firms in the sheltered sector employing a below-average skill level workforce. The experiment conducted by Dutcher (2012[128]) showed that teleworking could also have heterogeneous productivity effects depending on the nature of *tasks* affected, with negative effects on productivity when it comes to routine tasks, but positive effects for creative tasks.

When it comes to flexible hours, Boltz et al. (2020[129])'s experiment with routine job workers in Colombia revealed that allowing workers to decide their start and finishing times increased total productivity per worker by as much as 50%. Such productivity gains are likely to be weighed against the organisational costs induced by the transition to flexible working; however, the COVID-19 pandemic has led businesses to identify tasks that can be performed flexibly and many firms have already paid the fixed costs of that transition (Pabilonia and Vernon, 2020[130]).

To sum up, the majority of empirical studies to date point towards positive or neutral effects of teleworking and flexible hours on employment and productivity, albeit with more heterogeneous results for teleworking. At the same time, there is evidence of wage effects increasing pre-existing gender differences and pay gaps, if no counter-acting measure (e.g. pay transparency policies and similar mechanisms (OECD, 2021[131])) are in place to strengthen female bargaining power in firms adopting teleworking and flexible hours. Future research should aim to systematically look at gender-differentiated effects where possible. Another crucial aim for future research would be to address two of the main limitations plaguing existing studies, namely the lack of comparability in the definitions of teleworking and flexible hours used in studies, and the fact that many studies only consider firms willingly adopting teleworking, which limits the potential extrapolation of findings to the universe of firms (OECD, forthcoming[132]). Overall, more evidence is still needed on the productivity, employment and wage effect of teleworking and flexible hours. The next section aims to contribute to that effort by looking at how the adoption of flexible hours affect employment and productivity at the firm-level in Germany.

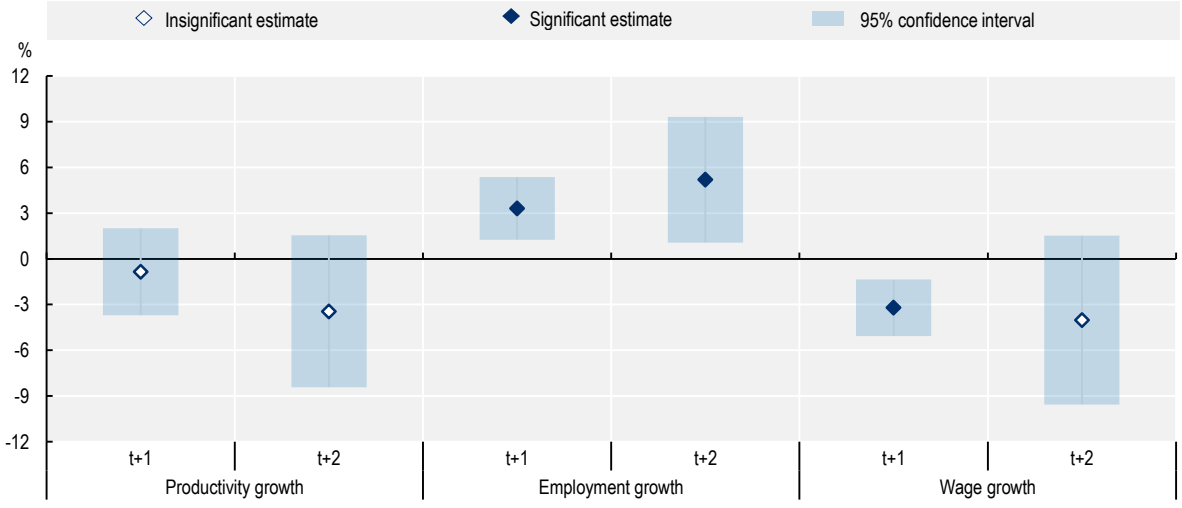
5.2.5. How does the adoption of flexible hours affect firm-level productivity and employment? An analysis on German data

The German IAB Establishment Panel data used for the firm-level analysis on contractual hours reduction above also contains data on whether firms have a system of flexible hours (whereby workers can autonomously determinate their starting and finishing times) in place. This allows replicating the analysis, adapting the identification strategy described in Box 5.3 above. Treatment is now defined as the firm-level adoption of flexible hours, when a firm which previously did not offer flexible hours starts doing so; it is still identified by spells: a treated spell is made of a 4-year period around the year when flexible hours adoption is observed, with at least one pre-year and two post-years without changes in hours. Control spells are stable spells of non-adoption (periods of four consecutive years during which a firm which previously did not have flexible hours continues not to do so). The analysis uses the same matching algorithm and regression specification as described in Box 5.3, adding a variable on the share of workers with a university education, and a dummy variable on whether the firms has changed its use of overtime (started using it, or stopped using it) that year, to obtain a balanced sample. Annex Table 5.D.2 presents descriptive statistics of the balanced sample behind this analysis.

Results are presented in Figure 5.9. The adoption of flexible hours is not significantly associated with growth in productivity per worker in either t+1 or t+2. By contrast, flexible hours adoption is positively and significantly related to employment growth at t+1 and t+2. This result is aligned with findings from the literature, which find that flexible hours have a positive impact on worker's attraction and retention.[35] Finally, the adoption of flexible hours is significantly and negatively related to average wage growth in the first year after the change (while the relationship becomes insignificant at t+2). Therefore, a decrease in average wage growth is observed on average in firms adopting flexible hours, in the year after the adoption of flexible hours. One possible interpretation is that increased autonomy in determining hours through flexible hours might indeed be traded against wage increases in when negotiating wages, as suggested by other results in the literature.

Figure 5.9. How does the adoption of flexible hours relate to changes in productivity, employment and wages in Germany?

Log change expressed in percentage



Note: Results from a regression measuring the association between the interaction of being in the treated group and time on the one hand, and log change in value added per worker, number of employee and change in average wage on the other. The regression is estimated with 2 944 observations for log change in real value added per worker (of which 504 are treated); 3 322 observations for log change in number of employees (563 treated); and 3 330 observations for log change in average real wage (565 treated). Effects at t+1 reflect changes between t and t+1, while effects at t+2 reflects the cumulative effect observed at t+2 (i.e. the change between t and t+2). Please refer to Box 5.3 for the detailed specification used. Compared to the strategy presented in the box, treatment here is defined as a firm-level adoption of flexible hours and identified by spells: a treated spell is made of a 4-year period around the year when flexible hours adoption is observed, with at least one pre-year and two post-years without changes in hours. Two variables were also added in the matching algorithm to arrive at a balanced sample: the share of university educated workers and a dummy variable capturing change in the use of overtime.
Source: OECD estimates based on IAB Establishment panel (1993-2018).

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5.3. Concluding remarks

This chapter discusses the pro-and cons of various working time policies at the disposal of policy makers interested in enhancing workers' well-being, while accounting for their potential adverse effects on employment, wages and productivity. Results from the literature, as well as new empirical evidence presented in this chapter, suggest that reducing normal working hours and facilitating the use of flexible working hours might, in some circumstances, help improve workers' non-material well-being. Reducing normal hours might in particular help improve workers' satisfaction with their free time, their job, and their life more generally, while fostering the use of flexible hours might also help enhance all these three outcomes, together with health satisfaction. Further analyses on these policies' effects on productivity and employment suggest that they might in some circumstances be valid options worth reviewing by policy makers, but impacts on productivity and employment should be closely monitored in the aftermath of the reform. Wide-ranging recommendations are ill-advised as working time policy should always be analysed in their concrete institutional and national contexts.

Reducing normal hours

Provided they are carefully designed and implemented, evidence presented in this chapter suggests that a reduction in normal working hours might enhance workers' well-being without adverse effects on employment and productivity. Analysis of the effects of a number of national legislative reforms and firm level contractual reductions indicate that reducing normal hours (at constant monthly or annual wage) might preserve employment and enhance workers' well-being if the impact on unit labour cost remains limited, either due to sufficient induced productivity gains or to public subsidies, or if the reduction takes place in a pre-existing situation of labour market monopsony. Hence, any foreseen reduction of working hours in the future should be carefully designed to tap into the productivity-enhancing potential of working shorter hours, to generate a positive feedback loop and preserve employment. Moreover, accompanying measures limiting the impact on unit labour costs might also be considered.

Since one key issue here is to identify how to ensure that normal hours reduction generate sufficient productivity gains, a promising way to structure such pre-policy design analyses would be to look, within each country and possibly sector, at the various channels through which reducing hours might be associated with or stimulate such productivity gains (e.g. increased investment, managerial reorganisation and innovation). Reforms should be designed to provide the right incentives for these channels to be activated. For instance, incentives for investing in IT or organisational innovations could be built in to maximise the productivity enhancing potential of reducing hours.

Beyond measures fostering productivity gains, an important parameter that should also be kept in mind when designing working time policy reforms is negotiated wage progression over the implementation period. In that regard, negotiating working time reduction and wage increases together, as a longer term

package deal would allow smoothing the induced increase in hourly wages over a longer period of time, and therefore limiting the rise in unit labour costs.

More generally, careful attention should be devoted to the implementation process, starting with:

- *The initial level of weekly normal hours* applying in the country, as well as the scope of the reduction are also key parameters which are likely to influence the hours reduction effect.
- Second, *the timing of the policy measure*, as robust economic growth – together with productivity and wage growth might provide scope for easing pressure on unit labour costs.
- Third, *the mode of adoption*, e.g. by law or collective bargaining, is also important: legislative reforms on the one hand, can ensure a maximum coverage of the measure, but could on the other be perceiced as a straightjacket for some enterprises or sectors; in that sense, collective bargaining has been shown to be an efficient tool to negotiate reduction in hours at sectoral level in recent years (OECD, 2019[133]). At the same time, if decisions on working hours are too individualised and not influenced by statutory or negotiated rules, working time policy runs the risk of losing its power as a policy lever altogether.
- Fourth, policy makers could also consider *gradual changes* when implementing the reduction of hours, e.g. to give small firms more time to adjust.
- Finally*, counter-productive effects* should be carefully considered: for instance, to prevent heterogeneous effects among firms/workers and avoid that a reduction of hours result in higher work intensity for workers.

Fostering the use of flexible hours

Since flexible hours are also identified as a potential measure to increase workers' non-material well-being, the chapter considers the effect of adopting such arrangement on employment and productivity. Results from the literature suggest that flexible hours can be a successful means of increasing the labour force attachment of women with children, while also allowing them to remain in their job, occupation and skill-level (by opposition to women opting for part-time who often have to select into lower-paid jobs and occupations allowing for this arrangement). Existing estimates for the wage effects of flexible hours also tend to be positive in the literature but indicate risks of increasing pre-existing gender differences and pay gaps, if no counter-acting measure (e.g. pay transparency policies and similar mechanisms) are in place to strengthen female bargaining power in firms adopting teleworking and flexible hours.

Results from an analysis in German firms find that firms adopting flexible hours also see a decrease in average wage growth – suggesting that consistent with theoretical assumptions, there can also be a possible trade-off between wage increases and higher autonomy in determining hours. In this context, the relevant question for firms might increasingly revolve around how they can implement flexible arrangements to remain attractive to workers in the most beneficial way with regards to other outcomes such as productivity and employment. While additional analyses in other contexts are necessary before allowing for further generalisation, results from the analysis in German firms suggest that this is possible: the adoption of flexible hours resulted on average in an increase of employment, while it did not significantly affect productivity per worker in the sample of firms studied.

Monitoring the development of teleworking

Considering teleworkings widespread development in the aftermath of the COVID-19 crisis, the chapter also considers its relationships with non-material well-being outcomes, employment, wage and productivity. It finds a more ambiguous link between teleworking and workers' non-material well-being than when considering flexible hours: results vary for different outcomes and across countries, in the literature and in the new empirical evidence. In particular, empirical results show a negative association with self-assessed health, and contrasting associations with work-life balance across countries. Turning to

productivity and employment, while associations with teleworking in the empirical literature to date are generally positive, especially in terms of attracting and retaining workers, as well as increasing female labour force attachment, there is heterogeneity across studies and across types of tasks. The literature also suggest that without dedicated counteracting policies, the adoption of teleworking runs the risk of dispropotionately favouring the wage of male, older, high-educated, and high-paid employees but not of others, thereby increasing general income inequalities.

These findings suggest that policy makers should aim to guarantee an enforceable right to access teleworking *across groups*, to limit disparities linked to differences in legal frameworks between different employees – in that regard, the OECD typology of access to teleworking might be a useful basis (OECD, 2021[131]). Crucially, the limited number of results available to date suggest that the effect of teleworking on various outcomes will still need to be closely monitored in the future. In that regard, one important issue to address is the lack of good quality data. Conceiving appropriate data collection strategies now will be key to ensure good quality research capable of informing policy making and considering the many possible repercussions (on gender disparities, on geographical disparities, etc.) in the future.

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Annex 5.A. Additional information on the impact of working hours and working time arrangements on workers' well-being

Regression specification

Effects of working time dimensions on the workers' non-material well-being discussed in Section 5.1 are based on marginal effects derived from individual probit regressions calculated using repeated cross-section data with standard errors clustered at individual level (country fixed effect for estimates based on the European Social Survey) and year fixed effect controlling for demographic characteristics, household composition and income, job characteristics (including contract duration) and life events:

$$Pr(Wit = 1 | Hit, Xit, \delta t) = \Phi(H'it\,\alpha + X'it\,\beta + \delta t)$$

Where *i* and *t* are individual and time suffices, δ are year fixed-effects. *W* is the worker's well-being outcome, *H*, the working hours or working time arrangement indicator and, *X*, the control variables (demographic, household and job characteristics of the individual and life events variables). The marginal effect of the working time indicator on worker's well-being is then computed as:

$$\mu(\mathrm{H}, \alpha) = \frac{\partial \Phi(\mathrm{H}, \alpha)}{\partial \mathrm{H}}$$

Data

The analysis was carried out on two types of data source (See Annex Table 5.A.1):

- national panel data, which have the advantage of containing a wide range of information about individual and household characteristics, working time and life events, and,
- cross-sectional social surveys data, which makes it possible to cover a large number of countries, but for a more limited set of variables.

As most of the indicators and data have only been available since the early 2000s, the analysis has been conducted, as far as possible, over the last two decades, and due to the obvious impact of the COVID-19 pandemic on working time and working time arrangements, the years beyond 2019 have not been considered. Finally, the samples were reduced to keep only those common years with all indicators required for the analysis.

Annex Table 5.A.1. Data sources

Survey	Country covered	Type of data	Years	Obs.
Household Income and Labour Dynamics in Australia (HILDA)	Australia	Panel data	2005-19	132 189
Statistiques sur les ressources et conditions de vie (SRCV);	France	Panel data	2010-19	66 216
Socio-Economic Panel (SOEP)	Germany	Panel data	2002, 2004, 2006, 2008, 2010, 2012, 2014, 2016 and 2018	114 038
Japan Household Panel Survey (KHPS/JHPS)	Japan	Panel data	2010-17	8047
Korean Labor and Income Panel Survey (KLIPS)	Korea	Panel data	2005-19	79 764
Swiss household Panel (SHP)	Switzerland	Panel data	2004-19	69 822
UK Household Longitudinal Study or "Understanding Society" (UKHLS)	United Kingdom	Panel data	2010-11, 2012-13, 2014-15, 2016-17 and 2018-19	98 162
European Social Survey (ESS)	Austria, Belgium, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Hungary, Iceland, Ireland, Israel, Italy, Lithuania, the Netherlands, Norway, Poland, Portugal, the Slovak Republic, Slovenia, Spain, Sweden, Switzerland and the United Kingdom	Cross-sectional social survey data	2010, 2012, 2014, 2016 and 2018	91 608

Self-assessed health and other non-material well-being outcomes

Workers' health is analysed through two self-assessed indicators: health satisfaction and limitations due to physical and/or mental health problems (see Annex Table 5.A.2).

Health satisfaction is generally measured in the different surveys on a scale from 0 (strongly dissatisfied) to 10 (strongly satisfied) and grouped into dummy variables with satisfied employees defined as those with a score between 6 and 10. However for countries covered by the European Social Social Survey (ESS), France and Korea, health satisfaction refers to self-assessed health conditions with employees satisfied by their health as those in good or very health condition.

Limitations due to health problem are defined as the occurrence of these limitations on work activity (yes or no) for Australia and Korea, and, as the frequency of these limitations on daily activity and work on a scale ranging from 1 (always) to 5 (never) for countries covered by the European Social Social Survey (ESS), France, Germany and the United Kingdom. For Switzerland, the question refers to the intensity of limitations coded on a scale of 1 (not at all) to 10 (a great deal). The reference period to which the employee's assessment of these limitations refers varies from one survey to another: over the last four weeks for Australia, Germany and the United Kingdom, over the last six months for France and Korea and a general assessment without a reference period for the European Social Survey and Switzerland.

Annex Table 5.A.2. Health satisfaction and limitations due to health problem

Country	Health satisfaction	No limitations due to health problem
Australia (HILDA)	Q: "All things considered, how satisfied are you with your health?" A: Scale from 0: "Totally dissatisfied" to 10: "Totally satisfied" Recoded as: 0 = 0-5 Not satisfied 1 = 6-10 Satisfied	Q: "During the past four weeks, have you had any of the following problems with your work or other regular daily activities as a result of your physical health?" A: "Had difficulty performing the work or other activities (for example, it took extra effort)" Q: "During the past four weeks, have you had any of the following problems with your work or other regular daily activities as a result of any emotional problems (such as feeling depressed or anxious)?" A: "Didn't do work or other activities as carefully as usual" Recoded as: 0= if answer is yes to one of these questions: Limitations due to physical health problem 1= if answers to both question is no: No limitations due to physical health problem
Europe and Israel (ESS)	Q: "How is your health (physical and mental health) in general?" A: 1: "very good"; 2: "good"; 3: "fair"; 4: "poor"; 5: "very poor" Recoded as: 0=4 or 5: poor health condition 1=1 to 3: good health condition	Q: "Are you hampered (i.e. limited, restricted) in your daily activities in any way by any longstanding illness, or disability, infirmity or mental health problem?" A: 1 "Yes a lot"; 2 "Yes to some extent"; and 3 "No" Recoded as: 0 = 1 or 2: Limitations due to health problem 1 = 3: No limitations due to health problem
France (SRCV)	Q: "How is your health in general?" A: 1: "very good"; 2: "good"; 3: "fair"; 4: "poor"; 5: "very poor" Recoded as: 0=4 or 5: poor health condition 1=1 to 3: good health condition	Q: "Have you been limited for at least six months by a health problem (i.e. discomfort, difficulties, after-effects of accidents) in the activities that people usually do?" A: 1 "Yes, strongly limited"; 2 "Yes, limited"; and 3 "No, not limited" Recoded as: 0 = 1 or 2: Limitations due to health problem 1 = 3: No limitations due to health problem
Germany (SOEP)	Q: "How satisfied are you today with your health?" A: Scale from 0: "completely dissatisfied" to 10: "completely satisfied" Recoded as: 0 = 0-5 Not satisfied 1 = 6-10 Satisfied	Q: "How often in the last four weeks, due to health problems of a physical nature, have you been restricted in the type of tasks you can perform in your work or everyday activities?" A: Scale from 1: Always to 5: Never Recoded as: Q: "How often in the last four weeks, due to psychological or emotional problems, did you achieve less in your work or everyday activities than you actually intended?" A: Scale from 1: Always to 5: Never Recoded as: 0= if answers 1 or 2 to one of these questions: Limitations due to physical health problem 1= if answers 3 to 5 to both question: No or few limitations due to physical health problem

Country	Health satisfaction	No limitations due to health problem
Japan (KHPS/ JHPS)	Q: "How do you feel about the present situation regarding your health?" A: Scale from 0: "not at all satisfied" to 10: "fully satisfied" Recoded as: 0 = 0-5 Not satisfied 1 = 6-10 Satisfied	
Korea (KLIPS)	Q: "How would you rate your overall health?" A: 1: "excellent"; 2 "good"; 3 "fair"; 4 "poor"; 5 "very poor" Recoded as: 0=4 or 5: poor health condition 1=1 to 3: good health condition	Q: "Have you had any persistent – i.e. six months or longer – difficulties in the following activities by physical, mental or emotional conditions? " A: "Difficulties in working (economic activity)" 0= Limitations due to physical health problem 1= No limitations due to physical health problem
Switzerland (SHP)	Q: "How satisfied are you with your state of health, if 0 means "not at all satisfied" and 10 "completely satisfied"?" Recoded as: 0 = 0-5 Not satisfied 1 = 6-10 Satisfied	Q: "Please tell me to what extent, generally, your health is an impediment in your everyday activities, in your housework, your work or leisure activities? 0 means not at all and 10 a great deal" A: Scale from 0: Not at all to 10: Very strongly Recoded as: 0 = 5-10 Limitations due to physical health problem 1 = 0-4 No or few limitations due to physical health problem
United Kingdom (UKHLS)	Q: "On a scale of 1 to 7 where 1 means 'Completely dissatisfied' and 7 means 'Completely satisfied', how dissatisfied or satisfied are you with your health?" Recoded as: 0 = 1-4 Not satisfied 1 = 5-7 Satisfied	Q: "During the past four weeks, how much of the time have you had any of the following problems with your work or other regular daily activities as a result of your physical health? A: "Accomplished less than you would like". Scale from 1: "All of the time" to 5: "None of the time" Q: "During the past four weeks, how much of the time have you had any of the following problems with your work or other regular daily activities as a result of any emotional problems (such as feeling depressed or anxious)? A: "Accomplished less than you would like". Scale from 1: All of the time to 5: None of the time Recoded as: 0= if answers 1 or 2 to one of these questions: Limitations due to physical health problem 1= if answers 3 to 5 to both question: No or few limitations due to physical health problem

Note: Q: question asked; A: Answers.

Other non-material well-being outcomes (see Annex Table 5.A.3) refer to the evaluation of employees' satisfaction with life in general, health, current job, work-life balance and satisfaction with free time. Satisfaction is generally measured in the different surveys on a scale from 0 (strongly dissatisfied) to 10 (strongly satisfied). In the case of the United Kingdom, satisfaction is measured on a scale from 1 (completely dissatisfied) to 7 (completely satisfied) and for Korea on a scale from 1 (very satisfied) to 5: (very dissatisfied). Work-life balance indicators are generally based on questions about the difficulties to reconcile work and family obligations excepted for Germany where this variable refers to the satisfaction with housework. Satisfaction with free time refers to satisfaction with leisure without any clear reference to time spent for France.

Annex Table 5.A.3. Life satisfaction, job satisfaction, work-life balance and satisfaction with free time

Outcome	Country	Question	Answer	Recoding
1. Life satisfaction	Australia (HILDA)	"All things considered, how satisfied are you with your life?"	Scale from 0: Totally dissatisfied to 10: Totally satisfied	Not satisfied: answers 0 to 5 Satisfied: answers 6 to 10
	Europe and Israel (ESS)	"All things considered, how satisfied are you with your life as a whole nowadays?"	Scale from 0: Extremely dissatisfied to 10: Extremely satisfied	Not satisfied: answers 0 to 5 Satisfied: answers 6 to 10
	France (SRCV)	"On a scale from 0 (not at all satisfied) to 10 (completely satisfied), indicate your overall life satisfaction"	Scale from 0: not at all satisfied to 10: completely satisfied	Not satisfied: answers 0 to 5 Satisfied: answers 6 to 10
	Germany (SOEP)	"How satisfied are you today with your life?"	Scale from 0: completely dissatisfied to 10: completely satisfied	Not satisfied: answers 0 to 5 Satisfied: answers 6 to 10
	Japan (KHPS/JHPS)	"How do you feel about the present situation regarding overall life?"	Scale from 0: not at all satisfied to 10: fully satisfied	Not satisfied: answers 0 to 5 Satisfied: answers 6 to 10
	Korea (KLIPS)	"Overall, how satisfied or dissatisfied are you with your life?"	1: very satisfied; 2: satisfied; 3: neither satisfied nor dissatisfied; 4: dissatisfied; 5: very dissatisfied	Not satisfied: answers 3 to 5 Satisfied: answers 1 to 2
	Switzerland (SHP)	"In general, how satisfied are you with your life if 0 means "not at all satisfied" and 10 means "completely satisfied"?"	Scale from 0: not at all satisfied to 10: completely satisfied	Not satisfied: answers 0 to 5 Satisfied: answers 6 to 10
	United Kingdom (UKHLS)	"On a scale of 1 to 7 where 1 means 'Completely dissatisfied' and 7 means 'Completely satisfied', how dissatisfied or satisfied are you with your life overall?"	Scale from 1: Completely dissatisfied to 7: Completely satisfied	Not satisfied: answers 1 to 4 Satisfied: answers 5 to 7
2. Job satisfaction	Australia (HILDA)	"All things considered, how satisfied are you with your job?"	Scale from 0: Totally dissatisfied to 10: Totally satisfied	Not satisfied: answers 0 to 5 Satisfied: answers 6 to 10
	France (SRCV)	"On a scale from 0 (not at all satisfied) to 10 (completely satisfied), indicate your satisfaction with main job"	Scale from 0: not at all satisfied to 10: completely satisfied	Not satisfied: answers 0 to 5 Satisfied: answers 6 to 10
	Germany (SOEP)	"How satisfied are you today with your job?"	Scale from 0: completely dissatisfied to 10: completely satisfied	Not satisfied: answers 0 to 5 Satisfied: answers 6 to 10
	Japan (KHPS/JHPS)	"How do you feel about the present situation regarding your employment?"	Scale from 0: not at all satisfied to 10: fully satisfied	Not satisfied: answers 0 to 5 Satisfied: answers 6 to 10
	Korea (KLIPS)	"What is your feelings regarding your current job (work, tasks)?" I am satisfied with my current job	1: strongly disagree, 2: disagree 3: neutral; 4: agree; 5: strongly agree	Not satisfied: answers 1 to 3 Satisfied: answers 4 or 5

Outcome	Country	Question	Answer	Recoding
	Switzerland (SHP)	"On a scale from 0 "not at all satisfied" to 10 "completely satisfied" can you indicate your degree of satisfaction for each of the following points?"	Scale from 0: not at all satisfied to 10: completely satisfied	Not satisfied: answers 0 to 5 Satisfied: answers 6 to 10
	United Kingdom (UKHLS)	"On a scale of 1 to 7 where 1 means 'Completely dissatisfied' and 7 means 'Completely satisfied', how dissatisfied or satisfied are you with your present job?"	Scale from 1: Completely dissatisfied to 7: Completely satisfied	Not satisfied: answers 1 to 4 Satisfied: answers 5 to 7
3. Work-life balance	Australia (HILDA)	"All things considered, how satisfied are you with the flexibility available to balance work and non-work commitments (in your main job)?"	Scale from 0: Totally dissatisfied to 10: Totally satisfied	Bad work-life balance: answers 0 to 5 Good work-life balance: answers 6 to 10
	France (SRCV)	"Do you find it difficult to reconcile work and family obligations?"	1 "Always"; 2 "Often"; 3 "Sometimes"; 4 "Never"	Bad work-life balance: answers 1 or 2 Good work-life balance: answers 3 or 4
	Germany (SOEP)	"How satisfied are you today with housework?"	Scale from 0: completely dissatisfied to 10: completely satisfied	Bad work-life balance: answers 0 to 5 Good work-life balance: answers 6 to 10
	Switzerland (SHP)	"How strongly does your work interfere with your private activities and family obligations, more than you would want this to be, if 0 means "not at all" and 10 "very strongly"?"	Scale from 0: not at all to 10: very strongly	Bad work-life balance: answers 5 to 10 Good work-life balance: answers 0 to 4
4. Satisfaction with free time	Australia (HILDA)	"All things considered, how satisfied are you with the amount of free time you have?"	Scale from 0: Totally dissatisfied to 10: Totally satisfied	Not satisfied: answers 0 to 5 Satisfied: answers 6 to 10
	France (SRCV)	"On a scale from 0 (not at all satisfied) to 10 (completely satisfied), indicate your satisfaction with leisure"	Scale from 0: not at all satisfied to 10: completely satisfied	Not satisfied: answers 0 to 5 Satisfied: answers 6 to 10
	Germany (SOEP)	"How satisfied are you today with your leisure time?"	Scale from 0: completely dissatisfied to 10: completely satisfied	Not satisfied: answers 0 to 5 Satisfied: answers 6 to 10
	Japan (KHPS/JHPS)	"How do you feel about the present situation regarding your amount of leisure time?"	Scale from 0: not at all satisfied to 10: fully satisfied	Not satisfied: answers 0 to 5 Satisfied: answers 6 to 10
	Switzerland (SHP)	"How satisfied are you with the amount of free time you have, if 0 means "not at all satisfied" and 10 "completely satisfied"?"	Scale from 0: not at all satisfied to 10: completely satisfied	Not satisfied: answers 0 to 5 Satisfied: answers 6 to 10
	United Kingdom (UKHLS)	"On a scale of 1 to 7 where 1 means 'Completely dissatisfied' and 7 means 'Completely satisfied', how dissatisfied or satisfied are you with the amount of leisure time you have?"	Scale from 1: Completely dissatisfied to 7: Completely satisfied	Not satisfied: answers 1 to 4 Satisfied: answers 5 to 7

Working hours and working-time arrangements

The impact of working time and working time arrangement (see Annex Table 5.A.4) is assessed through actual weekly working hours, reasons for part-time work, hour's mismatches, telework and flexitime. Actual weekly working hours include overtime hours and exclude commuting hours (and when specified, excluding meal time) and have been recoded into dummy variables according to an increasing threshold of hours worked (from 20 to 55 hours) and then included one by one in the regressions in order to test the impact of increasing hours on workers' well-being. Involuntary part-time, voluntary part-time job (caring reasons) and voluntary part-time job (free choice) are based on employees' stated reasons for working part-time and are available for Australia, France, Germany (only for involuntary part time), Japan and Switzerland. Involuntary part-time refers to employees who could not find a full-time job. In the case of Germany, this indicator refers to part-time employees for whom the hours usually worked are not sufficient. A voluntary part-time job by choice refers to part-time employees who prefer part-time job (Australia and Japan) or are not interested in full-time job (France and Switzerland); voluntary part-time for caring reasons refers to employees with a part-time job due to own illness or disability, cares for children, disabled or elderly relatives or other personal or family responsibilities. For Japan, voluntary part-time for caring reason refers to employees holding a part-time job because they cannot work full-time due to personal or other reasons.

Hours mismatches (wish to work more or less) are based on preferred weekly hours worked that employees wish to work taking into account that this change may affect their income. This indicator is only available for Australia, Germany and Switzerland. For the latter, the question asked does not explicitly take into account how income may be affected ("How many hours a week would you like to work as regards your main activity?").

The information on telework is very close to the usual definition for Australia and the United Kingdom. Indeed, the HILDA and Understanding Society surveys identify teleworking employees by asking, firstly, whether this form of organisation is agreed or authorised by the employer and, secondly, whether the employee works at least one hour at telework. For Germany, telework refers to employees working at home, and, for Switzerland, to employees working at home for overtime, always or sometimes and using a computer at work.

Information on employees working under flexitime arrangement refers to a specific question on this form of working time arrangement for the United Kingdom while for Australia, Germany, Korea and the United Kingdom, flexitime is derived from question about work scheduling and the ability of employees to determine their working hours. Flexitime refers to employees who consider that their working hours can be flexible for Australia (score of 6 to 10 on a scale of 0: strongly disagree to 10: strongly agree), to employees who decide their own working hours for Germany ("self-determined working time") and Japan ("Flex time system, i.e. self-starting and ending time self-adjustment within certain hours"), Korea ("working hours determined at employee discretion") and Switzerland (Hours varied from day to day and decided by the employee).

Annex Table 5.A.4. Working time arrangement indicators

Survey	Hours mismatches	Reasons for PT job	Telework	Flexitime
Australia (HILDA)	Q: "If you could choose the number of hours you work each week, and taking into account how that would affect your income, would you prefer to work"	Q: "You have said that (currently) you usually work fewer than 35 hours per week. What is the main reason for your working part-time hours rather than full-time hours?" Recoded as: Involuntary PT job: 6 "Could not find full-time work" or 12 "Prefer job & part-time hours are a requirement of the job" Voluntary PT job (choice): 7 "Prefer part-time work" Voluntary PT job (caring reasons): 1 "Own illness or disability", 2 "Caring for children", 3 "Caring for disabled or elderly relatives (not children)" and 4 "Other personal or family responsibilities"	Q: "Are the hours worked at home the result of a formal arrangement with your employer?" A: 1 "Yes" Q: "In your main job, are any of your usual working hours worked at your home (that is, the address of your usual place of residence)? A: 1 "Yes"	Q: "My working times can be flexible" A: Scale from 1: strongly disagree to 7: Strongly agree Recoded as: 1 = 6-7 Flexitime 0 = 1-5 No flexitime
France (SRCV)		A: Which of the following is the main reason why you work, on average, less than 30 hours per week (in all jobs)? Recoded as: Involuntary PT job: 4. "Although you would like to work more, you cannot find a job with more hours" or 6. "The combined hours of all your jobs are equivalent to full time" Voluntary PT job (choice): 5. "You do not want to work more" Voluntary PT job (caring reasons): 2. "You have health problems (illness or disability)" or 3. "You are involved in housekeeping, childcare or other of children or other people"		
Germany (SOEP)	Q: "If you could choose your own working hours, taking into account that your income would change according to the number of hours: How many hours would you want to work?"	Involuntary PT job proxied using PT status and wish to work less.	Q: "Does it happen that you do your job at home?" A: 1 "Yes"	Q: "There are very different working arrangements nowadays. Which of the following applies to your work best?" A: 3 "Self-determined working time"

Survey	Hours mismatches	Reasons for PT job	Telework	Flexitime
Japan (KHPS/ JHPS)	-	Q: "Why do you work under that work status?" Recoded as: Involuntary PT job: 1 "I wanted to work as a regular employee but no company would hire me" Voluntary PT job (choice): 2 "The wages and working terms and conditions are good" Voluntary PT job (caring reasons): 3 "I cannot work as a regular employee due to personal reasons" or 4 "Other"	-	Q: "Which of the following is closest to your work system (working hours system)?" A: 2 "Flex time system (self-starting and ending time self-adjustment within certain hours)"
Korea (KLIPS)				Q: "How work hours are determined?" A: 4 "Own discretion"
Switzerland (SHP)	Q: "How many hours a week would you like to work as regards your main activity?"	Q: "Why do you work part-time?" Recoded as: Involuntary PT job: 4 "because you could not find a full-time job" Voluntary PT job (choice): 5 "because you are not interested in working full-time" Voluntary PT job (caring reasons): 1 "for family reasons/caring for children or relatives" or 3 "because of a disability or illness"	Q: "Do you sometimes work at home?" A: 1 Yes, overtime, 2 Yes, occasionally, 3 Yes, always Q: "Do you personally use a computer in your job?" A: 1 "Yes"	Q: "Are your working hours…" (type of working hours) A: 4 "Varies from day to day, you decide"
United Kingdom (UKHLS)			Q: I would like to ask about working arrangements at the place where you work. Which of the following arrangements are available at your workplace? Work from home on a regular basis" A: 1 "Yes" Q: "Do you currently work in any of these ways? Work from home on a regular basis" A: 1 "Yes"	Q: I would like to ask about working arrangements at the place where you work. Which of the following arrangements are available at your workplace? Flexi-time" A: 1 "Yes" Q: "Do you currently work in any of these ways? Flexi-time" A: 1 "Yes"

Note: Q: question asked; A: Answers.

Additional control variables

To address composition effects and factors that may affect the perception of workers' non-material well-being, regressions include four types of variable controls:

Socio-demographic characteristics of the employee: sex, age group, marital status and migration status:

Household characteristics: household composition (number of members and number of children aged 0-4, 5-9 and 10-14) and deciles of the gross household income;

Job characteristics: job autonomy, contract duration (permanent vs temporary or regular vs irregular contract for Korea), type of contract (full-time / part-time job), existence of other jobs, job tenure, occupation, supervisory responsibilities, hourly earnings deciles, industry, sector (public / private), firm size and, where possible, overtime rules and compensation; and life events last year: pregnancy and/or birth, death of close relatives or friends, change of residence, change in marital status, change in working life (promotion, separation etc.), own illness or illness of household member, other serious life events (violence, conflict, jail etc.).

In the case of the European Social Survey (ESS), control variables on job characteristics and life event are more limited in number than for the other data sources and the results from this survey should be compared with caution (see Annex Table 5.A.5). For the other countries, the availability of the first three sets of controls is relatively complete except for job autonomy (only available for Australia and the United Kingdom), the existence of side job (Germany and Korea), job tenure (France and Switzerland but this variable is approximated by work experience and the United Kingdom due to lack of reliable information on the start dates of current employment), supervisory responsibilities (Germany, Japan and Korea) and overtime rules and compensation (only available for Germany and Korea). Life event contain a heterogeneous amount of information that was not always possible to find or derive in most surveys. The Australian data contains by far the most information as specific questions on life events in the past year were asked. For the other panel data (France, Germany, Japan, Korea, Switzerland and the United Kingdom) information was derived from information on household members and information for the same individual last year. For the European Social Survey (ESS), information is scarce and relate mainly on violence and discrimination.

Annex Table 5.A.5. Control variables

Control variable	ESS	GWP	HILDA	SRCV	SOEP	KHPS /JHPS	KLIPS	SHP	UKHLS
1. Demographic characteristics									
Sex, age groups and education	●	●	●	●	●	●	●	●	●
Marital status	●	●	●	●	●	●	●	●	●
Migration status	●	●	●	●	●			●	●
2. Household characteristics									
Region of residence	●	●	●	●	●	●	●	●	●
household income deciles	●	●	●	●	●	●	●	●	●
Number of HH members	●	●	●	●	●	●	●	●	●
Number of child(ren)	●	●	●	●	●	●	●	●	●
3. Job characteristics									
Job autonomy	●	●[1]	●						●
Contract duration (permanent vs temporary)	●		●	●	●	●[2]	●[2]	●	●
Contract (FT vs PT)		●	●	●	●	●	●	●	●
Side jobs			●	●		●		●	●
Job tenure			●	●[3]	●	●	●	●[3]	
Occupation	●		●	●	●	●	●	●	●
Supervisory responsibilities			●	●				●	●
Hourly earnings deciles			●	●	●	●	●	●	●
Industry	●		●	●	●	●	●	●	●
Sector (public vs private)	●		●	●	●	●	●	●	●
Firm size	●		●	●	●	●	●	●	●
Overtime rules and compensation					●		●		
4. Life events since last year									
Pregnancy and/or birth			●	●	●	●	●	●	●
Death of close relatives or friends			●	●	●	●	●	●	
Change of residence			●	●	●	●	●	●	●
Change in marital status			●	●	●	●	●	●	●
Change in working life			●	●		●			●
Own illness or illness of household member			●					●	
Other serious life events (violence, conflict, jail etc.)	●	●	●					●	

Note: [1]: Employees engaged in their job. [2] Regular versus irregular contracts according to the national definition. [3] Total work experience.in regular paid job. ESS: European Social Survey; GWP : Gallup World poll; HILDA: Household Income and Labour Dynamics in Australia; SRCV: Statistiques sur les ressources et conditions de vie (France); SOEP: Socio-Economic Panel (Germany); KHPS / JHPS: Japan Household Panel Survey (Japan); KLIPS: Korean Labor and Income Panel Survey (Korea); SHP: Swiss household Panel (Switzerland); UKHLS: UK Household Longitudinal Study or "Understanding Society" (United Kingdom).

Annex 5.B. Additional information on the impact of working time reductions in Europe

Annex Table 5.B.1. Average differential Impact of Normal Hours Reductions between sectors with above and below median intensity of long hours, 1995-2007

	A. Discrete treatment variable		B. Continuous measure of initial exposure	
	Without controls	With controls	Without controls	With controls
Percentage share of workers affected by reform	-4.863***	-4.773***	-34.124***	-33.909***
	(1.369)	(1.381)	(10.939)	(10.933)
Log of average annual hours per worker	-0.014***	-0.013***	-0.063***	-0.059***
	(0.004)	(0.004)	(0.018)	(0.019)
Log of total hours worked within a sector	-0.040**	-0.036**	-0.184**	-0.172**
	(0.018)	(0.017)	(0.093)	(0.088)
Log employment	-0.026	-0.023	-0.120	-0.113
	(0.017)	(0.027)	(0.086)	(0.080)
Log labour productivity (VA per worker)	-0.003	-0.002	0.102	0.110
	(0.023)	(0.022)	(0.120)	(0.115)
Log hourly labour productivity (VA per hour worked)	0.011	0.012	0.165	0.169
	(0.023)	(0.022)	(0.112)	(0.119)
Log of compensation per worker	0.001	0.004	0.008	0.007
	(0.011)	(0.010)	(0.062)	(0.057)
Log of compensation per hour worked	0.015	0.018	0.071	0.066
	(0.012)	(0.011)	(0.062)	(0.055)

Note: This table gives the estimates of Equation 5.1 and Equation 5.2 presented in Box 5.2 on the share of workers above the threshold, and the log of average hours per worker, employment, value added per hour and compensation per hour. Share of workers affected by reform indicates the share of workers working more than the value specified by the existing legislation (for countries without a reform) or introduced by the reform (for countries with reform). Sectors are weighted by the within – country share of employment in the pre-reform period. Standard errors are clustered at the country × sector level. Panel A gives the results of Equation 5.1 with a discrete treatment variable. Panel B presents the results of Equation 5.2) with a continuous measure of initial exposure (the share of workers above the threshold). Panel A shows the effect of being in a sector above the median of exposed workers before the reform; Panel B, the effect of going from 0 to 100% of workers exposed to the reform. Controls included are at the 2-digits Nace Rev.1.1. from an ad hoc extraction by EUROSTAT, and include age, education, gender, type of contracts, tenure and occupation. Regressions are calculated with 7 345 observations.

Source: Batut, Garnero and Tondini (2022[109]), "The Employment Effects of Working Time Reductions: Sector-Level Evidence from European Reforms", FBK-IRVAPP Working Papers Series.

Annex 5.C. Comprehensive literature review on the employment effect of change in hours worked

Annex Table 5.C.1. Comprehensive literature review on the employment effect of change in hours worked

Robustness level	Author and year	Title	Method	Data	Type of change	Outcomes	Empirical scope	Results
Theoretical	(Zwickl, Disslbacher and Stagl, 2016[134])	*Work sharing for a sustainable economy*	Theoretical discussion	N/A	Hours reduction	Unemployment	N/A	Little expected employment effect of working time reduction reforms and consider it promising to mitigate unemployment in context of low growth.
Theoretical	(Fagnart, Germain and Van der Linden, 2020[135])	*Working Time Reduction and Employment in a Finite World*	Theoretical modelling	N/A	Hours reduction	Hours worked, earnings per worker, employment, unemployment, hourly wage.	N/A	The impact of working time reductions (WTRs) on (un)employment and the hourly wage is expected to depend on the relative scarcity of natural resources used in the economy. If the resource inflow was unlimited, a WTR would lower the employment and wage levels in the long run. When the resource inflow is finite the economy tends toward a stationary state with a finite output level. If the resource is scarce enough, notably if the technical progress on human factors (labour and capital) is unbounded, a WTR has a favourable effect on employment and on the hourly wage.

Robustness level	Author and year	Title	Method	Data	Type of change	Outcomes	Empirical scope	Results
Theoretical	(Calmfors and Hoel, 1988[81])	*Work Sharing and Overtime*	Theoretical modelling	N/A	Statutory hours reduction	Employment, overtime hours.	N/A	A reduction in statutory hours is expected to increase the cost per worker in relation to the cost of overtime, with the consequence that firms substitute overtime for workers. When output is fixed by demand, this substitution effect may reduce employment. Second, when firms choose a profit-maximising level of output, the cost increase due to a reduction in normal working time produces, in addition, a negative scale effect on employment. With a fixed output level, an employment increase can always be achieved, however, through the combination of an increased overtime premium and reduced normal working time that produces a substitution effect in the right direction.
Theoretical	(Schank, 2015[136])	*Employment effects of longer working hours*	Theoretical modelling	N/A	Negotiated hours increase	Employment, wages.	N/A	Extending work hours may reduce employment in the short term but may increase it in the long term if hourly pay remains constant (which means a welfare decline for workers). Extending standard hours could also safeguard jobs in firms under competitive pressure.
Theoretical	(Marimon and Zilibotti, 2000[137])	*Employment and distributional effects of restricting working time*	Theoretical modelling	N/A	Hours reduction	Employment, profits, output.	N/A	Small reductions in working time starting from the laissez-faire equilibrium solution, always result in a small increase in the equilibrium employment, while larger reductions reduce employment. The regulation benefits workers, both unemployed and employed (even if wages decrease and even in cases where employment falls), but reduces profits and output.
Theoretical	(Rocheteau, 2002[138])	*Working time regulation in a search economy with worker moral hazard*	Theoretical modelling	N/A	Hours reduction	Employment, worker well-being	N/A	When unemployment is high, reducing working hours increases aggregate employment. At the opposite, for low unemployment countries, a working time reduction worsens the labour market situation. If the working time reduction takes place with no wage loss, the model predicts a non-ambiguous increase in the equilibrium unemployment rate.

Robustness level	Author and year	Title	Method	Data	Type of change	Outcomes	Empirical scope	Results
Theoretical	(Contensou and Vranceanu, 2000[139])	*A model of working time under utility competition in the labour market*	Theoretical modelling	N/A	Hours reduction	Employment.	N/A	If a limit on the duration of work is imposed to an initially free system, at first, a favourable effect on employment might be achieved for a constant utility level of workers. A too "strong" working-time constraint would have a perverse effect on the demand for workers.
Correlational	(Andrews, Schank and Simmons, 2005[84])	*Does worksharing work? Some empirical evidence from the IAB establishment panel*	Fixed effects regression analysis	Firm-level	Contractual hours reduction.	Employment, overtime hours.	Germany	A regression analysis of hours reduction on employment level shows non-significant results in most cases, except in small plants in the non-service sector in East Germany, where effects are strongly positive.
Correlational	(Brown and Hamermesh, 2019[88])	*Wages and Hours Laws: What Do We Know? What Can Be Done?*	Literature review	N/A	Applicability of overtime pay	Demand for overtime, weekly hours, employment	United States	Overtime provisions have only small effects on labour-market outcomes: they reduce employers' demand for overtime hours, and weekly hours of work slightly. The law probably spreads employment among a few more labour-force participants, although total labour input – hours per worker times employment – probably decreases because hours drop more than employment increases. In the long run it has no impact on unemployment rates.
Correlational	(Sagyndykova and Oaxaca, 2019[83])	*Raising the overtime premium and reducing the standard workweek: short-run impacts on US manufacturing*	Model estimation	Individual-level	Overtime premium increase and statutory hours reduction	Employment, wages, capital use, weekly hours.	Unites States	The simulation results suggest that raising the overtime premium to double-time would have a modest negative impact on employment and aggregate earnings growth and a negligible effect on the growth rate of weekly hours and earnings per worker. Lowering the standard workweek from 40 hours to 35 hours would reduce the industry-wide employment growth rate by a substantial -1.54 percentage points. Overall, the growth rate effects for capital, aggregate hours, total earnings, and weekly hours and earnings per worker would also be substantially negative.

Robustness level	Author and year	Title	Method	Data	Type of change	Outcomes	Empirical scope	Results
Correlational	(Fiole, Roger and Rouilleault, 2002[89])	*Les effets sur l'emploi de la loi du 11 juin 1996 sur la réduction du temps de travail*	Difference-in-difference (DiD) with self- selection issues	Firm-level	Negotiated hours reduction	Employment growth	France	The analysis finds a positive effect of working hours reduction on employment growth.
Correlational	(Friesen, 2001[140])	*Overtime pay regulation and weekly hours of work in Canada*	Fixed effects regression analysis	Individual-level	Statutory hours reduction.	Hours, moonlighting, wages.	Canada	Coverage by overtime pay regulation is associated with an increase in the straight-wage rate. The constraints created by overtime pay regulation appear to induce a considerable number of workers to take up a second, moonlighting job.
Correlational	(Husson, 2002[90])	*Réduction du temps de travail et emploi: une nouvelle évaluation*	Regression analysis	Country level	Statutory hours reduction.	Job creation, productivity	France	The estimation of the impact of working time in the production function suggests that 500 000 jobs were created between 1997 et 2001 thanks to the reduction of working time in France.
Correlational	(Hunt, 1999[85])	*Has Work-Sharing Worked in Germany?*	Fixed effects regression analysis	Industry-level & individual-level	Negotiated hours reduction.	Employment, actual hours worked, wages.	Germany	Results are insignificant when including industry-specific trends (which is essential with this identification strategy) and when considering the whole sample (only particular specification concentrating on men only sometime yield significant negative results.
Correlational	(Trejo et al., 2016[86])	*Does the statutory overtime premium discourage long workweek?*	Regression analysis	Industry-level	Applicability of overtime pay.	Overtime hours, total hours, employment (derived).	United States	Increases in overtime pay coverage did not reduce overtime incidence and hours. Authors suggest that employment is therefore unlikely to have been affected (although no direct analysis).
Correlational	(Kramarz et al., 2008[87])	*Working time developments in Germany*	Fixed effects regression analysis	Firm-level	Contractual hours increase.	Employment, productivity, wages, rate of female employment.	Germany	Firms that increase standard hours also have decreasing employment when firms that decrease standard hours have stable employment. In particular, when standard hours increase, firms use less part-time workers as theory predicts (full time workers become less costly). In Western Germany increasing standard hours is marginally significantly associated with an increase in productivity; decreasing standard hours is associated with unchanged productivity. Decreasing hours does not affect employment growth.

Robustness level	Author and year	Title	Method	Data	Type of change	Outcomes	Empirical scope	Results
Correlational	(Steiner, Peters and Steiner, 2000[82])	*Employment effects of work sharing: an econometric analysis for West Germany*	Regression analysis	Industrial level	Contractual hours reduction.	Employment, unemployment, wages.	Germany	Labour demand elasticities with respect to real wages differ significantly between unskilled, skilled and high-skilled workers. Given wages, the direct employment effect of a reduction in weekly normal hours is negligible for all three groups. However, taking the adjustment of wages into account, the net employment effect becomes negative on average. This negative effect is particularly strong for the unskilled.
Correlational	(Kapteyn, Kalwij and Zaidi, 2004[79])	*The myth of worksharing*	Regression analysis	Country-level	Statutory hours reduction	Employment and wages	16 OECD countries	The results show a positive direct effect on employment of a reduction in working hours. However, taking into account indirect effects, in particular the upward effects on wages, we find that the long-run effect becomes small and insignificant.
Quasi-causal	(Estevão and Sá, 2006[95])	*Are the French Happy with the 35-Hour Workweek?*	Difference-in-difference (DiD) with imperfectly comparable control group	Individual level	Statutory hours reduction.	Hours distributions, wages, dual job holdings, transition from large to small firms, employment, satisfaction with hours.	France	Employment of persons directly affected by the law declined, although the net effect on aggregate employment was not significant. The law constrained the choice of a significant number of individuals: dual-job holdings increased, some workers in large firms went to small firms where hours were not constrained, and others were replaced by cheaper, unemployed individuals as relative hourly wages increased in large firms.
Quasi-causal	(Costa, 2000[96])	*Hours of Work and the Fair Labor Standards Act: A Study of Retail and Wholesale Trade, 1938-50*	Difference in difference (DiD) with imperfectly comparable control group.	Industry-level and individual level	Applicability of overtime pay.	Employment, overtime hours, total hours.	Unites States	The paper finds no clear effect on employment (and supposes that the positive effect was offset by a negative effect -unproven – of the parallel increase in the minimum wage).
Quasi-causal	(Yu and Peetz, 2018[141])	*Non-Standard Time Wage Premiums and Employment Effects: Evidence from an Australian Natural Experiment*	Difference-in-difference (DiD) with imperfectly comparable control group	Country-level and individual level	Applicability of overtime pay	Labour force participation, wages	Australia	Results show that the introduction of a Sunday overtime premium in Australia did not have negative employment effects, but resulted in more flexible hours (though in an industry dominated by casual employment).

Robustness level	Author and year	Title	Method	Data	Type of change	Outcomes	Empirical scope	Results
Quasi-causal	(Crépon and Kramarz, 2002[91])	*Employed 40 Hours or Not Employed 39: Lessons from the 1982 Mandatory Reduction of the Workweek*	Difference-in-difference (DiD) with imperfectly comparable control group	Individual-level	Statutory hours reduction.	Job losses, hours change.	France	Workers more affected by the reform were less likely to be employed after it than observationally identical workers who were not affected by it. Workers more affected lost their jobs more often than less affected – especially minimum wage workers; better compensated workers were less directly affected by the reduction of the workweek.
Quasi-causal	(Skuterud, 2007[97])	*Identifying the Potential of Work-Sharing as a Job-Creation Strategy*	Difference-in-difference (DiD) with imperfectly comparable control group	Individual-level	Statutory hours reduction.	Employment.	Quebec	Results on employment are non-significant: the point estimate is negative, but non-significant throughout, and, crucially, it is not increasing with the share of supposedly affected workers in the industry. These negative – insignificant – coefficients are observed only for men, while coefficients are positive for women.
Quasi-causal	(Sánchez, 2013[98])	*Do reductions of standard hours affect employment transitions?: Evidence from Chile*	Difference-in-Difference (DiD) comparing workers with different likelihood to be affected	Individual-level	Statutory hours reduction	Wages, Employment transitions	Chile	The reduction of standard hours had no significant effects on employment transitions (i.e. no effect on excess job destruction), but had a significant effect on hourly wages (i.e. evidence of wage compensation).
Quasi-causal	(Raposo and van Ours, 2010[92])	*How working time reduction affects jobs and wages*	Difference in Difference (DiD) comparing workers with different likelihood to be affected	Matched employee-employer	Statutory hours reduction	Wages, Employee retention	Portugal	For workers affected the reduction reduced the job separation rate and increased hourly wages, keeping monthly earnings approximately constant. The working hours reduction also affected workers who already worked less than the new norm, who were more likely to lose their job.
Quasi-causal	(Chemin and Wasmer, 2009[99])	*Using Alsace-Moselle Local Laws to Build a Difference-in-Differences Estimation Strategy of the Employment Effects of the 35-Hour Workweek Regulation in France*	Difference-in-difference-in-difference (DDD) with two imperfectly comparable treatment groups	Individual-level	Statutory hours reduction.	Employment, unemployment.	France	No significant effect on employment or unemployment.

Robustness level	Author and year	Title	Method	Data	Type of change	Outcomes	Empirical scope	Results
Quasi-causal	(Andrews et al., 2015[142])	*More hours, more jobs? The employment effects of longer working hours*	Difference-in-Difference (DiD) with matched control group	Firm-level	Contractual hours increase.	Employment, wages.	Germany	Significant positive employment response in firms offering overtime (for which the increase in hours with wage concession corresponds to a fall in labour cost), while they find no effect in firms offering no overtime.
Quasi-causal	(Cahuc and Carcillo, 2014[143])	*The detaxation of overtime hours: lessons from the French experiment*	Difference-in-difference (DiD) with imperfectly comparable control group, complemented by convincing robustness tests.	Individual-level	Overtime pay reduction.	Overtime hours, total hours, employment (derived).	France	Overtime hours of highly qualified employees working in France rose, relative to those of the transborder employees, following the overtime pay reduction. There were no difference in the evolution of hours worked, whatever category of employee is considered. The fact that hours worked do not increase suggests that the measure must have had a very limited effect on employment.
Quasi-causal	(Crépon, Leclair and Roux, 2004[93])	*RTT, productivité et emploi: nouvelles estimations sur données d'entreprises*	Difference-in-Difference (DiD) with self-selection issues but numerous convincing test of parallel trends hypothesis.	Firm-level	Statutory hours reduction	Employment, productivity, wages.	France	Firms adopting the 35 hours saw a slight reduction in total factor productivity, less than expected based on the hours change; employment in these firms increased. Authors posit that this is largely due to wage restraint and social security cuts, rather than to the reduction in hours per se.
Quasi-causal	(Kawaguchi, Naito and Yokoyama, 2017[100])	*Assessing the effects of reducing standard hours: Regression discontinuity evidence from Japan*	Regression Discontinuity Design (RDD)	Firm-level	Statutory hours reduction	Hours worked, monthly wages, annual bonuses, and hires.	Japan	The results of the RD analyses show that the reduction of standard hours from 44 to 40 in the manufacturing industry decreased hours worked, but this effect is not statistically significant when we estimate the average treatment effect. Overall, on average, the reduction of standard hours did not change hours worked, monthly wages, annual bonuses, and employment in statistically significantly ways. Results on new hires are still insignificant when considering heterogeneous establishment types.

Annex 5.D. Balanced samples of treated and control groups for the firm-level analyses in Germany, Korea and Portugal

Annex Table 5.D.1. Balanced samples used in the firm-level analyses on contractual hours reduction in section 5.2.3: descriptive statistics

Country	Variable	Control group mean	Treated group mean	Difference of the means	Means difference 95% CI lower bound	Means difference 95% CI upper bound
Germany	Value added per worker (level)	58 117	57 679	438	-7 983	8 860
	Change in value added per worker (%)	0.23	2.46	2.23	-7.14	2.68
	Log change in value added per worker (main outcome variable)	-0.06	-0.04	-0.02	-0.08	0.04
	Total employment (level)	98	84	14	-11	39
	Change in total employment (%)	1.92	1.06	0.86	-1.54	3.27
	Log change in number of employees (main outcome variable)	0.01	0.00	0.01	-0.02	0.03
	Average wage (level)	1 969	2 075	-106	-260	47
	Change in average wage (%)	0.92	2.61	-1.68	-5.75	2.38
	Log change in average wage (main outcome variable)	-0.03	-0.01	-0.03	-0.07	0.02
	Presence of overtime (dummy)	0.73	0.74	-0.01	-0.08	0.05
	Profit situation (5 categories)	2.99	3.06	-0.07	-0.24	0.10
	Presence of a work council (dummy)	0.29	0.29	-0.01	-0.07	0.06
	Share of white collar workers with a university degree	0.08	0.07	0.01	-0.01	0.03
	Log change in total investment	-0.45	-0.49	0.05	-0.12	0.22
	Rate of investment in value added (5 categories)	2.53	2.48	0.05	-0.11	0.21
	Investment in communication / data processing technology	0.49	0.46	0.03	-0.04	0.11
	Change in the use of overtime (adoption, abandon, stable)	0.03	0.01	0.02	-0.04	0.09
	Level of the applicable collective agreement (3 categories)	2.22	2.12	0.10	-0.04	0.24
	Coverage by collective agreement on wage (dummy)	0.44	0.49	-0.05	-0.12	0.03
	Firm size (4 categories)	2.06	2.11	-0.05	-0.19	0.08
	Industry (7 categories)	5.24	4.95	0.30	-0.31	0.90

Country	Variable	Control group mean	Treated group mean	Difference of the means	Means difference 95% CI lower bound	Means difference 95% CI upper bound
	Share of export in business volume (5 categories)	1.65	1.77	-0.12	-0.30	0.06
	Share of full-time employees (5 categories)	4.66	4.65	0.01	-0.10	0.13
	Share of permanent workers (5 categories)	4.96	4.97	-0.01	-0.05	0.02
Korea	Business volume per worker (level)	431	226	206	-123	535
	Change in business volume per worker (%)	0.06	0.04	0.02	-0.08	0.11
	Log change in business volume per worker (main outcome variable)	0.02	0.01	0.00	-0.11	0.12
	Total employment (level)	82	75	8	-27	43
	Change in total employment (%)	-0.05	-0.04	-0.01	-0.05	0.03
	Log change in total employment (main outcome variable)	-0.06	-0.05	-0.01	-0.05	0.04
	Average wage (level)	39	34	5	-3	12
	Change in average wage (%)	0.06	0.06	0.03	-0.05	0.12
	Log change in average wage (main outcome variable)	0.04	0.02	0.02	-0.07	0.11
	Presence of overtime (dummy)	0.93	0.94	-0.01	-0.11	0.09
	Profit situation (5 categories)	2.81	2.94	-0.13	-0.41	0.15
	Presence of a work council (dummy)	0.13	0.13	0.00	-0.13	0.13
	Average level of education of the largest occupational group (5 categories)	2.35	2.26	0.09	-0.20	0.38
	Change in the use of overtime (adoption, abandon, stable)	0.07	0.00	0.07	-0.06	0.20
	Level of the applicable collective agreement (3 categories)	0.17	0.16	0.01	-0.17	0.18
	Workplace engaged in wage bargaining last year (dummy)	0.14	0.13	0.01	-0.12	0.15
	Firm size (3 categories)	1.34	1.32	0.02	-0.17	0.20
	Industry (7 categories)	1.97	1.97	0.00	-0.55	0.55
	Change in business volume (5 categories)	2.94	2.97	-0.03	-0.42	0.36
	Share of export in business volume (5 categories)	2.22	2.29	-0.07	-0.64	0.51
	Share of part-time employees	0.59	2.15	-1.56	-3.97	0.86
	Share of employees on fixed-term contracts	6.85	5.07	1.78	-5.15	8.71
Portugal	Value added per worker (level)[1]	20 327	23 804	**-3 477**	**-5 434**	**-1 520**
	Change in value added per worker (%)	-2.73	-2.58	-0.15	-2.89	2.59
	Log change in value added per worker (main outcome variable)	-0.10	-0.08	-0.02	-0.06	0.01
	Total employment (level)	4.9	4.9	0.0	-0.4	0.3
	Change in total employment (%)	2.10	1.39	0.71	-0.89	2.32

Country	Variable	Control group mean	Treated group mean	Difference of the means	Means difference 95% CI lower bound	Means difference 95% CI upper bound
	Log change in total employment (main outcome variable)	0.00	0.00	0.00	-0.02	0.02
	Average wage (level)[1]	13 722	15 585	**-1 863**	**-2 506**	**-1 220**
	Change in average wage (%)	-0.10	0.88	-0.98	-2.78	0.82
	Log change in average wage (main outcome variable)	-0.03	-0.01	-0.02	-0.03	0.00
	Presence of overtime (dummy)	0.98	0.67	0.30	-0.48	1.09
	Profit situation (5 categories)	2.97	2.96	0.01	-0.11	0.13
	Share of middle skill labour	0.17	0.15	0.02	-0.01	0.05
	Share of high skill labour	0.12	0.13	-0.01	-0.04	0.01
	Log change in total investment	-0.19	-0.07	-0.12	-0.39	0.14
	Rate of investment in business volume (5 categories)	1.72	1.75	-0.03	-0.11	0.04
	Investment in intangible assets	0.05	0.06	-0.01	-0.03	0.01
	Change in the use of overtime (adoption, abandon, stable)	-0.01	0.00	0.00	-0.02	0.01
	Level of the applicable collective agreement (3 categories)	3.45	3.46	-0.01	-0.09	0.07
	Firm size (3 categories)	1.09	1.09	0.00	-0.02	0.02
	Industry (6 categories)	4.93	4.93	0.00	-0.13	0.13
	Change in business volume (5 categories)	2.74	2.74	0.00	-0.09	0.08
	Share of export in business volume (5 categories)	1.24	1.24	0.00	-0.06	0.06
	Share of full-time employees (5 categories)	4.88	4.85	0.03	-0.01	0.07
	Share of permanent workers (5 categories)	4.47	4.45	0.01	-0.09	0.11

Note: Bold means significant at the 5% level.

1: In Portugal, the sample is not balanced with regards to *levels* of value added per worker and *levels* of average wage (although it is balanced when considering for *percentage and log changes)*. This means that firms that reduce their hours have a significantly higher level of value added per worker and pay a higher average wage at t-1. This does not affect the identification strategy used in section 5.2.3, since the analysis is based on *growth* rather than levels. Yet, to correct for this imbalance, controls for pre-change levels of value added per worker and average wage are added in the baseline analysis for Portugal and therefore reflected in the results presented in Figure 5.8 above.

Annex Table 5.D.2. Balanced samples used in the firm-level analysis on flexible hours adoption in Germany in Section 5.2.3: Descriptive statistics

Variable	Control group mean	Treated group mean	Difference of the means	Means difference 95% CI lower bound	Means difference 95% CI upper bound
Log change in value added per worker (main outcome variable)	-0.06	-0.06	0.00	-0.06	0.06
Log change in number of employees (main outcome variable)	0.02	0.02	0.00	-0.02	0.03
Log change in average wage (main outcome variable)	-0.01	0.01	-0.02	-0.06	0.02
Value added per worker (level)	65 982	61 824	4 158	-8 503	16 820
Number of employees (level)	102	118	-16	-47	15
Average wage (level)	2 278	2 375	-97	-275	80
% change in value added per worker	0.15	-1.30	1.45	-3.86	6.76
% change in number of employees	2.79	2.48	0.30	-2.37	2.98
% change in average wage	1.74	2.42	-0.69	-4.61	3.24
Firm size (4 categories)	2.39	2.39	0.00	-0.13	0.13
Industry (7 categories)	5.05	5.04	0.02	-0.71	0.74
Share of full-time employees (5 categories)	4.71	4.62	0.09	-0.04	0.21
Share of permanent workers (5 categories)	4.95	4.98	-0.04	-0.08	0.01
Share of white collar workers with a university degree	0.10	0.11	-0.01	-0.04	0.01
Profit situation (5 categories)	2.75	2.73	0.02	-0.16	0.21
Share of export in business volume (5 categories)	2.10	2.25	-0.15	-0.41	0.10
Log change in total investment	-0.41	-0.33	-0.07	-0.26	0.11
Rate of investment in value added (5 categories)	2.56	2.46	0.10	-0.06	0.27
Investment in communication / data processing technology (dummy)	0.53	0.56	-0.03	-0.12	0.05
Presence of overtime (dummy)	0.86	0.85	0.01	-0.05	0.07
Change in the use of overtime (adoption, abandon, stable)	0.01	-0.03	0.04	-0.02	0.09
Coverage by a collective agreement on wage (dummy)	2.26	2.24	0.02	-0.14	0.17
Presence of a work council (dummy)	0.37	0.41	-0.03	-0.12	0.05
Level of the applicable collective agreement (3 categories)	0.42	0.43	0.00	-0.09	0.08

Notes

[1] Authors would like to acknowledge the contribution of Bayram Cakir to this chapter, in particular for his research assistantship in dealing with the Portuguese data in Section 5.2.3.

[2] The term teleworking can be defined in many different ways (OECD, 2021[1]). Throughout the chapter, teleworking is taking to mean the possibility for employees to work remotely, from home or a location other than the employers' premises, usually or occasionally. In practice, this often corresponds to the newer term of "hybrid working", rather than to workers working exclusively from home.

[3] Defining long hours is not an easy task and different thresholds are considered across studies, surveys and measurement frameworks. One possibility is to consider regulation, e.g. for instance in Europe the 2003 European Union Working Time Directive that establishes that maximum weekly hours cannot exceed 48 hours including overtime. Another way to define long hours is to refer to the distribution of hours worked in the country/population studied: for instance the OECD job quality framework considers that individuals working very long hours are those working more than 60 hours per week when defining job strain in emerging economies. However, many papers simply define long hours as overtime work, which is imprecise but available in many surveys.

[4] Solving the "healthy worker" identification problem is difficult when only cross-sectional data are available, but easier using panel data which allows controlling for past health levels, or estimating fixed-effect models with an exogenous variation that can be used as an instrument. Other challenges in empirical studies of the effect of working hours on health include the fact that working hours are not randomly assigned, which introduces biases since potential omitted unobserved factors might influence both hours and health, or the fact that estimates of the impact of hours are usually confounded by the influence of hours on income, which has an important independent effect on health. The data collected might also already be biased: for instance, the negative effect of some arrangements on workers' well-being might be under-estimated if workers quite because of them (and therefore are not recorded in the data).

[5] These results are driven by the positive associations between working between 30 and 44 hours per week (which is the modal group) and the three satisfaction outcomes (e.g. life, job and free time satisfaction. Indeed, additional analyses (not shown here and available on request) show that in France, the probability to be "life-satisfied" is highest for those in the 40-44 hours group, to be "job-satisfied" is highest for those in the 30-34 hours group, and satisfaction with free time is most likely for those in the 35-39 hours group.

[6] Even if effects differ by working time arrangements, by well-being measures and between different workers' groups.

[7] According to recent surveys of workers and business across OECD countries (Barrero, Bloom and Davis, 2021[150]; Criscuolo et al., 2021[155]).

[8] Of the four studies, only Nikolova and Graham (2014[70]) differentiate between voluntary or involuntary adoption of part-time work. Benson et al. (2017[67]), Cho (2018[68]) and Beham et al. (2019[69]) consider only general part-time status, irrespective of workers' reason for take-up.

[9] Although see the discussion on theoretical models allowing for the possibility of wage restraint by unions negotiating wages when hours are reduced in Kapteyn et al. (2004[79]).

[10] Theoretical papers in the literature are therefore inconclusive: while imposing an upper limit on working hours where it did not exist is expected to have a positive effect on employment, a "too strong" (i.e. "too low") working-time constraint would reduce the demand for workers (Contensou and Vranceanu, 2000[139]; Marimon and Zilibotti, 2000[137]). Reducing working hours might increase aggregate employment in a context of high pre-existing unemployment, but it might worsen the labour market situation of low-unemployment countries (Rocheteau, 2002[138]). Calmfors and Hoel (1988[81]) expect a reduction in statutory hours to reduce employment, as firms substitute overtime for workers (if the overtime premium is not raised); however, hours reduction might create employment, they argue, in the context of a fixed output level, when complemented by an increase in the overtime premium.

[11] This somewhat simple idea is behind the "work-sharing" theory, which used to be popular in policy making circles, although it was never grounded in economic theory. In that logic, working time reduction could foster employment creation through *work-sharing*, i.e. through sharing the same quantity of hours of work between more workers doing less hours each. This idea does not easily stand up to economic reasonning taking into account, notably, the fixed costs associated with hiring a worker, or the frictions created by the imperfect substituability between different workers. This idea is also incompatible with the idea that reducing working time could improve firms' productivity through organisational innovations, and/or through workers' reduced level of fatigue and increased levels of engagement. In either case, firms would *not* need to hire new staff to maintain the same output level (e.g. there would be no work sharing).

[12] Models exploring the latter situation tend to assume that hourly productivity increases following a reduction in normal hours, but not enough to fully compensate the rise in unit labour costs.

[13] For instance, the identification strategy in (Hunt, 1999[85])is based on the strong assumption that hours change at the industry level are exogenous because they are agreed to in advance. However, while negotiated hours cannot indeed be amended as a reaction to unforeseen economic changes, they cannot be considered to be exogenous with regard to anticipated changes, which means that industry-specific trends should be included. When they are, results are insignificant, which suggests that hours change at the industry level are in fact not exogenous to industrial trends in employment and productivity. Without that crucial hypothesis holding, the identification strategy is equivalent to an industry-level fixed effect regression, which is suggestive of association not causation. Hence this study is classified as "correlational".

[14] Brown and Hamermesh look at the effect of the introduction of an overtime premium in the United States (which is equivalent to introducing an upper bound on working hours) on unemployment, and find that the latter had no effect on unemployment in the long run.

[15] E.g. For instance, nominal wages are kept constant, but not fully adjusted for inflation, thus limiting the increase in hourly wage,or that unions engage in wage restraint, or that firms boost productivity enough – through e.g. work re-organisation, increased investments, or workforce re-structuration centred around more productive workers – to compensate for the rise in hourly pay.

[16] For instance, Kramarz et al. (2008[87]) argue that a working time reduction law can help employment to reach its maximum level if it forces a monopsony to set individual working times at the competitive level, thereby improving the welfare of workers – see also e.g. Marimon and Zilibotti (2000[137]) or Contensou and Vranceanu (2000[139]). Moreover, as shown in Chapter 3, local labour markets are heterogeneous in their degree of monopsony. As competitive conditions are different across local markets in the same country, national estimates reported in the literature are likely to result in the aggregation of positive and negative effects occurring in different markets. This means that normal hours reduction implemented in a context of monopsony, or even to counteract a situation of monopsony in a given market, might be more appropriately designed at a local level, where the degree of monopsony can be more accurately estimated.

[17] While the two channels discussed in this paragraph might increase hourly worker productivity in a linear way, this is probably not the case for total productivity per worker : brought to the extreme, while hourly productivity might still increase if working hours were reduced to one hour per week, total productivity per worker would very likely decrease.

[18] Hart and Krall (2007[145]) find that shorter shifts were associated with a greater hourly productivity of physicians in emergency departments in the United States. Olds and Clarke (2010[151]) find that medication errors and needle stick injuries are statistically related to nurses working more than 40 hours per week in the United States, and Rogers et al. (2004[152]) find similar results for nurses working shifts longer than 12 hours. Shepard and Clifton (2000[146]) find that overtime reduced output per worker in the United States manufacturing firms, while Schank (2005[147]) find no difference in productivity between German plants using overtime and those that did not. Similar evidence of a fatigue effect causing productivity to decrease with long hours have been found in various sectors, with results aligning across contexts as different as paramedics in Mississippi (Brachet, David and Drechsler, 2012[148]), British munition workers during World War I (Pencavel, 2015[149]) and American factory workers in the 1920s (Dolton, Howorth and Abouaziza, 2016[108]). This detrimental fatigue effect is found to be persistent over time in the absence of adequate recovery time (Pencavel, 2016[107]). Yet, one apparent exception is the paper from Lu and Lu (2017[144]). Authors observe a performance decrease following the introduction of laws prohibiting mandatory overtime in some nursing homes in the United States. However, they conclude that this is in fact an indirect effect of the increased use of contract workers following the change.

[19] The relatively timid exploration of the potential productivity effect of reducing *normal* hours is all the more surprising that it is theoretically a more promising means of generating employment than the work-sharing theory that has been much more explored in the literature (see note 11): if reducing hours can enhance productivity through one or both or the channels discussed above, it could potentially generate employment in the mid-to longer term as a second order effect of this productivity increase.

[20] The effect is identified by comparing changes in the outcomes of interest around a reform reducing working hours between “high exposure” sectors (i.e. sectors with long average working hours *before* the reform, which will be affected by it) and “low exposure” sectors (i.e. sectors with relatively short average working hours *before* the reform, which will not be affected by it).

[21] Information comes from multiple sources: the CBR Labour Regulation Index (Adams, Bishop and Deakin, 2010[156]) complemented and cross-checked with information available in the ILO Travail Database and the European Union Commission LABour market REForm (LABREF) database (European Commission, 2021).

[22] Results for Panel B go in the same direction, but coefficients have to be interpreted as the relative effect of going from 0 to 100% of exposed workers: in sectors where all workers are affected by the reduction in hours, hours drop by 6% relative to those sectors where all workers were already working less than the reform threshold, and the share above the threshold decreases by 33 percentage points.

[23] See details in Section 5 of Batut et al. (2022[109]), “The Employment effects of Working Time Reductions in Europe”.

[24] This explanation can however not be confirmed by this analysis which uses gross labour compensation, e.g. a variable that includes social security contributions and would also have captured social security reductions; however, the coefficient estimated for the average effect of the reforms on compensation in “high exposure” versus “low exposure” sectors being positive, this goes against the idea that labour costs were fully compensated by social security reductions.

[25] Although firm-level data is used to identify episodes during which firms reduced their contractual hours, the decisionary basis behind these episodes of reduction cannot be derived from the data: firm-level reductions of contractual hours could be the outcome of a unilateral decision on the part of employers at the firm level, or of a negotiation process between workers and management at the firm-level, but it could also reflect a decision bargained at the sectoral or national level, or even a legislative reform at the national level.

[26] Results estimated at t+1 capture the evolution between t and t+1, while those at t+2 capture the evolution between t and t+2, i.e. the cumulated effect of treatment over both post-change years observed.

[27] The difference with the number of observations reported under the figures below is due to the fact that all four years in each treated spells are in the treated group, so there are more *treated* observations as there are treated spells.

[28] Which concentrate respectively 15.7, 17.6 and 18.1% of cases versus 4.8% in each year on average.

[29] To dig further into the negative effect on employment growth, Equation 5.3 is estimated with growth of separations and new hires as outcome variables. The growth of separations is negatively and significantly related to treatment at t+1 (-29.6%), which suggests that treated firms *retain* more workers than control firms. Further, the growth of new hires is also negatively and significantly related to treatment (-33.7%), which suggests that firms that reduce contractual hours also hire less than firms that do not. These combined results suggest that the negative effect observed for employment growth might be due to the differential between the movement in the growth rates of separations and hires, with both diminishing but the growth of entries more so than that of exits, rather than to an increase of separations. In other words, it is possible that workers' retention potential increased in firms reducing normal hours (although note that the data does not allow knowing what happens within separations, i.e. how dismissals and quits evolve separately).

[30] Respectively 19.3% in 2012 and 17.7% of cases in 2013.

[31] According to Hijzen and Thewissen (2020[110]), the reform contained a number of measures to ease potential negative impacts on employers including an exemption from the obligation to pay the overtime premium for firms with less than five employees, as well as temporary reductions of the overtime premium for the first four hours of overtime.

[32] Analyses differentiating the employment impact of teleworking in urban vs. rural regions would appear relevant, but are still missing today. This is a fruitful area for future research.

[33] General conclusions on the productivity effect of teleworking cannot be derived from studies using data collected during the COVID-19 pandemic; indeed, as explained already in Box 5.1 above, too many factors characterising that period might confound productivity at the time. Nonetheless, the overall message arising from pandemic time studies is that self-reported productivity was maintained or increased among employees who started teleworking during the pandemic (Ker, Montagnier and Spiezia, 2021[154]). Among the minority of workers who reported decrease productivity, the main identified cause included the lack of interaction with colleagues, conflicting family care duties, difficulties in accessing work-related information, additional hurdles in getting to work done, inadequate physical work spaces and lacking internet speed.

[34] This section is focusing on studies looking at how formal, paid teleworking hours affect productivity. For an analysis on how *unpaid* work at home affect productivity in the United States, see Elridge and Pabilonia (2010[153]).

[35] To dig further into this, the model is run with the share of new hires and the share of separations. There is a significant negative association between treatment and separations at t+2, and an insignificant (positive) association with new hires at t+2 (the regression cannot be run at t+1 as there is not enough treated observations at t+1 in this specification). This suggests indeed that the positive effect on employment might have more to do with improved worker *retention,* rather than a significant increase in hirings.

Annex A. Statistical annex

Sources and definitions

The tables of the statistical annex show data for all 38 OECD countries where available. Data for Argentina, Brazil, China, India, Indonesia and South Africa are compiled and included in a number of tables and in the Employment database (http://www.oecd.org/employment/database).

In general, Tables A to K and Table M report annual averages of monthly and quarterly estimates based on labour force surveys. Data for the remaining Tables L, N, O, P and Q are from a combination of survey and administrative sources. Those shown for a number of European countries in Tables B, C, D, H, I, J, K and Table M are data from the European Labour Force Survey (EU-LFS), which are more comparable and sometime more consistent over time than national LFS results.

Data on employment, unemployment and the labour force are not necessarily the same as the series used for analyses and forecasting by the OECD Economics Department that are reported in the OECD Economic Outlook.

Data and indicators shown in the tables can also be found in the OECD central data repository OECD.Stat (http://stats.oecd.org) accessible from the web page dedicated to employment statistics (www.oecd.org/employment/database).

The OECD Employment database contains both raw data and indicators. It includes longer time series and more detailed datasets by individual characteristics such as age group, gender, educational attainment and employment characteristics on the main job such as employee job tenure, part time employment, involuntary part time employment, temporary employment, duration of unemployment. The database includes more data series than those shown in this annex, such as, the distribution of employment by weekly usual hours worked intervals, potential labour force, including so-called people marginally attached to the labour force, etc. The datasets are documented with information on definitions, notes and sources used by member countries. The online database also contains additional series on working time, earnings and features of institutional and regulatory environments affecting the functioning of labour markets. Among these are the following:

- Annual hours actually worked per person in employment for comparisons of trends over time
- Average gross annual wages per dependent employee in full time equivalent unit
- Distribution of gross earnings of full-time workers by upper earnings decile limits and by gender and earnings dispersion measures and gaps (by gender and age)
- Statutory minimum wages – levels and ratio of minimum to mean and median wages
- Public expenditure on labour market programmes, number of beneficiaries and inflows into the labour market
- Trade union density and collective bargaining coverage
- Synthetic indicators of employment protection

Major breaks in series

Table A: Data series have been break-corrected in most countries to ensure that unemployment rates are consistent over time.

Tables B to K and Table M: Most of the breaks in series in the tables occurred for any of the following reasons: changes in survey design, survey questionnaire, survey frequency and administration, revisions of data series based on updated population census results. These changes have affected the comparability over time of employment and/or unemployment levels and to a certain extent the ratios reported in the aforementioned tables:

- **Change in the measurement of the labour force status and methodology in the European Labour Force Survey since 2021:** Data between 2020 and 2021 are affected by a break in series in Table B, C, D, H, I, J, K, M. The size and direction of the breaks vary by country and statistics as reported in the national documentations on Eurostat website. See: https://ec.europa.eu/eurostat/statistics-explained/index.php?title=EU_Labour_Force_Survey_-_new_methodology_from_2021_onwards.
- **Introduction of a continuous survey producing quarterly results**: Austria (2003/04), Brazil (2011/12), France (2002/03), Germany (2004/05), Hungary (2005/06, monthly results), Iceland (2002/03), Italy (2003/04), Luxembourg (2002/03, quarterly results as of 2007) and Türkiye (2013/14).
- **Redesign of labour force survey**: Introduction of a new survey in Chile since April 2010 (see below), Germany (2010/11), Hungary (2002/03), Poland (2004/05), Portugal (2010/11) and Türkiye (2004/05 from quarterly to monthly results). Israel (2011/12), change from quarterly to monthly survey results and a change from "civilian" to "total" labour force (including those who are in compulsory or permanent military service). New Zealand (2015/16), the survey includes non-civilian personnel. Annual results for Colombia in 2020 are averaged over three-quarters (Q1, Q3 and Q4) as a result of the COVID-19 pandemic outburst and suspension of the survey in the 2nd quarter. Since July 2020, a new edition of the continuous quarterly survey was re-introduced in Mexico (Encuesta Nacional de Ocupación y Empleo, New edition ENOE^{N}) after its suspension in April 2020 following the COVID-19 pandemic outburst and lockdown measures. It was replaced in Q2 by a telephone interview survey (ETOE) with partial results. The annual results are averages of three-quarters (Q1, Q3 and Q4). For the United Kingdom (2003/2004), data for Tables B to D are annual averages of quarterly estimates from the Annual Population Survey (APS); prior to 2004, they refer to the spring quarter (April-June) Labour Force Survey (LFS). Data for Tables H, I, J, K and M are annual averages of quarterly estimates from APS from 2016 onwards.
- **Change in the operational definition of employment:**
  - Neat application of the criterion of "at least one hour worked in a gainful job" in the Chilean Nueva Encuesta Nacional de Empleo (NENE), a quarterly continuous survey, from April 2010 onward.
- **Change in the operational definition of usual working time:**
  - In Israel, the Labour Force Survey questionnaire was expanded and changed since January 2018. Workers absent from work are asked "how many hours they usually work". This affects the number of workers reporting usual weekly hours worked in their main job prior and after 2018 notably Table H on the incidence and composition of part-time employment according to a common 30-hour threshold-based definition.

- **Change in the operational definition of unemployment regarding:**
  - Active job-search methods: in particular a change from registration to contact with the public employment service: France (2002/03) and Spain (2000/01).
  - Duration of active job search: In Australia (2014/15), the duration of unemployment has been replaced by duration of job search. In Belgium (2010/11), the duration of job search has been changed from an unlimited duration to previous four weeks including the survey reference week. In Chile (2009/10), the duration of active job search has been shortened from last two months to previous four weeks including the survey reference week.
  - Availability to work criterion: In Sweden (2004/05), the work availability criterion changed from the reference week to two weeks from the reference week to be consistent with the operational definition in other EU countries. In Chile, the work availability criterion did not exist prior to 2010 in the Encuesta Nacional de Empleo (ENE) and was introduced in the Nueva Encuesta Nacional de Empleo (NENE) since April 2010. It has been fixed to two weeks from the end of the reference week.
  - Persons on lay off considered as employed instead of unemployed: Norway (2005/06).
  - Other minor changes: Australia (2000/01) and Poland (2003/04).
- **Changes in the questionnaire with impact on employment and unemployment estimates:** Germany (2010/11): new questionnaire design ensures better coverage of small jobs. This lead to a higher than normal annual employment increase. Impact on employment and unemployment statistics in New Zealand (2015/16) with the inclusion of army personnel. Spain (2004/05): impact on employment and unemployment and impact on unemployment estimates in Norway (2005/06) and Sweden (2004/05).
- **Change from seasonal to calendar quarters:** Switzerland (2009/10) and the United Kingdom (2005/06). However, there is no break in series between 2005 and 2006 for the United Kingdom as calendar quarter based historical series are available since 1992.
- **Introduction of new EU harmonised questionnaire**: Sweden (2004/05) and Türkiye (2003/04).
- **Change in lower age limit from 16 to 15 years:** Iceland (2008/09), Norway (2005/06) and Sweden (2006/07).
- **Change in lower age limit from 15 to 16 years**: Italy (2007/08).
- **Change in data collector in Denmark since the first quarter of 2017:** the LFS response rate increased and resulted in a significant break in series between 2016 and 2017.
- In Norway, as of 2006 age is defined as years reached at the survey reference week, instead of completed years at the end of the year, as in previous years.
- **Inclusion of population controls based on census results in the estimation process:** Mexico (2009/10) and Türkiye (2006/07).
- In Japan, data for Table J on temporary employees has a break in series between 2013 and 2017.

Table A. OECD unemployment rates

As a percentage of civilian labour force

	1991	1995	2000	2007	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Australia	9.6	8.5	6.3	4.4	5.1	5.2	5.7	6.1	6.1	5.7	5.6	5.3	5.2	6.5	5.1
Austria	..	4.2	3.9	5.2	4.9	5.2	5.7	6.0	6.2	6.5	5.9	5.2	4.8	6.0	6.2
Belgium	6.4	9.7	6.9	7.5	7.2	7.6	8.6	8.7	8.7	7.9	7.2	6.0	5.4	5.8	6.3
Canada	10.3	9.5	6.8	6.1	7.6	7.3	7.1	6.9	6.9	7.1	6.4	5.9	5.7	9.6	7.5
Chile	8.2	7.3	9.7	7.1	7.1	6.5	6.1	6.5	6.3	6.7	7.0	7.4	7.2	10.8	8.9
Colombia	..	..	..	11.3	11.0	10.5	9.7	9.2	9.0	9.2	9.3	9.5	10.4	15.9	13.8
Costa Rica	..	..	..	..	10.3	10.2	9.4	9.6	9.6	9.5	9.1	10.3	11.8	19.6	16.4
Czech Republic	..	4.0	8.8	5.3	6.7	7.0	7.0	6.1	5.1	4.0	2.9	2.3	2.0	2.6	2.8
Denmark	7.9	6.7	4.3	3.8	7.8	7.8	7.4	6.9	6.3	6.0	5.8	5.1	5.1	5.7	5.1
Estonia	..	..	14.5	4.6	12.4	9.9	8.5	7.3	6.4	6.8	5.8	5.4	4.5	6.9	6.2
Finland	6.6	15.4	9.8	6.9	8.0	7.8	8.3	8.8	9.5	8.9	8.8	7.4	6.7	7.7	7.7
France	9.6	12.0	9.6	8.0	9.2	9.8	10.3	10.3	10.4	10.1	9.4	9.0	8.4	8.0	7.9
Germany	5.5	8.3	8.0	8.5	5.5	5.1	5.0	4.7	4.4	3.9	3.6	3.2	3.0	3.6	3.6
Greece	..	..	11.2	8.4	18.1	24.8	27.8	26.7	25.0	23.9	21.8	19.7	17.9	17.6	14.8
Hungary	..	..	6.3	7.4	10.7	10.7	9.9	7.5	6.6	5.0	4.1	3.6	3.3	4.1	4.1
Iceland	..	..	..	2.5	7.7	6.6	5.8	5.4	4.5	3.3	3.3	3.1	3.9	6.4	6.0
Ireland	14.8	12.3	4.4	5.0	15.4	15.5	13.8	11.9	9.9	8.4	6.7	5.8	5.0	5.9	6.3
Israel	..	6.9	8.8	7.3	5.6 |	6.9	6.2	5.9	5.2	4.8	4.2	4.0	3.8	4.3	5.0
Italy	8.5 p	11.2	10.1	6.2	8.5	10.9	12.4	12.8	12.0	11.8	11.3	10.6	9.9	9.3	9.6
Japan	2.1	3.2	4.7	3.8	4.6	4.4	4.0	3.6	3.4	3.1	2.8	2.4	2.4	2.8	2.8
Korea	2.5	2.1	4.4	3.3	3.4	3.2	3.1	3.5	3.6	3.7	3.7	3.8	3.8	3.9	3.7
Latvia	..	..	14.3	6.1	16.2	15.0	11.9	10.8	9.9	9.6	8.7	7.4	6.3	8.1	7.6
Lithuania	..	..	16.4	4.3	15.4	13.4	11.8	10.7	9.1	7.9	7.1	6.2	6.3	8.5	7.1
Luxembourg	1.7	2.9	2.2	4.2	4.8	5.1	5.9	6.1	6.5	6.3	5.6	5.5	5.6	6.7	5.4
Mexico	2.7	6.3	2.5	3.7	5.2	5.0	4.9	4.8	4.4	3.9	3.4	3.3	3.5	4.4 |	4.1
Netherlands	5.7	8.4	3.7	5.3	6.1	6.8	8.2	8.4	7.9	7.0	5.9	4.9	4.4	4.9	4.2
New Zealand	10.6	6.5	6.2	3.6	6.0	6.5	5.9	5.4	5.4	5.1	4.7	4.3	4.1	4.6	3.8
Norway	5.5	4.9 |	3.2	2.7	3.6	3.5	3.9	3.8	4.7	4.9	4.4	4.0	3.9	4.8	4.5
Poland	..	..	16.1	9.6	10.0	10.4	10.6	9.2	7.7	6.3	5.0	3.9	3.3	3.2	3.4
Portugal	4.2	7.2	5.3	9.6	13.5	16.6	17.2	14.7	13.0	11.5	9.2	7.2	6.7	7.1	6.6
Slovak Republic	..	..	18.9	11.2	13.6	13.9	14.1	13.1	11.5	9.7	8.1	6.5	5.7	6.7	6.8
Slovenia	..	..	6.7	4.9	8.2	8.9	10.1	9.7	9.0	8.0	6.6	5.1	4.4	5.0	4.8
Spain	15.5	20.8	11.9	8.2	21.4	24.8	26.1	24.5	22.1	19.7	17.2	15.3	14.1	15.5	14.8
Sweden	3.1	8.8	5.6 |	6.3	8.0	8.2	8.2	8.1	7.6	7.2	6.9	6.5 |	7.0	8.5	8.8
Switzerland	..	..	..	..	4.4	4.5	4.7	4.8	4.8	4.9	4.8	4.7	4.4	4.8 |	5.1
Türkiye	..	..	..	..	9.2	9.1	8.4	9.1 |	9.9	10.3	10.9	10.9	10.9	13.7	13.1	12.0
United Kingdom	8.6	8.7	5.5	5.3	8.1	8.0	7.6	6.2	5.4	4.9	4.4	4.1	3.8	4.6	4.5
United States	6.8	5.6	4.0	4.6	9.0	8.1	7.4	6.2	5.3	4.9	4.4	3.9	3.7	8.1	5.4
OECD[1]	..	..	..	5.9 e	8.1 e	8.1 e	8.0 e	7.5 e	6.9 e	6.5 e	5.9 e	5.5 e	5.4 e	7.2 e	6.2 e

.. Not available; e Estimated value; p Provisional data; | Break in series

Note: The OECD unemployment rates are compiled for 38 OECD member countries and conform to the International Labour Office (ILO) guidelines. In so far as possible, the data have been adjusted to improve international comparability and ensure consistency over time. All series are benchmarked to labour-force-survey-based estimates. Data for the European Union member countries, Iceland, Norway, Switzerland and Türkiye are produced by the Statistical Office of the European Communities (Eurostat) and data for the remaining OECD countries are produced by the OECD. Methodological notes: www.oecd.org/std/labourstatistics/44743407.pdf.

1. Weighted average.

Source: *OECD Employment Database*, www.oecd.org/employment/emp/onlineoecdemploymentdatabase.htm.

StatLink https://stat.link/4xru9z

Table B1. Employment/population ratios by selected age groups - Total

As a percentage of the population in each age group

	Total (15-64)				Youth (15-24)				Prime age (25-54)				Older population (55-64)			
	2000	2007	2020	2021	2000	2007	2020	2021	2000	2007	2020	2021	2000	2007	2020	2021
Australia	69.1	72.8	72.7	75.0	61.7	64.1	56.8	60.8	76.2	79.9	80.1	81.9	46.1	56.5	63.6	65.4
Austria	68.3	69.9	72.4	72.4	52.8	53.8	50.2	50.2	82.5	82.9	83.9	83.8	28.3	36.0	54.7	55.4
Belgium	60.5	62.0	64.7	65.3	29.1	27.5	24.1	24.7	77.4	79.7	80.3	80.7	26.3	34.4	53.3	54.5
Canada	70.9	73.3	70.0	73.2	56.2	60.2	49.5	55.2	79.9	81.9	79.5	82.3	48.1	56.2	60.4	62.7
Chile[1]	54.5	57.6	55.8	58.5	29.0	29.0	20.0	21.3	65.6	70.1	67.1	70.2	47.7	54.8	56.2	57.4
Colombia	..	60.2	57.5	60.7	..	38.0	34.2	36.6	..	72.0	68.0	71.8	..	51.9	54.3	55.5
Costa Rica	59.6	64.1	54.8	57.2	44.9	46.3	25.9	27.4	69.1	74.6	67.3	70.2	46.4	54.8	50.2	51.6
Czech Republic	65.2	66.1	74.4	74.4	38.3	28.5	25.1	24.8	81.6	83.5	86.5	86.3	36.3	46.0	68.2	69.8
Denmark	76.4	77.3	74.5	75.6	66.0	65.3	53.2	53.9	84.2	86.4	82.2	83.5	55.9	59.2	71.5	72.4
Estonia	60.6	69.6	73.8	74.0	34.9	34.6	34.7	33.5	74.4	84.6	83.0	83.9	42.8	59.4	73.5	71.6
Finland	67.5	70.5	72.2	72.8	42.9	46.4	43.0	45.4	80.9	83.3	82.4	82.3	42.3	55.0	67.5	68.3
France	62.7	63.8	65.3	67.2	30.4	30.6	28.5	32.2	79.6	81.4	80.8	82.1	29.9	38.2	53.8	55.9
Germany	65.6	69.0	75.4	75.8	47.2	45.9	48.1	48.7	79.3	80.3	84.0	84.5	37.6	51.3	71.6	71.8
Greece	56.5	60.9	56.3	57.2	27.6	24.0	13.8	13.4	70.5	75.4	70.4	71.1	39.0	42.7	44.6	48.3
Hungary	56.0	57.0	69.7	73.1	32.5	21.1	27.2	27.5	73.0	74.7	82.9	87.0	21.9	32.2	59.6	62.8
Iceland[2]	84.6	84.2	77.9	79.8	68.2	72.5	62.2	65.6	90.6	87.9	82.6	83.5	84.2	83.2	76.8	80.2
Ireland	65.4	71.8	68.1	70.3	50.4	63.0	37.0	42.9	75.4	78.6	79.1	80.3	45.9	54.4	62.9	64.1
Israel[3]	62.1	64.5	66.8	66.6	48.1	46.4	38.9	39.9	71.3	74.0	78.3	77.8	46.5	57.1	67.9	67.4
Italy[2]	53.9	58.6	58.1	58.2	27.8	24.5	16.8	17.5	68.0	73.4	69.6	70.2	27.7	33.7	54.2	53.4
Japan	68.9	70.7	77.3	77.7	42.7	41.4	46.4	46.6	78.6	80.2	85.4	85.8	62.8	66.1	76.7	76.9
Korea	61.5	64.1	65.9	66.5	29.4	26.3	25.2	27.0	72.3	74.1	74.9	75.3	57.8	60.6	66.6	66.3
Latvia	57.3	68.1	71.6	69.9	29.2	38.1	29.6	27.9	73.5	82.1	82.2	80.4	35.9	58.0	68.6	67.8
Lithuania	58.8	65.0	71.6	72.4	25.2	24.8	29.4	31.1	75.0	82.2	83.7	84.3	40.3	53.2	67.6	68.0
Luxembourg	62.7	64.2	67.2	69.4	31.8	22.5	24.9	29.4	78.2	81.9	84.0	85.4	27.2	32.0	44.0	46.6
Mexico	60.1	61.0	59.4	61.0	48.9	44.9	38.9	40.8	67.4	70.0	69.6	71.3	51.7	54.5	52.3	53.1
Netherlands	72.1	73.6	77.8	80.1	66.5	63.1	62.5	71.7	81.0	84.1	85.1	85.9	37.6	47.8	71.0	71.4
New Zealand	70.3	75.1	76.8	78.3	54.2	58.0	55.1	58.1	78.2	81.8	83.7	84.8	56.9	71.8	76.8	77.9
Norway[2]	77.5	76.8	74.7	76.3	57.6	54.5	49.3	53.3	85.3	85.7	82.7	83.5	65.2	69.0	72.8	74.6
Poland	55.0	57.0	68.7	70.3	24.5	25.8	28.4	27.3	70.9	74.9	83.3	84.8	28.4	29.7	51.8	54.7
Portugal	68.3	67.6	69.7	71.3	41.8	34.4	26.0	25.2	81.8	80.9	84.0	85.3	50.8	51.0	59.0	63.4
Slovak Republic	56.8	60.7	67.5	69.4	29.0	27.6	22.7	20.8	74.7	78.0	80.6	83.2	21.3	35.7	58.3	60.6
Slovenia	62.8	67.8	70.9	71.4	32.8	37.6	27.0	29.5	82.6	85.3	88.1	88.3	22.7	33.5	50.5	52.7
Spain[2]	57.4	66.8	61.9	63.8	36.3	43.0	20.7	23.0	68.4	77.1	73.1	75.4	37.0	44.5	54.7	55.8
Sweden[2]	74.3	74.2	75.5	75.4	46.7	42.1	39.4	40.6	83.8	86.1	85.0	84.7	65.1	70.1	77.8	77.0
Switzerland	78.3	78.6	79.9	79.3	65.0	62.6	59.4	59.6	85.4	86.1	87.0	86.3	63.3	67.2	73.5	72.3
Türkiye	48.9	44.6	47.5	50.2	37.0	30.2	29.2	32.2	56.7	53.2	57.4	60.2	36.4	27.1	31.1	33.4
United Kingdom[2]	72.3	72.4	75.1	74.7	61.4	57.3	52.3	51.3	80.3	81.0	84.2	84.1	50.8	57.4	65.4	64.5
United States[2]	74.1	71.8	67.1	69.4	59.7	53.1	45.9	50.1	81.5	79.9	75.6	77.6	57.8	61.8	60.3	61.9
OECD[4]	65.5	66.2	66.3	67.8	45.6	43.1	39.0	41.4	75.9	76.8	76.2	77.7	47.5	53.4	60.4	61.4
Brazil	..	67.4	57.4	59.0	..	52.9	35.4	37.8	..	76.1	68.1	69.4	..	53.8	44.6	45.8
China[5]	79.3	..	..	..	61.9	..	..	..	88.0	..	..	..	59.2	..	..	..
India	58.2	..	49.0	..	41.3	..	22.0	..	67.4	..	60.9	..	54.1	..	50.1	..
Indonesia	65.0	62.0	..	..	41.5	39.5	..	..	75.6	71.4	..	..	67.8	66.9	..	..
South Africa	..	44.4	38.5	37.0	..	15.7	8.5	7.6	..	60.6	51.2	49.2	..	42.2	37.2	35.6

.. Not available

Note: Please refer to the Box entitled "Major breaks in series" in the introduction to the Statistical Annex.

1. New labour force survey since April 2010. To remove the break, data prior to 2010 are spliced using *new-to-old* chaining coefficients based on data of the fourth quarter of 2009.
2. The lower age limit is 16 instead of 15. For Iceland up to 2008, Italy after 2007, Norway up to 2005 and Sweden up to 2006.
3. Redesigned monthly labour force survey since January 2012. To remove the break, data prior to 2012 are spliced using *new-to-old* chaining coefficients between monthly and quarterly surveys based on data of the fourth quarter of 2011.
4. Weighted average.
5. Data up to 2010 for China can be found in the database.

Source: *OECD Employment Database*, www.oecd.org/employment/emp/onlineoecdemploymentdatabase.htm and www.oecd.org/els/emp/lfsnotes_sources.pdf.

StatLink https://stat.link/g3msjd

Table B2. Employment/population ratios by selected age groups - Men

As a percentage of the male population in each age group

	Men (15-64)				Youth (15-24)				Prime age (25-54)				Older population (55-64)			
	2000	2007	2020	2021	2000	2007	2020	2021	2000	2007	2020	2021	2000	2007	2020	2021
Australia	76.9	79.5	76.9	78.8	62.6	65.0	55.9	59.5	85.6	88.1	85.6	86.9	57.6	65.7	69.3	70.8
Austria	77.3	76.3	76.5	76.7	57.6	57.0	52.7	54.6	91.4	89.0	86.9	86.9	40.5	46.0	62.7	62.7
Belgium	69.5	68.7	68.4	68.7	32.8	29.9	25.6	25.8	87.3	87.0	84.2	84.6	36.4	42.9	58.7	59.3
Canada	76.2	77.1	73.2	76.3	56.7	59.8	49.3	54.6	85.8	86.1	83.1	85.7	57.4	63.3	66.1	68.4
Chile[1]	72.4	72.9	65.1	68.0	37.5	36.0	23.4	24.7	86.4	88.0	76.5	79.9	70.6	76.0	73.1	74.3
Colombia	..	75.2	70.8	74.4	..	47.9	42.9	45.2	..	88.9	82.2	86.3	..	72.8	72.4	75.3
Costa Rica	80.1	81.4	67.9	70.1	58.6	58.3	32.6	32.8	92.5	94.1	81.9	85.4	74.3	79.3	69.0	72.7
Czech Republic	73.6	74.8	81.4	81.3	42.8	32.8	30.4	29.4	89.3	91.7	93.8	93.8	51.7	59.6	75.2	76.5
Denmark	80.9	81.1	77.4	78.5	68.5	66.5	52.5	54.4	88.6	90.3	85.9	86.9	64.4	65.3	75.8	76.3
Estonia	64.1	73.2	76.0	75.6	40.8	39.1	35.9	33.1	75.8	89.4	87.5	86.6	51.0	58.1	68.4	70.1
Finland	70.5	72.4	73.7	73.8	45.7	47.9	44.4	46.6	84.1	85.9	84.7	83.7	43.7	55.1	66.6	67.9
France	69.5	68.7	68.5	70.1	33.9	33.7	30.4	33.8	88.0	87.7	85.0	86.0	34.1	40.6	56.0	57.7
Germany	72.9	74.7	78.9	79.3	49.7	48.2	49.6	51.1	87.2	86.4	88.0	88.2	46.4	59.4	75.5	75.9
Greece	71.5	74.2	65.2	66.4	32.7	29.1	15.9	15.6	88.5	90.1	79.7	80.8	55.2	59.1	57.0	60.7
Hungary	62.7	63.7	77.0	77.9	36.0	24.4	31.1	30.9	79.2	81.6	89.8	90.4	32.8	40.1	71.6	74.1
Iceland[2]	88.2	88.3	80.2	82.5	66.1	71.6	58.9	63.2	95.1	93.2	85.3	87.2	94.2	88.5	82.5	84.2
Ireland	76.5	80.5	73.5	74.6	54.2	66.8	37.5	43.1	88.2	87.8	85.6	85.6	64.4	68.3	70.4	71.0
Israel[3]	68.9	70.1	68.7	68.1	51.2	49.3	38.2	39.0	79.6	80.6	80.8	79.8	56.9	65.1	73.7	72.5
Italy[2]	68.2	70.6	67.2	67.1	33.2	29.4	20.5	21.3	84.9	87.4	80.1	80.2	40.9	45.0	64.5	63.4
Japan	80.9	81.7	83.8	83.9	42.5	41.3	45.6	45.6	93.4	92.8	92.7	92.7	78.4	81.5	87.1	87.0
Korea	73.2	74.9	74.8	75.2	24.6	21.3	21.8	22.8	88.0	87.3	85.1	85.2	68.6	74.8	77.7	77.3
Latvia	61.1	72.7	73.1	71.9	34.3	43.8	32.5	30.1	74.4	86.0	83.8	82.9	48.1	64.3	69.5	68.5
Lithuania	60.1	68.2	72.2	72.9	28.3	29.4	30.5	32.8	73.8	84.2	84.0	84.6	49.9	60.7	68.4	67.6
Luxembourg	75.0	72.3	70.4	72.6	35.3	26.5	25.3	29.8	92.8	92.2	88.0	89.1	37.9	35.6	47.3	51.4
Mexico	82.8	80.8	75.6	77.3	64.7	58.5	49.9	51.8	93.8	92.7	87.9	89.6	78.1	78.3	71.4	73.3
Netherlands	81.2	80.5	81.6	83.6	67.9	63.9	61.4	69.4	91.4	91.7	89.0	89.7	49.7	58.5	79.4	79.4
New Zealand	77.8	82.0	81.4	82.3	56.2	60.3	56.1	58.4	87.0	90.0	89.6	89.9	67.9	80.7	82.5	83.3
Norway[2]	81.3	79.5	76.6	78.2	59.4	52.8	48.8	51.5	88.9	89.1	84.9	85.8	71.4	73.8	76.4	78.9
Poland	61.2	63.6	75.9	76.8	27.3	29.2	32.3	31.6	77.6	81.1	89.7	89.9	36.7	41.4	63.7	67.4
Portugal	76.3	73.6	72.3	73.9	47.3	38.5	28.4	28.1	90.0	87.2	86.5	87.5	62.2	58.7	63.3	68.9
Slovak Republic	62.2	68.4	73.3	73.3	29.8	30.9	28.5	25.6	79.6	85.0	86.9	86.8	35.4	52.6	61.7	64.3
Slovenia	67.2	72.7	73.7	74.5	35.7	43.2	29.6	32.2	85.7	88.1	90.4	90.6	32.3	45.3	54.4	57.1
Spain[2]	72.7	77.3	67.3	68.7	43.2	48.6	22.7	24.4	85.6	87.5	78.8	80.7	55.2	59.6	61.6	62.5
Sweden[2]	76.3	76.5	77.3	77.4	47.9	41.9	39.0	39.7	85.9	89.0	87.7	87.9	67.7	73.1	79.9	78.6
Switzerland	87.3	85.6	83.9	83.1	66.5	65.4	59.4	60.6	95.2	93.6	91.4	90.5	77.0	76.4	79.2	77.6
Türkiye	71.7	66.8	65.2	68.6	49.7	41.5	38.8	42.8	85.0	80.7	78.5	81.8	51.9	40.5	45.9	49.3
United Kingdom[2]	79.0	78.6	78.5	78.0	63.6	58.8	51.5	50.8	87.5	87.8	88.5	88.2	60.0	66.4	69.9	69.0
United States[2]	80.6	77.8	72.1	74.3	61.9	54.4	46.4	50.6	89.0	87.5	81.8	83.6	65.7	67.4	66.2	67.4
OECD[4]	76.1	75.8	73.7	75.2	50.3	47.4	42.2	44.6	88.2	87.9	84.8	86.0	59.2	64.0	68.9	69.9
Brazil	..	79.7	67.9	70.0	..	63.0	42.6	44.5	..	89.0	79.2	81.3	..	70.1	58.4	60.2
China[5]	84.6	..	..	..	61.8	..	..	..	94.2	..	..	..	70.4	..	..	..
India	81.1	..	71.9	..	57.2	..	32.8	..	93.8	..	89.8	..	78.7	..	75.7	..
Indonesia	80.7	78.2	..	..	48.8	48.7	..	..	95.0	91.1	..	..	83.6	82.8	..	..
South Africa	..	52.2	43.7	42.3	..	18.8	10.1	9.2	..	71.3	57.5	55.7	..	55.3	44.5	42.6

.. Not available

Note: Please refer to the Box entitled "Major breaks in series" in the introduction to the Statistical Annex.

1. New labour force survey since April 2010. To remove the break, data prior to 2010 are spliced using *new-to-old* chaining coefficients based on data of the fourth quarter of 2009.
2. The lower age limit is 16 instead of 15. For Iceland up to 2008, Italy after 2007, Norway up to 2005 and Sweden up to 2006.
3. Redesigned monthly labour force survey since January 2012. To remove the break, data prior to 2012 are spliced using *new-to-old* chaining coefficients between monthly and quarterly surveys based on data of the fourth quarter of 2011.
4. Weighted average.
5. Data up to 2010 for China can be found in the database.

Source: *OECD Employment Database*, www.oecd.org/employment/emp/onlineoecdemploymentdatabase.htm and www.oecd.org/els/emp/lfsnotes_sources.pdf.

StatLink https://stat.link/qe6cv1

Table B3. Employment/population ratios by selected age groups - Women

As a percentage of the female population in each age group

	Women (15-64)				Youth (15-24)				Prime age (25-54)				Older population (55-64)			
	2000	2007	2020	2021	2000	2007	2020	2021	2000	2007	2020	2021	2000	2007	2020	2021
Australia	61.3	66.1	68.6	71.2	60.8	63.2	57.8	62.2	67.0	71.9	74.8	77.0	34.2	47.3	58.2	60.2
Austria	59.4	63.5	68.3	68.1	48.1	50.6	47.8	45.7	73.6	76.7	80.8	80.7	16.8	26.5	47.0	48.3
Belgium	51.5	55.3	61.0	61.8	25.4	25.0	22.5	23.7	67.2	72.3	76.4	76.9	16.6	26.0	48.0	49.6
Canada	65.6	69.6	66.8	70.1	55.7	60.7	49.8	55.9	73.9	77.7	75.9	78.9	39.1	49.3	54.9	57.1
Chile[1]	36.8	42.3	46.6	49.0	20.2	21.7	16.5	17.7	45.0	52.3	57.6	60.4	26.6	35.1	40.6	41.7
Colombia	..	46.0	44.9	47.6	..	28.2	25.6	28.1	..	56.3	54.3	57.7	..	33.4	38.7	38.8
Costa Rica	38.8	46.3	41.4	43.9	30.2	33.3	18.1	20.8	45.7	55.2	52.5	55.4	20.3	31.2	32.9	31.8
Czech Republic	56.9	57.3	67.1	67.1	33.6	23.9	19.4	19.9	73.7	74.9	78.8	78.4	22.4	33.5	61.3	63.3
Denmark	71.7	73.4	71.4	72.7	63.4	64.0	54.0	53.4	79.9	82.5	78.3	80.1	46.7	53.1	67.2	68.5
Estonia	57.3	66.1	71.6	72.4	28.5	29.8	33.4	34.0	73.2	79.9	78.3	81.1	36.5	60.5	77.9	72.9
Finland	64.5	68.5	70.7	71.7	39.9	44.7	41.5	44.2	77.6	80.7	80.0	80.8	40.9	54.8	68.4	68.8
France	56.2	59.1	62.2	64.5	26.9	27.5	26.5	30.6	71.4	75.3	76.7	78.3	26.0	36.0	51.8	54.3
Germany	58.1	63.2	71.8	72.2	44.6	43.5	46.5	46.1	71.2	74.0	79.9	80.7	29.0	43.4	67.8	67.8
Greece	41.7	47.7	47.5	48.2	22.4	18.8	11.7	11.1	52.7	60.9	61.1	61.3	24.3	27.0	33.5	37.3
Hungary	49.6	50.7	62.3	68.2	28.8	17.7	23.1	23.9	66.9	67.9	75.9	83.4	13.1	25.8	49.2	52.9
Iceland[2]	81.0	79.7	75.5	76.8	70.5	73.4	65.8	68.1	86.0	82.1	79.5	79.4	74.4	77.7	71.0	76.2
Ireland	54.1	63.0	62.9	66.0	46.6	59.1	36.5	42.8	62.7	69.2	72.7	75.2	27.4	40.3	55.4	57.5
Israel[3]	55.5	59.0	64.9	65.1	44.8	43.4	39.7	40.8	63.5	67.7	75.8	75.8	36.8	49.3	62.4	62.5
Italy[2]	39.6	46.6	49.0	49.4	22.1	19.5	12.8	13.5	50.9	59.6	59.1	60.1	15.3	23.0	44.6	44.0
Japan	56.7	59.5	70.6	71.3	43.0	41.5	47.2	47.7	63.6	67.4	77.9	78.6	47.9	51.2	66.4	66.9
Korea	50.1	53.4	56.7	57.7	33.6	30.8	28.3	30.9	56.1	60.5	64.1	64.8	48.0	46.9	55.6	55.5
Latvia	53.8	63.9	70.2	68.0	23.8	32.2	26.7	25.6	72.6	78.4	80.6	77.9	26.8	53.4	67.9	67.1
Lithuania	57.5	62.0	71.0	71.9	22.1	20.0	28.3	29.3	76.1	80.2	83.4	83.9	33.0	47.5	66.9	68.3
Luxembourg	50.0	56.1	63.9	66.0	28.3	18.4	24.4	28.9	63.0	71.7	80.0	81.6	16.8	28.6	40.6	41.4
Mexico	39.6	43.6	44.6	46.2	34.0	32.2	27.7	29.6	44.3	50.6	53.3	55.1	27.7	33.1	35.9	35.8
Netherlands	62.7	66.5	73.9	76.6	65.1	62.2	63.6	74.1	70.3	76.4	81.2	82.1	25.5	37.1	62.6	63.5
New Zealand	63.1	68.6	72.2	74.4	52.1	55.6	54.0	57.7	69.9	74.2	78.0	79.9	46.1	63.2	71.4	72.9
Norway[2]	73.6	74.0	72.7	74.3	55.9	56.2	49.8	55.3	81.6	82.3	80.4	81.1	58.9	64.0	69.1	70.2
Poland	48.9	50.6	61.5	63.8	21.8	22.4	24.2	22.8	64.3	68.8	76.7	79.6	21.4	19.4	41.0	43.1
Portugal	60.5	61.8	67.3	68.8	36.1	30.2	23.5	22.1	73.9	74.8	81.6	83.3	40.9	44.3	55.3	58.6
Slovak Republic	51.5	53.0	61.7	65.6	28.2	24.1	16.5	15.8	69.8	71.0	74.0	79.4	9.8	21.2	55.2	57.3
Slovenia	58.4	62.6	67.8	68.1	29.7	31.4	24.0	26.6	79.3	82.4	85.6	85.7	13.8	22.2	46.6	48.5
Spain[2]	42.0	56.0	56.6	58.9	29.0	37.2	18.5	21.5	51.0	66.3	67.4	70.1	20.1	30.2	48.0	49.3
Sweden[2]	72.2	71.8	73.5	73.3	45.4	42.2	39.9	41.5	81.7	83.0	82.1	81.4	62.4	67.2	75.6	75.3
Switzerland	69.3	71.6	75.9	75.4	63.4	59.7	59.4	58.6	75.6	78.5	82.5	82.1	50.1	58.1	67.8	67.0
Türkiye	26.2	22.8	29.7	31.7	24.8	19.3	19.2	21.2	27.6	25.6	36.2	38.4	21.5	14.6	16.7	18.0
United Kingdom[2]	65.7	66.4	71.7	71.5	59.1	55.8	53.0	51.8	73.2	74.4	79.9	80.1	41.8	48.8	61.1	60.2
United States[2]	67.8	65.9	62.2	64.6	57.4	51.8	45.3	49.7	74.2	72.5	69.6	71.7	50.6	56.6	54.8	56.7
OECD[4]	55.1	56.8	58.9	60.5	40.8	38.8	35.8	38.1	63.9	65.9	67.7	69.4	36.6	43.4	52.4	53.3
Brazil	..	55.9	47.4	48.4	..	42.7	28.1	30.8	..	64.3	57.4	57.9	..	39.5	32.5	33.2
China[5]	73.8	..	..	..	62.1	..	..	..	81.6	..	..	..	47.1	..	..	..
India	34.5	..	25.9	..	24.1	..	9.9	..	40.4	..	32.8	..	29.5	..	25.2	..
Indonesia	49.5	45.6	..	..	34.4	29.8	..	..	56.3	52.0	..	..	52.4	49.4	..	..
South Africa	..	37.4	33.4	31.9	..	12.6	6.9	6.1	..	51.2	44.8	42.6	..	31.8	31.4	29.9

.. Not available

Note: Please refer to the Box entitled "Major breaks in series" in the introduction to the Statistical Annex.

1. New labour force survey since April 2010. To remove the break, data prior to 2010 are spliced using *new-to-old* chaining coefficients based on data of the fourth quarter of 2009.
2. The lower age limit is 16 instead of 15. For Iceland up to 2008, Italy after 2007, Norway up to 2005 and Sweden up to 2006.
3. Redesigned monthly labour force survey since January 2012. To remove the break, data prior to 2012 are spliced using *new-to-old* chaining coefficients between monthly and quarterly surveys based on data of the fourth quarter of 2011.
4. Weighted average.
5. Data up to 2010 for China can be found in the database.

Source: *OECD Employment Database*, www.oecd.org/employment/emp/onlineoecdemploymentdatabase.htm and www.oecd.org/els/emp/lfsnotes_sources.pdf.

StatLink https://stat.link/2bqgyc

Table C1. Labour force participation rates by selected age groups - Total

As a percentage of the population in each age group

	Total (15-64)				Youth (15-24)				Prime age (25-54)				Older population (55-64)			
	2000	2007	2020	2021	2000	2007	2020	2021	2000	2007	2020	2021	2000	2007	2020	2021
Australia	73.8	76.2	77.9	79.1	70.2	70.8	66.2	68.6	80.3	82.7	84.5	85.4	48.2	58.1	67.1	68.2
Austria	70.8	73.5	76.6	77.2	55.7	59.4	56.1	56.3	85.2	86.5	88.3	89.0	29.8	37.2	57.0	58.4
Belgium	65.1	67.1	68.6	69.7	35.3	33.9	28.4	30.3	82.4	85.3	84.5	85.4	27.1	35.9	55.6	57.1
Canada	76.2	78.1	77.4	79.1	64.4	67.6	61.9	63.8	84.8	86.3	86.2	87.7	50.9	59.3	65.7	67.6
Chile[1]	61.0	63.0	62.7	64.3	38.6	37.0	26.4	26.6	71.5	75.1	74.9	76.8	51.3	57.6	60.3	61.0
Colombia	..	68.0	68.8	70.7	..	48.8	46.9	48.6	..	79.1	79.8	81.9	..	55.2	60.6	60.9
Costa Rica	62.8	67.2	68.3	68.6	50.4	51.9	44.5	45.3	71.4	76.8	80.7	81.0	47.7	56.0	57.0	56.6
Czech Republic	71.6	69.8	76.4	76.6	46.1	31.9	27.3	27.0	88.4	87.8	88.7	88.7	38.2	48.2	69.6	71.6
Denmark	79.9	80.0	78.9	79.6	70.7	70.6	60.2	60.4	87.9	88.8	86.3	87.0	58.1	60.9	74.5	75.3
Estonia	71.1	73.0	79.4	79.1	44.8	38.4	42.2	40.3	86.6	88.3	88.2	88.8	48.3	61.6	78.6	76.6
Finland	74.9	75.7	78.4	78.9	53.8	55.0	53.8	54.2	87.9	88.0	87.5	87.9	46.6	58.8	73.0	73.8
France	68.6	69.4	71.0	73.0	36.5	38.0	35.6	39.7	86.3	87.5	86.9	88.0	31.8	40.0	57.1	59.7
Germany	71.1	75.6	78.6	78.7	51.5	52.0	51.9	52.3	85.3	87.2	87.3	87.4	42.9	57.2	74.0	74.1
Greece	63.8	66.5	67.4	67.3	39.0	31.0	21.2	20.7	78.1	81.8	84.0	83.1	40.5	44.2	50.8	54.4
Hungary	59.9	61.6	72.8	76.2	37.2	25.7	31.2	31.8	77.3	80.1	86.2	90.1	22.6	33.7	61.4	64.7
Iceland[2]	86.6	86.3	83.5	85.0	71.6	78.3	70.6	74.4	92.2	89.3	88.0	88.3	85.7	84.1	80.0	83.5
Ireland	68.1	75.5	71.7	74.4	54.2	69.4	43.7	50.2	78.3	82.1	82.4	84.2	45.9	54.7	63.9	65.7
Israel[3]	69.9	71.2	69.9	70.2	58.2	55.5	42.3	43.2	78.7	80.3	81.5	81.7	50.9	61.2	70.1	70.1
Italy[2]	60.3	62.4	64.1	64.5	39.5	30.8	23.8	24.9	74.3	77.5	76.5	77.3	29.0	34.5	57.1	56.5
Japan	72.5	73.6	79.6	80.0	47.0	44.9	48.6	48.9	81.9	83.3	87.9	88.2	66.5	68.4	78.7	79.1
Korea	64.5	66.4	68.6	69.0	33.0	28.8	28.2	29.6	75.2	76.5	77.8	78.0	59.6	61.9	68.8	68.6
Latvia	67.0	72.6	78.2	75.8	37.4	42.6	34.8	32.7	85.5	87.1	89.3	87.1	39.8	60.7	74.6	72.2
Lithuania	70.5	67.9	78.5	78.2	36.2	27.1	36.6	36.3	88.8	85.6	90.4	90.1	45.4	55.3	75.0	74.1
Luxembourg	64.2	66.9	72.2	73.2	34.0	26.5	32.4	35.4	79.8	84.7	89.1	89.2	27.6	32.7	45.9	48.8
Mexico	61.7	63.4	62.3	63.8	51.5	48.4	42.3	44.3	68.6	72.0	72.5	74.0	52.4	55.6	53.7	54.6
Netherlands	74.3	76.8	80.9	83.7	70.8	69.6	68.7	79.1	83.1	86.7	87.6	88.7	38.5	50.1	73.0	73.8
New Zealand	75.0	78.1	80.6	81.6	62.7	64.5	62.9	64.8	82.0	84.0	86.8	87.4	59.7	72.9	79.0	79.7
Norway[2]	80.2	78.8	78.2	79.9	64.4	58.8	55.6	61.0	87.4	87.4	86.0	86.6	65.8	69.6	74.3	76.0
Poland	65.8	63.2	71.0	72.8	37.8	33.0	31.8	31.0	82.4	81.7	85.6	87.4	31.3	31.8	52.9	56.0
Portugal	71.2	73.9	75.0	76.4	45.7	41.3	33.5	32.9	84.8	87.7	89.3	90.4	52.5	54.6	62.8	66.9
Slovak Republic	69.9	68.2	72.4	74.6	46.0	34.5	28.1	26.2	88.4	86.8	85.9	88.8	24.3	38.8	61.3	64.1
Slovenia	67.5	71.3	74.6	75.0	39.2	41.8	31.5	33.9	87.4	89.3	92.4	92.2	24.0	34.6	52.4	54.9
Spain[2]	66.7	72.8	73.4	75.0	48.5	52.5	33.5	35.3	78.0	83.1	85.5	87.1	40.9	47.4	62.5	64.4
Sweden[2]	79.0	79.1	82.5	82.9	52.9	52.1	51.9	54.0	88.2	90.0	91.2	91.1	69.3	73.0	82.6	82.6
Switzerland	80.5	81.6	84.1	83.7	68.3	67.4	65.0	65.4	87.4	88.9	91.2	90.7	65.1	69.3	76.5	75.8
Türkiye	52.4	49.8	54.9	57.2	42.5	37.7	39.1	41.7	59.6	58.2	65.1	67.4	37.2	28.3	33.5	36.1
United Kingdom[2]	76.4	76.4	78.8	78.2	69.6	66.4	60.5	58.6	83.9	84.2	87.1	87.0	53.0	59.1	67.9	67.1
United States[2]	77.2	75.3	73.0	73.4	65.8	59.4	53.9	55.5	84.0	83.0	81.4	81.6	59.2	63.8	64.7	64.6
OECD[4]	69.9	70.5	71.5	72.4	51.9	49.4	45.9	47.5	80.2	80.9	81.5	82.3	50.0	55.6	63.7	64.4
Brazil	..	73.5	66.8	68.8	..	63.6	50.8	53.8	..	81.1	76.5	78.3	..	55.4	48.5	49.9
China[5]	82.3	..	..	..	67.9	..	..	..	90.5	..	..	..	59.4	..	..	..
India	60.9	..	53.8	..	45.9	..	29.8	..	69.4	..	65.0	..	55.0	..	51.9	..
Indonesia	69.4	68.7	..	..	51.8	52.8	..	..	77.8	75.8	..	..	68.1	68.4	..	..
South Africa	..	57.2	54.6	56.3	..	29.3	20.9	22.0	..	74.5	70.6	72.8	..	44.8	41.9	40.7

.. Not available

Note: Please refer to the Box entitled "Major breaks in series" in the introduction to the Statistical Annex.

1. New labour force survey since April 2010. To remove the break, data prior to 2010 are spliced using *new-to-old* chaining coefficients based on data of the fourth quarter of 2009.
2. The lower age limit is 16 instead of 15. For Iceland up to 2008, Italy after 2007, Norway up to 2005 and Sweden up to 2006.
3. Redesigned monthly labour force survey since January 2012. To remove the break, data prior to 2012 are spliced using *new-to-old* chaining coefficients between monthly and quarterly surveys based on data of the fourth quarter of 2011.
4. Weighted average.
5. Data up to 2010 for China can be found in the database.

Source: *OECD Employment Database*, www.oecd.org/employment/emp/onlineoecdemploymentdatabase.htm and www.oecd.org/els/emp/lfsnotes_sources.pdf.

StatLink https://stat.link/gsziah

Table C2. Labour force participation rates by selected age groups - Men

As a percentage of the male population in each age group

	Men (15-64)				Youth (15-24)				Prime age (25-54)				Older population (55-64)			
	2000	2007	2020	2021	2000	2007	2020	2021	2000	2007	2020	2021	2000	2007	2020	2021
Australia	82.3	83.0	82.4	83.3	71.9	71.8	66.0	68.2	90.2	90.8	90.2	90.5	60.9	67.7	73.3	73.9
Austria	79.9	80.0	81.0	81.9	60.6	62.9	59.5	61.2	94.0	92.5	91.4	92.3	42.8	47.6	65.5	66.4
Belgium	73.7	73.6	72.6	73.7	38.7	36.1	30.3	32.2	91.8	92.5	88.7	89.7	37.5	44.4	61.5	62.5
Canada	81.9	82.4	81.1	82.6	65.8	68.0	62.2	63.8	91.0	91.0	90.1	91.5	60.7	66.8	72.1	73.7
Chile[1]	80.1	78.5	73.0	74.6	47.6	44.0	30.4	30.3	93.5	93.0	85.4	87.4	76.8	79.8	78.5	79.1
Colombia	..	82.6	81.4	83.4	..	58.2	54.6	56.2	..	95.2	92.8	94.9	..	77.7	80.8	82.4
Costa Rica	83.8	84.2	80.6	80.4	64.7	63.6	50.4	49.2	95.2	95.7	93.8	94.4	76.3	80.9	77.0	78.4
Czech Republic	79.4	78.1	83.3	83.3	51.3	36.7	32.8	31.9	94.9	95.0	95.8	95.8	54.5	62.4	76.5	78.1
Denmark	84.2	83.6	81.8	82.6	73.4	72.0	60.1	60.9	91.7	92.3	89.7	90.4	66.6	66.8	79.1	79.7
Estonia	76.3	77.5	81.8	81.4	52.1	44.3	43.5	40.5	89.2	93.2	92.8	91.9	60.0	62.4	74.2	76.1
Finland	77.6	77.4	80.2	80.5	56.4	56.3	56.0	55.6	90.7	90.3	90.0	90.0	48.1	59.2	72.5	73.8
France	75.1	74.4	74.5	76.2	40.2	41.5	38.2	41.7	94.2	93.8	91.5	92.3	35.9	42.6	59.4	61.7
Germany	78.9	81.8	82.5	82.7	54.7	54.9	53.7	55.1	93.4	93.8	91.8	91.6	52.4	65.8	78.1	78.6
Greece	77.4	78.4	75.5	75.0	41.7	34.4	23.1	22.6	94.4	94.6	91.6	90.6	57.3	60.9	64.5	66.5
Hungary	67.5	68.6	80.3	81.1	41.8	29.5	35.3	35.1	84.4	87.2	93.1	93.6	34.1	42.1	74.0	76.6
Iceland[2]	89.8	90.5	86.1	87.6	70.1	78.2	67.3	72.5	96.1	94.5	91.2	91.5	94.7	89.3	85.8	87.8
Ireland	79.9	84.7	77.6	79.3	58.1	74.5	44.2	50.3	92.0	91.6	89.5	90.2	64.4	68.9	72.4	73.0
Israel[3]	77.5	77.0	72.1	71.8	61.9	58.3	41.4	42.1	87.5	87.0	84.4	83.9	63.5	70.3	76.4	75.8
Italy[2]	74.3	74.3	73.5	73.6	44.6	36.0	28.5	29.4	90.6	91.0	87.0	87.3	42.7	46.2	68.0	67.2
Japan	85.2	85.2	86.5	86.6	47.4	45.1	48.0	48.0	97.1	96.3	95.5	95.5	84.1	84.9	89.7	89.8
Korea	77.2	77.9	77.9	78.0	28.5	24.0	24.6	25.2	92.2	90.5	88.3	88.1	71.3	76.8	80.6	80.1
Latvia	72.3	77.9	80.7	78.8	43.4	49.2	37.9	35.3	87.8	91.6	92.0	90.9	53.9	67.6	76.8	73.2
Lithuania	74.3	71.3	79.9	79.2	41.6	31.6	38.9	38.1	89.7	87.7	91.4	91.0	57.9	63.3	76.6	74.1
Luxembourg	76.4	75.0	75.4	76.4	37.4	30.6	33.7	36.2	94.2	94.9	92.8	92.5	38.6	36.4	49.7	54.4
Mexico	84.7	83.8	79.3	80.7	67.7	62.6	54.0	56.0	95.2	95.2	91.7	92.9	79.3	80.2	73.8	75.6
Netherlands	83.2	83.3	84.8	87.1	71.6	70.6	67.7	76.8	93.2	93.5	91.5	92.2	50.9	61.1	81.5	82.1
New Zealand	83.1	84.9	85.2	85.7	65.8	67.1	63.9	65.4	91.1	92.1	92.4	92.4	71.9	81.9	84.9	85.2
Norway[2]	84.2	81.6	80.4	82.1	66.4	57.5	55.5	59.4	91.2	90.8	88.5	89.2	72.3	74.6	78.2	80.6
Poland	71.7	70.0	78.3	79.5	40.9	36.5	36.1	35.7	88.3	87.9	92.1	92.5	40.4	44.8	65.3	69.3
Portugal	78.9	79.2	77.7	79.1	50.5	44.7	35.9	35.6	92.5	92.9	91.6	92.3	64.5	63.2	68.0	73.3
Slovak Republic	76.8	75.8	78.3	78.6	49.4	38.7	34.9	31.9	93.9	93.0	92.3	92.4	41.0	56.9	64.5	67.7
Slovenia	71.9	75.8	77.1	77.8	41.7	47.6	33.9	36.4	90.6	91.3	94.2	94.1	34.6	46.7	56.3	59.3
Spain[2]	80.4	82.6	78.2	79.1	53.6	57.3	36.0	37.0	93.0	92.5	90.1	91.3	60.5	62.8	69.6	70.9
Sweden[2]	81.5	81.4	84.6	84.9	54.4	51.5	52.0	53.2	90.7	92.9	93.8	93.9	72.6	76.4	85.5	85.2
Switzerland	89.4	88.2	88.1	87.5	70.5	70.2	65.4	66.5	96.7	95.8	95.4	94.6	79.3	78.4	82.9	81.7
Türkiye	76.9	74.4	74.6	76.9	57.6	51.6	50.1	53.1	89.5	88.1	88.4	90.4	53.4	42.9	50.0	53.7
United Kingdom[2]	84.1	83.1	82.7	81.9	73.3	69.4	60.5	58.9	91.9	91.2	91.7	91.1	63.4	68.8	73.1	72.0
United States[2]	83.9	81.7	78.3	78.7	68.6	61.5	54.6	56.5	91.6	90.9	87.9	88.0	67.3	69.6	70.7	70.4
OECD[4]	80.9	80.4	79.4	80.1	57.2	54.2	49.5	51.1	92.6	92.2	90.4	90.9	62.5	66.8	72.8	73.4
Brazil	..	84.9	77.1	79.2	..	72.3	57.4	60.0	..	92.8	87.2	89.2	..	72.3	63.5	65.2
China[5]	87.8	..	..	..	68.0	..	..	..	96.8	..	..	..	70.8	..	..	..
India	84.9	..	79.5	..	63.6	..	44.8	..	96.7	..	96.3	..	80.0	..	78.6	..
Indonesia	85.8	85.6	..	..	60.8	63.6	..	..	97.6	95.9	..	..	83.9	84.8	..	..
South Africa	..	64.3	60.6	62.5	..	32.0	22.7	23.5	..	84.0	77.8	80.2	..	59.1	51.1	49.5

.. Not available

Note: Please refer to the Box entitled "Major breaks in series" in the introduction to the Statistical Annex.

1. New labour force survey since April 2010. To remove the break, data prior to 2010 are spliced using *new-to-old* chaining coefficients based on data of the fourth quarter of 2009.
2. The lower age limit is 16 instead of 15. For Iceland up to 2008, Italy after 2007, Norway up to 2005 and Sweden up to 2006.
3. Redesigned monthly labour force survey since January 2012. To remove the break, data prior to 2012 are spliced using *new-to-old* chaining coefficients between monthly and quarterly surveys based on data of the fourth quarter of 2011.
4. Weighted average.
5. Data up to 2010 for China can be found in the database.

Source: *OECD Employment Database*, www.oecd.org/employment/emp/onlineoecdemploymentdatabase.htm and www.oecd.org/els/emp/lfsnotes_sources.pdf.

StatLink https://stat.link/ypgzbj

Table C3. Labour force participation rates by selected age groups - Women

As a percentage of the female population in each age group

	Women (15-64)				Youth (15-24)				Prime age (25-54)				Older population (55-64)			
	2000	2007	2020	2021	2000	2007	2020	2021	2000	2007	2020	2021	2000	2007	2020	2021
Australia	65.3	69.4	73.4	75.1	68.5	69.7	66.5	69.0	70.5	74.8	78.9	80.4	35.3	48.6	61.2	62.8
Austria	61.8	67.1	72.1	72.6	50.8	56.0	52.8	51.5	76.3	80.5	85.1	85.6	17.6	27.5	48.8	50.7
Belgium	56.4	60.4	64.5	65.7	31.8	31.6	26.5	28.2	72.7	78.0	80.3	81.1	17.1	27.5	49.8	51.8
Canada	70.4	73.8	73.8	75.6	62.9	67.3	61.7	63.8	78.5	81.7	82.3	83.9	41.4	51.9	59.5	61.7
Chile[1]	42.1	47.6	52.5	54.0	29.4	29.7	22.2	22.8	49.7	57.3	64.3	66.1	27.8	36.8	43.6	44.2
Colombia	..	54.2	56.8	58.5	..	39.5	39.3	41.1	..	64.2	67.2	69.4	..	35.2	43.3	42.8
Costa Rica	41.6	49.7	55.7	56.6	35.2	39.2	37.9	40.5	47.7	57.8	67.4	68.0	21.0	31.9	38.7	36.1
Czech Republic	63.7	61.5	69.2	69.6	40.6	26.9	21.4	21.9	81.8	80.3	81.1	81.1	23.7	35.2	62.8	65.2
Denmark	75.6	76.3	76.0	76.5	67.8	69.1	60.4	59.9	84.0	85.3	82.9	83.5	48.9	55.0	70.0	70.8
Estonia	66.3	68.8	76.9	76.8	37.1	32.1	40.9	40.0	84.1	83.4	83.3	85.4	39.4	61.0	82.4	77.0
Finland	72.1	73.9	76.6	77.3	51.1	53.7	51.4	52.8	85.0	85.6	84.9	85.6	45.2	58.3	73.5	73.9
France	62.4	64.5	67.6	70.0	32.8	34.4	33.1	37.7	78.7	81.4	82.6	84.0	27.9	37.6	54.9	57.9
Germany	63.3	69.4	74.5	74.6	48.2	49.0	49.9	49.2	76.9	80.6	82.6	83.1	33.5	48.9	69.9	69.7
Greece	50.5	54.8	59.3	59.6	36.2	27.5	19.3	18.8	62.0	69.2	76.3	75.4	25.4	28.2	38.6	43.6
Hungary	52.6	54.9	65.3	71.2	32.5	21.8	26.9	28.3	70.5	73.2	79.1	86.6	13.3	26.9	50.6	54.3
Iceland[2]	83.3	81.8	80.7	82.2	73.2	78.5	74.0	76.5	88.2	83.6	84.5	84.8	76.8	78.5	74.2	79.1
Ireland	56.2	66.2	65.9	69.6	50.1	64.2	43.1	50.0	64.5	72.4	75.5	78.4	27.4	40.3	55.4	58.7
Israel[3]	62.5	65.5	67.7	68.5	54.3	52.5	43.2	44.3	70.3	73.9	78.7	79.4	39.1	52.4	63.9	64.7
Italy[2]	46.3	50.6	54.7	55.4	34.3	25.4	18.8	20.1	57.9	64.1	66.0	67.3	16.1	23.4	46.9	46.5
Japan	59.6	61.9	72.5	73.3	46.6	44.7	49.2	49.7	66.5	70.1	80.0	80.7	49.7	52.5	67.8	68.6
Korea	52.1	54.9	59.1	59.9	37.0	33.2	31.4	33.5	57.8	62.0	66.6	67.2	48.8	47.5	57.2	57.2
Latvia	62.1	67.8	75.8	73.0	31.2	35.8	31.5	29.9	83.3	82.8	86.6	83.3	29.2	55.7	72.9	71.4
Lithuania	67.1	64.9	77.2	77.2	30.5	22.3	34.2	34.3	87.9	83.6	89.4	89.2	35.9	49.2	73.6	74.0
Luxembourg	51.7	58.9	68.8	69.9	30.6	22.3	31.0	34.5	64.9	74.7	85.3	85.9	16.8	29.1	41.9	42.9
Mexico	41.0	45.4	46.7	48.3	36.3	35.1	30.4	32.4	45.4	52.3	55.4	57.2	28.0	33.4	36.4	36.6
Netherlands	65.2	70.2	77.0	80.2	70.0	68.5	69.9	81.4	72.7	79.8	83.7	85.1	25.9	38.9	64.4	65.6
New Zealand	67.2	71.5	76.1	77.5	59.5	61.9	61.8	64.3	73.4	76.5	81.3	82.4	47.8	64.1	73.4	74.5
Norway[2]	76.1	75.9	75.8	77.7	62.4	60.1	55.7	62.7	83.4	83.9	83.4	83.9	59.4	64.5	70.3	71.3
Poland	59.9	56.5	63.6	66.1	34.8	29.3	27.4	26.1	76.5	75.6	79.1	82.1	23.7	20.6	41.7	44.0
Portugal	63.8	68.7	72.6	73.9	40.9	37.8	31.1	30.0	77.3	82.7	87.2	88.7	42.0	47.0	58.3	61.3
Slovak Republic	63.2	60.7	66.4	70.6	42.6	30.1	21.0	20.2	82.9	80.5	79.3	85.0	10.7	23.3	58.3	60.8
Slovenia	62.9	66.6	71.9	72.0	36.4	35.4	28.7	31.0	84.2	87.3	90.3	90.1	14.1	23.1	48.5	50.6
Spain[2]	52.9	62.8	68.7	70.8	43.3	47.5	30.7	33.4	62.8	73.3	80.8	83.0	22.6	32.7	55.7	58.3
Sweden[2]	76.4	76.8	80.3	80.8	51.2	52.6	51.7	54.8	85.6	87.1	88.4	88.2	65.9	69.6	79.6	79.9
Switzerland	71.6	75.0	80.0	79.7	66.0	64.5	64.6	64.2	78.0	81.9	86.9	86.6	51.3	60.3	70.0	69.9
Türkiye	28.0	25.7	35.1	37.3	28.1	24.4	27.5	29.7	28.9	28.0	41.6	44.1	21.6	14.8	17.4	19.0
United Kingdom[2]	69.0	69.8	75.0	74.7	65.8	63.5	60.4	58.3	76.1	77.4	82.6	82.9	43.1	49.8	63.0	62.3
United States[2]	70.7	69.1	67.8	68.2	63.0	57.2	53.2	54.5	76.7	75.4	75.1	75.3	51.9	58.3	59.0	59.2
OECD[4]	59.2	60.7	63.7	64.8	46.5	44.4	42.3	43.8	68.0	69.8	72.7	73.8	38.3	45.1	55.2	55.8
Brazil	..	62.8	56.9	58.8	..	54.7	44.0	47.3	..	70.2	66.3	67.9	..	40.6	35.3	36.5
China[5]	76.7	..	..	..	67.8	..	..	..	84.0	..	..	..	47.2	..	..	..
India	36.0	..	28.0	..	26.9	..	13.2	..	41.5	..	34.6	..	30.0	..	26.1	..
Indonesia	53.2	51.7	..	..	43.1	41.7	..	..	58.1	56.2	..	..	52.6	50.5	..	..
South Africa	..	50.8	48.6	50.2	..	26.6	19.1	20.4	..	66.2	63.5	65.4	..	33.3	34.5	33.6

.. Not available

Note: Please refer to the Box entitled "Major breaks in series" in the introduction to the Statistical Annex.

1. New labour force survey since April 2010. To remove the break, data prior to 2010 are spliced using *new-to-old* chaining coefficients based on data of the fourth quarter of 2009.
2. The lower age limit is 16 instead of 15. For Iceland up to 2008, Italy after 2007, Norway up to 2005 and Sweden up to 2006.
3. Redesigned monthly labour force survey since January 2012. To remove the break, data prior to 2012 are spliced using *new-to-old* chaining coefficients between monthly and quarterly surveys based on data of the fourth quarter of 2011.
4. Weighted average.
5. Data up to 2010 for China can be found in the database.

Source: *OECD Employment Database*, www.oecd.org/employment/emp/onlineoecdemploymentdatabase.htm and www.oecd.org/els/emp/lfsnotes_sources.pdf.

StatLink https://stat.link/9o8zbf

Table D1. Unemployment rates by selected age groups - Total

As a percentage of the total labour force in each age group

	Total (15-64)				Youth (15-24)				Prime age (25-54)				Older population (55-64)			
	2000	2007	2020	2021	2000	2007	2020	2021	2000	2007	2020	2021	2000	2007	2020	2021
Australia	6.4	4.4	6.6	5.3	12.1	9.4	14.2	11.3	5.0	3.4	5.2	4.1	4.5	2.7	5.1	4.1
Austria	3.5	4.9	5.4	6.3	5.1	9.4	10.5	11.0	3.1	4.2	5.0	5.8	5.2	3.4	4.0	5.2
Belgium	7.0	7.5	5.6	6.3	17.5	18.8	15.3	18.2	6.1	6.6	5.0	5.5	3.0	4.2	4.2	4.6
Canada	6.9	6.1	9.6	7.4	12.7	10.9	20.1	13.5	5.7	5.1	7.8	6.2	5.5	5.2	8.0	7.3
Chile[1]	10.7	8.7	11.0	9.1	25.0	21.6	24.1	20.0	8.2	6.6	10.4	8.6	7.0	4.7	6.9	6.0
Colombia	..	11.5	16.4	14.1	..	22.2	27.1	24.7	..	9.0	14.7	12.4	..	5.9	10.5	8.8
Costa Rica	5.2	4.6	19.7	16.7	11.0	10.8	41.9	39.5	3.2	2.8	16.6	13.3	2.8	2.0	12.0	8.9
Czech Republic	8.8	5.4	2.6	2.9	17.0	10.7	8.0	8.2	7.7	4.9	2.4	2.6	5.2	4.6	2.0	2.4
Denmark	4.5	3.4	5.7	4.9	6.6	7.5	11.6	10.8	4.1	2.7	4.8	4.0	3.8	2.8	4.1	3.8
Estonia	14.8	4.7	7.0	6.5	22.2	9.9	17.9	16.7	14.0	4.2	5.9	5.4	11.5	3.6	6.5	6.4
Finland	9.8	6.9	7.9	7.8	20.3	15.7	20.0	16.2	8.0	5.3	5.8	6.3	9.4	6.5	7.5	7.4
France	8.6	8.0	8.1	7.9	16.7	19.4	20.2	18.9	7.8	7.0	7.1	6.8	5.9	4.5	5.8	6.3
Germany	7.8	8.7	4.0	3.6	8.4	11.7	7.3	6.9	7.0	8.0	3.8	3.3	12.3	10.3	3.2	3.0
Greece	11.6	8.5	16.5	14.9	29.2	22.7	35.0	35.5	9.7	7.8	16.2	14.4	3.9	3.4	12.2	11.1
Hungary	6.4	7.5	4.3	4.1	12.7	18.0	12.8	13.5	5.7	6.9	3.8	3.5	3.0	4.4	3.0	2.9
Iceland[2]	2.3	2.5	6.7	6.2	4.7	7.5	11.8	11.9	1.7	1.5	6.2	5.5	1.7	1.0	4.0	3.9
Ireland	4.0	4.9	5.0	5.6	6.9	9.2	15.3	14.5	3.6	4.3	4.0	4.6	0.0	0.6	1.6	2.4
Israel[3]	11.2	9.4	4.5	5.1	17.3	16.3	7.9	7.8	9.4	7.8	4.0	4.7	8.7	6.8	3.1	4.0
Italy[2]	10.6	6.2	9.4	9.7	29.7	20.4	29.4	29.7	8.5	5.3	9.0	9.2	4.5	2.4	5.0	5.5
Japan	5.0	4.1	3.0	3.0	9.2	7.7	4.6	4.6	4.1	3.7	2.8	2.8	5.6	3.4	2.6	2.8
Korea	4.6	3.4	4.0	3.6	10.8	8.7	10.5	8.5	4.0	3.1	3.7	3.3	2.9	2.2	3.3	3.3
Latvia	14.5	6.2	8.4	7.9	22.1	10.6	14.9	14.8	14.0	5.7	7.9	7.8	9.6	4.5	8.1	6.2
Lithuania	16.7	4.3	8.8	7.4	30.2	8.4	19.6	14.3	15.6	4.0	7.4	6.5	11.2	3.7	9.9	8.2
Luxembourg	2.4	4.1	6.8	5.3	6.4	15.2	23.2	16.9	2.0	3.4	5.7	4.3	1.4	2.1	4.1	4.6
Mexico	2.6	3.8	4.5	4.3	5.1	7.2	8.0	7.9	1.8	2.9	4.0	3.6	1.4	1.9	2.6	2.7
Netherlands	3.1	4.2	3.9	4.2	6.1	9.4	9.1	9.3	2.5	3.0	2.9	3.1	2.1	4.4	2.7	3.3
New Zealand	6.2	3.8	4.8	4.0	13.5	10.1	12.4	10.5	4.7	2.6	3.5	2.9	4.7	1.4	2.8	2.2
Norway[2]	3.3	2.5	4.5	4.5	10.5	7.4	11.3	12.6	2.4	1.9	3.9	3.6	1.0	0.9	2.0	1.8
Poland	16.4	9.7	3.2	3.4	35.2	21.7	10.8	11.9	13.9	8.4	2.8	2.9	9.4	6.8	2.1	2.5
Portugal	4.2	8.5	7.1	6.7	8.6	16.7	22.6	23.4	3.5	7.7	6.0	5.7	3.2	6.5	6.0	5.2
Slovak Republic	18.8	11.0	6.8	6.9	37.0	20.1	19.3	20.6	15.5	10.1	6.2	6.3	12.3	8.1	4.8	5.4
Slovenia	6.9	5.0	5.0	4.8	16.3	10.1	14.2	12.8	5.6	4.5	4.6	4.2	5.3	3.3	3.7	4.0
Spain[2]	13.9	8.3	15.6	14.9	25.3	18.1	38.3	34.8	12.3	7.2	14.5	13.5	9.4	6.0	12.5	13.4
Sweden[2]	5.9	6.2	8.5	9.0	11.7	19.2	24.0	24.8	4.9	4.4	6.8	7.0	6.1	3.9	5.8	6.8
Switzerland	2.7	3.7	5.0	5.3	4.8	7.1	8.6	8.8	2.3	3.1	4.6	4.8	2.7	3.1	3.9	4.7
Türkiye	6.7	10.5	13.4	12.2	13.1	20.0	25.3	22.6	4.9	8.5	11.8	10.7	2.1	4.3	7.2	7.4
United Kingdom[2]	5.4	5.2	4.7	4.5	11.7	13.7	13.6	12.6	4.3	3.8	3.4	3.3	4.2	2.9	3.7	3.8
United States[2]	4.0	4.7	8.1	5.4	9.3	10.5	14.9	9.7	3.1	3.7	7.1	4.9	2.5	3.1	6.7	4.2
OECD[4]	6.3	6.0	7.3	6.3	12.1	12.6	15.0	12.8	5.3	5.1	6.5	5.6	4.9	4.0	5.2	4.7
Brazil	..	8.3	14.0	14.3	..	16.8	30.3	29.7	..	6.1	11.0	11.4	..	2.9	8.0	8.2
China[5]	3.7	..	..	..	8.8	..	..	..	2.8	..	..	..	0.4	..	..	..
India	4.4	..	9.0	..	10.1	..	26.3	..	2.9	..	6.3	..	1.6	..	3.6	..
Indonesia	6.3	9.8	..	..	19.9	25.3	..	..	2.9	5.9	..	..	0.4	2.2	..	..
South Africa	..	22.3	29.4	34.3	..	46.5	59.3	65.2	..	18.6	27.6	32.5	..	5.6	11.2	12.5

.. Not available

Note: Please refer to the Box entitled "Major breaks in series" in the introduction to the Statistical Annex.

1. New labour force survey since April 2010. To remove the break, data prior to 2010 are spliced using *new-to-old* chaining coefficients based on data of the fourth quarter of 2009.
2. The lower age limit is 16 instead of 15. For Iceland up to 2008, Italy after 2007, Norway up to 2005 and Sweden up to 2006.
3. Redesigned monthly labour force survey since January 2012. To remove the break, data prior to 2012 are spliced using *new-to-old* chaining coefficients between monthly and quarterly surveys based on data of the fourth quarter of 2011.
4. Weighted average.
5. Data up to 2010 for China can be found in the database.

Source: *OECD Employment Database*, www.oecd.org/employment/emp/onlineoecdemploymentdatabase.htm and www.oecd.org/els/emp/lfsnotes_sources.pdf.

StatLink https://stat.link/i6q1fb

Table D2. Unemployment rates by selected age groups - Men

As a percentage of the male labour force in each age group

	Men (15-64)				Youth (15-24)				Prime age (25-54)				Older population (55-64)			
	2000	2007	2020	2021	2000	2007	2020	2021	2000	2007	2020	2021	2000	2007	2020	2021
Australia	6.6	4.1	6.8	5.4	12.9	9.5	15.2	12.6	5.1	3.0	5.1	4.0	5.3	2.8	5.4	4.2
Austria	3.3	4.6	5.6	6.3	5.0	9.3	11.3	10.7	2.8	3.8	5.0	5.8	5.4	3.4	4.4	5.6
Belgium	5.8	6.7	5.8	6.7	15.3	17.1	15.5	19.9	4.9	5.9	5.1	5.7	3.0	3.6	4.6	5.1
Canada	7.0	6.5	9.8	7.7	13.8	12.1	20.7	14.5	5.7	5.4	7.8	6.3	5.5	5.2	8.3	7.2
Chile[1]	9.7	7.2	10.9	8.9	21.2	18.2	22.9	18.3	7.6	5.4	10.4	8.5	8.0	4.8	6.9	6.2
Colombia	..	8.9	13.0	10.8	..	17.8	21.6	19.5	..	6.6	11.4	9.0	..	6.3	10.3	8.6
Costa Rica	4.4	3.3	15.7	12.8	9.3	8.3	35.3	33.3	2.8	1.7	12.7	9.5	2.6	2.0	10.3	7.3
Czech Republic	7.4	4.3	2.3	2.4	16.7	10.6	7.2	7.6	6.0	3.5	2.1	2.1	5.0	4.5	1.7	2.0
Denmark	3.9	3.0	5.4	4.9	6.8	7.6	12.6	10.7	3.4	2.2	4.2	3.9	3.3	2.3	4.2	4.3
Estonia	16.0	5.5	7.1	7.1	21.7	11.8	17.4	18.4	15.0	4.2	5.8	5.8	15.0	6.9	7.9	7.8
Finland	9.1	6.5	8.1	8.3	18.9	14.8	20.6	16.1	7.2	4.8	5.9	7.0	9.3	6.9	8.1	8.0
France	7.4	7.7	8.2	8.0	15.6	18.9	20.3	19.0	6.6	6.5	7.0	6.8	5.0	4.8	5.8	6.5
Germany	7.6	8.6	4.4	4.0	9.2	12.2	7.7	7.3	6.6	7.8	4.2	3.7	11.5	9.7	3.4	3.3
Greece	7.6	5.3	13.7	11.5	21.6	15.5	31.4	31.1	6.2	4.7	13.1	10.9	3.7	2.9	11.6	8.8
Hungary	7.1	7.2	4.1	3.9	13.8	17.4	11.9	12.0	6.2	6.5	3.6	3.3	3.7	4.8	3.2	3.2
Iceland[2]	1.8	2.4	6.8	5.8	5.7	8.4	12.6	12.8	1.1	1.3	6.5	4.7	0.5	0.9	3.9	4.1
Ireland	4.2	5.0	5.3	5.9	6.8	10.2	15.3	14.5	4.2	4.2	4.3	5.1	0.0	0.9	2.8	2.8
Israel[3]	11.1	9.0	4.7	5.2	17.3	15.3	7.6	7.5	9.1	7.4	4.3	4.9	10.4	7.4	3.6	4.3
Italy[2]	8.2	5.0	8.6	8.9	25.4	18.4	27.9	27.7	6.3	4.0	8.0	8.1	4.4	2.6	5.1	5.6
Japan	5.1	4.1	3.1	3.1	10.4	8.3	5.0	5.1	3.9	3.6	3.0	2.9	6.8	4.1	2.9	3.1
Korea	5.1	3.8	4.0	3.6	13.5	11.1	11.1	9.6	4.5	3.6	3.6	3.3	3.9	2.7	3.6	3.5
Latvia	15.5	6.7	9.4	8.8	20.9	11.0	14.4	14.9	15.3	6.1	8.9	8.8	10.7	4.9	9.6	6.4
Lithuania	19.1	4.3	9.6	7.9	32.1	7.0	21.5	14.0	17.7	3.9	8.1	7.0	13.7	4.1	10.7	8.7
Luxembourg	1.8	3.6	6.6	5.0	5.7	13.5	24.8	17.7	1.4	2.8	5.2	3.7	2.0	2.3	4.8	5.6
Mexico	2.3	3.5	4.7	4.2	4.4	6.6	7.6	7.5	1.5	2.7	4.2	3.6	1.5	2.4	3.2	3.0
Netherlands	2.5	3.3	3.7	4.0	5.3	9.4	9.2	9.7	1.9	1.9	2.8	2.7	2.5	4.3	2.6	3.3
New Zealand	6.4	3.5	4.4	3.9	14.5	10.0	12.2	10.8	4.6	2.2	3.0	2.8	5.5	1.5	2.9	2.3
Norway[2]	3.4	2.6	4.8	4.8	10.5	8.3	12.1	13.3	2.5	1.9	4.1	3.8	1.2	1.0	2.3	2.0
Poland	14.6	9.1	3.1	3.4	33.3	20.0	10.3	11.5	12.1	7.8	2.6	2.9	9.1	7.4	2.5	2.8
Portugal	3.3	7.0	6.9	6.5	6.3	13.8	21.0	21.0	2.7	6.1	5.6	5.2	3.6	7.1	6.9	5.9
Slovak Republic	19.0	9.8	6.5	6.8	39.7	20.3	18.3	19.8	15.2	8.6	5.8	6.1	13.5	7.7	4.4	5.1
Slovenia	6.6	4.1	4.5	4.3	14.6	9.4	12.7	11.5	5.4	3.4	4.0	3.7	6.6	3.0	3.5	3.8
Spain[2]	9.6	6.5	14.0	13.2	19.4	15.2	37.1	34.1	8.0	5.5	12.6	11.6	8.6	5.0	11.5	11.7
Sweden[2]	6.3	6.0	8.6	8.8	12.1	18.6	25.1	25.4	5.3	4.1	6.5	6.4	6.8	4.3	6.5	7.7
Switzerland	2.3	3.0	4.8	5.1	5.6	6.8	9.2	8.9	1.6	2.3	4.2	4.4	3.0	2.6	4.5	5.1
Türkiye	6.8	10.2	12.6	10.9	13.7	19.6	22.6	19.4	5.0	8.5	11.2	9.5	2.9	5.4	8.4	8.2
United Kingdom[2]	6.0	5.5	5.0	4.7	13.2	15.3	14.8	13.8	4.7	3.7	3.5	3.3	5.2	3.5	4.3	4.1
United States[2]	3.9	4.8	7.9	5.6	9.7	11.6	15.0	10.5	2.9	3.7	6.9	4.9	2.4	3.2	6.4	4.2
OECD[4]	5.9	5.7	7.1	6.1	12.0	12.6	14.7	12.7	4.8	4.7	6.2	5.4	5.3	4.2	5.3	4.8
Brazil	..	6.1	12.0	11.6	..	12.9	25.8	25.8	..	4.2	9.2	8.8	..	3.0	8.0	7.6
China[5]	3.6	..	..	..	9.2	..	..	..	2.7	..	..	..	0.6	..	..	..
India	4.5	..	9.6	..	10.1	..	26.7	..	2.9	..	6.7	..	1.6	..	3.7	..
Indonesia	5.9	8.6	..	..	19.7	23.3	..	..	2.7	5.0	..	..	0.4	2.3	..	..
South Africa	..	18.8	28.0	32.4	..	41.1	55.4	61.0	..	15.1	26.1	30.6	..	6.4	13.0	13.9

.. Not available

Note: Please refer to the Box entitled "Major breaks in series" in the introduction to the Statistical Annex.

1. New labour force survey since April 2010. To remove the break, data prior to 2010 are spliced using *new-to-old* chaining coefficients based on data of the fourth quarter of 2009.
2. The lower age limit is 16 instead of 15. For Iceland up to 2008, Italy after 2007, Norway up to 2005 and Sweden up to 2006.
3. Redesigned monthly labour force survey since January 2012. To remove the break, data prior to 2012 are spliced using *new-to-old* chaining coefficients between monthly and quarterly surveys based on data of the fourth quarter of 2011.
4. Weighted average.
5. Data up to 2010 for China can be found in the database.

Source: *OECD Employment Database*, www.oecd.org/employment/emp/onlineoecdemploymentdatabase.htm and www.oecd.org/els/emp/lfsnotes_sources.pdf.

StatLink https://stat.link/k8o249

Table D3. Unemployment rates by selected age groups - Women

As a percentage of the female labour force in each age group

	Women (15-64)				Youth (15-24)				Prime age (25-54)				Older population (55-64)			
	2000	2007	2020	2021	2000	2007	2020	2021	2000	2007	2020	2021	2000	2007	2020	2021
Australia	6.1	4.8	6.5	5.1	11.2	9.2	13.2	9.8	4.9	3.9	5.3	4.2	3.2	2.6	4.8	4.0
Austria	3.8	5.4	5.3	6.2	5.2	9.6	9.5	11.3	3.5	4.7	5.0	5.8	4.7	3.5	3.6	4.6
Belgium	8.7	8.5	5.4	5.9	20.3	20.9	15.1	16.2	7.6	7.4	4.9	5.2	2.9	5.3	3.6	4.1
Canada	6.7	5.8	9.5	7.2	11.4	9.8	19.4	12.4	5.8	4.9	7.8	6.0	5.5	5.1	7.7	7.5
Chile[1]	12.7	11.1	11.1	9.3	31.3	26.9	25.8	22.2	9.4	8.7	10.3	8.6	4.3	4.6	6.9	5.6
Colombia	..	15.1	21.0	18.6	..	28.6	34.9	31.7	..	12.3	19.2	16.8	..	5.0	10.7	9.2
Costa Rica	6.7	6.9	25.6	22.3	14.2	15.1	52.1	48.8	4.2	4.6	22.2	18.5	3.3	2.1	15.1	12.0
Czech Republic	10.6	6.8	3.0	3.5	17.4	11.0	9.1	9.1	9.9	6.7	2.8	3.3	5.4	4.8	2.4	2.9
Denmark	5.1	3.9	6.0	4.9	6.4	7.4	10.6	11.0	4.9	3.2	5.5	4.1	4.6	3.4	4.0	3.2
Estonia	13.5	3.9	6.9	5.8	23.0	7.2	18.4	15.0	12.9	4.2	6.0	5.0	7.5	0.9	5.5	5.3
Finland	10.6	7.3	7.6	7.2	21.8	16.8	19.4	16.3	8.8	5.8	5.8	5.6	9.4	6.0	6.9	6.8
France	10.0	8.4	8.0	7.8	18.0	20.1	19.9	18.8	9.2	7.5	7.1	6.7	7.0	4.2	5.8	6.1
Germany	8.1	8.9	3.6	3.2	7.5	11.1	6.8	6.4	7.5	8.1	3.3	2.9	13.6	11.2	3.0	2.7
Greece	17.5	13.0	20.0	19.1	38.2	31.7	39.3	40.9	15.1	12.0	20.0	18.8	4.3	4.3	13.0	14.4
Hungary	5.7	7.8	4.5	4.3	11.2	18.9	14.0	15.5	5.0	7.3	4.1	3.7	1.6	3.9	2.7	2.5
Iceland[2]	2.8	2.6	6.5	6.6	3.6	6.5	11.1	10.9	2.4	1.8	5.9	6.3	3.2	1.0	4.2	3.7
Ireland	3.6	4.8	4.6	5.2	7.1	7.9	15.3	14.6	2.9	4.4	3.7	4.0	0.0	0.0	0.0	2.0
Israel[3]	11.2	9.9	4.2	4.9	17.4	17.3	8.2	8.0	9.7	8.4	3.7	4.5	6.0	6.0	2.4	3.5
Italy[2]	14.6	7.9	10.4	10.8	35.4	23.3	31.8	32.8	12.1	7.1	10.4	10.6	4.7	2.1	4.9	5.4
Japan	4.7	3.9	2.7	2.8	7.9	7.1	4.1	4.2	4.4	3.9	2.7	2.6	3.6	2.4	2.1	2.5
Korea	3.8	2.8	4.0	3.7	9.1	7.2	10.1	7.8	3.0	2.4	3.7	3.5	1.6	1.3	2.7	3.0
Latvia	13.4	5.7	7.4	6.9	23.7	10.0	15.5	14.6	12.8	5.3	6.9	6.6	8.0	4.1	6.8	6.0
Lithuania	14.3	4.4	8.0	6.9	27.5	10.4	17.3	14.7	13.5	4.0	6.7	5.9	8.1	3.4	9.1	7.7
Luxembourg	3.2	4.7	7.0	5.7	7.3	17.5	21.3	16.1	2.9	4.0	6.2	5.0	0.0	1.7	3.3	3.3
Mexico	3.4	4.1	4.3	4.3	6.2	8.2	8.8	8.6	2.4	3.2	3.8	3.7	0.9	1.0	1.5	2.1
Netherlands	3.9	5.2	4.0	4.5	7.0	9.3	9.0	9.0	3.3	4.3	3.0	3.5	1.5	4.7	2.9	3.2
New Zealand	6.0	4.0	5.2	4.1	12.4	10.2	12.6	10.2	4.8	3.0	4.1	3.1	3.6	1.3	2.8	2.2
Norway[2]	3.2	2.5	4.2	4.3	10.5	6.6	10.5	11.8	2.2	1.9	3.6	3.3	0.8	0.8	1.7	1.5
Poland	18.4	10.4	3.3	3.4	37.3	23.8	11.5	12.5	16.0	9.1	3.0	3.1	9.7	5.7	1.6	2.0
Portugal	5.2	10.1	7.3	7.0	11.6	20.3	24.4	26.4	4.4	9.5	6.4	6.1	2.6	5.8	5.2	4.5
Slovak Republic	18.6	12.6	7.1	7.1	33.8	19.9	21.2	22.0	15.8	11.9	6.7	6.6	8.7	9.1	5.3	5.7
Slovenia	7.2	6.0	5.7	5.4	18.5	11.2	16.2	14.4	5.8	5.6	5.3	4.9	2.5	3.8	4.1	4.2
Spain[2]	20.6	10.7	17.5	16.8	32.9	21.7	39.7	35.6	18.9	9.5	16.6	15.6	11.3	7.7	13.7	15.4
Sweden[2]	5.4	6.5	8.5	9.3	11.3	19.8	22.8	24.2	4.5	4.7	7.1	7.6	5.4	3.5	5.1	5.8
Switzerland	3.2	4.6	5.1	5.5	3.9	7.4	8.0	8.8	3.1	4.1	5.1	5.2	2.3	3.8	3.2	4.1
Türkiye	6.5	11.3	15.3	15.0	11.9	20.8	30.3	28.7	4.6	8.8	13.1	13.0	0.5	1.1	3.8	5.2
United Kingdom[2]	4.7	4.9	4.4	4.3	10.2	12.0	12.3	11.3	3.8	3.8	3.2	3.3	2.8	2.1	2.9	3.4
United States[2]	4.1	4.6	8.3	5.3	8.9	9.4	14.8	8.9	3.3	3.8	7.3	4.8	2.5	3.0	7.1	4.2
OECD[4]	6.9	6.4	7.6	6.6	12.3	12.6	15.4	12.9	6.1	5.6	6.8	6.0	4.4	3.7	5.1	4.5
Brazil	..	11.0	16.7	17.7	..	21.9	36.3	35.0	..	8.5	13.3	14.7	..	2.7	8.0	9.3
China[5]	3.8	..	..	..	8.4	..	..	..	2.9	..	..	..	0.2	..	..	..
India	4.2	..	7.5	..	10.2	..	24.8	..	2.6	..	5.3	..	1.6	..	3.4	..
Indonesia	7.0	11.7	..	..	20.1	28.4	..	..	3.2	7.5	..	..	0.4	2.1	..	..
South Africa	..	26.4	31.3	36.6	..	52.8	64.0	70.1	..	22.6	29.4	34.8	..	4.5	8.9	10.8

.. Not available

Note: Please refer to the Box entitled "Major breaks in series" in the introduction to the Statistical Annex.

1. New labour force survey since April 2010. To remove the break, data prior to 2010 are spliced using *new-to-old* chaining coefficients based on data of the fourth quarter of 2009.
2. The lower age limit is 16 instead of 15. For Iceland up to 2008, Italy after 2007, Norway up to 2005 and Sweden up to 2006.
3. Redesigned monthly labour force survey since January 2012. To remove the break, data prior to 2012 are spliced using *new-to-old* chaining coefficients between monthly and quarterly surveys based on data of the fourth quarter of 2011.
4. Weighted average.
5. Data up to 2010 for China can be found in the database.

Source: *OECD Employment Database*, www.oecd.org/employment/emp/onlineoecdemploymentdatabase.htm and www.oecd.org/els/emp/lfsnotes_sources.pdf.

StatLink https://stat.link/qy8n51

Table E. Employment/population ratios by educational attainment, 2020

Persons aged 25-64, as a percentage of the population in each gender

	Total			Men			Women		
	Below upper secondary education	Upper secondary and post-secondary non-tertiary education	Tertiary education	Below upper secondary education	Upper secondary and post-secondary non-tertiary education	Tertiary education	Below upper secondary education	Upper secondary and post-secondary non-tertiary education	Tertiary education
Australia	56.5	74.5	81.5	65.8	81.4	86.4	47.6	65.5	77.6
Austria	53.9	76.4	86.0	60.6	80.1	88.9	49.3	72.3	83.1
Belgium	46.9	73.4	86.2	55.8	79.4	88.6	36.6	66.4	84.2
Canada	54.0	70.2	79.5	62.0	75.8	83.5	42.8	62.4	76.3
Chile[1]	62.4	71.9	84.5	82.1	85.4	90.9	45.2	59.9	79.1
Colombia	61.8	65.6	74.2	81.8	80.5	82.3	40.6	51.4	68.0
Costa Rica	57.3	64.3	76.8	77.3	81.4	81.7	36.1	48.1	72.4
Czech Republic	57.0	83.5	85.6	67.0	90.0	94.7	48.8	76.2	77.9
Denmark[2]	60.7	82.1	87.6	69.5	85.8	90.7	49.9	77.5	85.2
Estonia	62.5	79.4	85.2	68.4	83.2	89.0	50.6	74.2	82.9
Finland	54.1	75.3	86.8	59.2	78.0	89.1	44.9	71.6	85.1
France	53.3	72.5	85.0	61.5	76.5	87.5	45.4	68.1	83.0
Germany	62.6	82.2	88.7	70.3	84.6	90.9	55.4	79.8	86.1
Greece	51.8	62.2	75.4	66.1	74.4	80.9	36.0	49.9	70.6
Hungary	55.6	79.3	85.9	66.5	87.0	94.2	46.7	70.1	79.9
Iceland	70.4	81.4	87.6	76.2	86.2	89.5	63.1	74.7	86.1
Ireland	52.0	71.7	84.5	63.2	82.0	89.3	36.6	61.3	80.5
Israel	48.8	70.7	86.8	58.4	74.8	89.6	37.9	65.7	84.6
Italy	51.7	70.5	80.8	66.9	80.5	86.0	34.8	60.3	76.9
Japan[3]	..	..	..	..	..	..	..	..	..
Korea	61.4	70.4	77.0	70.3	80.8	87.2	55.4	59.6	65.4
Latvia	56.5	74.5	81.5	65.8	81.4	86.4	47.6	65.5	77.6
Lithuania	54.5	73.2	89.9	55.8	77.2	90.3	51.8	68.4	89.6
Luxembourg	60.5	74.9	85.0	67.1	77.0	88.2	53.8	72.3	81.7
Mexico	62.6	67.7	76.3	85.1	84.9	84.4	43.0	52.6	68.8
Netherlands	63.1	82.2	89.5	73.6	87.1	92.1	52.7	77.0	86.9
New Zealand	70.8	81.8	87.9	78.2	89.2	92.1	62.8	73.8	84.4
Norway	60.7	79.5	89.2	67.0	83.4	90.1	53.5	74.0	88.4
Poland	46.9	71.5	89.1	60.1	82.2	93.5	32.4	58.8	86.0
Portugal	69.7	81.7	87.9	76.9	84.2	87.4	62.0	79.2	88.3
Slovak Republic	36.5	77.0	82.7	43.5	82.4	89.6	30.5	70.5	77.9
Slovenia	48.3	75.7	90.4	56.2	80.1	91.6	41.1	69.4	89.5
Spain	56.5	68.9	79.9	66.4	75.6	83.4	44.9	62.3	77.0
Sweden	63.2	85.1	89.3	72.2	87.7	90.3	52.3	81.3	88.5
Switzerland	69.1	81.2	88.9	77.9	85.3	92.5	61.7	77.4	84.7
Türkiye[2]	50.1	60.0	73.6	71.9	78.9	83.0	28.9	32.8	62.2
United Kingdom[4]	64.5	80.4	86.3	72.5	84.7	89.8	55.9	75.8	83.4
United States	55.1	69.0	81.9	66.3	75.0	86.6	42.1	62.5	77.9
OECD[5]	57.6	74.7	84.4	67.8	81.7	88.7	46.7	66.9	80.6
Brazil[6]	52.1	66.3	79.1	67.0	78.7	86.0	36.6	55.6	74.7
India[2]	57.5	62.9	61.9	92.5	89.4	84.4	27.1	20.7	28.4
Indonesia	73.5	73.8	82.3	90.6	89.3	89.2	58.0	53.7	75.8
South Africa	40.1	52.6	72.7	47.7	59.3	77.5	32.7	45.7	68.6

.. Not available
Note: Data refer to ISCED 2011, except for Brazil (ISCED-97). See the description of the levels of education in www.oecd.org/els/emp/definitions-education.pdf.
1. Year of reference 2017.
2. Year of reference 2019.
3. Education levels are grouped somewhat differently. Data can be found in the database.
4. Includes completion of intermediate upper secondary programmes. See notes to Table A5.1 of *Education at a Glance 2017*, https://dx.doi.org/10.1787/eag-2017-en.
5. Unweighted average.
6. Year of reference 2018.
Source: OECD (2021), *Education at a Glance 2021: OECD Indicators*, www.oecd.org/education/education-at-a-glance.

StatLink https://stat.link/xbfkaq

Table F. Labour force participation rates by educational attainment, 2020

Persons aged 25-64, as a percentage of the population in each gender

	Total			Men			Women		
	Below upper secondary education	Upper secondary and post-secondary non-tertiary education	Tertiary education	Below upper secondary education	Upper secondary and post-secondary non-tertiary education	Tertiary education	Below upper secondary education	Upper secondary and post-secondary non-tertiary education	Tertiary education
Australia	61.1	79.2	85.4	71.4	86.2	90.4	51.3	70.2	81.4
Austria	61.1	80.0	88.8	70.2	84.0	91.5	54.8	75.6	86.2
Belgium	52.5	77.2	89.0	62.2	83.2	91.7	41.2	70.1	86.8
Canada	61.6	77.5	85.2	70.2	83.8	89.2	49.4	69.0	81.9
Chile[1]	66.6	77.3	89.5	86.9	91.3	95.8	48.9	64.9	84.2
Colombia	70.4	77.9	86.9	90.1	91.9	94.0	49.4	64.5	81.5
Costa Rica	69.6	77.3	87.0	88.8	92.4	91.6	49.3	63.1	82.8
Czech Republic	63.1	85.4	86.8	73.8	91.6	95.9	54.3	78.4	79.1
Denmark[2]	64.8	85.0	91.3	74.2	88.5	94.3	53.1	80.9	89.0
Estonia	69.8	85.0	89.4	75.2	89.0	93.5	58.9	79.8	86.8
Finland	61.4	81.2	90.6	67.5	84.1	92.6	50.6	77.4	89.1
France	60.5	78.3	89.2	69.5	82.3	91.8	51.7	73.9	87.0
Germany	68.3	84.8	90.9	77.5	87.7	93.2	59.6	82.0	88.3
Greece	63.8	75.3	85.2	78.6	86.5	88.9	47.6	64.1	82.0
Hungary	61.8	82.1	87.4	73.6	89.9	95.7	52.1	72.9	81.4
Iceland	75.9	87.1	91.7	83.0	91.2	94.1	66.9	81.3	89.8
Ireland	55.6	75.7	87.7	67.9	86.3	92.7	38.7	64.9	83.5
Israel	51.3	74.2	89.7	61.9	78.6	92.8	39.2	68.9	87.2
Italy	58.7	76.0	85.2	74.9	85.7	89.8	40.7	66.2	81.8
Japan[3]	..	..	..	..	..	..	..	..	..
Korea	64.2	73.3	79.5	74.4	84.3	89.9	57.3	61.8	67.8
Latvia	77.4	82.7	91.5	83.7	86.2	94.8	65.3	78.7	89.5
Lithuania	69.3	81.8	93.7	71.8	85.9	94.2	64.4	76.9	93.3
Luxembourg	65.8	78.6	89.1	71.9	80.9	92.3	59.5	75.9	85.9
Mexico	64.7	70.8	80.1	88.1	89.1	88.8	44.3	54.7	72.0
Netherlands	66.2	84.5	91.7	77.0	89.5	94.2	55.5	79.2	89.2
New Zealand	74.4	84.8	90.3	82.0	91.8	94.4	66.2	77.3	86.9
Norway	65.4	82.4	91.6	72.2	86.4	92.9	57.6	76.8	90.5
Poland	51.1	73.6	90.7	65.0	84.3	95.2	35.9	60.8	87.6
Portugal	74.3	87.5	92.6	81.3	89.5	93.2	66.8	85.4	92.3
Slovak Republic	50.4	81.5	85.5	58.7	86.8	92.5	43.3	75.2	80.6
Slovenia	53.5	79.6	93.2	63.1	83.2	94.3	44.8	74.5	92.4
Spain	70.6	80.5	88.4	79.7	85.9	91.0	59.9	75.3	86.1
Sweden	77.6	89.3	93.6	86.2	91.7	95.1	67.2	85.8	92.4
Switzerland	75.7	85.1	92.2	84.1	89.9	95.4	68.6	80.8	88.4
Türkiye[2]	57.2	68.2	82.4	82.1	87.1	90.6	33.1	40.8	72.4
United Kingdom[4]	67.9	83.1	88.8	76.5	87.6	92.2	58.6	78.3	85.7
United States	60.1	73.2	84.5	72.1	79.5	89.4	46.1	66.2	80.4
OECD[5]	64.4	79.9	88.5	75.3	86.9	92.8	52.7	72.2	84.8
Brazil[6]	59.3	75.2	84.4	74.7	86.7	91.1	43.2	65.2	80.1
India[2]	58.1	65.8	68.0	93.8	92.8	91.4	27.2	22.6	33.0
Indonesia	75.0	76.4	84.7	92.8	92.8	92.2	58.8	55.3	77.0
South Africa	58.7	71.4	83.6	68.6	78.3	87.4	49.1	64.3	80.3

.. Not available
Note: Data refer to ISCED 2011, except for Brazil (ISCED-97). See the description of the levels of education in www.oecd.org/els/emp/definitions-education.pdf.
1. Year of reference 2017.
2. Year of reference 2019.
3. Education levels are grouped somewhat differently. Data can be found in the database.
4. Includes completion of intermediate upper secondary programmes. See notes to Table A5.1 of *Education at a Glance 2017*, https://dx.doi.org/10.1787/eag-2017-en.
5. Unweighted average.
6. Year of reference 2018.
Source: OECD (2021), *Education at a Glance 2021: OECD Indicators*, www.oecd.org/education/education-at-a-glance.

StatLink https://stat.link/3vblmu

Table G. Unemployment rates by educational attainment, 2020

Persons aged 25-64, as a percentage of the labour force in each gender

	Total			Men			Women		
	Below upper secondary education	Upper secondary and post-secondary non-tertiary education	Tertiary education	Below upper secondary education	Upper secondary and post-secondary non-tertiary education	Tertiary education	Below upper secondary education	Upper secondary and post-secondary non-tertiary education	Tertiary education
Australia	7.6	6.0	4.6	7.8	5.5	4.5	7.3	6.7	4.6
Austria	11.7	4.5	3.2	13.6	4.6	2.8	10.0	4.4	3.5
Belgium	10.7	4.9	3.2	10.3	4.6	3.4	11.2	5.4	3.0
Canada	12.3	9.5	6.7	11.7	9.4	6.4	13.5	9.5	6.9
Chile[1]	6.3	7.0	5.6	5.5	6.5	5.1	7.6	7.7	6.1
Colombia	12.2	15.7	14.6	9.3	12.4	12.5	17.9	20.3	16.5
Costa Rica	17.7	16.9	11.7	12.9	11.9	10.8	26.8	23.7	12.6
Czech Republic	9.6	2.2	1.4	9.2	1.8	1.3	10.1	2.7	1.5
Denmark[2]	6.2	3.5	4.1	6.4	3.1	3.8	6.0	4.1	4.3
Estonia	10.4	6.6	4.7	9.0	6.4	4.8	14.1	7.0	4.5
Finland	11.9	7.3	4.2	12.3	7.2	3.8	11.1	7.5	4.5
France	11.8	7.4	4.7	11.5	7.0	4.8	12.3	7.8	4.6
Germany	8.2	3.1	2.5	9.3	3.6	2.5	6.9	2.7	2.5
Greece	18.8	17.4	11.5	15.8	14.0	9.0	24.3	22.1	13.9
Hungary	10.0	3.5	1.7	9.7	3.3	1.5	10.4	3.8	1.9
Iceland	7.2	6.5	4.4	8.2	5.5	4.8	5.6	8.1	4.1
Ireland	6.4	5.3	3.7	6.8	5.0	3.7	5.4	5.7	3.7
Israel	4.8	4.7	3.2	5.7	4.7	3.4	3.3	4.6	3.0
Italy	11.9	7.2	5.1	10.6	6.1	4.2	14.5	8.8	5.9
Japan[3]	..	..	..	..	..	..	..	..	..
Korea	4.3	3.9	3.2	5.6	4.1	3.0	3.3	3.6	3.5
Latvia	16.3	8.7	5.2	16.3	8.8	6.4	16.4	8.6	4.4
Lithuania	21.4	10.5	4.1	22.3	10.2	4.2	19.5	11.0	4.0
Luxembourg	8.0	4.8	4.6	6.7	..	4.5	9.7	..	4.8
Mexico	3.2	4.3	4.7	3.4	4.7	5.0	2.8	3.9	4.4
Netherlands	4.6	2.7	2.4	4.4	2.7	2.2	5.0	2.8	2.5
New Zealand	4.9	3.5	2.7	4.6	2.8	2.4	5.2	4.4	2.8
Norway	7.2	3.5	2.6	7.2	3.5	3.0	7.2	3.6	2.4
Poland	8.2	2.8	1.8	7.6	2.5	1.7	9.5	3.3	1.8
Portugal	6.2	6.6	5.1	5.5	6.0	6.1	7.1	7.3	4.4
Slovak Republic	27.5	5.6	3.3	25.9	5.1	3.1	29.5	6.3	3.4
Slovenia	9.7	4.9	3.0	10.9	3.7	2.8	8.2	6.9	3.1
Spain	20.0	14.5	9.5	16.7	12.0	8.3	25.0	17.2	10.6
Sweden	18.5	4.7	4.6	16.2	4.4	5.0	22.2	5.2	4.2
Switzerland	10.0	3.5	1.7	9.7	3.3	1.5	10.4	3.8	1.9
Türkiye[2]	12.4	11.9	10.7	12.4	9.4	8.4	12.5	19.7	14.2
United Kingdom[4]	5.0	3.2	2.7	5.3	3.2	2.7	4.6	3.2	2.7
United States	8.3	5.7	3.1	8.0	5.8	3.1	8.8	5.6	3.1
OECD[5]	10.6	6.6	4.7	10.1	6.0	4.5	11.5	7.8	5.0
Brazil[6]	12.2	11.8	6.3	10.4	9.3	5.7	15.4	14.7	6.7
India[2]	1.1	4.4	8.9	1.3	3.7	7.7	0.5	8.6	13.8
Indonesia	2.0	3.5	2.9	2.3	3.8	3.3	1.3	2.9	1.6
South Africa	31.8	26.2	13.0	30.5	24.2	11.4	33.5	28.8	14.6

.. Not available
Note: Data refer to ISCED 2011, except for Brazil (ISCED-97). See the description of the levels of education in www.oecd.org/els/emp/definitions-education.pdf.
1. Year of reference 2017.
2. Year of reference 2019.
3. Education levels are grouped somewhat differently. Data can be found in the database.
4. Includes completion of intermediate upper secondary programmes. See notes to Table A5.1 of *Education at a Glance 2017*, https://dx.doi.org/10.1787/eag-2017-en.
5. Unweighted average.
6. Year of reference 2018.
Source: OECD (2021), *Education at a Glance 2021: OECD Indicators*, www.oecd.org/education/education-at-a-glance.

StatLink https://stat.link/ql75xh

Table H. Incidence and composition of part-time employment

Persons aged 15 and over, percentages

	Part-time employment as a proportion of total employment												Women's share in part-time employment			
	Total				Men				Women							
	2000	2007	2020	2021	2000	2007	2020	2021	2000	2007	2020	2021	2000	2007	2020	2021
Australia[1]	..	23.7	..	..	..	12.3	..	..	..	37.7	..	..	..	71.5	..	..
Austria	11.7	17.3	19.7	21.2	2.4	5.6	7.7	8.5	23.9	31.4	33.1	35.6	88.6	82.4	79.2	78.8
Belgium	19.3	18.1	15.7	17.3	6.9	6.4	6.9	8.3	35.5	32.2	25.9	27.6	79.5	80.7	76.7	74.7
Canada	18.1	18.3	18.0	18.4	10.3	11.2	12.3	13.1	27.2	26.3	24.5	24.4	69.2	67.7	63.8	62.6
Chile	4.7	8.0	16.0	16.6	3.1	5.2	11.9	12.4	8.7	13.9	21.8	22.5	53.9	56.9	56.1	55.9
Colombia	..	14.5	14.6	14.3	..	9.2	8.5	8.2	..	22.8	23.9	23.7	..	61.3	64.6	65.4
Costa Rica	..	..	17.7	17.7	..	..	11.6	11.1	..	..	28.1	28.7	..	..	58.7	60.9
Czech Republic	3.2	3.5	4.9	5.1	1.6	1.7	2.7	3.0	5.4	5.9	7.7	7.8	72.5	72.3	69.2	67.3
Denmark	15.3	17.3	18.1	16.6	9.1	11.9	13.8	12.5	22.4	23.4	23.1	21.2	68.1	63.3	59.4	59.7
Estonia	7.2	6.8	9.6	10.3	4.6	3.6	6.3	6.5	10.0	10.1	13.0	14.2	67.9	73.2	65.9	68.3
Finland	10.4	11.7	14.1	17.1	7.1	8.2	11.3	13.3	13.9	15.5	17.2	21.1	63.8	63.7	58.5	59.3
France	14.2	13.3	13.1	13.8	5.3	4.9	6.9	7.3	24.3	22.8	19.7	20.5	80.1	80.5	73.2	72.9
Germany	17.6	22.0	22.5	22.2	4.8	7.8	10.0	10.0	33.9	39.1	36.7	36.0	84.5	80.7	76.4	75.9
Greece	5.3	7.7	9.7	9.1	3.0	4.1	6.1	5.1	9.4	13.3	14.8	14.4	65.0	67.7	64.2	67.2
Hungary	3.2	3.1	4.4	4.3	1.7	1.8	2.7	2.7	4.7	4.5	6.4	6.0	71.2	68.6	66.3	66.0
Iceland[1, 2]	20.2	15.8	16.9	17.0	9.1	7.9	10.8	10.4	32.8	25.3	24.1	24.7	76.0	72.8	65.5	66.9
Ireland	18.1	19.9	18.4	19.7	7.3	7.4	8.3	9.8	32.0	35.0	30.4	31.1	77.1	79.8	75.6	73.4
Israel	15.6	16.1	14.3	14.7	7.4	8.1	8.5	8.9	25.4	25.3	20.5	20.7	74.5	73.3	69.4	69.1
Italy[2]	11.7	15.3	17.9	17.0	5.4	5.5	8.0	7.9	22.5	29.8	31.4	29.5	70.9	78.2	74.0	73.1
Japan[3]	15.9	18.9	25.8	25.6	7.1	9.2	15.0	15.0	29.0	32.6	39.5	39.0	73.7	71.5	67.4	67.4
Korea[3]	7.0	8.8	15.4	16.1	5.1	6.2	10.4	10.7	9.8	12.4	22.1	23.2	57.6	58.9	60.8	61.8
Latvia	8.8	5.4	7.0	6.6	6.3	3.4	5.0	4.5	11.4	7.4	9.0	8.8	64.6	67.5	64.7	66.6
Lithuania	10.6	6.1	4.5	4.3	7.7	3.6	3.1	2.7	13.5	8.6	5.8	6.0	64.5	69.9	65.1	68.9
Luxembourg	13.0	13.1	12.7	12.8	2.1	1.4	5.3	6.5	28.9	27.6	21.2	20.1	90.4	93.9	77.8	72.9
Mexico	13.5	17.8	17.7	17.9	7.1	11.4	12.4	12.5	25.6	28.5	26.2	26.4	65.1	60.0	57.3	57.6
Netherlands	32.1	35.9	36.9	36.0	13.1	16.1	19.4	19.3	57.3	59.9	56.8	54.7	76.7	75.5	72.1	71.7
New Zealand	22.2	21.9	19.7	20.0	10.9	11.0	11.2	11.5	35.7	34.5	29.3	29.4	73.2	73.2	69.8	69.5
Norway[2]	20.2	20.8	19.6	20.3	8.7	10.8	13.0	13.6	33.4	32.0	27.1	27.9	77.0	72.7	65.0	64.7
Poland	12.8	10.1	5.8	5.0	8.8	6.0	3.3	2.9	17.9	15.0	8.9	7.4	61.7	67.0	68.5	68.5
Portugal	9.3	10.0	6.0	4.9	4.9	6.3	3.8	2.5	14.7	14.4	8.2	7.3	70.9	66.7	68.3	74.8
Slovak Republic	1.9	2.4	4.5	3.1	1.0	1.1	2.8	2.0	2.9	4.0	6.6	4.5	70.6	74.0	65.7	67.0
Slovenia	4.9	7.8	7.1	6.9	3.9	6.3	4.8	5.0	6.1	9.7	9.7	9.1	56.8	56.2	62.9	60.3
Spain[2]	7.5	10.5	11.9	13.0	2.6	3.6	5.6	6.4	16.1	20.1	19.5	20.7	78.3	80.0	74.7	73.3
Sweden[2]	14.0	14.4	14.1	12.3	7.3	9.5	11.4	9.5	21.4	19.7	17.1	15.6	72.9	65.0	57.3	59.1
Switzerland	23.0	26.8	26.7	25.3	8.4	10.1	11.1	10.8	42.7	47.1	44.3	41.9	79.2	79.4	77.8	77.0
Türkiye	9.4	8.1	11.4	9.0	5.7	4.4	8.4	6.2	19.3	18.6	18.2	15.3	55.4	59.6	49.2	53.0
United Kingdom[2]	23.3	22.9	22.4	..	8.5	9.7	11.4	..	40.7	38.2	34.5	..	80.2	77.2	73.6	..
United States[2, 4]	12.6	12.6	11.7	11.7	7.7	7.6	8.0	7.9	18.0	17.9	15.7	15.7	68.1	68.4	64.5	64.9
OECD[5]	13.9	15.4	16.6	16.5	6.7	7.9	9.9	9.8	23.7	25.2	25.0	24.7	72.4	71.2	67.1	67.2
Brazil	..	18.3	14.0	14.2	..	10.3	9.4	9.6	..	29.1	20.5	20.7	..	67.6	61.0	60.5
South Africa	..	..	10.3	10.2	..	..	7.5	7.4	..	..	13.9	13.9	..	..	59.2	58.9

.. Not available
Note: Part-time employment refers to persons who usually work less than 30 hours per week in their main job.
Please refer to the Box entitled "Major breaks in series" in the introduction to the Statistical Annex.
1. Part-time employment based on hours worked at all jobs.
2. The lower age limit is 16 instead of 15. For Iceland up to 2008, Italy after 2007, Norway up to 2005 and Sweden up to 2006.
3. Data are based on actual hours worked.
4. Data are for wage and salary workers only.
5. Weighted average.
Source: *OECD Employment Database*, www.oecd.org/employment/emp/onlineoecdemploymentdatabase.htm and www.oecd.org/els/emp/lfsnotes_sources.pdf.

StatLink https://stat.link/2ckyve

Table I. Incidence and composition of involuntary part-time employment

Persons aged 15 and over, percentages

	Involuntary part-time employment as a proportion of total employment												Involuntary part-time employment as a proportion of part-time employment			
	Total				Men				Women							
	2000	2007	2020	2021	2000	2007	2020	2021	2000	2007	2020	2021	2000	2007	2020	2021
Australia	6.3	6.6	..	..	4.3	4.5	..	..	8.8	9.3	..	..	23.8	23.5	..	..
Austria	1.8	2.7	2.5	2.6	0.9	1.0	1.2	1.5	3.0	4.6	4.0	4.0	21.9	11.8	9.1	9.0
Belgium	3.9	3.2	1.1	5.2	1.4	1.5	0.7	2.3	7.3	5.5	1.7	8.4	22.1	14.6	4.6	21.1
Canada	4.6	4.0	4.2	3.9	2.8	2.6	3.2	3.1	6.6	5.6	5.3	4.8	25.4	22.1	23.3	21.3
Chile	..	..	7.2	5.9	..	..	6.1	4.9	..	..	8.9	7.2	..	..	38.3	30.3
Colombia	..	..	6.2	5.6	..	..	4.2	3.7	..	..	9.3	8.4	..	..	42.5	39.1
Costa Rica	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Czech Republic	0.5	0.7	0.2	1.1	0.1	0.2	0.1	0.5	0.9	1.3	0.4	1.9	8.6	13.1	3.7	17.2
Denmark	2.9	3.1	2.6	2.1	1.1	1.3	1.6	1.2	5.1	5.0	3.6	3.1	13.8	13.0	10.8	9.0
Estonia	..	1.2	0.9	2.2	..	0.7	0.6	1.5	..	1.8	1.3	3.0	..	15.3	7.0	16.6
Finland	4.3	3.5	4.9	5.3	2.4	1.9	3.5	3.6	6.4	5.1	6.3	7.1	34.9	24.6	28.9	28.5
France	4.6	5.2	5.9	4.6	2.3	1.8	2.7	2.2	7.3	9.0	9.2	7.1	27.0	29.9	34.8	25.7
Germany	2.3	5.3	2.0	2.0	0.8	2.7	1.2	1.2	4.2	8.4	3.0	2.9	12.0	20.3	7.0	6.7
Greece	1.9	2.4	5.4	4.4	1.2	1.2	3.7	2.9	3.2	4.3	7.7	6.6	42.9	42.7	62.2	53.5
Hungary	0.8	1.1	0.9	1.1	0.4	0.7	0.7	0.8	1.2	1.6	1.2	1.4	23.6	26.3	16.8	19.7
Iceland[1]	2.2	1.1	4.2	3.3	0.8	..	2.5	1.9	3.8	2.5	6.3	5.0	7.9	5.2	17.9	14.5
Ireland	2.7	1.8	2.0	2.0	2.2	1.3	1.8	1.6	3.4	2.6	2.3	2.5	16.4	10.3	12.7	11.7
Israel	3.6	4.2	1.2	1.1	1.6	1.9	0.8	0.8	6.1	6.8	1.6	1.5	15.9	17.6	5.6	5.4
Italy[1]	3.1	5.2	12.0	11.3	1.8	2.4	6.4	6.5	5.4	9.5	19.6	17.9	37.1	38.3	65.0	61.3
Japan	..	4.4	5.2	5.1	..	2.5	3.4	3.4	..	6.9	7.5	7.1	..	23.6	21.3	20.6
Korea	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Latvia	..	1.4	2.0	2.8	..	1.0	1.9	2.2	..	1.8	2.1	3.4	..	22.2	21.4	32.1
Lithuania	..	2.4	1.9	1.5	..	2.0	1.4	1.1	..	2.9	2.3	2.0	..	26.6	26.7	22.5
Luxembourg	0.8	0.8	2.1	1.7	0.2	0.4	1.0	0.9	1.7	1.3	3.4	2.7	6.8	4.4	11.5	9.2
Mexico	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Netherlands	1.4	2.0	2.7	1.5	0.9	1.1	2.1	1.1	2.2	3.2	3.5	1.9	3.4	4.3	5.2	3.5
New Zealand	5.9	3.8	5.1	4.7	3.4	2.4	3.1	2.9	8.9	5.3	7.4	6.7	26.1	17.1	25.9	23.4
Norway[1]	5.4	6.8	3.9	1.7	2.2	2.2	2.2	0.6	9.0	12.0	5.7	3.0	21.0	24.1	14.7	6.5
Poland	..	2.0	0.8	0.7	..	1.3	0.5	0.5	..	2.8	1.1	1.0	..	21.3	11.5	12.4
Portugal	2.5	3.3	3.2	2.6	1.0	1.5	1.9	1.5	4.3	5.4	4.6	3.6	22.6	26.8	43.6	47.4
Slovak Republic	0.2	0.3	0.9	0.6	..	0.1	0.6	0.5	0.4	0.6	1.2	0.8	9.3	12.9	18.0	18.0
Slovenia	..	0.4	0.5	0.9	..	0.3	0.3	0.5	..	0.6	0.7	1.3	..	4.6	5.6	8.9
Spain[1]	1.7	3.9	7.3	7.3	0.6	1.4	3.9	3.6	3.7	7.4	11.4	11.5	22.0	33.6	51.1	52.5
Sweden[1]	5.2	6.0	4.7	5.1	2.3	2.6	3.2	3.4	8.3	9.7	6.3	6.9	23.1	24.6	19.3	22.6
Switzerland	1.4	2.0	2.9	3.0	0.8	0.8	1.4	1.6	2.1	3.3	4.6	4.4	4.6	5.9	7.5	7.5
Türkiye	..	0.6	1.8	..	..	0.5	2.0	..	..	0.7	1.4	..	..	7.0	14.5	..
United Kingdom[1]	2.4	2.3	3.0	2.9	1.8	1.8	2.4	2.5	3.2	3.0	3.6	3.5	9.7	9.3	11.8	12.0
United States[1]	0.7	0.8	0.7	0.7	0.5	0.6	0.6	0.6	0.9	1.0	0.8	0.8	4.1	4.8	4.4	4.0
OECD[2]	2.6	3.1	3.4	3.4	1.5	1.8	2.3	2.4	3.9	4.9	4.8	4.6	15.2	17.5	17.4	17.0

.. Not available
Note: Involuntary part-time employment refers to part-time workers who could not find full-time work. Part-time employment is based on national definitions. Please refer to the Box entitled "Major breaks in series" in the introduction to the Statistical Annex.
1. The lower age limit is 16 instead of 15. For Iceland up to 2008, Italy after 2007, Norway up to 2005 and Sweden up to 2006.
2. Weighted average.
Source: *OECD Employment Database*, www.oecd.org/employment/emp/onlineoecdemploymentdatabase.htm and www.oecd.org/els/emp/lfsnotes_sources.pdf.

StatLink https://stat.link/or48mh

Table J. Incidence and composition of temporary employment

As a percentage of dependent employment in each age group

	Total (15+)				Youth (15-24)				Prime age (25-54)				Women's share in temporary employment			
	2000	2007	2020	2021	2000	2007	2020	2021	2000	2007	2020	2021	2000	2007	2020	2021
Australia	..	6.3	..	..	..	6.0	..	..	..	6.4	..	..	..	52.3	..	..
Austria	7.9	8.8	8.2	8.8	33.0	34.8	34.6	35.1	3.8	4.3	5.1	5.9	47.1	47.5	48.0	47.3
Belgium	9.1	8.7	10.2	10.4	30.8	31.6	48.3	51.2	6.9	6.6	8.0	7.8	58.3	57.3	51.6	52.5
Canada	12.5	13.0	11.6	12.1	29.1	28.8	30.2	30.2	8.8	9.2	8.4	8.9	51.0	51.8	51.2	51.8
Chile	..	..	25.4	26.5	..	..	43.3	47.4	..	..	25.3	26.0	..	..	39.9	40.2
Colombia[1]	..	29.7	27.3	28.5	..	42.3	39.1	41.3	..	27.9	26.4	28.1	..	44.3	44.8	44.4
Costa Rica	..	..	6.5	6.9	..	..	10.9	10.5	..	..	5.7	6.3	..	..	25.9	26.4
Czech Republic	9.3	8.6	7.4	6.9	19.6	17.4	25.1	24.7	5.2	5.6	6.3	5.8	46.6	54.3	54.6	55.8
Denmark	9.7	9.1	10.8	10.8	27.4	22.5	33.8	32.9	6.6	6.9	7.8	8.2	54.8	55.7	56.4	56.5
Estonia	3.0	2.1	2.9	1.7	6.4	6.6	11.9	6.8	2.6	1.6	2.2	1.2	27.4	37.6	52.5	50.1
Finland	16.5	16.0	14.9	16.6	45.6	42.4	40.3	40.9	13.0	13.2	12.8	14.1	60.3	61.8	59.0	58.5
France	15.4	15.1	15.4	15.1	55.1	53.6	55.8	56.1	11.6	11.1	12.0	11.1	49.6	52.5	52.1	52.9
Germany	12.7	14.6	10.9	11.4	52.4	57.4	43.9	45.0	7.5	9.1	8.1	8.8	46.2	46.7	47.9	47.1
Greece	13.5	11.0	10.1	10.1	29.5	26.5	22.3	22.6	11.6	10.0	10.0	10.1	46.5	50.9	52.6	56.1
Hungary	7.1	7.3	5.9	5.9	13.9	18.9	12.1	14.3	5.9	6.5	5.3	5.2	43.8	44.0	51.2	50.5
Iceland[2]	12.2	12.3	8.2	12.5	28.9	32.0	24.0	34.0	7.5	8.8	6.3	9.6	53.3	53.8	54.6	54.0
Ireland	6.0	8.5	8.8	9.0	15.9	21.2	34.9	33.0	3.0	5.6	5.4	6.0	55.1	56.6	52.1	52.3
Israel	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Italy[2]	10.1	13.2	15.1	16.4	26.6	42.2	58.9	61.7	8.5	11.4	14.5	15.9	48.1	51.7	46.0	47.6
Japan[3]	14.5	13.9	15.4	15.0	24.9	26.4	16.3	15.6	9.5	10.9	10.5	10.0	61.7	65.1	61.8	61.7
Korea	..	24.7	26.1	28.3	..	30.0	31.7	34.9	..	21.3	18.6	20.3	..	44.3	49.4	51.1
Latvia	6.6	4.1	2.8	2.8	10.9	9.0	5.6	5.3	6.0	3.5	2.6	2.6	33.6	33.8	47.1	43.8
Lithuania	4.4	3.8	1.3	1.9	9.4	10.5	7.0	6.7	4.1	3.1	0.8	1.5	38.0	33.0	48.8	50.6
Luxembourg	3.4	6.8	7.7	9.2	14.5	34.1	34.4	45.6	2.3	5.3	6.1	7.1	54.0	49.9	51.4	51.7
Mexico	20.5	..	..	..	25.7	..	..	..	17.8	..	..	..	19.7	..	..	..
Netherlands	13.7	18.1	18.0	27.4	35.5	45.1	50.3	68.2	9.1	12.9	13.0	20.5	53.7	51.1	51.4	52.3
New Zealand	..	..	7.6	8.0	..	..	18.2	18.8	..	..	5.4	5.7	..	..	56.0	58.1
Norway[2]	9.3	9.6	7.8	9.3	28.5	28.2	26.4	30.4	6.9	7.4	5.9	7.0	58.8	59.7	56.4	56.1
Poland	..	28.2	18.6	15.1	..	65.7	54.7	48.6	..	24.0	16.5	12.9	..	45.9	49.9	49.7
Portugal	19.9	22.3	17.7	16.9	41.4	53.1	58.4	59.2	16.4	19.7	16.9	16.2	50.0	49.1	52.8	52.3
Slovak Republic	4.8	5.1	6.8	4.4	10.5	13.7	21.4	15.9	3.4	3.7	5.9	3.7	44.6	48.3	53.8	52.2
Slovenia	13.7	18.5	11.0	12.0	46.3	68.3	55.9	63.5	9.4	12.9	8.7	8.6	51.3	52.4	53.2	54.0
Spain[2]	32.2	31.6	24.1	25.1	68.3	62.7	66.3	69.1	27.7	29.3	23.9	24.8	40.7	45.4	51.0	53.0
Sweden[2]	15.2	17.5	15.4	15.2	49.5	57.3	53.8	52.9	11.9	13.0	11.5	11.1	57.6	56.9	54.9	55.6
Switzerland	11.5	12.9	12.9	13.4	47.0	50.3	52.0	54.0	5.1	6.4	7.8	8.0	50.1	47.1	47.2	48.1
Türkiye	20.3	11.9	10.9	11.6	23.7	12.4	22.8	26.5	18.6	11.3	8.5	8.5	12.1	21.6	24.9	25.6
United Kingdom[2]	7.0	5.8	5.4	5.6	14.2	13.4	14.0	15.2	5.4	4.2	4.0	4.0	54.4	53.9	53.2	55.1
United States[2, 4]	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
OECD[5]	11.9	12.5	11.4	11.8	24.5	25.9	23.8	25.0	9.1	10.4	9.6	9.8	45.6	47.1	47.4	47.9

.. Not available

Note: Temporary employees are wage and salary workers whose job has a pre-determined termination date as opposed to permanent employees whose job is of unlimited duration. They include: i) persons with a seasonal job; ii) persons engaged by an employment agency or business and hired out to a third party for carrying out a "work mission"; iii) persons with specific training contracts (including apprentices, trainees, research assistants, probationary period of a contract, etc.). Country-specific exceptions to this generic definition may be found in (PDF) www.oecd.org/els/emp/lfsnotes_sources.pdf.

Please refer to the Box entitled "Major breaks in series" in the introduction to the Statistical Annex.

1. The data cover only salaried employees who reported a written labour contract.
2. The lower age limit is 16 instead of 15. For Iceland up to 2008, Italy after 2007, Norway up to 2005 and Sweden up to 2006.
3. Japan applies a maximum duration threshold of one year to classify jobs as temporary employment. As a result, a regular employee with a fixed-term contract lasting more than one year is not included in temporary employment.
4. Refer to the database for available years.
5. Weighted average.

Source: *OECD Employment Database*, www.oecd.org/employment/emp/onlineoecdemploymentdatabase.htm and www.oecd.org/els/emp/lfsnotes_sources.pdf.

StatLink https://stat.link/samth7

Table K1. Incidence of job tenure shorter than 12 months - Total

As a percentage of total employment in each age group

	Total (15-64)				Youth (15-24)				Prime age (25-54)				Older population (55-64)			
	2000	2007	2020	2021	2000	2007	2020	2021	2000	2007	2020	2021	2000	2007	2020	2021
Australia	..	23.6	..	..	..	47.7	..	..	..	20.1	..	..	..	10.2	..	..
Austria	..	15.3	15.4	15.3	..	39.7	40.7	40.4	..	12.3	14.0	13.9	..	5.0	4.9	5.4
Belgium	13.2	12.9	12.1	13.3	50.8	48.8	46.8	53.4	10.1	10.7	10.9	11.9	2.4	2.7	3.3	3.3
Canada	21.4	21.1	16.2	18.2	54.0	53.1	44.6	49.7	16.2	16.2	13.5	14.9	8.0	8.4	6.5	7.2
Chile	..	..	26.7	27.8	..	..	58.4	62.8	..	..	26.2	26.9	..	..	15.0	16.5
Colombia	..	37.4	39.2	38.5	..	65.0	65.6	63.8	..	32.6	36.4	36.1	..	19.6	21.5	21.4
Costa Rica	..	..	22.1	22.9	..	..	47.0	47.9	..	..	21.0	21.3	..	..	11.0	12.7
Czech Republic	10.5	10.8	9.4	9.2	27.8	35.0	36.7	36.4	8.4	8.8	8.7	8.6	2.6	7.6	4.6	4.5
Denmark	22.4	25.7	20.0	21.2	53.5	56.4	45.7	48.3	18.9	23.3	17.8	18.7	6.5	10.2	9.8	11.2
Estonia	..	14.7	16.7	16.6	..	42.5	51.3	55.1	..	12.7	15.7	15.0	..	7.9	8.6	8.9
Finland	20.5	20.2	19.9	21.4	65.2	62.6	60.0	61.4	16.1	16.8	17.6	18.9	5.8	6.3	7.7	9.0
France	15.7	15.4	14.7	16.1	56.7	55.0	54.4	56.6	12.6	12.3	12.6	13.6	3.6	4.6	4.4	5.6
Germany	14.9	14.8	14.1	14.7	38.8	40.9	41.1	42.9	13.0	12.7	13.2	13.6	4.7	4.9	5.3	5.0
Greece	9.3	8.3	9.9	11.2	31.0	28.8	36.5	46.6	7.7	7.5	9.8	11.0	2.8	3.1	4.4	4.6
Hungary	11.6	11.7	14.6	14.4	29.7	39.1	42.6	42.2	9.3	10.3	13.6	13.4	4.5	5.3	8.1	8.6
Iceland[1]	24.7	21.9	17.0	19.4	59.1	53.1	42.3	46.7	20.0	18.3	15.0	17.1	6.1	7.2	4.2	6.1
Ireland	19.1	17.8	14.9	16.5	46.8	45.0	43.2	49.4	13.6	14.1	12.1	12.8	5.7	4.6	9.8	9.2
Israel	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Italy[1]	10.5	11.5	10.8	11.8	36.8	41.1	43.6	45.0	8.9	10.3	10.6	11.8	3.3	3.7	4.2	4.7
Japan	..	12.5	..	..	..	41.2	..	..	..	10.3	..	..	..	6.3	..	..
Korea[2]	..	40.0	28.4	28.9	..	72.0	70.3	70.2	..	35.6	24.1	24.3	..	46.4	30.7	31.9
Latvia	..	18.8	14.6	13.8	..	50.1	40.6	43.1	..	15.7	13.8	13.0	..	10.2	10.1	8.5
Lithuania	13.9	14.8	19.9	11.0	37.1	45.3	57.3	38.5	12.7	13.1	19.0	9.9	5.7	6.7	11.6	5.7
Luxembourg	11.6	10.6	13.3	12.9	40.4	44.0	43.5	50.6	9.6	9.0	12.2	11.0	0.5	1.9	6.0	4.5
Mexico	..	24.1	21.6	20.6	..	45.7	45.4	43.6	..	19.3	18.1	17.3	..	10.4	9.3	9.5
Netherlands	..	9.8	16.9	19.8	..	34.3	45.0	48.9	..	8.2	13.7	16.0	..	2.5	5.0	6.5
New Zealand	..	..	22.7	23.4	..	..	51.9	53.3	..	..	20.3	20.7	..	..	9.0	10.0
Norway[1]	16.7	20.6	15.8	14.4	46.1	52.5	41.9	36.0	13.9	18.1	14.1	12.5	3.3	4.9	4.1	3.4
Poland	13.5	15.5	10.0	9.7	41.2	47.3	35.5	36.3	11.0	12.8	9.0	8.8	6.0	6.9	4.4	4.2
Portugal	13.5	12.6	13.0	12.4	39.2	40.0	45.6	52.0	11.4	11.7	12.3	11.5	3.2	3.6	7.8	6.3
Slovak Republic	..	11.9	9.5	8.1	..	35.7	34.9	35.4	..	9.5	8.9	7.6	..	6.3	4.4	3.3
Slovenia	..	13.7	12.0	12.1	..	51.1	45.9	50.7	..	10.5	10.9	10.6	..	2.8	4.9	4.1
Spain[1]	21.1	21.8	16.0	17.3	54.5	55.5	57.5	62.0	17.8	19.8	15.8	16.9	6.5	6.1	6.2	6.3
Sweden[1]	15.7	20.2	19.4	19.2	49.4	65.4	58.2	54.4	14.0	17.0	17.3	17.2	4.6	6.5	7.5	7.0
Switzerland	16.2	15.0	18.1	17.6	44.6	41.4	42.3	42.8	13.4	12.7	17.3	16.3	3.9	4.2	6.3	6.2
Türkiye	..	19.6	24.1	25.9	..	41.6	56.7	58.0	..	15.7	20.0	21.6	..	6.4	12.7	14.7
United Kingdom[1]	19.8	17.9	14.8	15.5	48.5	46.0	40.2	41.6	16.1	14.5	12.7	13.4	8.1	7.2	6.9	7.4
United States[1, 2]	27.1	..	23.0	..	61.8	..	57.1	..	21.7	..	19.6	..	11.2	..	9.7	..
OECD[3]	20.0	20.0	18.9	19.2	49.4	50.2	50.1	50.4	16.3	16.7	16.4	16.8	8.4	8.5	8.6	8.9
Brazil	..	18.8	20.7	21.7	..	37.6	42.4	45.0	..	14.7	18.3	19.1	..	6.5	9.8	10.1

.. Not available
Note: Please refer to the Box entitled "Major breaks in series" in the introduction to the Statistical Annex.
1. The lower age limit is 16 instead of 15. For Iceland up to 2008, Italy after 2007, Norway up to 2005 and Sweden up to 2006.
2. Data refer to dependent employment.
3. Weighted average.
Source: *OECD Employment Database*, www.oecd.org/employment/emp/onlineoecdemploymentdatabase.htm and www.oecd.org/els/emp/lfsnotes_sources.pdf.

StatLink https://stat.link/c6hke3

Table K2. Incidence of job tenure shorter than 12 months - Men

As a percentage of male employment in each age group

	Men (15-64)				Youth (15-24)				Prime age (25-54)				Older population (55-64)			
	2000	2007	2020	2021	2000	2007	2020	2021	2000	2007	2020	2021	2000	2007	2020	2021
Australia	..	22.2	..	..	..	45.6	..	..	..	19.0	..	..	..	9.9	..	..
Austria	..	14.6	14.5	15.0	..	39.8	39.1	39.1	..	11.6	13.1	13.6	..	5.0	4.7	5.6
Belgium	12.7	12.4	11.8	13.2	49.3	46.2	43.8	49.9	9.9	10.4	10.8	12.1	2.5	2.8	3.4	3.4
Canada	20.6	20.9	16.2	18.1	53.8	52.7	43.8	47.9	15.6	16.3	13.7	15.2	8.2	8.8	6.9	7.6
Chile	..	..	28.0	29.0	..	..	60.4	64.0	..	..	27.6	28.3	..	..	15.7	16.8
Colombia	..	35.5	37.6	35.9	..	62.1	63.1	59.7	..	30.7	34.9	33.7	..	19.4	20.3	19.8
Costa Rica	..	..	21.1	22.8	..	..	46.8	47.3	..	..	19.9	21.3	..	..	9.5	12.4
Czech Republic	9.9	9.5	8.1	7.8	27.6	34.3	32.9	32.8	7.7	7.5	7.2	7.0	3.2	6.0	4.1	3.9
Denmark	20.6	23.7	18.7	20.4	49.5	51.6	44.5	46.0	17.5	21.7	16.4	17.9	6.1	9.8	9.8	12.0
Estonia	..	14.2	15.8	16.1	..	39.2	51.7	52.6	..	11.9	14.0	14.2	..	7.7	9.5	11.0
Finland	19.4	18.7	18.3	19.7	62.5	60.2	59.0	60.9	15.3	15.2	15.8	16.8	5.8	6.9	6.9	8.9
France	15.7	15.2	14.5	16.1	56.7	53.3	51.6	54.3	12.4	12.1	12.3	13.6	4.1	4.5	4.8	5.6
Germany	13.7	14.3	13.4	14.1	37.9	39.7	38.8	41.0	12.0	12.4	12.6	13.1	4.1	4.9	5.0	4.7
Greece	8.5	7.5	8.8	9.7	29.0	26.5	35.4	43.1	7.1	6.8	8.5	9.5	2.5	3.2	4.3	3.8
Hungary	11.7	11.9	13.7	14.1	29.1	38.2	39.9	41.4	9.6	10.4	12.8	13.1	4.5	6.2	7.2	7.5
Iceland[1]	23.1	20.6	15.1	18.2	58.0	52.1	37.1	43.6	19.4	17.1	13.6	16.2	2.8	6.4	4.3	6.4
Ireland	16.8	16.0	14.5	15.8	44.0	40.8	42.9	46.2	12.2	13.2	11.8	12.6	4.9	4.2	10.3	10.1
Israel	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Italy[1]	9.5	10.2	10.2	10.9	36.2	38.7	40.8	40.0	8.0	9.0	9.8	10.7	3.2	3.5	4.1	4.5
Japan	..	9.7	..	..	..	39.6	..	..	..	7.1	..	..	..	6.3	..	..
Korea[2]	..	36.3	26.7	26.8	..	81.9	75.4	70.7	..	32.3	22.4	22.6	..	42.3	31.2	32.4
Latvia	..	20.3	15.1	14.5	..	47.7	41.4	40.7	..	16.9	13.6	13.7	..	12.3	11.2	8.9
Lithuania	16.0	16.6	21.9	12.0	36.4	45.7	55.3	39.3	14.9	14.4	21.0	10.8	7.8	8.5	13.7	5.9
Luxembourg	10.3	9.9	12.8	12.7	41.2	43.8	47.3	47.4	8.3	8.2	11.6	11.0	0.8	1.3	5.2	5.1
Mexico	..	22.5	20.0	19.5	..	43.1	41.9	41.0	..	17.9	16.5	16.1	..	9.9	8.8	9.3
Netherlands	..	9.2	15.9	18.4	..	31.5	43.7	47.2	..	8.1	13.0	14.9	..	2.6	4.7	6.4
New Zealand	..	..	21.3	21.9	..	..	50.1	50.4	..	..	18.7	19.3	..	..	8.7	9.3
Norway[1]	15.6	19.9	15.4	13.6	43.0	51.1	39.6	34.7	13.3	17.9	14.2	12.1	3.2	5.1	4.2	3.6
Poland	14.3	15.6	9.2	9.3	40.3	45.5	32.9	34.8	12.2	13.1	8.2	8.3	6.2	7.6	4.5	4.2
Portugal	13.4	12.4	13.3	11.9	38.6	38.4	42.6	50.2	11.1	11.5	12.6	10.6	3.7	3.5	7.9	6.3
Slovak Republic	..	11.6	9.1	7.9	..	34.8	31.4	32.1	..	9.5	8.4	7.1	..	5.3	4.2	3.7
Slovenia	..	13.3	11.4	11.2	..	49.4	44.1	44.5	..	9.9	10.2	9.8	..	3.1	5.1	4.0
Spain[1]	19.2	20.3	15.4	16.4	52.8	53.2	54.7	57.9	16.3	18.6	15.1	16.0	6.2	5.7	6.5	6.3
Sweden[1]	15.6	20.0	18.6	19.0	46.2	62.7	56.5	53.7	14.7	17.3	16.5	17.0	4.7	7.3	7.2	7.2
Switzerland	14.9	13.5	17.3	16.8	41.8	39.2	40.3	41.2	12.6	11.3	16.5	15.6	4.2	3.6	6.4	6.2
Türkiye	..	19.7	24.1	26.2	..	43.3	57.3	58.3	..	15.9	20.0	21.8	..	7.2	12.6	15.6
United Kingdom[1]	18.7	17.3	14.2	15.3	47.1	44.4	38.7	41.0	15.1	14.1	12.1	13.3	8.6	7.8	6.9	7.7
United States[1, 2]	25.9	..	21.9	..	59.4	..	54.8	..	20.6	..	18.5	..	11.3	..	9.8	..
OECD[3]	18.5	18.9	18.0	18.3	47.4	48.6	48.0	48.1	14.9	15.8	15.5	15.8	8.1	8.3	8.6	9.0
Brazil	..	18.0	20.4	21.2	..	35.3	41.0	43.7	..	14.1	18.0	18.6	..	6.4	9.8	9.9

.. Not available
Note: Please refer to the Box entitled "Major breaks in series" in the introduction to the Statistical Annex.
1. The lower age limit is 16 instead of 15. For Iceland up to 2008, Italy after 2007, Norway up to 2005 and Sweden up to 2006.
2. Data refer to dependent employment.
3. Weighted average.
Source: *OECD Employment Database*, www.oecd.org/employment/emp/onlineoecdemploymentdatabase.htm and www.oecd.org/els/emp/lfsnotes_sources.pdf.

StatLink https://stat.link/oburdy

Table K3. Incidence of job tenure shorter than 12 months - Women

As a percentage of female employment in each age group

	Women (15-64)				Youth (15-24)				Prime age (25-54)				Older population (55-64)			
	2000	2007	2020	2021	2000	2007	2020	2021	2000	2007	2020	2021	2000	2007	2020	2021
Australia	..	25.4	..	..	..	50.1	..	..	..	21.4	..	..	..	10.6	..	..
Austria	..	16.2	16.5	15.6	..	39.6	42.5	42.0	..	13.1	15.0	14.1	..	5.1	5.1	5.2
Belgium	13.7	13.6	12.4	13.4	52.7	52.0	50.3	57.3	10.4	10.9	11.0	11.7	2.2	2.7	3.2	3.2
Canada	22.3	21.4	16.2	18.4	54.2	53.5	45.4	51.7	16.9	16.1	13.3	14.5	7.6	7.9	6.0	6.8
Chile	..	..	25.0	26.3	..	..	55.4	61.0	..	..	24.3	25.1	..	..	13.8	16.0
Colombia	..	40.2	41.5	42.3	..	69.7	69.6	70.4	..	35.4	38.7	39.7	..	19.9	23.6	24.0
Costa Rica	..	..	23.8	23.0	..	..	47.4	49.0	..	..	22.8	21.3	..	..	14.0	13.3
Czech Republic	11.3	12.5	11.0	11.0	28.0	36.1	42.8	42.2	9.1	10.5	10.6	10.7	1.2	10.1	5.2	5.3
Denmark	24.5	28.0	21.4	22.1	58.1	61.7	47.0	50.7	20.4	24.9	19.3	19.6	7.2	10.7	9.9	10.3
Estonia	..	15.3	17.7	17.0	..	46.9	51.0	57.5	..	13.5	17.6	16.0	..	8.1	7.8	7.2
Finland	21.6	21.8	21.6	23.1	67.9	64.9	61.0	61.8	17.0	18.5	19.6	21.2	5.8	5.8	8.5	9.2
France	15.8	15.6	14.9	16.1	56.7	57.2	57.7	59.0	12.8	12.6	13.0	13.5	2.9	4.6	4.1	5.6
Germany	16.4	15.4	14.9	15.3	39.8	42.2	43.7	45.3	14.2	13.0	14.0	14.3	5.8	4.9	5.7	5.5
Greece	10.9	9.5	11.4	13.1	34.0	32.6	37.9	51.4	8.9	8.5	11.5	12.9	3.2	3.1	4.5	5.7
Hungary	11.5	11.4	15.6	14.7	30.4	40.3	46.5	43.1	9.0	10.2	14.6	13.7	4.5	4.2	9.1	10.1
Iceland[1]	26.4	23.6	19.2	20.9	60.1	54.2	47.3	49.8	20.7	19.7	16.6	18.2	10.1	8.2	4.1	5.9
Ireland	22.5	20.2	15.2	17.1	50.2	49.8	43.4	52.5	15.7	15.1	12.5	13.1	7.7	5.4	9.1	8.0
Israel	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Italy[1]	12.3	13.4	11.7	13.1	37.7	44.7	48.4	53.5	10.4	12.2	11.8	13.1	3.3	4.0	4.3	4.9
Japan	..	16.2	..	..	..	42.9	..	..	..	14.5	..	..	..	6.4	..	..
Korea[2]	..	45.2	30.7	31.5	..	65.7	66.7	69.9	..	40.7	26.3	26.6	..	53.1	30.1	31.2
Latvia	..	17.3	14.2	13.1	..	53.4	39.5	46.0	..	14.4	14.0	12.2	..	8.3	9.2	8.3
Lithuania	11.8	13.0	17.8	9.9	38.0	44.7	59.6	37.6	10.6	11.8	16.9	8.9	3.3	4.9	9.7	5.7
Luxembourg	13.5	11.4	13.9	13.1	39.4	44.4	39.5	54.2	11.5	10.1	12.9	10.9	..	2.6	6.9	3.8
Mexico	..	26.8	23.9	22.4	..	50.3	51.3	48.4	..	21.6	20.4	19.1	..	11.4	10.1	9.9
Netherlands	..	10.5	18.0	21.4	..	37.7	46.2	50.6	..	8.3	14.4	17.1	..	2.3	5.4	6.7
New Zealand	..	..	24.2	25.0	..	..	53.9	56.5	..	..	22.0	22.1	..	..	9.3	10.8
Norway[1]	17.9	21.4	16.2	15.3	49.4	53.9	44.2	37.2	14.6	18.3	14.1	13.0	3.4	4.5	4.0	3.2
Poland	12.5	15.4	10.9	10.1	42.4	49.9	39.1	38.5	9.7	12.5	10.0	9.3	5.8	5.6	4.3	4.1
Portugal	13.7	12.7	12.8	12.9	39.9	42.1	49.4	54.3	11.8	11.8	12.0	12.3	2.5	3.7	7.6	6.3
Slovak Republic	..	12.2	10.0	8.3	..	37.0	41.1	41.0	..	9.5	9.6	8.1	..	8.6	4.6	2.9
Slovenia	..	14.0	12.6	13.2	..	53.5	48.4	58.9	..	11.1	11.8	11.6	..	2.3	4.7	4.1
Spain[1]	24.2	23.8	16.7	18.3	57.0	58.5	61.1	66.9	20.4	21.5	16.6	17.9	7.3	6.8	6.0	6.4
Sweden[1]	15.8	20.4	20.2	19.3	52.7	68.3	60.1	55.1	13.3	16.6	18.2	17.5	4.4	5.6	7.9	6.8
Switzerland	18.0	16.9	19.2	18.4	47.6	43.8	44.4	44.5	14.5	14.3	18.2	17.2	3.5	5.0	6.2	6.3
Türkiye	..	19.5	24.2	25.4	..	38.2	55.5	57.1	..	15.1	19.9	21.1	..	4.3	12.8	12.0
United Kingdom[1]	21.1	18.6	15.6	15.6	49.9	47.6	41.7	42.2	17.3	15.0	13.3	13.4	7.3	6.3	6.8	7.0
United States[1, 2]	28.4	..	24.2	..	64.2	..	59.4	..	22.9	..	20.8	..	11.2	..	9.5	..
OECD[3]	22.1	21.3	20.0	20.4	51.7	52.2	52.5	53.1	18.0	17.9	17.5	17.9	8.8	8.7	8.6	8.9
Brazil	..	19.7	21.1	22.4	..	41.0	44.6	46.8	..	15.5	18.6	19.7	..	6.7	9.7	10.5

.. Not available
Note: Please refer to the Box entitled "Major breaks in series" in the introduction to the Statistical Annex.
1. The lower age limit is 16 instead of 15. For Iceland up to 2008, Italy after 2007, Norway up to 2005 and Sweden up to 2006.
2. Data refer to dependent employment.
3. Weighted average.
Source: *OECD Employment Database*, www.oecd.org/employment/emp/onlineoecdemploymentdatabase.htm and www.oecd.org/els/emp/lfsnotes_sources.pdf.

StatLink https://stat.link/hjzs19

Table L. Average annual hours actually worked per person in employment

National accounts concepts unless otherwise specified

Hours per person per year

	Total employment								Dependent employment							
	1979	1983	1990	1995	2000	2007	2020	2021	1979	1983	1990	1995	2000	2007	2020	2021
Australia	..	..	1 853	1 870	1 852	1 803	1 683	1 694	..	..	1 814	1 797	1 781	1 751	1 670	1 679
Austria	..	..	..	1 653	1 675	1 606	1 401	1 442	..	..	..	1 540	1 542	1 502	1 322	1 371
Belgium	1 727	1 675	1 663	1 578	1 589	1 594	1 443	1 493	..	..	..	1 447	1 459	1 465	1 353	1 400
Canada	1 841	1 779	1 797	1 775	1 787	1 744	1 644	1 685	1 812	1 761	1 782	1 768	1 779	1 743	1 673	1 706
Chile	..	..	2 422	2 338	2 263	2 128	1 825	1 916	..	..	..	..	2 318	2 168	1 886	1 990
Colombia	..	..	..	..	..	..	1 964	..	..	..	..	..	..	..	2 204	..
Costa Rica	..	..	2 358	2 345	2 362	2 387	1 913	2 073	..	..	2 398	2 403	2 423	2 465	2 048	2 187
Czech Republic	..	..	..	1 832	1 900	1 775	1 704	1 753	..	..	..	1 752	1 794	1 691	1 676	1 722
Denmark	1 564	1 546	1 441	1 419	1 466	1 433	1 342	1 363	1 506	1 501	1 401	1 379	1 421	1 401	1 328	1 348
Estonia	..	..	..	..	1 884	1 903	1 637	1 767	..	..	..	..	1 836	1 880	1 623	1 774
Finland	1 751	1 709	1 671	1 677	1 650	1 605	1 529	1 518	1 664	1 636	1 593	1 596	1 571	1 539	1 487	1 472
France	1 816	1 696	1 645	1 601	1 558	1 537	1 407	1 490	1 625	1 516	1 511	1 480	1 444	1 435	1 326	1 405
Germany	..	..	..	1 531	1 466	1 454	1 324	1 349	..	..	..	1 446	1 377	1 377	1 284	1 306
Greece	..	2 072	1 976	2 001	1 998	2 001	1 731	1 872	..	..	..	1 768	1 767	1 832	1 540	1 668
Hungary[1]	..	2 226	2 082	1 948	1 932	1 788	1 657	1 697	..	1 829	1 710	1 772	1 775	1 695	1 625	1 654
Iceland	1 697	1 684	1 665	1 641	1 696	1 605	1 446	1 433	..	..	..	..	..	..	1 462	1 447
Ireland	2 162	2 074	2 081	1 963	1 933	1 865	1 746	1 775	..	..	..	1 885	1 875	1 811	1 600	1 598
Israel	..	1 929	1 904	2 014	2 033	1 967	1 783	1 753	..	..	..	2 002	2 022	1 955	1 804	1 774
Italy	..	..	..	1 856	1 850	1 818	1 554	1 669	..	..	1 671	1 681	1 697	1 652	1 447	1 535
Japan[2]	2 126	2 095	2 031	1 884	1 821	1 785	1 598	1 607	..	..	..	1 910	1 853	1 808	1 621	1 633
Korea	..	..	..	..	..	..	1 908	1 915	..	..	..	..	..	..	1 927	1 928
Latvia	..	..	..	1 867	1 865	1 794	1 577	1 601	..	..	..	1 835	1 830	1 760	1 561	1 586
Lithuania	..	..	..	1 527	1 630	1 681	1 595	1 620	..	..	..	..	1 627	1 679	1 573	1 600
Luxembourg	..	..	..	1 615	1 605	1 581	1 420	1 382	..	..	..	..	..	1 574	1 431	1 392
Mexico	..	..	..	2 161	2 174	2 045	2 124	2 128	..	..	..	2 360	2 360	2 337	2 326	2 328
Netherlands	1 559	1 527	1 454	1 482	1 464	1 429	1 407	1 417	1 512	1 491	1 434	1 433	1 403	1 366	1 338	1 364
New Zealand	..	..	1 809	1 841	1 836	1 774	1 739	1 730	..	..	1 734	1 766	1 777	1 754	1 774	1 727
Norway	1 569	1 543	1 493	1 478	1 448	1 438	1 411	1 427	1 515	1 493	1 447	1 438	1 415	1 413	1 392	1 409
Poland	..	..	..	1 903	1 858	1 855	1 769	1 830	..	..	..	1 744	1 775	1 763	1 685	1 725
Portugal	1 859	1 817	1 806	1 749	1 770	1 755	1 611	1 649	..	..	..	1 705	1 715	1 705	1 574	1 621
Slovak Republic	..	..	..	1 853	1 816	1 791	1 572	1 583	..	..	..	1 800	1 738	1 698	1 501	1 516
Slovenia	..	..	..	1 755	1 710	1 655	1 534	1 596	..	..	..	..	1 606	1 593	1 474	1 565
Spain	1 954	1 848	1 763	1 755	1 753	1 701	1 570	1 641	1 864	1 769	1 696	1 686	1 705	1 648	1 516	1 564
Sweden	1 382	1 394	1 421	1 482	1 486	1 462	1 426	1 444	..	..	..	1 424	1 431	1 405	1 382	1 406
Switzerland[3]	..	..	..	1 720	1 713	1 669	1 498	1 533	..	..	..	1 662	1 663	1 638	1 490	1 524
Türkiye	1 964	1 935	1 866	1 876	1 937	1 911	1 572	..	..	..	..	..	..	..	..	..
United Kingdom	1 662	1 568	1 618	1 586	1 558	1 541	1 364	1 497	1 577	1 489	1 535	1 530	1 517	1 504	1 365	1 487
United States	1 834	1 822	1 833	1 839	1 832	1 795	1 767	1 791	1 834	1 829	1 835	1 844	1 831	1 797	1 784	1 802
OECD[4]	1 902	1 878	1 860	1 842	1 825	1 790	1 668	1 716	1 810	1 794	1 793	1 799	1 781	1 756	1 671	1 706

.. Not available

Note: Total hours worked per year divided by the average number of people in employment. The data are intended for comparisons of trends over time; they are unsuitable for cross-country comparisons of the level of average annual hours of work for a given year, because of differences in their sources and method of calculation. Part-time and part-year workers are covered as well as full-time workers.

1. Data for dependent employment refer to establishments in manufacturing with five or more employees.
2. Data for dependent employment refer to establishments with five or more regular employees.
3. OECD estimates on hours per worker are obtained by dividing total hours worked by average employment based on *Statistique de la Population Active Occupée (SPAO)*, both according to domestic concept.
4. Weighted average.

Source: *OECD Employment Database*, www.oecd.org/employment/emp/onlineoecdemploymentdatabase.htm and www.oecd.org/els/emp/lfsnotes_sources.pdf.

StatLink https://stat.link/dbg2ay

Table M1. Incidence of long-term unemployment, 12 months and over - Total

As a percentage of total unemployment in each age group

	Total (15+)				Youth (15-24)				Prime(25-54)				Older population (55-64)			
	2000	2007	2020	2021	2000	2007	2020	2021	2000	2007	2020	2021	2000	2007	2020	2021
Australia	18.3	18.5	..	..	20.3	19.0	..	..	17.6	18.8	..	..	12.7	15.4	..	..
Austria	25.8	27.2	24.5	31.5	12.7	13.4	11.7	15.6	25.5	30.2	24.4	31.7	50.6	58.4	48.8	53.2
Belgium	54.2	50.4	41.6	42.3	29.1	29.7	21.7	21.9	61.9	54.8	42.9	46.2	79.4	81.4	66.6	58.9
Canada	11.2	7.1	5.1	16.3	4.0	1.4	2.7	7.9	14.0	8.9	5.3	17.6	18.6	13.2	8.9	23.0
Chile	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Colombia	..	12.0	6.8	17.9	..	8.4	5.9	13.0	..	14.2	7.1	19.3	..	17.5	7.9	24.2
Costa Rica	..	..	7.7	20.9	..	..	8.5	16.6	..	..	7.4	22.4	..	..	7.1	30.2
Czech Republic	48.8	53.4	22.3	28.2	37.8	33.6	16.6	15.0	53.3	58.3	21.8	30.4	45.6	52.4	31.0	31.2
Denmark	21.7	16.1	16.9	20.3	2.1	4.2	..	..	24.7	16.6	..	..	41.0	39.4	..	..
Estonia	45.1	49.8	17.2	25.3	26.3	30.5	5.9	9.2	49.4	52.7	18.0	27.5	48.3	72.2	24.0	33.3
Finland	29.0	23.0	15.9	24.2	8.8	5.5	3.0	6.0	34.0	25.9	17.6	26.0	56.5	47.6	32.4	43.4
France	42.6	39.9	36.7	29.5	20.6	24.6	21.5	12.5	45.3	43.0	37.7	31.7	69.6	68.0	59.7	49.5
Germany	51.5	56.6	28.7	32.6	23.5	32.2	15.4	17.1	51.0	57.5	29.5	32.8	69.1	77.1	39.8	47.6
Greece	54.7	49.7	66.6	62.9	50.2	41.4	55.2	44.0	56.9	51.5	66.5	63.6	57.1	58.6	75.8	73.6
Hungary	48.9	47.5	27.2	31.2	37.8	36.6	22.5	25.0	52.6	49.6	27.1	32.3	61.7	54.4	35.9	39.1
Iceland[1, 2]	11.8	9.7	10.4	21.3	..	1.9	2.2	13.0	17.0	11.4	12.8	23.4	33.2	35.6	13.7	26.8
Ireland	37.3	30.0	24.0	29.9	19.9	21.0	..	..	44.9	33.5	..	..	48.6	44.0	..	..
Israel	12.0	24.9	4.9	9.6	6.1	13.2	2.5	4.4	13.5	27.3	4.2	9.6	20.7	41.6	11.9	17.6
Italy[2]	61.8	47.5	53.1	58.0	57.5	41.1	44.7	49.0	63.8	49.4	54.0	59.5	64.2	53.7	60.4	62.9
Japan	25.5	32.0	28.0	35.8	21.5	20.0	19.2	23.1	22.5	33.1	31.6	40.2	32.8	37.5	25.0	32.4
Korea[1]	2.3	0.6	0.6	1.2	0.9	0.4	0.2	0.3	2.8	0.7	0.8	1.7	3.1	..	0.5	1.0
Latvia	58.6	27.1	27.3	30.3	43.4	11.1	12.8	13.9	61.3	30.6	26.8	31.6	65.0	37.6	37.5	34.8
Lithuania	49.8	32.4	29.0	36.7	43.1	21.1	9.8	22.0	51.4	33.0	28.7	35.0	51.5	45.9	42.3	49.5
Luxembourg[1]	22.4	28.7	26.9	34.0	14.3	23.0	13.2	16.6	24.9	29.9	29.7	38.7	26.4	43.7	45.1	45.9
Mexico	1.2	1.9	1.4	4.8	0.9	0.9	0.8	2.2	1.2	2.1	1.6	5.5	5.4	7.5	2.6	9.2
Netherlands	..	39.4	24.0	20.3	..	12.6	8.5	5.5	..	44.1	27.5	23.5	..	75.0	48.7	45.0
New Zealand	19.9	6.0	8.8	11.2	9.8	2.4	4.0	5.5	23.1	8.6	10.7	13.7	45.2	15.2	17.0	22.4
Norway[1, 2]	10.2	18.4	20.9	24.1	3.1	8.1	10.3	8.1	14.7	23.6	24.7	32.5	32.7	41.6	38.4	46.8
Poland	37.9	45.9	20.0	26.6	28.0	30.0	15.1	15.1	41.5	50.6	20.3	28.9	42.9	58.6	29.7	35.4
Portugal	42.2	47.2	33.5	43.3	21.2	27.4	..	..	47.9	49.6	..	..	69.4	67.5	..	..
Slovak Republic	54.6	70.8	45.0	56.6	43.1	53.9	36.8	43.7	59.9	74.5	44.7	58.6	59.9	82.9	57.5	61.2
Slovenia	61.4	45.7	38.8	41.1	42.4	29.2	25.0	25.0	67.9	49.8	38.7	43.0	86.8	57.4	59.7	53.8
Spain[2]	41.7	20.4	32.1	41.7	29.3	10.1	17.3	25.6	45.0	21.2	31.1	40.8	58.4	46.8	52.8	60.6
Sweden[2]	26.4	12.8	11.7	19.3	8.9	3.5	1.8	3.1	26.6	16.4	14.5	22.7	49.3	28.7	24.1	40.2
Switzerland	29.0	40.8	34.6	41.4	..	..	..	..	..	..	..	..	..	..	..	..
Türkiye	21.1	30.3	25.1	31.2	19.8	26.6	18.6	21.9	21.8	32.2	27.1	34.0	31.3	40.4	33.8	42.5
United Kingdom[2]	26.7	23.8	20.0	28.4	12.3	15.7	13.2	18.9	32.9	28.4	22.0	30.0	43.4	35.8	29.3	43.0
United States[2]	6.0	10.0	5.6	23.1	3.9	6.5	4.7	13.1	6.6	11.1	5.7	24.5	10.7	14.9	6.9	30.5
OECD[3]	31.0	27.4	18.5	28.4	20.0	15.7	11.3	16.3	34.3	30.8	20.3	30.5	43.7	41.9	24.8	38.6
South Africa	..	57.7	61.3	71.5	..	36.2	42.5	49.0	..	61.8	62.7	72.9	..	80.5	68.6	77.7

.. Not available

Note: For country details related to data on unemployment by duration of job search, see www.oecd.org/els/emp/lfsnotes_sources.pdf. Persons for whom no duration of unemployment was specified are excluded from the total used in the calculation.

Please refer to the Box entitled "Major breaks in series" in the introduction to the Statistical Annex.

1. Data based on small sample sizes.
2. The lower age limit is 16 instead of 15. For Iceland up to 2008, Italy after 2007, Norway up to 2005 and Sweden up to 2006.
3. Weighted average.

Source: *OECD Employment Database*, www.oecd.org/employment/emp/onlineoecdemploymentdatabase.htm and www.oecd.org/els/emp/lfsnotes_sources.pdf.

StatLink https://stat.link/nvtkzj

Table M2. Incidence of long-term unemployment, 12 months and over - Men

As a percentage of male unemployment in each age group

	Men (15+)				Youth (15-24)				Prime(25-54)				Older population (55-64)			
	2000	2007	2020	2021	2000	2007	2020	2021	2000	2007	2020	2021	2000	2007	2020	2021
Australia	17.7	17.7	..	..	20.2	19.0	..	..	17.1	17.3	..	..	11.1	14.6	..	..
Austria	28.1	26.9	26.6	32.9	10.0	14.0	12.6	18.2	27.2	29.2	26.0	31.3	56.4	56.4	53.5	57.9
Belgium	54.1	49.3	44.3	42.2	27.2	30.1	26.1	25.1	62.8	53.0	44.7	44.7	75.1	82.4	68.8	60.2
Canada	12.3	8.1	5.9	17.4	4.4	1.5	3.3	9.8	15.6	10.8	5.9	19.0	20.4	13.0	10.4	22.8
Chile	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Colombia	..	10.8	5.7	16.3	..	8.3	4.5	12.6	..	12.0	5.8	16.5	..	17.7	8.5	23.2
Costa Rica	..	..	4.8	16.5	..	..	5.8	12.9	..	..	4.2	16.7	..	..	3.1	29.8
Czech Republic	47.5	51.7	22.8	28.5	37.2	35.4	18.2	17.3	53.3	56.5	22.3	31.4	44.6	55.8	31.3	29.5
Denmark	21.0	15.6	13.9	19.7	0.9	3.3	..	..	25.2	17.6	..	..	37.4	36.3	..	..
Estonia	47.1	53.3	18.3	29.8	31.3	33.8	10.0	12.3	51.2	55.2	18.4	33.2	50.1	79.2	24.3	36.0
Finland	32.2	26.5	17.1	25.7	8.8	5.9	3.6	6.5	39.1	30.2	20.0	28.3	58.3	52.4	32.5	42.9
France	41.2	40.2	36.9	30.6	20.0	28.8	20.8	13.6	43.8	42.1	38.4	32.7	68.7	67.2	61.0	51.6
Germany	50.1	56.7	31.1	35.1	23.7	33.5	17.3	18.5	49.1	57.9	31.9	35.7	69.1	76.5	42.4	49.9
Greece	48.0	41.5	64.9	59.1	42.9	32.8	53.6	42.7	49.9	42.5	64.0	58.5	57.1	56.2	76.7	74.1
Hungary	51.1	47.2	28.7	31.6	40.7	38.0	25.1	23.6	54.4	48.9	28.1	33.0	65.1	54.3	36.9	39.9
Iceland[1, 2]	8.7	9.7	12.4	24.8	..	..	2.4	13.2	17.1	16.5	15.2	28.1	..	13.0	16.4	33.0
Ireland	46.7	35.4	25.4	34.0	21.5	24.8	..	..	56.1	39.6	..	..	59.3	46.7	..	..
Israel	13.5	28.9	5.5	10.6	8.1	15.7	2.1	4.8	13.7	31.0	4.3	10.0	23.9	45.6	13.1	19.0
Italy[2]	61.8	45.6	53.3	59.0	56.7	41.0	46.4	50.6	64.0	46.7	53.3	59.8	67.3	54.1	63.7	67.3
Japan	30.7	40.3	34.8	43.0	26.3	24.0	21.4	26.7	29.4	43.0	41.5	50.7	32.7	43.3	30.0	38.1
Korea[1]	3.1	0.7	0.6	1.5	1.4	0.3	..	0.3	3.5	0.9	0.8	2.0	3.7	..	0.5	1.0
Latvia	58.8	30.1	29.9	33.8	46.7	11.6	8.4	15.5	61.1	37.2	31.4	35.8	63.4	30.4	36.1	36.2
Lithuania	51.4	34.9	27.4	34.9	50.2	22.9	7.4	15.2	52.0	34.6	27.5	34.4	48.8	54.0	43.0	49.2
Luxembourg[1]	26.4	35.4	25.1	30.1	20.4	30.5	18.9	13.4	28.7	36.5	25.1	35.3	26.4	46.5	42.1	39.3
Mexico	0.6	2.0	1.5	4.9	..	0.8	0.9	1.9	0.5	2.1	1.6	5.8	7.1	8.2	3.0	8.6
Netherlands	..	41.8	23.9	19.7	..	12.2	10.3	5.6	..	45.9	26.3	23.0	..	76.2	43.3	42.4
New Zealand	23.7	6.6	9.1	11.4	12.1	2.3	3.5	5.3	27.4	10.0	11.6	13.0	47.5	16.7	19.2	28.1
Norway[1, 2]	13.1	20.2	22.3	24.2	3.7	7.6	10.4	7.2	18.4	28.0	27.1	32.9	39.6	38.7	35.0	42.7
Poland	34.1	45.8	20.2	26.1	25.5	31.0	16.8	12.6	37.3	49.9	19.3	28.9	42.1	58.9	31.6	35.5
Portugal	43.9	47.6	33.6	42.4	20.3	26.2	..	..	47.5	50.1	..	..	74.6	66.2	..	..
Slovak Republic	54.1	72.3	46.6	56.6	43.9	57.8	41.7	46.9	59.2	75.6	46.5	58.1	60.5	86.4	57.1	62.3
Slovenia	62.8	45.3	34.8	44.3	41.7	27.8	23.6	28.9	68.9	51.1	32.9	46.1	87.0	57.9	62.6	59.0
Spain[2]	35.3	17.4	29.2	38.6	25.5	8.6	16.8	26.8	35.9	17.4	27.9	36.5	59.1	42.4	49.4	58.9
Sweden[2]	29.3	14.2	11.7	21.9	11.0	3.3	2.6	3.6	30.1	18.9	13.8	25.0	48.6	29.0	24.7	45.3
Switzerland	28.2	37.9	34.0	41.8	..	..	..	..	..	..	..	..	..	..	..	..
Türkiye	18.1	27.0	20.5	26.9	16.0	23.3	14.5	17.6	19.0	28.3	21.2	28.6	31.3	39.6	33.9	41.3
United Kingdom[2]	32.6	28.5	21.4	33.0	14.6	18.9	13.9	22.0	40.2	34.7	22.4	36.1	49.2	39.8	32.6	46.6
United States[2]	6.7	10.7	6.2	23.4	4.5	7.6	5.3	12.9	6.7	11.4	6.3	25.0	13.8	17.2	7.9	31.7
OECD[3]	29.9	27.5	18.3	28.3	19.2	16.4	11.5	16.4	32.6	30.5	19.8	30.0	43.6	42.3	25.7	38.8
South Africa	..	52.6	56.7	68.1	..	34.2	35.8	42.8	..	55.5	58.2	69.6	..	80.7	66.1	75.0

.. Not available
Note: For country details related to data on unemployment by duration of job search, see www.oecd.org/els/emp/lfsnotes_sources.pdf. Persons for whom no duration of unemployment was specified are excluded from the total used in the calculation.
Please refer to the Box entitled "Major breaks in series" in the introduction to the Statistical Annex.
1. Data based on small sample sizes.
2. The lower age limit is 16 instead of 15. For Iceland up to 2008, Italy after 2007, Norway up to 2005 and Sweden up to 2006.
3. Weighted average.
Source: *OECD Employment Database*, www.oecd.org/employment/emp/onlineoecdemploymentdatabase.htm and www.oecd.org/els/emp/lfsnotes_sources.pdf.

StatLink https://stat.link/p8zyno

Table M3. Incidence of long-term unemployment, 12 months and over - Women

As a percentage of female unemployment in each age group

	Women (15+)				Youth (15-24)				Prime(25-54)				Older population (55-64)			
	2000	2007	2020	2021	2000	2007	2020	2021	2000	2007	2020	2021	2000	2007	2020	2021
Australia	19.0	19.3	..	..	20.4	19.1	..	..	18.3	20.1	..	..	17.2	16.6	..	..
Austria	22.8	27.6	22.1	29.9	16.5	12.8	10.6	12.6	23.5	31.1	22.6	32.2	34.0	61.5	41.4	45.9
Belgium	54.3	51.4	38.3	42.5	30.8	29.3	16.4	17.3	61.3	56.6	40.8	47.9	89.1	80.3	63.2	57.0
Canada	9.8	5.8	4.2	15.0	3.5	1.4	2.0	5.5	12.1	6.6	4.7	15.9	15.8	13.6	7.0	23.2
Chile	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Colombia	..	13.1	7.8	19.2	..	8.6	7.1	13.4	..	16.1	8.2	21.3	..	17.1	6.9	25.8
Costa Rica	..	..	10.4	24.6	..	..	11.2	20.4	..	..	10.0	26.4	..	..	12.0	30.7
Czech Republic	49.8	54.7	21.8	28.0	38.5	31.1	14.7	12.1	53.3	59.4	21.4	29.6	47.5	47.2	30.7	32.6
Denmark	22.4	16.6	19.9	20.9	3.5	5.3	..	..	24.4	15.8	..	..	45.1	42.3	..	..
Estonia	42.6	44.4	15.9	19.5	19.4	22.8	1.6	5.4	47.3	49.9	17.6	20.0	44.3	29.6	23.6	29.9
Finland	26.2	19.5	14.5	22.2	8.8	5.0	2.4	5.5	29.6	21.8	15.0	22.7	54.5	42.2	32.3	44.1
France	43.7	39.7	36.6	28.4	21.1	19.9	22.2	11.3	46.5	43.9	37.1	30.5	70.5	68.9	58.5	47.4
Germany	53.1	56.5	25.5	28.9	23.2	30.4	13.0	15.1	52.9	57.0	26.1	28.5	69.0	77.8	36.6	44.5
Greece	59.2	54.4	68.1	65.8	55.1	46.7	56.7	45.1	61.2	56.3	68.6	67.2	57.0	61.9	74.6	73.3
Hungary	45.7	47.9	25.6	30.7	33.1	34.7	19.5	26.4	50.1	50.3	26.0	31.6	45.7	54.4	34.6	37.8
Iceland[1, 2]	14.1	9.7	7.8	17.7	..	5.5	1.8	12.7	16.9	7.1	9.4	19.3	25.5	77.5	10.8	19.1
Ireland	23.0	21.7	22.4	25.3	18.1	15.5	..	..	26.2	23.9	..	..	20.5	38.3	..	..
Israel	10.4	20.9	4.3	8.5	4.2	11.2	2.9	4.1	13.2	23.8	4.0	9.2	12.8	34.7	9.9	15.5
Italy[2]	61.8	49.2	52.9	56.9	58.3	41.1	42.3	46.8	63.6	51.5	54.7	59.1	56.8	52.8	55.9	56.6
Japan	17.1	19.4	18.2	24.7	14.8	15.0	16.7	18.2	13.8	20.6	18.4	24.4	33.3	20.0	16.7	23.1
Korea[1]	0.8	0.3	0.6	0.9	0.5	0.5	0.3	0.3	0.9	0.2	0.7	1.2	1.2	..	0.5	1.0
Latvia	58.3	23.4	24.0	25.7	39.3	10.4	18.0	11.7	61.5	22.8	20.4	25.5	67.8	45.2	39.2	33.6
Lithuania	47.7	29.9	30.9	38.7	31.4	19.3	13.3	29.6	50.7	31.5	30.3	35.9	57.3	36.3	41.7	49.8
Luxembourg[1]	18.8	22.3	28.8	38.0	8.4	14.8	5.0	20.4	21.9	24.0	34.1	41.5	..	39.1	50.7	60.7
Mexico	2.0	1.7	1.3	4.6	2.1	1.1	0.6	2.6	1.9	2.1	1.6	5.1	..	3.6	1.1	10.5
Netherlands	..	37.1	24.1	20.9	..	13.0	6.8	5.5	..	42.7	28.6	23.9	..	72.9	55.0	48.4
New Zealand	14.9	5.4	8.5	11.0	7.0	2.4	4.6	5.6	18.1	7.5	9.9	14.3	39.1	13.3	14.5	16.0
Norway[1, 2]	6.7	16.4	19.2	24.0	2.5	8.6	10.2	9.3	9.9	19.1	21.7	32.0	20.2	45.7	44.1	53.0
Poland	41.3	46.0	19.8	27.2	30.7	29.0	13.1	18.6	45.1	51.3	21.4	28.9	43.9	58.1	25.8	35.2
Portugal	41.0	46.9	33.3	44.2	21.8	28.3	..	..	48.2	49.3	..	..	59.9	69.5	..	..
Slovak Republic	55.1	69.4	43.2	56.6	42.0	48.5	29.5	39.0	60.5	73.5	42.9	59.1	56.5	76.6	57.9	60.2
Slovenia	59.8	46.1	42.4	38.0	43.0	31.1	26.3	20.9	66.9	48.9	43.8	40.2	85.5	56.7	56.7	48.4
Spain[2]	46.3	22.8	34.7	44.4	32.4	11.3	17.8	24.3	50.8	24.0	33.8	44.2	57.1	52.1	56.1	62.1
Sweden[2]	22.8	11.3	11.6	16.6	6.4	3.7	0.9	2.7	22.1	14.0	15.2	20.5	50.3	28.3	23.3	32.7
Switzerland	29.7	43.0	35.3	41.0	..	..	..	..	..	..	..	..	..	..	..	..
Türkiye	29.8	38.9	33.2	37.6	28.5	32.9	24.4	27.3	31.3	43.8	37.6	42.2	..	50.0	33.3	47.5
United Kingdom[2]	18.1	17.6	18.3	23.0	9.4	11.2	12.3	14.9	22.6	21.4	21.5	23.5	28.0	26.2	23.8	38.2
United States[2]	5.3	9.0	5.0	22.9	3.1	5.1	4.1	13.2	6.4	10.7	5.1	24.0	7.3	12.2	6.0	29.2
OECD[3]	32.3	27.3	18.6	28.4	21.0	14.9	11.1	16.2	36.0	31.3	20.9	31.0	43.9	41.2	23.6	38.3
South Africa	..	62.3	66.9	75.5	..	38.3	50.3	56.2	..	66.9	68.3	76.9	..	79.8	73.3	81.8

.. Not available
Note: For country details related to data on unemployment by duration of job search, see www.oecd.org/els/emp/lfsnotes_sources.pdf. Persons for whom no duration of unemployment was specified are excluded from the total used in the calculation.
Please refer to the Box entitled "Major breaks in series" in the introduction to the Statistical Annex.
1. Data based on small sample sizes.
2. The lower age limit is 16 instead of 15. For Iceland up to 2008, Italy after 2007, Norway up to 2005 and Sweden up to 2006.
3. Weighted average.
Source: *OECD Employment Database*, www.oecd.org/employment/emp/onlineoecdemploymentdatabase.htm and www.oecd.org/els/emp/lfsnotes_sources.pdf.

StatLink https://stat.link/kgdxa4

Table N. Real average annual wages and real unit labour costs in the total economy

Annualised growth rates

	Average wages in 2021 USD PPPs[1]	Average wage (%)[2]					Unit labour costs (%)[2]				
		2000-2007	2007-2021	2007	2020	2021	2000-2007	2007-2021	2007	2020	2021
Australia	56 600	1.5	0.7	2.7	2.3	0.3	0.9	0.2	2.2	3.5	-1.5
Austria	58 189	0.8	0.5	0.6	0.2	1.6	-1.1	0.7	-1.1	5.8	-1.7
Belgium	59 100	0.4	0.4	-0.2	-2.7	3.2	-0.5	0.0	-1.0	3.4	-2.5
Canada	56 006	1.4	0.9	2.9	2.9	-0.3	0.9	0.7	2.5	3.5	1.5
Chile	..	..	..	..	..	..	..	..	..	..	..
Colombia	..	..	..	..	..	..	..	..	..	..	..
Costa Rica	..	..	..	..	..	..	..	..	..	..	..
Czech Republic	31 711	4.7	2.0	3.0	-1.0	2.6	0.8	1.0	-0.1	4.8	0.2
Denmark	61 331	1.7	0.9	1.1	1.2	0.6	1.1	0.2	3.6	3.3	-0.7
Estonia	33 188	8.4	2.7	16.3	6.0	3.7	2.1	1.0	7.6	6.0	-4.6
Finland	49 708	1.7	0.6	1.3	0.3	3.8	-0.2	0.2	-1.6	0.5	0.5
France	49 313	1.2	0.8	0.4	-4.1	4.1	0.1	0.3	-0.5	3.5	-1.1
Germany	56 040	0.2	1.0	-0.3	-0.7	0.2	-1.7	1.1	-2.1	4.2	-2.1
Greece	25 744	2.8	-1.8	0.0	0.4	0.1	1.7	0.7	0.3	8.3	-7.1
Hungary	26 268	4.7	1.0	-0.7	1.7	3.9	0.7	-0.5	-1.1	3.1	-2.4
Iceland[3]	72 047	3.0	0.7	3.0	-4.1	5.8	1.1	0.1	0.5	3.0	2.0
Ireland	51 045	2.7	1.0	2.9	0.6	0.6	1.1	-3.0	0.9	-5.6	-7.9
Israel	42 165	-0.5	1.4	1.0	0.2	5.3	-0.6	0.2	-0.1	1.5	-1.1
Italy	40 767	0.5	-0.2	0.0	-5.8	4.0	0.6	0.5	0.1	2.7	-0.6
Japan	39 711	0.1	0.1	-0.3	-0.6	2.2	-0.6	0.5	-0.5	3.3	0.4
Korea	42 747	2.8	1.3	2.2	0.3	-1.4	0.4	0.2	0.0	0.4	-3.7
Latvia	32 235	9.1	2.7	23.3	4.4	8.1	2.4	0.9	15.0	4.8	-0.3
Lithuania	42 027	9.3	2.9	6.5	6.2	6.1	2.7	1.0	2.0	5.1	2.6
Luxembourg	73 657	1.1	0.7	2.7	0.0	3.4	0.4	1.5	-1.4	3.3	-1.0
Mexico[3]	16 429	1.2	-1.0	0.4	-3.2	-5.9	0.7	-0.3	-0.6	7.2	-8.8
Netherlands	60 923	0.7	0.3	1.4	2.4	-1.0	-0.8	0.2	-0.1	6.0	-3.8
New Zealand[3]	46 976	2.7	1.2	5.8	2.0	1.8	2.1	0.3	2.7	2.3	-2.3
Norway	58 377	3.2	1.2	4.4	0.0	2.9	2.2	1.1	6.2	-0.8	-0.5
Poland	33 566	1.1	2.5	3.2	1.9	0.7	-1.4	0.5	2.3	3.7	-3.6
Portugal	29 740	-0.3	0.4	0.7	1.1	2.2	-0.7	0.6	-1.8	9.1	-0.5
Slovak Republic	24 805	3.4	2.0	6.1	1.3	1.6	-2.7	0.9	-3.0	4.0	-1.4
Slovenia	43 892	2.9	1.4	2.2	3.5	1.3	-0.2	0.5	-1.2	7.7	-5.1
Spain	39 202	-0.1	0.1	1.1	-3.6	2.0	0.1	-0.3	0.7	5.9	-1.7
Sweden	48 951	2.2	1.2	3.3	1.2	1.1	0.4	0.8	2.9	2.5	-0.8
Switzerland	68 957	1.3	0.6	1.2	-1.5	2.8	0.2	0.6	-0.2	2.2	-0.6
Türkiye	..	..	..	..	3.4	-0.4	..	..	..	..	..	..
United Kingdom	49 979	2.3	0.3	2.6	-0.1	2.9	1.3	0.4	1.4	12.3	-3.8
United States	74 738	1.1	1.3	1.9	5.8	2.7	-0.5	0.1	0.7	3.4	-0.8
OECD[4]	51 607	1.1	0.7	1.4	1.0	1.4	-0.5	0.1	0.2	3.9	-2.7

.. Not available

Note: Average annual wages per full-time equivalent dependent employee are obtained by dividing the national-accounts-based total wage bill by the average number of employees in the total economy, which is then multiplied by the ratio of average usual weekly hours per full-time employee to average usual weekly hours for all employees. Please note that data for 2021 are provisional estimates. For more details, see: https://www.oecd.org/employment/emp/average_wages.pdf.

1. Average wages are converted in USD PPPs using estimated 2021 USD PPPs for private consumption.
2. Average annual wages and unit labour costs, employment-based, are deflated by a price deflator for private final consumption expenditures in 2021 prices.
3. Real compensation per employee (instead of real wages).
4. The OECD average wages and real wage growth are a weighted average based on dependent employment weights in 2021 for the countries shown.

Source: *OECD Employment Database*, www.oecd.org/employment/emp/onlineoecdemploymentdatabase.htm and www.oecd.org/els/emp/lfsnotes_sources.pdf.

StatLink https://stat.link/a4tobe

Table O. Earnings dispersion and incidence of high and low pay

Percentage

	Earnings dispersion[1]						Incidence of			
	9th to 1st earnings deciles Ratio		9th to 5th earnings deciles Ratio		5th to 1st earnings deciles Ratio		Low pay %[2]		High pay %[3]	
	2010	2020	2010	2020	2010	2020	2010	2020	2010	2020
Australia	3.31	3.13	1.93	1.87	1.71	1.67	16.0	15.5	..	..
Austria	3.39	3.17	1.94	1.93	1.74	1.65	16.5	14.7	20.7	20.6
Belgium	2.38	2.56	1.73	1.69	1.37	1.52	4.3	11.5	13.1	12.6
Canada	3.71	3.30	1.89	1.83	1.97	1.80	21.2	18.7	21.4	21.6
Chile	4.29	5.56	2.89	3.33	1.48	1.67	9.7	11.8	28.7	32.5
Colombia	6.46	5.28	2.98	2.78	2.17	1.90	17.4	15.3	26.3	23.2
Costa Rica	5.38	5.34	2.80	2.98	1.92	1.79	18.1	13.6	27.6	26.9
Czech Republic	3.56	3.21	1.87	1.81	1.91	1.77	20.2	17.8	..	..
Denmark	2.50	2.57	1.74	1.75	1.44	1.47	7.6	8.7	2.7	2.8
Estonia	4.05	3.42	2.06	1.89	1.97	1.81	21.4	19.0	25.0	20.2
Finland	2.52	2.55	1.74	1.74	1.45	1.46	8.1	8.6	17.2	17.0
France	2.81	2.86	1.94	1.92	1.45	1.49	5.8	7.7	22.0	21.0
Germany	3.33	3.33	1.79	1.86	1.87	1.79	18.9	17.0	17.2	18.6
Greece	2.99	3.25	1.87	1.85	1.60	1.76	12.5	14.5	19.0	23.1
Hungary	4.25	4.00	2.39	2.16	1.78	1.85	21.0	19.8	..	..
Iceland	2.65	2.66	1.71	1.70	1.55	1.57	6.5	7.6	22.0	21.0
Ireland	3.64	3.91	1.93	2.05	1.89	1.91	17.7	18.0	24.0	27.3
Israel	4.75	4.59	2.60	2.51	1.83	1.83	21.4	21.3	28.5	28.3
Italy	2.64	2.75	1.76	1.89	1.50	1.46	8.1	4.9	18.0	22.7
Japan	2.96	2.74	1.83	1.81	1.62	1.52	14.5	10.9	..	12.4
Korea	4.77	3.60	2.37	2.25	2.01	1.60	24.7	16.0	..	..
Latvia	4.48	4.06	2.23	2.15	2.01	1.89	22.0	21.5	32.0	25.3
Lithuania	4.31	3.73	2.18	2.05	1.98	1.82	23.9	22.7	29.0	22.2
Luxembourg	3.35	3.29	2.05	2.19	1.64	1.51	14.7	11.1	23.0	24.0
Mexico	3.64	3.58	2.05	2.00	1.78	1.79	19.1	16.9	21.7	19.3
Netherlands	2.87	2.92	1.76	1.81	1.63	1.62	7.8	6.4	25.0	29.0
New Zealand	2.84	2.73	1.82	1.86	1.56	1.47	12.7	8.3	..	..
Norway	2.22	2.34	1.62	1.64	1.37	1.43	..	..	..	..
Poland	3.96	3.45	2.01	2.00	1.97	1.73	22.7	18.8	..	..
Portugal	4.50	3.54	2.78	2.48	1.62	1.43	15.9	5.3	32.0	28.8
Slovak Republic	3.65	3.09	2.02	1.88	1.81	1.64	20.0	16.0	..	..
Slovenia	3.34	3.19	2.03	1.94	1.64	1.65	17.8	17.1	23.0	22.0
Spain	3.10	3.17	1.93	1.97	1.60	1.61	10.6	10.8	25.0	26.0
Sweden	2.04	2.14	1.58	1.58	1.29	1.36	..	..	..	..
Switzerland	2.76	2.77	1.84	1.85	1.50	1.50	13.1	12.0	..	..
Türkiye	3.80	3.36	3.22	2.36	1.18	1.42	0.7	1.0	32.0	29.0
United Kingdom	3.58	3.38	1.98	1.99	1.81	1.69	20.7	18.0	..	..
United States	5.01	4.84	2.37	2.39	2.12	2.02	25.3	23.8	..	..
OECD[4]	3.55	3.40	2.09	2.05	1.70	1.66	15.5	14.5	23.0	23.2

.. Not available

Note: Estimates of earnings used in the calculations refer to gross earnings of full-time wage and salary workers. Country-specific variations from this definition as well as national data sources and earnings concepts can be found at: https://stats.oecd.org//Index.aspx?QueryId=18974.

1. Earnings dispersion is measured by the ratio of 9th to 1st deciles limits of earnings, 9th to 5th deciles and 5th to 1st deciles. Year 2010 refers to 2009 for Chile. Year 2020 refers to 2019 for Belgium, Estonia, Ireland, Israel, Italy, Latvia and Lithuania, and to 2018 for Australia, France, Iceland, Luxembourg, the Netherlands, Slovenia, Spain and Türkiye.

2. The incidence of low pay refers to the share of workers earning less than two-thirds of median earnings. Year 2010 refers to 2009 for Chile. Year 2020 refers to 2019 for Australia, Belgium, Estonia, Finland, Ireland, Israel, Italy, Lithuania and Latvia, and to 2018 for Denmark, France, Iceland, Luxembourg, the Netherlands, Slovenia, Spain and Türkiye.

3. The incidence of high pay refers to the share of workers earning more than one-and-a-half times median earnings. See note 2. for year exceptions for certain countries.

4. Unweighted average.

Source: *OECD Earnings Distribution Database*, www.oecd.org/employment/emp/employmentdatabase-earningsandwages.htm.

StatLink https://stat.link/t6xjc2

Table P. Relative earnings: Gender, age and education gaps

Percentage

	Gender[1]		Age[2]				Education[3]			
	Women/Men		15-24/25-54		55-64/25-54		Low/Medium		High/Medium	
	2010	2020	2010	2020	2010	2020	2010	2019	2010	2019
Australia	14	12	40	37	-2	-1	14	12	-37	-25
Austria	19	12	35	32	-21	-20	23	22	-51	-45
Belgium	7	4	31	32	-25	-24	..	12	..	-44
Canada	19	16	41	40	-3	1	21	19	-39	-33
Chile	16	9	42	52	-22	6	..	29	..	-141
Colombia	6	4	45	40	-10	-19	..	29	..	-128
Costa Rica	5	5	38	39	-18	-26	..	25	..	-103
Czech Republic	16	12	28	32	5	3	25	37	-103	-58
Denmark	9	5	40	41	-2	-3	11	11	-26	-24
Estonia	28	19	28	25	18	20	13	7	-29	-31
Finland	19	16	38	34	-4	-1	..	1	..	-34
France	9	12	38	33	-23	-17	7	5	-48	-53
Germany	17	14	30	46	-9	-12	..	21	..	-58
Greece	10	10	43	44	-38	-28	..	19	..	-38
Hungary	6	12	38	30	-6	5	27	22	-104	-65
Iceland	16	13	35	36	2	-7	..	..	..	..
Ireland	14	5	41	47	-12	-7	..	5	..	-55
Israel	20	24	..	..	-24	-10	27	25	-56	-49
Italy	6	8	31	25	-27	-19	18	20	-43	-37
Japan	29	23	41	40	1	-4	..	..	..	..
Korea	40	31	45	39	10	5	12	12	-40	-37
Latvia	19	23	23	24	12	24	..	7	..	-42
Lithuania	11	7	22	25	2	15	..	12	..	-73
Luxembourg	5	..	44	41	-25	-26	..	21	..	-43
Mexico	12	10	33	28	-2	0	..	20	..	-58
Netherlands	18	13	46	45	-11	-15	14	14	-48	-49
New Zealand	7	5	36	34	1	-2	19	11	-25	-31
Norway	7	5	36	39	-5	-10	12	15	-27	-19
Poland	7	9	37	26	-7	6	..	15	..	-55
Portugal	16	12	41	35	-27	-20	31	20	-71	-70
Slovak Republic	15	11	32	29	4	9	26	23	-75	-54
Slovenia	1	8	35	32	-22	-12	25	18	-86	-64
Spain	14	9	35	35	-20	-14	15	19	-35	-41
Sweden	9	7	27	29	-3	-6	..	15	..	-21
Switzerland	20	14	38	38	-9	-13	24	21	-44	-44
Türkiye	3	10	38	36	-49	-19	..	22	..	-61
United Kingdom	19	12	40	44	2	3	30	25	-61	-44
United States	19	18	48	39	-7	-8	32	26	-70	-73
OECD[4]	14	12	37	36	-10	-6	20	18	-53	-53

.. Not available

1. See note to Table O. The gender wage gap is unadjusted and is calculated as the difference between median earnings of men and women relative to median earnings of men. Year 2010 refers to 2011 for Chile and Costa Rica. Year 2020 refers to 2019 for Belgium, Colombia, Estonia, Ireland, Israel, Italy, Latvia and Lithuania, to 2018 for Costa Rica, France, Iceland, the Netherlands, Poland, Slovenia, Spain and Türkiye.

2. Age wage gaps are calculated as the difference between mean earnings of 25-54 year-olds and that of 15-24 year-olds (respectively 55-64 year-olds) relative to mean earnings of 25-54 year-olds. Data refer to 55-year-olds and over for Hungary and Norway. Year 2010 refers to 2011 for Colombia and to 2009 for Chile. Year 2020 refers to 2019 for Belgium and Israel, and to 2018 for Australia, Austria, Estonia, France, Greece, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, the Netherlands, Poland, Portugal, Slovenia, Spain and Türkiye

3. Earnings by skill (or education) levels refer to mean annual full-time full-year earnings of 25-64 year-old employees except for Korea where they refer to mean monthly full-time earnings. Earnings gaps by skill levels are calculated as the difference between mean earnings of medium-skilled employees and low- (respectively high-) skilled employees relative to mean earnings of medium-educated employees. The skill levels are based on the International Standard Classification of Education (ISCED, 2011), except for Korea which refers to ISCED, 1997. *Low skills* corresponds to less than upper secondary; *Medium skills* to upper secondary and post-secondary non-tertiary; and *High skills* to tertiary education. For Korea, tertiary education refers to ISCED, 1997 Levels 5 and 6. The years retained are those available in the database. Year 2019 refers to 2017 for Chile, France and Italy and to 2018 for Belgium, Canada, the Czech Republic, Finland, Greece, Israel, Lithuania, Mexico and Poland.

4. Unweighted average.

Source: *OECD Earnings Distribution Database*, www.oecd.org/employment/emp/employmentdatabase-earningsandwages.htm for earnings gap by gender and age; and OECD (2021), *Education at a Glance*, www.oecd.org/education/education-at-a-glance for earnings gap by education levels. For Korea, data on earnings by education are provided by national authorities.

StatLink https://stat.link/cz8x9g

Table Q. Public expenditure and participants stocks in labour market programmes in OECD countries

Percentage

	Public expenditure (% of GDP)								Participant stocks (% of labour force)			
	Total		Active programmes		*of which:* Active measures not including PES and administration		Passive programmes		Active measures not including PES and administration		Passive programmes	
	2018	2019	2018	2019	2018	2019	2018	2019	2018	2019	2018	2019
Australia[1]	0.78	2.79	0.23	1.79	0.08	1.62	0.55	1.00	2.45	9.09	5.73	11.91
Austria	2.07	1.99	0.75	0.70	0.58	0.52	1.32	1.29	3.82	3.55	7.03	6.98
Belgium	2.13	2.01	0.90	0.92	0.57	0.58	1.23	1.09	8.51	8.49	10.60	9.81
Canada	0.70	0.71	0.21	0.21	0.10	0.11	0.49	0.50	0.65	0.73	2.25	2.16
Chile	0.48	0.49	0.12	0.11	0.09	0.07	0.37	0.39	..	..	2.00	2.07
Colombia	..	..	..	..	..	..	..	..	..	..	..	..
Costa Rica	..	..	..	..	..	..	..	..	..	..	..	..
Czech Republic	0.46	0.43	0.31	0.28	0.19	0.16	0.14	0.15	..	..	1.42	1.43
Denmark	2.87	2.81	1.89	1.86	1.51	1.49	0.98	0.94	7.51	7.55	4.17	4.01
Estonia	0.87	0.96	0.47	0.51	0.33	0.37	0.40	0.44	4.85	5.53	4.37	4.56
Finland	2.21	2.06	0.94	0.92	0.79	0.77	1.27	1.14	4.79	4.67	9.27	8.92
France	2.66	2.58	0.75	0.71	0.52	0.48	1.90	1.87	4.86	4.75	13.66	13.53
Germany	1.39	1.32	0.68	0.60	0.25	0.26	0.70	0.72	1.82	1.83	5.22	5.11
Greece	..	..	..	..	0.21	0.34	0.52	0.56	..	1.15	5.38	5.49
Hungary	0.84	0.79	0.63	0.58	0.57	0.52	0.20	0.21	4.64	3.83	3.00	2.94
Iceland	..	..	..	..	..	..	..	..	..	..	..	..
Ireland	1.04	0.90	0.36	0.32	0.31	0.27	0.68	0.58	4.14	4.83	8.14	6.96
Israel	0.59	0.59	0.16	0.15	0.13	0.12	0.43	0.43	4.41	3.82	3.77	3.77
Italy	1.56	1.57	0.42	0.27	0.36	0.21	1.14	1.29	6.97	4.71	5.45	9.30
Japan	0.31	0.31	0.16	0.15	0.09	0.08	0.16	0.16	..	..	..	..
Korea	0.75	0.86	0.36	0.38	0.31	0.34	0.38	0.47	..	..	..	..
Latvia	0.58	0.57	0.18	0.15	0.12	0.10	0.40	0.42	0.97	0.86	3.14	3.21
Lithuania	0.66	0.64	0.27	0.21	0.22	0.17	0.39	0.43	1.15	0.94	3.26	3.37
Luxembourg	1.27	1.28	0.72	0.74	0.66	0.66	0.55	0.54	9.28	8.72	4.10	4.01
Mexico	0.00 n	0.00 n	0.00 n	0.00 n	0.00 n	0.00 n	0.00 n	0.00 n	..	..	..	..
Netherlands	1.96	1.79	0.59	0.57	0.39	0.39	1.37	1.23	3.82	3.87	7.62	7.28
New Zealand[2]	0.57	4.59	0.22	4.14	0.10	4.00	0.35	0.45	1.30	17.49	3.03	4.79
Norway	0.79	0.71	0.42	0.40	0.28	0.26	0.37	0.31	1.59	1.44	1.90	1.64
Poland	0.50	0.45	0.36	0.33	0.30	0.26	0.15	0.13	3.48	3.21	1.48	1.35
Portugal	1.27	1.17	0.32	0.31	0.27	0.27	0.95	0.87	3.92	3.84	5.23	4.92
Slovak Republic	0.55	0.56	0.24	0.23	0.20	0.19	0.31	0.33	2.48	2.70	1.75	1.81
Slovenia	0.61	0.57	0.23	0.20	0.16	0.13	0.38	0.37	1.62	1.32	1.75	1.68
Spain	2.16	2.21	0.71	0.69	0.55	0.56	1.45	1.52	13.21	12.81	7.76	8.08
Sweden	1.57	1.44	1.11	1.02	0.83	0.76	0.46	0.42	4.21	3.87	4.72	4.45
Switzerland	1.17	1.13	0.59	0.58	0.48	0.47	0.58	0.56	2.16	2.12	2.29	2.17
Türkiye	..	..	..	..	..	..	..	..	..	..	..	..
United Kingdom	..	..	..	..	..	..	..	..	..	..	..	..
United States	0.25	0.90	0.10	0.11	0.08	0.08	0.15	0.79	..	..	..	..
OECD	1.11	1.29	0.48	0.63	0.35	0.50	0.63	0.65	4.18	4.73	4.81	5.09

.. Not available; n Nil or less than 0.005

Note: Please note that these data will be updated at a later date. The data shown are not strictly comparable across countries or through time, since data may differ from standard definitions and methods and certain programmes or programme categories are not always included in the data for participants stocks. OECD is an unweighted average using the latest available data. Fiscal years for Australia, Canada, Japan, New Zealand, the United Kingdom and the United States.

1. Data for 2019 refers to the period 1 July 2019 to 30 June 2020. Therefore, 2019 data includes the first three months (April to June 2020) of the JobKeeper programme, which ran between April 2020 and March 2021.

2. Data for 2019 refers to the period 1 July 2019 to 30 June 2020. Therefore, 2019 data includes the Wage Subsidy programme, which was active from March to August 2020.

Source: For European Union countries and Norway, European Commission (2021), *Labour Market Policy*, https://webgate.ec.europa.eu/empl/redisstat/databrowser/explore/all/lmp?display=cardlabour-market-policy/database and detailed underlying data supplied to the OECD by the European Commission with certain Secretariat adjustments. For other countries: *OECD Database on Labour Market Programmes*, https://dx.doi.org/10.1787/data-00312-en.

StatLink https://stat.link/3fpl86

OECD Employment Outlook 2022

BUILDING BACK MORE INCLUSIVE LABOUR MARKETS

Two years into the pandemic, economic activity has recovered faster than expected. However, the labour market recovery is still uneven across sectors and is threatened by the economic fallout from Russia's aggression against Ukraine, which has generated the fastest growing humanitarian crisis in Europe since World War II, sending shockwaves throughout the world economy. The 2022 edition of the *OECD Employment Outlook* reviews the key labour market and social challenges for a more inclusive post-COVID-19 recovery. It also examines the policies to address these challenges and the outlook ahead. Particular attention is given to frontline workers and groups lagging behind in this recovery (young people, workers with less education, and racial/ethnic minorities). The Outlook also addresses a number of long-standing structural issues that have a key relevance for labour market inclusiveness, such as employer market power and its labour market consequences, the role of firms in wage inequality, and the effect of working time policies on well-being and economic outcomes.

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