OECD Employment Outlook 2020

WORKER SECURITY AND THE COVID-19 CRISIS



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OECD Employment Outlook 2020

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Foreword

This edition of the *Employment Outlook* is released in the midst of a global health emergency that is turning into an economic and social crisis that evokes the Great Depression. The epidemiological model developed by the OECD shows that the severe restrictions to social and economic life that most OECD countries (and many others) have had to take to slow the spread of the virus have prevented the collapse of health care systems and helped to avoid hundreds of thousands, if not millions, of deaths. Yet, there is no question that these measures have had very serious economic and social consequences. Entire sectors of the economy were essentially closed down for weeks on end. Between the last quarter of 2019 and the second quarter of 2020, OECD-wide GDP is projected to have fallen by almost 15%. In the first three months of the COVID-19 crisis, in OECD countries for which data are available, hours worked fell ten times more than in the first three months of the 2008-09 global financial crisis.

In response, governments have implemented packages of measures to support people and companies and to cushion the impact of the crisis, which have often been impressive in their scale and speed. Some countries expanded the support provided by unemployment benefits and made them more accessible. Some countries expanded access to, or the generosity of, paid sick leave. Many countries have eased companies' access to short-time work schemes, making them more widely available (in particular to small and medium-sized enterprises) and generous while lowering conditionality requirements. Many countries have also stepped up means-tested assistance of last resort, introduced new ad hoc cash transfers, and provided direct support to those who lost their livelihoods.

Despite these substantial efforts, the numbers are stark and our projections are bleak. Even if a second wave of infections is avoided, the June 2020 *OECD Economic Outlook* projects a 6% annual decline in global GDP for 2020. The OECD-wide unemployment rate is projected to be at 9.4% at the end of 2020, above any previous historical peak, and still 7.7% the year after. The crisis will cast a long shadow over the world and OECD economies. By 2021, it will have taken real income per capita in the majority of OECD economies back to 2016 levels even in the absence of a widespread second wave of infections. In the "double-hit" scenario where a second wave strikes all OECD economies in late 2020, real per capita income in the median OECD economy in 2021 would be back to 2013 levels.

As many countries gradually move out of strict containment measures and the economy re-starts, it is essential to sustain the recovery with a combination of macroeconomic policies and sectoral policies to boost growth and job creation while providing support to the many still in need.

Policies need to sustain public and private investment, especially on green and other essential infrastructure and more generally to foster job creation. Moreover, policy makers will need to modify and adjust the composition and characteristics of their support packages, targeting support where it is most needed and encouraging a return to work where possible. If they get these decisions right, we will be able to look back on 2020 as a year of crisis, successfully navigated. Get them wrong, and the consequences will be felt by many people for a long time.

The *Employment Outlook 2020* outlines some of the critical decisions that countries will have to make. Decisions on how, and at what speed, to manage a return to economic and social activity, while keeping

workers safe. Decisions on how to scale back job retention schemes without prematurely removing support where it is still needed. Decisions on how to adapt emergency support programmes for self-employed workers and businesses, especially small ones, as economic activity picks up, given that some viable businesses in the most impacted sectors may continue to face restrictions and/or low demand. Decisions on how to provide adequate income support by adapting some of the support mechanisms exceptionally put in place during the pandemic. Decisions on how to support job creation effectively with targeted subsidies, and how to help jobseekers with public and private employment services. Last, but certainly not least, decisions on how to provide a comprehensive support package to the cohort of young people whose education and early labour market experience have been blighted by the COVID-19 crisis. The crisis cannot be allowed to result in a lost generation of young people whose careers are permanently diminished by the disruption to the labour market.

More generally, in taking all these decisions, it is essential that the measures adopted leave no one behind. The impact of COVID-19 is particularly severe for the elderly, low-income earners, women, migrants, children and youth, and those with disabilities and with chronic health conditions. By accompanying labour market and social protection measures with a broad and coordinated policy response, countries can promote a recovery that ensures more inclusive growth. We need strengthened education and the potential of long-distance learning, more resilient and people-centred health care, housing support and specific interventions to enhance personal safety of women and children, as well as support for communities and regions left behind.

This edition of the *Employment Outlook* is – with the June 2020 *Economic Outlook* and the OECD Digital Hub on Tackling the Coronavirus – part of the OECD's response to the crisis, providing member and partner countries with evidence and policy advice to weather the pandemic and to foster more resilient, inclusive and sustainable growth.

COVID-19 has exposed weaknesses in our economies and societies that will hold people back unless they are addressed. In times of crisis, 'normality' sounds very appealing. However, our normal was not good enough for the many people with no or precarious jobs, bad working conditions, income insecurity, and limits on their ambitions. We need to capitalise on the momentum created by the strong initial national responses to the crisis, and build better policies for better lives in the post-COVID world.



Angel Gurría

OECD Secretary-General

Acknowledgements

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 2020 edition is devoted to *worker security and the COVID-19 crisis*. Chapter 1 focuses on the labour market consequences of the COVID-19 outbreak and the resulting economic crisis as well as on the labour market and social policy response. Chapter 2 investigates the uneven access to unemployment benefits for workers in part-time and less stable jobs, which often accentuates the hardship they face in times of crisis. Chapter 3 provides a comparative review of employment protection legislation (EPL) across OECD countries by developing a new version of the OECD EPL indicators. Chapter 4 takes a fresh look at job polarisation, and in particular the hollowing out of jobs in middle-skill occupations. Finally, Chapter 5 examines the changing labour market outcomes for middle-education vocational, education and training graduates.

The *OECD Employment Outlook 2020* is the joint work of staff of the Directorate for Employment, Labour and Social Affairs. The whole Outlook has also greatly benefited from comments from other OECD directorates and contributions from national government delegates. However, its assessments of each country's labour market prospects do not necessarily correspond to those made by the national authorities concerned.

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Editorial: From recovery to resilience after COVID-19

What took more than a decade to achieve has unravelled within a matter of months. In early 2020 the employment rate in the OECD reached a record-high of 68.9%, 2.6 percentage points above the previous record just before the global financial and economic crisis of 2007-08. Then the pandemic struck. Within months, COVID-19 spread around the globe triggering the worst public health emergency in a century. It has sparked an economic crisis not seen since the Great Depression of the 1930s. More than 10 million people have been infected with the virus, more than half a million people have died and trillions of dollars have been pumped into the world economy to protect lives and livelihoods. In the face of this challenge, a four Rs strategy, which progresses from *response* and *rehabilitation* to *reciprocity* and *resilience*, is needed to re-build a better, more robust, and inclusive labour market.

The immediate response to the pandemic has been unprecedented in scale and scope. As countries move out of lockdown, rehabilitation will be critical to protect many jobs. Reciprocity, with everyone contributing to rehabilitation with a sense of responsibility, will also be key to the recovery. Last but not least, the COVID-19 crisis has exposed gaps in the labour market that must be closed to boost resilience. With the low-paid, the young, women, the self-employed and temporary workers among the hardest hit by the crisis, the burden of the pandemic has been shouldered disproportionately by the most vulnerable.

Countries around the world have taken major steps to deal quickly with the crisis. On the public health side, the primary objective has been to “flatten the curve” of the virus, contain the otherwise overwhelming pressure on hospitals and ultimately save millions of lives. Intervention was swift. Many countries adopted drastic containment measures, which resulted in an unprecedented – at least in peacetime – shutdown of most non-essential activities, from kindergartens, to schools, factories and most shops and recreational activities.

The combination of fear of infection, public guidelines and mandatory lockdowns and great uncertainty, produced a sharp contraction in economic activity with a deep and widespread shock to the labour market. An unprecedented number of workers (39% on average) shifted to telework, pushing the boundaries of the potential for this alternative way of work organisation. Despite this, in all countries the number of those effectively working collapsed much more than during any recent economic and financial crisis, as companies in non-essential sectors laid-off workers, froze hiring and put most of their workforce on hold through subsidised job retention schemes. By May 2020, companies had claimed job-retention subsidies for more than 30% of their employees in countries such as Germany or the United Kingdom and up to 50% in countries such as France and New Zealand. In the meantime, the OECD-wide unemployment rate rose from 5.3% in January to 8.4% in May.

While the virus respects no borders or socio-economic groups, its spread has disproportionally affected the most vulnerable, either directly because of greater difficulty in protecting themselves, or indirectly via the impact of the lockdown on their jobs. Low-income workers are paying the highest price. As shown in this *OECD Employment Outlook*, during the lockdown top-earning workers were on average 50% more

likely to work from home than those in the bottom quartile; the latter were more often employed in essential services during the lockdowns and at risk of exposing themselves to the virus while working. At the same time, low-income workers were twice as likely to have to stop working completely as their higher-income peers were.

Workers in non-standard jobs – i.e. self-employed workers and those on temporary or part-time contracts – have been particularly exposed to job and income losses. In contrast to the global financial crisis, women have also been hit harder than men, as they are over-represented in the most affected sectors and disproportionally hold precarious jobs, while more is being asked from them in the home. And the "Class of Corona", this year's graduates, are leaving schools and universities with poor chances of finding employment or work experience this summer or in the autumn.

RESPONSE: The "emergency" response to the pandemic has been unprecedented in scale and scope. As the health and economic shock was unprecedented in terms of speed and virulence, so was the policy response, with several trillion dollars quickly committed globally to sustain individuals, households, and companies. Beyond providing direct and indirect financial support to companies, the vast majority of OECD countries have strengthened and/or extended income support to workers unable to work or who are jobless. Many extended or introduced job retention schemes at firms suffering from a temporary reduction in business activity, thereby avoiding severing labour contracts, which would have resulted in the destruction of valuable competences and viable investment. Many countries also introduced or strengthened sick pay, including for quarantined workers, and took measures to address unforeseen care needs for working parents.

Despite the massive measures taken around the globe, uncertainty about future labour market developments is large, as the risk of new outbreaks is high. Much of what will happen depends on the evolution of the pandemic. The results of an epidemiological model the OECD developed during the crisis suggests that the strict confinement measures introduced in many countries were successful in containing the number of fatalities. Moreover, model simulations indicate that a second wave can be avoided even in the absence of a vaccine. This requires putting in place a package of comprehensive public health interventions, ranging from massive upscaling of testing, tracking and tracing (TTT), to enhancing personal hygiene measures, to ensuring wide use of masks and the continuous enforcement of some physical-distancing policies such as banning large gatherings and encouraging people to work from home.

Given the uncertainty about the evolution of the pandemic, the latest OECD *Economic Outlook* presents two possible, equally probable, scenarios: one where the virus outbreak continues to recede and remains under control, and one where a second wave of rapid contagion erupts later in 2020. Even under the single-hit scenario, world economic output is forecast to plummet by 6% this year, before climbing back by 5.2% in 2021. The outlook would be much worse with a double-hit scenario. In the most optimistic scenario, the OECD-wide unemployment rate is forecast to be 9.4% in the fourth quarter of 2020, exceeding all the peaks since the Great Depression, while average employment is projected to fall by 4.1% to 5% with respect to 2019, depending on whether a second outbreak materialises.

Responding swiftly to the huge challenges imposed by the sudden lockdown required a Herculean effort on the side of governments across OECD countries and beyond. As the economy re-opens, policy must lead the labour market and society along the road to rehabilitation. But, adapting this package of measures to the new situation of a gradual and managed re-opening is not any easier, and will require reciprocity and responsibility from all stakeholders.

REHABILITATION: In the short-term continued support for some sectors remains vital to protect jobs and wellbeing, but labour market mechanisms must re-start operating. Accompanying the labour market during the gradual scaling back of confinement measures requires a two-pronged approach. *First, labour market policy must support the effort of preventing a second severe pandemic wave and preparing for that in case it materialises.* Teleworking remains, for many, an effective way to work while limiting risks of contracting the virus. Evidence shown in this *Employment Outlook* suggests that, on

average, about one third of jobs can be done from home under normal conditions. Enhancing the use of teleworking requires not only facilitating employer-employee arrangements but also investing to make sure that workers have the instruments to work from home under good conditions (computer or tablet, broadband connection, room to work undisturbed etc…). It will also require planning work organisation, in particular in the case of a second pandemic wave, and training the workforce to make the most of teleworking.

Almost two-thirds of jobs cannot, or can hardly, be performed from home. Some of them have a limited risk of infection as they involve no or infrequent physical interactions (e.g. plumbers, truck drivers, or archivists). However, almost one-half of all jobs require frequent interactions and, in the absence of precautions, carry some risk for workers being infected at work (as exemplified by the large number of hot spots that have developed in meatpacking plants). Therefore, developing and adapting rigorous occupational safety and health standards remains a policy priority. Moreover, continuing to guarantee extensive paid sick leave will remain crucial, so that potentially infected workers do not spread the virus at work.

*Second, as the re-opening of the economy unfolds and activity restarts, labour market and social policy should be adapted to reflect the varying conditions of workers, households, and companies***.** During the lockdown, a broad one-size-fits-all support strategy was justified, as most activities were simply prevented from operating and companies and jobs would not have survived without immediate support. Now, policy makers are facing the difficult task of moving the economy from emergency action, with massive, generalised support, to recovery, where support needs to be differentiated according to the conditions of firms, sectors, and workers.

Firms and workers in sectors that are still prevented from operating – such as parts of the entertainment industry – should continue to be supported, at least temporarily, to increase their chance of resuming work. However, where activities can resume the market mechanism should re-start operating, allowing for workers and resources to move from unviable to promising activities.

Measures should be targeted better to ensure that those in need really get help, while fostering the incentives to go back to work for those who can. This is necessary to avoid the scars of prolonged joblessness and inactivity, on the one hand, and to ensure the sustainability of policy interventions, on the other hand. A clear example of the need to adapt the policy intervention is provided by job-retention schemes. For sectors where activity have resumed, firms should be required to carry part of the cost of the job retention scheme. To avoid reinforcing financial difficulties of firms, employers' participation can take the form of a delayed-payment or zero-interest loan. In addition, stricter limits on the duration of subsidies and incentives to look for work, combine temporary secondary jobs and short-term subsidies, and take up training are among the policy levers that policy-makers and social partners should consider in coming months.

As prospects of quickly finding new work will remain poor for many, some countries should extend unemployment benefit durations to prevent jobseekers from sliding too quickly into much less generous minimum-income benefits. This will be even more necessary in the case of a second wave of infections and renewed restrictions to economic activity. Emergency support for the self-employed should also be re-assessed, in order to improve targeting, restore incentives and ensure fairness. More generally, the duration, targeting and generosity of all the income support programmes put in place in the early months of the crisis should be re-examined to ensure that they are sustainable, their effects on work incentives are minimised, and they guarantee that support goes to the most needy. Public and private employment services will also face the daunting challenge of serving a high number of jobseekers with differing conditions. Their capacity will have to be scaled up to avoid permanently neglecting functions that may have been of secondary importance during the emergency phase of the crisis (e.g. career advice, counselling).

Implementation and delivery of this complex package will be crucial, however. During the crisis, many people have waited for too long to receive the help they need and were entitled to. New programmes found themselves entangled in a mass of administrative yarn and took too long to reach beneficiaries. Newspapers have been filled with examples of companies going bankrupt before receiving promised subsidies, displaced workers applying for unemployment benefits but not having received them after several weeks, and even children not receiving lunches replacing those of locked down school canteens.

RECIPROCITY AND RESPONSIBILITY: In both the short and the long-term, all parts of society need to contribute to this rehabilitation with sense of responsibility, in particular those who have received, or still receive, public support.

All actors in the economy should play their role in rebuilding a better labour market. Reciprocity is needed between public support for struggling firms and industries and private sector support for efforts to help the unemployed return to work, boost employees' skills and ensure no one is left behind in a recovery. This particularly applies to those firms that receive or have received job retention and other subsidies, but all firms must strive for the reconstruction of a dynamic labour market. Hiring and re-hiring, investment in new technologies and in training for the workforce, and/or continued participation in apprenticeship programmes should take a central role in corporate decisions. Time-limited hiring subsidies have proven quite effective at supporting job creation, notably in bad times, while minimising the administrative costs of monitoring eligibility requirements on take-up (e.g. by allowing recapturing credits when job creation goals are not met or considering refundable hiring credits, as done by certain US states during the global financial crisis).

A similar argument applies to individuals receiving income support. For example, a priority will be restoring the "mutual obligations" approach, in which governments commit to providing jobseekers with benefits and effective employment services and, in turn, beneficiaries have to take active steps to search for work or improve their employability. This is key to mobilise jobseekers to find viable jobs.

RESILIENCE: The COVID-19 crisis has shown more than ever the need to strengthen resilience and inclusivity in the labour market. In the medium term, countries should address the structural problems that the crisis has put under the spotlight. As stressed in the *OECD Jobs Strategy*, effective economic resilience requires counter-cyclical macroeconomic policies, adequate income support for all workers, rapid expansion of job-retention schemes during crisis, and effective social dialogue.

The COVID-19 crisis has laid bare pre-existing gaps in social protection provisions. In many countries, the insurance function of social protection works well for employees with stable work histories. But, as shown in this *Employment Outlook*, even if entitlement rules are usually the same for all dependent employees, conditions on minimum employment duration or earnings before the unemployment spell are often harder to meet for those who lose a part-time job or have unstable or short employment histories. The self-employed and other non-standard workers are often poorly protected or not protected at all. At the same time, the assistance function of social protection systems – providing last-resort minimum-income benefits for those with little or no other resources – has been put to a severe test. The emergency has prompted decisive actions to reduce these gaps in social protection. The challenge now is to build on these initiatives, and transform temporary fixes into structural changes.

Workers in non-standard forms of employment need to be able to build up rights to the types of out-of-work support that are already available to standard employees. While including self-employed in earnings-related social-protection schemes can be fraught with moral hazard and other logistical and administrative concerns, several countries have already been successful in establishing well-designed policies that work for their circumstances. For instance, a number of OECD countries do include the self-employed in their unemployment and sickness insurance schemes. A more equitable treatment of different forms of employment can help minimise future needs for makeshift programmes – that are necessarily less targeted and cost-effective and can be prone to leakage.

Even with well-designed social insurance schemes in place, providing a minimum level of assistance to those in need is a basic function of social protection systems. Yet, even in normal times, the accessibility, the reactivity, and the generosity of these programmes differ markedly across countries. In many cases, complex criteria and claims procedures result in low take-up and receipt rates, long waiting periods, and sometimes inadequate levels of support. One-off or temporary lump-sum transfers, as introduced by many countries during the COVID-19 crisis, have played a role in providing fast support to those in needs. But beyond the short-term, as fiscal pressures mount, sustainable and effectively targeted programmes will be needed. Making minimum-income protection more responsive, through timely reassessment of entitlements in the face of rapidly changing circumstances remains an urgent policy priority.

Strengthening labour market resilience also requires stronger institutional capacity to scale up key measures quickly, while maintaining service quality. This implies that when a crisis hit, the policy infrastructure should already be in place and can be scaled up quickly. Evidence suggests that implementation and delivery failures during the COVID-19 crisis were more common where emergency solutions had to be created from scratch.

Reconstructing a better and more resilient labour market is an investment in the future and future generations. We cannot afford losing the Corona Class generation. In the aftermath of the global financial crisis, governments acted far too late to address the labour market difficulties of youth, which left them with long-lasting scars that were still visible before the COVID-19 outbreak. There is no time to waste to put in place a comprehensive policy package ensuring that no young worker is left behind. Everybody should have a route to follow (such as, e.g. the EU Youth Guarantee). Every actor must, again, play its role with responsibility and reciprocity: companies, for example, should be encouraged to provide opportunities for work experiences by hiring new graduates or offering apprenticeships, internship or work-related training, while governments should accompany them with specific financial incentives.

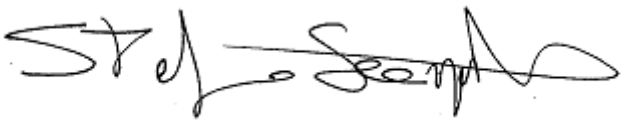
A comprehensive recovery plan should include, the expansion of cost-effective active labour market measures – such as counselling, job-search assistance, entrepreneurship programmes. Extending support for vocational education and training (VET) would also be crucial. As shown in this *Employment Outlook*, the transition from school to work of non-tertiary VET graduates remains much easier than that of their general-education peers. Yet, it is important to make sure that these programmes remain responsive to changing labour market needs.

Social dialogue and collective bargaining have a key role to play in enhancing the resilience of the labour market. When social partners work co-operatively, this flexibility and granularity could allow adapting and deploying more rapidly the required responses through tailor-made agreements and work re-organisations that are adjusted to meet each specific situation. In many countries, for example, collective bargaining and social dialogue have recently proved instrumental in ensuring safer workplaces. The guidelines and codes of good conduct established by social partners and the agreements signed between employers and trade unions in this area in various countries (e.g. Denmark, France, Italy and Spain) are excellent examples of how social dialogue and collective bargaining can be mobilised to complement public action and find flexible and tailored solutions for both companies and workers.

Countries should harness the lessons of this crisis and plan for a thorough **assessment of labour market resilience**, drawing on the OECD Jobs Strategy framework. This complex exercise will have

to involve all stakeholders and lead to the identification of country-specific policy packages to enhance resilience within a more inclusive labour market.

It is not the time to rebuild the old. It is time to build better.



Stefano Scarpetta

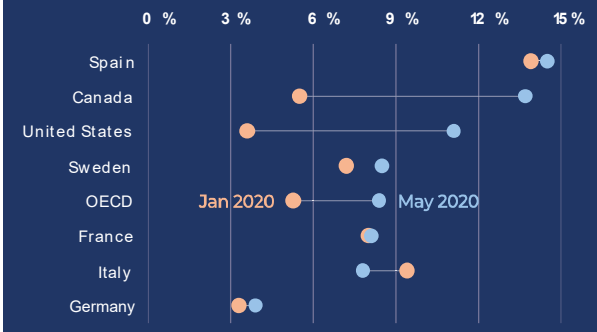
Director for Employment, Labour and Social Affairs

OECD

Infographic 1. Key facts and figures

Unemployment rates soared in just a few months

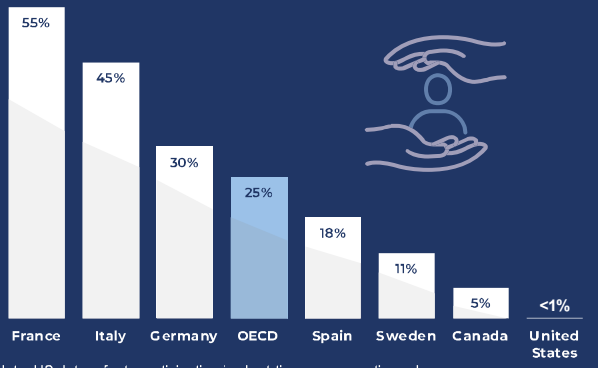
Unemployment rates, January and May 2020



Note: Temporary layoffs are included in unemployment figures for the US and Canada but not for the other countries. Data for US refers to June.

Job retention schemes have played a massive role in some countries

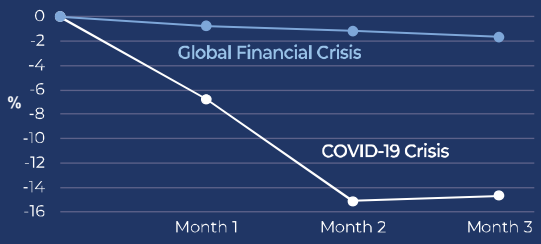
Share of employees for which job retention support (e.g. short-time work schemes) has been claimed



Note: US data refer to participation in short-time compensation schemes.

The number of hours worked has plummeted

Comparison of change in total hours worked during first 3 months of COVID-19 crisis with those of the 2008 crisis*



* Average of selected countries - Australia, Canada, Japan, Korea, Sweden, US.

Many people worked from home during the COVID-19 lockdown



2 out of 5 workers were able to work from home in April 2020 across the OECD.

* Average of selected countries for April 2020 - Australia, Austria, Canada, France, Germany, Italy, New Zealand, Poland, Sweden, the UK & the US.

Inequality: The low-paid, women and young people are paying the heaviest toll

Share of workers who stopped working in April 2020 in the bottom and top 25% of the income scale*



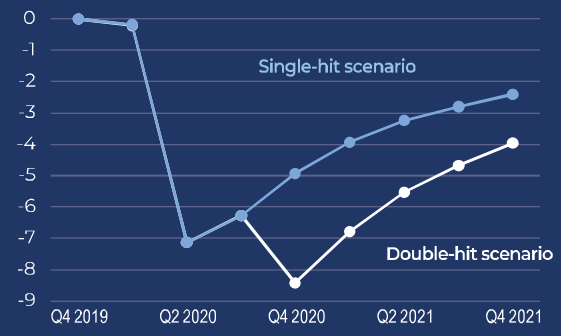
Bottom 25% earners who stopped working

Top 25% earners who stopped working

* Average of 11 selected countries for April 2020

Employment levels are projected to drop significantly

% change in employment under alternative scenarios



Note: Single-hit = no further pandemic wave; Double-hit = a second wave in Q4 2020

Executive summary

The world is facing one of the worst public health and economic crises in a century

The most serious pandemic in a century has triggered one of the worst economic crises since the Great Depression. Countries reacted with often strict containment and mitigation policies, which effectively limited the spread of the virus and avoided the collapse of health care systems and most importantly limited the number of fatalities. The combination of great uncertainty, fear of infection, individual restraints following public guidelines and mandatory lockdowns, however, immediately produced a sharp contraction in economic activity. In the first months of the crisis, new unemployment claims have soared in many countries and projections suggest that in the OECD area the unemployment rate will be much higher than at the peak of the global financial crisis. But the extent of the shock on the labour market is much larger: despite a massive shift towards telework, in all countries the number of those effectively working collapsed as companies have frozen hiring and put part of their workforce on hold through subsidised job-retention schemes. Available evidence also suggests that vulnerable groups – the low skilled, youth and migrants – as well as women are paying the heaviest toll of the crisis.

The labour market and social policy response has been unprecedented

OECD countries have taken massive steps to improve access to, and the generosity of, sick leave and out-of-work income support as well as job retention schemes, whose take-up has been unprecedented in many countries. These policy responses were aimed at containing damage and supporting workers and companies as well as at avoiding destruction of viable activities and competences, thereby preparing the recovery. Many countries also took steps to facilitate a massive transition towards teleworking for workers who do not have to be physically present at their workplace. Keeping workers safe as the economy reopens and ensuring adequate income protection and employment support for a crisis that may not yet be over must remain a priority. As economic activity picks up, however, policy must accompany the recovery by striking the right balance between providing continuous support to workers, households and companies still affected by persisting restrictions and encouraging business activity as well as permitting necessary restructuring.

Unemployment benefit rules must account for the specific trajectories of employees in non-standard jobs

Unemployment benefits are among the key instruments providing protection against earnings falls resulting from job losses. Yet a number of workers do not meet the criteria to receive adequate support. Even if entitlement rules are usually the same for all dependent employees, conditions on minimum employment duration or earnings before the unemployment spell are often harder to meet for those who lose a part-time job or have employment trajectories involving frequent transitions between employment and

unemployment. Consequently, the risk of falling into poverty is often greater for non-standard employees. Addressing inadequacy of benefit entitlements so as to provide greater income security for those in non-standard forms of employment may be challenging, but several policy instruments are available to create a policy mix that strikes the right balance between work incentives and income security for non-standard dependent workers.

Employment protection legislation is key for worker security

Dismissal and hiring regulations are important determinants of people's job security, career path and well-being. They influence the extent to which firms take into account the social cost of dismissals and how they react to technological and demand shocks. The OECD has updated and improved its detailed indicators of employment protection legislation. Comparisons of countries highlight the differences between employment protection systems. English-speaking countries have fewer restrictions on dismissals than many European Union countries, for example. This puts employees in English-speaking countries at a higher risk of job loss, but also gives them a greater chance of finding a job again if laid off. To limit labour market duality and segmentation, countries with strict job protection for regular workers usually have strict hiring laws for workers on temporary contracts. Several countries with apparently strict dismissal regulations reduce their effective stringency by offering unemployment benefits even when the worker agrees with the firm on the separation. Similarly, advance validations initially impose higher hurdles for dismissals, but can serve to avoid disputes later.

Job polarisation is mostly due to fewer younger workers entering middle-skill jobs than to older workers leaving them

In contrast to popular perceptions, the decline in the share of middle-skill employment is due primarily to fewer younger workers entering middle-skill occupations than to mid-career workers being displaced and leaving them. Since the 1990s, successive cohorts of young workers have been increasingly less likely to enter the labour market in middle-skill jobs – e.g. truck drivers and machine operators for men, cashiers and secretaries for women. Meanwhile, labour market trajectories of older cohorts after labour market entry have remained essentially unchanged. These career patterns for younger cohorts can be partially explained by the changing education and cohort demographic make-up. Individuals who would have been once regarded as "typical" middle-skill workers are now less likely to be working in middle-skill jobs, and more likely to be in low-skill employment. This trend has been marked for workers with a middle level of education.

Graduates from vocational education and training have strong labour market outcomes at the start of their career, but challenges are in sight

Many vocational education and training (VET) programmes organised at the upper secondary or post-secondary non-tertiary education level prepare students for middle-skill jobs that have been exposed to structural changes and face a significant risk of automation. Despite these challenges, VET graduates usually have higher employment rates and better working conditions in the first years after graduation than their general education peers. To ensure that VET continues to have a positive impact on students' labour market outcomes in a changing world of work, however, VET systems need to adapt to the rapidly evolving skills demand. Close co-operation with social partners is crucial, as is the investment in transversal skills in VET programmes and the development of smooth pathways between mid-level VET and higher education.

1 COVID-19: From a health to a jobs crisis

The COVID-19 outbreak and its rapid diffusion across the globe have turned into the worst public health crisis in living memory. The pandemic forced countries to impose strict containment and mitigation policies and severely affected social and economic activities, driving the global economy to a major recession. Most countries responded quickly and put in place, from the very first stages of the crisis, an unprecedented package of labour market and social policies aiming at reducing the economic shock and supporting workers, their families and companies. This chapter provides a first assessment of the initial labour market impact of the COVID-19 crisis and a review of countries' wide set of policy responses. It also provides some reflections on how countries could adapt the measures taken in the first months of the crisis as they start softening mitigation policies.

In Brief

Key findings

In a matter of a few months, the COVID-19 pandemic has turned from a public health crisis with no parallel in living memory into a major economic and jobs crisis whose full extent is still unfolding. The containment and mitigation strategies rapidly put in place to slow down contagion and avoid the collapse of health care systems succeeded in limiting the spread of the virus and the associated fatalities. Even where such confinement measures were not adopted, citizens largely assumed similar practices; working from home where possible, while avoiding large gatherings, public transport and in-store shopping. The unfolding pandemic led to a major "supply shock" as international supply chains were interrupted, workers got sick, were quarantined or subject to lockdowns and companies found themselves unable and, in some cases forbidden, to operate. Despite an unprecedented policy response by governments and central banks, increased uncertainty, the decline in household incomes and mandated or self-imposed physical-distancing measures led to a drop in investment and consumption. This quickly turned what was initially a "supply shock" into a "demand shock", putting further pressure on companies. While economic and labour market conditions are evolving rapidly, the available evidence on the initial impact of COVID-19 on OECD labour markets at the time of writing shows that:

- Individual mobility to places of work as well as to public-transport hubs decreased drastically in March and April, not only in countries that enforced strict mandatory measures but also where governments relied more on public information and communication to drive changes in individual behaviour (e.g. physical distancing and enhanced hygiene). Hence, the dramatic fall in economic activity is the result not only of mandatory restrictions but also reflects people's reactions to non-binding recommendations and their greater awareness of the seriousness of the pandemic.
- The initial impact of the COVID-19 crisis on OECD labour markets where data are available has been ten times larger than that observed in the first months of the 2008 global financial crisis: taking into account both the drop in employment and the reduction in hours worked among those who remained in work, total hours worked fell by 12.2% in the initial three months compared to 1.2% in 2008. This reflects the special nature of the COVID-19 crisis with many countries having put entire sectors of their economy "on hold" to contain the spread of the virus.
- Countries' initial unemployment response to the COVID-19 crisis has varied starkly. In a few countries, unemployment immediately jumped to record levels, while in others, it increased only modestly so far, or not at all. This striking heterogeneity largely reflects differences in policy responses. Few countries rely almost uniquely on unemployment benefits to secure the incomes of job losers. Others have made massive use of job retention schemes, i.e. public support for cutting the hours of work or furloughing workers, while keeping them employed. Cross-country differences in the classification of "workers not at work" (because of short-time work) and those on "temporary layoff" also contribute to disparities in measured unemployment.
- Even in countries with comprehensive job retention schemes and those that banned or restricted dismissals, however, the number of jobseekers increased, as temporary contracts were not renewed and firms' hiring activities collapsed: online job postings fell by 35% between February and May in the United States and in European OECD countries.

- Given the exceptional uncertainties characterising the near-term outlook, the OECD considers two epidemiological scenarios for the coming 18 months: one where the virus continues to recede and remains under control, and one where a second wave of rapid contagion erupts later in 2020. According to OECD projections, unemployment is set to increase to 9.4% on average across the OECD by the end of 2020 (up from 5.3% at the end of 2019). In the event of a second pandemic wave in late 2020, the unemployment rate would increase even further to 12.6%. Moreover, projections point to only a gradual recovery: the unemployment rate is set to remain at or above the peak level observed during the global financial crisis, reaching 7.7% by the end 2021 without a second wave (and 8.9% in case of a second wave), with substantial differences across countries.
- Vulnerable workers are bearing the brunt of the crisis. Low-paid workers have been key to ensure the continuation of essential services during lockdowns, often at a substantial risk of exposing themselves to the virus while working. They have also suffered greater job or income losses. Workers who are not in standard (i.e. permanent, full-time dependent) employment, notably the self-employed, have been particularly exposed to the shock. Young people risk being once more among the big losers of the current crisis. This year's graduates face bleak prospects, with poor chances to secure a job, or even an internship, in the short run; their older peers are experiencing the second heavy crisis in their still young careers. Women have so far experienced greater declines in employment than men, unlike in the previous crisis. Meanwhile, widespread childcare facility and school closures likely amplified their unpaid work burden at home.

OECD countries have responded with unprecedented measures to contain damages and support workers, their families and companies. Beyond providing direct and indirect financial support to companies, the vast majority of OECD countries have strengthened income support to workers losing their jobs or income. Many extended or introduced job retention schemes to preserve jobs at firms suffering from a temporary reduction in business activity. Some also tightened dismissal regulation or facilitated hiring or renewal of workers on temporary contracts. Given workers' risk of exposure to COVID-19 at the workplace or their need for greater flexibility to work from home as schools and care facilities were closed, many OECD countries also took steps to facilitate teleworking for workers who do not have to be physically present at their workplace. Most of them also strengthened paid sick leave, including, in some cases, to quarantined workers and took measures to address unforeseen care needs for working parents affected by childcare facility or school closures.

As the pandemic started to recede, countries have started loosening containment policies, but solving the health crisis remains the essential precondition for solving the economic and jobs crisis. A vaccine may take time to be developed, produced and distributed. However, a second wave can also be avoided by upscaling testing, tracking and tracing (TTT), enhancing personal hygienic measures and continuing to enforce physical-distancing policies such as banning large gatherings and encouraging people to work from home. During this post-confinement phase, some of the policies taken in the early months of the crisis will need to be adapted and, in some cases, differentiated to account for the large heterogeneity in conditions across sectors, firms and workers. In particular:

- About half of all workers are employed in a job that requires significant physical interactions and therefore face a risk of contagion. Strong occupational safety and health standards, defined and enforced by public authorities and/or by social partners, remain a top priority.
- Paid sick leave can continue to perform an important role in containing and mitigating the spread of the virus and protecting the incomes, jobs and health of sick workers and their families. Moving forward, countries should consider closing long-known gaps in paid sick-leave regulations while reinforcing work incentives and employment support to facilitate a return to work.
- Job retention schemes should be targeted only to those jobs that are at risk of being terminated but viable in the medium/longer term. Requiring firms to carry part of the cost, stricter limits on

duration and incentives to look for work and take up training are some policy levers that policy makers and social partners can mobilise in the coming months to this goal.

- The coverage and adequacy of income support will need to be reviewed as the crisis evolves. If weak labour market conditions persist, there can be good reasons for extending unemployment benefit durations to prevent jobseekers from sliding too quickly into much less generous minimum-income benefits. The duration, targeting and generosity of emergency income support programmes put in place in the early months of the crisis should be re-assessed to ensure that support goes to the most needy. "Mutual obligations" requirements, which commit jobless benefit recipients to active efforts to find employment, should be progressively re-established where they have been temporarily suspended.
- Jobseekers also need assistance in finding new work. Public and private employment services need to scale up their capacities and make larger use of digital services without giving up standard in-person meetings with people with weaker digital skills. Online and offline training can help jobseekers, as well as workers in job retention schemes, find jobs in sectors and occupations more in demand and counter the risk of long-term unemployment. Hiring subsidies, in particular if targeted to low-pay workers, can promote job creation.
- Countries need to act quickly and help young people maintain their links with the labour market. Support for companies who offer jobs or work experience to young people have proven effective at promoting job creation. Effective outreach is crucial to re-establish contact with young people who lost their jobs or left school without finding employment. Youth Guarantees, which entitle all young people to a timely employment or training offer, can provide a good framework for ensuring that no jobless young person goes without support in the current crisis.

Introduction

The outbreak in late 2019 of a novel form of coronavirus responsible for the severe respiratory disease COVID-19, and its rapid diffusion across the entire globe, has turned into a public health crisis with no parallel in living memory and has driven the global economy into the deepest recession since the Great Depression. To contain the spread of the virus and its deadly effects, many countries around the world introduced unparalleled – at least in peacetime – limitations to individual mobility and economic activities in first half of 2020. These measures appear to have succeeded at limiting the contagion across OECD countries. However, the combination of great uncertainty, fear of infection, individual restraints following public guidelines and mandatory lockdowns immediately produced a sharp contraction in economic activity and tested the resilience of labour markets, social-protection systems and societies at large.

Unlike during the global financial crisis of 2008, OECD countries reacted quickly to put in place, from the very first stages of the crisis, an unprecedented set of fiscal and monetary policies. These measures were necessary to contain the employment and social effects of the crisis, but also to provide people and companies with the right incentives, and support, to comply with the restrictions that governments mandated or recommended.

Despite these measures, the immediate impact on OECD labour markets has so far been multiple times greater than during the first months of the global financial crisis and much more severe than what unemployment statistics in some countries may suggest so far. Its effects are unlikely to fade away rapidly, as the supply shock has quickly turned into a demand shock, and as economic activity in many sectors remains subdued. Moreover, now that countries started loosening containment policies and moving to a "new normal", policy makers face the daunting task of moving the economy from "intensive care", with

massive support, to “long-term care”, where support has to be differentiated according to the conditions of sectors, firms and workers.

This chapter provides a first assessment of the initial labour market impact of COVID-19 as well as of OECD countries’ unprecedented policy responses. It also attempts to provide some first reflections on how countries could adapt the measures taken during the first months of the crisis to the gradual post-confinement phase.

The chapter is organised as follows. Section 1.1 briefly describes the outbreak of the virus and the series of restrictions that countries put in place to limit individual mobility and economic activity. Section 1.2 provides a first assessment of the impact of COVID-19 on the labour market in OECD countries, as well as an outlook ahead based on the latest OECD projections. Section 1.3 describes OECD countries’ initial policy response, while Section 1.4 attempts to provide – in a highly uncertain context – a discussion of how the policy mix could evolve during a period of gradual post-confinement. This chapter heavily draws on a series of policy briefs on labour market, social-policy and health issues released since the start of the pandemic. They can be found on the *OECD Digital Hub on Tackling the Coronavirus (COVID-19)*, under http://www.oecd.org/coronavirus/en/.

1.1. The outbreak of the coronavirus

In late 2019, the city of Wuhan, located in the Hubei province of China, experienced an outbreak of pneumonia from a novel coronavirus – the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) which causes the infectious disease Coronavirus disease 2019 (COVID-19). Since these initial cases, the number of confirmed COVID-19 cases has grown rapidly and spread to most countries and territories across the world. Globally, there are now more than 10 million confirmed cases, and more than 500 000 deaths have been registered.[1] On 11 March 2020, the World Health Organization declared a pandemic[2] and countries started to put in place an unprecedented set of measures restricting mobility and economic activity to “flatten the curve”, avoid the collapse of their health care systems and ultimately contain the number of fatalities (OECD, 2020[1]). The containment and mitigation strategies[3] ranged from stronger efforts to detect cases early on and trace contact with other people to severe physical-distancing measures, including full national lockdowns and the shutdown of the economy, except for a number of “essential activities”.

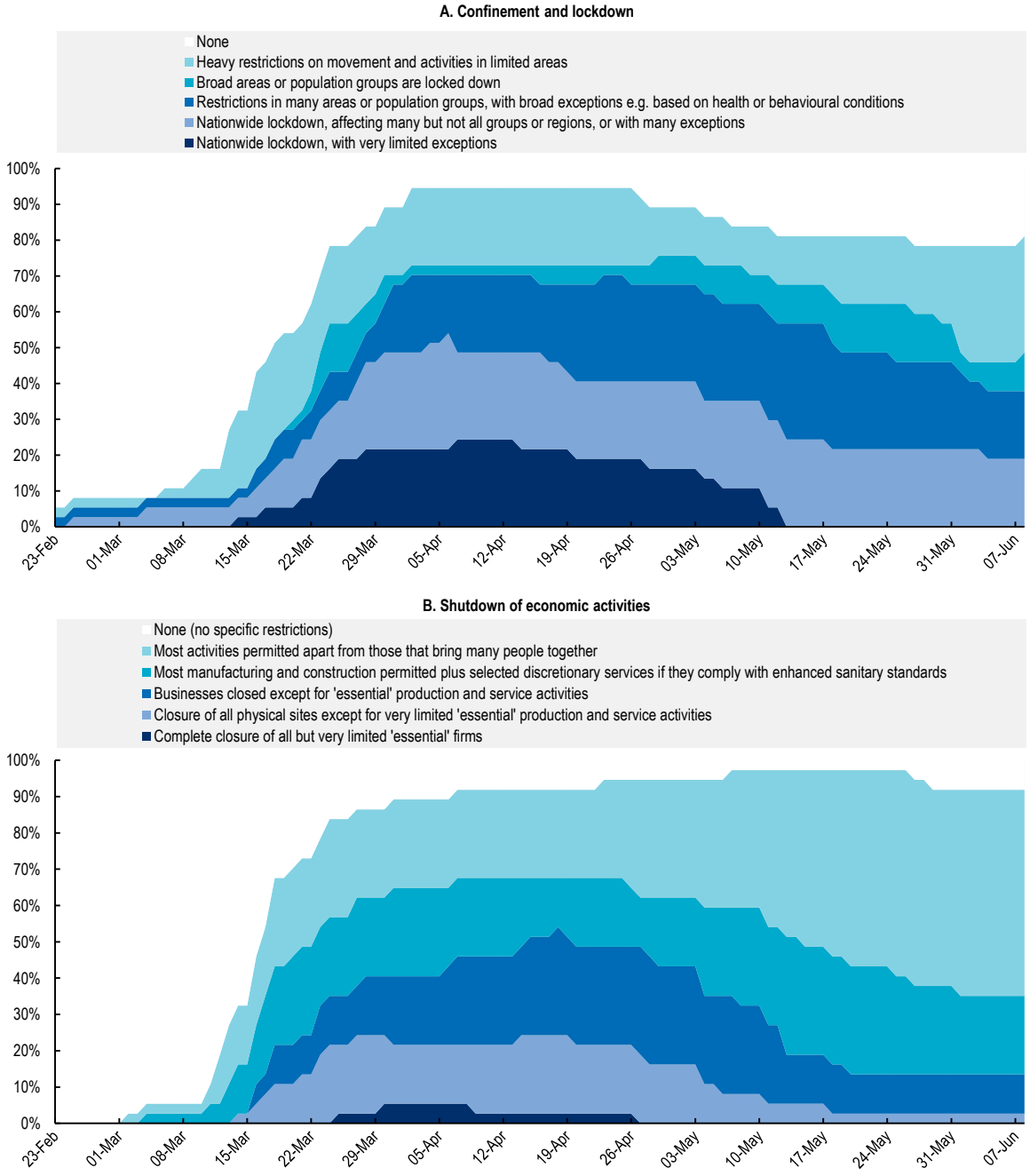
By the first half of April 2020, 90% of OECD countries had imposed some form of non-pharmaceutical interventions (i.e. restrictions to individual mobility as well as economic activities) to contain the spread of the virus (Figure 1.1): most OECD countries closed schools, restricted travel across but also within countries and banned public gatherings. The exact nature and scope of these measures varied substantially (Hale et al., 2020[2]). In some countries, such as Italy, New Zealand and Spain, the restrictions were mandatory and applied to the entire national territory. In others, such as Sweden or Mexico, restrictions were recommended but not imposed and they were limited to specific areas/groups. Restrictions to economic activity also varied: in a few countries, all non-essential firms were closed by decree while in others the restrictions applied only to activities or sectors bringing many people together such as entertainment and accommodation.

Containment and mitigation policies have had an immediate effect on mobility patterns in all countries. As governments issued mandatory restrictions and/or invited their citizens to reduce physical contacts, individual mobility began to decline as people started sheltering at home. Figure 1.2 depicts data based on smartphone locations[4] in a group of selected OECD countries (all other OECD countries can be found in Annex Figure 1.A.1). It shows that even in countries where restrictions were more limited, such as Sweden, movements to places of work and to public-transport hubs decreased markedly between the beginning and the end of March. The only notable exception is Korea, which, since the beginning, put in place a strategy of rapid and massive testing, tracking and tracing (TTT) to contain the spread of the virus

without stopping economic activity (OECD, 2020[3]). As Figure 1.2 suggests, mandatory measures explain only in part the decline in mobility observed across countries. According to Maloney and Taskin (2020[4]), most of the decrease in mobility reflects the local and national COVID-19 case incidence and the resulting higher awareness, or fear, or social responsibility.

Figure 1.1. Restrictions to individual mobility and economic activities in OECD countries

Percentage share of the total number of OECD countries with countries grouped by their mitigation strategy

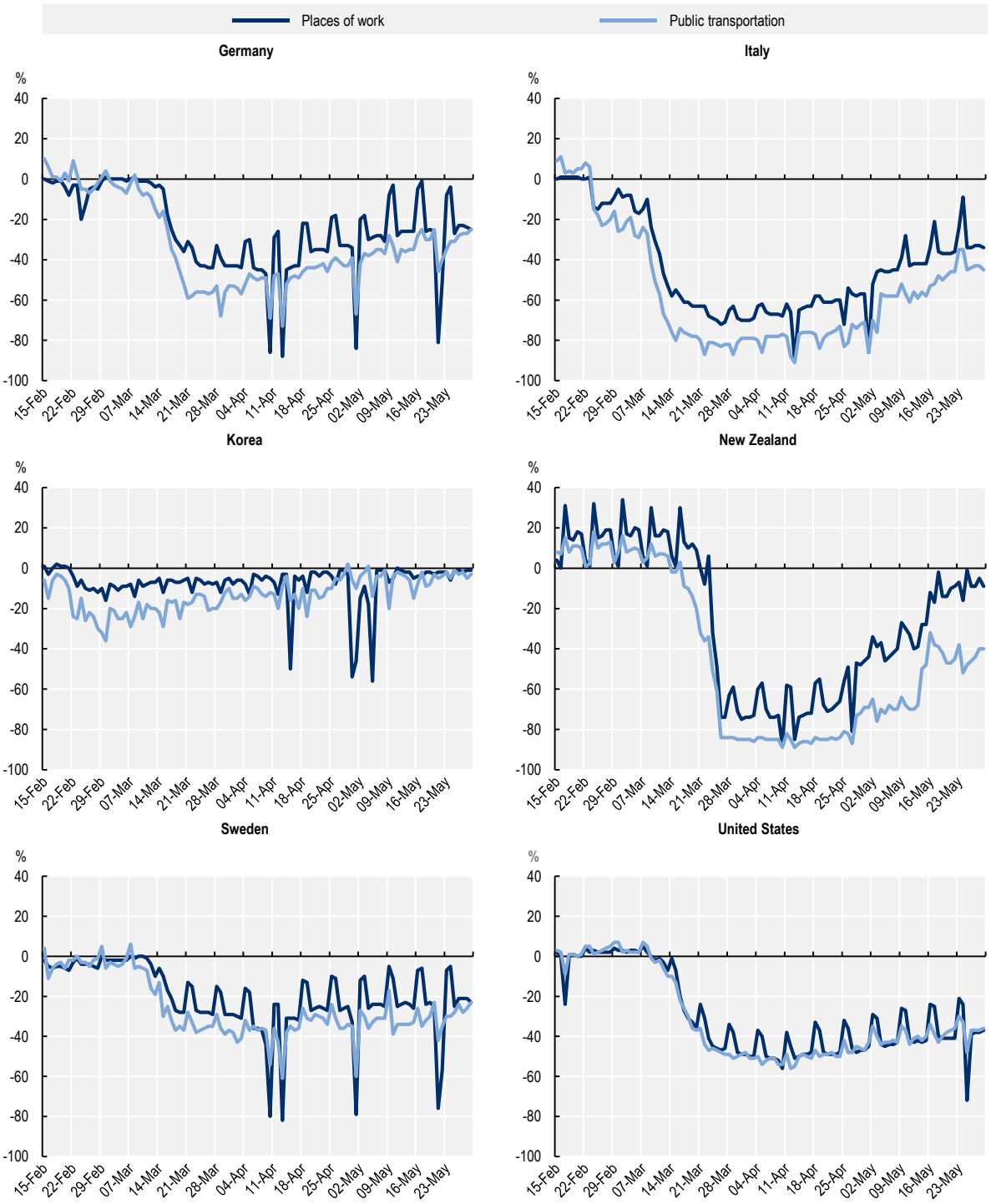


Note: The categories in legend are mutually exclusive, i.e. each country falls into just one category.
Source: OECD COVID-19 country policy tracker, https://www.oecd.org/coronavirus/en/#country-tracker (accessed on 8 June 2020).

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Figure 1.2. Individual mobility fell in all OECD countries, even where restrictions were relatively milder

Percentage change in mobility relative to the median value during the 5-week period 3 Jan – 6 Feb 2020



Source: Google LLC "Google COVID-19 Community Mobility Reports", https://www.google.com/covid19/mobility/ (accessed on 8 June 2020).

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1.2. The pandemic took an immediate and heavy toll on the economy and labour markets

The "physical distancing" resulting from voluntary restraint on mobility and/or mandatory containment and mitigation strategies was effective in reducing the spread of the virus and avoiding a collapse of health care systems that, in turn, would have resulted in a much higher death toll (Deb et al., 2020[5]). However, the associated shutdown of entire sectors of the economy or, in some cases, even just the great uncertainty and people's fear of infection have had an immediate and dramatic effect on OECD economies and labour markets.

At first, the COVID-19 pandemic caused a "supply shock". The spread of the virus interrupted international supply chains, first with China and then across most countries and regions, and reduced workers' hours worked as they were quarantined, sick or subject to lockdowns. Companies found themselves forced to suspend or scale down operations, because of mandated shutdowns, because demand dropped as people started sheltering at home or because they could not ensure safety and health conditions for their employees. Many firms started facing liquidity constraints, and some lost capacity to continue paying their employees' wages. Despite unprecedented government interventions, the uncertainty about the spread of the virus as well as, in many cases, the reduction in households' disposable income led people and companies to reduce investment and consumption and save more. The "supply shock" quickly turned into a "demand shock".

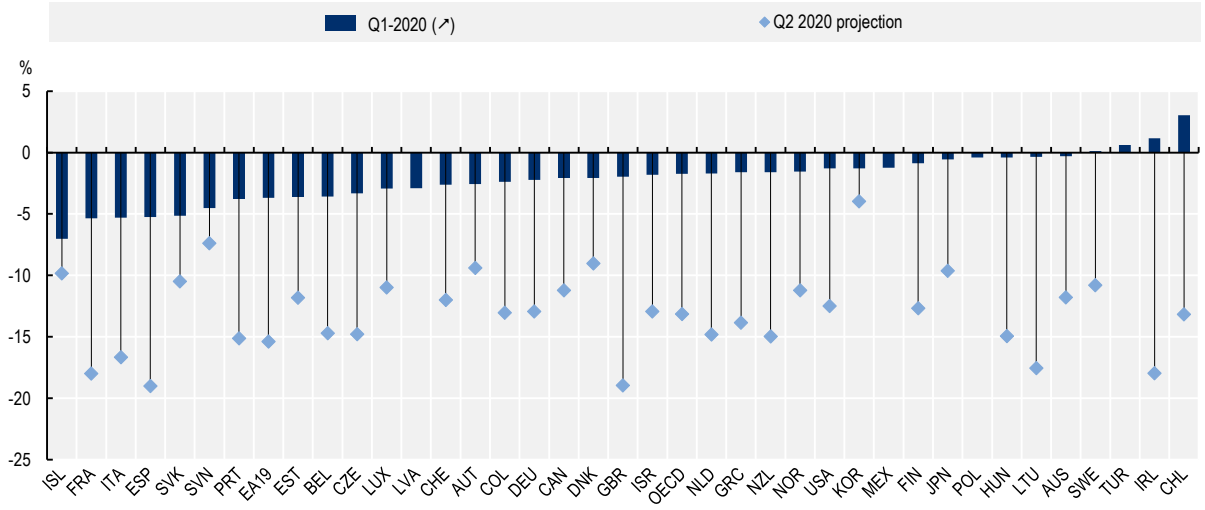
The impact on economic growth was immediate and heavy: GDP substantially dropped in the first quarter of 2020 even though most OECD countries put in place their containment measures only in the second half of March. Figure 1.3 shows that between the last quarter of 2019 and the first quarter of 2020, GDP fell by 7% in Iceland, 5.3% in France and Italy, 5.2% in Spain, 3.8% in the Euro area, 2.2% in Germany, 2.1% in Canada and 1.4% in Korea, 1.3% in the United States and 0.6% in Japan. Chile is the only OECD country where GDP increased significantly in the first quarter of 2020 compared to the last quarter of 2019. This likely represents an economic rebound in the first couple of months of the year after the social unrest that had taken place in late 2019. The projections for the second quarter point to a further dramatic fall in all OECD countries for which quarterly estimates are available. On average across the OECD, GDP is projected to have fallen by 13.2% in the second quarter of 2020, with values of -19% in Spain and the United Kingdom and -18% in France and Ireland.

Early evidence available for a number of OECD countries shows a massive economic shock not only in countries that introduced strict mandatory measures. Economic activity also dropped substantially where governments relied more on social conformity and/or social capital. This likely reflects people's reactions to non-binding recommendations and their greater awareness of the seriousness of the epidemic.

An analysis of the labour market effects of state-wide stay-at-home orders on initial unemployment claims in the United States (Box 1.1) shows that the timing and the extent of state-specific lockdowns in the United States did not play much direct role in limiting or amplifying the extent of the nationwide shock on the labour market and only affected within-firm work organisation (e.g. shifting to teleworking). Moreover, Figure 1.4 and Figure 1.5 show that the largest swing in mobility and unemployment insurance claims took place before all state lockdowns, with the partial exception of California. This suggests that spill-overs across states, in form of reduced product demand or disruption of supply chains, were of secondary importance, at least at the beginning.

Figure 1.3. GDP fell substantially in the first half of 2020

Quarterly percentage change in real GDP, Q1 2020 and Q2 2020 projections



Note: Quarterly GDP growth projections (Q2 2020) are not available for Latvia, Mexico, Poland and Turkey.
Source: OECD Quarterly National Accounts, OECD (2020), "Gross domestic product (GDP)" (indicator), https://doi.org/10.1787/dc2f7aec-en (accessed on 30 June 2020) and OECD (2020[6]), "OECD Economic Outlook – All editions", *OECD Economic Outlook: Statistics and Projections* (database), https://doi.org/10.1787/826234be-en (accessed on 10 June 2020).

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This is in line with the evidence found by other recent analyses for the United States and other OECD countries. Chen et al. (2020[7]), for example, show that both the fall in electricity consumption across 32 European countries as well as the increase in initial unemployment insurance claims across states in the United States are associated with people's observed mobility. Mandatory restrictions, such as school and business closures and shelter-in-place orders, do not appear to have had much additional impact. Maloney and Taskin (2020[4]) also show that the majority of the fall in restaurant reservations in the United States and of movie spending in Sweden occurred before the imposition of any non-pharmaceutical interventions. Even in May, as US states started reopening, credit card spending did not pick up faster in states that opened quickly than in those that kept confinement measures in place (Chetty et al., 2020[8]). Andersen et al. (2020[9]) also analyse credit card transactions and show that aggregate spending in Denmark, where, significant restrictions on social and economic activities were taken, fell only marginally more than in Sweden where no such measures were taken. Hensvik et al. (2020[10]) show that job postings in Sweden fell as much as in the United States. Finally, Aum et al (2020[11]) compare the employment effects of COVID-19 in Korea, which did not implement a lockdown but relied on testing and contact tracing, with the effects in the United Kingdom and the United States. They find that at most half of the job losses in the United States and the United Kingdom can be attributed to lockdowns.

Box 1.1. The labour market effect of state-wide stay-at-home orders in the United States

Several OECD countries, especially those with federal structures, took non-pharmaceutical interventions (NPIs) at national and at regional or local level to contain the pandemic. For example, the Australian Commonwealth Government issued a federal order on 29 March limiting gatherings to a maximum of two people, but several states went much further while others opted not to follow the new recommendations. Italy first imposed a strict lockdown on a number of regions and provinces in the northern part of the country, and later extended it to the other regions. In Germany, containment policies differed across *Länder*.

In the United States, the federal government issued an emergency declaration on 13 March and non-binding physical-distancing guidelines on 16 March. Governors in most states issued binding stay-at-home orders in the following three weeks. However, while a few states and local administrations issued them very early – in California, for example, a few counties already issued stay-at-home orders on 16 March and a state-wide lockdown was established on 19 March – others waited longer out of concerns for the economy. While state lockdowns were effective in curbing the diffusion of the epidemic, their direct impact on the labour market is less obvious – particularly in the context of a rapidly spreading epidemic, federal guidelines that already affected people's behaviour and a connected economy. The possible impact of state lockdowns has indeed been part of an intense political and scientific debate – see e.g. Gupta et al. (2020[12]); Painter and Qiu (2020[13]); Kahn, Lange and Wiczer (2020[14]); Chetty et al. (2020[8]); Friedson et al. (2020[15]); and Coibion, Gorodnichenko and Weber (2020[16]).

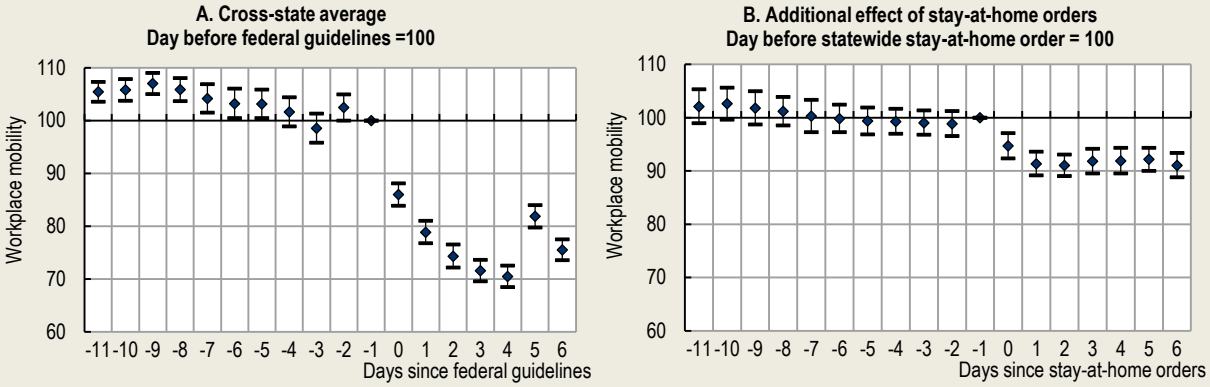
This box assesses the impact of state lockdowns on the labour market with the help of event study techniques, using alternatively a measure of mobility towards workplaces and initial unemployment insurance (UI) claims as dependent variable. The following simple model is estimated

$$\log Y_{st} = \sum_{o=-\tau}^{T} \alpha_o D_{os} + \mu_s + \mu_t + \varepsilon_{st}$$

where Y stands for workplace mobility (resp. initial UI claims), the μ stand for state s and time t fixed effects, D_{os} are state-specific time dummies indexed by o, which denotes time distance from the date of the stay-at-home order in state *s* (with $o = 0$ indicating the day or week of the order) and ε is a standard error term. The α_os are the parameters of interest, which capture the effect of orders on the dependent variable, on the day (resp. week) of implementation and each of the subsequent days (resp. weeks), taking other states as a control group. To ensure that "treated" and control states are comparable, the estimated α_os must be insignificantly different from 0 for negative values of o (i.e. between $-\tau$ and 0). As standard in the case of absolute numbers, the dependent variable is in logarithm. Estimates are then presented in terms of percentage effects in the figures below.

Model estimates shows that daily cross-state average workplace mobility slumped on the very same day federal guidelines were announced and continued to decline the following days (Figure 1.4, Panel A). Yet, a significant negative trend is visible also the days before. The estimated effect of state lockdowns is smaller, at 5-10% (Panel B) but significant and persistent, remaining approximately constant for about one month (not shown in the chart). This suggests that state lockdowns had a significant effect on the organisation of work over and above the nationwide trend.

Figure 1.4. US stay-at-home orders and workplace mobility



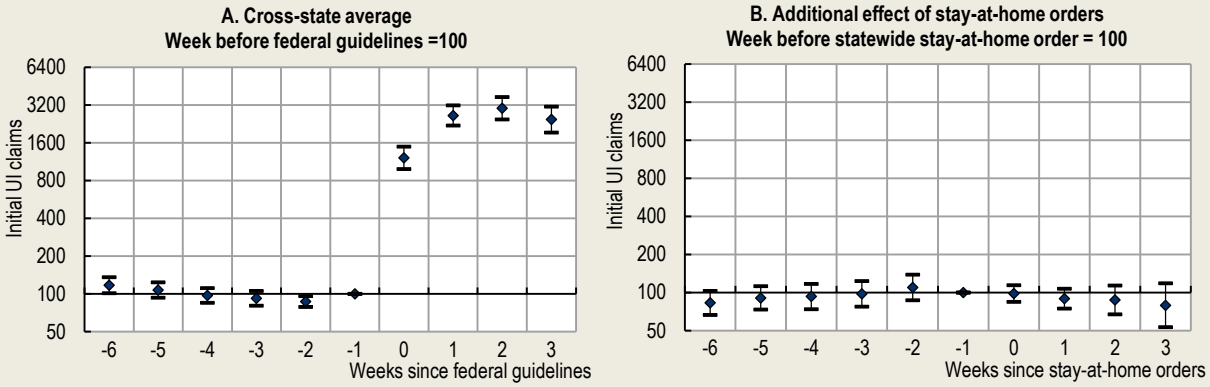
Note: The charts show estimated time fixed effects (Panel A) and coefficients of time-distance-to-state-order dummies (Panel B) from a log-linear regression model with the logarithm of workplace mobility as dependent variable. The sample period are the days from 15 February to 18 April 2020. In Panel A, time fixed effects are shifted to coincide at 0 with the publication date of federal guidelines. Panel A takes the day before the federal guidelines were announced as reference. Panel B takes the day before the stay-at-home orders were implemented as reference. The level of workplace mobility in reference days set to 100. The bars represent 95% confidence intervals, with errors clustered at state level.

Source: OECD calculations using state announcements and Google COVID-19 Community Mobility Reports, https://www.google.com/covid19/mobility/.

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Did the changes in work organisation induced by state-wide stay-at-home orders also lead to an additional burst of unemployment? On the week of the announcement of the federal guidelines, initial UI claims soared by about 1 000% on average relative to the week before and reached about 3 000% after two additional weeks (Figure 1.5, Panel A).[5] A moderate increase (of about 15%) is also visible in the week before the announcement, which is the week of the federal declaration of emergency. By contrast, no additional effect of state lockdowns on initial UI claims[6] is observable (Panel B).[7] This result, which is consistent with those of Kahn, Lange and Wiczer (2020[14]) and Chetty et al. (2020[8]), suggests that mandatory state-wide stay-at-home orders had no discernible additional effect on unemployment over and above aggregate trends.

Figure 1.5. US stay-at-home orders and initial unemployment insurance claims



Note: The charts shows estimated time fixed effects (Panel A) and coefficients of time-distance-to-state-order dummies (Panel B) from a log-linear regression model with the logarithm of initial unemployment insurance claims as dependent variable. The sample period are the weeks ending on 1 February to that ending on 18 April 2020. In Panel A, time fixed effects are shifted to coincide at 0 with the publication week of federal guidelines. Panel A takes the week before the federal guidelines were announced as reference. Panel B takes the week before the stay-at-home orders were implemented as reference. Y-axes are presented in logarithmic scale, with the level of initial claims in reference weeks set to 100. The bars represent 95% confidence intervals, with errors clustered at state level.
Source: OECD calculations using state announcements and U.S. Department of Labor data, https://oui.doleta.gov/unemploy/claims.asp.

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The results in this box suggest that that the timing and the extent of state-specific lockdowns in the United States did not play much role in limiting or amplifying the extent of the nationwide shock on unemployment insurance claims and mainly affected within-firm work organisation (e.g. shifting to teleworking).

1.2.1. The initial labour market impact

While the COVID-19 crisis has passed the first phase of lockdowns and business closures, the impact on the labour market, while already unprecedented, is likely to deepen significantly going forward. This section provides a first assessment of the initial impact of the crisis mobilising a mix of administrative and survey data available at the time of writing. This first assessment of the initial impact, while already very dramatic and without comparison in the post-war period, has to be considered as partial and preliminary.

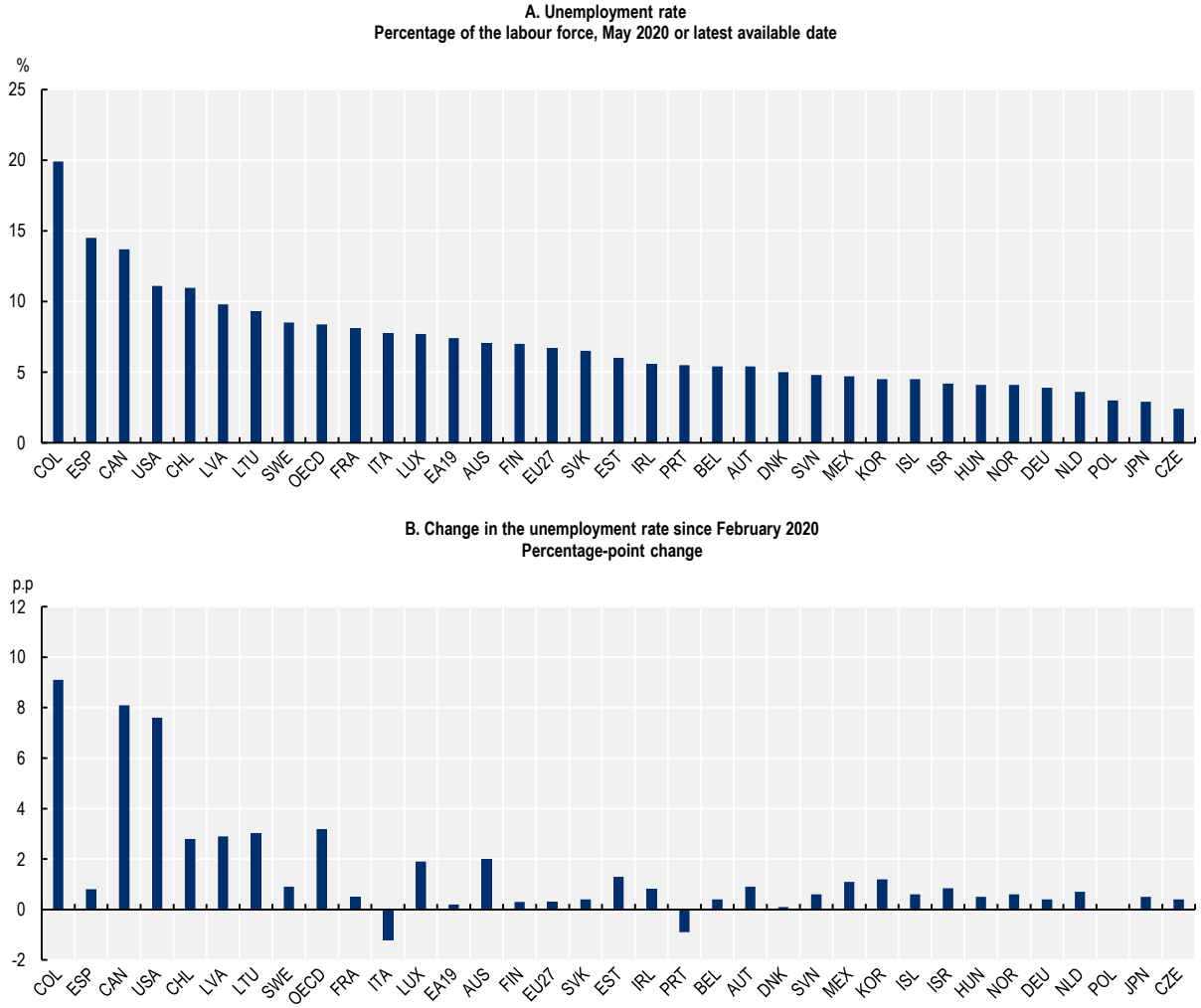
The unemployment rate offers only partial guidance on the extent of the jobs crisis

Changes in unemployment rates since the onset of the COVID-19 crisis have varied starkly (see Figure 1.6) reflecting fundamental differences in countries' policy responses but also the complexity of collecting and comparing labour market statistics in times of a pandemic.

In the United States, the unemployment rate jumped from its 50-year low of 3.5% in February to 14.7% in April 2020, the highest level in the history of the series (i.e. since January 1948). It then fell to 13.3% in May and 11.1% in June. However, 73% of the unemployed in May in the United States were on temporary layoff.[8] In June, the share of unemployed on temporary layoff fell to 59%. This suggests that part of the initial increase in unemployment can be reabsorbed if the pandemic is kept under control and the economy restarts at good speed. But it also shows that part of the initial job losses are becoming permanent as some business are not reopening after the lockdown. In Canada, the unemployment rate increased by 7.4 percentage points from 5.6% to 13% between February and April and rose a bit further at 13.7% in May. Like in the United States, the initial surge was driven by temporary layoffs, with the vast majority of the newly unemployed expecting to return to their previous job within six months.

In other OECD countries, where data are available only up to April or May at the time of writing of this chapter, labour market statistics do not identify a notable crisis effect yet. Colombia is an exception: here, unemployment increased by 9 percentage points between February and April. Amongst the other countries, Lithuania registered the largest increases (+3 percentage points up to May) followed by Latvia (+2.9 percentage points up to May) and Chile (+2.8 percentage points up to April). Meanwhile, the unemployment rate *decreased* up to May in Italy (-1.2 percentage points) and Portugal (-0.9 percentage points): this surprising result reflects not so much an improvement in the labour market, but a shift towards inactivity as unemployed people stopped searching for a job during the pandemic.

Figure 1.6. Unemployment, as measured in national surveys, has increased sharply only in some countries



Note: OECD is a provisional estimate as of 2 July 2020. April 2020 for Chile, Colombia, Estonia, Hungary and Norway; and June 2020 for the United States. Greece, New Zealand, Switzerland, Turkey and the United Kingdom have not yet released figures for April and are therefore not shown in this Chart. Countries are ordered in descending order of the unemployment rate (Panel A). Figures for Sweden refer to the seasonally adjusted series which differ from the trend component data published by Eurostat in its latest press release. Due to the introduction of the new German system of integrated household surveys, including the LFS, the monthly unemployment rate for May 2020 is an estimation based on the figures recorded in previous periods, taking into account current developments. April 2020 figure for Mexico is an OECD estimate based on the INEGI ETOE phone survey. This estimate is not directly comparable with the results for earlier months. The classification of people not working because on a job retention scheme or a temporary layoff differs across countries (see main text).
Source: OECD (2020), "Unemployment rate" (indicator), https://doi.org/10.1787/52570002-en (accessed on 2 July 2020).

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The striking heterogeneity in the unemployment response across OECD countries reflects fundamental differences in countries' policy mix to cushion the economic and social effects of the crisis (see Section 1.3) and the way these are reflected in labour market statistics. The United States are strongly relying on unemployment insurance benefits to secure the incomes of job losers, even in the case of a temporary crisis. Meanwhile, other OECD countries, not just European ones, are making heavy use of job retention schemes which allow cutting hours of work, or even halting work entirely, while keeping workers attached to their companies.[9]

There are also other, more technical but important, reasons why unemployment rates at this stage offer only partial guidance on the extent of the labour market crisis across OECD countries and should be read with some caution:

- Survey data are not necessarily best suited to account for sudden shocks, such as a pandemic, in terms of their granularity and timing. The specific timing when data are collected may not allow capturing the full shock. The COVID-19 crisis also brought very practical challenges to the production of labour market statistics around the world. Call centres operated at a lower capacity and carrying out face-to-face interviews was not possible. In Italy, for example, the labour force survey sample in March was 20% smaller than usual because of the restrictions imposed to fight the pandemic. In the United States, the household survey response rate in May, at 67%, was about 15 percentage points lower than in months prior to the pandemic.
- The unemployment statistics reflect the fact that the lockdowns affected people's job search behaviour. To be considered "unemployed", an out-of-work person must actively look for a job. As the restrictions imposed by governments and the fear of infection likely severely hindered job search behaviour, some out-of-work people may in fact be counted as inactive. This will depress the measured number of jobseekers and the unemployment rate. In Canada, for example, 1.1 million people were not in the labour force during the week of 12 April, but had worked in March or April and wanted to work. But because they did not actively look for work, they were not counted as unemployed. The April unemployment rate would have been 17.8% rather than 13% when including workers who were not counted as unemployed for reasons specific to the COVID-19 economic shutdown (Statistics Canada, 2020[17]). Also in the United States, the number of people not in the labour force who wanted a job nearly doubled between March and April 2020, from 5.5 to 9.9 million people (U.S. Bureau of Labor Statistics, 2020[18]). Comparable data on total employment and inactivity in OECD countries over the recent months are not yet available.
- Unemployment statistics may also be less comparable across countries because countries classify short-time work or temporary layoffs differently in their statistics – see the detailed note in OECD (2020[19]). In European countries, people who report being temporarily absent from work are nevertheless counted as "employed" based on a specific question probing their formal job attachment: respondents are classified as employed if they indicate that (i) the recall date falls within three months from layoff (or more than that, if the return to employment in the same economic unit is guaranteed), or that (ii) workers continue to receive remuneration from their employer, including partial pay, even if they also receive support from other sources, including government schemes. In the United States and Canada, people on temporary layoffs are deemed to have weaker job attachment and they are classified as "unemployed" if they expect to be recalled to their job within six months.[10] Typically, these differences have only a limited impact on broad comparability of employment and unemployment statistics. However, in times of crisis, the cross-country comparability of unemployment statistics can be significantly affected. As an example, since the beginning of the crisis, Ireland's Central Statistics Office has been publishing an alternative unemployment estimate that includes workers on temporary layoff and in receipt of a new Pandemic Unemployment Payment paid to all: doing so raises the measured unemployment rate in May from 5.6 to 26.1%.

Initial unemployment insurance claims have reached historically high levels

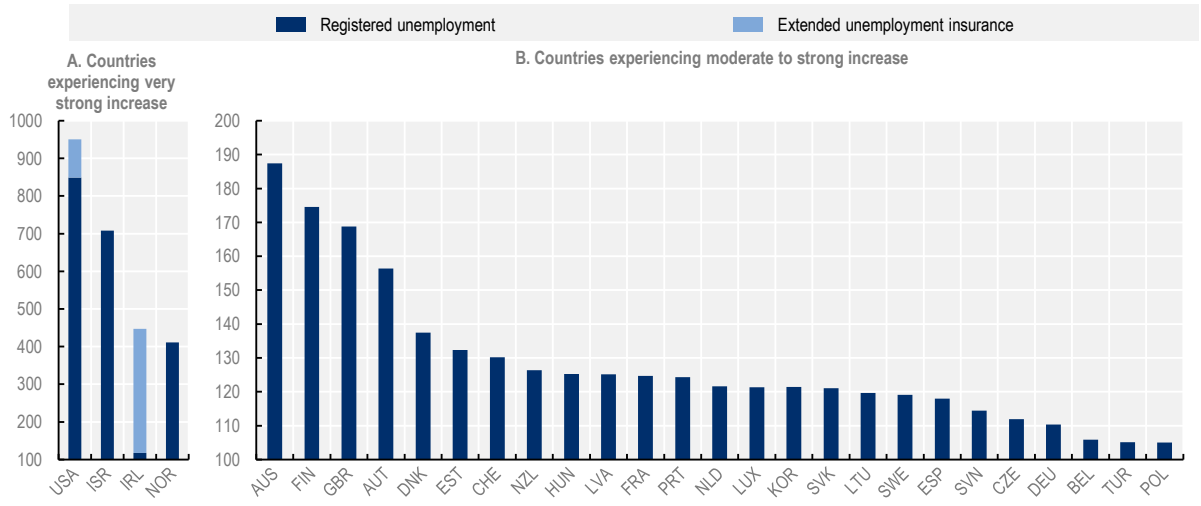
Administrative data on unemployment insurance claims/recipients and social-security contributions can provide more granular and real-time evidence, at least at the onset of a crisis. They can be a complementary and more timely source of information. And yet, they also do not permit an entirely comparable assessment of the labour market situation across countries, as they still essentially reflect institutional differences across countries and the very different role that unemployment insurance plays in cushioning the immediate effect of an economic shock.

The number of unemployment insurance claims soared in a number of countries as the COVID-19 crisis hit (Figure 1.7), dwarfing the increases observed during the global financial crisis. This reflects an economic shock that is initially much wider and more abrupt than in 2008 and that may well continue to evolve very differently. Across the United States, more than 40 million workers had filed unemployment insurance claims by the end of May, two months after the beginning of lockdowns. During the global financial crisis, it took 1.5 years to reach that number after Lehman Brothers' bankruptcy. While these numbers made the news around the world, similar increases were registered in other OECD countries when measured relative to the size of workforce. In Israel, the share of workers in the labour force who had filed an unemployment insurance claim by the end of April was seven times higher than before the crisis, at 27.8%. Also a number of other OECD countries registered substantial increases in unemployment claim numbers, but job retention schemes often contributed to cushion the effect of the jobs crisis.

In addition to the observed job losses, the crisis also seems to have led to strong adjustments *on the intensive margin*. Where available for the recent months, data on hours of work and part-time work for economic reasons (i.e. people who would have preferred full-time employment) show that there has been a substantial adjustment also in terms of how long employed people worked. In the United States, for example, the number of people who work part time for economic reasons nearly doubled to 10.9 million between March and April.

Figure 1.7. The number of unemployment insurance claims increased substantially in some OECD countries

Registered unemployment (not seasonally adjusted data) in April 2020, base 100 in February 2020



Note: Registered unemployed are jobseekers registered with labour offices and/or public employment services. Registered unemployment includes workers on unpaid leave in Israel and on temporary layoffs in Norway and the United States. Figure for the Netherlands refers to the number of unemployment insurance beneficiaries (*WW-uitkeringen*) and to continued UI claims for the United States. Extended unemployment insurance refers to COVID-19 Pandemic Unemployment Payment in Ireland and Pandemic Unemployment Assistance in the United States. Data are subject to national legislations. Consequently registered unemployment data may not be comparable across countries.
Source: OECD calculations based on registered unemployment from OECD (2020), "Labour: Registered unemployed and job vacancies", Main Economic Indicators (database), https://doi.org/10.1787/e9ade9e2-en (accessed on 15 June 2020), Labour Market Information Portal (Australia), STAR (Denmark), Live Register (Ireland), Israeli Employment Agency (Israel), KOSIS (Korea), NVA (Latvia), UZT (Lithuania), ADEM (Luxembourg), CBS (Netherlands), Ministry of Social Development (New Zealand), ESS (Slovenia), ISKUR (Turkey) and Department of Labor (United States).

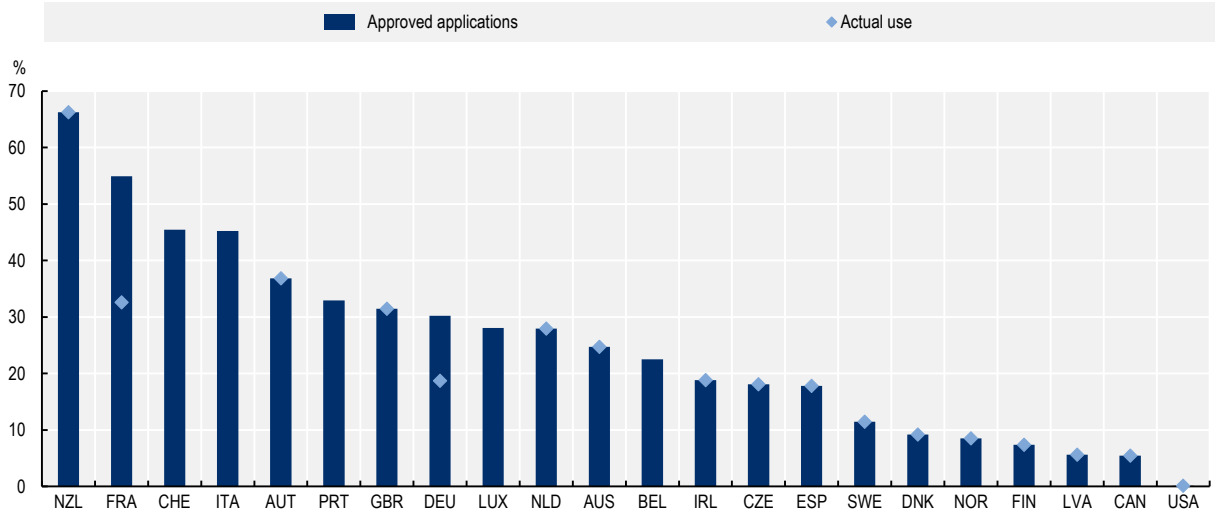
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Job retention schemes are cushioning the impact on open unemployment in a number of OECD countries

Companies also made massive use of job retention schemes to receive public support for cutting the hours of work for their workers, or putting them "on furlough". About 60 million workers across the OECD have been included in company claims for job retention schemes, such as the German *Kurzarbeit* or the French *Activité partielle*. Such schemes allow preserving jobs at firms experiencing a temporary drop in business activity, while providing income support to workers whose hours are reduced due to a shortened workweek or temporary layoffs (see Section 1.3.2 for an in-depth discussion). The use of these instruments plays a major role in explaining why most other OECD countries did not experience the massive surges in open unemployment that were registered in Canada and the United States. In May, companies' requests for support from job retention schemes summed to 66% of dependent employees in New Zealand, over 50% in France, over 40% in Italy and Switzerland, around 30% in Austria, Belgium, Germany and Portugal (Figure 1.8). The actual use of these schemes may be considerably lower than the initial requests. In France and Germany, for example, the actual use at the time of writing has been around 60% of the initial requests.[11]

Figure 1.8. Participation in job retention schemes has been massive in some countries

Approved applications and actual participants in job retention schemes as a share of dependent employees



Note: Data refer to end May except for Luxembourg and Switzerland (end April). United States: data refer to participation in short-time compensation schemes. Australia, Canada, Ireland, the Netherlands and New Zealand operate wage subsidy schemes, which are not conditional on the reduction in working hours (see Section 1.3.2). Take-up rates are calculated as a percentage of dependent employees in 2019 Q4.
Source: National sources, for details see OECD (forthcoming[20]), "Job retention schemes during the COVID19 crisis and beyond".

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When accounting for both the *extensive* margin of adjustment (fewer employed workers) and the *intensive* margin (fewer hours worked among remaining workers because of part-time or short-time work), the impact of the COVID-19 crisis on OECD labour markets has been, on average, ten times bigger than that observed in the first months of the global financial crisis in 2008 (Figure 1.9): on average across the countries for which data are available, total hours worked fell by 12.2% in the initial three months of the crisis compared to 1.2% of the first three months of the global financial crisis.

Figure 1.9. The cumulated impact of the COVID-19 crisis on employment and hours of work is ten times greater than during the global financial crisis

Percentage change in total hours worked with respect to hours worked in the month of the onset of the crisis



Note: The starting point of the global financial crisis is October 2008. No comparable data available in 2008-09 for Austria, Israel, Italy and Mexico. The starting point of the COVID-19 crisis is January 2020 for Japan and February 2020 for all other countries. Total hours worked refers to the total hours actually worked per month for Australia, Canada and Japan, to the total hours actually worked per week in Sweden, to the average actual hours worked per week multiplied by total employment for Austria, Israel, Italy, Korea and Mexico, and to the average weekly actual hours worked (not including employed not at work) multiplied by the number of employed persons at work. The recent data for Mexico are highly uncertain because a new survey tool was introduced in April which may affect the comparability of the results with earlier months. Source: OECD calculations based on results from the Labour Force Survey for Australia, monthly estimates of the Microcensus Labour Force Survey (LFS) for Austria, the Canadian Labour Force Survey for Canada, the Labour Force Survey for Israel, monthly estimates of the Labour Force Survey for Italy, the Labour Force Survey for Japan, the Economically Active Population Survey for Korea, monthly estimates of the Encuesta Nacional de Ocupación y Empleo (ENOE) and the Encuesta Telefónica de Ocupación y Empleo (ETOE) for Mexico, the Labour Force Survey for Sweden and the Current Population Survey (CPS) for the United States.

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Job postings and hirings were frozen

Besides layoffs, a reduction in companies' hiring activity played an important role in rising unemployment. Even countries with comprehensive job retention schemes and those that banned or strictly regulated dismissals (such as Italy and Spain, see Section 1.3.2) saw their jobseeker numbers increase, though at a much lower scale than in Canada or the United States. Temporary contracts were not renewed, and new jobs were not opened. Recessions are usually characterised by both large increases in the inflow rate into unemployment (i.e. more layoffs) and large reductions in the unemployment outflow rate (i.e. fewer hirings and longer unemployment spells (OECD, 2009[21]), and this crisis is no exception.

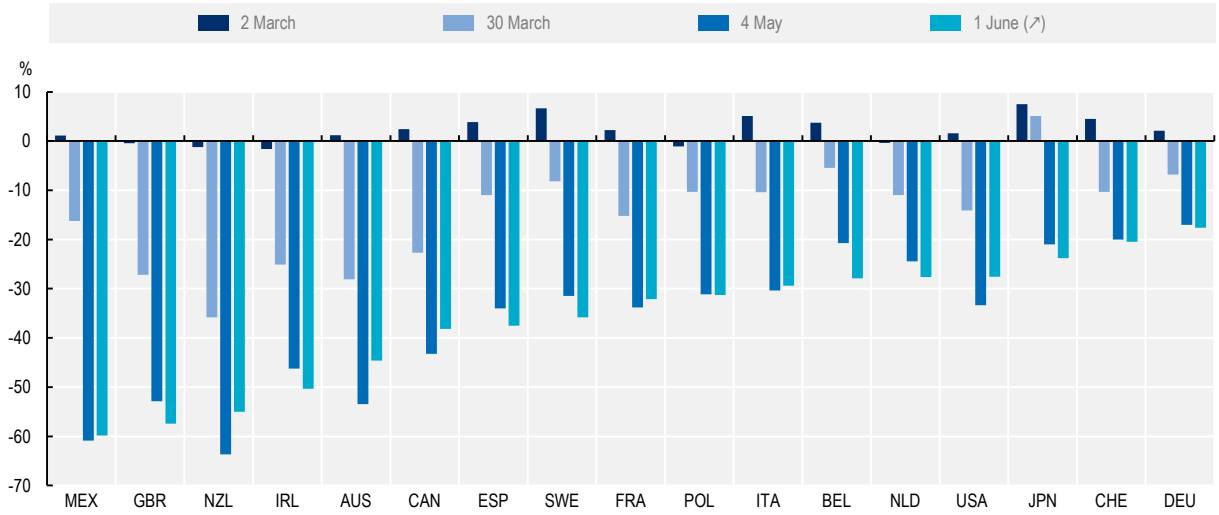
Comparable data on hirings or job vacancies for all OECD countries are not yet available. However, high-frequency data on online job postings can provide real-time information on labour demand, and often with a high level of granularity in sectoral, occupational and regional information. By relying only on information posted online, these data necessarily portray a partial picture of the overall economy, with different degrees of representativeness across countries. Within country, they generally over-represent high-skilled occupations and industries.

These shortcomings notwithstanding, online job postings data[12] bear witness of the recent labour market collapse in a similar way to other figures proposed above. The number of job advertisements posted online

on a given day decreased by 35% from 1 February to 1 May, on average across the 18 OECD countries for which data are available (Figure 1.10). Some countries experienced larger falls, such as Canada (43%), Ireland (45%), and the United Kingdom (52%), while others experienced more moderate declines, such as Germany (16%), Belgium, Japan and Switzerland (all 20%). The freeze in vacancy postings did not materialise until March in most countries, and had increased 3.5 times in size by the end of April on average across countries.[13] The job posting freeze continued until 1 June despite the partial re-opening of the economic activities in several OECD countries.

Figure 1.10. Online job postings have declined massively

Average changes in daily data



Note: Change in the number of new job postings online between 1 February 2020 and the average day in the week beginning with the date specified.
Source: Data sourced and elaborated by *Indeed*, June 2020.

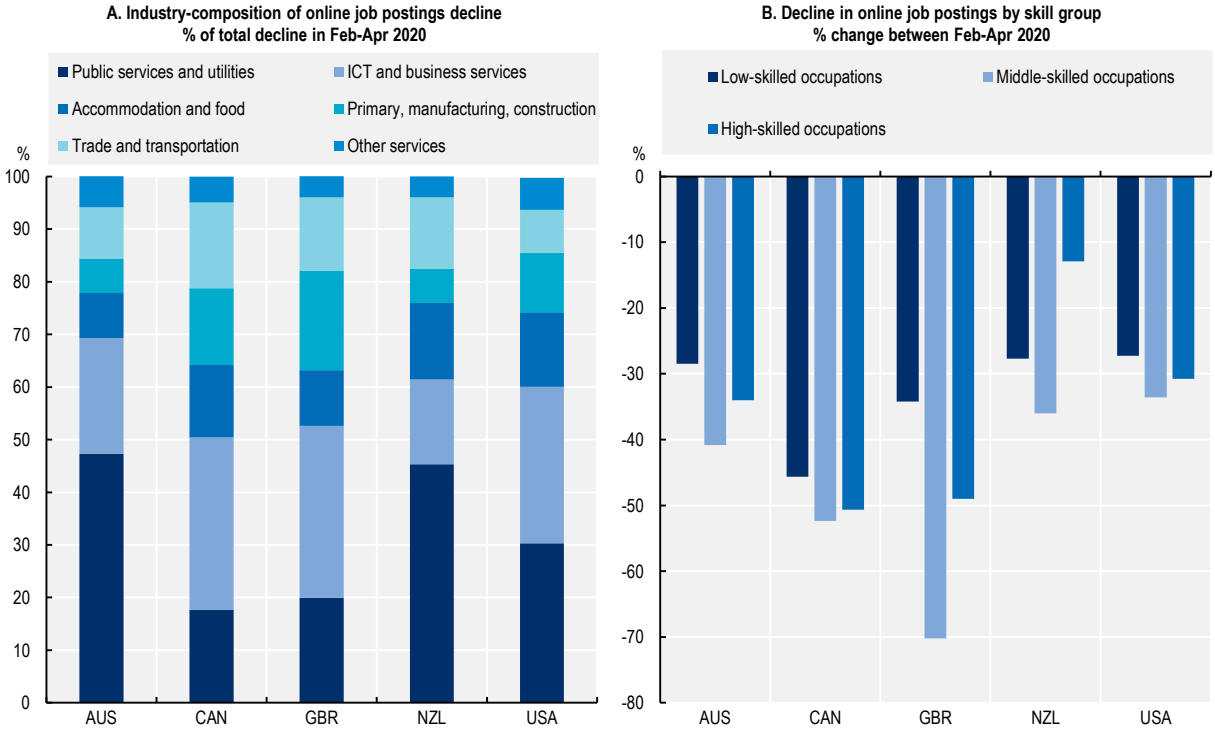
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Aggregate figures hide significant heterogeneity in the impact of the COVID-19 crisis on online job openings across sectors and occupations. Some services considered "essential" were operating even at the peak of the health crisis, while non-essential businesses had to suspend activities. Furthermore, some sectors are naturally more exposed to contagion, either because production cannot occur off company premises, or because they rely more heavily on inter-personal contacts among workers or between workers and customers (Barbieri, Basso and Scicchitano, 2020[22]). Lastly, some sectors have suffered and will continue to suffer more of the reduction in demand driven by job displacements and lower incomes, and by disruptions in supply chains (Barrot, Grassi and Sauvagnat, 2020[23]).

On average across the five OECD countries for which detailed data are available, the largest contributions to the aggregate decline in job postings is attributable to what are here defined as "public services"[14], and business services, followed by trade and transportation, and the accommodation and food industries (Figure 1.11, Panel A). These sectors need not correspond to those where postings fell the most in percentage terms, as long as the latter accounted for a relatively small share of country-wide online postings before the crisis. Unreported figures from the same five countries show that the arts and entertainment, accommodation and food, transport and storage and private sector administration industries experienced the largest declines in percentage terms in outstanding job postings between February and

April 2020 on average across countries (-60 to -80%), while health and social work, manufacturing, and information services experienced minor declines.

Figure 1.11. The decline in online job postings by industry and skill group



Note: Panel A displays the contribution of each industry to the change in the country-wide postings displaying information on the sector of affiliation. At this level of aggregation, all industries contracted. Postings missing information on the sector of affiliation were discarded. Primary activities refer to agriculture and mining. Panel B displays the growth rate in the count of new job advertisements posted online in the month, in the country specified, averaged over all occupations within the skill group. Weighted averages use the share of new postings in the occupation in total new postings in the country, for February, averaged over 2018-20. For the definitions of low-, middle-, and high-skilled occupations, see Chapter 4.

Source: OECD calculations based on data from *Burning Glass Technologies*, May 2020.

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Lastly, the crisis had heterogeneous effects on the hiring activity for different occupations. Demand for so-called essential workers, such as hospital workers, employees of food retailers, and warehouse personnel held up or even increased during the lockdown. While many of these occupations are usually classified as low-skilled, workers in high-skilled occupations were also relatively less affected by the labour market shock, insofar as they could keep on working safely from home through distance work.[15]

Between February and April 2020, middle-skill occupations experienced a significantly larger fall in online job advertisements than high- or low-skill occupations, on average across the five countries for which data are available (Figure 1.11, Panel B). In the United Kingdom, where this phenomenon is especially pronounced, new online job postings for middle-skill occupations contracted twice as much as for low-skill occupations, and 40% more than for high-skill occupations. While the persistence over time of such patterns will need further investigation, these results point to the possibility that the COVID-19 shock will reinforce the existing trend of employment polarisation in OECD countries (see Chapter 4).

Within countries, some regions were hit more than others

Despite the shock's symmetric origin and its global extent, the impact of COVID-19 within countries differed across regions. In many OECD countries, the outbreak has been worse in cities than in rural areas and has affected some regions more than others. In Italy, for example, the country's north was hardest hit, and Lombardy, where the first outbreak of COVID-19 took place, registered the highest number of cases. In France, the regions of *Île-de-France* and *Grand Est* were the most affected. In the United States, in early June, the state of New York alone accounted for 20% of the country's confirmed COVID-19 cases. Regions or States where the outbreak was more sizeable experience significantly more severe economic losses (Chen et al., 2020[7]). The economic impact across regions will also vary according to their sectoral specialisation: some sectors are more exposed to confinement measures or to disruptions in the supply chain or are structurally more volatile as they rely more on temporary and seasonal work.

Official estimates of job losses by sector, regions and groups of workers are not yet available in a consistent manner. However, an analysis of the sectors most directly affected by containment measures, such as those that involve travelling and direct contact between consumers and service providers (OECD, 2020[24]), can provide a first estimate of the heterogeneous effects across regions and group of workers. Differences in the share of regional employment at risk are very wide, ranging from less than 15% to more than 35% across 314 regions[16] in 34 OECD countries (OECD, 2020[25]). In Greece, for example, they range from 55% of jobs at risk in South Aegean Islands to 22% in Central Greece. Regional differences are particularly stark also in Slovak Republic and France. Touristic places often show the highest shares of jobs at risk of disruption. In Europe, several major tourist destinations, such as Crete, the South Aegean and Ionian islands (Greece), Balearic and Canary Islands (Spain) as well as the Algarve region in Portugal may lose 40% or more of jobs. In Korea, the highest risk of job loss is in Jeju-do, where tourism is an important pillar of the economy. In North America, Nevada (with the tourist hub Las Vegas as its largest city) stands out as the most affected state, followed by Hawaii. Regions in Northern and Eastern European countries appear less affected, on average, than those in Southern Europe and North America.

More vulnerable workers are bearing the immediate brunt of this crisis

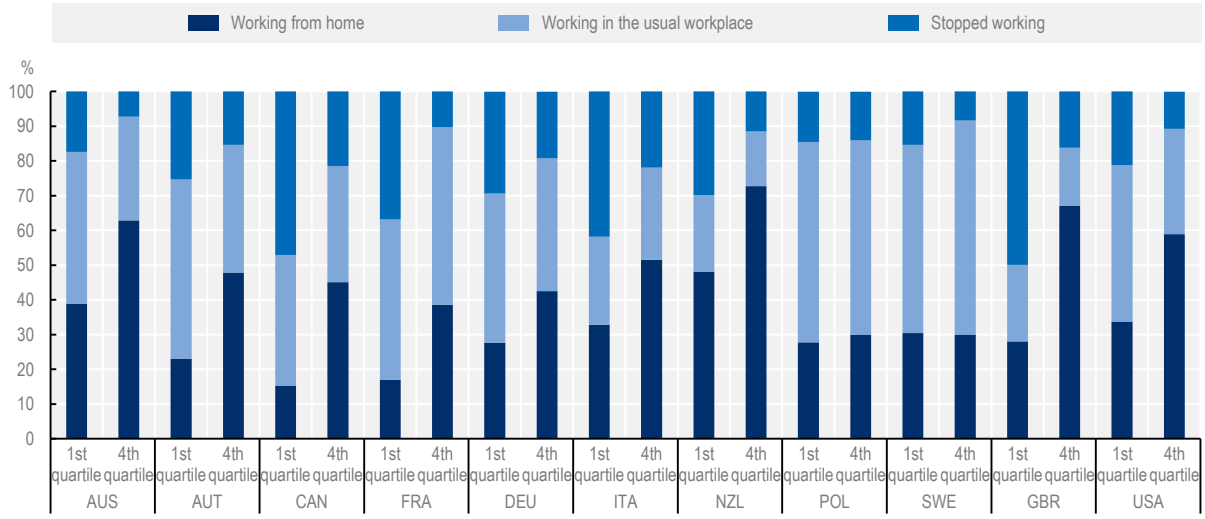
Already disadvantaged groups of workers often suffer most from economic crises, as they are the first out when the shock hits and last in when the recovery starts. While it is still very early to assess the impact of COVID-19 on different labour market groups, first evidence indeed suggests that the crisis has – at least initially – exacerbated pre-existing labour market inequalities, and that vulnerable workers have so far been paying the brunt of the costs.[17]

Low-paid, often low-educated workers have been particularly affected during the initial phase of the crisis. On the one hand, many of them ensured the continuation of essential services during the lockdowns, often at a substantial risk of exposing themselves to the virus while working. Granular evidence using smartphone location shows that, in the United States, people living in higher-income neighbourhoods could shelter at home earlier and for longer than people living in lower-income neighbourhoods (see Box 1.2). The so-called "frontline workers", who work in essential services in jobs that cannot be carried out remotely, are on average less well educated than the overall workforce and more likely to earn low wages (Blau, Koebe and Meyerhofer, 2020[26]; Fana et al., 2020[27]). This includes health care workers, but also cashiers, production and food processing workers, janitors and maintenance workers, agricultural workers, and truck drivers. Low earners are also much more likely to be working in sectors affected by shutdowns and more likely to have suffered job or earnings loss. In the United Kingdom, employees in the bottom decile of weekly earnings are about seven times as likely to work in shutdown sectors as those in the top earnings decile (Joyce and Xu, 2020[28]). Low-income workers are less able to work from home, are more likely to report having lost their job because of COVID-19, and are more pessimistic about their earnings prospects for the next few months. Real-time survey data for a number of OECD countries (Figure 1.12 based on Foucault and Galasso (forthcoming[29])) show that those in the top earnings quartile were on average 50%

more likely to work from home in April than those in the bottom quartile. Meanwhile, low-earning workers appear to be have stopped working twice as often. In Canada, labour force survey data show that employment losses between February and April 2020 have been more than twice as high for low-wage employees as for all paid employees (Statistics Canada, 2020[17]).[18]

Figure 1.12. While higher-earning workers often worked from home, lower-earning workers often had to stop working

Share of total workers usually employed before the onset of the crisis by earnings quartile, selected OECD countries, mid-April 2020



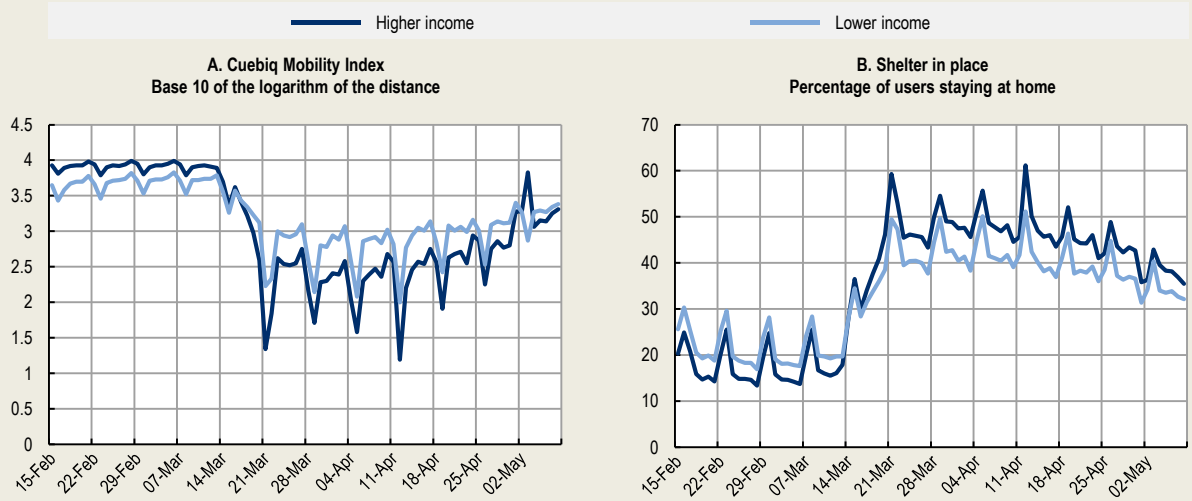
Source: Foucault and Galasso (forthcoming[29]) based on the REPEAT (REpresentations, PErceptions and ATtitudes on the COVID-19) survey.

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Box 1.2. Staying at home during the pandemic is harder for poorer people

While containment and mitigation policies formally applied to the entire population, not all population groups adapted (or could adapt) with the same speed and depth. Very fine-grained data collected from the smartphone location company Cuebiq show that before the COVID-19 outbreak in the United States, people living in higher-income neighbourhoods used to move more (Figure 1.13, Panel A) and stay at home less (Figure 1.13, Panel B). When the White House released its guidelines asking people to shelter at home, mobility decreased and the share of people staying home increased. Also the mobility patterns across higher- and lower-income neighbourhoods inverted: people living in poorer neighbourhoods started sheltering at home later and less (especially during the workweek) than people living in higher-income neighbourhoods. This may reflect differences in awareness and access to information. However, they are also indicative of structural divides in the access to jobs (people in higher-income neighbourhoods may be more likely to be employed in jobs that can be done at home), in the ability to weather a sudden shock (people in higher-income neighbourhoods more likely have enough savings to pass a period of unemployment) and in housing conditions (poor housing conditions may make it more difficult for people to self-isolate and can make effective teleworking impossible).

Figure 1.13. In the United States, people living in higher-income neighbourhoods sheltered at home earlier and longer than people living in poorer neighbourhoods



Note: The Cuebiq Mobility Index in Panel A quantifies how far users move each day. It is calculated as the base 10 of the logarithm of the distance between opposite corners of a box drawn around the locations observed for users on each day. Shelter-in-Place in Panel B represents the percentage of users staying at home. It is calculated daily by measuring how many users moved less than 330 feet (100 metres) from home.

The charts show the gap in mobility and the share of people sheltering at home between higher- and lower-income block groups by Core-Based Statistical Area (CBSA). A CBSA is a group of one or more counties with an urban core plus adjacent territory that has a high degree of social and economic integration with the core measured by commuting ties. The Cuebiq Mobility Index for each CBSA is the median of these per-person indexes. The higher and lower incomes for each metropolitan and micropolitan (an area centred on an urban cluster with a population of at least 10 000 but fewer than 50 000 people) area are based on median household income data from the U.S. Census Bureau, 2013-17 American Community Survey 5-Year Estimates for census tracts aggregated by CBSA.

Source: Cuebiq, a location intelligence and measurement platform. Through its Data for Good programme, Cuebiq provides access to aggregated mobility data for academic research and humanitarian initiatives. These first-party data are collected from anonymised users who have opted in to provide access to their location data anonymously, through a GDPR-compliant framework. It is then aggregated to provide insights on changes in human mobility over time (accessed: on 10 May 2020).

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Also workers in non-standard jobs – i.e. self-employed workers and those in temporary or part-time dependent employment – were highly exposed to job and income losses. They may represent up to 40% of total employment in sectors most affected by containment measures across European OECD countries (OECD, 2020[30]). Some self-employed workers are overrepresented in some of the industries that have been restricted or shut down because of quarantine, e.g. in the hospitality and culture sectors, but also in personal services such as hairdressers. Early surveys carried out after the start of lockdowns document this effect: 48% of self-employed workers in the Netherlands experienced an hours reduction, compared to only 27% of employees (Von Gaudecker et al., 2020[31]); 75% of the self-employed in the United Kingdom report having experienced a drop in earnings in the previous week, compared to less than 25% of salaried workers (Adams-Prassl et al., 2020[32]). Meanwhile, workers on temporary contracts were among the first to lose their job during the crisis as contracts are not being renewed when coming to an end. Canada saw sharp declines in employment among workers with a temporary job and those with a job tenure of one year or less – -30% for each group (Statistics Canada, 2020[17]). Administrative data from France and Italy confirm these patterns. In France, the increase in new unemployment claims in March and April 2020 was entirely driven by temporary agency workers and workers with temporary jobs which

saw their contracts not renewed (DARES, 2020[33]). Administrative data on job flows in Italy show that the decrease in the number of jobs between the end of February and the end of April compared to the same period in 2019 was largely driven by reduced hirings on temporary contracts (Bovini et al., 2020[34]; Baronio and Linfante, 2020[35]; Veneto Lavoro, 2020[36]). People who were counting on getting a new job could not find one. The heavy job or income losses of workers in non-standard forms of employment are particularly concerning as these workers often do not have access to job retention schemes and unemployment benefits – see Sections 1.3.2 and 1.3.3 and OECD (2020[37]; 2020[30]).

The same applies for many informal workers, including undocumented migrants. Many of them are likely employed in sectors severely hit by confinement measures, such as in accommodation and food services but also as domestic workers, and they often have no access to any income support. Workers in "partial informality", whose employment is registered but who receive some of their remuneration in cash ("envelope wages"), may receive compensation only for part of their lost earnings from job retention schemes or unemployment benefits – see Section 1.3.3 and OECD (2020[37]).

The COVID-19 crisis has also exposed the vulnerabilities of many platform jobs. While, some platform jobs offered opportunities to workers and business to reinvent themselves during the confinement and respond to arising needs (for example by delivering food, pharmaceuticals and other goods), they were also among those most exposed to the shock. According to a survey carried out by AppJobs (AppJobs Institute, 2020[38]) – an online platform to search for app-based jobs around the world – over half of gig workers said they had lost their jobs; more than a quarter had seen their hours cut. Yet, at the same time, these workers often do not benefit from employment protection legislation; they often have no access to short-time work schemes, unemployment benefits or paid sick leave; and, in some countries, they may not even have health insurance (OECD, 2019[39]).

Young people risk being once more among the big losers of the current crisis, much like they suffered heavily during the global financial crisis (Carcillo et al., 2015[40]; OECD, 2016[41]). This year's graduates, sometimes referred to as the "Class of Corona", are leaving schools and universities with often very poor chances of finding employment or work experience in the short run. Meanwhile, their older peers are already experiencing the second heavy economic crisis in their still young careers. The initial labour market experience has a profound influence on the later working life, and a crisis can have long-lasting scarring effects on employment and earnings perspectives (Bell and Blanchflower, 2011[42]; Schmillen and Umkehrer, 2017[43]). First evidence labour market data from the current crisis suggest that young workers have been heavily affected, as they generally hold less secure jobs and are overrepresented among workers in hard-hit industries such as accommodation and food services. In the United Kingdom, below-25-year-olds were about 2.5 times as likely as other employees to work in shut-down sectors, a figure that still excludes students in part-time jobs (Joyce and Xu, 2020[28]). Youth employment numbers quickly took a dive: in Canada, the number of employed youth dropped by 33% from February to May 2020. In the United States, the teenage unemployment rate more than tripled from 7.7 to 25.2% in between February and May. During the global financial crisis, across the OECD, almost one-in-ten jobs held by under-30-year-olds had been destroyed, and the recovery was very slow, particularly for the disadvantaged. It took a whole decade, until 2017, before the youth unemployment rate had gone back to its pre-2008 level. Even so, young people have seen a general decline in their labour market fortunes, with increases in the incidence of non-employment, low-pay and underemployment (OECD, 2019[39]).

Evidence on the differential employment impact of the current crisis on women and men is still weaker. However, this crisis, unlike the previous one, appears so far to have affected the labour market prospects of women more strongly than men. In Canada women accounted for a disproportionate share of job losses in March, though men experienced larger employment losses in April. However, there remains a small gender gap in employment losses (-16.9% for women vs. -14.6% for men between February and April). Also in the United States, unemployment rates increased more sharply for women than men. In the European Union, the unemployment rate in March 2020 increased by 4.5% for women against 1.6% for men. Women's labour market attachment tends to be weaker than men's, leaving them more exposed and

easier to lay off. Moreover, many of the industries most directly affected by COVID-19 are major employers of women, while the global financial crisis had been characterised by greater job losses in male-dominated sectors (notably construction and manufacturing) and an increase in hours worked by women, especially in the early years (Sahin, Song and Hobijn, 2010[44]; OECD, 2012[45]). The widespread school and childcare facility closures during the current crisis likely also amplified women's unpaid work burden at home (see Box 1.3).

Box 1.3. Women on all fronts during the COVID-19 crisis

Women have been serving on the frontlines in the fight against COVID-19, and the crisis impact on women has been stark. Leading much of the wider social and health response, they have been facing compounding burdens:

Women are playing a key role in the health care response to the pandemic. They make up two-thirds of the health workforce worldwide, including 85% of nurses and midwives (Boniol et al., 2019[46]), and account for 90% of long-term care workers across OECD countries (OECD, 2020[47]). Health and social care workers have been facing exceptional demands, and considerable risks, through the crisis. The strain has often been particularly acute for mothers, who also had to cope with the implications of school and childcare facility closures during confinement.

The crisis likely amplified women's unpaid work burden, as women picked up much of the additional unpaid work caused by widespread school and childcare facility closures. Women provided most unpaid work at home before the crisis, spending around two hours per day more on it than men across the OECD on average (OECD, 2020[48]). The crisis increased the amount of time that parents spent on care and child supervision and home schooling, with much of this additional burden likely having fallen on women. According to a German online survey carried out in March/April 2020, in about half of all households with children the female partner alone cared for the children (Möhring et al., 2020[49]). Online survey data collected in the United Kingdom in April/May 2020 indicate widening disparities in paid work patterns between mothers and fathers (Andrew et al., 2020[50]).

Women face higher risks of economic insecurity. Despite the remarkable progress made over the past half-century or so, women's labour market attachment remains weaker than men's, especially around parenthood. Gender gaps in hours worked, seniority and pay, leave women more vulnerable than men and easier to lay off. The short-term economic fallout from COVID-19 particularly affected sectors that rely on physical customer interaction, many of which are major employers of women. On average across OECD countries, women make up about 53% of employment in food and beverage services (e.g. cafés, restaurants and catering), 60% in accommodation services (e.g. hotels) and 62% in the retail sector (ILO, 2020[51]). For some women workers, the public sector may offer some protection, at least in the short term, as women make up a disproportionate share of public-sector employees across the OECD (OECD, 2019[52]).

Women are often more vulnerable than men to any sharp income loss. Across OECD countries, women's incomes are, on average, lower than men's, and their poverty rates are higher (OECD, 2020[53]). Women also often hold less wealth than men that could help cushion temporary income losses (Sierminska, Frick and Grabka, 2010[54]; Schneebaum et al., 2018[55]). And because women tend to hold greater care and domestic responsibilities than men, it is often more difficult for them to find alternative employment and income streams (such as piecemeal work) following layoff. Single parents, most of whom are women, are particularly vulnerable. They were hit much harder by the closure of childcare facilities and schools during confinement. Reliance on a single income also means that job loss can be critical for single parents, especially where public income support is weak or slow to react.

Early reports emerging from China and some OECD countries suggest *escalating risks of domestic violence against women* during the pandemic, confirming a pattern seen in past lockdown and confinement situations (UNDP, 2015[56]).

Source: OECD (2020[57]), "Women at the core of the fight against COVID-19 crisis", https://www.oecd.org/coronavirus/policy-responses/women-at-the-core-of-the-fight-against-covid-19-crisis-553a8269/.

How strongly the crisis affects different groups of workers and their families ultimately depends not only on their exposure to job or income loss, but also on how well they are able to temporarily absorb such shocks. Unfortunately, the exposure to labour market shocks and the capacity to deal with them are often closely related: analyses for the United Kingdom (Benzeval et al., 2020[58]) and Norway (Alstadsæter et al., 2020[59]) show that the largest job and income losses have fallen on already financially vulnerable workers or parents with younger children. In particular, the UK analysis illustrates that in between those workers experiencing little or no labour market shock and those experiencing a shock but being reasonably well covered by social safety nets, there is a "vulnerable middle" who are hit hard and have little capacity to mitigate those shocks: single parents, the low-educed and ethnic minorities.[19]

1.2.2. The outlook ahead

The economic outlook is exceptionally uncertain. With the easing of the health emergency, confinement measures have been scaled back gradually and mobility is picking up. The restarting of activities automatically adds to output, even though some containment measures, such as the closure of many international borders, will remain for some time. The recovery is likely to be hesitant, and could be interrupted by renewed outbreaks if targeted containment measures, notably test, track and trace (TTT) programmes, are not put in place or prove ineffective.

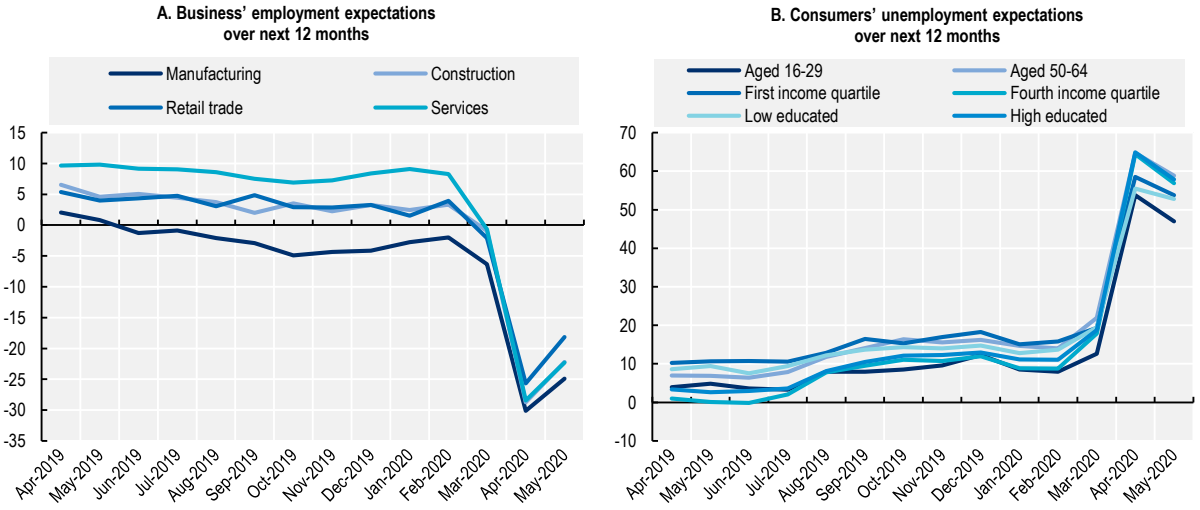
Business and consumer confidence surveys indicate substantial pessimism about labour market prospects.[20] Across OECD countries, businesses' *employment* expectations for the months ahead plummeted in April 2020, while consumers' *unemployment* expectations over the next 12 months jumped up (Figure 1.14). These are the strongest monthly changes on record since 1985. In May the indicators partially improved but remained far below (for employment expectations) or above (for unemployment expectations) their long-term averages and very close to the levels registered during the global financial crisis in March 2009. Employment expectations declined for all sectors, but the fall is much larger for services while the outlook for manufacturing was already on the negative side before the COVID-19 hit. Consumers' unemployment expectations increased to a similar extent for all groups, including for respondents from higher-income households and those with a tertiary degree.

Reflecting the unusual degree of uncertainty, the *OECD Economic Outlook* (2020[30]), published on 10 June, presented two equally likely scenarios for the months ahead:

- A *single-hit scenario* in which countries successfully overcome the current outbreak due to the containment measures put in place in the first half of 2020, with the effective reproduction rate assumed to decline and stay persistently below unity. Higher hospital capacity and the widespread roll-out of effective TTT are assumed to be sufficient to prevent a resurgence in infections and intensive cases later in the year and until a vaccine becomes available.
- A *double-hit scenario* in which the current easing of containment measures is assumed to be followed by a second, but less intensive, virus outbreak taking place in October/November. This could be because of seasonal factors in some countries, particularly in the Northern Hemisphere, or because containment, TTT and isolating are not as efficient as expected. Further outbreaks in 2021 are assumed to be avoided due to pharmaceutical breakthroughs, but these remain a significant downside risk.

Figure 1.14. Labour market expectations deteriorated among businesses and consumers alike

Percentage-point difference between the proportion of positive and negative responses, seasonally adjusted data



Note: A positive balance for future tendency of unemployment (Panel B) means that unemployment is expected to rise. Non respondents to each question item are excluded from the sample that is used to calculate the balance.
Source: OECD, Business Tendency and Consumer Confidence Database, https://stats.oecd.org/Index.aspx?DataSetCode=MEI_BTS_COS.

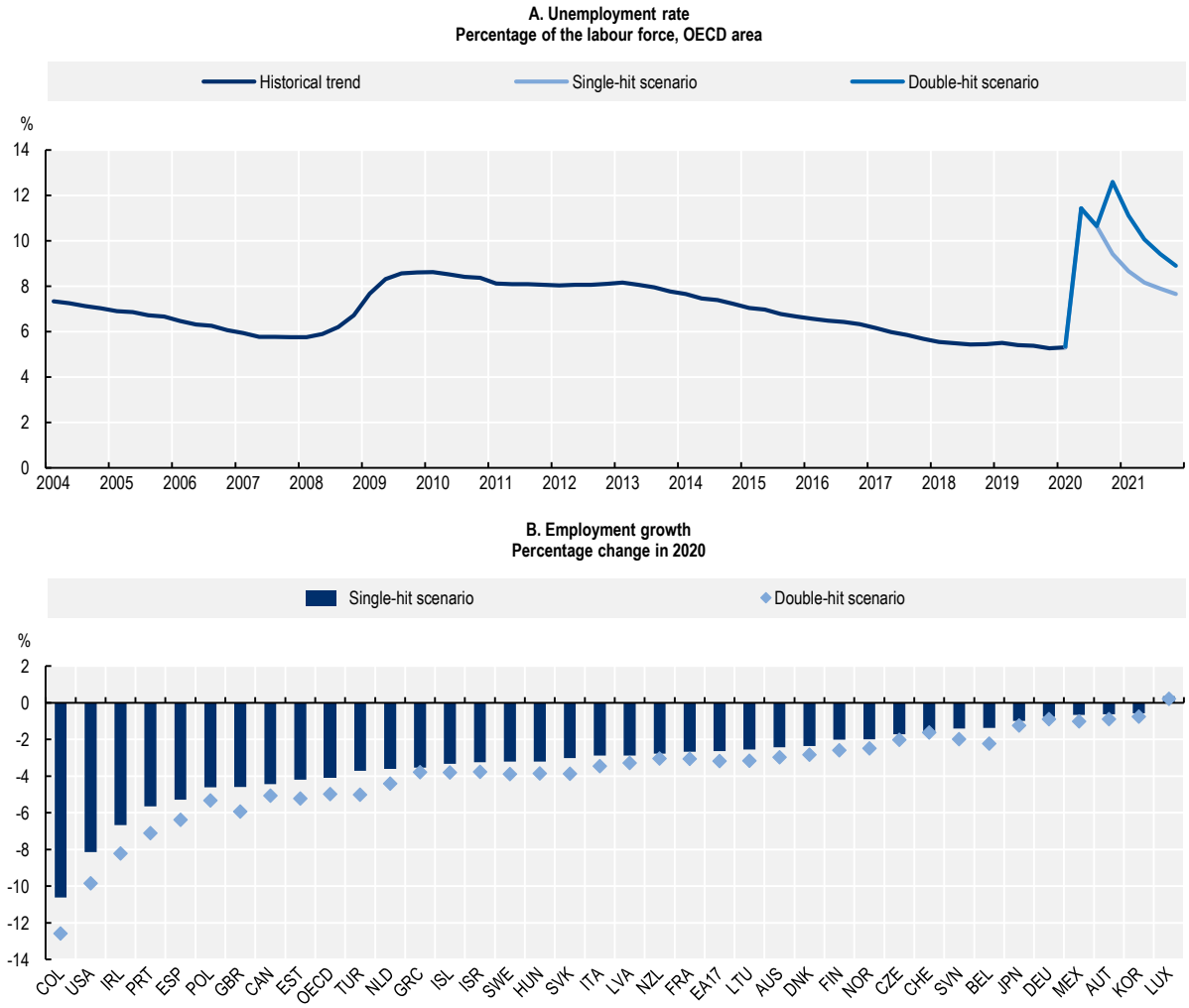
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In the "double-hit" scenario, OECD GDP is projected to decline by 9.3% this year; in the "single-hit" scenario, OECD GDP is projected to decline by 7.5% this year. In both scenarios, the recovery will likely be slow and gradual and, despite a rebound, total output by the end of 2021 is expected to still be well short of its pre-crisis level. In many advanced economies, the crisis could / will likely have destroyed the equivalent of five years or more of per capita real income growth by the end of 2021.

In both scenarios, unemployment rates are projected to increase significantly in all OECD countries. According to OECD projections, unemployment in the OECD economies, which had declined to a 50-year low of 5.3% at the end of 2019, is projected to have more than doubled by the end of June 2020 to almost 11.4%. This is well above the level seen during the global financial crisis (Figure 1.15, Panel A). As economies begin to re-open, unemployment is projected to fall gradually but remain above or close to its peak level during the global financial crisis until well into 2021. This reflects the scale of immediate job losses in some countries, and the likely declines in employment in others as temporary wage and employment support schemes end in the second half of 2020. In the double-hit scenario, unemployment remains high for even longer in OECD economies, raising the risk of hysteresis as long-term unemployment becomes entrenched and labour force participation falls as workers get discouraged. The OECD-wide unemployment rate is projected to be 8.9% at the end of 2021 in this scenario, near the peak seen during the global financial crisis and 3.5 percentage points above the rate at the end of 2019. In the single-hit scenario, unemployment would reach 7.7% by the end of 2021. Country-specific projections are presented in Annex Table 1.A.1.

Employment is projected to decline significantly in most OECD countries (Figure 1.15, Panel B), with the largest fall in Colombia, the United States and Ireland. The smallest changes are projected in Luxembourg (where employment is projected to increase slightly), Korea, Austria, Mexico, Germany and Japan. The cross-country heterogeneity is explained differences in the GDP shock, but also by institutional factors (e.g. stricter employment protection legislation – see Chapter 3 – and the use of job retention schemes in continental European countries).

Figure 1.15. Unemployment is projected to increase three times more than during the global financial crisis



Note: Employment growth is not available for Chile (Panel B).
Source: OECD (2020[6]), "OECD Economic Outlook – All editions", *OECD Economic Outlook: Statistics and Projections* (database), https://doi.org/10.1787/826234be-en (accessed on 10 June 2020).

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1.3. An unprecedented policy response by countries

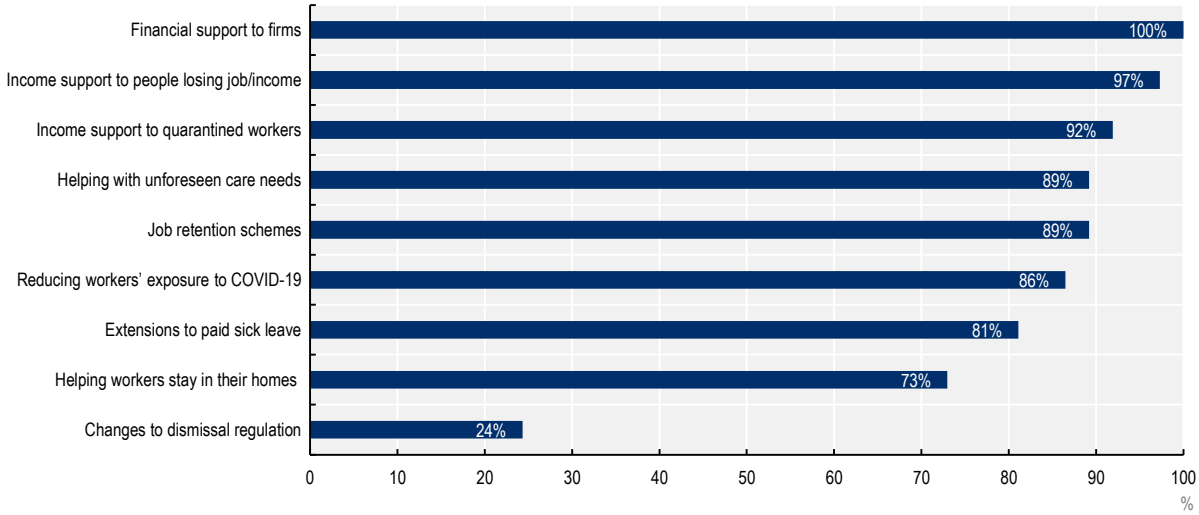
OECD countries have responded in an unprecedented manner, in speed, breadth and depth, to contain the fallout from the crisis and support workers, their families and companies. While a precise and comparable estimate of the fiscal size of these various measure is not available at this stage[21], Figure 1.16 illustrates the wide range of measures taken across the 37 OECD countries.

At the onset of the crisis, OECD countries have taken a range of measures to reduce workers' exposure to COVID-19 by encouraging teleworking or introducing stronger occupational safety and health standards. Countries strengthened or extended paid sick leave, including to quarantined workers and took measures to help working parents better deal with unforeseen care needs (Section 1.3.1) and to help ensure that

workers and their families could remain in their dwellings (see Box 1.8). A large majority of OECD countries has introduced or extended job retention schemes to preserve jobs at firms experiencing a temporary reduction in business activity. Few have also introduced changes to employment protection legislation to either better protect workers with a permanent contract or facilitate hirings or renewal of workers with a temporary contract. A number of measures have been taken to ensure the continuation of essential services during the pandemic (Section 1.3.2). Moreover, almost all OECD countries have strengthened and/or extended the income support to workers who lose their job or income (Section 1.3.3). Finally, all countries have provided some form of financial support to boost companies' financial liquidity, whether through grants, loans or tax and social-security deferrals, but those measures are not covered in detail in this chapter. On top of such national-level measures, the European Union has taken strong initiatives to provide financial support to companies and member states, in particular to promote the use of short-time work schemes (Box 1.4).

Figure 1.16. OECD countries introduced bold new measures or considerably expanded existing ones in response to COVID-19

Percentage share of the total number of OECD countries



Source: OECD COVID-19 Employment and social policy responses by country, http://oe.cd/covid19tablesocial (accessed on 30 June 2020).

StatLink https://stat.link/hm2kx3

This section provides an overview of the main measures taken, highlights and discusses differences in their design, and offers a first assessment of the benefits and challenges of different approaches, including likely difficulties in their implementation.

Box 1.4. The European Union's employment and social-policy response to COVID-19

In parallel to national policy responses, the European Union (EU) reacted to the economic, employment and social emergency with a multi-tiered initiative to support the workers and firms in its member states:

- The EU is providing **financial support to enhance member states' policy responses to the social and employment crisis**. Through the *"Coronavirus Response Investment Initiative"* (CRII) and *"Coronavirus Response Investment Initiative Plus"* (CRII+) the European Commission (EC) has accelerated the deployment of EUR 37 billion of cohesion funds. These funds can be flexibly redirected towards spending on health care, support to short-time work (STW) schemes and support to small and medium enterprises, in particular in the most affected European regions. EU member states also agreed to create *SURE* (*"Support to Mitigate Unemployment Risks in an Emergency"*), a temporary loan instrument to help finance STW schemes and other similar measures supporting the self-employed across the EU. The instrument is backed by EUR 25 billion in member states' guarantees committed to the EU budget. These guarantees allow the EC to borrow up to EUR 100 billion on financial markets, to be lent to member states on favourable terms. EU member states with existing STW schemes and/ or schemes supporting the self-employed can apply for a loan through SURE to cover the needed expenditures. The EC will verify the application, before the Council approves the loan.
- The European Central Bank (ECB) and European Investment Bank (EIB) geared up to **prevent a pro-cyclical tightening of financing conditions in the public and private sector** and avoid liquidity shortages and credit contraction. The ECB expanded its asset purchase programmes of private and public sector securities by EUR 1 470 billion (including the EUR 1 350 billion Pandemic Emergency Purchase Programme). It also eased the conditions for its targeted and non-targeted longer term refinancing operations, and launched a new series of pandemic emergency longer-term refinancing operations. After initial steps to mobilise up to EUR 40 billion in support to European firms early in the outbreak, the EIB group created a EUR 25 billion guarantee fund to scale up financing for companies by up to additional EUR 200 billion, targeting in particular small and medium enterprises.
- The EC **amended regulations to give more flexibility to particularly affected sectors** (e.g. airline companies) **or to member states**. This includes using the full flexibility foreseen under state aid rules, and activating the general escape clause of the Stability and Growth Pact to allow countries to depart from the agreed budgetary requirements.
- In late May, the EC put forward a proposal for a **major recovery plan, Next Generation EU.** If approved by EU member states, Next Generation EU would raise money by temporarily lifting the own resources ceiling to 2% of EU Gross National Income, allowing the Commission to borrow EUR 750 billion on the financial markets to be repaid over a long period of time throughout future EU budgets. The EUR 750 billion would be channelled through EU programmes to support member states with investments and reforms, incentivise private investments and reinforce EU health and civil protection programmes.

Beyond these measures designed to mitigate the economic, employment and social consequences of the crisis, the EU also supported countries' health care responses. Euro area countries can use Pandemic Crisis Support credit lines (created using the framework of the European Stability Mechanism) to borrow up to 2% of their 2019 GDP, as a benchmark, to finance direct and indirect expenses linked to health care, cure and accident prevention-related costs (such expenses could include costs relating to workplace safety and occupational safety and health). The EU Occupational Safety and Health Agency, in partnership with European social partners, has produced **elaborated guidelines** on how to maintain workplace safety during the pandemic.

1.3.1. Protecting workers from COVID-19 and helping them with unforeseen family care needs

Minimising workers' exposure to COVID-19

Workplaces and public transport gather large numbers of people and thereby often expose workers to the risk of contracting and spreading the COVID-19 virus. A primary concern for governments, companies and workers alike at the onset of the crisis was therefore to limit physical interaction in the workplace and during the daily commute. Evidence from previous epidemics – see OECD (2020[1]) for a detailed review – shows that workplace physical distancing is the most effective measure for both reducing the share of the population who contract the disease (the "attack rate") as well as for delaying the disease peak.[22] OECD countries therefore extensively promoted teleworking or working from home and continued to encourage its use even when the strictest confinement measures began to be lifted in May 2020.

Most OECD countries had pre-existing teleworking regulations, in law or collective agreements; sometimes relatively restrictive or requiring an *ex ante* agreement by social partners. However, take-up had remained quite limited and, contrary to widespread belief, without much increase over the years. Across the European Union, only 3% of workers regularly worked from home in 2015 and a further 5% were highly mobile workers who regularly worked from several locations (including home). Another 10% teleworked occasionally from various locations but with much less often than the highly mobile group (Eurofound, 2018[60]). Such low take-up reflects in part the nature of people's work (i.e. not every job can be done from home), but also some resistance by employers and workers alike.[23] During the COVID-19 crisis, it was suddenly in both employers' and employees' direct interest to reduce the exposure to the virus to limit sickness and maintain operations.

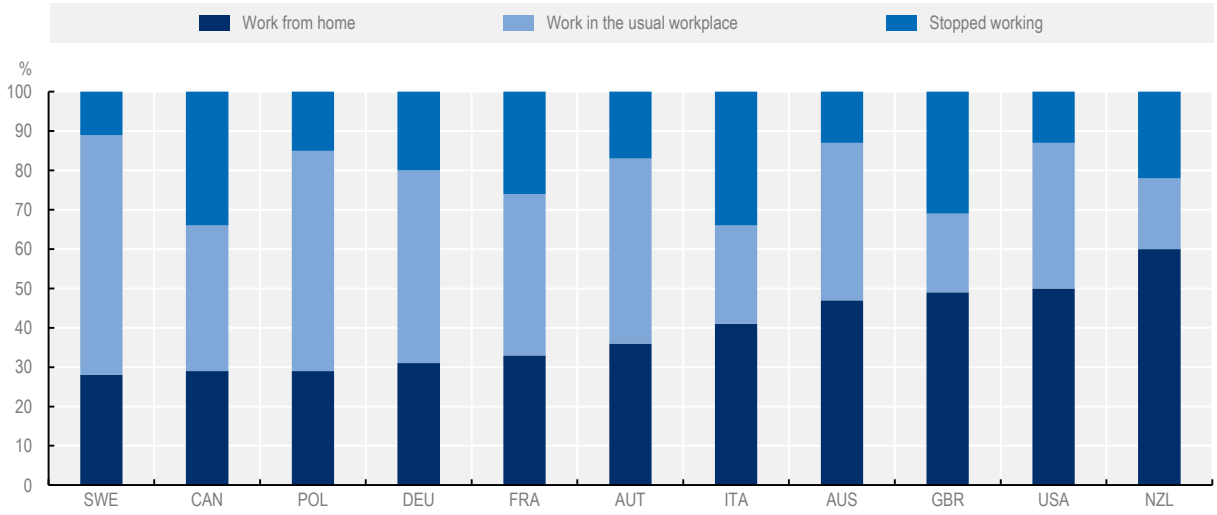
In order to promote a rapid move to telework for all operations that allow it, countries took a series of measures to simplify its use, including through financial and non-financial support to companies. Italy, for example, simplified the procedure for teleworking by allowing companies and employees to arrange teleworking without a prior agreement with unions, without a written agreement and at the employees' place of choice. In Hungary, employers were given the possibility to introduce teleworking without their employees' consent. Japan made available a 50% subsidy (up to JPY 1 million) towards the cost of introducing telework. Korea simplified the application procedures for a subsidy for introducing flexible work arrangements. Belgium gave employers the possibility to grant their teleworking employees a tax- and social-security-free allowance of EUR 170 per month to cover telework-related costs, such as for a desk and office materials. Spain expedited existing programmes to support the digitisation of small and medium-sized enterprises (SMEs). Some large tech companies also stepped in to provide assistance and temporary free-of-charge access to some of their communication and sharing tools to companies and workers.

Surveys conducted in mid-April show a massive surge in the share of workers working from home compared to the pre-crisis levels (Figure 1.17). The share of workers working from home in April ranges from little less than 30% in Sweden, Canada and Poland to around 50% in Australia, the United Kingdom and the United States and 60% in New Zealand.

To minimise the risks of contagion for (the majority of) workers who could not work from home, several OECD countries restricted the continuation of business operations to "essential" services only (see discussion in Section 1.1). Here, they issued stricter sanitary guidelines that ranged from requiring the use of personal protective equipment, such as masks, gloves and other protective clothing, to restricting the maximum number of workers allowed to be physically present on companies' premises. Israel, for example, limited the share of the workforce who were allowed to physically go to work to 15% at the beginning of the crisis, and then raised the limit to 30% in April.

Figure 1.17. Between 30% and 60% of workers worked from home in mid-April 2020

Share of total workers usually employed before the onset of the crisis, selected OECD countries



Source: Foucault and Galasso (forthcoming[29]) based on the REPEAT (REpresentations, PErceptions and ATtitudes on the COVID-19) survey.

StatLink https://stat.link/lnogza

In several countries, comprehensive occupational safety and health (OSH) standards have been defined in co-operation with social partners or autonomously by employers and unions (see Box 1.5 for a short overview of social dialogue in times of COVID-19). In Italy, for example, the government, employers' associations and trade unions jointly signed a protocol on OSH measures in the early phases of the crisis and subsequently renewed and updated this protocol. This protocol was then turned into a government decree, making it mandatory for all companies. Italian employers' associations and trade unions also contributed to define the list of "essential sectors" that were allowed to continue operating. Many company-level agreements (e.g. at Fiat Chrysler Automobiles, Ferrari, etc.) were signed before the reopening of factories in May. In Spain, several sectoral agreements were signed to better protect workers in supermarkets, health care, hotels, restaurants and the tourism sector. The international union UNI Global and the Spanish telecommunication company Telefónica signed a global agreement in May to ensure the safe return to work for the company's employees across the world.

Box 1.5. Social dialogue in times of COVID-19

Trade unions and employers' organisations in several OECD countries responded swiftly to the challenges raised by COVID-19 (Business at OECD, 2020[61]; TUAC, 2020[62]). Their initiatives during the first months of the COVID-19 crisis have revolved around four main pillars:

- *Voicing concerns and demanding rapid government action* to mitigate the economic and social impact of COVID-19. Some social partners issued joint statements expressing a commitment to collaborate, such as in Germany or in the French metal industry. At European level, the World Employment Confederation-Europe and UNI-Europa issued joint recommendations on the employment and social aspects of COVID-19 and the recovery. In many countries, unions, but also employers' organisations, called for stronger action to protect workers, including those in non-standard jobs, students and parents staying at home to care for their children. For example,

the Belgian *Confédération des Syndicats Chrétiens* (CSC) asked for the better protection of workers in temporary unemployment and a benefit increase regardless of their employment status. The Canadian Labour Congress (CLC) called for an increase of the Emergency Support Benefit and Emergency Care Benefit. The US federation of trade unions AFL-CIO called for better protection of frontline workers, 14 days of paid sick leave and no out-of-pocket medical expenses for all workers. The Australian Council of Trade Unions (ACTU) launched a petition calling for additional paid leave for all workers affected by COVID-19. In Sweden and Germany, private employment agencies engaged with the government to ensure agency workers – like all workers – gained access to short-time working schemes.

- *Informing and advising their members*: most employers' organisations and unions in OECD countries quickly set up websites and hotlines to inform their affiliates about occupational safety and provide advice on the new policies measures. Many have issued guidelines, codes of good conduct and protocols on good practices on teleworking and safety and health at work. The Greek Confederation of employers (SEV) published a series of guides to help companies implementing telework, supporting business continuity and developing e-commerce. The Danish Confederation of Industry (DI), for example, set up a dedicated COVID-19 website with guidance on the measures made available by the government and on infection prevention for office workplaces. The French confederation of employers, the *Mouvement des Entreprises de France* (MEDEF), published a best practices guide for businesses.
- *Negotiating new collective agreements*: social partners in several European countries signed far-reaching agreements on short-time work, see Section 1.3.2 and Müller and Schulten (2020[63]). In Austria, Denmark, Norway and Sweden, short-time work schemes used during the COVID-19 crisis derive their main features from national-level collective agreements. In Nordic countries, also their implementation is left to company-level agreements. In Germany, sectoral agreements have been key to raise replacement rates. In other countries, social partners have been instrumental in simplifying procedural requirements. Other collective agreements have focused on measures to ensure the safety and health of workers in the workplace (see Section 1.3.1) or, in the United States, on paid sick leave. In Italy, a collective agreement was signed in the agency work sector to allocate EUR 75 million from a solidarity bipartite fund to protect the continuity of employment and pay for agency workers for the month of March. In the Netherlands, the bipartite training fund of the agency work sector has put in place a EUR 500 training voucher for workers displaced because of COVID-19.
- *Ensuring monitoring and compliance*: The Danish trade union confederation (FH), for example, has developed recommendations to step up labour inspectorates' activities to monitor and sanction any violations of authorities' provisions, non-compliance with workplace safety rules, or misuse of the *force-majeure* provision on rest time and days off. The Spanish *Confederación Sindical de Comisiones Obreras* (CCOO) monitors compliance with safety and health standards and reports potential abuse, including cases where companies declare short-time work but work regular hours.

Such initiatives – many more of which can be found in a recent Global Deal brief (Global Deal, 2020[64]) – illustrate how social dialogue and collective bargaining can be mobilised to complement public action, identify flexible and balanced solutions for both companies and workers and strengthen labour market resilience (OECD, 2019[65]).

Providing paid leave to sick or quarantined workers

Paid sick leave plays a threefold role in supporting workers during a sickness spell, in protecting their incomes, their jobs and their health (OECD, 2020[66]). Almost all OECD countries provide financial compensation during sick leave to employees with a permanent or temporary employment contract. Often,

employers cover an initial period in the form of continued wage payment – for a period of 5-15 days in most countries, but up to several weeks or months, e.g. in Austria, Germany, Italy and Switzerland and even for two years in the Netherlands. In addition, most OECD countries provide publicly paid sickness benefits for employees temporarily unable to work that can extend far beyond employers' liabilities, for up to one year in many OECD countries and even longer than this in some (OECD, 2018[67]). Many countries also provide sickness benefits to those who are self-employed, often with rules that differ considerably from the regulations governing employees (OECD, 2019[39]). However, certain groups of employees, such as casual workers and those with zero-hour contracts, are often not entitled to paid sick leave or only during the times when they actually work. Total spending on paid sick leave prior to the crisis, including employer payments and public sickness benefit, sums to 3% of total employee compensation or more in countries with the most generous systems (OECD, 2020[68]).

During a pandemic, paid sick leave can play several additional important roles in:

- *Permitting workers exposed to the virus to self-isolate.* Providing financial compensation is of major importance in order for workers to self-isolate. Survey data for Israel collected in the lead-up to the COVID-19 outbreak indicate that 97% of adults report they would comply with a government-mandated quarantine if their wage losses were compensated, whilst compliance would drop to 57% without such compensation (Bodas and Peleg, 2020[69]).
- *Helping contain and mitigate the spread of the virus.* Paid sick leave allows workers who are (potentially) infected to stay at home rather than infect others at or on their way to work (OECD, 2020[70]). Access to paid sick leave for employees in the United States reduced influenza-type disease rates by 10% and aggregate work absence by 18% (Pichler and Ziebarth, 2017[71]; Pichler, Wen and Ziebarth, 2020[72]; Stearns and White, 2018[73]).
- *Absorbing the economic shock.* Paid sick leave preserves the jobs of a potentially large number of sick and quarantined workers, who are temporarily not available to work but who are valuable to their employers and society at large in the longer term. By doing so, it can reduce pressure on unemployment benefit systems and short-time work schemes and contribute to stabilising the economy. 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 states that did not have statutory paid sick leave policies in place (Chen et al., 2020[7]).

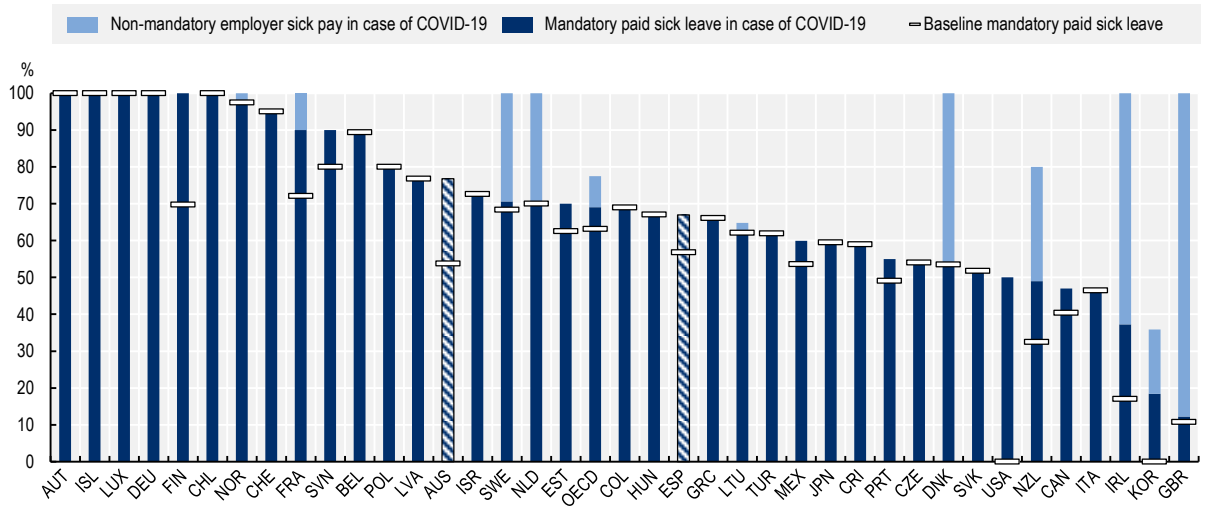
Many OECD countries have resorted to, substantially expanded or even initiated paid sick leave policies during the last weeks and months. Crisis response policies included: first, expanding access to groups of sick workers previously not covered; second, improving the adequacy of paid sick leave support by waiving waiting periods, increasing benefit levels or extending benefit durations; and third, extending paid sick leave to support workers in quarantine – an unprecedented policy in most countries. However, most of these measures remained limited to people actually suffering from COVID-19 or in mandatory quarantine. Those excluded from sick-leave payments because of the nature of their contracts – such as contracts that do not specify a fixed amount of work or hours – remained by and large ineligible.

Better protecting sick employees…

Paid sick leave replaces large parts of earnings of eligible employees in many countries, though cross-country variation is large.[24] In the hypothetical case of a four-week sick leave caused by a COVID-19 infection, paid sick leave in most countries replaces around 60-80% of the last wage of a private-sector employee earning an average wage and working with the same employer for one year (Figure 1.18). The replacement rate even reaches 100% in many countries in Northern and Central Europe. In a minority of countries, people would receive less than half of their last wage over this four-week period. Payment rates usually decline over time. Over a sick leave lasting as long as three months the payment rate would fall to on average around 60%, with larger cross-country variation.

Figure 1.18. Paid sick leave replaces large parts of eligible employees' wages, with significant recent changes in regulations in a number of OECD countries

Cumulated gross sick-leave payments in the first four weeks of sick leave as a percentage of previous earnings for a person who fell sick with COVID-19, rules valid in mid-May 2020



Note: The results refer to an eligible full-time private-sector employee who is married with no kids, age 40, earning an average wage and working with the same employer for one year. "Mandatory paid sick leave in case of COVID-19" refer to mandatory payments directly paid by the government or by employers (often partly subsidised by the government) to eligible employees who contracted COVID-19. "Non-mandatory employer sick pay" includes employer sick pay commonly agreed via collective agreements or other arrangements; these payments are included for those countries were the majority of eligible employees would receive such payments. Baseline leave entitlements refer to regulations in place in 2019, except for Australia, Israel, Japan, Korea, New Zealand and Turkey (all 2018). Countries emphasised with a dashed fill (Australia and Spain) are those where employees are entitled to a benefit other than a dedicated sickness benefit.
Source: OECD (2020[66]) "Paid sick leave to protect income, health and jobs through the COVID-19 crisis", https://www.oecd.org/coronavirus/en/policy-responses.

StatLink https://stat.link/dyhgkp

In response to the crisis, 16 of the 38 OECD countries increased sick-leave entitlements for people with COVID-19, as illustrated by the vertical distance between the stacked bar and the dash in Figure 1.18. Several of them carried out rather large increases – including Finland, France, Australia, Spain, New Zealand, the United States, Ireland and Korea – often through the introduction of new pandemic-related payments or top-ups. Notably, Korea, which has no mandatory paid sick leave scheme in place, provides exceptional paid sick leave through its 2015 Epidemic Act to workers who are hospitalised or quarantined because of COVID-19. The United States introduced two weeks of mandatory sick pay for workers with COVID-19-related symptoms for companies with up to 500 employees, paid by the employer but fully reimbursed by the federal government. While not all employees benefit, this measure should temporarily raise coverage significantly.[25] Seven countries (Estonia, France, Ireland, Latvia, Portugal, Sweden and the United Kingdom) temporarily abolished existing waiting periods, thereby achieving small increases in replacement rates. While most of these waiting periods were only a few days long, waiving them can be an important tool to prevent the spread of the COVID-19 virus, as viral load seems to peak quickly after the onset of symptoms (He et al., 2020[74]). Many OECD countries took additional steps to facilitate access to benefits for all or some workers. More than ten countries eased reporting requirements, by delaying or waiving the need for medical certification or by allowing online benefit applications. This also lessened the burden on and the risk for health workers. Eight countries improved the protection for health workers by recognising, only for this group, COVID-19 as occupational disease, with more generous entitlements from occupational-accident insurance. Only Spain recognises COVID-19 as occupational disease more generally for all employees.

… and employees in quarantine

Since the start of the pandemic, many workers across the OECD were required to temporarily shelter at home for a variety of reasons. This may be because they had non-diagnosed mild symptoms; had close contact with people who showed symptoms or had a diagnosis; or were at a higher risk of serious illness in case of contracting COVID-19 because of existing health conditions.

The legal situation of eligible employees in mandated quarantine differs across countries, but they can receive paid sick leave in almost all countries if they have mild symptoms and cannot continue to work from home. Some, like Austria and Germany, have automatic mechanisms in place through their Epidemic Acts that pre-date the COVID-19 pandemic. They treat quarantined employees who cannot work from home as being on sick leave. The situation is similar in Finland and Sweden where quarantined employees are entitled to paid sick leave following the countries' regulations on infectious diseases. Other countries took deliberate steps to broaden benefit coverage to quarantined workers (the Baltics, most Central European countries, Denmark, Norway, Ireland and the United Kingdom) or introduced new crisis payments for both sick and quarantined employees (Canada, New Zealand and the United States). In Belgium and France, quarantined employees who cannot work from home can draw on short-time work benefits.

Better protecting sick self-employed workers

Paid sick leave can only be an effective tool during the containment, mitigation and post-confinement periods if it is widely available to large parts of the labour force. This was by no means the case in all countries prior to the crisis.

The self-employed stand out as a group of workers in non-standard employment who, prior to the current public health crisis, often had poor or no access to sickness benefits (OECD, 2019[39]).[26] However, rules for this group differ substantially across the OECD. Only in a minority of countries, self-employed workers have similar access to sickness benefits as dependent workers (Belgium, Denmark, Estonia, Finland, France, Hungary, Iceland, Latvia, Lithuania, Norway, Slovak Republic, Spain and Sweden). A handful of countries provide partial access to paid sick leave for self-employed workers, because of less advantageous eligibility conditions, benefit amounts or receipt durations (Austria, Germany, Ireland, Portugal and the United Kingdom, OECD (2020[68])).[27] Also, waiting periods in many countries are significantly longer for the self-employed than for dependent employees, with the aim to reduce costs and/or moral hazard. In the course of this pandemic, many OECD countries have temporarily expanded access to sickness benefits for self-employed workers who are sick with COVID-19 or quarantined (OECD, 2020[66]). A number of countries have improved access for self-employed workers to (immediate) paid sick leave by lowering or eliminating the (often much longer) waiting periods and providing them with entitlements in case of mandatory quarantine (Denmark, Latvia, Norway, Portugal and Sweden). Several countries temporarily reformed sickness benefits and extended entitlements that affect dependent and self-employed workers alike. For example, Estonia, France, Ireland and the United Kingdom temporarily waived the waiting period that was of similar length for both dependent and self-employed workers, and Ireland and the United Kingdom increased sickness benefit generosity. Some countries have introduced new payments or provided entitlements to a benefit other than a dedicated sickness benefit, which self-employed workers can access much like dependent workers (Australia, Canada, Finland, Korea, New Zealand, Spain, Switzerland and the United States). In almost all cases, however, measures are time-bound and limited to COVID-19 cases only.

Paid sick leave entitlements do not give a full picture of the level of income support available to the self-employed in case of sickness or quarantine in every country. Some countries have chosen to use different tools and benefits to support self-employed workers unable to support themselves during this crisis irrespective of whether they had to scale down or suspend their business operations because of

sickness, quarantine or other reasons relating to lockdowns. Indeed, various countries provided hardship funds or other payments to self-employed workers (see Section 1.3.3).

… and easing the costs for employers

Many countries provide strong incentives to employers to prevent sickness and assist sick workers in their return to work by making them financially responsible for sick pay during an initial period of several days, weeks or months (Palme and Persson, 2020[75]). Arguments for employer funding of sick pay, however, do not seem to apply or even risk being counterproductive in the outbreak phase of a pandemic. In the case of a very contagious disease, prevention requires keeping workers at home rather than encouraging them to come to work. Reintegration is not directly relevant in a confinement. It is also not obvious that employers should pay for extensions of existing legislation, especially if they are facing major financial stress already. In such situations, temporarily lifting or reducing employer costs (through direct payments or tax credits) seems justified.

Countries have reacted very swiftly to this new challenge, and many have introduced measures to support employer costs for sick pay. More than half of the OECD countries for which information is available and in which employers have sick-pay obligations have changed their regulation accordingly, or, like Austria and Germany, enforced their Epidemic Acts, which include an automatic adjustment to reduce employer costs. In some countries, employers can seek reimbursement for their sick-pay costs while in others workers sick with COVID-19 can receive a public sickness benefit from the first day. Public funding of the costs of sick pay for quarantined workers is even more common, for good reasons, and more often from the first day of an entitlement. Through the reforms in the funding mechanism taken between March and May 2020, the employer contribution during a four-week sick leave fell from around 50% to around 20% of an employee's gross wage at average earnings level on average across OECD countries. For a worker entitled to sick leave in two-week mandatory quarantine, the employer contribution is on average less than 10%.

How important has paid sick leave been in the current crisis?

Real-time data on the take-up of sick leave are available less regularly than data for unemployment or other social benefits, partly because of limited reporting requirements in many countries during the period covered by employers. However, preliminary data available for about a dozen OECD countries suggest that take-up of sick leave rose significantly during March and early April, often by between 30% and 100%, with typically between 4% and 6% of the workforce receiving paid leave.[28] Data on the change in the composition of paid-leave receivers are even scarcer, but they suggest that a sizable share of the increase could be due to quarantined rather than sick workers. Latest data for late April and May also suggest a sudden decline in sick-leave numbers in a few countries, such as Austria, Germany, Italy and Sweden, largely explained by a lower likelihood of those who are teleworking to take sick leave.

Overall, the increasing use of sick leave to no more than 6% of the workforce may seem small, compared to the massive inflow into short-time work and/or unemployment schemes in many OECD countries. In part, use of sick leave remains low exactly because in this early phase of the crisis, short-time work has become so prevalent. Also, a doubling in sick-leave rates is a very significant change given that at any moment in time, infection rates of COVID-19 are a small proportion of the total population in most countries, and a relatively small share of people with COVID-19 symptoms require sick leave for very long periods.

Helping workers with additional family care needs

The COVID-19 crisis has increased the demands on many workers to provide family care. Some workers have had to provide care for relatives who contracted COVID-19, or who are in quarantine or self-isolation. Many others were affected by the scaling back or closure of childcare facilities, schools and other social care services, including for the elderly and those with disabilities.

The widespread closure of schools and childcare facilities has had a particularly stark effect. Worldwide, more than 190 countries closed their schools at some point since the start of the crisis, affecting, at peak, more than one and a half billion students (UNESCO, 2020[76]). Among OECD countries, only Australia, Iceland, Sweden and the United States have decided against countrywide closures (UNESCO, 2020[76]). This has caused considerable difficulties for working parents: many have had to lead or supervise home schooling, and most have had to (arrange) care for their children during the working day.

Working full hours is often very difficult, if not impossible, under such circumstances, notably for single parents and couples where only one partner can telework. Parents with younger children, who require closer attention, report particular difficulties balancing work and family (Eurofound, 2020[77]). Couples where both parents have to be physically present at their workplace have faced an even greater challenge. This includes many workers in essential occupations.

Pre-existing rights to special leave

In most OECD countries, workers have a well-established right to leave to care for sick or injured children (OECD, 2020[78]). In several countries, these (or separate) family care leave rights also extend to other sick dependents and adult relatives (e.g. Australia, Austria, Canada,[29] the Czech Republic, Estonia, Israel, the Netherlands, New Zealand, Norway, Poland, Portugal, the Slovak Republic and Slovenia). Family care leave is usually paid, often at or near full earnings-replacement, either by the government or public social insurance, or through continued payment of salaries. However, except in cases of serious illness, the duration is often limited: in many countries, these rights stretch to only a few days per episode (e.g. Finland, France, Switzerland) or a week or two per year (e.g. Australia, Austria, Germany, Israel, the Netherlands, New Zealand, Norway and the Slovak Republic), which may not be sufficient for a period of quarantine or prolonged infection. Entitlements to longer care leaves are usually only available for critical or terminal illness. In a few countries (e.g. Israel and New Zealand), any days used for family care are deducted from the worker's own sick leave entitlement.

Parents' rights to special leave in cases of school or childcare facility closure are less well established. Only a small number of OECD countries provide parents with a pre-existing right to leave in case of school or childcare closure (e.g. the Czech Republic, Lithuania, Poland and the Slovak Republic) or other "unforeseen emergencies" (e.g. Australia and the United Kingdom) or *force majeure* (e.g. Ireland). Moreover, in some countries (e.g. the United Kingdom), these rights extend only as far as *unpaid* leave, with the decision to continue payment of salaries typically left to the employer or collective agreement. Many working parents are unable to afford to take unpaid leave for a prolonged period. In several others, the right to paid leave lasts only for a couple of weeks (e.g. Australia, the Czech Republic, Lithuania and the Slovak Republic) or less (e.g. Ireland). These rights would be quickly exhausted in the face of closures spanning months, as seen through this crisis.

In response to the limitations of existing rights, many countries have stepped up support for working parents and those with additional family care needs, usually through temporary emergency measures.

Targeted childcare options for parents in "essential" occupations

Several countries that closed childcare facilities and schools (such as Austria, Denmark, France, Germany, Latvia, the Netherlands, Norway and the United Kingdom) kept some facilities open, with a skeleton staff, to look after children of essential service workers, notably in health, social care and teaching. In France, for example, childcare facilities for such families could host up to ten children, and childminders working out of their homes could exceptionally receive up to six rather than three children. In New Zealand, essential service workers with children aged 5 to 14 could benefit from state funded in-home childcare while schools were closed. Korea introduced a similar in-home childcare scheme that covers all two-earner families with children under age 12. In Australia, the Commonwealth Government is subsidising childcare facilities that remain open and provide services free-of-charge to disadvantaged children and the children of essential service workers.

Special paid leave for workers affected by school or childcare closures

A number of countries have introduced or extended special paid leave (or special income support for those on unpaid leave) for working parents who provide care at home while schools or childcare facilities are closed. This includes Austria, Belgium, Canada, the Czech Republic, Finland, France, Germany, Greece, Italy, Japan,[30] Korea, Lithuania, Luxembourg, Norway, Poland, Portugal, the Slovak Republic, Slovenia, Sweden, Switzerland, the United Kingdom and the United States. In most of these countries, the right to special paid leave or income support lasts for a fixed number of days or weeks, ranging from 10 days (per parent) in Korea to up to 12 weeks in the United States and four months in Canada. However, in some (e.g. Belgium, the Czech Republic, Finland, France, Luxembourg, Switzerland), it extends for as long as schools and childcare facilities are closed. In almost all countries, the right to paid leave is conditional on no alternative care arrangement being available.

In several countries, workers taking special leave receive either a flat-rate payment (e.g. Belgium, Canada, Finland and Korea) or a fixed part of their salary (e.g. the Czech Republic, France, Germany, Italy, Portugal, Switzerland, the United Kingdom and the United States); in a few (e.g. Austria, Norway), leave-takers continue to receive their salary in full. In a minority of countries (e.g. Austria, Greece, Norway and Portugal), financing is shared between employers, general taxation and/or public social insurance. However, as continued payment of salaries is likely to be difficult for many employers, most countries have looked either to minimise employer contributions or to fund special leave entirely through general taxation or social insurance.

Self-employed workers with care responsibilities can find themselves in a particularly vulnerable position. Most countries exclude them from existing family care leave regulations, and self-employed workers may face substantial income losses if they cannot arrange care or schooling for their children. Some countries[31] have therefore extended special paid care leave (or income support) to self-employed workers. However, the financial compensation they receive can be lower.

1.3.2. Securing jobs, saving companies and maintaining essential service provision

Liquidity relief for firms

Mandatory business restrictions, quarantines and limitations on individual mobility have put companies under severe strain. With sales plummeting, even productive, well-managed firms faced major liquidity shortages in responding to their financial commitments to suppliers, employees, lenders, investors and the state. The large number of simultaneously affected firms limited access to trade credits, an otherwise important source of short-term financing.

OECD (2020[30]) estimates that without public support, 20% of firms would have faced a liquidity crisis after the first month of lockdown, and 40% after three months. Failure to immediately address such liquidity constraints may lead to a corporate solvency crisis as companies with reduced or no revenues for an extended period of time go bankrupt. A series of corporate bankruptcies would severely disrupt not only value chains but also the banking and financial system. Well aware of these risks, all OECD countries (see Figure 1.16) adopted a vast range of emergency measures aimed at supporting firms' liquidity in addition to the monetary measures taken by central banks. These ranged from deferrals in tax and social-security contributions to liquidity injections through equity participation, direct subsidies based on past sales, subsidies for maintaining employment, grants. Many countries also took specific measures to support small and medium enterprises (SMEs), which usually face stronger liquidity constraints (OECD, 2020[79]).

Job retention schemes

As demand collapsed and supply chains broke, companies also found themselves with excess capacity. This put jobs at risk on a large scale. Job retention schemes (JRS) have been one of the main policy tools for many OECD governments to contain the employment and social fallout of the COVID-19 crisis and avoid massive layoffs (see Section 1.2). They seek to preserve jobs at firms experiencing a temporary reduction in business activity by alleviating firms' labour costs while supporting the incomes of workers whose hours are reduced. They can take the form of short-time work (STW) or temporary layoff schemes that directly subsidise hours not worked, such as the German *Kurzarbeit* or the French *Activité partielle*. They can also take the form of wage subsidy schemes that subsidise hours worked but that can also top up the earnings of workers on reduced hours, such as the Dutch Emergency Bridging Measure (*Noodmatregel Overbrugging Werkgelegenheid, NOW*) or the Job Keeper Payment in Australia. They differ in their generosity for firms and workers and the requirements that they impose for eligibility (e.g. economic need, agreement by social partners) and on the behaviour of participating firms and workers (e.g. restrictions on economic dismissals, job search by workers) (Hijzen and Venn, 2011[80]).

A crucial aspect of all JRS is that employees keep their contracts with the firm even if their work is suspended. This allows firms to hold on to workers' talent and experience and quickly ramp up operations once economic activity recovers. They provide the necessary liquidity to permit firms to continue paying at least part of workers' salaries and to prevent the termination of jobs that have temporarily become unprofitable but that are likely to remain viable in the medium term. Consequently, they prevent layoffs that are inefficient for the firm itself and costly for workers and society at large. Indeed, one of the lessons learned from the global financial crisis was that STW schemes can play an important role in mitigating the economic and social costs of major demand shocks (OECD, 2010[81]; 2018[82]; Hijzen and Martin, 2013[83]; Cahuc and Carcillo, 2011[84]; Hijzen and Venn, 2011[80]). In the current context of a "self-imposed" supply shock, in which governments shut down many activities and imposed severe restrictions, the widespread use of JRS seems even more sensible. Some countries explicitly prohibit companies participating in JRS from dismissing workers while they participate in the scheme (the Netherlands during the first three months of the programme, New Zealand, Poland), and in some cases including a short period after (Austria, France, Hungary and Spain).

In the early stages of the COVID-19 crisis, the overriding concern for governments has been to help firms and workers deal with the sudden and unpredictable decline in business activity resulted from the health crisis and government-imposed restrictions. To this end, many governments have modified existing job retention schemes, or introduced new ones, to maximise take-up (see Box 1.6 for a presentation of four country cases). Concerns over the potential negative effects of JRS, which arise in ordinary times, were initially of second order. In particular, the risk of devoting public resources to support jobs that employers would have retained anyway seemed limited. Restrictions in business activity during confinement heavily reduced sales and hence financial resources in many firms across almost all sectors. In ordinary times, JRS can also impede the reallocation of workers to more productive firms. But also this risk seemed limited during the early phases of the current crisis, given the virtual standstill in hiring and since the government-imposed restrictions and physical-distancing measures affected many firms independently on their pre-crisis performance.

However, as countries move out of the strict confinement phase, policy makers have to strike the right balance between ensuring adequate support for jobs that are temporarily unviable and limiting the extent to which subsidies reach jobs that would be preserved anyway or that are unviable even in the long term – see Section 1.4 and OECD (2020[30]). Institutional differences in JRS across countries typically reflect different approaches to addressing this challenge – see OECD (forthcoming[20]), Hijzen and Venn (2011[80]) and Müller and Schulten (2020[63]) for in-depth discussions of the main features of existing and new JRS.

Table 1.1. Countries have adjusted existing job retention schemes or adopted new ones

	Pre-existing short-time work scheme	Increased access and coverage	Increased benefit generosity	Increased access for workers in non-standard jobs	New short-time work scheme	New wage subsidy scheme
Australia						●
Austria	●	●	●			
Belgium	●	●	●			
Canada	●					●
Czech Republic	●	●	●			
Denmark	●	●			●	
Estonia						●
Finland	●	●	●	●		
France	●	●	●	●		
Germany	●	●	●	●		
Greece					●	
Hungary					●	
Iceland					●	
Ireland*	●					●
Italy	●	●		●		
Japan	●	●	●	●		
Korea	●	●	●			
Latvia					●	
Lithuania					●	
Luxembourg	●	●	●			
Netherlands*	●					●
New Zealand						●
Norway	●	●	●			
Poland						●
Portugal	●	●		●		
Slovak Republic	●	●	●			
Slovenia					●	
Spain	●	●	●	●		
Sweden	●	●	●			
Switzerland	●	●		●		
Turkey	●	●		●		
United Kingdom					●	
United States	●	●	●			

Note: Ireland and the Netherlands replaced their existing STW scheme by temporary wage subsidy scheme.

Many countries rapidly expanded their STW schemes in the early weeks of the crisis or introduced new ones…

Twenty-two OECD countries had a STW scheme in place before the crisis erupted (Table 1.1), while ten countries introduced new schemes in response to the crisis. All countries with pre-existing schemes rapidly adjusted them to cope with the COVID-19 crisis.[32] Countries' measures to expand existing STW schemes fall into three broad categories:

- *Simplifying access and extending coverage:* Nineteen countries took measures to facilitate and expedite access to STW and boost take-up among the affected firms. Several countries where firms are required to provide an economic justification have adjusted the parameters to allow firms to claim STW if they have experienced a decline in business activity since the start of crisis

(e.g. Japan, Korea and Poland). In others, firms can invoke the health crisis as a *force majeure* by a simple declaration (e.g. Belgium, Czech Republic, France, Italy and Spain). Germany and Norway lowered the minimum permissible reduction in working time to gain access to their STW schemes. Italy, where STW was limited to large firms and certain sectors, extended its scheme to all sectors and firms of all sizes. France and Italy removed the condition that employers must consult with workers' representatives before applying for the scheme. Countries also simplified and streamlined procedures with widespread use of online applications. The United Kingdom facilitated the fast adoption of the newly introduced Coronavirus Job Retention Scheme by a simple online application procedure that allows retroactive claims.

- *Extending coverage to non-permanent workers:* Nine countries extended eligibility beyond workers in standard forms of employment to include temporary, temporary agency and even certain categories of self-employed workers. In principle, this should reduce the risk that STW schemes reinforce labour market duality (Hijzen and Venn, 2011[80]). However, firms may have weak incentives to hold on to workers in non-standard forms of work during periods of STW, especially if the scheme imposes a direct cost on employers.
- *Raising generosity:* Several countries have increased the generosity of STW schemes by raising the replacement rates for workers and reducing the costs for firms. Sixteen countries increased the effective replacement rate for hours not worked. In several countries where employers were required to pay part of the wages or social-security contributions for the hours not worked these costs were reduced to zero (e.g. France, Germany and Italy). In about half of all countries, this cost was already zero before the crisis. The higher replacement rates and lower employer cost in the early stage of the crisis indicate that countries gave more weight to the need to provide support for workers and businesses than to concerns about the possible disincentive effects of the measures adopted.

While most of these changes are temporary, governments have generally made clear that the schemes will remain in place for as long as necessary to reduce uncertainty.

Box 1.6. Job retention schemes in Germany, Italy, Japan and the United States

Germany

Germany simplified access to *Kurzarbeit*. Since March 2020, firms can request support if 10% of their workforce are affected by cuts in working hours, compared to 30% before. Employers initially continue to pay their employees any actual hours worked plus 60% of their net earnings losses because of reduced hours (67% for employees with children). The public employment service reimburses employers for these payments as well as for 100% of social-insurance contributions for the lost work hours (compared to a 50% reimbursement of social-insurance contributions during the global financial crisis). The subsidy is normally also available to workers on temporary contracts and apprentices and it was extended to agency workers at the start of the crisis. In April, the government increased the statutory replacement rates for lost earnings to 70% from the fourth month and 80% from the seventh month onwards (and respectively to 77% and 87% for employees with children). In addition, restrictions on taking another job while on STW have been lifted. Workers are allowed to cumulate additional earnings and STW benefits as long as total income does not exceed previous earnings. In some sectors, unions and employers agreed on higher replacement rates of up to 90%.

Italy

Italy greatly extended the reach of its STW scheme by allowing firms of any size and from all sectors to apply. Firms can simply declare that they have been negatively affected by the COVID-19 crisis without having to provide detailed evidence. They can apply within four months of the start of the reduction in activity and the benefits can be paid retroactively from the end of February 2020. Nevertheless, some

of the intended new beneficiaries have experienced difficulties in accessing the scheme and receiving prompt support. Employers' participation in the cost of the scheme has been suspended, while benefit levels for workers remain unchanged. Benefits pay 80% of gross wages and they are capped at EUR 998 for wages up to EUR 2 159 and at EUR 1 199 for wages above that level. For a worker with an average wage this translates into an effective replacement rate of about 45% when hours are reduced to zero (OECD, forthcoming[20]).

Japan

Japan expanded the coverage and eased the requirements for access to the Employment Adjustment Subsidy. Up until the crisis, access to the Employment Adjustment Subsidy required a 10% reduction in production for more than three months. This has been reduced to 5% over one month. Japan increased the subsidy rates for hours not worked to a maximum of 100% for SMEs and to 75% for larger firms. In May 2020 the government announced an increase in the maximum benefit by 80% (from JPY 8 330 to JPY 15 000 a day per employee). The programme has been extended to cover non-regular workers who are not covered by employment insurance. The government further announced a new scheme to cover workers who have remained without support because their small and medium-sized employers have not applied for the subsidy despite reducing hours. These workers will be able to apply to the new scheme directly and will have 80% of their usual earnings covered.

United States

In the United States, 26 States (accounting for about 70% of the population) operate Short-Time Compensation (STC) programmes. Through the Coronavirus Aid, Relief, and Economic Security (CARES) Act, the Federal Government now funds 100% of STC payments in States with an existing programme and 50% in States that introduce a new one. Also, STC recipients qualify for the same weekly USD 600 increase in benefit payments that is being made to all unemployment benefit recipients for the a period of four months (see Section 1.3.3). However, the use of STC remains very limited for a variety of reasons, including administrative bottlenecks, lack of employer awareness, weak financial incentives for employers (employers are liable for their part of social-security contributions for hours not worked) and limits to the maximum reduction in working hours. To bypass such problems, the United States introduced the Paycheck Protection Program (PPP) to provide small businesses[33] with loans to pay their employees during the COVID-19 crisis, which are forgiven if employment and compensation levels are maintained. While providing direct and immediate support, PPP is not a STW scheme as it is not conditional on having financial difficulties (a reduction in turnover and/or working time).

… while several others introduced temporary wage subsidy schemes

A number of – mostly English-speaking – countries have introduced new JRS that combine elements of standard wage subsidies (i.e. subsidies for hours actually worked) with elements of STW schemes, in that they can also provide income support to workers who are temporarily not working (or, more generally, top up earnings of workers on reduced hours). Australia, Canada, Ireland and New Zealand introduced temporary wage subsidies to cover part of normal earnings. In Canada, the subsidy covers 75% of gross normal earnings (subject to a cap), whereas in Australia and New Zealand, schemes provide lump-sum transfers to firms. In Ireland, the subsidy level varies with employees' income reaching a maximum of 85% of net normal earnings for the lowest incomes. The Netherlands replaced its pre-existing STW scheme by a temporary wage subsidy, which is proportional to the reduction in sales and not the reduction in working hours as in traditional STW schemes. The subsidy ranges from 22.5% of earnings in case of a 25% reduction of sales to 90% of earnings when sales fall to zero entirely. Employees continue to receive 100% of their usual earnings.

Wage subsidy schemes may be more flexible than traditional STW schemes, but tend to be less well targeted

Wage subsidy schemes tend to be easier to implement than STW schemes and provide more flexibility to firms, while being less well targeted to firms experiencing financial difficulties. They grant subsidies for workers present in the firm at the start of the programme if these experience a significant decline in business activity, typically in the range of 20-30%. Firms can decide themselves to what extent the subsidy is used to support hours worked (i.e. as a pure wage subsidy) or hours not worked (i.e. as a STW scheme). Since the subsidy is not dependent on the reduction in hours worked, firms do not need to report how the working time reduction is distributed across workers and how it evolves over time.[34] Besides, while all wage subsidy schemes considered here target firms experiencing significant declines in business activity, the size of the subsidy per worker is independent of the decline in business activity in Australia, Canada, Ireland and New Zealand. It is more strongly targeted in the Netherlands, where the subsidy per worker is proportional to the decline in firms' sales.

There may be various reasons for why these countries have opted for introducing temporary wage subsidy, rather than STW, schemes (OECD, forthcoming[20]). First, with the possible exception of the Netherlands, these countries had no or limited earlier experience with STW schemes: Australia never had a STW scheme; Canada, Ireland and New Zealand operated STW schemes during the global financial crisis, but these were not very widely used. Second, firms in these countries typically face relatively low layoff costs and therefore would have little incentive to participate in a STW scheme that generally involves considerable procedural costs. Finally, by reducing the cost of hours worked, wage subsidies may provide incentives for firms to maintain hours higher and to increase them quickly when conditions improved.

Limiting economic dismissals and protecting workers against unfair dismissal

A number of OECD countries introduced restrictions to collective and individual dismissals during the current crisis (see Chapter 3 for a detailed discussion of employment protection legislation in OECD countries) to limit an immediate rise in layoffs and ensure high take-up of STW schemes. These measures include:

- *An explicit ban on economic dismissals*: Italy made invalid collective or individual dismissals based on economic grounds that were initiated after start of the confinement measures. This includes dismissals for reasons connected to the reduction or the transformation of activities, to the reorganisation of work, and to the closing of the business for total cessation of activities. At the moment of writing, the ban is in force until 17 August 2020. Greece also introduced some limitations to economic dismissals but limited them to companies that benefitted from the COVID-19 support measures.
- *Increased scrutiny and costs*: In Spain, any dismissal related to COVID-19 would be qualified by a judge as either null, resulting with the employee being reinstated, or unfair in which case the employee receives a compensation of 33 days of pay per year of tenure. France announced increased scrutiny of collective dismissals in companies with more than 50 employees by the authority to which these companies must notify the intention to dismiss a worker.

Limiting dismissals of employees with a permanent contract can contribute to maintaining incomes and demand of workers during a period of already strong anxiety, limit opportunistic behaviour of few employers who may use the crisis as an excuse to dismiss "difficult" workers and protect workers from the social stigma of being fired.

However, in particular in case of economic dismissals, a strict ban may also provoke additional company bankruptcies if access to JRS and other liquidity support programmes turns out to be incomplete, impractical, delayed or too costly. A ban on dismissals also risks further shifting the burden of the adjustment on temporary contracts, which can be terminated by simply not renewing them. Also limits on

the number of renewals and maximum durations of fixed-term contracts (see Chapter 3) may further limit the possibility of renewal during the pandemic. To limit such risk, Spain allowed the continuation of temporary contracts reaching the legal maximum duration during the crisis. Facing a surge in non-renewal of temporary contracts, Italy relaxed in May the valid cases for renewal of fixed-term contracts beyond the first year.

During post-confinement, and when combined with generous JRS, strict limitations to economic dismissals may inhibit restructuring processes and slow down the recovery (see Section 1.4). Some workers may remain locked in unviable companies instead of being taken care of by public employment services, which could offer re-training and other support. They can also hold back necessary structural change in the labour market, inhibiting mobility from sectors whose activity may remain subdued for some time (such as aviation, tourism and entertainment) to those that may be growing again more quick (such as health care and online and delivery services).

An economic crisis that results from a pandemic also raises important questions on the boundaries of what may or may not qualify as dismissals on personal grounds. As discussed in Section 1.3.1, the current crisis greatly increased the number of work absences by employees who were sick, had to deal with family care needs or could neither come to the office nor effectively work from home. Sick workers are protected against dismissal by sick-leave policies (where such policies exist). However, employers may dismiss their staff for personal or economic reasons during a medical leave provided that the sickness is not the reason for dismissal. Unauthorised absences may also be a reason for fair dismissal in cases where employees have used the totality of leave days and are still unable to return to work. This is an issue in times where schools are closed and family members may be sick. Finally, dismissals on personal grounds can also include employees unable to perform efficiently their work duties from home, and those refusing to come to work because of sanitary concerns at the workplace or on the commute.[35]

To avoid such risks, Italy and the Slovak Republic introduced some provisions to limit dismissal on personal grounds as well. In Italy, parents living with a disabled child cannot be dismissed from work if they are absent to care for their child, provided that the absence has been previously communicated and motivated. Moreover, parents of children between 12 and 16 years old have the right to abstain from work during the period of school closures and their absence cannot be a cause for dismissal. In the Slovak Republic, an employee who has to take care of a sick family member or young child following schools' closing is considered to be temporarily unfit for work and therefore protected from dismissal.

Supporting essential production and services

At the peak of the pandemic, when large parts of the economy were shut down in many OECD countries, certain sectors, such as health and long-term care, agriculture, food processing and retail and logistics, had to continue operating smoothly. Absences of workers who were sick, quarantined or blocked at home caring for their children, as well as the inability of seasonal workers to travel to their workplaces from abroad, put pressure on some of these sectors. To avoid the risk of disruptions, OECD countries took a number of measures to promote labour mobility. This includes:

- *Incentives to take up a job while unemployed or on STW*. In most OECD countries, workers who receive unemployment or STW benefits cannot – or have little financial incentive – to complement these benefits with other types of income. This may be a source of concern when a large share of the population is not working, and some sectors face labour shortages. To address this issue, Italy, Greece and Spain, for example, have temporarily allowed unemployed people to complement unemployment benefits (as well as minimum income benefits in Italy) with earnings from a job in agriculture. In Germany, restrictions on taking on part-time work while on STW have been lifted. Additional earnings are not credited against STW benefits as long as total income does not exceed previous earnings. In Italy and Belgium, workers on STW are exceptionally allowed to take up a job in agriculture without losing their benefits. The possibility of complementing income from STW

with a new job already existed in France, but it was simplified by giving workers a seven-day notice to be called back in the old job and quit the new one. The new job retention scheme introduced in the United Kingdom also explicitly allows workers to take up another job and cumulate the earnings.

- *Promoting loans of workers across companies*. France has actively promoted "loans" of workers across companies (*la mise à disposition*). With the agreement of the worker and the two companies, an employee can be temporarily loaned to another company while keeping the original employment contract and wage. Loans of employees across companies exist in other countries (e.g. Belgium and Italy) but, in general, they do not appear to be extensively used.
- *Adjusting working-time regulation*. Several countries introduced some flexibility in their working-time regulation. France, for example, granted essential services derogations from the regulation on maximum working hours and weekend work. Between April and May 2020, workers in essential services could work up to 12 hours a day (up from ten hours a day) and 60 hours per week (up from 48 hours). The Slovak Republic also loosened working-time regulation by allowing employers to announce schedules at a shorter notice (two days instead of one week in normal times).
- *Loosening the use of temporary contracts for essential services*. Belgium, for example, extended the maximum permitted number of consecutive temporary contracts for essential-service workers.

1.3.3. Providing income security and employment support to affected workers

Income support for those losing their job or their self-employment income

In spite of governments' bold efforts to protect jobs by expanding or newly introducing job retention schemes and providing emergency liquidity support to firms (see Section 1.3.2), millions of workers across the OECD have lost their jobs. In the United States alone, over 40 million workers have filed new claims for unemployment insurance benefits between March and May 2020. Many more lost work but did not register as unemployed, or had their hours of work considerably reduced (see Section 1.2). Meanwhile, many self-employed workers saw their incomes collapse because they had to suspend, or substantially downscale, their business operations during lockdown. Unemployment benefits and other out-of-work support programmes cushion income losses for households affected by job loss or by a large fall in self-employment income. They are crucial for reducing economic hardship and contribute to stabilising the economy by bolstering aggregate demand, as experienced during the global financial crisis (OECD, 2014[85]).

Workers in standard jobs can often count on timely income support in case of job loss

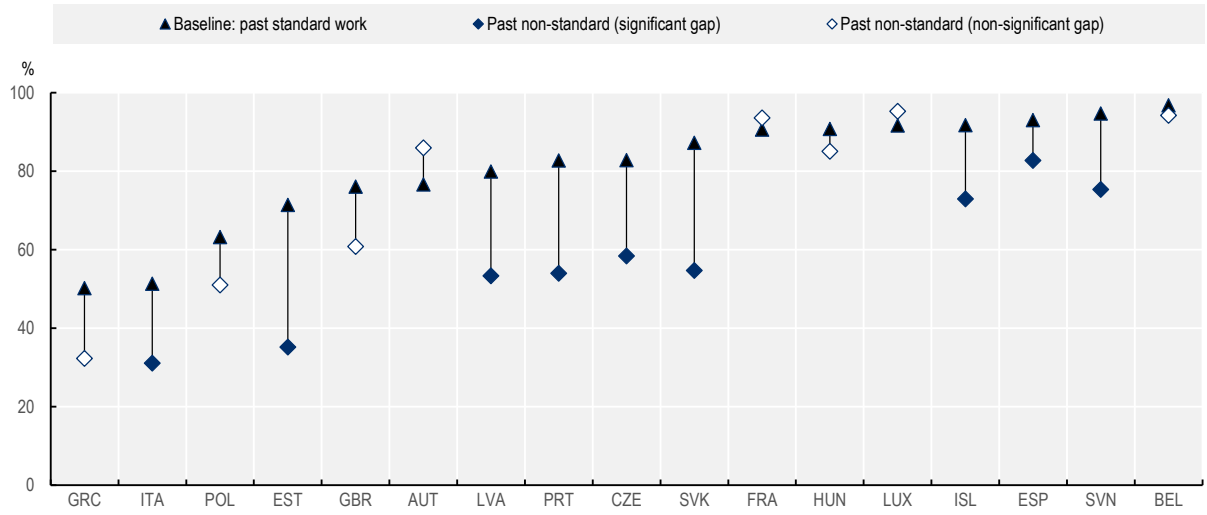
In many OECD countries, workers in "standard" (i.e. open-ended, full-time) dependent employment are comparatively well covered in case of job and income loss. Unemployment insurance benefits are typically the first support layer in the initial phase of unemployment, replacing a certain share of previous earnings for a limited time. Some countries also operate unemployment assistance systems, which provide less generous support to jobseekers who lack the required employment or contribution histories, or who have exhausted their benefit entitlements. Jobseekers in low-income households may also qualify for non-contributory, means-tested minimum-income benefits, such as social assistance. The 2019 *OECD Employment Outlook* (OECD, 2019[86]) showed that in most of the 17 European OECD studied, a large majority of job losers with past continuous full-time employment had access to some sort of income support in 2014/5 (Figure 1.19). However, it also documented substantial coverage gaps: only around 50% of workers in standard jobs in Greece and Italy and around 60% in Poland received any income support following job loss.[36] Moreover, even workers who are covered can experience a very substantial drop in income. For example, in about one in two OECD countries, out-of-work support for workers on modest pay amounts to less than two-thirds of past net earnings during the initial phase of unemployment.[37]

… but substantial coverage gaps exist for those in non-standard and informal employment

Workers in non-standard forms of employment are, on average, significantly less well covered by existing social-protection schemes. The 2019 *OECD Employment Outlook* (OECD, 2019[86]) illustrated that those engaged in self-employment, short-duration or part-time employment are often less likely to receive any form of income support during an out-of-work spell than those in standard employment (Figure 1.19). In some countries, such as the Czech Republic, Estonia, Latvia, Portugal and the Slovak Republic, the coverage gap relative to workers in standard jobs reaches 40-50%. While gaps tend to be larger for the self-employed, part-time workers and those with frequent transitions between employment and unemployment also find it difficult to access out-of-work support in some countries (see Chapter 2). Already before the COVID-19 crisis, many countries were therefore exploring how to shore up access to out-of-work benefits in the context of a changing world of work.[38]

Figure 1.19. Workers in non-standard jobs are often less well covered by income support

Probability of receiving income support benefits for out-of-work individuals, by past employment, 2014-15



Note: Predicted benefit receipt during an entire year comparing: i) an able-bodied working-age adult who is out of work, had uninterrupted full-time dependent employment with median earnings in the preceding two years, and lives in a two-adult low-income household without children ("baseline: past-standard work", triangle-shaped markers); and ii) an otherwise similar individual whose past work history is "non-standard": mostly in part-time work, mostly self-employed, or interrupted work patterns during the two years preceding the reference year ("past non-standard", light and dark diamond-shaped markers). Additional results for different categories of non-standard work are available for some countries.
Statistical significance refers to the gaps between baseline and comparator cases (90% confidence interval). Full-time students and retirees are excluded from the sample. The data source, the European Union Statistics on Income and Living Conditions (EU-SILC) covers additional countries but they are excluded here because effective sample sizes were small (e.g. Ireland, Lithuania), because the required micro-data were entirely unavailable (Germany), because key employment-status variables are recorded only for one individual per household (Denmark, Finland, the Netherlands and Sweden), or because of partial or partly conflicting information on income or benefit receipt (Norway). For further details, see Fernández, Immervoll and Pacifico (forthcoming[87]).
Source: OECD (2019[39]), *OECD Employment Outlook 2019: The Future of Work*, https://dx.doi.org/10.1787/9ee00155-en.

StatLink https://stat.link/4728tj

Informal workers, including undocumented migrants, remain beyond the scope of contributory income-support schemes (OECD, 2020[37]). This includes employees who are not registered for mandatory social security, who are paid less than the legal minimum wage, who are employed without a written contract (where this is a legal requirement), and the self-employed who fail to declare some or all of their

income for tax purposes (e.g. working "cash in hand"). Workers in "partial informality", whose employment is registered but who receive some of their remuneration in cash ("envelope wages") may have some entitlements but will not receive compensation for all of their lost earnings. As a result, the effects of the combined health and economic crisis for households are far more dramatic in emerging and developing countries where informality rates are much higher and the vast majority of the population does not have access to formal social-protection arrangements and cannot afford to shelter at home.

Many OECD countries extended unemployment benefits during the COVID-19 crisis

Over half of OECD countries took steps in the early weeks of the crisis to improve the accessibility and/or the generosity of "first-tier" unemployment insurance or "second-tier" unemployment assistance benefits (see Table 1.2). While those measures primarily benefited workers in standard employment who lost their jobs, some countries temporarily opened up benefits to groups who otherwise would not have qualified, such as workers in non-standard employment. Countries' early measures can be grouped into three broad categories:

- *Improving access to and coverage of unemployment benefits.* 16 OECD countries widened access to unemployment insurance benefits by reducing or entirely waiving minimum-contribution requirements (Finland, Israel, Norway, Spain and Sweden), extending the qualification period for the employment requirement (France, Switzerland) or covering groups that had previously not been entitled. This includes self-employed workers (in Finland and the United States), workers whose contract was terminated during the trial period (Spain), workers on unpaid leave (Israel) and workers who quit their job for a new job offer that fell through when the crisis hit (Belgium, France, Spain). Canada, Latvia, Ireland, New Zealand and Slovenia introduced new unemployment assistance benefits, Colombia made extraordinary payments to jobseekers who had not received any unemployment benefits in the last three years. Australia temporarily relaxed the means-testing of its unemployment benefit. In addition, a number of countries suspended or relaxed "active job search" conditions and related activity requirements for benefit claimants.
- *Extending unemployment benefit durations.* 12 OECD countries have lengthened the maximum possible duration of unemployment benefit payments. Some automatically extended all expiring benefit claims up to a certain time (until the end of the health crisis / state of emergency in Luxembourg, Portugal and Spain; until the end of June in Norway), others for a specific period of time (by two months in Greece, Italy and the Slovak Republic, by three months in Germany and Switzerland, for the duration of the health crisis in Denmark and France). In the United States, the Federal Government extended the maximum unemployment benefit duration to nine months.[39] In addition, a number of countries suspended benefit waiting periods to make support available from the first day of unemployment.
- *Raising unemployment benefit generosity.* Ten OECD countries temporarily increased benefit levels: Australia introduced a coronavirus supplement of AUD 550 per fortnight for recipients of the main out-of-work benefits and for a duration of six months. The United States raised benefits by USD 600 per week for all recipients for a maximum period of four months. As a result of this lump-sum increase, an estimated two-thirds of eligible unemployed workers will receive unemployment insurance benefits that exceed their lost earnings (Ganong, Noel and Vavra, 2020[88]). Norway increased replacement rates to 80% or 62.5% depending on previous income. Sweden raised the unemployment benefit floor (by about 30%) and ceiling (by about 40%) for 100 days. Austria, New Zealand and the United Kingdom raised benefit levels of their unemployment assistance programmes, Colombia made extraordinary benefit payments. Belgium froze the automatic decline in replacement rates over benefit spells for three months. Finland raised earnings disregards for unemployment benefit recipients. France postponed part of a reform that changes the calculation of unemployment benefit levels.

A major concern in the early weeks of the crisis in March and April 2020 was that public employment services in some countries lacked capacity to deal with the soaring jobseeker numbers (Edwards, 2020[89]) and in some cases failed to ensure the timely pay-out of unemployment benefits. For example, an online survey conducted in the United States in mid-April suggests that for every ten people who had filed for unemployment benefits in the previous four weeks, three to four additional people applied but could not get through the system while two more chose not to apply because they perceived doing so as too difficult (Zipperer and Gould, 2020[90]). According to US media reports (Rugaber, 2020[91]), newly covered self-employed and gig workers experienced long delays in receiving unemployment benefits, as most States first had to establish a system to process these new claims.

Table 1.2. Nearly two in three OECD countries expanded unemployment benefits

	Improved access and coverage	Extended benefit durations	Raised benefit generosity	Details
Australia	●		●	Coronavirus Supplement of AUD 550 per fortnight paid for the next six months. Relaxation of the partner income test for JobSeeker Payment and waiving of asset tests for new claims.
Austria			●	Unemployment assistance (2nd tier) raised to the same benefit level as unemployment insurance benefit (1st tier)
Belgium	●		●	Exceptional access to unemployment benefits for workers who voluntarily quit their job to take up a new job but whose job offer fell through. Freezing of the automatic decline in replacement rates over benefit spells for 3 months.
Canada	●			Introduction of new Canada Emergency Response Benefit of CAD 500 per week for up to 24 weeks for workers who have lost their income during the COVID-19 crisis
Colombia	●		●	Extraordinary payment of 2 minimum wages (stretched over 3 months) for job losers who have contributed to the UB system for at least 1 out of the last 5 years. Payment of COL 160 000 per month for 3 months for job losers who have not received any UB during the last 3 years.
Denmark		●		Freezing of eligibility period for three months
Finland	●		●	Temporary extension of unemployment benefits to entrepreneurs and freelancers. Shortening of the minimum contribution period from 26 to 13 weeks for employees. Temporary layoffs are not counted towards the maximum period of eligibility. Increase in earnings disregards for benefit recipients.
France	●	●		Exceptional access to unemployment benefits for who voluntarily quit their job to take up a new job but whose job offer fell through. The confinement period will not be considered for calculating the unemployment benefit entitlements of new claimants. Freezing of eligibility period by the duration of the confinement.
Germany		●		Benefit extension by 3 months for all recipients whose entitlements end between Mai and December
Greece		●		Benefit extension by 2 months for all recipients whose entitlements end in the first quarter of 2020.
Ireland	●			New COVID-19 Pandemic Unemployment Payment for people who lost their jobs during the crisis at EUR 350 per week for a period of up to 12 weeks
Israel	●			Reduction in the required employment history from 12 to 6 months. Extension of unemployment benefits to employees on involuntary unpaid leave
Italy		●		Benefit extension by 2 months for all recipients whose entitlement ended in March or April. Unemployment benefit recipients can work in the agricultural sector without losing their benefits (up to EUR 2 000)
Latvia	●			Introduction of a new temporary unemployment assistance benefit for unemployment insurance benefit recipients whose entitlements expire. Benefits are payable for up to four months, at the level equal to the unemployment insurance benefits paid during the 8th and 9th month (max. EUR 180 per month)
Luxembourg		●		Benefit extension for recipients whose entitlements expire during the state of emergency

	Improved access and coverage	Extended benefit durations	Raised benefit generosity	Details
New Zealand	●		●	New COVID-19 Income Relief Payment of up to NZD 490 per week for up to 12 weeks for workers who lose their job or self-employment due to COVID-19 between March and October. Permanent increase of all core benefits, including Jobseeker Support, by NZD 25 per week;
Norway	●	●	●	Reduction in the minimum-income threshold for eligibility to unemployment benefits. Benefit extension until the end of June for recipients with at most 18 weeks of benefit entitlements remaining on 29 February. Increase in replacement rates to 80% or 62.5% depending on previous income.
Portugal		●		Benefit extension until the end of the containment measures
Slovak Republic		●		Benefit extension by at least 2 months for recipients whose entitlements expire during the crisis
Slovenia	●			New temporary unemployment benefits of EUR 514 per month for workers who lost their jobs because of COVID-19 or whose fixed-term contracts were not extended
Spain	●	●		Suspension of the minimum contribution period, including for temporary workers. Access to unemployment benefits for workers who lost their job during the trial period and workers who voluntarily quit their jobs to take on new employment and whose job offer fell through. Benefit extension until the end of the health crisis
Sweden	●		●	Shortening of the required membership period in the unemployment insurance fund from 12 to 3 months. Abolishment of the 6-day waiting period; increase in the minimum benefit amount from SEK 365 to 510 per day and in the maximum benefit amount from SEK 910 to 1 200 per day for the first 100 days
Switzerland	●	●		Doubling of the reference period to assess the employment condition to 48 months. Benefit extension by 120 days
United Kingdom			●	Increase in the Universal Credit (2nd tier) by GBP 20 per week
United States*	●	●	●	Extension of unemployment benefits to self-employed workers. Extension of maximum benefit duration to 9 months. Benefit increase by USD 600 per week for up to 4 months;

Note: * Information for the United States refers to the federal level.
Source: OECD COVID-19 employment and social policy responses by country, http://oe.cd/covid19tablesocial; OECD COVID-19 country policy tracker, https://www.oecd.org/coronavirus/en/#country-tracker.

The crisis accentuated the problem of social-protection gaps for workers in non-standard employment

The crisis also created an immediate urgency to shore up support for workers and households not covered by earnings-replacement programmes such as unemployment benefits or job retention schemes (OECD, 2020[37]; 2020[30]). It laid bare – or accentuated – existing social-protection gaps for workers in non-standard and informal employment, who are among those most affected by earnings losses so far (see Section 1.2). Without adequate support, many of them face severe and possibly long-lasting income shortfalls and – in the absence of savings – a risk of economic hardship. Limited or irregular working hours may exclude these workers from qualifying for job retention schemes or unemployment benefits. Low-income workers, including many part-time employees who face earnings losses may also lose entitlements to earnings top-ups through in-work benefits, such as in the United States, Finland, France and the United Kingdom.

To respond to these challenges, OECD countries have taken measures to improve access to non-contributory income support for vulnerable workers and low-income households, and/or to raise support levels (Table 1.3).

A number of OECD countries reinforced minimum-income benefit schemes

Fourteen countries have facilitated access to existing minimum-income schemes, such as social assistance, as a way of quickly channelling additional support to low-income households.[40] Some of them

(e.g. Australia, Germany, Italy and the Netherlands) suspended or relaxed income and/or asset tests, both to deliver support more quickly and to widen the circle of potential recipients. Germany, for example, temporarily suspended all asset tests for Unemployment Benefit II, eased the income test, and permitted the reimbursement of *all* housing costs (as opposed to "reasonable" housing costs before the crisis). This will especially benefit the self-employed. In the Netherlands, recipients of social assistance for self-employed workers no longer have to repay this allowance, unlike before the crisis. As in the case of unemployment benefits, a number of countries have also suspended job search and other activation requirements to account for distancing requirements and to avoid delays in payments.

Spain approved a new means-tested minimum living income (*ingreso minimo vital*) aimed at alleviating risks of poverty and social exclusion. Since 15 June, this minimum-income benefit applies nationally across Spain and complements existing regional programmes. It is expected to reach 850 000 households, with a maximum monthly payment between EUR 462 and 1 015, depending on family type.

Data on the development benefit receipt numbers for these minimum-income support programmes are still very scarce, also because such programmes are often not centrally administered. In the United Kingdom, daily new claims for Universal Credit increased tenfold in the first weeks of the crisis, but quickly declined again since peaking in late March 2020. At the time of writing, the latest available data indicate that the number of new claims in mid-May remains about twice as high as it was in early March (Office for National Statistics, 2020[92]). In Italy, the total number of households claiming the minimum-income *Reddito di Cittadinanza* ("Citizenship Income") has risen by 12% between January and April 2020.[41]

Most countries also provided targeted cash transfers to self-employed workers and other vulnerable groups

Most OECD countries introduced new, often time-limited, cash support programmes for people in sudden and urgent need. Such schemes can be suitable in emergency situations to help groups who do not have access to existing minimum-income benefits, or where claiming such benefits is time-consuming and unlikely to provide immediate relief.

Several countries introduced new cash transfers for self-employed workers. Often, these transfers are dependent on previous earnings or on income losses incurred during the crisis. In Austria, for example, self-employed workers will receive a benefit replacing 80% of their net income loss compared to the same month in the previous years, up to a limit of EUR 2000 a month.[42] In the United Kingdom, the self-employed receive a taxable grant of up to 80% of their previous earnings over the last three years. Entitlements are capped at GBP 2 500 a month and can be claimed by self-employed workers with average annual profits below GBP 50 000. Similar schemes exist in Denmark, Latvia and Switzerland. As determining previous earnings of self-employed workers is complex without a structure in place to do so, several other countries have introduced flat-rate payments (such as Belgium, Canada, Italy, Ireland, Korea, Lithuania, the Netherlands, Poland, Portugal and Slovenia) or lump-sum transfers (Colombia, the Czech Republic, France, Greece and Israel). To speed up payments Italy introduced a tax-free, flat-rate payment of EUR 600 payable to self-employed workers. Germany rolled out a corona supplement for self-employed workers, providing cash support of up to EUR 15 000 for small firms with up to ten employees.[43]

New programmes are sometimes specifically targeting informal workers and undocumented migrants, who are among the most difficult to reach in the current situation (Alfers, Moussié and Harvey, 2020[93]). Colombia, for example, is making three transfers of COL 160 000 each for 3 million households who do not benefit from existing programmes. The payment is delivered through bank transfers, for those who have accounts, or by electronic transfers via mobile phone. The state of California in the United States – where undocumented migrants account for 10% of the workforce – has announced that it will support these workers with transfers of USD 500 to 1 000.[44]

… while a few have offered universal transfers

Three OECD countries have announced cash payments to (nearly) the entire population to help people make ends meet. The appeal of such payments is their simplicity: since universal transfers do not depend upon income, assets, or prior contributions, they avoid costly and time-consuming means tests and can be rolled out quickly. The United States pays a transfer of USD 1 200 to all citizens earning up to USD 75 000 a year (USD 150 000 for couples). Families receive an additional USD 500 per child under 17, households above the income threshold may receive a reduced payment.[45] Japan has begun sending a flat-rate payment of JPY 100 000 to all its residents. Korea will make an emergency relief payment to all of its about 22 million households. The payment level depends on household size and amounts to KRW 400 000 for a single person and an additional KRW 200 000 for each further household member (up to a four-person household).

While such temporary universal transfers are appealing in the current context to ensure that no-one falls through the cracks of the social protection system, they are – by design – poorly targeted (see Box 1.7). Many households receiving such support will not be in the greatest need. Meanwhile, such unconditional payments should reach a meaningful level to ensure that vulnerable households who have lost most or all of their income in the current crisis can make ends meet. Depending on other, more targeted, benefits that may be available in addition, this may create very large budgetary costs at a time of huge pressures on government spending.

Most countries also provided direct help with household expenses

Most OECD countries have also stepped in to help vulnerable households make ends meet by permitting them to postpone paying bills or by providing in-kind support. A number of them have allowed for delays in big-ticket regular expenditures such as tax and rent, e.g. by extending the deadlines for tax filing (such as in Canada, Finland, Japan, the United Kingdom and the United States) or social-security contributions (Japan, Spain). Several have introduced temporary deferments of mortgage payments, temporarily suspended foreclosures or evictions (see Box 1.8). Colombia has decided to refund Value Added Tax for the most vulnerable households. Other countries have provided direct support with pandemic-related expenditures, notably health care. In the United States, for example, where health insurance is often employer-provided, many workers who lost their job suddenly also found themselves without any health insurance during the pandemic. The Federal Government therefore announced that it will meet the hospital and testing charges incurred by uninsured COVID-19 patients. Various OECD countries have also extended in-kind support, partly to offset the closure of food banks and suspension of schools meals during the lockdown. The United Kingdom, for example, launched a national voucher scheme to ensure that the 1.3 million eligible school-aged children will continue to have access to meals during school closures. Spain designated EUR 25 million to provide income support through transfers and vouchers to children who are affected by school closures. France has EUR 25 million of funding to support food aid associations, plus a further EUR 14 million to be distributed in emergency food checks.

As countries have grappled to minimise the impact of the containment measures on the livelihoods of their citizens, the usual trade-offs between support and incentives, between generosity and fiscal sustainability, have often, temporarily, been laid aside. Indeed, concerns about undermining incentives to work appear secondary as workers have been asked to stay at home, and worries of fiscal sustainability have been put on pause as policy makers had move fast in attempts to protect livelihoods and avert a deeper economic and social crisis. These trade-offs will change as economic activity picks up over the next months, such that making corrections to the recent measures will become inevitable (Section 1.4).

Table 1.3. Countries across the OECD have taken measures to improve support for workers and households not covered by unemployment benefits or job retention schemes

	Extensions to means-tested programmes	New targeted cash transfers to specific groups	New universal transfers	Additional direct help with household expenses
Australia	●			●
Austria		●		
Belgium	●	●		●
Canada		●		●
Chile		●		●
Columbia	●	●		●
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		●		
Turkey		●		
United Kingdom	●	●		●
United States*		●	●	●

Note: * Information for the United States refers to the federal level.
Source: OECD (2020[37]), "Supporting livelihoods during the COVID-19 crisis: closing the gaps in safety nets", http://www.oecd.org/coronavirus/policy-responses/supporting-livelihoods-during-the-covid-19-crisis-closing-the-gaps-in-safety-nets-17cbb92d/.

Box 1.7. Universal support during a crisis: ad-hoc lump sum transfers vs. a genuine universal basic income?

In some OECD countries, the policy responses to the COVID-19 crisis – in particular, the use of universal cash transfers – have revived discussions on the desirability of a universal basic income (UBI), an ongoing flat-rate transfer to the entire population, irrespective of employment status, income or means. Calls for a UBI in the face of COVID-19 largely relate to two objectives: (i) the need for instantaneous relief for those whose livelihood has suffered during the crisis, and (ii) the need to ensure that no one is left without support.

Two of the key concerns often presented in opposition to providing a UBI as a principal pillar of social protection – that it would undermine work incentives, and that a meaningful cash transfer to the entire population would come at an unrealistically high budgetary cost (and/ or imply eliminating most if not all other well-targeted cash transfers) – may have seemed less urgent during the initial phase of the current crisis. Preserving work incentives, and conditioning benefit receipt on active job search and participation in employment support, have been second-order priorities during the immediate lockdown period, though they will become more important as hiring picks up in some sectors. The fiscal cost of social-spending programmes is currently also not at the forefront of the policy discussion as countries vow to do whatever it takes to protect people and the economy from an unprecedented crisis (Furman, 2020[94]).

However, as countries move beyond the immediate lockdown period, and perhaps into a more protracted economic crisis, budgetary cost will invariably become a major concern. The question then becomes whether UBI is a cost effective way to provide timely and adequate support. OECD analysis (OECD, 2017[95]; Browne and Immervoll, 2017[96]) shows that financing a budgetary neutral UBI (replacing most working-age benefits by a flat-rate payment to all such that cost remains constant) would require very large tax increases and eliminate most if not all targeted transfers that effectively reduce the risk of falling into poverty. The distributional effects of such a hypothetical UBI would be complex: low-income groups who would normally receive other targeted benefits, and higher-income groups paying most of the tax, would typically lose. Those who currently do not receive any benefits would gain – this includes higher-income groups and those who fall through the gaps of existing social-protection system. The bottom line, however, is that a fiscally realistic UBI would be too low to provide reliable poverty alleviation on its own.

In countries with well-developed social protection in place, replacing existing support measures with a "no questions asked" basic income for everybody would be a highly risky strategy that would provide limited income security and be very expensive. Yet, less comprehensive types of universal transfers, restricted to certain population groups or with some form of mild conditionality, can be valuable complements to more targeted support measures. These include universal child benefits or basic old-age pensions that exist in a number of OECD countries, as well as time-limited emergency measures for groups that are known to be poorly served by the main income protection programmes.

Source: OECD (2020[37]), "Supporting livelihoods during the COVID-19 crisis: closing the gaps in safety nets", http://www.oecd.org/coronavirus/policy-responses/supporting-livelihoods-during-the-covid-19-crisis-closing-the-gaps-in-safety-nets-17cbb92d/; OECD (2017[95]), Basic income as a policy option: Can it add up?, *Policy Brief on the Future of Work*, https://www.oecd.org/social/Basic-Income-Policy-Option-2017.pdf.

Box 1.8. Housing and COVID-19: Helping workers stay in their homes

The COVID-19 pandemic has brought to the fore a number of housing challenges and vulnerabilities facing workers in OECD countries.

First, the heightened economic vulnerability generated by the crisis threatens workers' housing stability. Without assistance, workers who have been laid off, are forced to work reduced hours, or are temporarily unable to work may struggle to cover their monthly rent, mortgage or utilities payments. This is a particular risk for households that are already overburdened by housing costs. Across the OECD, renters and low-income households are, on average, more likely to spend over 40% of their disposable income on housing. More than one in ten renters are overburdened by housing costs in the OECD, compared to less than 5% of mortgage holders; meanwhile, over half of renters in the bottom income quintile are overburdened by housing costs in Chile, Israel, New Zealand and the United Kingdom (OECD, 2019[97]). Moreover, even before the pandemic, many households struggled to pay monthly housing costs: according to Eurostat data, around one in five low-income households (below 60% of the median equivalised income) in the European Union fell behind on their mortgage, rent or utility bills in 2018.

Second, living environments have also facilitated – or hindered – the continuity of employment during the pandemic. The widespread shift to teleworking is not feasible for households who do not have a computer or access to the internet at home, or difficult due to space constraints or because devices need to be shared among household members. On average across the OECD, around 87% of households have access to the internet at home, though the share is less than half in Colombia and Mexico; meanwhile, nearly 81% of households in the OECD have access to a computer at home, with less than 50% of households in Colombia, Mexico and Turkey.[46]

Third, the pandemic, along with the shelter-in-place orders implemented to manage the crisis, has elevated health and safety risks among workers living in poor quality housing or unsafe living conditions. Overcrowding, which can increase the risk of infectious diseases (World Health Organization, 2018[98]), is a reality for more than a quarter of all households in Latvia, Mexico, Poland and the Slovak Republic (OECD, 2019[97]). Overcrowding makes it harder to effectively self-isolate, putting workers living in overcrowded conditions at greater risk of contracting and spreading the disease.[47] Preliminary evidence from England and Wales finds a correlation between the number of COVID-19-related deaths and levels of housing overcrowding in local areas (Barker, 2020[99]).

In response to COVID-19, many OECD countries have introduced emergency housing measures to keep workers in their homes (Table 1.4).[48] Emergency measures have largely addressed concerns around housing instability, rather than housing quality gaps, which are hard to overcome in the short-term. Eviction bans are the most common measure to support tenants (in 16 countries), followed by the deferment of rent payments (5 countries), reforms to financial support schemes for renters (4 countries), rent freezes (3 countries), and temporary reductions or suspensions of rent payments (3 countries). For homeowners, 16 countries have introduced more generalised mortgage forbearance in response to COVID-19, and two countries have banned foreclosures due to missed payments for at least some households. In seven countries, at least some households may defer utility payments, and/or are ensured continued service if payments are missed.

While it is too soon to assess the full impacts of the COVID-19 pandemic on housing outcomes, emerging research suggests potential disparities between homeowners and renters – in part due to the employment characteristics of renters in some countries. Researchers in the United Kingdom and the United States suggest that renters face heightened economic vulnerability relative to homeowners, in part because renters are more likely to work in industries most affected by the pandemic (Judge and

Pacitti, 2020[100]; Kneebone and Murray, 2020[101]). Further, some countries, such as France, are anticipating that new support measures could be needed in the event of a second COVID-19 wave, particularly during the colder winter months, where issues around housing quality, the affordability of utilities, and homelessness would become even more pertinent.

Table 1.4. Many countries introduced emergency housing measures in response to COVID-19

Types of emergency, temporary housing measures introduced in OECD countries in response to COVID-19

Type of measure or support	Country
For tenants:	
Eviction ban due to missed payments	Australia*, Austria*, Belgium*, Canada*, France, Germany, Hungary, Ireland, Israel*, Luxembourg, the Netherlands, New Zealand, Portugal, Spain, United Kingdom, United States*
Deferment of rent payments	Austria, Germany, Mexico, Portugal*, Spain*
Temporary reduction or suspension of rent payments for some households	Greece, Portugal*, Spain*
Rent freeze	Ireland, New Zealand, Spain*
Reforms to financial support schemes for renters	Japan*, Ireland, Luxembourg, Portugal*, Spain
For homeowners:	
Mortgage forbearance	Australia*, Austria, Belgium, Canada*, Colombia, Czech Republic, Germany, Greece, Hungary, Ireland, Israel, Italy, Lithuania, Mexico*, Poland, Portugal, Slovak Republic, Spain, United Kingdom, United States*
Foreclosure ban due to missed payments	United States*, the Netherlands
For all households:	
Deferment of utility payments and/or assured continuity of service even if payment missed	Austria, Belgium*, Colombia, Germany, Japan, Korea, Spain, United States*
Reforms to housing subsidy schemes	France (planned reform postponed), Spain
For the homeless:	
Emergency support to provide shelter and/or services to the homeless	Austria, Canada, France, Ireland*, New Zealand, Spain, United Kingdom, United States*

Note: List of measures as of 15 June 2020. * indicates that the measure applies only to some jurisdictions and/or to qualifying households.
Source: OECD COVID-19 employment and social policy responses by country, http://oe.cd/covid19tablesocial.

The COVID-19 pandemic has provided a window into the disparities in workers' access to quality, affordable housing in the OECD. It will be essential to monitor the housing impacts of COVID-19 on different types of households (homeowners vs. renters) as well as across workers in different sectors in order to assess the extent to which emergency measures were appropriately targeted. Canada, for example, plans to integrate household survey responses on housing quality and affordability during COVID-19 with neighbourhood-level information on population density, dwelling types, and household income to assess the relationships between housing and COVID-19 (Statistics Canada, 2020[102]).

Employment services and training for jobseekers and workers

The unprecedented rise in jobseeker numbers in some countries, and companies' massive use of job retention schemes in others, pose an enormous challenge to benefit administrations and employment services (OECD, 2020[103]). The vast volume of incoming support claims during the first weeks and months of the crisis as well as the management of job retention schemes pushed public and private employment services (PES) to the limits of their capacity. Some countries had to build rapidly the necessary infrastructure and procedures to administer new claims. Meanwhile, liquidity-constrained businesses depended on a fast processing of their claims to be able to cover operating costs, while many jobseekers anxiously awaited their benefit payments to be able to pay for their rent and other living expenses. Many

OECD countries therefore took rapid steps to streamline and re-prioritise PES operations, while simultaneously adjusting them to physical-distancing requirements.

To secure a timely pay-out of income support benefits and a rapid processing of companies' job retention scheme claims, several countries simplified claim procedures or prioritised claim processing. Switzerland, for example, doubled the renewal period for its STW scheme from three to six months, hence reducing the number of applications and speeding up the approval process. Belgium and the United Kingdom facilitated online applications. In Germany, where one-in-three companies had applied for STW by end of April, the PES increased the number of staff processing STW claims 14-fold relative to normal times. PES in several countries also relaxed application procedures for out-of-work support or freed up resources by temporarily scaling down and suspending other, less essential services. Some automatically renewed benefits during the confinement period (e.g. incapacity benefits in Estonia and New Zealand, jobseeker benefits in Greece and Spain, and housing and child allowances in the Czech Republic); others lifted deadlines for registering as unemployed (e.g. Slovenia). Most PES temporarily suspended in-person training, job fairs and caseworkers' networking activities.

Soaring caseload numbers, physical-distancing requirements and the inability to look for a job during the pandemic also forced PES to adapt their ways of supporting jobseekers and their capacity to monitor job search behaviour. Most OECD countries have explicit job search reporting procedures (Immervoll and Knotz, 2018[104]), aiming to direct jobseekers to look for work more intensively and earlier on. While PES in a number of countries maintained job search and reporting requirements during the crisis, some eased and adjusted these requirements for jobseekers with children at home because of childcare facility or school closures, or for those in quarantine (e.g. Austria, Brussels (Belgium), the Netherlands, and United Kingdom). Many PES temporarily suspended job search requirements and lifted sanctions (e.g. France, Germany, Portugal, Slovenia, and Sweden). Others did not apply sanctions, but encouraged jobseekers to continue actively searching for jobs (e.g. in Australia, Denmark, Estonia and Latvia).

The current crisis also represents an opportunity for upskilling and reskilling, both for jobseekers and for workers who are idle because they their workplaces are shut down and who cannot work from home. While most OECD PES had to suspend face-to-face training provision to respect physical distancing, many offer training via digital channels. Pre-existing online training solutions enabled many countries to maintain training provision with minimal investment, at least for the type of skills that can be easily taught online (e.g. in Austria, Belgium, Denmark, Estonia, the Netherlands and some regions of Italy). Some countries also quickly boosted online training options. Denmark, for example, amended legislation such as to allow municipalities to offer new digital qualification courses. France made available over 150 new online training courses on the *Emploi Store*. Sweden will use part of the extra funding allocated to the PES and other key players to strengthen distance learning and internet-based education.

Also other governmental or non-governmental actors in several countries quickly developed training courses to address immediate demand pressures (OECD, forthcoming[105]). This includes resources to support health professionals' upskill for the pandemic response. Health Education England, for example, offered free e-learning programmes for the UK health workforce on infection prevention and control and the use of personal-protection or ventilator equipment. Other programmes aimed to reskill displaced workers to help temporarily fill roles in essential services, often in the health or social care sectors, but also in manufacturing, logistics and distribution, or retail. In Massachusetts (United States), Partners in Health, a non-profit health care organisation, is training one thousand workers as contact tracers, an occupation now in shortage. The Swedish Sophiahemmet University developed a course for the medical training of laid-off staff in the airline industry, and another one for elderly care training of hospitality workers. Several countries created, strengthened or further advertised their online tools (matching platforms or skill assessment tools) to connect displaced workers from recent business closures and businesses in sectors currently in demand.

1.4. The way ahead – What is the right policy mix for post-confinement?

As the first wave of the pandemic began to subside across many OECD countries in May 2020, restrictions of people's mobility were eased, economic activities in many sectors re-started and countries began to move to a "new normal". In the absence of a vaccine and effective treatments, countries are now trying to strike the difficult balance between re-opening for business and social life whilst avoiding a new spike in infections. Some mitigation measures will remain in place, and for people and businesses alike, the challenge will be to ensure the application of high hygienic standards and maintain physical distancing in order to avoid the need for renewed mandatary restrictions. Solving the health crisis is an essential precondition to solving the economic and jobs crisis.

As the understanding of the epidemiological characteristics of COVID-19 remains limited, it is still uncertain how the pandemic will evolve in different parts of the world. The seasonality of the virus is yet to be confirmed, but cannot be excluded. Herd immunity[49] is still far on the horizon, not least given the successful containment measures that have brought the reproduction number around or below one in many countries. Also the timing of a discovery of a vaccine remains highly uncertain. Based on the most optimistic estimates, it will take at least 12 to 18 months for an effective vaccine for SARS-CoV-2 to become widely available. However, this assumes that one of the candidates currently in clinical trials turns out to be successful; if none are, the wait will be longer (OECD, 2020[106]).

In the absence of a vaccine, countries can avoid a second wave by identifying and putting in place a package of comprehensive public health interventions. They range from a massive upscaling of testing, tracking and tracing (TTT), to enhancing personal hygienic measures and the continuous enforcement of physical-distancing policies such as banning large gatherings and encouraging people to work from home (OECD, 2020[3]). To support countries in their planning, the OECD has developed a microsimulation, epidemiological model to assess rigorously the likely effectiveness of different containment measures. The model shows that upscaling TTT, enhancing hygienic measures and ensuring wide use of masks would allow a broader reopening of the economy without a new outbreak (see Box 1.9 for a short presentation of its features and the results for Italy).

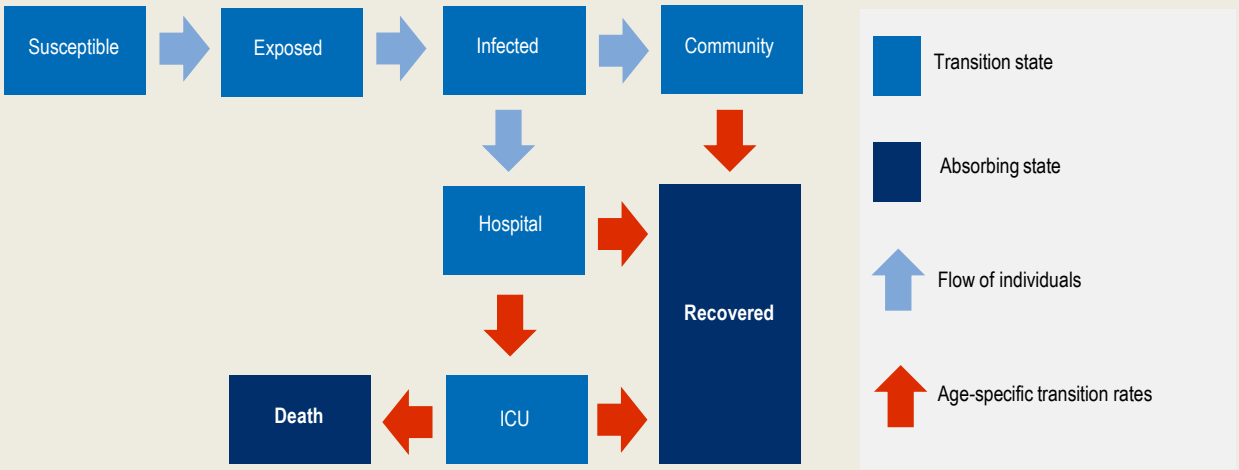
Given the exceptional uncertainties characterising the near-term outlook, the OECD considers two epidemiological scenarios for the coming 18 months – see OECD (2020[30]) and the summary in Section 1.2 of this chapter – though a wide range of other outcomes remain possible. In the first scenario, the containment measures taken during the spring 2020 will manage to limit the diffusion of the virus without a second outbreak and the need to re-introduce more drastic lockdown measures. In the second one, these containment measures do not manage to contain the spread of the virus leading to a second infection wave in October/November 2020. In both scenarios, many service sector companies will likely have to continue operating well below full capacity, notably in food services, accommodation, transport and culture. This could cause a wave of company insolvencies with a further round of job and income losses. Even in the more optimistic "single-peak" scenario, the economic recovery will likely be slow and gradual, and the OECD projects unemployment to remain at the level around that observed at the peak of the global financial crisis until well into 2021 (see Section 1.2). In the more pessimistic "double-peak" scenario, countries may have to return to restricting people's mobility and economic activity. Most businesses will again have to suspend or scale down operations or – where possible – ask their employees to work from their homes. Such a second round of restrictions may even hit businesses and households harder than the first shock as many of them will have run down their savings to absorb the income losses suffered during the first wave. Unemployment will rise further.

Box 1.9. Avoiding a second pandemic wave while re-opening activities: key insights from the OECD epidemiologic model on COVID-19

To support countries in their planning, the OECD has developed a microsimulation model (Figure 1.20) projecting the key parameters of the COVID-19 pandemic for a set of countries. The key features of the model include:

- The model is developed within the OECD SPHeP (Strategic Public Health Planning) framework (OECD, 2019[107]) to ensure consistency with the other OECD epidemiological models
- The model is an evolution of the SIR (susceptible-infected-recovered) approach, which is the basic standard to model communicable diseases such as viral infections. More specifically, the model also includes an 'exposed' compartment to also account for the incubation period as well as compartments for hospitalisations and access to intensive care units;
- The model uses country-specific epidemiological data (e.g. number of deaths) and use of health services as well as evidence on the effectiveness of different containment measures, to generate estimates on the number of infected people and to project the number of hospitalised people and deaths;
- All estimates can be produced under different scenarios, hence the model can be used to understand the most effective set of policies to delay, or possibly, to avoid, future lockdowns.

Figure 1.20. Schematic overview of the OECD SPHeP-COVID model



In a first phase, the model is fed with plausible ranges of epidemiological inputs, retrieved from the literature, on measures such as incubation period and length of the disease. The model's outputs are calibrated to closely match national historical statistics on hospitalisations and deaths due to COVID-19. Cross-country differences in the resulting parameters reflect how different health systems managed the epidemic – for example, depending on whether only seriously affected patients, or the majority of cases, were hospitalised. The model is also cross-validated by comparing projected outputs with other major modelling initiatives. The resulting set of parameters is then used to carry out the scenario analysis, under the following main assumptions:

- The country-specific health care system response to COVID-19 and its effectiveness is maintained constant for the rest of the simulation, for example implicitly assuming that there will be no therapeutic breakthrough;

- Individuals recovered from the infection acquire immunity to the virus and cannot be infected again for the rest of the simulation (in reality, there is some uncertainty over the extent to which this is true);
- Because of inconsistent evidence on how the temperature and humidity may affect the spread of the virus, the model assumes no seasonal effect on the epidemiology of SARS-CoV-2; and
- The 'no-lockdown' and 'all containment policies lifted' scenarios represent the worst case scenarios, with individuals' behaviours and mobility that are maintained the same as the pre-COVID-19 period, leading to the uncontrolled spread of the virus until herd immunity is achieved.

Findings from the model support countries' policy decisions in the early phases of the pandemic and can inform the next steps of the policy-making process.

More specifically, the model provides new insights on two key policy issues (see Figure 1.21):

First, by implementing restrictions to social and economic life, countries have prevented the collapse of their health care systems and have avoided hundreds of thousands of deaths. The model simulations suggest that in the absence of any confinement measures the death toll of COVID-19 could have been in the order of 500 000 in Italy, and millions across OECD countries. In addition, under the same scenario, the number of patients requiring advanced care would have been tens of times more numerous, probably causing a full collapse of health care services and, therefore, even a much higher number of deaths than estimated by the model.

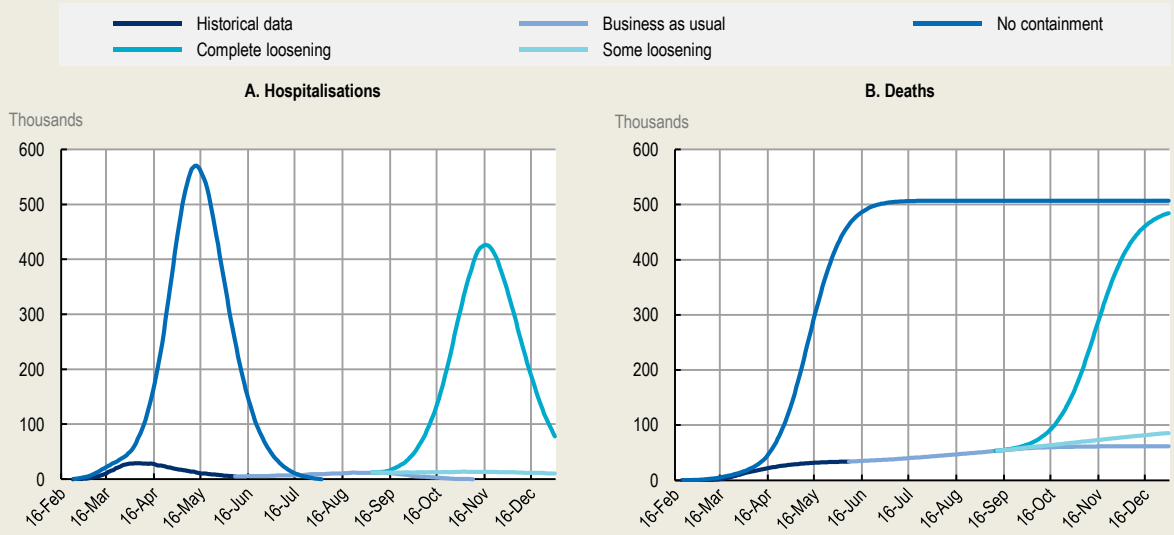
Second, countries can prevent a second pandemic wave, and a consequent lockdown, if they implement comprehensive packages of public health interventions to contain the spread of the infection until a vaccine or effective treatment become available. More specifically, they can achieve this objective by implementing a strategy based on the following three pillars:

1. Massive upscaling of testing, tracking and tracing (TTT) to quickly identify and quarantine new cases as well as their contacts that are at a high risk of developing the infection. The risk of new outbreaks is high, but effective TTT keeps these outbreaks at a small and local scale and prevents the further propagation of the infection. In addition, TTT contributes to maintaining a robust surveillance system and helps monitor key dimensions and thresholds for post-confinement;
2. Enhancement of hygienic measures such as frequent handwashing and deep cleaning to decrease the probability of being infected by contaminated objects, and use of masks (to prevent people who may be pre- or asymptomatic from unknowingly spreading the disease);
3. Continuous enforcement of some physical distancing policies such as banning large gatherings, encouraging people to work from home and closing, or regulating access to, some gathering places.

Greater effectiveness in upscaling TTT, enhancing hygienic measures and ensuring wide use of masks, will permit a further loosening of more physical distancing measures and a broader reopening of the economy. For example, other modelling-based studies suggest that in a scenario where half of the population wears masks and a TTT programme successfully tracks about 40% of infected people within four days, countries could reduce physical distancing policies by almost two thirds compared to a full lockdown.

Figure 1.21. Typical impact of COVID-19 across OECD countries under different scenarios: the example of Italy

Number of hospitalisations and total deaths over time



Note: Italy implemented the lockdown approximately three weeks after the first registered death caused by COVID-19 and relaxed lockdown measures approximately eight weeks after their implementation. Similar timelines have been observed in several OECD countries. The "Historical" scenario shows observed numbers until 7 June 2020. The "No containment" scenario provides a counterfactual simulation under the assumption that countries did not implement any containment policy. The "Complete loosening" scenario gives a model-based projection of numbers under the assumption that all containment policies were lifted on the 1 September 2020. Finally, the "Business as usual" scenario and the "Some loosening" scenario provide a model-based projection of future numbers under two scenarios respectively entailing the continuation of containment policies as they were in place on the 7 June, or a limited loosening of these policies on 1 September 2020 along the lines of what described in the text.

Source: OECD analysis on the OECD SPHeP-COVID model, OECD (2020[1]), "Flattening the COVID-19 peak: Containment and mitigation policies", http://www.oecd.org/coronavirus/policy-responses/flattening-the-covid-19-peak-containment-and-mitigation-policies-e96a4226/ and Tian et al. (2020[108]), "Calibrated Intervention and Containment of the COVID-19 Pandemic", http://arxiv.org/abs/2003.07353.

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Irrespective of which scenario turns out being closer to reality, OECD governments will need to adapt their labour market and social policies in the coming months to respond to the evolving pandemic and the economic developments. During the initial weeks and months of the crisis, countries have rightly focused primarily on providing rapid emergency relief to keep households and companies afloat and prevent the economy from collapsing. In the upcoming months, they will likely need to modify, and adjust the composition and characteristics of their support packages. As countries gradually open up their economies, policies will have to better account for the large existing heterogeneity in workers and companies. Given the cost of the policies put in place, countries will also face difficult decisions about how to target expenditures without risking to prematurely end support for companies or households who still need it.

This section describes some of these policy challenges and discusses potential solutions. These solutions would have to be tailored at country and, sometimes, local and/or sectoral level to account for the specific situation as well as the national institutional settings and traditions, in particular with respect to the involvement of social partners in the definition of labour market policies.

1.4.1. Ensuring workers' safety

Ensuring workers' safety is the prime objective in the near term to limit the spread of the virus, avoid a surge in sickness absences and ensure that workers feel secure enough to work effectively.

For workers who do not need to be physically present at the workplace, working from home remains the easiest way to ensure the continuation of work without incurring the risk of contracting an infection while commuting and working (Section 1.3.1). Several studies[50] have tried to quantify the proportion of jobs that could be potentially performed from home, and thus be shielded from contagion. However, beyond those that can be done from home, a number of other jobs come with only a limited risk of infection. This may be because they imply no, little, or infrequently sustained physical contact with customers or colleagues (e.g. for mechanics, plumbers, archivists, or truck drivers).

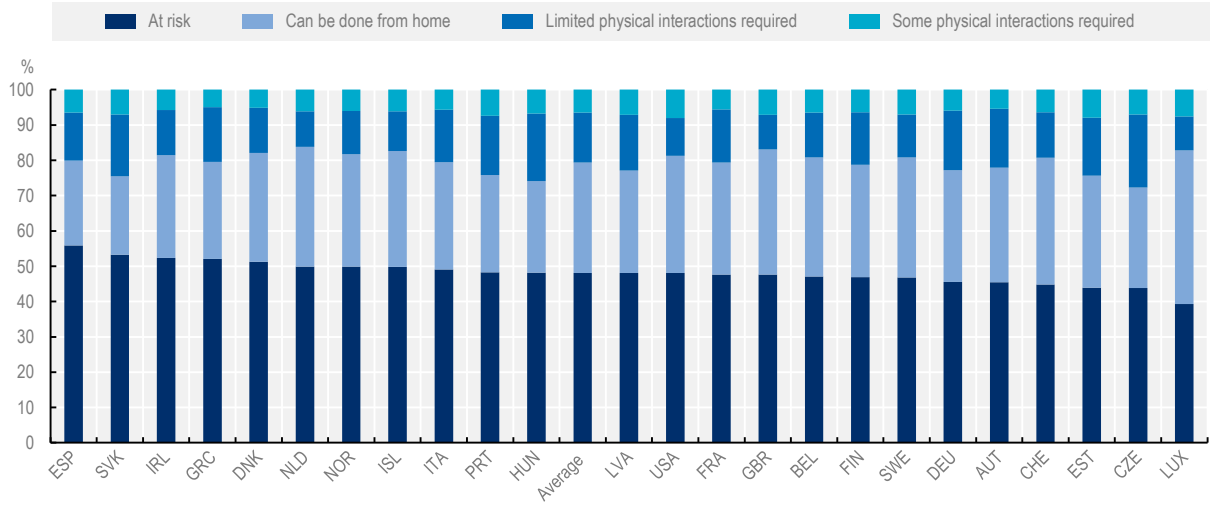
Estimates by Basso et al. (forthcoming[109]) suggest that, on average across 24 OECD countries, 52% of the workforce is employed in jobs that, without taking into consideration work re-organisation during the current crisis, are relatively safe. About 31% of workers can potentially work from home, while the remaining 21% have at most some physical contact with others to perform their job.

However, these estimates also imply that nearly half of the workforce is employed in jobs that do entail some risks of infection in the current situation, as they require a higher degree of physical proximity with colleagues or more frequent physical interactions with the public. The share of workers employed in jobs "at risk" varies from 39% in Luxembourg to 56% in Spain, reflecting cross-country differences in occupational composition. Women (except in Greece) and younger workers are relatively more likely to work in jobs "at risk" across all OECD countries (Figure 1.22). The same is true for low-income workers, who more frequently take up jobs that, under normal conditions, expose them to physical contact and a higher risk of infection. The estimated share of jobs "at risk" does not vary much with population density at the workers' place of residence: while urban areas have a higher share of jobs that can be done from home, non-urban areas have a higher share of jobs that cannot be done from home but entail a low level of physical proximity – such as in agriculture (Basso et al., forthcoming[109]).

Therefore, beyond continuing encouraging telework which does not come without some costs[51], occupational safety and health practices that limit the spread of contagion are a top priority in the post-confinement phase. This requires not only defining the appropriate practices – see, for example, the guide by the European Agency for Safety and Health at Work (EU-OSHA, 2020[110]) – but also supporting firms, in particular small and medium ones, in implementing them (for example, via tax credits). Legal and regulatory enforcement is needed in ensuring the adaptation of practices that limit contagion. In the United States, for example, the Occupational Safety and Health Administration (OSHA) invites workers who believe that their working conditions are unsafe or unhealthful to file a confidential complaint and request an inspection. Whistle-blowers are protected from being fired, demoted, transferred or from suffering other forms of retaliation.[52] Beyond what can be defined in government guidance, laws, and regulation, social dialogue and collective bargaining can be mobilised to complement public action in this area. The protocols and agreements recently signed between employers and trade unions in various OECD countries (see Section 1.3.1) are an excellent example of how to find flexible and tailored solutions for both companies and workers.

Figure 1.22. Around half of workers are employed in jobs that entail some risk of infection

Share of total jobs by country



Note: The estimations are based on 2018 data. Jobs that "require limited interactions" cannot be done from home but entail limited proximity and interactions with colleagues, customers or the public. Jobs that "require some physical interactions" cannot be done from home, entail limited physical proximity but also some interactions with customers or the public. "Average" is an unweighted average across all countries. See Basso et al. (forthcoming[109]) for more details on the methodology.
Source: Basso et al. (forthcoming[109]) based on United States BLS Employment Projections and EU LFS data.

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1.4.2. Maintaining adequate paid sick leave

One way to limit the spread of contagion via workplace exposure, and to make post-confinement safer for everyone, is to allow sick workers to stay away from the workplace. Paid sick leave will continue to perform an important role in containing and mitigating the spread of the virus and protecting the incomes, jobs and health of workers and their families during post-confinement (OECD, 2020[66]). It can prove its value also as part of an effective TTT strategy (OECD, 2020[3]), by allowing (potentially) infected workers to quickly self-isolate. The cost to society of providing paid sick leave to these workers to ensure that they are not financially penalised for isolating themselves is small in comparison to that of them not isolating and spreading the virus further.

To effectively contribute to an orderly post-confinement, countries should consider keeping in place their extraordinary paid sick leave entitlements and extending them to groups of workers who are still not covered, those with zero-hour contracts. Where applicable, temporary measures to support the cost of sick pay for employers are also justified to the extent that large parts of the economy are still confined or otherwise constrained.

Moving forward, structural considerations and adjustments to paid sick leave will likely gain in prominence on the policy agenda to build more resilient labour markets and societies. The crisis has accentuated long-known gaps in paid sick-leave regulations in a number of OECD countries. These countries, some of which have introduced new mandatory regulations for the first time in history, should consider closing these gaps more permanently and for all groups of workers. Particularly for workers on quarantine, automatic extensions of sick-leave rules through epidemic laws have proven effective in countries where such laws exist; other countries may wish to consider introducing such laws or mechanisms.

At the same time, when workers who have been on paid sick leave can safely return to work, governments will have to reinforce work incentives and employment support for workers and financial incentives for employers in order to facilitate return to work. In particular, governments should prevent paid sick-leave systems from becoming a pathway into disability benefits for the long-term unemployed, as has happened in many OECD countries in the past after a recession (OECD, 2010[111]). This is particularly important now, as some workers currently on sick leave or quarantine may not be able to return to their job, as companies may fail to remain in business when job retention schemes phase out. Connecting these workers quickly with occupational rehabilitation or employment services, as appropriate, will be critical to prevent long-term labour market exit of those among them unable to find new jobs.

1.4.3. Upholding support for workers with caring needs

In most countries, schools and care facilities are reopening gradually and in accordance with the local capacity of municipalities and schools to implement public health instructions and ensure the safety of students and staff. However, the challenge of juggling paid work with additional family care responsibilities may continue for many parents and other within-household caregivers in some form, and potentially for several months.

With this in mind, countries may want to avoid a sharp withdrawal of temporary family care support, and rather consider a gradual scaling back of these measures, fine-tuned to the evolution of the situation. In countries where children are returning to school part-time, working parents may need part-time leave support. Countries should also look at reinforcing workers' rights to flexible working arrangements, including remote working, but also covering flexible start and finish times, "time-banking", and the ability to work condensed weeks. Looking further ahead, there may be a need to (re)introduce emergency family care leave during a potential second wave of infection.[53] With more time to plan, countries should draw up contingency plans for delivering alternative care services, should further facility closures be needed. One option is to establish plans for delivering temporary in-home or small-group childcare and supervision services, as New Zealand has done for essential service workers, and Korea has done for two-earner families more generally (see Section 1.3.1). Priority could go to essential service workers and those with no access to flexible working. To help staff in these activities, countries could explore options for temporarily redirecting skilled staff from schools and centre-based care facilities, as and where needed.

1.4.4. Adapting job retention schemes

Job retention schemes (JRS), i.e. government-financed STW and wage subsidy schemes, seem to have averted an initial surge in unemployment in a number of countries (Section 1.3.2). However, designed mainly to provide immediate support, they need to be adapted to ensure sufficiently strong incentives for firms to move off JRS support or for workers to move on to more viable jobs. This is particularly important for schemes that provide generous support to firms and workers for relatively extended periods. This would reduce the pressure on public budgets and also the risk that JRS become an obstacle to the recovery by curbing job reallocation towards more viable and productive firms. Concerns about potential abuse, which were already raised in the early phase of the crisis, may also become more prominent as some firms continue to claim support for shortened hours even after workers have resumed their normal schedules.

However, adapting JRS is challenging given the large variation in the continued role of containment measures across sectors and the level of uncertainty about the strength of the recovery and the risk of a second pandemic wave. Indeed, a key question at this point is whether JRS should be differentiated across sectors. While in some, economic activity may pick up again quickly, others will continue to face legally imposed restrictions to their activities or have to deal with long-lasting changes in consumer patterns. Sectors whose activity remains legally curtailed may require continued job retention support in the post-confinement phase.[54] In sectors where business can resume, JRS could be adjusted to avoid the risk that JRS support jobs that have become permanently unviable. Moreover, JRS should be adapted with caution

and not be withdrawn too quickly to avoid a sudden surge of layoffs. Account should also be taken of the risk of a second infection wave in the coming months that may result in new restrictions and require another scaling up of job retention support.

The main challenge going forward is to target JRS to jobs at risk of being terminated, but likely to remain viable in the longer term. However, any changes to the schemes must also take account of the evolving economic and health crisis and its varied consequences across sectors. Governments have a number of policy levers that they can use:

- *Require firms to bear part of the costs of short-time work schemes, depending on the continued impact of containment measures*. Requiring firms to participate in the costs of hours not worked increases incentives to limit requests only for jobs that they believe can re-start after the crisis. To avoid reinforcing financial difficulties of firms, employers' participation can take the form of delayed-payment or zero-interest loans. This would be similar to experience-rating employer social-security contributions, i.e. making contributions dependent on firms' use of STW subsidies in the recent past, but would be simpler to implement. As part of the phase out of the temporary job retention scheme, the United Kingdom is gradually increasing the cost of employers for keeping workers on furlough. France is currently the only country that applies different rules with respect to the cost of firms for STW between sectors that are open for business and sectors that remain subject to government-imposed health restrictions. In open sectors, firms have to contribute 10% of the cost of hours not worked from 1 June. Requiring firms to participate in the costs of reduced working hours is less obvious in the context of wage subsidy schemes.[55]
- *Support should be time-bound, but limits on their maximum duration should not be set in stone.* Imposing limits on the maximum duration of JRS helps to reduce the risk of supporting jobs that are no longer viable even in the longer term. Maximum limits signal that support is temporary and hence cannot be a solution to permanent problems and reduce the risk of supporting permanently unviable jobs.[56] While limits on the maximum duration have a role to play they should not be set in stone: the duration for which job retention support is provided may need to adjust according to the health and economic situation. A number of countries where temporary schemes have been introduced in response to the crisis have recently announced or are considering to extend the maximum duration of support to avoid that it runs out too quickly (e.g. Denmark, United Kingdom). In other countries, where the maximum duration of job retention support is relatively long, it may be appropriate to shorten the maximum duration of job retention subsidies for new applications. In general, governments have been clear that support will remain available as long as government-imposed health restrictions remain in place. However, more information could be provided about their intentions to extend or phase out job retention measures or the criteria that would be used for making such decisions.
- *Promote the mobility of workers from subsidised to unsubsidised jobs.* This can be achieved by requiring or allowing workers on STW to register with the PES and benefit from their support (e.g. job search assistance, career guidance and training) (OECD, forthcoming[112]). OECD analysis shows that early interventions – including those before displacement takes place – can be very effective in promoting smooth job transitions (OECD, 2018[113]). However, only few countries require workers to register with the public employment services and to engage in active job search while on STW. Countries may not see this as a priority since many of the workers on reduced working hours will stay with their current employer even after the crisis. It may also not be practical since in most countries STW subsidies are paid to the firm rather than to the worker, which means that benefit receipt does not provide a natural point of contact between workers on reduced hours and providers of employment services as in the case of regular unemployment benefits. Indeed, in countries where STW subsidies are paid directly to workers, job search requirements have traditionally been more common (Hijzen and Venn, 2011[80]). Irrespective of whether payments are made to the worker or to the firm, countries could encourage workers to register with

the public employment services on a voluntary basis to allow them to benefit from their services and support their career progression (in their current firm or a different one).

- *Promote training participation while on reduced working hours*. Participation in training while on reduced working hours can help workers improve the viability of their current job or improve the prospect of finding a different job. Several countries encourage training during short-time work by providing financial incentives to firms or workers (e.g. France and Germany), while in a few others participation in training is a requirement for receiving short-time work subsidies (e.g. from June 2020, employers applying for job retention support in the Netherlands have to declare that they actively encourage training, while the government has taken additional measures to make on-line training and development courses freely available). A key challenge is to organise training in such a way that it can be combined with part-time work and irregular work schedules (and while maintaining some physical distancing). This is easiest when training courses are targeted at individuals rather than groups, delivered in a flexible manner through online teaching tools and if their duration is relatively short (OECD, forthcoming[105]). In the present context, training courses that promote the return to work in a way that is consistent with new standards for occupational safety and health could be particularly valuable as would training courses to promote the mobility of workers to jobs in expanding firms and industries (e.g. online services).

1.4.5. Ensuring adequate income protection

With OECD unemployment projected to rise well above the level attained during the global financial crisis, and to decline only gradually in 2021, income support systems across OECD countries will face heavy pressure. Income support for jobseekers and their families is provided under various headings, including unemployment insurance and assistance, minimum-income benefits, as well as other transfers that may or may not depend on the family's income situation. Among these, unemployment benefits are, in principle, best placed to provide an effective combination of income support, job search incentives and access to re-employment services. Some countries already experienced immediate, large inflows into their unemployment benefit systems when the crisis struck (see Section 1.2). In many others, the number of recipients will rise with a delay as some companies will lay off their workers when job retentions schemes end, or in the case a slow recovery – or even a second infection wave – should cause another series of bankruptcies. When weak labour market conditions persist, there can be good arguments for making unemployment benefits more accessible. For example, with reduced job finding rates, and lengthening unemployment spells, extending benefit durations can help to ensure that unemployment compensation systems continue to facilitate a reasonable match between jobseeker and vacancies and provide effective income support during the jobless spell (Immervoll, 2012[114]).

A key question is whether more generous benefits – by reducing job search incentives – may worsen labour market outcomes and delay a recovery. Policy changes during the aftermath of the global financial crisis provide useful pointers for considering the advantages and drawbacks of different benefit designs in this respect. For example, earlier studies of benefit extensions have found that any adverse effects of benefit generosity on individual job search intensities was indeed about the same during recessions and booms (Schmieder, von Wachter and Bender, 2012[115]). But results also suggest that the intensity of job search makes less of a difference to employment outcomes when there are long queues of jobseekers and a much-reduced number of vacancies. As a result, aggregate unemployment is less sensitive to changes in benefit generosity when labour markets are weak. In countries where this is the case, the efficiency costs of providing support would then be no greater (and perhaps smaller) in recessions (Rothstein, 2011[116]; Lalive, Landais and Zweimüller, 2015[117]; Landais, Michaillat and Saez, 2018[118]). At the same time, the need for benefit support is greater, so the cost/benefit ratio of unemployment support would be more attractive when unemployment is high.

When many unemployed exhaust their benefits without finding employment, countries should review benefit provisions, both for social and for economic reasons. Likewise, where benefit entitlement durations

are already generous, an argument that benefit provisions should be responsive to the economic cycle may imply shortening durations once the labour market recovers. Linking automatic changes in the duration of receipt to the overall unemployment rate may be viable in some cases. In all cases, benefit extensions arguably need to be accompanied by changes in related policy areas. For example, extensions can be accompanied by measures such as "soft sanctions" (e.g. requiring claimants to re-apply before any extensions are granted, introducing waiting periods between consecutive claiming periods, or reducing benefit amounts over time). In general, it is important to retain a strong link between benefit receipt and active job search. Changing benefit provisions is, however, much easier and quicker than, say, changing staffing levels or intake procedures at the public employment service (see below).

Countries may also want to assess how to adjust or phase out emergency support programmes for self-employed workers (e.g. new earnings replacement schemes in Austria or the United Kingdom) and small businesses (e.g. cash support for costs in Germany) introduced in the initial phase of the crisis. While the need for such programmes will subside as economic activity picks up again, some viable businesses may continue to face restrictions and/or low demand because of the crisis. The trade-offs in deciding whether, and for how long, to support these businesses are similar for small and large businesses, and resemble those for the phase-out of JRS (see above). In any case, governments may need to re-assess programmes that were designed to deliver support quickly, and with limited concern for targeting. Where earnings replacement schemes were set up without a past earnings test, these tests could be introduced now. Similarly, where payments provide very high earnings replacement rates[57], this could be revised. Unlike unemployment benefits, these benefits are not balanced by prior contributions. Effective targeting is therefore not only important out of efficiency but also out of equity concerns. More generally, this crisis has shown the need to let self-employed workers build up rights to the types of out-of-work support available to dependent employees. While including the self-employed in earnings-related social-protection schemes can be fraught with moral hazard and other administrative concerns, several countries have been successful in establishing well-designed policies that work for their circumstances – see OECD (2018[119]; 2019[86]).

As the crisis lasts longer, claimant numbers for "last-resort" minimum-income benefits may rise as workers who lost their jobs and incomes in the initial phase of the crisis exhaust their unemployment benefit entitlements or run down their savings. Even in normal times, the accessibility, reactivity and generosity of these programmes differ markedly across countries (Hyee, Fernández and Immervoll, forthcoming[120]). Many countries have eased entitlement criteria and simplified application procedures to ensure broad-based and prompt access to these schemes during government-imposed restrictions. As they consider rolling back these concessions, countries could review and simplify entitlement criteria and application procedures with a view to making minimum-income benefits more reactive and accessible to encourage take-up. Effective targeting is important as fiscal pressures mount, but countries need to ensure that those in urgent need continue to receive support. For example, countries could gradually phase back in income tests to allow households to adjust their expenditure, while keeping asset tests relaxed (e.g. exempt the family home or any business assets) as long as job opportunities remain scarce. Countries may also want to expand these programmes to cover young adults, where this is not already the case.

To further ease pressure some workers face because of pandemic-related income loss, countries might consider extending some of the emergency housing support measures introduced during the crisis (see Box 1.8). In the event of a second infection wave, particularly in winter, bans on evictions and foreclosures and targeted financial support to cover utilities could help workers remain in their homes. Even without a second infection wave, many workers likely face an extended period of economic fragility, making it hard to cover mortgage and rent payments in the months to come. Extending mortgage forbearance and eviction bans, which in some OECD countries are set to expire in the fall of 2020, could help workers in the short term, but increase financial fragility in the financial system and further impose financial burdens on landlords. The cost of extending these measures could be shared more evenly, e.g. through partial mortgage and rental payments, and these measures should be gradually phased out as the economic

situation improves. Meanwhile, demand for housing allowances, social housing, and other forms of support are likely to increase. Unlike the global financial crisis, the current crisis may disproportionately affect renters and call for reinforced rental supports; relative to homeowners, renters faced greater affordability challenges prior to the pandemic and are more likely to work in the most-affected industries. Nevertheless, most emergency support measures remain at best temporary fixes. The pandemic has underscored the need to develop more structural responses to address persistent housing challenges for workers across the OECD, bringing to the fore the need for increased investment in social and affordable housing, as well as upgrades to the existing stock to improve housing quality.

1.4.6. Expanding employment services and training

In addition to adequate income support, workers who have lost their jobs during the current crisis may require assistance and encouragement to find new work, increase their long-term employability and avoid falling into long-term unemployment. Many countries temporarily reduced job search support and suspended "mutual obligations" requirements for jobseekers in the initial phase of the crisis to meet physical-distancing requirements and relieve pressure from their PES (see Section 1.3.3). As the health emergency is subsiding, countries should gradually revive their activation regimes making government support again conditional on active job search or participation in programmes that improve their job prospects (OECD, forthcoming[112]). This can support flows into employment, even if job opportunities continue to be depressed in some sectors and as PES have to take into account health and safety considerations when referring jobseekers to vacancies. Some jobseekers may be able to seize up on job opportunities that arise even in times of crisis, including in essential occupations. For others, the crisis may represent an opportunity for up-skilling or re-training, though physical-distancing requirements will reduce the scope of in-person training courses on offer. Young people, as one of the groups hit hardest in the initial phase of this crisis, deserve special attention.

This will require equipping PES with additional resources. As the number of jobseekers and participation in JRS will remain high for the near future, PES will continue to face a much greater demand for their services than before the crisis. PES in many countries will therefore need to build up capacity not to permanently neglect support and services that may have been of secondary importance during the initial phase of the crisis (e.g. career advice, counselling). Countries should scale up active labour market programmes (ALMPs) that have proven effective to ensure effective re-employment support to all unemployed jobseekers, promote job mobility, increase the quality of job matches, reduce unemployment and prevent long-term unemployment. In particular, this includes programmes that support a fast return to the labour market such as job search support and counselling. Moreover, there is a case for supporting job creation by temporarily scaling up easy-to-expand, time-limited hiring subsidies, as many OECD countries did during the global financial crisis (OECD, 2010[81]). Hiring subsidies, in particular if targeted at low-pay workers, can boost job growth and be cost effective after accounting for savings in social benefit payments (e.g. Cahuc, Carcillo and Le Barbanchon (2018[121]) for France and Neumark and Grijalva (2016[122]) for the United States). A number of countries also extended re-employment bonuses for jobseekers (e.g. in form of re-employment allowances) during the global financial crisis to raise the incentives to take up work (OECD, 2009[21]). Past evidence shows that ALMPs tend to have a larger impact in periods of slow growth and higher unemployment (Card, Kluve and Weber, 2018[123]). However, most countries increased ALMP spending only modestly during the global financial crisis. In the OECD on average, a 1% increase in the number of unemployed was associated with a 0.4% increase in ALMP spending (OECD, 2017[124]).

The crisis may also be an occasion for countries to modernise employment services and make them more flexible. PES with well-developed digital services (i.e. e-services for PES users and automated PES back-office systems) and staff teleworking arrangements found themselves much better prepared to respond to the crisis keep their service offers largely intact. In countries where these areas are still less developed, such innovations could contribute to making services available to a large number of jobseekers while respecting physical-distancing requirements. However, PES will also need to develop strategies to

identify (e.g. through profiling tools) and support jobseekers without digital skills and those with complex needs in times when the scope for face-to-face interactions may remain limited.

PES, as well as other private and public training providers, have the additional role to enable and encourage jobseekers and workers to move from sectors that operate below capacity to those that picked up again more quickly. Experiences made with the rapid retraining and matching of workers over the last months may prove valuable in this respect. In the short run, job transitions are easiest when the new job either requires little or no specialised training, or has broadly similar skill requirements as the previous job. This may include retraining displaced workforce from "non-essential" retailers to be hired by "essential" retailers, for example. Similarly, ultra-short courses may be sufficient to support the transition of displaced vocational and technical workers into currently in-demand occupations. Most learning activities may have to take place online until gathering in groups is deemed safe, but this may require mastering a certain level of digital skills. Successful programmes therefore include provisions to support participants who may lack the digital skills or the motivation to complete the learning activity, and they prepare teachers and design curricula for online didactics (OECD, forthcoming[105]). To the extent that cross-sectoral imbalances in labour and skill demand persist during post-confinement, countries will also benefit from further developing their skill assessment and anticipation, and skills profiling tools, as well as their career guidance systems, which can guide workers to the most efficient job transition (OECD, forthcoming[125]).

1.4.7. Giving young people the support they need

To prevent the crisis from leaving long-lasting scars on young people's careers, countries need to act quickly and help young people maintain their links with the labour market and education system. School closures raised the risk of school dropout, temporary contracts are not being renewed, internships and apprenticeships are being cancelled, and new graduates face great uncertainties about their labour market entry. High and persistent youth unemployment in the aftermath of the global financial crisis showed that once young people have lost touch with the labour market, re-connecting them can be very hard (Carcillo et al., 2015[40]; OECD, 2016[126]). The realisation that early action is key is also the basis of the European Union's Youth Guarantee, a commitment made by all EU Member States in 2013 to ensure that all young people below 25 receive a good-quality employment or training offer within four months of leaving school or becoming unemployed.

Support for companies who offer jobs or work experience to young people have proven an effective tool to promote job creation in times of crisis. Australia and Denmark have introduced wage subsidies to help companies maintain or expand their apprenticeship and in-firm training programmes, while Germany and Scotland are introducing subsidies for employers who take on apprentices who have been made redundant during the crisis (OECD, 2020[127]). Canada expanded its Summer Jobs Program that provides wage subsidies for below-30-year-olds, and France is considering a hiring premium or a reduction in employer contributions for young workers. In times of depressed labour demand, volunteering can be a useful alternative for young people to gain practical experience and acquire new skills, and governments could encourage its use through grants.

Effective outreach strategies are crucial to re-establish contact with young people who recently lost their jobs or left school without finding employment. Particularly the more vulnerable young people often do not get in contact with the PES, because they are not entitled to income support, lack trust in public authorities or are simply not aware of the support they can receive. Rapid and proactive outreach – in collaboration with schools and youth organisations and through social-media campaigns – may be particularly important in the current crisis.

The OECD Action Plan for Youth (OECD, 2013[128]) sets out a toolkit of measures that countries and stakeholders can take to promote better outcomes for young people. This includes cost-effective active labour market measures, such as counselling, job search assistance, entrepreneurship programmes, and intensive support for more disadvantaged young. Increased use of online support and virtual-learning

platforms, including in vocational education and training, can allow the PES and education providers to continue offering their services while meeting physical-distancing requirements (OECD, 2020[127]).

1.5. Concluding remarks

This chapter provides a first assessment of the crisis' initial labour market impact as well as an overview of the massive policy response that OECD countries quickly put in place. The immediate impact of the crisis on employment and hours worked has been ten times larger than in the first months of the 2008 global financial crisis, even in countries where unemployment rates have so far not increased much. Once more, vulnerable workers are bearing the brunt of the shock, with low-skilled workers and those in non-standard employment having been particularly exposed. Women seem to have suffered greater initial employment losses than men. They have also been playing a key role in the health care response to the pandemic, and the crisis likely amplified their unpaid work burden. Young people have again been hit hard, and some of them are experiencing already the second deep crisis in their still young careers.

OECD countries rapidly took comprehensive and far-reaching measures to contain the economic fallout and support workers, their families and companies. The massive use of job retention schemes in many OECD countries saved jobs and protected the survival of many companies by allowing employers to cut the hours of work for their workers, or putting them "on hold", without having to lay them off. Countries also increased the coverage and adequacy of income support, including for groups previously poorly covered, or not covered at all, hence cushioning income losses for many of those hit hardest. As countries are now gradually re-opening their economies, they will have to adapt these initial policy packages to better account for the large existing heterogeneity in situations across workers and companies, while fostering incentives to resume work without running the risk to end support prematurely where it is still needed.

Uncertainty about the future labour market developments remains large, and much depends on how the pandemic evolves. The virus has by no means been defeated, and the risk of new outbreaks is still looming until a vaccine is available. The big challenge for countries is, therefore, to find ways of re-starting economic and social life and steering the economy towards recovery while keeping the pandemic in check without having to revert back to strict containment measures. This requires putting in place comprehensive public health interventions, which range from massively upscaling of testing, tracking and tracing (TTT), to enhancing personal hygienic measures and the continuous enforcement of some physical-distancing policies.

While there is no doubt that bold measures were needed to avoid health systems from collapsing and mitigate the economic fallout from the pandemic, the evaluation of these emergency policy packages has only just begun. There is much to be learned about how countries' strategies and policy packages are affecting various groups of workers and companies across sectors and regions. The heterogeneity in the mix, timing and design of measures across countries provides a strong potential for policy evaluation and mutual learning. Such analysis will provide crucial insights into how OECD labour markets and social-protection systems react in times of extreme pressure, and it is an occasion to learn lessons for strengthening their resilience.

Overview of Chapters 2 to 5: Worker security

Protecting individuals against labour market risks is a key pillar of the OECD Jobs Strategy (OECD, 2018[82]). The unprecedented health and economic crisis that the world is currently experiencing with

the COVID-19 pandemic has shone the spotlight on the crucial importance of well-designed worker security strategies to protect workers and households against unforeseeable shocks.

Effective social safety nets are fundamental for cushioning income shocks. And unemployment benefits are among the key instruments providing protection against earnings falls resulting from job losses. Yet a number of workers do not meet the entitlement or eligibility criteria to receive benefits and are therefore at greater risk of facing severe income losses. On average, only about one-quarter of jobseekers receive unemployment benefits (OECD, 2018[129]). The additional evidence provided by OECD (2019[39]) suggests that social safety nets are particularly weak for the self-employed, although a number of countries have extended access to out-of-work support for this category of workers during the current crisis (see Section 1.3.3 above).

Chapter 2 of this volume sheds further light on safety net disparities by looking at the **uneven access to unemployment benefits for different types of dependent employees**. Even if entitlement rules are usually the same for all dependent employees, conditions on minimum employment durations, working hours or earnings before the unemployment spell, are often harder to meet for those who lose a part-time job or have an employment trajectory involving frequent transitions between employment and unemployment. The same applies to the rules for unused entitlements, which in a number of countries may put workers alternating short spells of employment and unemployment at a disadvantage compared with employees with fewer transitions and longer unemployment spells. Consequently, even when workers are in the same family and income situation, have the same average annual wage and have accumulated the same number of hours of work as dependent employees over a given period, entitlements tend to be smaller for those with non-standard employment trajectories than for those who were previously in long-term, full-time positions. In turn, the risk of falling into poverty tends to be greater for workers in non-standard dependent employment.

Correcting the possible inadequacy of benefit entitlements to provide more income security may be challenging, however. Avoiding trade-offs between benefit generosity and work incentives can be like walking a tightrope, as Chapter 2 shows. Nevertheless, **several policy instruments can be used to create a policy mix that strikes the right balance between work incentives and income security:** customised extensions of employment reference periods; earnings disregards and withdrawal rates when combining earnings from work and unemployment benefits; waiting periods and tight rules on the retention of unused benefits; differentiated contribution rates by type of contract; integration of in-work and out-of-work benefits; and co-ordination of active and passive labour market policies.

Protecting workers against income shocks following job losses is, however, costly. Yet, individual employers typically do not factor in the social costs of unemployment benefits when they take their decision to dismiss a worker, nor other social costs, such as firm- and sector-specific human capital destruction, negative health effects (particularly psychosocial risks) and possible intergenerational consequences. **Experience rating** of unemployment and other social security contributions and **employment protection legislation** (EPL), in particular regulations concerning individual and collective dismissals, **are the primary instruments that policy makers can use to induce employers to avoid socially inefficient dismissals** (those which are decided without taking account of their social impact).

Chapter 3 provides an up-to-date comparative review of where OECD countries stand as regards employment protection legislation (EPL). To do this, the chapter develops a new version of the OECD EPL indicators, which takes more account of regulations for collective dismissals, enforcement issues and regulations concerning unfair dismissals.

As Chapter 3 underlines, **EPL has several dimensions and its effects on worker security may depend on the balance among them**. For example, sufficiently long advance notice periods are crucial

to allow early interventions by employment services before the dismissal takes effect, thereby facilitating the transition to another job. This suggests that countries with short notice periods and high severance pay could consider reducing severance pay and increasing notice periods, while activating early interventions, to smooth job transitions without increasing costs to employers. Similarly, EPL measures against unfair dismissals play a vital role in preventing abuses, but clear enforcement rules are necessary to avoid creating uncertainty. Moreover, excessively stringent EPL rules harm worker security both directly, by reducing hiring and making jobless spells longer, and indirectly, by slowing growth in productivity and, therefore, wages and incomes. A balanced employment protection framework that provides effective adaptability for firms and adequate protection for workers is thus required.

As stressed by the OECD Jobs Strategy (OECD, 2018[82]), however, **one of the best ways of protecting workers and promoting an inclusive labour market is by addressing problems before they arise**. This means that preventive policies are at least as important as remedial policies. Preventive measures can enable workers to avoid many of the social and financial costs associated with labour market risks (such as unemployment, sickness and disability) and to enjoy better jobs and careers. Education, training and skills policies play a fundamental role in this context and countries therefore need to develop high-quality education and training systems that enable workers to acquire and develop the skills that are in demand in the labour market. The last two chapters of this volume focus on the demand and supply of skills.

The share of middle-skill jobs – occupations in the middle of the wage distribution – declined in OECD countries over the past two decades due to falling demand for these jobs. At the same time, the shares of both high-skill and low-skill occupations have increased. The causes and consequences of this phenomenon, termed *job polarisation*, have been the subject of a heated debate in the economics and policy literature. The contribution of Chapter 4 is, first and foremost, to dispel a myth. A popular perception is that the contraction of middle-skill occupations has occurred through firms increasingly dismissing middle-skill workers and forcing mid-career workers to find new employment in other skill groups. While downsizing, especially of manufacturing firms, has obviously played a prominent role in specific situations, such transitions do not appear to explain the aggregate polarisation trend. Rather, **the gradual retirement of older middle-skill workers and the different entry patterns of younger workers in other, growing occupations appear to drive job polarisation**.

Policy makers consequently have to pay special attention to education choices and the transition between school and work. Vocational Education and Training (VET) programmes lead to market-relevant, vocational qualifications and typically enhance student engagement in education, reduce school dropout rates and facilitate school-to-work transitions. However, there is a growing concern that the increasing polarisation of the labour market may be having a negative impact on the labour market performance of non-tertiary VET graduates, who are typically preparing for middle-skill occupations. The results of Chapter 4 add to this concern, as young generations appear to be bearing the brunt of job polarisation. Chapter 5 therefore re-examines the labour market performance of middle-educated VET graduates. Reassuringly, it finds that these graduates maintain a labour market advantage over their general education peers on labour market entry, although this advantage tends to disappear later in the career and their performance is worse than that of higher education graduates, even at labour market entry. Middle-educated VET graduates have managed to maintain their position in shrinking middle-skill occupations by increasing their share in these occupations relative to other groups. However, in some occupations that have a larger share of VET graduates among their young workers, the supply of labour with the relevant skills exceeds the corresponding demand, and many of these typical VET jobs are at high risk of automation. In a number of countries, **to reinforce the positive impact VET systems can have on the labour market outcomes of VET graduates, some re-engineering of VET programmes may be necessary**, including reinforcing their foundational skills

component and developing closer co-operation between VET institutions and social partners, as occurs in a number of countries with successful VET systems.

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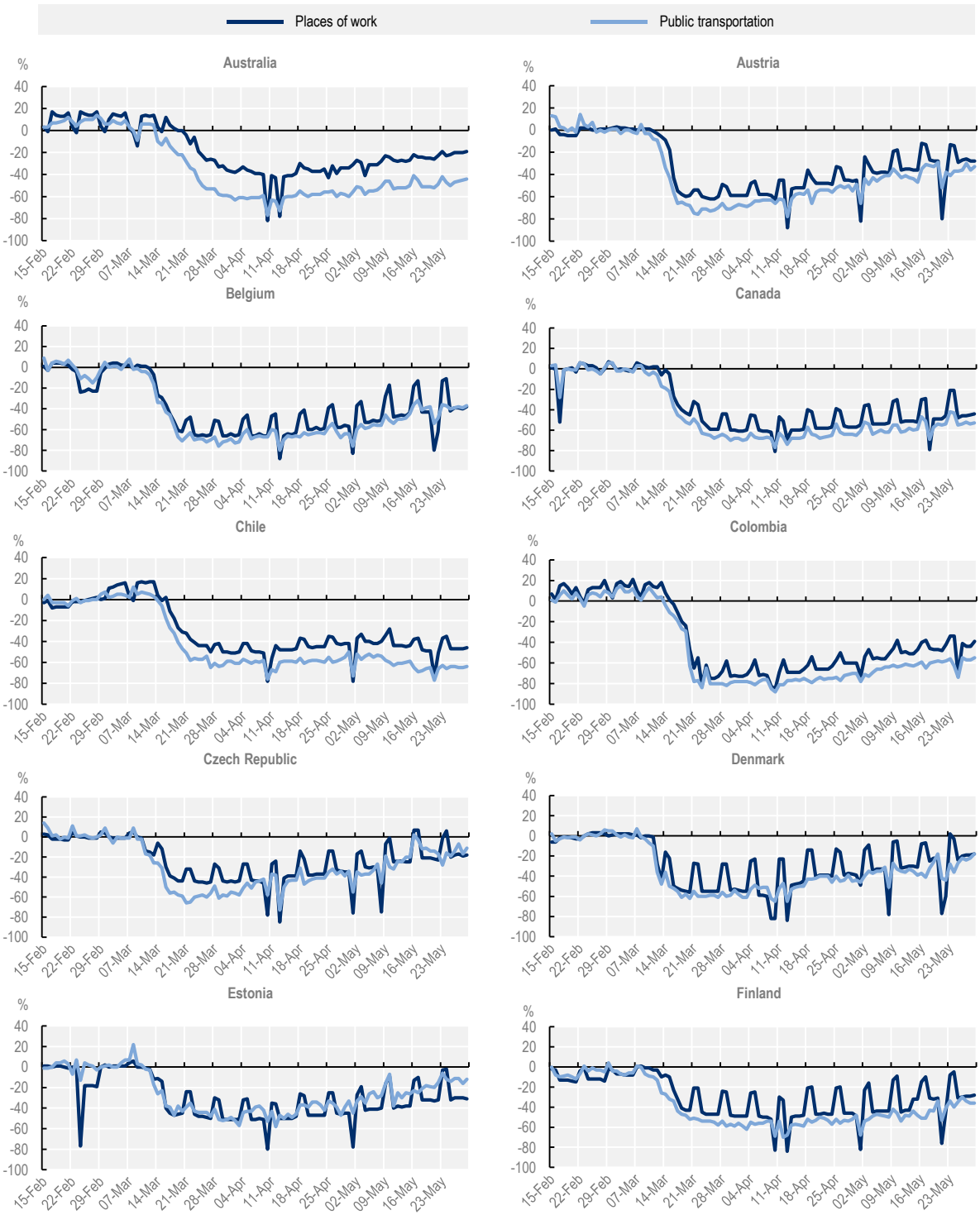
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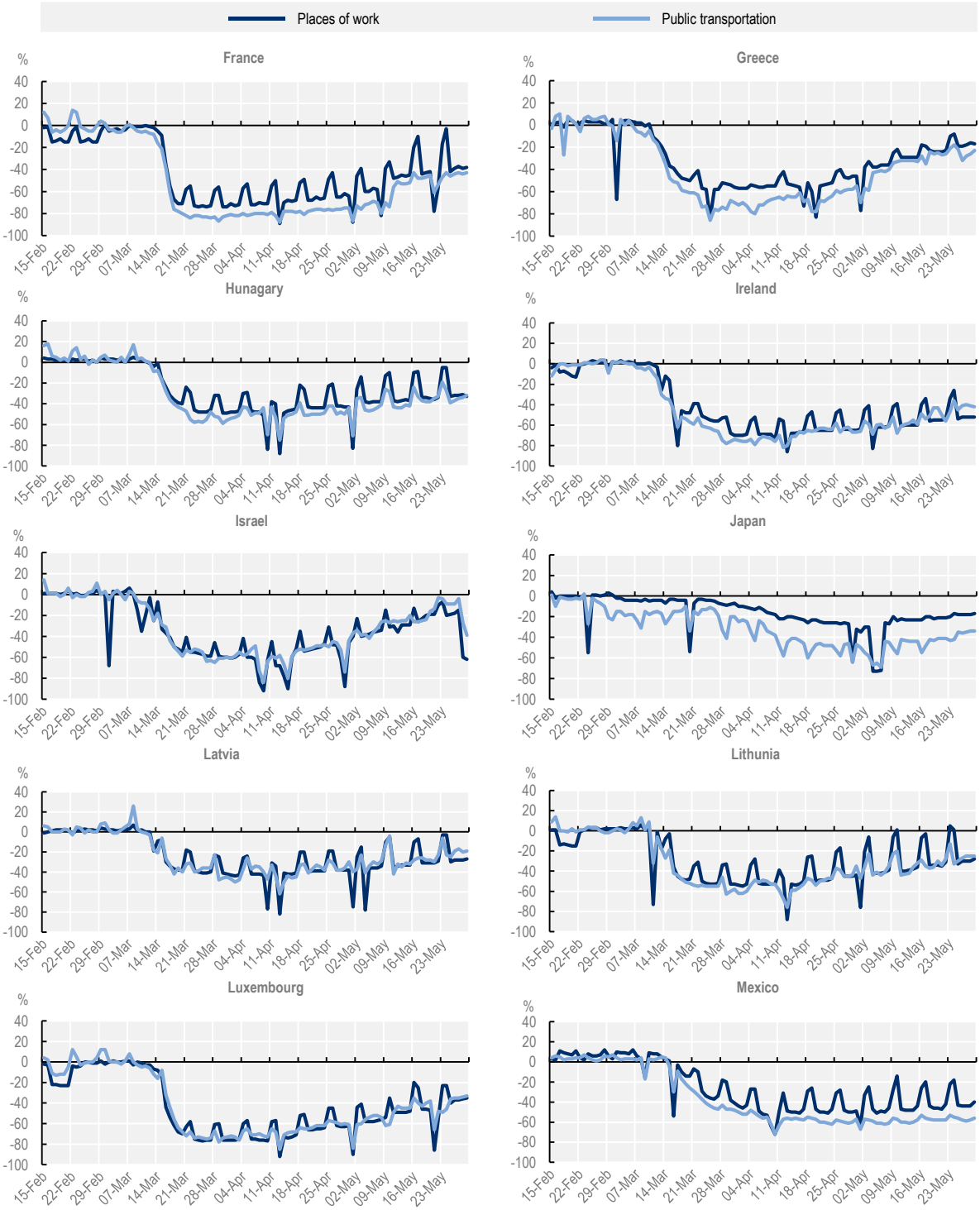
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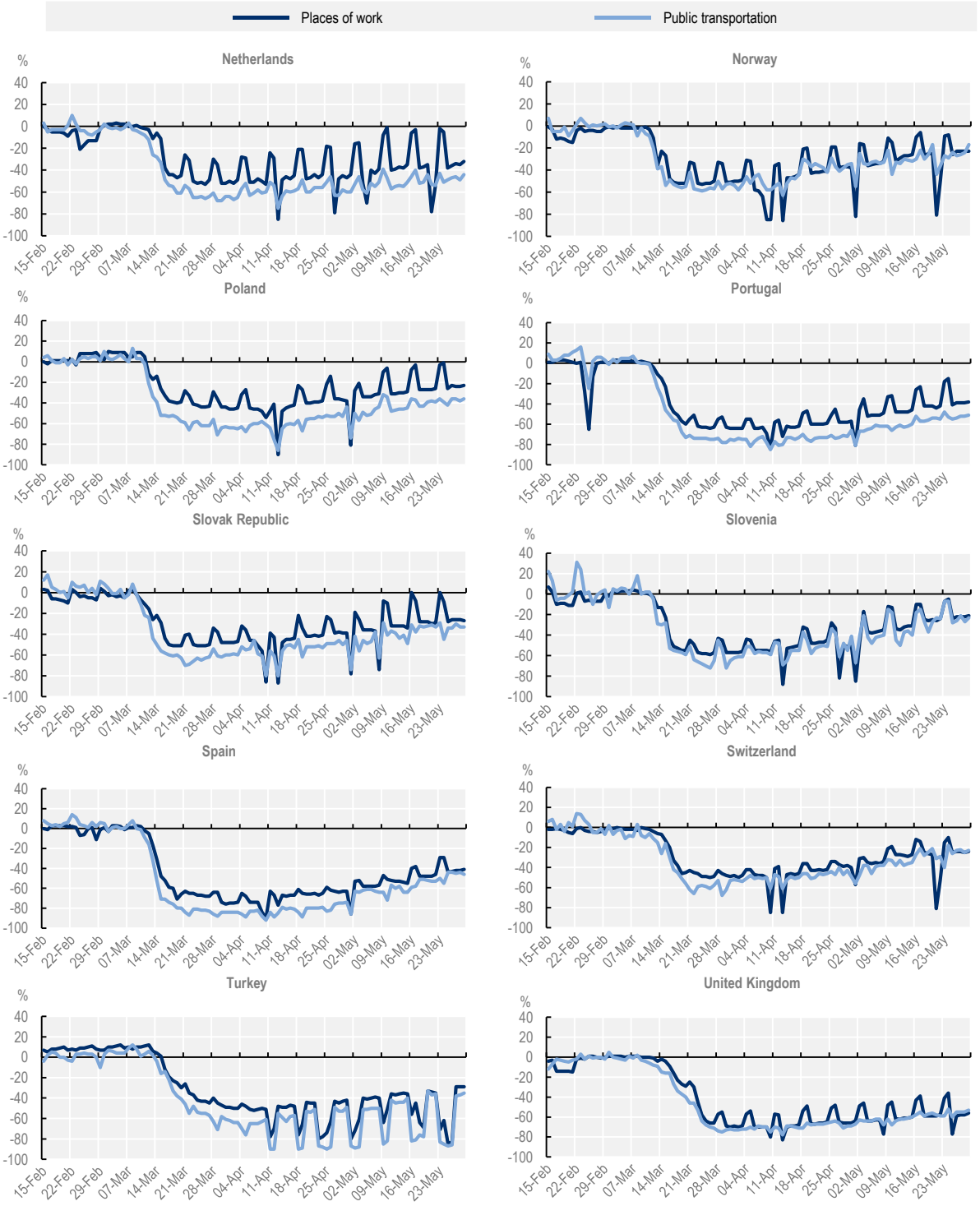
Annex 1.A. Additional material

Annex Figure 1.A.1. Individual mobility fell in all OECD countries, even where restrictions were relatively milder

Unweighted percentage change in mobility relative to the median value during the 5-week period 3 Jan – 6 Feb, 2020




Places of work
Public transportation
France
Greece
Hunagary
Ireland
Israel
Japan
Latvia
Lithunia
Luxembourg
Mexico
%
40
20
0
-20
-40
-60
-80
-100
15-Feb
22-Feb
29-Feb
07-Mar
14-Mar
21-Mar
28-Mar
04-Apr
11-Apr
18-Apr
25-Apr
02-May
09-May
16-May
23-May



Source: Google LLC "Google COVID-19 Community Mobility Reports", https://www.google.com/covid19/mobility/ (accessed: 8 June 2020).

StatLink https://stat.link/koy3ih

Annex Table 1.A.1. Projected labour market developments in OECD countries

	A. Real GDP growth percentage change from previous period					B. Employment growth percentage change from previous period					C. Change in unemployment rate percentage point change from previous period				
	2019	Projections				2019	Projections				2019	Projections			
		Single-hit scenario		Double-hit scenario			Single-hit scenario		Double-hit scenario			Single-hit scenario		Double-hit scenario	
		2020	2021	2020	2021		2020	2021	2020	2021		2020	2021	2020	2021
OECD	**1.7**	**-7.5**	**4.8**	**-9.3**	**2.2**	**1.0**	**-4.1**	**1.6**	**-5.0**	**0.3**	**-0.1**	**3.8**	**-1.1**	**4.6**	**-0.1**
Euro area	**1.3**	**-9.1**	**6.5**	**-11.5**	**3.5**	**1.2**	**-2.6**	**0.9**	**-3.2**	**-0.6**	**-0.6**	**2.3**	**-0.3**	**2.8**	**0.7**
Australia	1.8	-5.0	4.1	-6.3	1.0	2.3	-2.4	0.9	-3.0	-0.6	-0.1	2.3	0.2	2.5	1.1
Austria	1.5	-6.2	4.0	-7.5	3.2	0.8	-0.6	1.4	-0.9	1.1	-0.4	1.3	-0.6	1.5	-0.3
Belgium	1.4	-8.9	6.4	-11.2	3.4	1.6	-1.4	1.6	-2.2	-1.0	-0.6	2.1	-1.0	2.9	1.1
Canada	1.7	-8.0	3.9	-9.4	1.5	2.1	-4.4	1.6	-5.1	0.7	-0.2	3.3	-1.0	3.7	-0.4
Chile	1.0	-5.6	3.4	-7.1	1.9	..	..	..	..	..	-0.1	2.3	-0.8	2.8	1.0
Colombia	3.3	-6.1	4.3	-7.9	2.8	-0.8	-10.6	2.2	-12.6	-0.7	0.8	7.5	-2.0	9.3	0.1
Czech Rep.	2.5	-9.6	7.1	-13.2	1.7	0.2	-1.7	-0.1	-2.0	-1.0	-0.2	1.5	0.3	1.8	1.2
Denmark	2.4	-5.8	3.7	-7.1	0.9	1.5	-2.4	0.5	-2.8	-2.5	-0.1	1.6	-0.1	2.0	2.1
Estonia	4.4	-8.4	4.3	-10.0	1.6	1.0	-4.2	1.1	-5.2	-1.5	-0.9	4.7	-1.1	5.6	1.1
Finland	0.9	-7.9	3.7	-9.2	2.4	1.0	-2.0	0.9	-2.6	-0.9	-0.7	2.0	-0.2	2.4	1.1
France	1.5	-11.4	7.7	-14.1	5.2	0.4	-2.7	1.8	-3.1	0.5	-0.6	2.5	-1.2	2.9	-0.1
Germany	0.6	-6.6	5.8	-8.8	1.7	1.1	-0.8	0.0	-0.9	-1.0	-0.2	1.4	-0.3	1.5	0.6
Greece	1.9	-8.0	4.5	-9.8	2.3	2.2	-3.5	-1.0	-3.8	-1.8	-2.0	2.1	0.4	2.3	0.8
Hungary	4.9	-8.0	4.6	-10.0	1.5	0.9	-3.2	1.8	-3.8	1.0	-0.3	2.8	-1.4	3.5	-0.7
Iceland	1.9	-9.9	4.6	-11.2	3.0	1.3	-3.3	2.4	-3.8	1.0	0.8	3.9	-1.4	4.3	-0.1
Ireland	5.5	-6.8	4.8	-8.7	-0.2	2.9	-6.7	2.0	-8.2	-1.7	-0.8	5.9	-2.4	7.3	0.7
Israel	3.5	-6.2	5.7	-8.3	2.6	1.6	-3.2	2.4	-3.8	0.5	-0.2	3.7	-0.9	4.2	0.8
Italy	0.3	-11.3	7.7	-14.0	5.3	0.6	-2.9	-0.4	-3.5	-1.2	-0.7	0.1	1.6	0.8	1.2
Japan	0.7	-6.0	2.1	-7.3	-0.5	0.9	-1.0	0.1	-1.2	-0.8	-0.1	0.9	0.0	1.0	0.5
Korea	2.0	-1.2	3.1	-2.5	1.4	1.1	-0.6	0.5	-0.7	0.1	-0.1	0.8	-0.1	0.9	0.1
Latvia	2.2	-8.1	6.3	-10.2	2.0	0.2	-2.9	-0.7	-3.3	-3.0	-1.2	2.9	0.1	3.3	2.1
Lithuania	3.9	-8.1	6.4	-10.4	3.4	0.3	-2.6	0.9	-3.2	0.6	0.1	2.8	-0.9	3.3	-0.8
Luxembourg	2.3	-6.5	3.9	-7.7	0.2	2.7	0.4	1.6	0.2	0.5	-0.1	1.7	0.3	1.9	1.4
Mexico	-0.1	-7.5	3.0	-8.6	2.0	2.4	-0.7	1.6	-1.0	1.8	0.2	2.5	-0.2	2.8	-0.4
Netherlands	1.8	-8.0	6.6	-10.0	3.4	2.0	-3.6	3.3	-4.4	1.1	-0.4	2.5	-1.0	3.1	0.1
New Zealand	2.2	-8.9	6.6	-10.0	3.6	1.1	-2.8	1.4	-3.0	-0.1	-0.2	3.8	-0.6	4.1	0.7
Norway	1.2	-6.0	4.7	-7.5	1.3	1.1	-2.0	1.6	-2.5	0.8	-0.1	2.2	-1.3	2.6	-0.7
Poland	4.1	-7.4	4.8	-9.5	2.4	-0.1	-4.6	1.6	-5.3	-1.2	-0.6	4.0	-1.5	4.7	0.9
Portugal	2.2	-9.4	6.3	-11.3	4.8	1.0	-5.7	2.9	-7.1	2.0	-0.5	5.2	-2.0	6.5	-1.2
Slovak Rep.	2.4	-9.3	6.4	-11.1	2.1	0.9	-3.0	1.7	-3.9	-0.1	-0.8	3.1	-1.9	3.9	-0.4
Slovenia	2.4	-7.8	4.5	-9.1	1.5	0.2	-1.4	1.2	-2.0	-1.0	-0.7	2.0	-1.0	2.5	1.1
Spain	2.0	-11.1	7.5	-14.4	5.0	2.3	-5.3	1.1	-6.4	-1.6	-1.2	5.1	-0.4	6.0	1.8
Sweden	1.2	-6.7	1.7	-7.8	0.4	0.6	-3.2	0.3	-3.9	-0.4	0.5	3.2	0.0	3.8	0.6
Switzerland	1.0	-7.7	5.7	-10.0	2.3	0.7	-1.6	-0.3	-1.6	-0.5	-0.3	1.3	0.7	1.3	0.9
Turkey	0.9	-4.8	4.3	-8.1	2.0	-2.2	-3.7	2.7	-5.0	0.8	2.7	1.9	-1.4	3.1	-0.6
United Kingdom	1.4	-11.5	9.0	-14.0	5.0	1.1	-4.6	2.1	-5.9	1.0	-0.3	5.3	-1.3	6.6	-0.4
United States	2.3	-7.3	4.1	-8.5	1.9	1.1	-8.1	3.1	-9.8	1.4	-0.2	7.6	-2.8	9.3	-1.4

Note:..: not available.

Source: OECD (2020), "OECD Economic Outlook – All editions", *OECD Economic Outlook: Statistics and Projections* (database), https://doi.org/10.1787/826234be-en (accessed on 10 June 2020).

StatLink https://stat.link/vhre3u

Notes

[1] The latest info can be found here https://coronavirus.jhu.edu/map.html.

[2] A pandemic is linked to the geographical spread of a new disease, not its severity. According to the WHO (2010[130]), "*a pandemic is the worldwide spread of a new disease. An influenza pandemic occurs when a new influenza virus emerges and spreads around the world, and most people do not have immunity.*" According to the United States Centers for Disease Control and Prevention (2012[131]) "*a pandemic refers to an epidemic that has spread over several countries or continents, usually affecting a large number of people.*" Since the historic "Spanish Influenza" of 1918, the world has witnessed six pandemics: the "Asian flu" of 1957, the "Hong Kong flu" of 1968, the Severe Acute Respiratory Syndrome (SARS) in 2002, the N1H1 influenza in 2009 ("bird flu"), the Middle East Respiratory Syndrome (MERS) in 2012, and Ebola which peaked in 2013-14.

[3] Containment strategies aim at minimising the risk of transmission from infected to non-infected individuals in order to stop the outbreak – i.e. reducing the reproduction number to below one (OECD, 2020[1]). This included actions to detect cases early on and trace an infected individual's contact with other people, or the confinement of affected persons. Mitigation strategies, which include physical-distancing, including a full society "lockdown", and improved personal and environmental hygiene, aim at slowing the disease, and, where the disease has occurred, to lessen its impact or to reduce the peak in health care demand – i.e. getting the reproduction number as close as possible to, or below, one. In practice, containment and mitigation actions largely overlap and are often implemented concurrently. In fact, containment and mitigation policies may even be considered as a continuum with gradual increments of the same strategy; with mitigation that could go to the extreme level of a full lockdown of a city, region or country.

[4] Google released aggregated, anonymised data to chart movement trends over time by geography, across different high-level categories of places such as retail and recreation, groceries and pharmacies, parks, transit stations, workplaces, and residential areas.

[5] It must be underlined, however, that that week is also the week in which the greatest worldwide contraction in mobility is observed (see above).

[6] A state-wide stay-at-home order is attributed to a week if it took effect at the latest the day before the end of that week. Changing this parameter to zero, two or three days yields qualitatively similar estimates.

[7] Results are robust to: i) excluding the state that issued only a stay-at-home advisory (Massachusetts); ii) excluding states which had stay-at-home orders in selected counties before state-wide orders; iii) excluding states that never issued stay-at-home orders; iv) controlling for either overall mobility or workplace mobility; and v) replacing the dependent variable with the level of initial claims at time *t* divided by the state labour force in the week before stay-at-home orders. No significant difference is observed between early- and late-lockdown states, where early stay-at-home orders are identified as those issued no later than a week after the publication of the federal guidelines.

[8] The U.S. Bureau of Labor Statistics defines workers as unemployed on temporary layoff if they have either been given a date to return to work by their employer or expect to be recalled to their job within 6 months (U.S. Bureau of Labor Statistics, 2020[18]). The term is sometimes used interchangeably with being "furloughed". The U.S. Bureau of Labor Statistics does not use the term "furlough" in its household and establishment surveys, but includes furloughed workers among those on temporary layoffs.

[9] The United States also put in place the Paycheck Protection Program (PPP) to provide small businesses with loans to maintain employment levels (see Section 1.3.2 and Box 1.6 for a more detailed discussion).

[10] If they have not been given a date to return to work by their employer and if they have no expectation to return to work within six months, they need to fulfil the "job search" criteria to be classified as "unemployed".

[11] Based on these estimates of actual use for France and Germany, the total number of persons participating in job retention schemes across the OECD would be about 50 million.

[12] The analysis leverages information from online job vacancies as collected by two private companies: *Indeed* (Figure 1.10) and *Burning Glass Technologies* (Figure 1.11). *Indeed* is a large job postings search engine aggregating information from thousands of websites including firms' career websites and job boards. *Burning Glass Technologies* is an employment analytics company sourcing and coding job postings from hundreds of millions of job postings to provide insight into labour market patterns. *Burning Glass Technologies* data for the United States have been shown to align well with official data from the U.S. Job Openings and Labor Turnover Survey, e.g. in Carnevale et al. (2014[132]), Hershbein and Kahn (2018[133]), and Kahn, Lange and Wiczer (2020[14]). Knutsson et al. (2020[135]) further show that the regional distribution of *Burning Glass Technologies* data for Australia, Canada and United States is generally well aligned with official data for the most recent years. To the best of the authors' knowledge, similar exercises have not been performed on *Indeed* data, which should be therefore interpreted with greater caution. Nevertheless, for the five countries for which both *Burning Glass Technologies* and *Indeed* data are available, the aggregate trends shown by both sources of data are similar. The exact data used in this publication were not benchmarked on official job vacancy data, where already available, and may therefore be misaligned with those. Misalignments may result from the difference between the overall vs online-only market for job postings, and from the data collection technology by *Burning Glass Technologies* and *Indeed*, among other factors.

[13] A first empirical exploration also finds a positive correlation between changes in mobility and in job postings between February and April, similarly to Hensvik et al. (2020[10]). The simultaneous occurrence of the two phenomena, however, makes it impossible to identify causal links at present.

[14] The label "public services" is attributed for convenience and covers services that can be supplied by private entities, as long as they fall in the education, health care and social work, or public administration and defence sectors.

[15] The definition of low-, medium- and high-skilled occupations is sourced from Chapter 4, which extends Goos et al. (2014[134]).

[16] Regions are defined as large subnational regions or as Territorial Level 2 (TL2) regions according to the OECD classification. TL2 regions generally represent the first government layer after the national or federal level.

[17] If recent pandemics are any guide, the toll on poorer and vulnerable segments of society will be very high. An analysis of the consequences of SARS (2003), H1N1 (2009), MERS (2012), Ebola (2014) and Zika (2016) by Furceri et al. (2020[157]) shows that recent epidemics have led to an increase in income inequality and hurt employment prospects of those with only a basic education while scarcely affecting employment of people with advanced degrees.

[18] Average hourly wages in April *rose* by 10.8% year on year in Canada because of the relatively larger employment declines in low-paying industries, notably in accommodation and food services and in wholesale and retail trade. In the United States, in April, average hourly earnings increased also well above

the recent average, reflecting the substantial job loss among lower-paid workers. More granular data will be necessary to estimate the wage effect of the crisis conditional on job type.

[19] The first group includes those in professional jobs able to work from home and those in industries with less-human facing contact. The second group includes those with precarious employment at the bottom of the income distribution but who are potentially well insured by the universal credit system.

[20] Indicators based on expectations need to be interpreted with care in the current crisis. They are usually a leading indicator of the outlook ahead. However, uncertainty surrounding the duration of lockdown measures has complicated the ability of these data to provide those forward-looking signals and in such a situation they represent more a coincident rather than a leading indicator (OECD, 2020[136]). The magnitude of expectations decline should not be regarded as a measure of the degree of contraction in economic activity, but rather as an indication of the signal strength.

[21] Current data on spending are subject to frequent revisions and adjustments as not all countries provide precise estimates, in particular for measures such as tax deferrals. Moreover, some policies are still being rolled out and initial estimates may vary depending on the take-up and the actual duration. Also, in some countries, loans to firms may eventually turn into grants, and guarantees on loans may be activated and have a budgetary impact that cannot be foreseen at this stage.

[22] Workplace physical distancing measures, such as working from home and workplace closures, can reduce the disease attack rate by between 23-73%, with lower values for highly infectious diseases and where there is lower compliance (OECD, 2020[1]).

[23] Ample empirical evidence exists that working from home or space flexibility increase workers' effort and motivation (Beckmann, Cornelissen and Kräkel, 2017[142]), and job satisfaction (Bloom et al., 2014[156]; Kröll and Nüesch, 2019[144]). These gains, however, partially rely on the possibility of workers to choose whether to work from home or from the office, which is not possible in case of a pandemic. Some workers are indeed found to perform worse at home than in the office and to experience loneliness (Bloom et al., 2014[156]). To be effective, working from home requires adequate equipment and a proper space to work (and no concurrent care duties such as during the COVID-19 crisis). Moreover, workers may not be keen on the new flexible arrangements if they are associated with a large pay cut (Mas and Pallais, 2020[138]), or if their tasks may be substituted by software or by "telemigrants", i.e. equivalent workers sitting abroad where labour costs are lower (Baldwin, 2019[151]). Employers, conversely, may be wary that workers reduce their effort while working from home (a fact for which the economic literate has not found empirical backing, e.g. Beckmann (2015[143])), and offer lower wages as a consequence. Evidence on the effects of telework on productivity is also mixed, with some studies finding a positive effect (Angelici and Profeta, 2020[139]; Bloom et al., 2014[156]) and others a negative or mixed one (Battiston, Blanes i Vidal and Kirchmaier, 2017[140]; Glenn Dutcher, 2012[141]).

[24] Certain groups of workers in non-standard dependent employment, such as casual workers or workers on zero-hour contracts, often have poor or no access to paid sick leave. For instance, casual workers in Australia (about a quarter of all employees) are not eligible to sick pay and zero-hour contract workers in the Netherlands (about 7% of all employees) only for hours they were called upon by their employer. These two groups did not obtain better access to sick pay, although casual workers in Australia who meet the residence requirements can temporarily access special unemployment benefits in case of sickness from COVID-19 or mandatory quarantine.

[25] There exist subnational requirements for paid sick leave in the United States. In 2019, a quarter of US workers did not have access to paid sick leave at all (rising to one half for low-wage workers), and

two-thirds of them had less than ten days of paid sick leave per year (U.S. Bureau of Labor Statistics, 2019[145]).

[26] Workers in other hybrid forms of self-employed work, such as freelancers and gig workers, even more often lack access to sickness benefits, and informal workers are not covered by definition (Eurofound, 2020[137]). A few countries have taken initiatives to extend sickness benefits to these workers in case of sickness due to COVID-19. For instance, gig workers in Canada and the United States are now temporarily covered under certain conditions. Colombia introduced a COVID-19 specific flat-rate benefit for low-wage informal workers.

[27] For instance, sickness benefit coverage may be mandatory for self-employed workers only if they have incomes above a certain threshold.

[28] Weekly or monthly administrative data from national social insurance authorities for Austria, Chile, the Czech Republic, Finland, Germany, Italy, Latvia, Portugal and Sweden, or data from special employer surveys in France and the United Kingdom. For more detail, see OECD (2020[66]).

[29] In Canada, the right to Employment Insurance Caregiving leave and benefits applies only in cases of critical illness or injury or someone in need of end-of-life care. The right covers workers who need to provide this type of care for family members of others who are considered to be like a family member.

[30] Japan, rather than to establish a statutory right to special paid leave as such, has introduced a subsidy for employers that allow their workers to take paid leave due to school or childcare closure. Employers are compensated for the continued payment of salaries while workers are on leave, up to a limit of JPY 8 330 per worker per day.

[31] This includes Canada, France, Italy, Japan, Luxembourg, New Zealand, Norway, Portugal, Switzerland and the United Kingdom.

[32] In some countries, such as Denmark, these extensions build on a tripartite agreement between the government, trade unions and employers.

[33] Publicly listed companies may apply but must satisfy, in good faith, that the “current economic uncertainty makes the loan necessary to support ongoing operations”.

[34] This also implies that there is no risk that firms continue claiming benefits even once hours have been restored.

[35] The very large majority of OECD countries have encouraged teleworking but, in practice, the decision has been left to employers in several countries. Employees may, at least on paper, risk disciplinary measures or even dismissal if they do not show up for work out of sanitary concerns.

[36] Italy has since significantly expanded minimum-income provisions, in 2018 and 2019, and introduced a number of changes to the unemployment benefit system in 2015.

[37] “Net replacement rate” for a single, childless person with previous earnings of two-thirds of the national average wage in the third month of unemployment (OECD tax-benefit models, http://oe.cd/taxben).

[38] For instance, Austria, Canada, France and Spain have extended entitlements to unemployment benefits to independent workers. Denmark has strengthened the portability of earned entitlements across different jobs and forms of employment. Italy has facilitated access to means-tested safety-net benefits.

[39] In addition, automatic benefit extensions can be available at the State level if unemployment in that State exceeds the federally prescribed trigger level.

[40] In the United States, a court ruling temporarily suspended the tightening of access to the federal Supplemental Nutrition Assistance Program (SNAP, previously "food stamps") that had initially been foreseen for April 2020.

[41] Receipt trends for the Universal Credit and the *Reddito di Cittadinanza* cannot be directly compared because the former measures daily "inflows" and the latter monthly "stocks".

[42] Newly self-employed workers who only started their business in 2020 and therefore cannot prove their income with a tax declaration will receive a flat rate payment of EUR 500 per month.

[43] These payments are meant to cover three months of business operating costs such as rent, wages of employees not covered by short-time work schemes etc.; for their own living costs, self-employed workers will have to rely on the means-tested Unemployment Benefit II, eligibility to which has been temporarily relaxed.

[44] Personal information from undocumented workers will not be required. Officials estimate that 150 000 undocumented immigrants in the state will benefit.

[45] Above the income threshold of USD 75 000 per year, payments are reduced by USD 5 for every USD 100 of additional income earned. People classified as "dependent" on another household member's tax return are excluded from this transfer. This includes many students over the age of 17 and some disabled individuals living with family members.

[46] In households with school-aged children, the digital divide risks deepening educational disparities during a period of extended school closures where many institutions have transitioned to distance learning (OECD, 2020[154]).

[47] Overcrowding as defined by Eurostat, measures the number of rooms per household member, taking into account different factors of household composition. For a full explanation, see the OECD Affordable Housing Database: http://www.oecd.org/els/family/HC2-1-Living-space.pdf. Shelter-in-place orders have led to an increase in reports of intimate-partner violence or inquiries about emergency shelters for abuse victims in many countries (OECD, 2020[57]).

[48] Table 1.4 discuses demand-side measures; for a discussion of supply-side measures to support to banks, construction companies, or housing providers, see (OECD, forthcoming[155]).

[49] Herd immunity is a form of indirect protection from infectious disease that occurs when a large percentage of a population has become immune to an infection, whether through vaccination or previous infections, thereby providing a measure of protection for individuals who are not immune.

[50] See, among many, Dingel and Neiman (2020[147]), Espinoza and Reznikova (2020[152]), Gottlieb, Grobovšek and Poschke (2020[153]); Hensvik, Le Barbanchon and Rathelot (2020[10]), Mongey, Philossoph and Weinbger (2020[148]).

[51] See brief summary of the literature in endnote 23.

[52] The OSHA keeps a daily record of complaints, referrals and closed cases related to COVID-19 as well as the number of whistle-blower complaints filed. See US OSHA https://www.osha.gov/enforcement/COVID-19-data and https://www.whistleblowers.gov/COVID-19-data

[53] This depends largely on whether governments deem widespread childcare facility and school closures necessary on public health grounds. Given the apparent low infection rates among children – see OECD (2020[154]) and Mallapaty (2020[149]) – many countries will likely want to consider options for re-opening and/or keeping schools and childcare centres open during a possible second wave, especially for younger children, also in view of the budgetary costs of funding paid care leave and the risk of lost human capital accumulation for children. However, this needs to be done with care. The evidence on whether or not children have a lower risk of transmitting the infection is still inconclusive (Mallapaty, 2020[149]). If, after further study, it is established that children carry similar transmission risks as adults, re-opening schools and childcare facilities – and potentially leaving them open during a possible second wave – could contribute to heightened infection.

[54] The type of support may nonetheless depend on the timing of expected re-opening, as activities that are potentially viable now may turn unviable with a prolonged shutdown.

[55] In such schemes, the cost of labour hoarding falls entirely on the government or workers in the form of uncompensated reductions in working time. In principle, firms can be made to share in the cost of labour hoarding by placing limits on the extent to which uncompensated reductions in working time are possible. In New Zealand, total worker earnings in subsidised jobs in principle cannot decline more than 80% of normal earnings. However, it is not clear how binding this requirement is in practice. The wage subsidy scheme operated in the Netherlands mimics short-time work schemes that require firms to share in the cost of labour hoarding. While workers continue to receive 100% of their earnings, employers are not fully compensated for the loss in revenue. This may induce some employers to request support only for workers whose jobs are viable in the longer term.

[56] Evidence from Switzerland (Kopp and Siegenthaler, 2019[146]) during the global financial crisis shows that workers in viable jobs tended to leave the scheme before the maximum duration, while those firms who did use the scheme for the maximum duration tended to layoff some workers eventually.

[57] For example, over 100% for some claimants in the Self-employment Income Support Scheme in the United Kingdom (Waters, Miller and Adam, 2020[150]).

2 Unemployment benefits and non-standard dependent employment: Striking the balance between income security and work incentives

This chapter provides an in-depth discussion of the income security and work incentives provided by unemployment benefits to jobseekers with previous periods of part-time and unstable dependent employment. It sheds light on the accessibility and adequacy of this key social protection tool, and on the work incentives affecting different types of workers, two key factors for its design and implementation. In particular, the chapter compares entitlements to unemployment benefits for workers with a range of typical employment trajectories, including alternating spells of dependent employment and unemployment. Issues, such as the extension of out-of-work support to individuals in "part-time" or "partial" unemployment, options for accumulating entitlement rights across different spells of employment, saving "unused" benefit entitlements for future out-of-work spells, and strategies for integrating in-work and out-of-work support, are all assessed.

In Brief

Key findings

This chapter provides an in-depth discussion of how unemployment benefits provide income security and work incentives for jobseekers whose recent work history included periods of non-standard dependent employment. Non-standard dependent employment refers to wage and salary workers working either on a part-time or on an unstable basis (i.e. involving frequent transitions between dependent employment and unemployment over a number of years, see Box 2.1 for details). Typically, entitlements to unemployment benefits depend on the characteristics of the job held before becoming unemployed (e.g. number of months employed, wage, hours worked). Since such characteristics refer to a period rather than just to the moment before becoming unemployed, this chapter assesses non-standard dependent employment in terms of trajectories instead of the type of contract. This allows for a more nuanced and sophisticated analysis of the interactions between unemployment protection and non-standard employment.

Using longitudinal microdata, unemployment benefit legislation and simulations of entitlements under several policy-relevant employment trajectories, the main findings of this chapter are:

- Workers with non-standard dependent employment trajectories make up a sizeable part of dependent employment (22% on average across 26 European OECD countries). On average across European OECD countries, 69% of employees who have been unemployed have histories of non-standard dependent employment (51% in the form of unstable employment and 18% as part-time employment).
- Non-standard dependent employment, particularly part-time work, has increased in the last decade, especially among the young. In the decade leading up to 2016-18, non-standard dependent employment rose by 5 percentage points on average among employees aged 20 to 29. Most of the rise was due to an increase in part-time employment. Yet, there is considerable variation across countries. In Spain, for example, the share of unstable dependent employment among youth increased by 8 percentage points, in spite of the contraction of fixed-term contracts (OECD, 2019[1]).
- Women are more than two times more likely to work part time than men. On average, almost one quarter of women – often mothers – work part-time, although figures differ widely across OECD countries. Part-time employees tend to receive lower hourly wages in all OECD countries, have higher job insecurity and participate less in training. Yet, in a number of countries, many part-time employees work shorter hours by choice and as a way to achieve work-life balance.
- Poverty rates for workers with non-standard dependent employment trajectories are higher than for workers with standard employment. Across European OECD countries, on average, 10% of workers in part-time employment and 19% of workers in unstable employment live in a household with an annual disposable income of less than 50% of the national median. For standard employees the figure is only 3%.
- Unemployment benefit legislation directly affects the duration of benefit entitlements and the level of benefits payable for workers with standard and non-standard dependent employment trajectories. Required minimum employment durations, working hours or earnings are harder to meet for those in unstable or part-time employment. Some countries operate second-tier unemployment benefits with less demanding employment requirements, which are easier for jobseekers with non-standard employment trajectories to access.

- Analysis of detailed rules of first- and second-tier unemployment benefits in 11 OECD countries (Australia, Austria, Canada, Finland, France, Japan, Latvia, Netherlands, Poland, Spain and the United Kingdom) finds that the same rules can affect workers with part-time and unstable employment differently from standard employees.
- Benefit claimants with a history of part-time employment usually have the amount of their benefits calculated in line with the number of hours worked in their previous job. In Australia, Poland and the United Kingdom, however, jobseekers previously in part-time employment receive the same amount as those previously working full-time.
- Many countries operate part-time unemployment schemes, which combine the entitlement to unemployment benefit with some casual part-time work. In most countries for which the analysis was undertaken, the amount of benefit is reduced in such cases, although there is a considerable variation in the rules among countries. In Latvia and Poland, jobseekers receive no unemployment benefit if they take up any amount of work.
- Jobseekers can keep unused entitlements for future claims if they find full-time work before benefits expire, in all analysed countries but in Latvia and Poland. Countries use a range of rules concerning the possibility for jobseekers to keep and access unused entitlements. In Canada, the Netherlands and the United Kingdom, strict conditions determine whether entitlements are retained for subsequent unemployment spells. If the jobseeker with an unused entitlement accrues a new one from more recent employment, she must choose between them in Spain, while can utilise both in France – first using up the older entitlement and then claiming the new one.
- Simulations based on a set of typical employment trajectories for four OECD countries (Australia, France, Latvia and Spain) show that benefit entitlements can vary substantially depending on the type of employment and the specific sequence of in-work and out-of-work spells. Significant differences exist even when workers have the same personal characteristics and same level of earnings and working hours over a given period. These gaps call into question the adequacy of benefit generosity for all types of workers.
- In Australia and France, entitlements do not differ significantly between jobseekers with fairly stable employment records (working for a full year before becoming unemployed) and jobseekers with more unstable employment trajectories (working either every other month or every other semester, but for the same total number of hours). In France, an upcoming reform will reduce the benefit entitlements of workers with unstable employment records, as the calculation will take into account the months in which she has not worked. In Latvia and Spain, where contribution requirements are more demanding, jobseekers who previously had more unstable employment records are entitled to fewer months of benefits.
- In all four countries, entitlements are lower for workers on part-time unemployment. In Australia, France and Spain, earnings from work reduce the benefit amount. In Latvia, benefits are suspended as soon as the jobseeker has some earnings from employment.
- Unemployment benefits also create different financial incentives to work across countries and employment trajectories. On average, work incentives are weaker in France, followed by Australia, Spain and Latvia. In Latvia and Spain, however, in some cases work incentives are stronger because some employment trajectories do not lead to any entitlement to unemployment benefits.
- To address the main issues of entitlement and access, on the one hand, and work incentives, on the other, for workers with non-standard employment trajectories, a number of policy tools could be considered:

- Reductions in benefit payments when jobseekers have earnings from part-time unemployment schemes help to smooth income variations and to prevent benefit misuse. However, they also affect the neutrality of the system and reduce the incentives of using casual part-time work as a stepping stone to a better job. Earnings disregards and withdrawal rates can help balance these objectives. Earnings disregards are the amounts of earnings not considered when calculating benefits during periods of partial work. The withdrawal rate is the percentage of earnings (above any disregard) by which benefit is reduced in such cases.
- Easy access to benefits and the possibility of retaining unused benefits for future out-of-work spells may encourage frequent periods of unstable employment or increase the overall duration of unemployment benefits. Waiting periods, moderately long employment requirements, reductions in case of frequent reclaiming, and limits on the accumulation of old and new entitlements can help to prevent such distortions. However, employment requirements, even if they provide work incentives, prevent benefit abuse and protect the system's financial sustainability, they also penalise workers with unstable employment records. Customised extensions of reference periods for workers more prone to job instability (e.g. young workers, employees with temporary contracts) could alleviate these negative effects. Differentiated unemployment insurance contribution rates could also be used to create financial incentives for employers and employees to choose more stable employment contracts and discourage collusion.
- Work incentives can be enhanced through improved co-ordination of in-work and out-of-work support. Potential measures include: extending to full-time workers with low wages the possibility to cumulate earnings and unemployment benefits; making use of in-work benefits; or integrating in- and out-of-work benefits.
- During periods of economic downturns, unemployment benefit instruments can be adjusted to the changes in labour market circumstances. In the current COVID-19 crisis, many countries extended maximum duration and generosity of unemployment benefits. A number of countries also adopted measures to facilitate benefit access, such as reducing minimum employment requirements or extending reference periods, which are likely to specifically increase benefit coverage of non-standard workers during the emergency.

Introduction

Non-standard forms of dependent employment (i.e. jobs that are part time or of short duration) represent a significant share of wage and salary workers. On average across OECD countries, part-time employment accounts for 16.5% of all employment – 2 percentage points more than two decades ago (OECD, 2020[2]). Temporary employment accounts for 11.7% of dependent employment and has remained somewhat stagnant in recent years. Among young workers, however, temporary employment makes up 25.7% of dependent employment – almost 2 percentage points more than 20 years ago (OECD, 2020[3]). Non-standard forms of dependent employment have been associated with increasing labour market instability, underemployment and economic vulnerability, particularly among young people and those with less than tertiary education (OECD, 2019[1]).

As also stressed in the 2019 edition of the OECD Employment Outlook (OECD, 2019[1]), in many countries, social protection systems in general, and unemployment benefits in particular, have not yet fully adapted to the specific needs and circumstances of workers in non-standard forms of dependent employment. Analyses of out-of-work social benefits in six countries (France, Greece, Hungary, Italy, Spain and the United Kingdom) found that in Spain and Italy unstable employees were significantly less likely to receive

benefits than standard employees (i.e. those with full-time jobs and open-ended contracts). This gap was also considerable in the United Kingdom. The social protection gap between standard and non-standard employees was even larger when assessed in terms of benefit generosity (benefit amount as a proportion of median income), especially in Greece, Italy and Spain (OECD, 2019[1]).

Due to their unusual work trajectories, jobseekers with previous non-standard dependent employment may not receive the type of support that unemployment benefits offer to jobseekers with standard employment careers. In fact, non-standard employees' access to unemployment benefits tends to be more difficult than to other insurance programmes such as maternity and sickness benefits (Avlijas, 2019[4]). Non-standard dependent employment may also be one of the factors that explain why, in many OECD countries, only a small share of jobseekers receive unemployment benefits – fewer than one-third on average across 32 countries (OECD, 2018[5])).

At the same time, depending on their design, unemployment benefits may contribute to job instability. For example, they may provide incentives for alternating between short periods of employment and unemployment (Boeri, Cahuc and Zylberberg, 2015[6]). In particular, this can arise in the absence of waiting periods, overly short qualification periods for contributory benefits and ill-designed partial unemployment insurance schemes (Kyyrä, 2010[7]; Le Barbanchon, 2016[8]; Fontaine and Malherbet, 2016[9]). Results in OECD (2019[1]) illustrate that, in some circumstances, entitlements for those with patchy work histories may be equally or more generous than for those with more stable employment records.

This chapter provides an in-depth review of the key policy mechanisms that affect how unemployment benefits strike a balance between income security and financial work incentives for non-standard employees. By providing comparable cross-country estimates of protection for jobseekers with different employment trajectories, the chapter seeks to provide input into the policy debate on the accessibility, adequacy and effectiveness of unemployment benefits for different types of employees.

Typically, entitlements to unemployment benefits depend on the characteristics (e.g. number of months employed, wage, hours worked) of the job held before becoming unemployed. Since such characteristics refer to a period rather than just to the moment before becoming unemployed, this chapter assesses non-standard dependent employment in terms of *trajectories* instead of the type of contract (Box 2.1 explains in detail how employment trajectories are defined and measured). Thus, employment is observed and characterised over a continuous period, instead of at a single point in time. This approach provides a more refined assessment of job instability and the possibility to measure the unemployment risk of each type of employment. In turn, this allows for a more nuanced and sophisticated analysis of the interactions between unemployment protection and non-standard employment.

The chapter is organised as follows. Section 2.1 assesses the scale and development of unstable and part-time dependent employment and the characteristics of workers with such trajectories, comparing them with workers with stable full-time dependent employment trajectories. Section 2.2 takes stock of the legal provisions on unemployment benefits that may give rise to an uneven treatment of standard and non-standard employees. Section 2.3 sheds light on the provision and level of unemployment benefits in a number of non-standard dependent employment trajectories, by making use of simulation techniques. Furthermore, it computes indicators of income security and financial work incentives for a range of policy-relevant scenarios of standard, unstable or part-time employment. Section 2.4 discusses desirable features in the design of unemployment benefits to provide reliable and effective support to workers with non-standard employment.

Box 2.1. Trajectories of non-standard dependent employment: definitions and measures

"Non-standard" employment is an umbrella term that typically covers all temporary, part-time and self-employment arrangements, i.e. everything deviating from the "standard" of full-time, open-ended employment with a single employer (OECD, 2014[10]; OECD, 2018[5]). This chapter analyses a slightly different employment group: "non-standard dependent employment".

Definitions

Non-standard dependent employment refers to wage or salary workers who experience periods of part-time or unstable work. Self-employed workers and persons not in the labour force are not included. The OECD defines **part-time employment** as people in employment who usually work less than 30 hours per week in their main job (OECD, 2020[2]). **Unstable employment** is defined here as a situation characterised by frequent transitions between employment and unemployment over a number of years.[1]

Measurement for the empirical analysis

The empirical analysis in this chapter is based on panel data of the European Union Statistics on Income and Living Conditions (EU-SILC). Employment trajectories are measured through a continuous month-to-month observation of the employment statuses of individuals over a period of 36 months.

The definition and measurement of unstable employment used here differs from previous OECD work, which focussed on transitions from one year to the next (OECD, 2019[1]). In the context of the present chapter, annual transitions may conceal one (or several) transitions into and out of employment that occur over the course of the reference year.[2] By measuring monthly transitions, the definition used here is more likely to capture transitions that involve short periods of unemployment between jobs.

Workers in part-time dependent employment are people reporting to work for a wage or salary on a part-time basis over most of the period of 36 months. The definition is self-reported and implausible information is detected and corrected as far as possible (Eurostat, 2018[11]).

Workers in unstable dependent employment are people reporting to work for a wage or salary with at least three transitions between (full-time or part-time) dependent employment and unemployment over the 36-month period. The rationale for requiring a minimum of three transitions is to ensure that the person experienced at least two spells of unemployment during the 36-month period. Workers reporting at least three transitions are classified into unstable employment even if part-time work is the most frequent employment status.[3]

Standard employment refers to workers whose dependent employment is stable (i.e. not unstable) and work mainly on a full-time basis within three years.

Sample

The sample pools together rolling panel samples ending on the years 2016, 2017 and 2018 (and the years 2006, 2007 and 2008) to minimise year-to-year variability in small subsamples. The sample is restricted to individuals aged between 20 and 59 years old who declared to be in dependent employment for at least one month in each of the three observed years. People reporting some months not in the labour force (e.g. students or pensioners) are included only if they were active (i.e. employed or unemployed) in most of the three-year period and were employed at least one month in each calendar year. Individuals experiencing self-employment are only part of the sample if self-employment is not the dominant status and there is no transition from self-employment to unemployment.

2.1. Trajectories of non-standard dependent employment

According to OECD data for 2018, part-time employment accounts for 16.5% of all employment – 2 percentage points more than two decades ago (OECD, 2020[2]). Temporary employment accounts for 11.7% of dependent employment and has remained somewhat stagnant. Among young workers, however, it makes up 25.7% of dependent employment – almost 2 percentage points more than 20 years ago and 8 percentage points more than in 1980 (OECD, 2020[3])

While some non-standard jobs, particularly for high-skilled professionals, may pay high and stable earnings and provide good working conditions, there is an association between non-standard work and poorer job quality, particularly for workers with low and middle skills. Wages tend to be lower, employment less protected, access to employer and social benefits reduced, safety and health risks greater, investments in lifelong learning lower, and bargaining power weaker (OECD, 2014[10]; OECD, 2019[1]).

Non-standard jobs are also associated with higher job instability. In a context of job polarisation (see Chapter 4), some workers (particularly those in middle-skill occupations) may not enjoy the positive aspects of low job tenure, like upward transitions when former jobs disappear. Past OECD research (OECD, 2013[12]) indicates that workers who lose their job involuntarily experience a fall in job quality after re-employment. Whereas income losses affect most previously displaced workers, the magnitude of this effect differs by country (lower in Northern European countries, higher in others), age (higher and more persistent for older workers), skill level (higher for low-skilled workers) and gender (higher for men). Furthermore, displaced workers are more likely to be re-employed in temporary or part-time jobs.

Evidence from the 2019 edition of the OECD *Employment Outlook* (OECD, 2019[1]) shows that job instability has increased in most OECD countries once changes in the demographic composition of the workforce are taken into account. The average job tenure decreased across the OECD by 4.9% (or around five months) between 2006 and 2017. The largest declines in job stability occurred for low-educated workers (i.e. those without an upper secondary qualification).

This section assesses the incidence, characteristics and trends of workers with trajectories of unstable and part-time dependent employment (see Box 2.1 for detailed definitions), and compares them to those with stable full-time dependent employment histories.

2.1.1. How prevalent are non-standard employment trajectories?

Workers with non-standard dependent employment trajectories make up a sizeable part of dependent employment. On average across 26 European OECD countries for which data is available, non-standard dependent employment accounts for 22% of employees, part-time employment comprises 16% and unstable employment makes up 6%. Among employees who experienced spells of unemployment, past unstable employment accounts for 51%, standard employment for 30% and part-time employment for 18%.

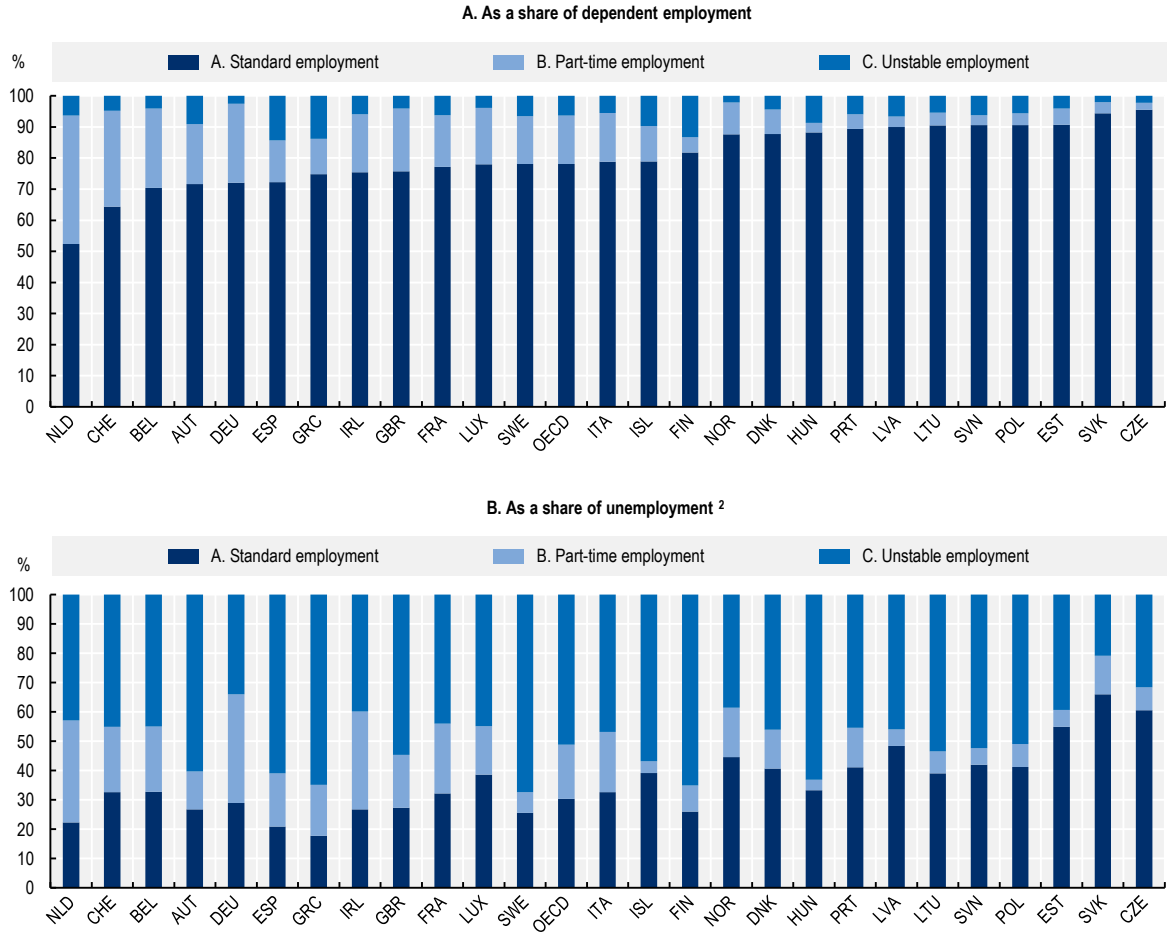
The shares of employees with trajectories of unstable and part-time dependent employment vary considerably across countries. Unstable employment is lower than 5% of dependent employment in Belgium, Czech Republic, Denmark, Estonia, Germany, Luxembourg, Norway, Slovak Republic and the United Kingdom, while it amounts to more than 10% in Finland, Greece and Spain. Part-time employment is low in Eastern European countries, Portugal and Finland, above 25% in Belgium, Germany and Switzerland, and highest in the Netherlands (41%).

In most countries, previous patterns of non-standard dependent employment account for the bulk of workers who experience unemployed, with unstable employment being the largest group. Workers with past unstable employment make up at least half of the unemployed in Austria, Finland, Greece, Iceland, Hungary, Spain, Sweden and the United Kingdom. The shares are lowest in Czech Republic and Slovak Republic. The share of unemployed with previous part-time employment is generally low (less than

20%), except in Germany, Ireland and the Netherlands, where they make up at least 30%, and, to some extent, in Belgium, France, Italy and Switzerland.

Figure 2.1. Distribution of employment trajectories across employees and unemployed

Employment trajectory types, 2016-18 (in percentage)



Note: Data is from the longitudinal panel of the EU Statistics on Income and Living Conditions (EU-SILC). The sample pools together rolling panel samples for the years 2016, 2017 and 2018 to minimise year-to-year variability in small subsamples. The sample is restricted to employees between 20 and 59 years old. People not in the labour force (e.g. students or pensioners) are excluded. OECD: weighted average of listed countries.

1. Employment trajectories are measured through a continuous month-to-month observation of the employment statuses of individuals over a period. Unstable dependent employment comprises individuals with at least three transitions between employment and unemployment in 3 years. Standard employment refers to individuals whose employment is stable (i.e. not unstable) and work mainly on a full-time basis within 3 years. Part-time employment refers to individuals whose employment is stable and work mainly on a part-time basis within 3 years.

2. The unemployment subsample is defined as employees who have been unemployed for at least one month in the year. Employment trajectory types in this case refer to employment trajectories before entering unemployment. The unemployment status is based on individual self-classification of main activity status stated by respondent. This definition may not satisfy the ILO criteria for unemployment, which require active job search and immediate availability.

Source: Longitudinal EU-SILC.

StatLink https://stat.link/oj2rmw

2.1.2. More young workers are in non-standard dependent employment than a decade ago

Non-standard dependent employment, particularly part-time work, has slightly increased in the last decade, especially among the young. However, on average across European OECD countries between 2006-08 and 2016-18, the rise has been small and restricted to part-time employment (Figure 2.2, Panel A). These patterns are partly confounded, however, by changes in the demographic composition of the labour force. Population ageing and pension reforms (restricting early retirement and increasing the statutory retirement age) have increased the proportion of older workers[4], whose jobs are usually stable and full-time (OECD, 2019[1]).

Focusing on young employees (aged 20 to 29), non-standard dependent employment rose by 6 percentage points on average between 2006-08 and 2016-18 (Figure 2.2, Panel B). Again, most of the rise took place among part-time employment, with unstable employment rising by just 1 percentage point. Young unstable employment increased considerably in Denmark, Greece, Ireland, Slovenia and Spain. In contrast, the share of young employees with unstable employment trajectories fell in the Netherlands and Norway, where it was offset, in part, by increases in part-time employment. In fact, part-time employment among youth increased in 20 out of 23 countries. The rise was notably high (more than 10 percentage points) in Greece, Italy, Ireland and Spain, while only in Denmark the share of part-time jobs among young employees fell significantly. These changes may be affected, in part, by the economic cycle, as the reference period (2006-08) may partly reflect labour market consequences of the abrupt downturn associated with the Great Recession.

2.1.3. Young workers on temporary jobs are more likely to have unstable employment trajectories

Unstable employment trajectories are more prominent among workers who are single and young, have less than upper secondary education, work in jobs with temporary contracts, are in low-skill occupations, and earn less than the median monthly wage. The results in Table 2.1 indicate that workers on temporary contracts are more likely to experience unstable employment. On average across countries shown, a person with a temporary contract is 17% more likely to be in unstable employment than an employee with a permanent contract. The association between temporary contracts and unstable employment is particularly strong in Austria, Estonia, Finland, Greece and Spain.

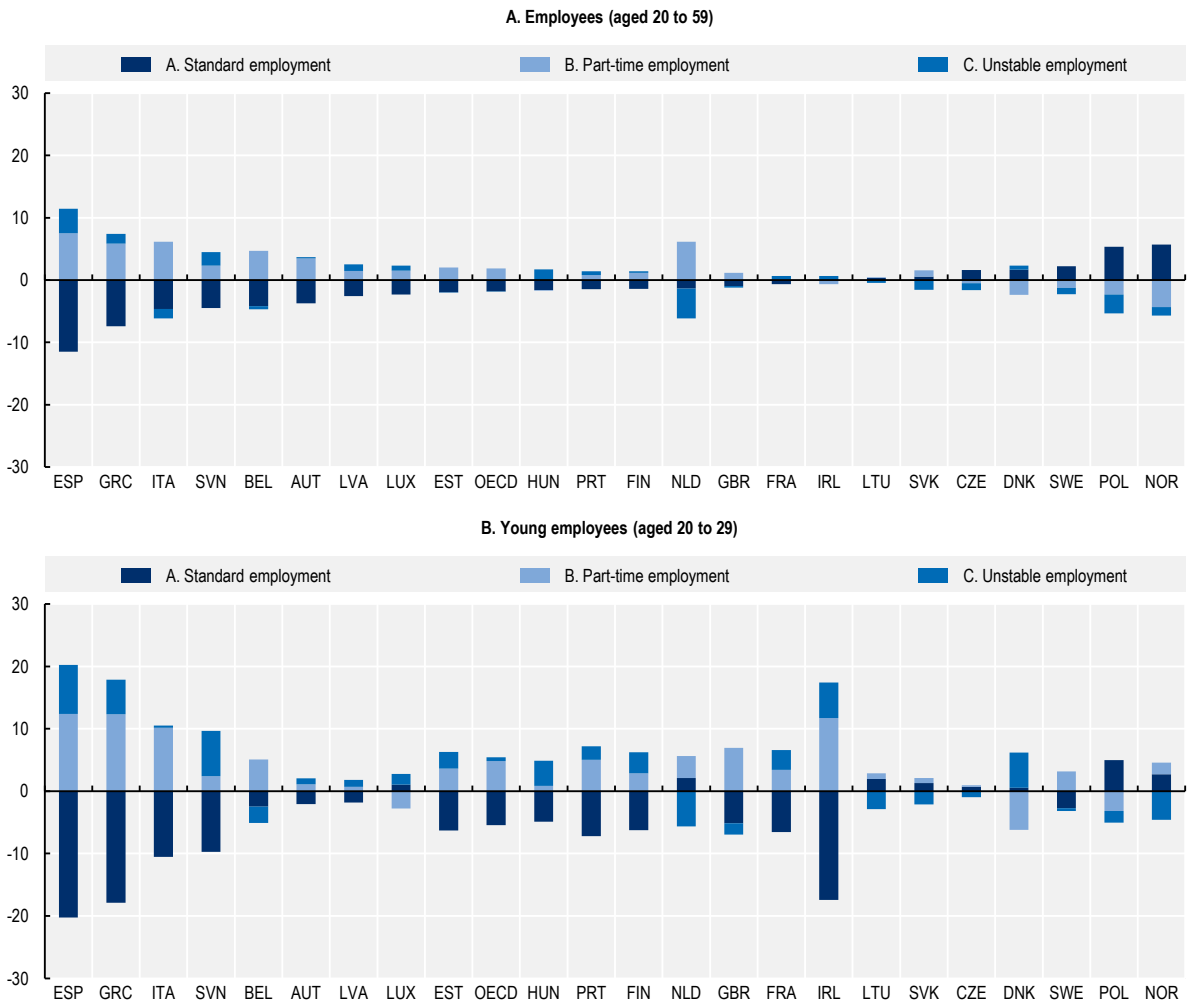
Most workers with unstable employment have a temporary contract – 64% on average across European OECD countries (Figure 2.3), but cross-country variation is considerable. Temporary contracts account for the vast majority of workers with unstable employment in Poland and Southern European countries. On the other hand, in the Baltic countries, Austria, Denmark, Iceland, Ireland, Norway, Switzerland and the United Kingdom, most workers with unstable employment have permanent contracts (fewer than 30% have temporary contracts), reflecting, in part, the low incidence of temporary contracts in employment and the lighter protection of open-ended contracts against dismissal (see Chapter 3).

In most countries, unstable employment is also more likely among jobs in low- and middle-skilled occupations, particularly in Austria, the Netherlands, Spain and Eastern European countries (Table 2.1). Unstable employment is also more frequent among young people, especially in Northern European countries as well as Hungary, France and Switzerland. In many countries, people with less than upper secondary education are more likely to be in unstable employment (especially in Greece, Hungary, Latvia and Poland), but in Denmark and Germany, the estimates suggest the opposite. Unstable employment is more frequent among women than men in Belgium, Finland and Sweden; while the opposite holds in Austria, Denmark and Germany. In most countries, people in couples (i.e. married or in partnership) are less likely to be in unstable employment; this is particularly the case in the Denmark, Hungary and Lithuania. The association between having children and unstable employment is ambiguous; it is positive

and significant in Germany, Luxemburg, Norway and Portugal but negative in the Czech Republic, the Netherlands and Poland. Higher monthly wages (normalised to within-country median wage) are negatively related to unstable employment in most countries, particularly in Austria, Denmark, Finland and Luxembourg; however, these results must be treated with caution as they may be biased by the wage data available.[5]

Figure 2.2. More workers experience trajectories of non-standard dependent employment

Percentage point change in the share of employees with standard, part-time and unstable employment trajectories, 2006-08 to 2016-18



Note: Data is from the longitudinal panel of the EU Statistics on Income and Living Conditions (EU-SILC). To minimise year-to-year variability in small subsamples, the sample pools together rolling panel samples. The reference sample includes panels from 2006-08 and the recent sample panels from 2016-18. The sample is restricted to employees between 20 and 59 years old. People not in the labour force (e.g. students or pensioners) are excluded. OECD: weighted average of listed countries. Employment trajectories: unstable dependent employment comprises those individuals with at least three transitions between employment and unemployment in 3 years. Standard employment refers to those individuals whose employment is stable (i.e. not unstable) and work mainly on a full-time basis within 3 years. Part-time employment refers to those individuals whose employment is stable and work mainly on a part-time basis within 3 years.
Source: Longitudinal EU-SILC.

StatLink https://stat.link/5igcfn

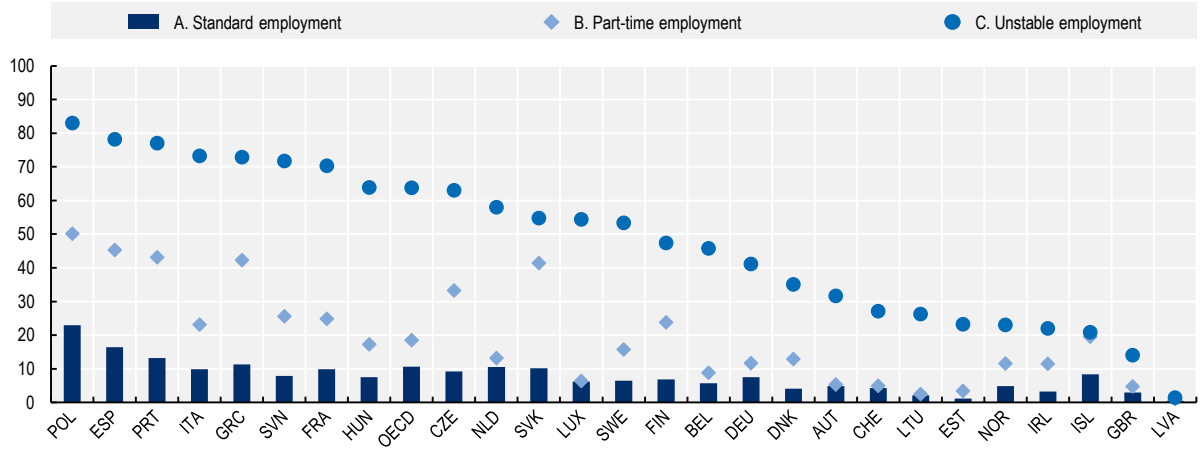
Table 2.1. Incidence of unstable employment, by socio-demographic characteristics and countries

	ALL	AUT	BEL	CHE	CZE	DEU	DNK	ESP	EST	FIN	FRA	GBR
Wage	-0.003	-0.056***	-0.012**	-0.006	-0.026***	-0.028***	-0.064***	-0.019***	-0.000	-0.070***	-0.003	0.003*
Gender (ref: male)												
Female	-0.002	-0.068***	0.010**	0.002	0.003	-0.022***	-0.018**	0.001	0.006	0.019**	-0.005	-0.000
Education (ref: middle)												
Low	0.021***	0.023*	0.016**	-0.000	0.000	-0.012**	-0.016**	0.011	0.014*	0.052**	0.006	-0.004
High	-0.002	-0.000	-0.007	-0.005	0.004	0.003	0.044**	-0.044***	-0.011***	-0.034***	-0.005	-0.003
Age (ref: 40s)												
20s	0.020***	-0.004	0.014**	0.045***	0.018***	0.007	0.032***	-0.010	0.027***	0.076***	0.043***	0.018***
30s	0.007***	-0.021**	0.019***	0.037***	0.013***	0.013***	0.047***	0.008	0.006	0.023**	0.007	0.013**
50s	-0.001	-0.010	0.001	-0.004	0.001	0.003	0.039***	0.005	0.004	0.012	-0.011**	0.011**
In couple	-0.014***	-0.023***	-0.012**	-0.015***	0.004	0.002	-0.032***	-0.016**	-0.024***	-0.013	-0.024***	-0.024***
Dependent children	0.000	0.002	0.009*	0.008*	-0.006**	0.013***	0.002	0.004	0.003	0.017*	0.003	-0.007
Occupation (ref: high skill)												
Mid-skill	0.017***	0.039***	-0.008*	0.014***	0.006**	0.004	0.013	0.019***	0.013***	0.016	0.026***	0.014**
Low-skill	0.028***	0.053***	0.008	0.017**	0.011***	-0.006	0.012	0.034***	0.024***	-0.007	0.011**	0.015**
Contract												
Temporary	0.173***	0.264***	0.148***	0.140***	0.073***	0.051***	0.151***	0.271***	0.301***	0.303***	0.137***	0.057***
Observations	316 090	10 982	10 107	13 165	16 512	9 997	5 071	21 624	12 342	9 335	20 876	8 412
Pseudo-R:	0.198	0.169	0.165	0.114	0.217	0.132	0.229	0.231	0.147	0.198	0.259	0.060
	GRC	HUN	IRL	ITA	LTU	LUX	LVA	NLD	NOR	POL	PRT	SWE
Wage	-0.020***	-0.013*	-0.028***	-0.003	-0.012**	-0.052***	-0.014	-0.017*	-0.015**	-0.001	-0.002	-0.020
Gender (ref: male)												
Female	0.001	0.001	-0.003	0.003	-0.007	-0.004	-0.009*	-0.002	0.006	0.002	-0.000	0.025***
Education (ref: middle)												
Low	0.071***	0.049***	0.015	0.010***	-0.002	-0.006	0.027***	0.018*	0.010	0.042***	0.010**	-0.005
High	0.013**	-0.026***	-0.001	-0.006*	-0.031***	-0.006	-0.015***	0.003	-0.001	0.002	0.004	-0.004
Age (ref: 40s)												
20s	0.019*	0.035***	0.052***	0.007	0.019**	0.024***	0.020**	-0.012	0.022***	0.021***	0.013*	0.045***
30s	-0.002	0.018***	-0.010	-0.000	-0.001	0.011**	0.000	-0.011	0.006	-0.010***	0.006	0.018*
50s	-0.017**	0.007	0.008	-0.001	0.014**	-0.002	0.002	-0.001	-0.006	-0.007	0.008	0.004
In couple	-0.017**	-0.026***	-0.001	-0.003	-0.029***	0.003	-0.006	-0.015**	-0.003	-0.012***	-0.012***	-0.009
Dependent children	0.010	0.016***	-0.001	-0.006*	0.000	0.013***	-0.003	-0.017**	0.010**	-0.011***	0.020***	-0.012
Occupation (ref: high skill)												
Mid-skill	0.004	0.024***	0.002	0.006*	0.034***	-0.028***	0.019***	0.022***	0.002	0.025***	0.002	0.032***
Low-skill	0.017**	0.032***	-0.013	0.016***	0.037***	-0.017*	0.049***	0.049***	0.008	0.052***	0.009	0.014
Contract												
Temporary	0.318***	0.234***	0.127***	0.193***	0.240***	0.128***	0.031	0.155***	0.026**	0.104***	0.180***	0.178***
Observations	20 286	14 046	5 025	27 378	9 228	8 597	10 133	10 699	6 271	29 138	15 943	4 675
Pseudo-R:	0.245	0.294	0.0886	0.263	0.200	0.267	0.0746	0.209	0.135	0.238	0.242	0.218

Note: Marginal effects from probit regressions. ***, ** and * denote statistical significance at the 1%, 5% and 10% significance level.
The dependent variable "unstable employment" equals 1 if employment is unstable, i.e. there are at least 3 transitions between employment and unemployment, and 0 if employment is not unstable. Estimated marginal effects indicate the estimated change in the probability of being in unstable employment associated with an increase of a given continuous independent variable, and are calculated for an infinitesimal change of that variable from the sample average. Marginal effects for categorical variables refer to a discrete change from the base level. While unstable employment is based on month-to-month information (Box 2.1), the characteristics used are observed in the data only once a year. Data from the longitudinal panel of the EU Statistics on Income and Living Conditions (EU-SILC). The sample pools together longitudinal samples ending with the years 2016, 2017 and 2018 to minimise year-to-year variability in small subsamples. The sample is restricted to employees between 20 and 59 years old; people not in the labour force (e.g. students or pensioners) are excluded. All countries: sample includes observations for all listed countries.
Source: Longitudinal EU-SILC.

Figure 2.3. Most workers with unstable employment have temporary contracts

Share of temporary contracts by type of employment trajectories, 2016-18, in percentage



Note: Data from the longitudinal panel of the EU Statistics on Income and Living Conditions (EU-SILC). The sample pools together rolling panel samples ending with the years 2016, 2017 and 2018 to minimise year-to-year variability in small subsamples. The sample is restricted to employees between 20 and 59 years old; people not in the labour force (e.g. students or pensioners) are excluded. OECD: weighted average of listed countries. Employment trajectories: measured through continuous month-to-month observation of the employment statuses of individuals over a period of 3 years. Unstable dependent employment comprises those individuals with at least three transitions between employment and unemployment in 3 years. Standard employment refers to those individuals whose employment is stable (i.e. not unstable) and work mainly on a full-time basis within 3 years. Part-time employment refers to those individuals whose employment is stable and work mainly on a part-time basis within 3 years. Temporary contract: a contract is classified as temporary if the termination of the job is determined by objective conditions such as a specific contract end date, completion of an assignment or return of another employee who is temporarily replaced.
Source: Longitudinal EU Statistics on Income and Living Conditions (EU-SILC).

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2.1.4. Women are more likely than men to work part-time

Part-time work can be an option for employees who need to reduce their working hours on a permanent basis, though it widely comes at the price of reduced earnings and curtailed career prospects (OECD, 2017[13]; 2018[5]). Almost one quarter of women – often mothers – work part-time in OECD countries, and are more than two times more likely than men to work part-time (Figure 2.4).

Beyond average figures, female part-time employment differs widely among OECD countries (Figure 2.4), ranging from less than 15% in Eastern European countries and Portugal to almost 60% in the Netherlands. Women account for the majority of part-time jobs in all countries. In Austria, Belgium, Luxembourg and Switzerland, about four-in-five part-time jobs are performed by women.

There is no definitive conclusion why the share of part-time work differs so widely among OECD countries. The institutional framework may play a role to explain cross-country differences, but there seems to be no clear relationship between the generosity of protection for part-time workers and the incidence of part-time work (OECD, 2010[14]). Childcare policies can also play a role in incentivising women to take up part-time jobs. In particular, several studies find a positive effect of reduced childcare costs on maternal labour supply (Baker, Gruber and Milligan, 2015[15]; Berlinski and Galiani, 2007[16]; Carta and Rizzica, 2018[17])

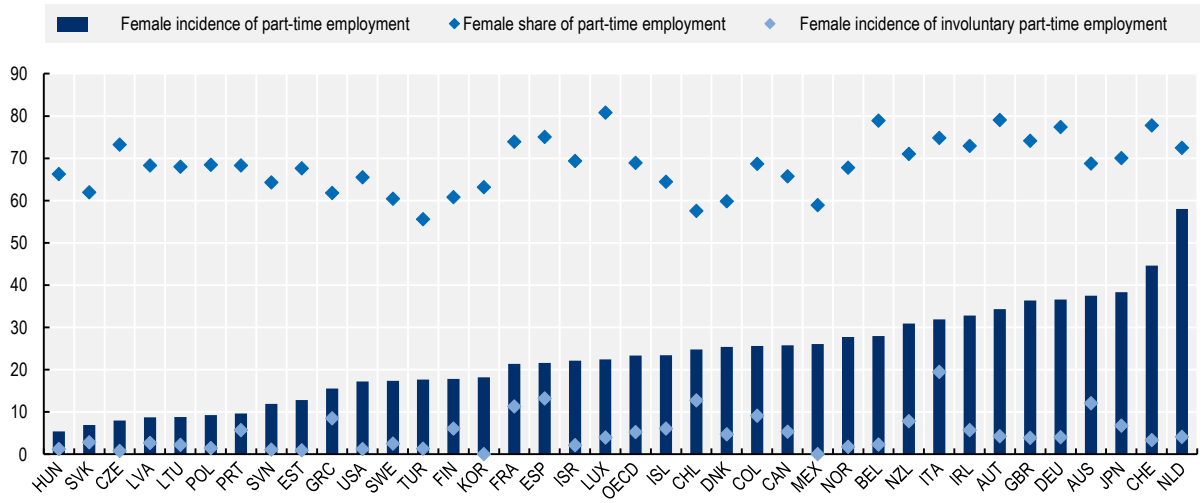
Part-time employees tend to receive lower hourly wages in all OECD countries (OECD, 2010[14]; 2018[5]). Individual characteristics explain part of the part-time pay penalty, but occupational profile differences are more important in accounting for the wage differentials between part-time and full-time workers (Manning and Petrongolo, 2008[18]). Job insecurity is higher among part-time employees and more so for men than

for women. Part-time workers also take part in less training and tend to be less optimistic about their career prospects. Yet, workers, especially women, use part-time work as the primary way to achieve work-life balance (Mas and Pallais, 2019[19]).

Despite higher job insecurity and lower pay, in most countries part-time employees work shorter hours by choice, even though this choice is often dictated by external constraints, such as uneven family responsibilities within couples (OECD, 2018[5]). In 2018, only 5.2% of female employment was involuntary part-time work (Figure 2.4), i.e. working fewer hours than desired because they could not find a full-time job. Evidence from the Netherlands, the country with the highest part-time employment share, shows that women who work part-time display high job satisfaction rates and do not aim to work more hours (Booth and van Ours, 2013[20]). There are exceptions, however. In Italy, Chile, France and Spain, the countries with the greatest share of involuntary part-time work, the majority of part-time women would have liked to work more hours (OECD, 2019[1]).

Figure 2.4. Part-time work is more frequent among women

Incidence and share of female part-time and involuntary part-time employment, 2018, in percentage



Note: Part-time employment as a proportion of total employment. "Part-time" here refers to persons who usually work for less than 30 hours per week in their main job. For Japan and Korea, part-time employment is based on actual rather than usual weekly working hours. Population of persons aged 15 or more, except for Italy, Spain and United Kingdom where the lower age limit is 16. For Ireland and Portugal, involuntary part-time employment refers to 2017. OECD unweighted average for all countries but Korea and Mexico, where data on involuntary part-time employment is missing.
Source: OECD Employment Database http://www.oecd.org/employment/emp/onlineoecdemploymentdatabase.htm.

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2.1.5. Poverty rates are higher among workers with non-standard employment

Workers with trajectories of non-standard dependent employment have higher income poverty rates (i.e. live in a household with an annual disposable income of less than 50% of the national median). On average across 24 European OECD countries, the share of workers living in households with income below the poverty line is 10% among those with trajectories of part-time employment and 19% among workers in unstable employment; in contrast, the poverty rate among standard workers is 3% (Figure 2.5).

There is considerable variation between different countries. Among workers with trajectories of part-time employment, the poverty rate is below 5% in Belgium and the Netherlands, and around or above 20% in

Greece, Latvia, Portugal and Spain. Further, in the Baltic countries and Sweden, more than one-in-four workers with unstable employment trajectories live in a household with income below the poverty threshold. Among standard employees, the poverty rates are lower and more homogenous across countries, ranging from less than 1%, in Finland, Ireland and the Netherlands, to slightly above 5% in Estonia and Luxembourg.

Non-standard dependent employment may be a driving factor increasing the risk of falling into income poverty for several reasons. Earnings potential may be reduced due to lower work intensity, and lower current and future wages.

Non-standard employees may work for fewer hours in part-time and unstable employment.[6] Workers with trajectories of non-standard dependent employment may also undergo a penalty in terms of hourly wages. In comparison to standard employees, workers with part-time and temporary jobs experience not only wage penalties in their current earnings (lower hourly wages) but are also less likely to participate in training and be promoted, which impacts future earnings (OECD, 2010[21]; OECD, 2014[10]).[7] OECD evidence also suggests that personal characteristics (e.g. age, education and work experience) play a minor role, while job characteristics (e.g. occupation, industry, firm size and contract) explain some of such penalties (OECD, 2010[21]).

Household characteristics can also play an important role in determining the poverty risk of non-standard employees. Evidence on part-time employees shows that they are more likely to be income poor if their job is the main source of household earnings than if they cohabit with standard employees with higher earning (OECD, 2015[22]).

Workers with part-time and unstable employment may also experience penalties in terms of access to social benefits and protections. In many countries, social protection systems in general, and unemployment benefits in particular, have not yet fully adapted to the specific needs and circumstances of workers in non-standard forms of dependent employment. Analyses of out-of-work social benefits in six countries (France, Greece, Hungary, Italy, Spain and the United Kingdom) found that in Spain and Italy unstable employees were less likely to have access to benefits than standard employees (OECD, 2019[1]). This gap was also considerable in the United Kingdom, although not statistically significant. The social protection gap between standard and non-standard employees was larger when assessed in terms of benefit generosity (benefit amount as a proportion of median income), especially in Greece, Italy and Spain (Fernández, Immervoll and Pacifico, forthcoming[23]).

Due to their unusual work trajectories, jobseekers with previous non-standard dependent employment may not receive the type of support that unemployment benefits typically provide to jobseekers with standard employment. Unemployment benefits, in particular, tend to be more difficult to access for non-standard employees than other insurance programmes, such as maternity and sickness benefits (Avlijas, 2019[4]). In fact, low coverage by unemployment benefits – fewer than one-in-three jobseekers receive unemployment benefits on average across countries (OECD, 2018[5]) – may be associated with non-standard dependent employment. The condition for access to unemployment benefits in OECD countries are examined in the next section.

Figure 2.5. Poverty rate by type of dependent employment

Share of employees with household disposable income below the poverty line by type of employment trajectory, 2016-18 (in percentage)



Note: Data is from the longitudinal panel of the EU Statistics on Income and Living Conditions (EU-SILC). To minimise year-to-year variability in small subsamples, the sample pools together rolling panel samples ending with the years 2016, 2017 and 2018. The sample is restricted to employees between 20 and 59 years old. People not in the labour force (e.g. students or pensioners) are excluded. OECD: weighted average of listed countries. Poverty: defined as household disposable income (adjusted for household size) below 50% of the median. Household disposable income includes, from all household members, all gross personal income components (e.g. earnings, social transfers, income from rent, regular inter-household transfers received, and income from capital) minus taxes on wealth, regular inter-household transfers paid and income tax and social insurance contributions. Employment trajectories: unstable dependent employment comprises those individuals with at least 3 transitions between employment and unemployment in 3 years. Standard employment refers to those individuals whose employment is stable (i.e. not unstable) and work mainly on a full-time basis within 3 years. Part-time employment refers to those individuals whose employment is stable and work mainly on a part-time basis within 3 years.
Source: Longitudinal EU-SILC.

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2.2. Are unemployment benefit rules adapted to non-standard employment?

Requirements related to minimum time in employment or social contributions are harder to meet for those in unstable or part-time employment. With frequent job changes and job losses, unstable workers tend to have comparatively short employment tenure. Depending on the country, differences between workers with standard and non-standard employment might go beyond a mere pro-rata equivalence of entitlement and result in less favourable entitlement to unemployment insurance such as smaller benefit amount, shorter duration or restricted access. Furthermore, already acquired entitlements may be lost during a change in employment status or job (e.g. following a transition from dependent employment to self-employment when entitlements differ across employment statuses or between jobs if they are tied to a specific employment relationship). To deal with these gaps, several countries have special measures including exemptions for specific contractual arrangements, such as casual employment and seasonal work (OECD, 2019[1]).

In many OECD countries, some part-time work is compatible with the receipt of unemployment benefits ("part-time unemployment benefit") and may or may not open new entitlements. Some countries offer partial benefits to workers whose working hours have been reduced ("short-time unemployment benefit") – see e.g. Cahuc (2018[24]). In contributory systems, out-of-work support for unstable workers often

includes provisions that allow for contribution periods or unused entitlements to be carried forward to future claim periods.

2.2.1. Main unemployment benefit rules

This section describes the main unemployment benefit rules focusing on their possible specific adaptation – or lack of it – to the special circumstances of workers with part-time or unstable employment. Formally, workers with part-time and unstable employment have equal access to unemployment benefits as workers with standard employment. In practice, however, if eligibility criteria are not adapted to their special circumstances their access and protection level may be considerably different and, in some cases, inadequate. This is particularly the case in contributory systems, which require meeting a minimum amount of time in employment, of hours worked and/or of earnings received.

Most unemployment benefits in OECD countries are contributory and eligibility is conditional on employment requirements (Figure 2.6). Employment requirements of first-tier unemployment benefits vary considerably across OECD countries. On average, the minimum time in employment is about 12 months and ranges from three months, in Iceland and Italy, to 24 months in the Slovak Republic. The reference period is on average about 24 months, and varies between nine months in the Netherlands and six years in Spain. Interestingly, the country with the longest minimum time in employment, the Slovak Republic, permits a longer assessment period for workers with temporary contracts.

Employment requirements also apply to some second-tier unemployment benefits. Usually, both minimum time in employment and reference periods are shorter than first-tier benefits. In France, however, access to the second-tier unemployment benefit requires at least five years of employment in the last ten years, typically targeting the long-term unemployed rather than non-standard employees.

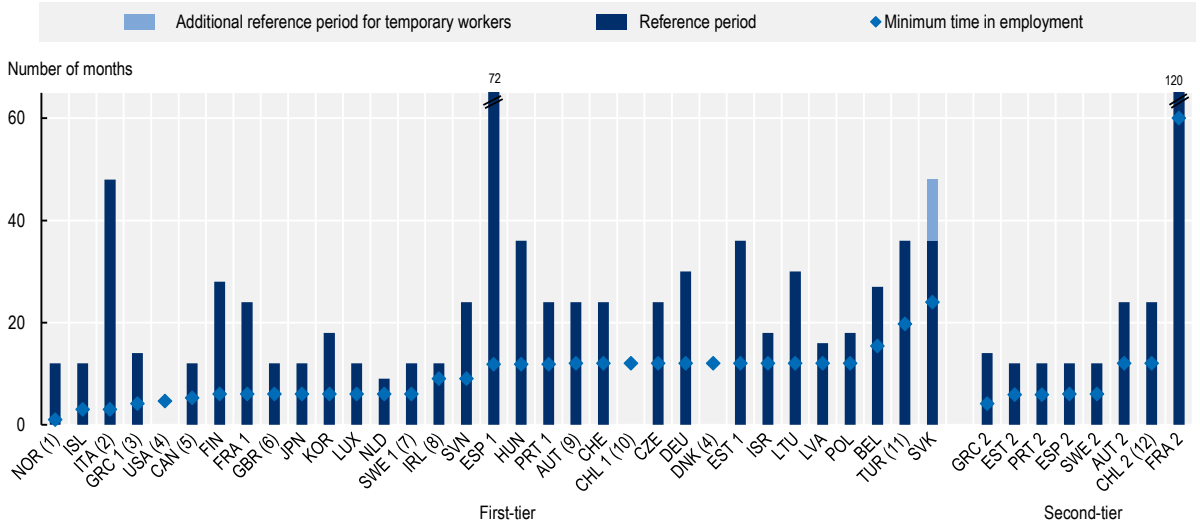
Some countries have restrictions on the minimum amount of contributions or of hours worked, which may hinder access of part-time employees, who are less likely to fulfil those criteria. Poland, for example, requires monthly contributions to be based on earnings that are equal to, or greater than, the national minimum wage. In the United Kingdom, a minimum earnings level is also required for contributions to count towards unemployment insurance entitlements – the minimum earnings level is approximately 15% of average full-time earnings in the United Kingdom (OECD, 2019[1]). In Finland, contributions must be based on at least 18 hours of work per week. In Australia, the *Newstart Allowance* provides social protection for jobseekers through means-tested payments that are independent of past employment.

The financing of contributory unemployment benefits usually stems, at least in part, from social security contributions paid by employees and/or employers. In most countries, social security contributions include “unemployment insurance contribution rates” which correspond to the part of contributions earmarked to unemployment protection. Some countries differentiate unemployment insurance rates to create financial incentives for employers and employees to choose more stable employment contracts and discourage collusion. Box 2.2 shows unemployment insurance rules in a subsample of OECD countries.

There is considerable variation across countries in the design of unemployment benefit systems, and hence, the extent to which they support incomes during joblessness and facilitate job search. Figure 2.7 summarises some of the key institutional details of first-tier and second-tier unemployment benefits in all OECD countries, except Colombia. Second-tier unemployment benefits protect jobseekers who are not (or no longer) eligible to the first-tier contributory unemployment benefits.[8] Special unemployment programmes such as training allowances, additional “lower-tier” unemployment benefits[9], social assistance benefits and other programmes that are not exclusively targeted at jobseekers (e.g. family or sickness benefits) are not considered.

Figure 2.6. Employment requirements in unemployment benefits

Minimum time in employment and reference period, number of months at 1st of January 2020



Note: Minimum time in employment indicates the minimum contribution period to be eligible for receiving first-tier unemployment benefit payments. Reference period is the period to assess whether the respective employment condition is fulfilled. First-tier and second-tier unemployment benefits are identified by the country acronym plus the number 1 and the number 2, respectively. Second tier benefits are only included if claim is conditional on fulfilling an employment condition. In countries without a contributory second-tier unemployment benefits, first-tier benefits are identified only by the country acronym. Countries where first-tier benefits are not conditional on fulfilling an employment condition are not shown.

(1) Minimum earnings requirement of NOK 149 787 in the past 12 months or alternatively NOK 299 574 in the past three years. (2) At least 30 days of employment in the 12 months prior to the start of the unemployment spell. (3) Or 200 days in last two years. (4) Earnings condition also applies. (5) Assuming 40-hour workweek. (6) six months in any one of the past two years. (7) The first-tier benefit requires claimants to meet a minimum membership period in an unemployment insurance fund (*A-kassa*) of 12 months. (8) Or 26 weekly contributions in each of previous two years. The claimant must also have made 104 weekly contributions in the whole career. (9) First unemployment benefits claim: 12 months within two years in general, and 6.5 months within one year for people under 25. For all subsequent UB claims, seven months within one year or 12 months within two years. (10) The claimant must have 12 months of contributions since the previous unemployment spell or the last time a withdrawal from the individual account was made; the last three contributions must be continuous and with same employer. (11) The claimant must have held the labour contract for the last 120 days before its termination. (12) The last three monthly contributions before unemployment must be continuous and with same employer.

Source: OECD tax-benefit model and policy database (http://oe.cd/TaxBEN), Avilijas (2019[4]), and information collected and compiled by the Employment, Labour and Social Affairs Directorate of the OECD.

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Most unemployment benefits are contributory and not means-tested, especially if they are first-tier benefits. Out of the 47 unemployment benefits, 37 are contributory and ten are non-contributory (Figure 2.7, Panel A). Only in Australia and New Zealand, first-tier unemployment benefits are not contributory and means-tested. Most second-tier unemployment benefits are not contributory and means tested. Only in Austria and Chile, second-tier unemployment benefits are contributory and not means test. Conversely, in Estonia, France, Portugal and Spain, second-tier unemployment benefits are contributory and means tested.

Typically, second-tier unemployment benefits are subject to strict income and asset testing, which may hamper access for jobseekers in households with other income sources, such as earnings from a spouse. Among OECD countries with a second-tier unemployment benefit, only in Austria and Chile the benefit is not means-tested (Figure 2.7, Panel B). In Austria, France and Greece, the second-tier unemployment benefits are available only for people who ran out of the first-tier benefit – thus, they are not available to jobseekers who did not qualify for the primary benefit in the first place.

Box 2.2. Unemployment insurance contribution rates of employees and employers

In some countries, social security contributions for unemployment insurance vary for specific types of employment, including part-time and temporary contracts. Total contribution rates, i.e. both employer and employee contributions, vary from 0.9% of pre-tax wages in Japan to 8.3% for temporary employees in Spain. In most countries with contributory unemployment insurance schemes, the lion's share of total contributions is borne by the employer. The employer-to-employee contribution ratio ranges from 50:50 in Finland to 100:0 in France[10], the Netherlands and Poland. Some countries apply different contribution rates according to occupation (Japan), type of dependent employment (Spain and Netherlands) and wages (Austria and the United Kingdom).

Different contribution rates for temporary and permanent contracts in Spain and the Netherlands may significantly alter employer and employee incentives to favour a certain type of contract. In France, a new experience rating system according to firm-specific job separation rates will modify employer contributions rates from January 2021 onwards.[11] Employers will pay a reduced rate if firm separation rates are below the median sectoral separation rates. The contribution floor of the new system is 3% and the ceiling is 5.05%. A recent study suggests, however, that, by increasing labour cost for marginal works, taxing temporary jobs of short duration […] increases the share of open-ended contracts but reduces the mean duration of jobs and decreases job creation, employment and welfare of unemployed workers (Cahuc et al., 2019[25]).

Similarly, discontinuities in the contribution schedule, as in Austria and the United Kingdom, may lead to coordinated behaviour of employers and employees to determine wages or adapt labour market participation. Results from empirical studies exploiting discontinuities in social security contribution ceilings for employers indicate that labour supply and wage responses are small to negligible (Saez, Matsaganis and Tsakloglou, 2012[26]; Saez, Schoefer and Seim, 2019[27]). At the lower end of the wage distribution, however, reduced taxes or social security contributions for employees can significantly alter labour supply (Meyer and Rosenbaum, 2001[28]; Chetty, Friedman and Saez, 2013[29]). Considering this, sharp discontinuities in social security contributions at low earnings levels in Austria and the United Kingdom may affect both the decision of whether to work (extensive margin) and how many hours to work (intensive margin).

In some countries, second-tier unemployment benefits facilitate access to non-standard employees through less demanding employment requirements. In Spain, the second-tier unemployment benefit requires a shorter minimum time in employment (six months in general, three months in case of having family responsibilities). In the United Kingdom and Finland, the second-tier unemployment benefits do not depend on past employment.

Generally, the amount of first-tier contributory unemployment benefits fluctuate between a minimum and maximum amount, while second-tier, non-contributory and means-tested unemployment benefits have fixed amounts. Benefit amounts are usually considerably higher in first-tier than second-tier unemployment benefits, but the difference depends on whether the entitlement to the first-tier benefit is closer to the minimum or maximum limit. Panel A in Figure 2.7 indicates the benefit amount for a recipient previously earning a salary equivalent to two-thirds of the average wage in the country.[12] Under these circumstances, in most countries, the amounts of first-tier unemployment benefits exceed those from second-tier benefits by a significant margin (at least 10 percentage points of the average wage).

In some countries, however, the benefit amounts of first- and second-tier unemployment benefits are similar (Figure 2.7, Panel A). In Austria, where access to the second-tier benefit is conditional on exhausting first-tier benefit, the amount of the second-tier benefit is just slightly lower than that of the first-tier benefit, though it is means-tested and other household incomes reduce the entitlement. In Ireland and

the United Kingdom, the benefit amounts of first-tier and second-tier benefits are the same. This may help explain why only 14% of the unemployment benefit claimants in the United Kingdom receive the first-tier benefit (Bradshaw and Bennett, 2017[30]; Avlijas, 2019[4]).

In Estonia, Finland, Greece, Portugal, Spain and Sweden, the amount of the flat-rate means-tested second-tier benefit is similar to the minimum amount of the earnings-related first-tier benefit (Figure 2.7, Panel A). In the case of Finland, not only the amounts are the same but also the means test applied to the second-tier benefit has limited impact on benefit amounts as many income sources are fully disregarded (e.g. earnings of the spouse, social assistance and housing allowance). In contrast to other earnings-related social security systems, in Finland, the first-tier benefit does not have an upper ceiling for the benefit level. This feature aims to incentivise high-wage earners to contribute to the system.

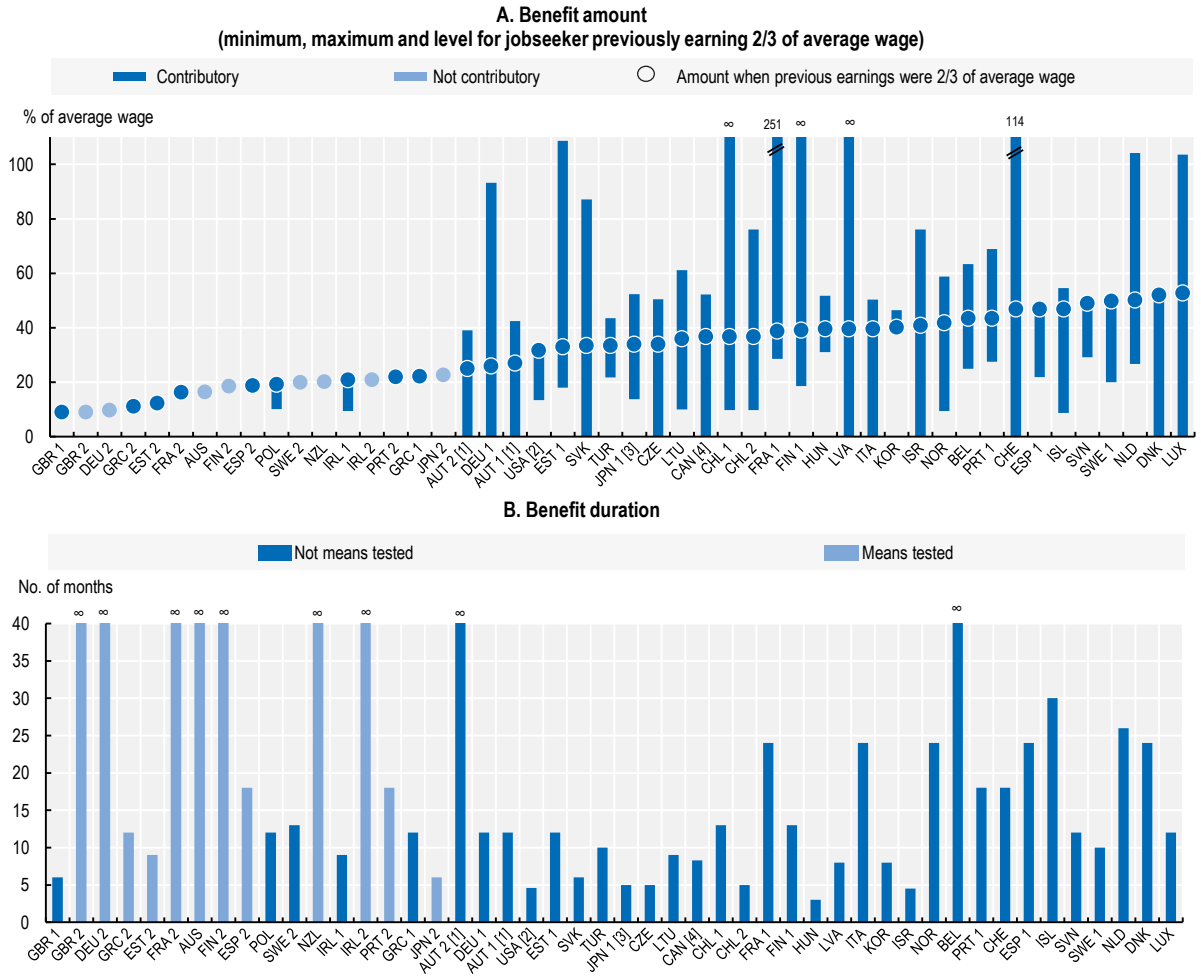
The maximum duration of first-tier unemployment benefits tends to be shorter than of second-tier benefits. In most countries, the maximum duration of first-tier unemployment benefits is up to 36 months, with 24 months being the most frequent limit (Figure 2.7, Panel B). In the non-contributory and means-tested first-tier unemployment benefits of Australia and New Zealand there is no maximum duration limit. Similarly, no maximum duration limit applies in Belgium, where first-tier unemployment benefits are contributory and not means tested. In several countries, the duration of second-tier unemployment benefits is unlimited. In most cases, these benefits with unlimited duration are means tested. In Austria, however, the benefit is not means tested on household income, although it is suspended if the claimant earns above the minimum base of social contributions.[13] Among second-tier unemployment benefits with limited duration, the maximum duration ranges from nine months in Estonia to 24 months in Portugal.

2.2.2. Detailed unemployment benefit rules

This section describes detailed rules of first- and second-tier unemployment benefits that can affect workers with part-time and unstable employment differently from standard employees. The data is based on a tailored questionnaire, which was submitted to 11 OECD member countries (Australia, Austria, Canada, Finland, France, Japan, Latvia, the Netherlands, Poland, Spain and the United Kingdom). This country selection aims to illustrate unemployment benefits in European and non-European countries, based on contributory and non-contributory systems, using and not using means testing, and with different levels of legal complexity and access conditions. The detailed information on unemployment benefit legislation is summarised in Table 2.2.

In all selected countries, benefit claimants with previous part-time employment are subject to the same access conditions as those who previously worked full-time. The calculation of benefit amounts may differ however, particularly in the case of first-tier benefits. In most countries (Austria, Canada, France, Japan, Latvia, the Netherlands and Spain), the amount of first-tier benefits is calculated pro-rata, i.e. in proportion to the wage in the previous job. In Australia, Poland and the United Kingdom, where the benefit amount is a flat rate, jobseekers previously in part-time employment receive the same amount as those previously working full-time. Finland has a hybrid system combining a fixed component with a supplement that is proportional to earnings. Second-tier benefit amounts are also independent of previous hours worked in Finland, France, and the United Kingdom. In contrast, in Austria and Spain, the amounts of second-tier benefits are computed in proportion to the previous number of hours worked.

Figure 2.7. Main characteristics of unemployment benefits, 2020



Note: Panel A shows the interval between minimum and maximum benefit as a percentage of the average wage and the amount the jobseeker is entitled to when previous-job earnings were exactly two-thirds of the average wage. Panel B shows maximum duration in months. First-tier and second-tier unemployment benefits are identified by the country acronym plus the number 1 and the number 2, respectively. In countries without second-tier unemployment benefits, first-tier benefits are identified only by the country acronym.

Benefit rules and calculations assume a 40-year old individual in a single household without children and not eligible to any supplement. For other household types and age groups, see annual OECD tax-benefit country reports. In some countries, benefit minimums may be lower than stated for former part-time employees (not considered).

Unemployment benefits as of 1st January, 2020. Benefit amounts for jobseeker previously earning 2/3 of average wage estimated by combining results from the OECD tax-benefit web calculator for 2018 and information collected and compiled by the Employment, Labour and Social Affairs Directorate of the OECD for 2020. Estimations of the benefit amount at 2/3 of average wage additionally assume that claimants are in the second benefit month and have a long contribution record (22 years).

Average wage: gross annual value for a full-time worker. Wages for 2020 are preliminary wage estimates based on projected average wage data, calculated by the Secretariat. All estimations use annualised benefit amounts.

[1] Benefits may be extended up to a maximum of 48 months if taking part in certain active labour market policies.

[2] Information on the USA reflects the situation of the Michigan unemployment benefit scheme.

[3] Claimants deemed to be difficult to re-employ may receive up to 360 days of unemployment benefits.

[4] The maximum benefit duration is determined by the regional unemployment rate. The estimated maximum duration shown here is based on the national unemployment rate for December 2019.

Source: OECD tax-benefit model and policy database (www.oecd.org/social/benefits-and-wages.htm) and information collected and compiled by the Employment, Labour and Social Affairs Directorate of the OECD.

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Many countries use part-time unemployment benefit schemes, which enable claimants to keep part of their unemployment benefits while earning low wages from a job. These schemes aim at people who have lost a full-time and found a part-time job or have lost a secondary job, and are seeking a new job in order to work more hours (Cahuc, 2018[24]). Typically, jobs are restricted to a temporary basis or subject to specific limits regarding working hours and/or earnings.

Except for Latvia and Poland, all analysed countries have schemes of part-time unemployment, although specific conditions apply. Most countries set an implicit earnings limit on part-time unemployment by phasing out the amount of the benefit by reducing it in line with earned wages. Some unemployment benefits operate, however, explicit limits based on earnings, hours or duration. Explicit earning limits are in place in Austria (lower than the "marginal income limit"), second-tier benefit in Japan (80 000 JPY) and the Netherlands (87.5% of the benefit amount). Limits on the number of hours worked are imposed in Finland (80% of full-time), first-tier benefit in Japan (20 hours per week) and Spain (70% of full-time). In France, the second-tier unemployment benefit sets a duration limit, as work is only compatible with the benefit for up to three months.

Some countries encourage unemployment benefit recipients to take up part-time work using financial incentives that allow recipients to "keep" some of the additional income received in wages by not reducing the benefit amount by the same magnitude. First- and second-tier unemployment benefits in Austria and second-tier benefit in France do not reduce the amount of benefits with wages earned, although both apply limits, as seen above. In Australia, Canada, Finland, France (first-tier benefit) and the Netherlands, benefits apply 'withdrawal rates', which reduce the magnitude of benefits at a slower pace than wages. Furthermore, in Australia, Finland and the United Kingdom, benefits apply 'earning disregards', which ignore part of the earnings amount to be deducted from the benefit. Only Spain and first-tier benefit in Japan do not provide any financial incentive.

Putting together the limits and incentives to part-time unemployment, Table 2.2 presents the maximum possible sum of unemployment benefits and earnings (SUBE), expressed as a proportion of the average wage in the country. SUBE ranges from 9% in the United Kingdom to 70% in Canada. The sum of unemployment benefits and earnings can also reach levels from 40% of the average wage in Austria, Finland, France, Japan, the Netherlands and Spain (first-tier benefit only).

Workers experiencing unstable employment, with repeated transitions between work and unemployment, may not satisfy all unemployment benefit conditions when applying for a subsequent time. To facilitate their access, some countries make use of 'recharging' rules, with specific access conditions for jobseekers who are not applying to unemployment benefit for the first time. In Austria, for example, people who received unemployment benefits before are favoured by an alternative employment requirement (28 weeks of employment in the past 12 months) besides the one available for first-time claimants (52 weeks in the past 24 months).

Rules easing repeated benefit claims may produce incentives for workers and employers to adjust their behaviour. Unemployment benefit entitlements readily available after the end of temporary contracts can trigger "carousel effects" (i.e. repeated movements in and out of unemployment) because benefit claims are not restricted to situations where the firm has an objective economic reason for layoffs (OECD, 2002[31]).

Some countries reduce the amount of first-tier unemployment benefits after some period to encourage job search (France, Latvia, the Netherlands and Spain).[14] However, such reductions may also incentivise workers with intermittent employment to plan strategically their employment spells in a way to maximise the amount of unemployment benefit payments (Fontaine and Malherbet, 2016[9]; Kyyrä, 2010[7]; Le Barbanchon, 2016[8]).

In some countries, the jobseeker can keep unused entitlements if she finds full-time work before exhausting the benefit duration to which she is entitled. Workers with unstable employment may then access such

unused entitlements in a later unemployment spell. The rules for saving unused entitlements diverge significantly across countries and benefit programmes. Unused entitlements to unemployment benefits are completely lost in Poland and Latvia,[15] so that workers need to rebuild their benefit rights from scratch whenever they start a new employment spell. In Canada, the Netherlands and the United Kingdom, strict conditions determine whether entitlements are kept for subsequent unemployment spells.[16] In Spain, "old" (unused) entitlements are kept, but cannot be accumulated with "new" entitlements. If, due to a recent period in employment, jobseekers are eligible to "new entitlements", they must choose between the old and the new entitlement, and discard the other. In France's first-tier unemployment benefit rules, jobseekers can accumulate old and new entitlements, as long they first finish the old one before claiming the new one. Otherwise, jobseekers have the *droit d'option*, which allows them to start receiving the new entitlement, while discarding the old one. In some countries, such as France and Japan, unused entitlements can be (partly) paid out as an in-work benefit or re-employment allowance/bonus.

About half of the countries shown use benefit waiting periods to incentivise job search during an unemployment spell. However, these provisions may also make support difficult to access for those with unstable employment. Waiting periods typically last for a week and apply to all applicants, but individual circumstances can extend them to one month or more in Australia or (for second-tier benefits) in Spain. In some countries, waiting periods are waived for those with unstable employment, i.e. if the last benefit payment was received a short time before (12 weeks in the United Kingdom and 12 months in France).

Table 2.2. Summary of unemployment benefits rules that impact differently on non-standard employees

Selected countries, 2020

	Part-time employment before unemployment	Part-time unemployment	Unstable employment			
			Recharging	Amount across time	Unused entitlements	Waiting period
Australia						
1st tier *Newstart Allowance* [1]	Same requirements and amounts as full-time.	Compatible. Disregard of AUD 104 per two weeks, transfer withdrawal rate of 50% between AUD 104-254 and 60% above that threshold. SUBE*: 31% of AW.	Not applicable.	No reduction.	Not applicable.	7 days for all. Additional waiting period may apply for high-paid seasonal work.
Austria						
1st tier *Arbeitslosengeld*	Same requirements as full-time. Amount calculated pro-rata to earnings in the reference period.	Fully compatible if earnings below the marginal income limit of EUR 461 per month.[2] SUBE*: 48% AW.	Facilitated access: Only 28 weeks of employment in last 2 years if repeated unemployment spells.	No reduction.	Kept. Old entitlements can be used for 5 years after the last day of benefit receipt. New entitlement makes the old one void.	None.

	Part-time employment before unemployment	Part-time unemployment	Unstable employment			
			Recharging	Amount across time	Unused entitlements	Waiting period
2nd tier *Notstandshilfe*	Same requirements as full-time. Amount calculated pro-rata to working hours.	Fully compatible up to earnings of EUR 461. SUBE*: 46% AW.	Same conditions apply to first and subsequent claims.	No reduction.	.	None.
Canada						
1st tier *Employment Insurance*	Same requirements as full-time. Amount (pro-rata) and duration calculated by number of contribution hours.	Compatible. Transfer withdrawal rate of 50% up to 90% of reference earnings; transfer withdrawal rate of 100% above this threshold. SUBE*: 70% AW.	Same conditions apply to first and subsequent claims.	No reduction.	Kept, if benefit was suspended due to high earnings from partial work. Dropped after benefit period ends.	7 days for all.
Finland						
1st tier *Peruspäiväraha* *Ansiosidonnainen työttömyyspäiväraha*	Same requirements as full-time. Weeks of work defined as being at least 18 hours of work. Amount includes a fixed basic component and an earnings-based part.	Compatible. Transfer withdrawal rate of 50% above disregard of EUR 311; Sum of benefits and earnings may not exceed reference earnings, working hours may not exceed 80% of full-time hours. SUBE*: 65% AW.	Same conditions apply to first and subsequent claims.	No reduction.	Kept. New entitlement makes the old one void.	7 days for all.
2nd tier *Työmarkkinatuki*	Same requirements and amounts as full-time.	Compatible. Same rules as for first-tier benefit apply. Earnings from part-time work disregarded in means test. SUBE*: 46% AW.	Same conditions apply to first and subsequent claims.	No reduction.	.	7 days for all.
France						
1st tier *Allocation d'aide au retour à l'emploi (ARE)*	Same requirements as full-time. Amount calculated pro-rata to number of hours worked.	Compatible. Transfer withdrawal rate of about 70%. SUBE*: 55% of AW.	Same conditions apply to first and subsequent claims.	30% reduction after 6 months if reference wage is above EUR 4 500 per month.	Kept, within the limit of 5 years from the opening of the right. Can opt for new entitlement or old one.	Exempt from 7 days wait if already had it in the last 12 months.
2nd tier *Allocation de solidarité spécifique (ASS)*	Same requirements and amounts as full-time.	Fully compatible up to 3 months (in the limit of remaining entitlements until subsequent renewal). SUBE*: n/a.	Same conditions apply to first and subsequent claims.	No reduction.	Fully paid out until next re-application.	None.

	Part-time employment before unemployment	Part-time unemployment	Unstable employment			
			Recharging	Amount across time	Unused entitlements	Waiting period
Japan						
1st tier *Koyo hoken*	Same requirements as full-time. Amount calculated pro-rata to reference period income.	Compatible for paid work of up to 4 hours per day and 20 hours per week. Transfer withdrawal rate of 100%. SUBE*: 40% AW.	Same conditions apply to first and subsequent claims.	No reduction.	Partly paid out as in-work benefit if at least one third of benefit days remains (at least 45 days).	7 days for all.
2nd tier *Kyuusyokusyashienseido*	Same requirements and amounts as fulltime.	Fully compatible up to earnings of JPY 80 000 per month. SUBE*: 41% AW	Same conditions apply to first and subsequent claims	No reduction.	n/a.	None.
Latvia						
1st tier *Bezdarbnieka pabalsts*	Same requirements as full-time. Amount calculated based on average past wages.	Not compatible. Temporarily suspension for max. 2 months, otherwise termination. SUBE*: n/a.	Same conditions apply to first and subsequent claims.	25% reduction in months 3-4; 50% reduction in months 56; 55% reduction in months 7-8.	Dropped.	None.
Netherlands						
1st tier *Werkloosheidswet / Toeslagenwet*	Same requirements as full-time. Amount calculated pro-rata to gross-wage.	Compatible. Transfer withdrawal rate of 75% in the first 2 months and 70% subsequently. Earnings from work may not exceed 87.5% of the benefit amount. SUBE*: 61% AW.	Same conditions apply to first and subsequent claims.	7% reduction after 2 months.	Kept only if: weekly working hours are about the same as before becoming unemployed and earnings from the new job are below 87.5% of the unemployment benefit amount.	None.
Poland						
1st tier *Zasiłek dla bezrobotnych*	Same requirements and amounts as full-time. Wage must be over social unemployment insurance contribution threshold.	Not compatible. Possibility to receive activation allowance if taking up employment below minimum wage. SUBE*: n/a.	Same conditions apply to first and subsequent claims.	No reduction.	Dropped. Possibility to receive activation allowance if taking up employment below minimum wage.	7 days for all.

	Part-time employment before unemployment	Part-time unemployment	Unstable employment			
			Recharging	Amount across time	Unused entitlements	Waiting period
Spain						
1st tier *Prestación por desempleo*	Same requirements as full-time.[3] Amount calculated pro-rata to number of hours worked.	Compatible between 10% and 70% of full-time work hours. [4] Transfer withdrawal rate of 100%. SUBE*: 47% AW.	Same conditions apply to first and subsequent claims.	28.6% reduction after 6 months.	Kept, but cannot accumulate with new entitlement. Must opt for one or the other.	None.
2nd tier *Subsidio por desempleo*	Same requirements as full-time. Amount calculated pro-rata to working hours.	Compatible. Transfer withdrawal rate of 100%. SUBE*: 18% AW.	Same conditions apply to first and subsequent claims.	No reduction.	Kept, but cannot accumulate with new entitlement. Must opt for one or the other.	1 month waiting period except if not meeting contribution criteria for UI.
United Kingdom						
1st tier *Jobseeker's Allowance New Style*	Same requirements and amounts as full-time.	Compatible up to 16 hours per week. Transfer withdrawal rates of 100% above disregard of GBP 5 per 2 weeks.[5] SUBE*: 9% AW.	Same conditions apply to first and subsequent claims.	No reduction.	Kept only if break between unemployment spells is less than 12 weeks (otherwise lost).	7 days waiting period exempted if last entitlement is less than 12 weeks ago.
2nd tier *Universal Credit*	Same requirements and amounts as full-time.	Compatible. Transfer withdrawal rate of 63%. SUBE*: 15% AW.	Same conditions apply to first and subsequent claims.	No reduction.	n/a.	None.

Note: All benefit rules and calculations assume a single household without children. For other household types, see annual OECD tax-benefit country reports.

* SUBE: Sum of unemployment benefits and part-time employment earnings. This indicator is estimated assuming a single individual without children, aged 40 years-old, eligible for the unemployment benefit and, if previous earnings are required, previously earning two-thirds of the average wage in the country.

[1] From 20 March 2020, Newstart Allowance was replaced by the JobSeeker Payment. The new benefit has the same payment rates and indexation arrangements as Newstart Allowance https://www.dss.gov.au/about-the-department/benefits-payments/working-age-payments.

[2] Months worked do not count for future benefit eligibility if earnings are below EUR 461.

[3] In case of multiple part-time jobs, only contributions of lost jobs are considered for eligibility and duration;

[4] Part-time work during benefit payment periods do not count for fulfilling renewed employment conditions.

[5] GBP 20 per week in some special cases.

Source: OECD tax-benefit model and policy database and tailored questionnaire to national authorities.

2.3. Unemployment benefits: Income protection and financial work incentives

Do unemployment benefits provide adequate income protection and strong work incentives to jobseekers who were in non-standard dependent employment? How different are indicators of income protection and work incentives for jobseekers with a history of standard employment? What are the circumstances and policies that drive non-standard employees to be treated differently than standard employees? Are there particular systems (e.g. contribution-based or means-tested based) or policy mechanisms that make unemployment benefits better equipped to protect non-standard employees?

In order to address these questions, this section develops new indicators of the impact of unemployment benefits on income protection and financial work incentives for non-standard employees. The indicators are obtained by simulating the unemployment benefit rules on employment scenarios that characterise workers with standard and non-standard dependent employment, using definitions that are comparable across countries. The simulations compute unemployment benefit entitlements for people who worked *the same total number of hours* and earned the same amount of wages over a period of several years, but through different employment trajectories.

The simulations are similar in spirit to model calculations, such as those based on the OECD tax-benefit model (TaxBEN), that are commonly used to compare benefit replacement rates and work incentives. However, TaxBEN currently does not cover benefit provisions for unstable employment. The simulations focus on the first-tier and second-tier unemployment benefits described in Table 2.2. Lower-tier benefits, such as social assistance, as well as in-work support and tax provisions also shape the income consequences of these different work patterns. Accounting for the full range of tax-benefit policy levers would require an extension of the TaxBEN model to cover unstable employment, which is left to future work. Box 2.3 provides a detailed description of each scenario as well as additional assumptions.

The simulations were carried out for four OECD countries out of the 11 whose unemployment benefits were described in Table 2.2: Australia, France, Latvia and Spain. While the long-term objective would be to include all OECD countries, the simulations for these four countries provides a pilot for future extensions. These specific countries were selected to deliver diversity in terms of geography (European and non-European countries), benefit system (contributory and non-contributory), legal complexity and access conditions. Despite such diversity, given the small number of countries, the evidence obtained with simulations aims to illustrate and highlight policy issues rather than to be representative of all OECD countries.

2.3.1. Income protection favours some forms of non-standard employment trajectories over others

Unemployment benefits provide varying degrees of income protection depending on the type of employment trajectory. Such differences are observed even when workers have the same personal characteristics, have earned the same amount of wages and have been in and out of work the same number of hours, over a given period.

In Australia, France, Latvia and Spain, workers with a standard employment trajectory receive at least as much income protection as any worker with a non-standard employment trajectory. Figure 2.9 to Figure 2.12 illustrate the unemployment benefit entitlements in each month and for each scenario described in Box 2.3. As a summary for these figures, Figure 2.13 decomposes income protection into two indicators: *receipt and level.* Receipt measures the number of months that unemployment benefits are received. Level assesses the average amount of unemployment benefit received over the analysed seven-year period (accounting only the months in which the benefit is effectively paid).

Box 2.3. Simulation scenarios

Results presented in the following sections are drawn from four different simulation scenarios, each corresponding to a distinct employment trajectory over a seven-year period. In all scenarios, the employment status is the same in the first two years (full-time work) and in the last year (unemployment during the entire year, without any earnings). Employment patterns in years 3 to 6 differ across scenarios.

This relatively long period of analysis allows the assessment of a range of different circumstances. The first three years correspond to a worker who transitions from full-time stable work to unemployment or non-standard employment. This trajectory is akin to that of a displaced worker (OECD, 2018[5]; Farber, 2017[32]), who is struggling to secure a stable job after several years of continuous full-time employment.[17] The next three-year period (years 4 to 6) is illustrative for workers who are caught in a long cycle of non-standard employment. The seventh year of full unemployment permits measuring the entitlements that are left after an extended period of non-standard employment.

In all the simulated scenarios, over the whole period, the person works a total number of hours that is equivalent to 48 full-time months: 24 months during the first two years and 24 months during the following four years. The person is unemployed a total number of hours that is equivalent to 36 full-time months: 24 months between the third and sixth years, and 12 months in the seventh year. In all instances, the person works at an hourly wage that is equivalent to two-thirds (67%) of the average wage (AW)[18].

The simulations assume full take-up of unemployment benefits (de jure entitlements). Entitled jobseekers claim benefits from the first month they are eligible, thus maximising their receipt in the short-term; in some circumstances, jobseekers may receive larger benefit amounts by strategically postponing a claim. In all scenarios, the jobseeker is 45 years old, lives alone and has no children. Fixing these characteristics boosts cross-country comparability, by avoiding specific age- and family related unemployment benefit rules that change from country to country.

The simulated scenarios are illustrated in Figure 2.8. The horizontal axis represents each of the 84 months of the seven years that are assessed. The vertical axis represents the amount of wages and unemployment benefits, expressed as a percentage of the average wage – hence, in the first two years the wage is 67% (two-thirds) of the average wage. **UB_1** represents the amount of the first-tier unemployment benefit and **UB_2** represents the amount of the second-tier unemployment benefit.

The characteristics of each simulation scenario – particularly each employment patterns, which is different between years 3 to 6 – are explained as follows:

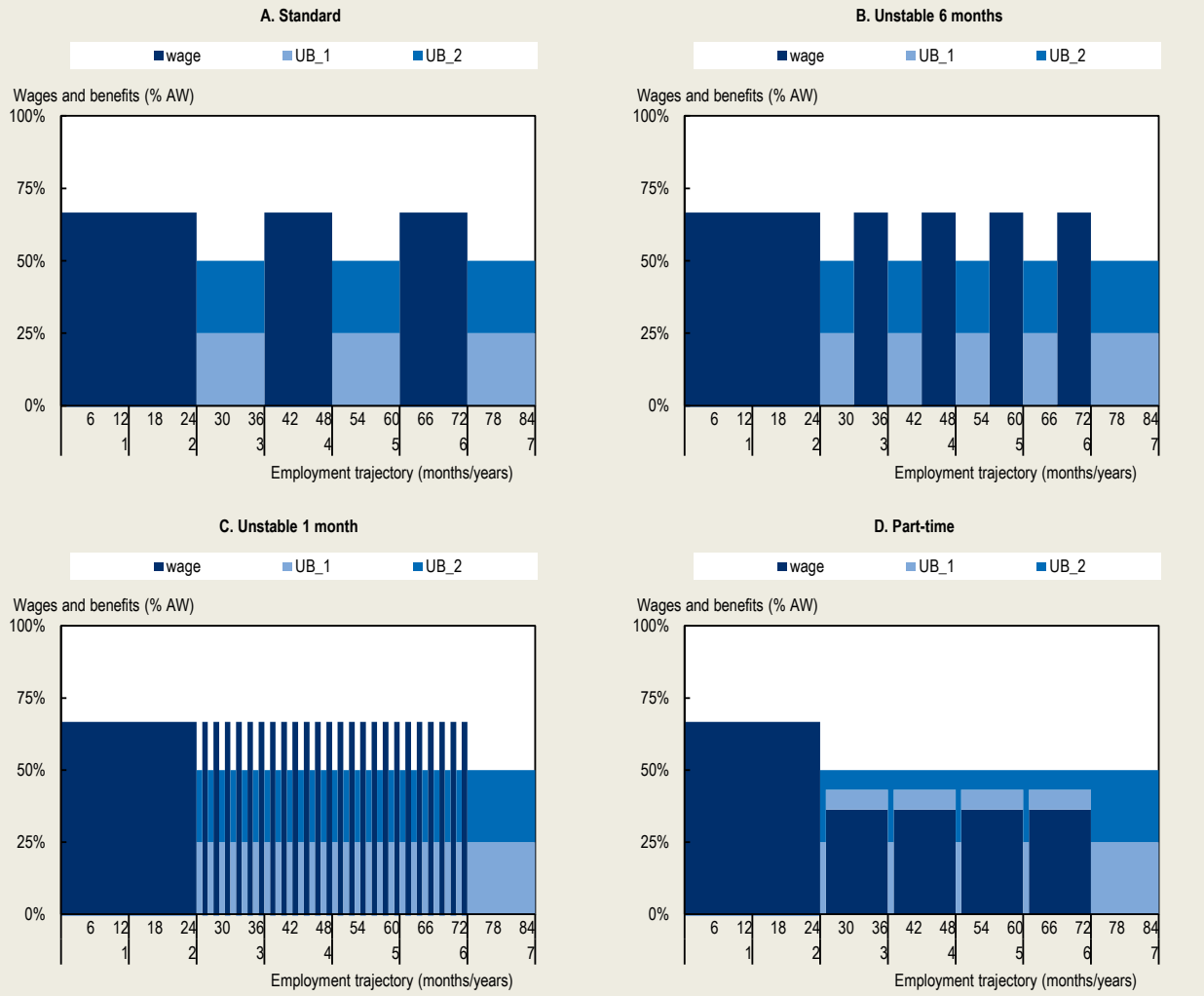
A. Standard: illustrates a benchmark employment trajectory (further referred to as a "standard employment trajectory"), which alternates full-time dependent employment and full unemployment every 12 months.

B. Unstable 6 months: illustrates an "unstable employment trajectory with changes every semester", with job changes between full-time dependent employment and full unemployment every 6 months.

C. Unstable 1 month, illustrates an "unstable employment trajectory with changes every month", with job changes between full-time dependent employment and full unemployment every month.

D. Part-time: illustrates a "part-time employment trajectory", which consists of recurrent one-year periods seeking for a full-time job, with the first month in full unemployment and the following 11 months at part-time employment (i.e. working at 54.5% of full-time).

Figure 2.8. Simulation scenarios



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In Australia and France, in each month that the worker is fully unemployed she receives some unemployment benefit, in all simulated scenarios. In France, workers with unstable employment trajectories (scenarios B and C) receive unemployment benefits for the same number of months (36 months) as those with standard employment (scenario A). This is not the case in Australia, Latvia and Spain.

In Australia, workers with a standard employment trajectory (scenario A) receive unemployment benefit for 38 months, workers who switch between employment and unemployment every six months (scenario B) receive unemployment benefit for 40 months, and those who switch every month (scenario C) receive it for 60 months. The entitlement, means test and payment of unemployment benefit in Australia is assessed every fortnight based on the income from the previous fortnight. Because of that, the benefit payment shifts by a fortnight and may be received in a month when the person is employed (see the spikes in Figure 2.9). This explains why in scenario C the unemployment benefit is received in more months than

in scenarios A and B. If the number of payments were measured in fortnights, however, the number of times across scenarios would be the same.

In Latvia, workers with unstable employment trajectories (scenarios B and C) receive unemployment benefits for 6 months or less, while those with standard employment (scenario A) receive it for 24 months. The unemployment benefit in Latvia requires a relatively long minimum time in employment (12 months), while Latvia has the shortest reference period (16 months) out of the four countries (Figure 2.6). Meeting these entitlement conditions is hard for those with unstable employment patterns. Latvia also has no second-tier unemployment benefit as an additional protection to those with shorter contribution records.

In Spain, workers with unstable employment trajectories (scenarios B and C) receive the first-tier unemployment benefit for half the time received by standard workers (8 instead of 16 months). As in Latvia, this is partly because the first-tier benefit requires a relatively long minimum time in employment (12 months). In addition, after six months of employment, jobseekers can claim the second-tier unemployment benefit. After six months of unstable work, workers may prefer to claim the lower-paid second-tier benefit than to wait until they are able to accumulate 12 months of work; months used to claim the second-tier unemployment benefit cannot be used to claim the first-tier benefit (see Table 2.2).

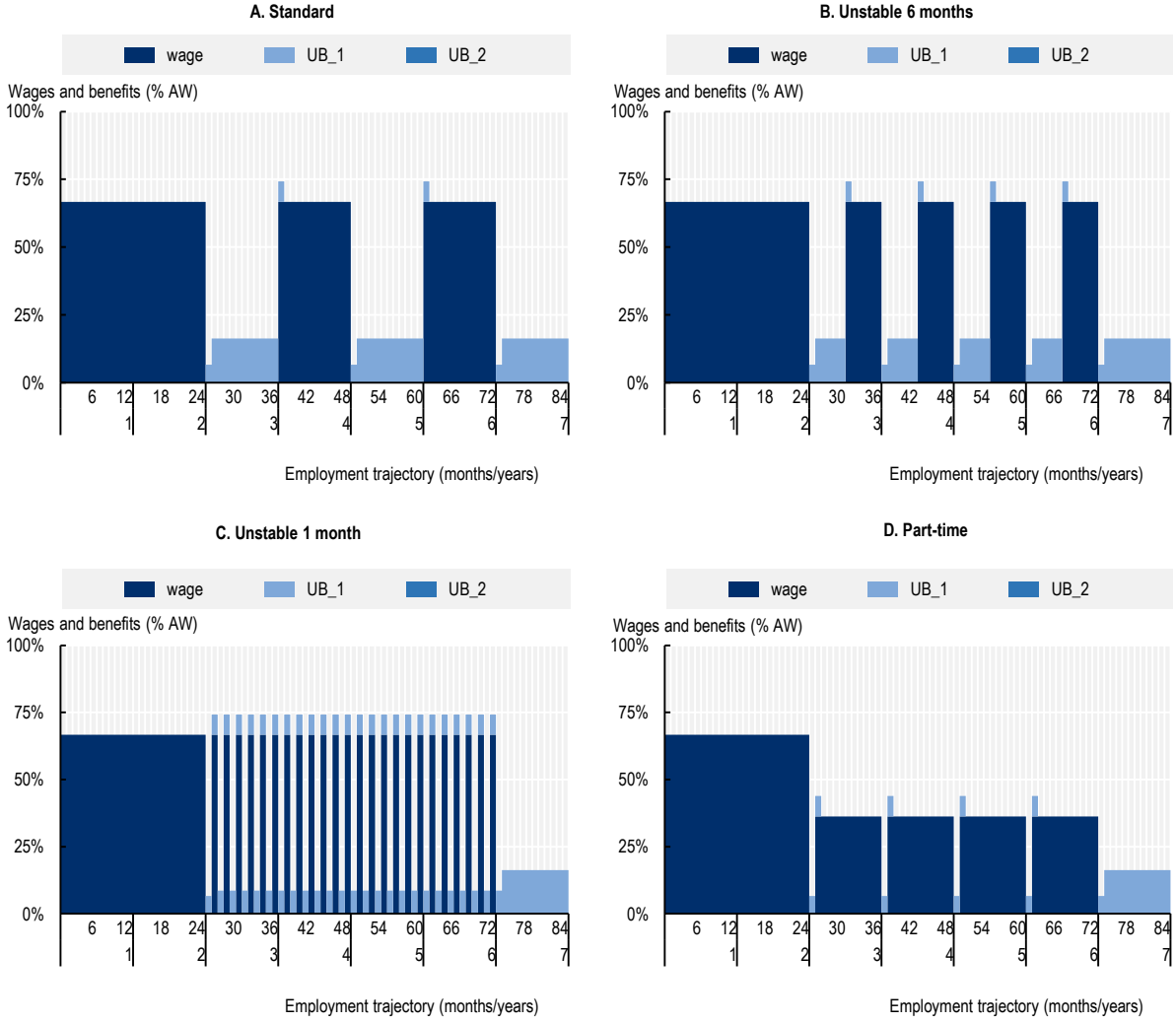
Across the four analysed countries, unemployment benefits are more generous under contributory than non-contributory systems. In Australia, where unemployment protection is non-contributory, the benefit level for workers with standard or unstable employment trajectories ranges from 10% to 15% of AW. Benefit levels are considerably higher in France, Latvia and Spain, where their systems are contributory.

In France, benefit levels are the same for workers with stable and unstable employment trajectories. In Australia and Spain, benefit levels are slightly higher for workers with stable employment trajectories, because they are less subject to reductions due to waiting periods[19] or are often eligible for new benefits with higher amounts. Conversely, in Latvia, benefit levels are higher for unstable workers, because of shorter benefit durations that are less affected by the reduction in the benefit rate as the unemployment spell lengthens (Table 2.2).[20]

Workers with employment trajectories that include periods combining unemployment and part-time work within a month (scenario D) generally receive unemployment benefits for fewer months than workers with standard employment (scenario A). In Latvia, access is restricted because the unemployment benefit is incompatible with any type of employment (see Table 2.2). In Australia, Spain and France, the unemployment benefit is compatible with some work, but in some cases the eligibility depends on the wage received while in employment (in the simulations presented here the wage is 33.3% AW). In Australia, the unemployment benefit is completely depleted by the means test if earnings are above an amount equivalent to 23% AW (see Table 2.2). In Spain, unemployment benefits are reduced in proportion to the number of hours worked. In addition, the second-tier benefit also applies a means test that makes benefit receipt incompatible with earnings higher than an amount equivalent to 29% AW (see Table 2.2). In France, the first-tier benefit is reduced with a 70% withdrawal rate; for the second-tier benefit, work and benefits are compatible for up to three months, after which the benefit is interrupted if the professional activity continues.

Figure 2.9. Unemployment benefits in Australia

Simulations under different employment scenarios



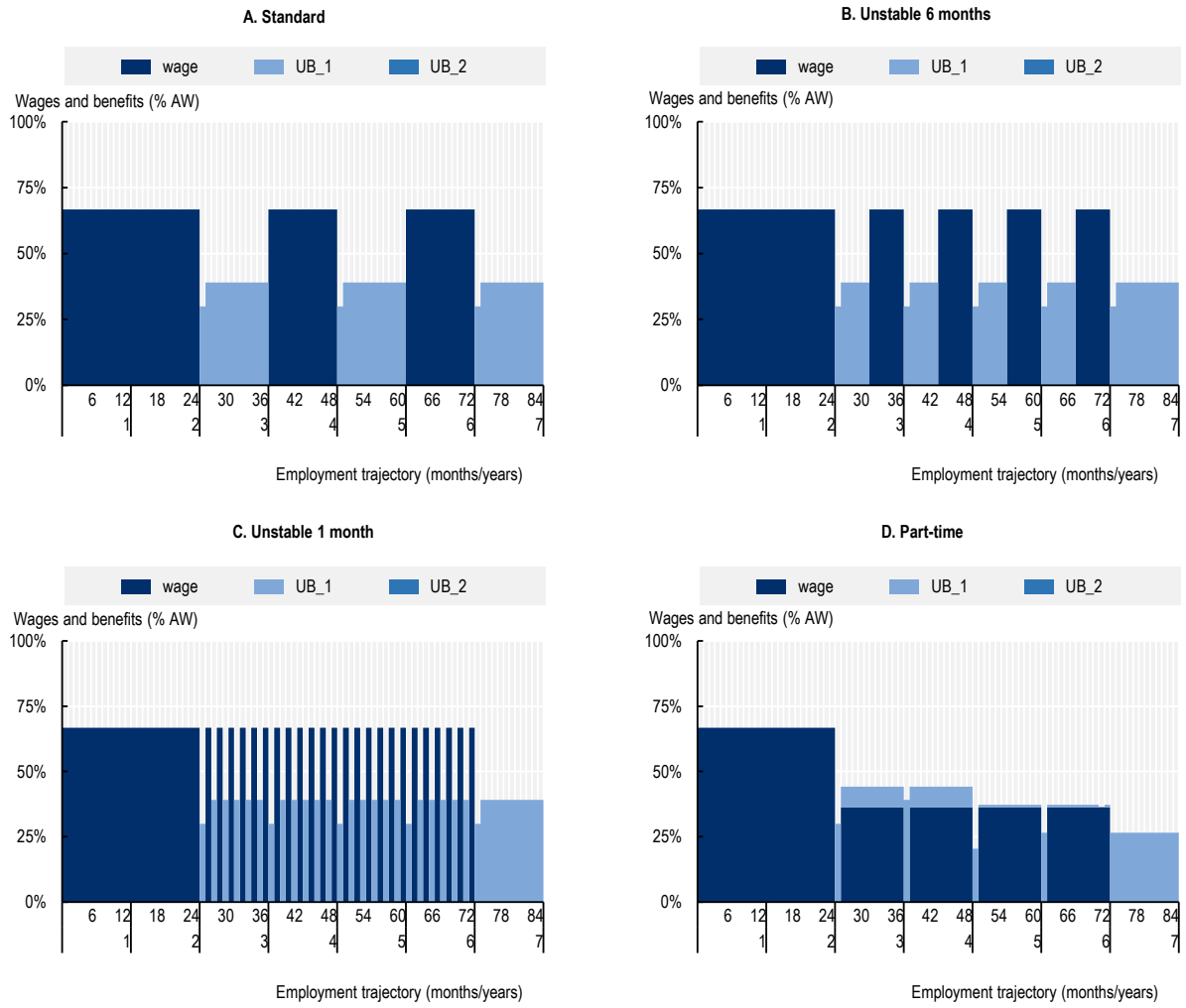
Note: AW: average wage. UB_1: entitled amount of first-tier unemployment benefit. UB_2: amount of second-tier unemployment benefit. The horizontal axis represents each of the 84 months of the seven years that are assessed. The vertical axis represents the amount of wages and unemployment benefits, expressed as a percentage of the AW. All cases consider two initial years of full-time employment paid at 67% of AW. Different cases: A. Alternating periods of full-time dependent employment and full unemployment every 12 months. B. Unstable 6 months and C. Unstable 1 month: situations with job changes between full-time dependent employment and full unemployment every 6 months and every other month, respectively. D. Part-time: "part-time employment trajectories", which consists of recurrent one-year spells seeking for a full-time job, with the first month in full unemployment and the following 11 months at partial employment (working at 54.5% of full-time hours in working periods). See Box 2.3 for more details about assumptions and simulation scenarios.

Source: Secretariat calculations based on unemployment benefit legislation extracted from OECD tax-benefit model and tailored questionnaire to national authorities.

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Figure 2.10. Unemployment benefits in France

Simulations under different employment scenarios



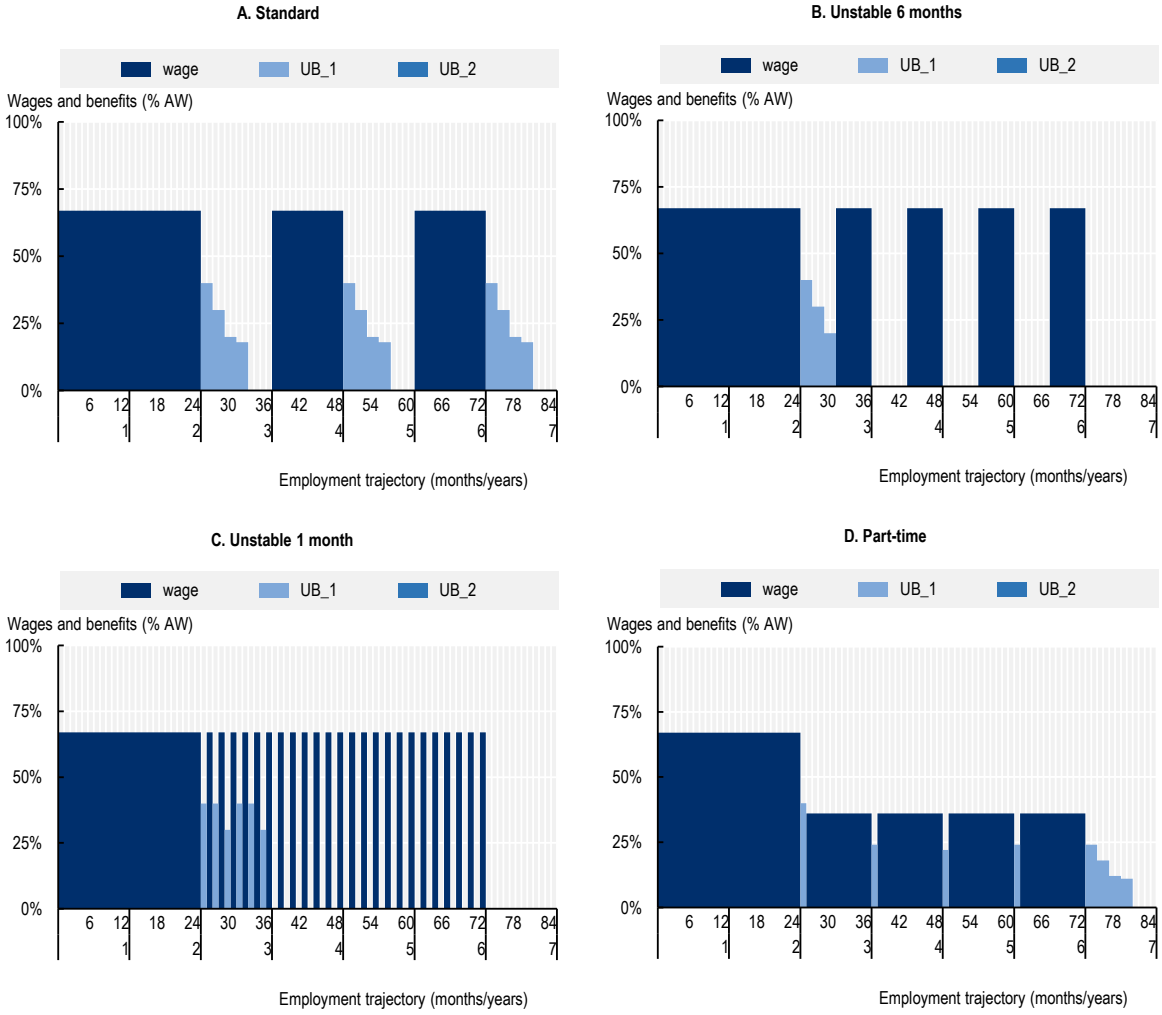
Note: AW: average wage. UB_1: entitled amount of first-tier unemployment benefit. UB_2: amount of second-tier unemployment benefit. The horizontal axis represents each of the 84 months of the seven years that are assessed. The vertical axis represents the amount of wages and unemployment benefits, expressed as a percentage of the AW. All cases consider two initial years of full-time employment paid at 67% of AW. Different cases: A. Alternating periods of full-time dependent employment and full unemployment every 12 months. B. Unstable 6 months and C. Unstable 1 month: situations with job changes between full-time dependent employment and full unemployment every 6 months and every other month, respectively. D. Part-time: "part-time employment trajectory", which consists of recurrent one-year spells seeking for a full-time job, with the first month in full unemployment and the following 11 months at partial employment (working at 54.5% of full-time hours in working periods). See Box 2.3 for more details about assumptions and simulation scenarios.

Source: Secretariat calculations based on unemployment benefit legislation extracted from OECD tax-benefit model and tailored questionnaire to national authorities.

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Figure 2.11. Unemployment benefits in Latvia

Simulations under different employment scenarios



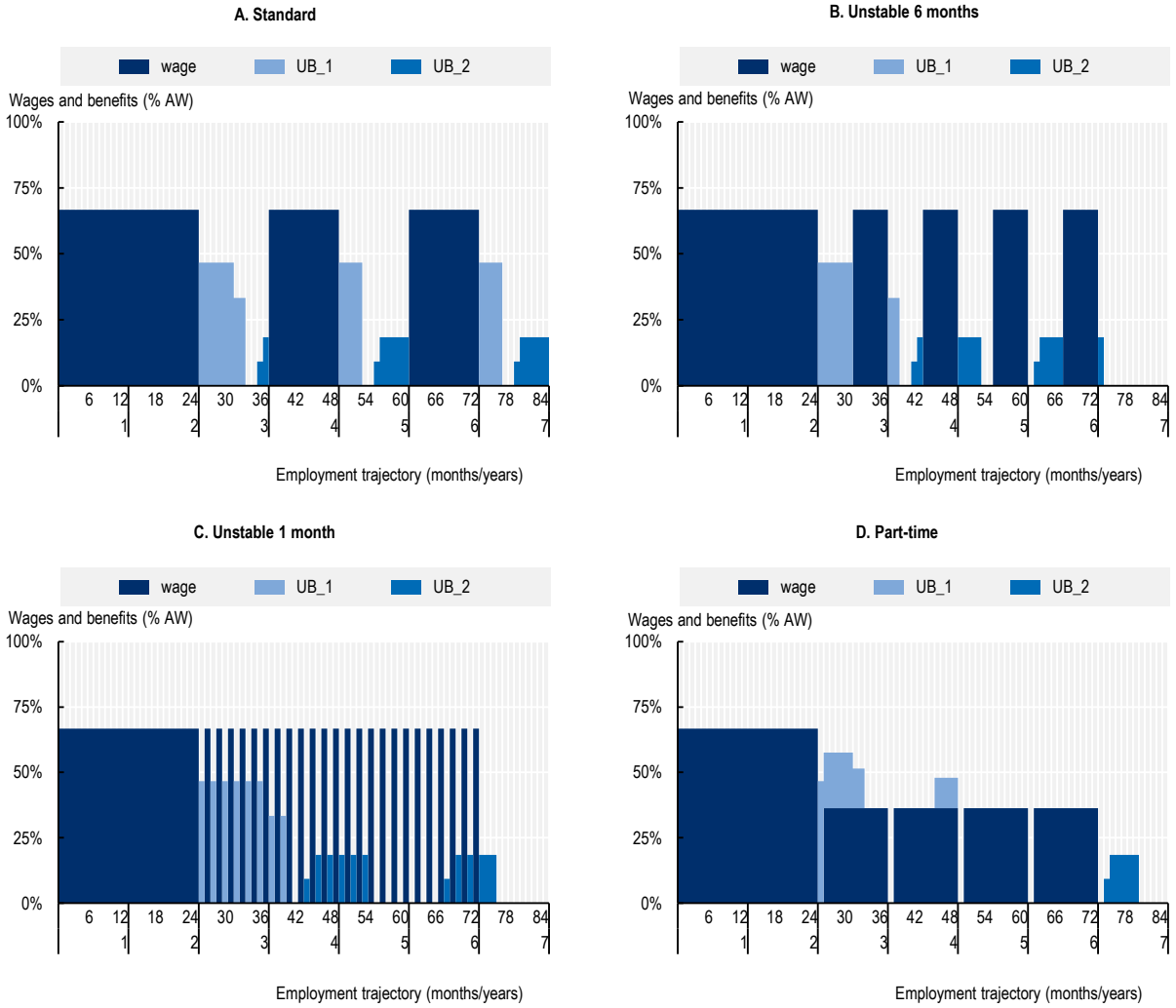
Note: AW: average wage. UB_1: entitled amount of first-tier unemployment benefit. UB_2: amount of second-tier unemployment benefit. The horizontal axis represents each of the 84 months of the seven years that are assessed. The vertical axis represents the amount of wages and unemployment benefits, expressed as a percentage of the AW. All cases consider two initial years of full-time employment paid at 67% of AW. Different cases: A. Alternating periods of full-time dependent employment and full unemployment every 12 months. B. Unstable 6 months and C. Unstable 1 month: situations with job changes between full-time dependent employment and full unemployment every 6 months and every other month, respectively. D. Part-time: "part-time employment trajectory", which consists of recurrent one-year spells seeking for a full-time job, with the first month in full unemployment and the following 11 months at partial employment (working at 54.5% of full-time hours in working periods). See Box 2.3 for more details about assumptions and simulation scenarios.

Source: Secretariat calculations based on unemployment benefit legislation extracted from OECD tax-benefit model and tailored questionnaire to national authorities.

StatLink https://stat.link/lzqfmd

Figure 2.12. Unemployment benefits in Spain

Simulations under different employment scenarios



Note: AW: average wage. UB_1: entitled amount of first-tier unemployment benefit. UB_2: amount of second-tier unemployment benefit. The horizontal axis represents each of the 84 months of the seven years that are assessed. The vertical axis represents the amount of wages and unemployment benefits, expressed as a percentage of the AW. All cases consider two initial years of full-time employment paid at 67% of AW. Different cases: A. Alternating periods of full-time dependent employment and full unemployment every 12 months. B. Unstable 6 months and C. Unstable 1 month: situations with job changes between full-time dependent employment and full unemployment every 6 months and every other month, respectively. D. Part-time: "part-time employment trajectory", which consists of recurrent one-year spells seeking for a full-time job, with the first month in full unemployment and the following 11 months at partial employment (working at 54.5% of full-time hours in working periods). See Box 2.3 for more details about assumptions and simulation scenarios.

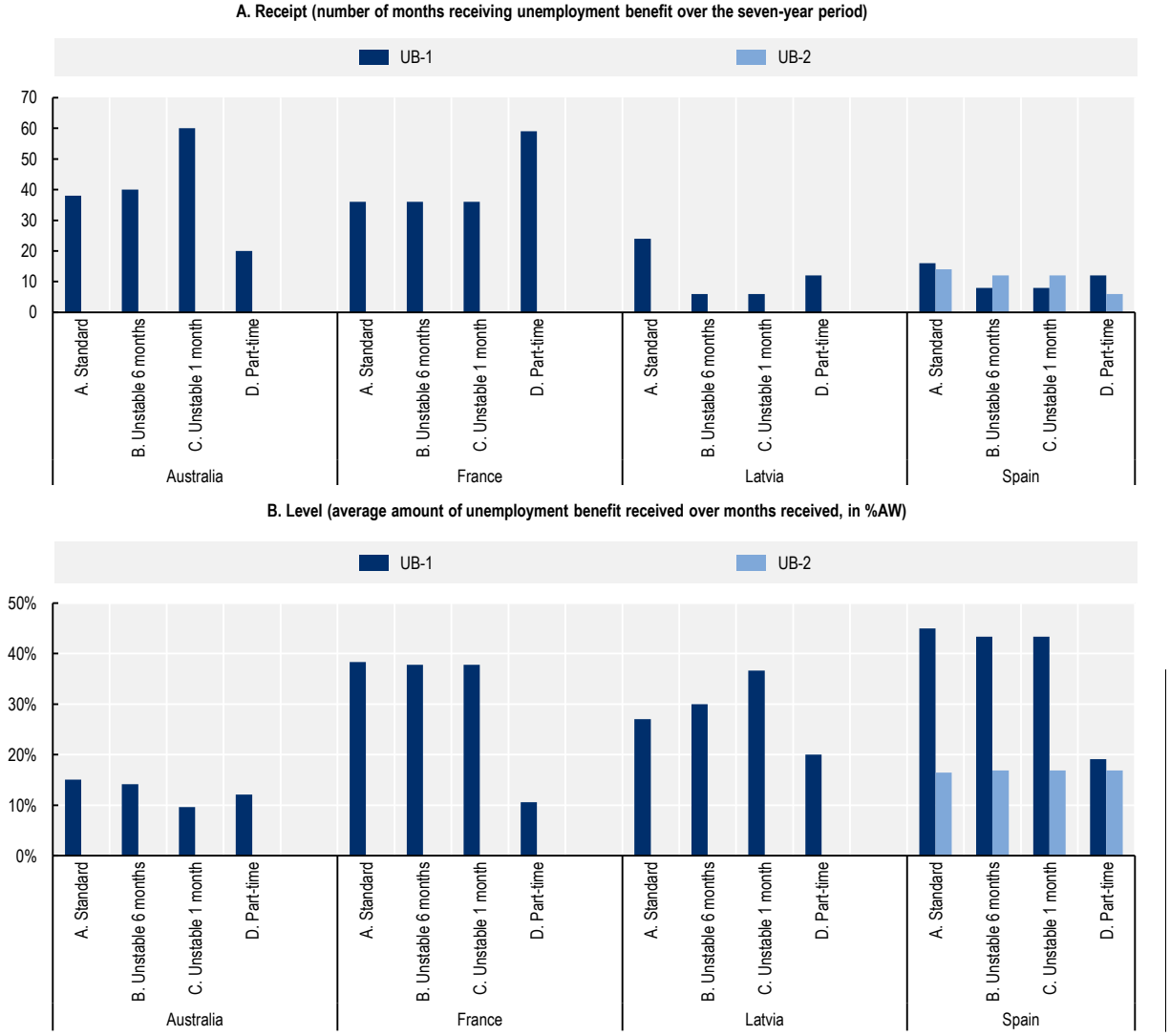
Source: Secretariat calculations based on unemployment benefit legislation extracted from OECD tax-benefit model and tailored questionnaire to national authorities.

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Unemployment benefit protection is also less generous for workers with employment trajectories that include periods combining unemployment and part-time work (scenario D) than for a standard worker (scenario A). This is because entitlements are reduced with the wage earned from concomitant work. Usually, unemployment benefit entitlements are the same independently of how workers distributed their

working hours within a month (e.g. worked part-time every day or full-time some days of the month). In France, however, the unemployment benefit differs depending on the distribution of working hours within the month (see Box 2.4).

Figure 2.13. Non-standard dependent workers receive fewer unemployment benefits



Note: AW: average wage. UB_1: entitled amount of first-tier unemployment benefit. UB_2: amount of second-tier unemployment benefit. The vertical axis represents, in the first panel, the number of months that unemployment benefits are received, and in the second panel, the amount of unemployment benefits, expressed as a percentage of the AW. All cases consider two initial years of full-time employment paid at 67% of AW. Different cases: A. Alternating periods of full-time dependent employment and full unemployment every 12 months. B. Unstable 6 months and C. Unstable 1 month: situations with job changes between full-time dependent employment and full unemployment every 6 months and every other month, respectively. D. Part-time: "part-time employment trajectory", which consists of recurrent one-year spells seeking for a full-time job, with the first month in full unemployment and the following 11 months at partial employment (working at 54.5% of full-time hours in working periods). See Box 2.3 for more details about assumptions and simulation scenarios.
Source: Secretariat calculations based on unemployment benefit legislation extracted from OECD tax-benefit model and tailored questionnaire to national authorities.

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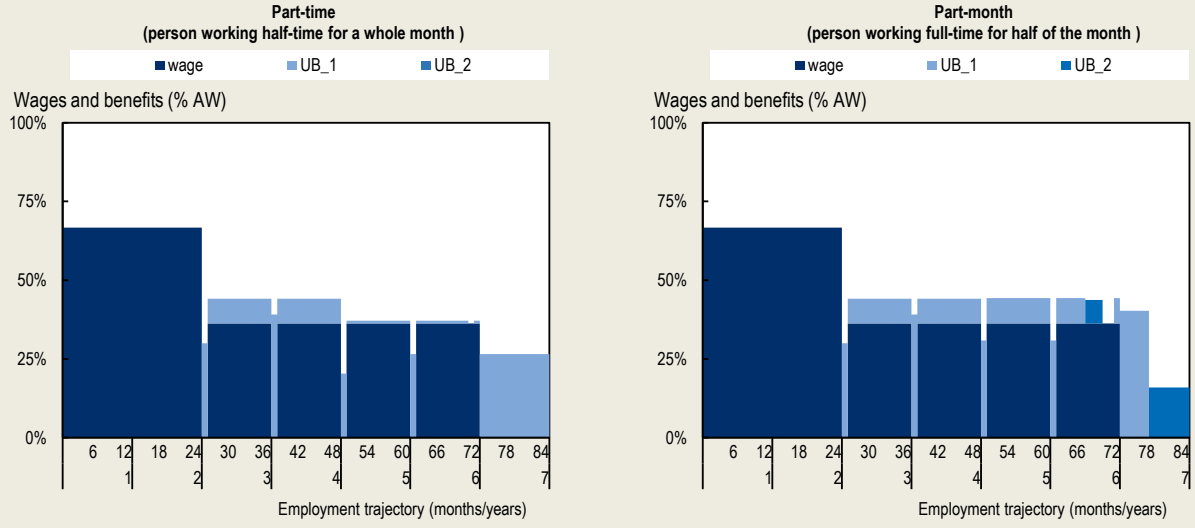
Box 2.4. The 2020 reform of the "reference wage" in France

Until 2020, France is the only analysed country where the amounts of unemployment benefits differed depending on the distribution of working hours within a calendar month. Despite working the same number of hours each month, a person working full-time some days per month would receive a larger amount of unemployment benefit than if working part-time for the entire month (Figure 2.14).

The cause of this difference was the formula used to compute the "reference wage" of the first-tier unemployment benefit (*Allocation d'aide au retour à l'emploi*). The reference wage is an indicator that summarises the wage that the person earned before becoming unemployed and to be replaced, to some extent, by the unemployment benefit. In most unemployment insurance systems, the reference wage is based on the average of previous monthly wages, whether the person worked every day over the reference period or not. In France, however, the reference wage is calculated based on daily wages on working days (i.e. days not worked do not count in the calculation). Because of that, the reference wage of a person working part-time for a whole month (scenario 'Part-time') is lower than the reference wage of a person working full-time for half of the month (scenario 'Part-month').

A reform of the French first-tier unemployment benefit, originally planned for April 2020 and later postponed to September 2020, eliminates this feature. The new reference wage will be calculated using monthly wages over a 12-month period, irrespective of the number of months and days worked.

Figure 2.14. The distribution of working hours affects unemployment benefit entitlements in France



Note: AW: average wage. UB_1: entitled amount of first-tier unemployment benefit. UB_2: amount of second-tier unemployment benefit. The horizontal axis represents each of the 84 months of the seven years that are assessed. The vertical axis represents the amount of wages and unemployment benefits, expressed as a percentage of the AW. All cases consider two initial years of full-time employment paid at 67% of AW. Different cases: Part-time and Part-month, which both consist of recurrent one-year spells seeking for a full-time job, with the first month in full unemployment and the following 11 months in partial employment (working at 54.5% of full-time hours in working periods). The difference between the Part-time and Part-month scenarios regards the distribution of working hours within the month. In Part-time, the person works every day for 54.5% of the full working time. In Part-month, the person works on a full-time basis 54.5% of the days in the month.
Source: Secretariat calculations based on unemployment benefit legislation extracted from OECD tax-benefit model and tailored questionnaire to national authorities.

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2.3.2. Financial work incentives depend on current and previous employment trajectories

Unemployment benefits aim to provide adequate income protection to jobseekers and their families, while also maintaining work incentives. Improving work incentives and facilitating the return to self-sufficiency is important because the risk of long-term poverty is much higher for jobless individuals on benefits than for fully employed people. Moreover, the cost of safety nets to budget-constrained governments reinforces the need to induce people – who can – to get back into work (OECD, 2005[33]).

When the unemployment benefit amount received by jobseekers is high relative to the wage they can obtain from work, jobseekers may find themselves in an "unemployment trap" – i.e. discouraged from searching for a new job (OECD, 2005[33]). In the literature (OECD, 2007[34]; OECD, 2020[35]), the financial incentive of a jobseeker to pick up a new job is typically measured through replacement rates (RR). This sub-section uses a variation of the indicator of replacement rates (adjusted replacement rates, ARR), which is adjusted to account for the specificities of the simulated scenarios (Box 2.5).

Figure 2.16 presents the ARR for the final year of the 16 scenarios depicted in Figure 2.15, in Australia, France, Latvia and Spain. The ARR is an indicator of financial work *disincentives* – the higher the ARR, the lower the financial incentives to work more. The ARR expresses the amount of total income (wages and benefits) that a worker would get relative to the full-time wage (Box 2.5).

Since workers with non-standard employment earn wages that are equivalent to 50% of a full-time wage, their ARR is at least 50%. ARR for workers in full unemployment provide a benchmark to assess the incentives for a worker not to work at all.

Work incentives vary considerably across countries, current and previous employment trajectories. On average, the ARR is higher in France, followed by Australia, Spain and Latvia. Across current non-standard employment trajectories, the ARR is higher among workers with unstable employment. Across previous employment trajectories, ARR are unsurprisingly higher among workers with previous standard employment, except for Australia.

In Australia, workers with current part-time employment have higher incentives to work full time, but also not to work at all. A worker in part-time employment would get an income equivalent to 53% of a full-time wage. Hence, her income would increase by 47% of a full-time wage if she worked full time. If she did not work at all, her income would decrease by 18% of a full-time wage, as the ARR in full unemployment is 35%. Conversely, the ARR for a worker with current unstable employment would be 68%, full employment would increase income by 32% of a full-time wage, and full unemployment would reduce income by 33% of a full-time wage.

In France, workers with unstable employment have lower incentives to take up full employment. A worker in unstable employment would get a benefit amount equivalent to 78% of a full-time wage but working only half of the time. If she did not work at all, her income would decrease by 21% of a full-time wage, as the ARR in full unemployment is 57%. In contrast, the ARR for a worker in part-time employment is 64%. If she did not work at all, her income would decrease by only 7% of a full-time wage. Previous unstable employment trajectories produce the same work incentives as previous stable employment. For previous part-time employment, however, adjusted replacement rates are lower – 18 percentage points lower for full-time unemployed and around 9 percentage points lower for workers in current non-standard employment.

Box 2.5. Measuring work incentives across employment trajectories

Adjusted Replacement Rates (ARR)

The financial incentives of a jobseeker to pick up a new job are typically measured through a replacement rate (RR). A replacement rate is the ratio between out-of-work and in-work income (OECD, 2007[34]; OECD, 2020[35]).

$$RR = \frac{y_{ow}}{y_{iw}}$$

where y_{ow} denotes income received while out of work and y_{iw} denotes income received while in work.

Usually, RR is calculated to analyse the effects of a transition between employment and unemployment. In the case of a transition from employment to unemployment, y_{iw} would denote the income before the transition and y_{ow} would denote the income after the transition. Generally, income is assessed based on the pay period (e.g. week, fortnight or month).

The adjusted replacement rate (ARR) used in this sub-section uses a variation of the definition above. Instead of analysing *transitions*, it compares the effects of *counterfactual scenarios*. Two scenarios are compared, *full employment* (which would be similar to *iw*) and *not full employment* (which would be similar to *ow*). "Full employment" refers to full-time full-year employment. A person "not in full employment" works reduces the number of hours or days, or does not work at all (i.e. fully unemployed). Finally, incomes are assessed over a year instead of the pay period. So, ARR could be express as:

$$ARR = \frac{Y_{nFE}}{Y_{FE}}$$

where Y denotes annual income, Y_{nFE} denotes income received if *not in full employment*, and Y_{FE} denotes income received if *in full employment*.

Current and previous employment trajectories

In the absence of taxes or other social benefits, the amount of Y_{FE} depends exclusively on wages, while Y_{nFE} depends on the amount of wages and unemployment benefits. The amounts of unemployment benefits depend on current and on previous employment circumstances.

Figure 2.15 presents 16 scenarios that combine different current and previous employment trajectories. Each scenario includes seven years. The first six years correspond to the "previous trajectory". The seventh year corresponds to the "current trajectory", as this is the year in which ARR is computed in Figure 2.16.

The employment patterns in the first six years are the same as presented in Box 2.1: "A. Standard", "B. Unstable 6 months", "C. Unstable 1 month" and "D. Part-time". The seventh year repeats the employment pattern of the third year of each of the four scenarios: a. full unemployment, b. 6 months in unemployment followed by 6 months in employment, c. alternating between unemployment and employment, and d. one month unemployed followed by 11 months working at 54.4% of the time.

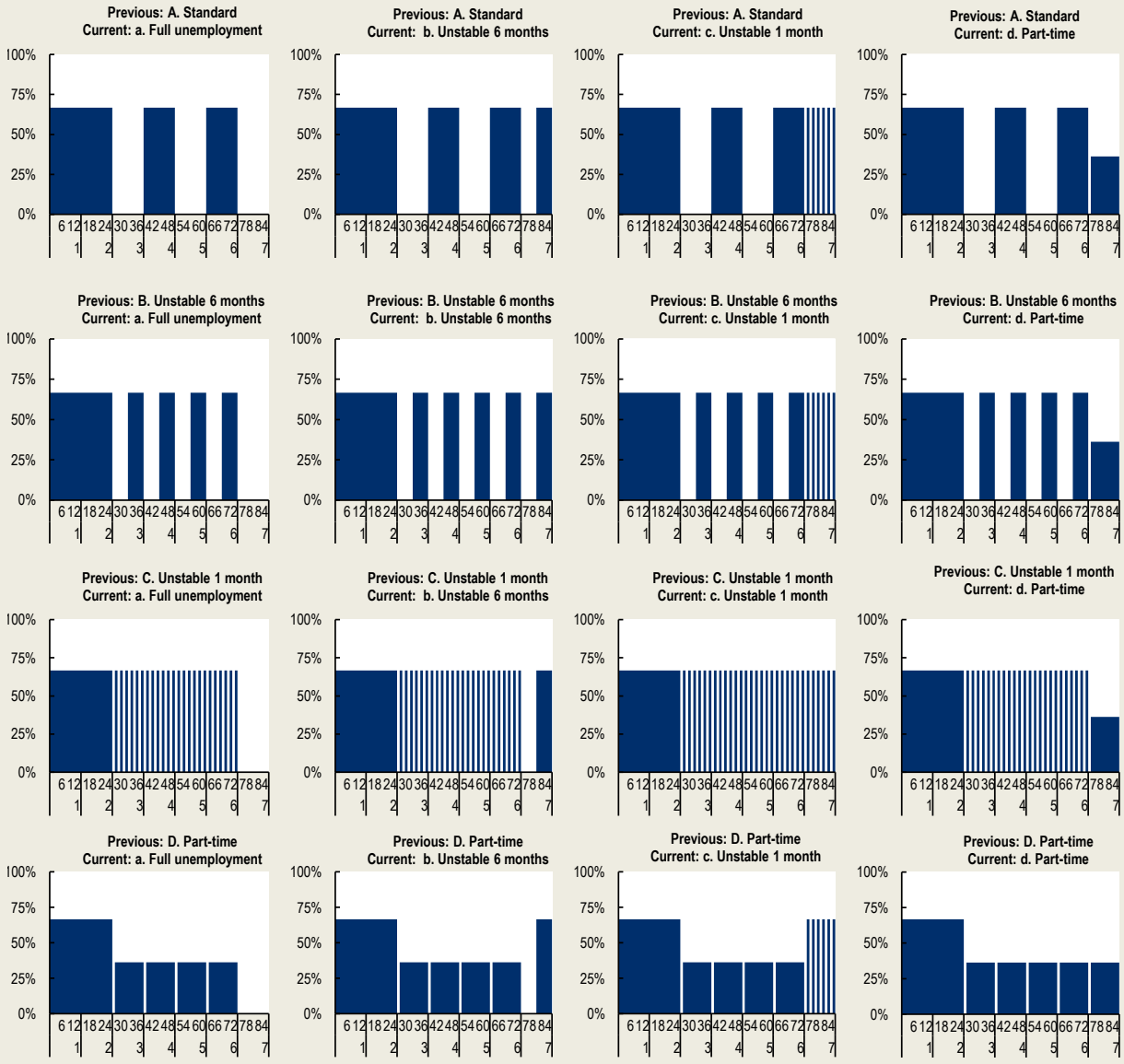
While this framework has the advantage of accounting for changes across time and counterfactual scenarios, it also has some limitations:

1) Taxes and other transfers are not taken into account. The ARR is computed as a "gross rate", rather than a "net rate", as often done in work incentive analysis (OECD, 2007[34]; OECD, 2020[35]).

2) Work incentives are measured in one specific period (the seventh year of each scenario). Therefore, the circumstances analysed are specific and cannot be held as representative of what would happen at different points in the trajectory.

3) An extremely low ARR may indicate the absence of unemployment protection rather than adequate work incentives. In these cases, constraints are more likely to be on labour demand.

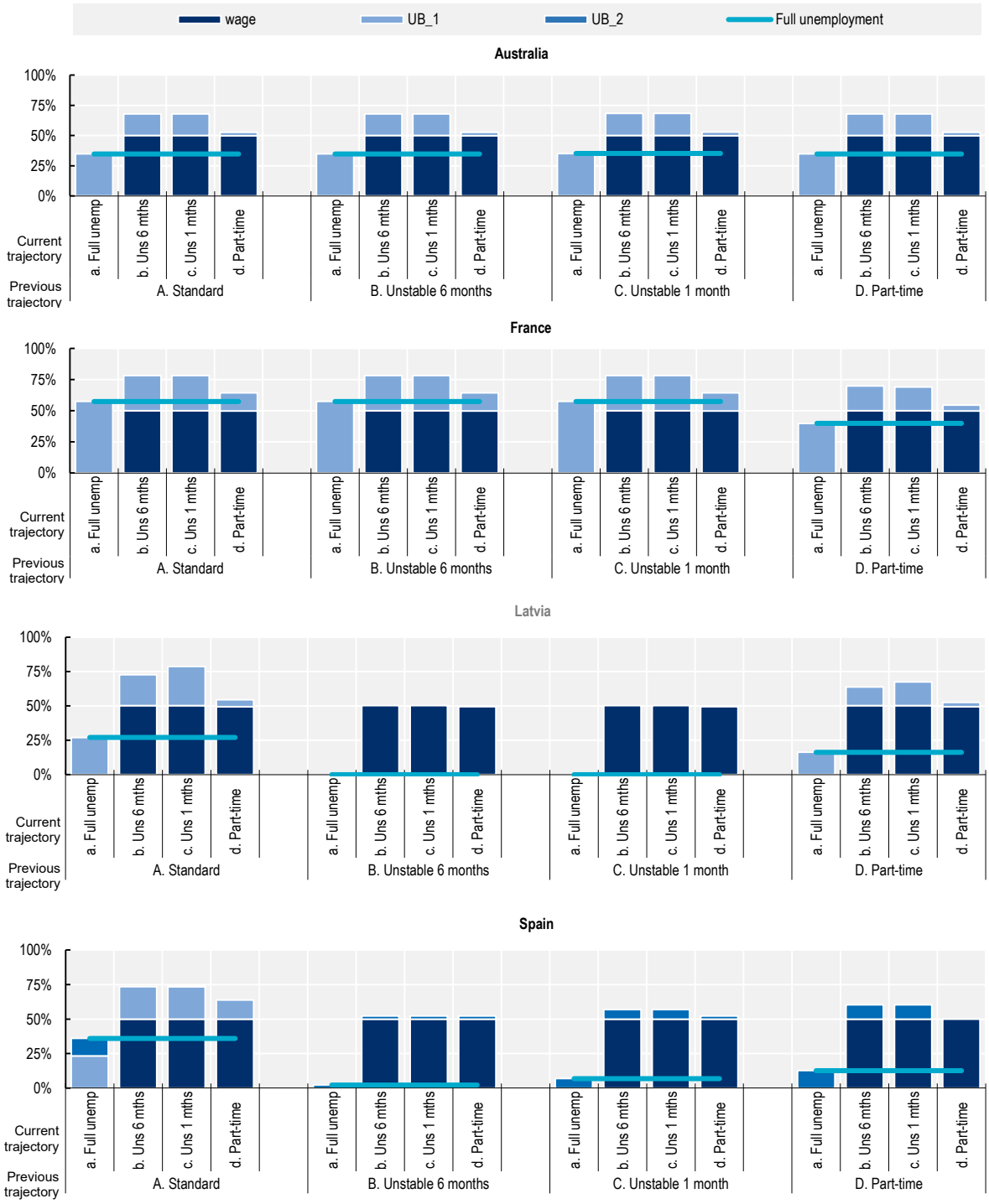
Figure 2.15. Scenarios for computing adjusted replacement rates



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Figure 2.16. Work incentives depending on current and previous employment trajectories

Adjusted replacement rates, based on current and previous employment trajectories (in percentage)



Note: The vertical axis represents adjusted replacement rates (ARR), which expresses the amount of total income (wages and benefits) that a worker would get relative to the full-time wage. ARR is decomposed in three parts: "wage", representing worker's wage relative to the full-time wage; "UB_1", representing the entitled amount of first-tier unemployment benefit relative to the full-time wage, and "UB_2", representing the amount of second-tier unemployment benefit relative to the full-time wage.All scenarios combine different current and previous employment trajectories. Each scenario includes seven years. The first six years correspond to the "previous trajectory". The seventh year corresponds to the "current trajectory", as this is the year in which ARR is computed. Previous trajectories consider two initial years of full-time employment paid at 67% of AW, followed four years with one of the following employment patterns: A. Alternating periods of full-time dependent employment and full unemployment every 12 months. B. Unstable 6 months and C. Unstable 1 month: situations with job changes between full-time dependent employment and full unemployment every 6 months and every other month, respectively. D. Part-time: "part-time employment trajectory", which consists of recurrent one-year spells seeking for a full-time job, with the first month in full unemployment and the following 11 months at partial employment (working at 54.5% of full-time hours in working periods). The seventh year repeats the employment pattern of the third year of each of the four scenarios: a. full unemployment, b. 6 months in unemployment followed by 6 months in employment, c. alternating between unemployment and employment, and d. one month unemployed followed by 11 months working at 54.4% of the time. See Box 2.5 for more details about assumptions and simulation scenarios.
Source: Secretariat calculations based on unemployment benefit legislation extracted from OECD tax-benefit model and tailored questionnaire to national authorities.

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In Latvia, outcomes are to a large extent conditioned by the previous employment trajectory. In the scenarios considered here, workers with previous unstable employment trajectories would not be entitled to any unemployment benefit, because minimum contribution conditions requires 12 contributions in the last 16 months (Figure 2.6). Independently of previous employment trajectories, the worker would also not receive unemployment benefit if working on a part-time basis, as the Latvian benefit is incompatible with any work (in scenario D, the small part of ARR related to benefits is due to the month in full unemployment). Workers with current unstable and previous stable employment would receive benefits with sizeable replacement rates. A worker switching every month between unemployment and employment would get an amount equivalent to 79% of a full-time wage. If she did not work at all, her income would decrease by 52% of a full-time wage, as the ARR in full unemployment is 27%. The adjusted replacement rates are slightly lower for workers current switching every six months between unemployment and employment, and for workers who previously were in part-time employment.

In Spain, previous employment trajectories also play an important role in determining the amount of future unemployment benefits. Workers without previous standard employment trajectories would not be entitled to first-tier unemployment benefit, because minimum contribution conditions and means testing rules (as discussed in Section 2.3.1). They would be entitled, however, to a few months of the second-tier benefit. Workers with current and previous part-time employment trajectories would not be entitled to any unemployment benefit. Conversely, a worker with current unstable and previous stable employment would receive benefits with sizeable replacement rates (73%). If she did not work at all, her income would decrease by 37% of a full-time wage, as the ARR in full unemployment is 36%. The adjusted replacement rate is lower for a worker with current part-time and previous stable employment (64%).

2.4. Policy issues: striking the right balance

This section discusses some key features of unemployment benefit systems and considers potential policy options to improve their reliability and effectiveness to support workers with trajectories of non-standard employment. Following the evidence provided in previous sections, the discussion addresses benefit neutrality, work incentives, activation and protection during an economic downturn. Table 2.3 recaps the arguments below with a summary of unemployment benefit instruments in terms of their objectives, trade-offs and effects on workers with non-standard dependent employment trajectories, and possible alternatives of adjustments in order to strike the right balance between conflicting objectives.

2.4.1. Benefit neutrality

In general, for the countries reviewed in this chapter, unemployment benefits are not neutral with respect to the distribution of time between dependent employment and unemployment before the benefit is claimed. Evidence gathered in section 2.3 reveals considerable differences concerning the extent of protection that unemployment benefits provide to workers who, over the medium run, have worked the same amount of time.

Strict employment requirements tend to penalise workers with unstable employment trajectories, in particular when the minimum time in employment is relatively long and the reference period is short. Unstable employment prolongs the period in which workers need to work in order to fulfil the minimum requirement, thus hindering their ability to claim the benefit. While employment requirements are important features of unemployment benefits – they provide work incentives, prevent benefit abuse and protect the financial sustainability of the system – some adjustments can contribute to reduce such a penalty on instability. The difference between the length of the reference period and the minimum time in employment can be designed to be sufficiently long in order to account for unstable employment or specifically extended for workers more prone to job instability, as in Austria (young workers) and the Slovak Republic (temporary contracts).

The *reduction of benefit amounts with wages from part-time unemployment* penalises jobseekers able to carry out some casual part-time work while searching for an adequate full-time job. In some countries, the penalty is absolute as unemployment benefits are incompatible with any work. Reducing the amount of benefits in line with wages is justified by the need to smooth income and avoid the misuse of unemployment benefits as a sort of wage subsidy. On the other hand, besides neutrality, part-time unemployment may produce desirable outcomes such as improving jobseekers' employability through a "stepping-stone effect" (Kyyrä, Arranz and García-Serrano, 2019[36]). Financial incentives, such as earnings disregards and lower withdrawal rates, encourage unemployment benefit recipients to take up part-time work by allowing them to keep some of the additional income received in wages, and can be effective instruments for balancing objectives. Yet, part-time unemployment benefits may also produce "lock-in effects", by reducing the exit rate from part-time to full-time employment. Thus, like in other activation policies, it is important to use "mixed strategies" that profile and monitor the effect of causal part-time jobs on the long-term employability of jobseekers (OECD, 2018[37]).

2.4.2. Work incentives

The potential adverse impact of unemployment insurance systems on work incentives is a main concern in many countries, particularly for those who have been out of work for a long time. Furthermore, ill-designed unemployment benefits may incentivise unstable employment.

Soft access conditions may generate a carousel of shifts between periods in short-tenure jobs and periods in unemployment while receiving generous benefit amounts. Waiting periods, moderately long requirements of minimum time in employment and reductions in case of frequent reclaiming can contribute to preventing such distortion. Differentiated unemployment insurance contribution rates may also be used to create financial incentives for employers and employees to choose more stable employment contracts and discourage collusion (OECD, 2004[38]; OECD, 2019[1]).

Keeping unused benefits for future use may encourage frequent periods of unstable employment (as discussed above) and incentivise over-extending the duration of unemployment benefits, thus promoting long-term unemployment. Limits on the possibility of keeping and accumulating previous and new entitlements can regulate the trade-off between work incentives and acquired rights.

The *coordination between in-work and out-of-work support* can produce important back-to-work incentives. One option could be to extend to full-time workers with low earnings the possibility to cumulate unemployment benefits and income from work as is the case for part-time unemployment (Hijzen and

Salvatori, 2020[39]). Another possibility would be introducing in-work benefits, like the Earned Income Tax Credit in the United States or the *Prime d'activité* in France (Carcillo et al., 2019[40]). Alternatively, in-work and out-of-work benefits could be integrated in a single comprehensive strategy (e.g. the United Kingdom's Universal Credit).

Table 2.3. Striking the right balance by adjusting unemployment benefit's tools

Unemployment benefit's tools, objectives, trade-offs and adjustments

Tool	Objectives	Drawbacks	Adjustments
Strict employment requirements.	• Provide work incentives. • Prevent abuse. • Protect the financial sustainability.	• Penalty on instability. • Non-neutrality. • Lack of Benefit adequacy.	• Adjust employment requirements so that the difference between the lengths of the reference period and of the minimum time in employment account for employment instability. • Customise employment requirements for workers more prone to job instability (e.g. young, temporary contracts, recurrently unemployed).
Reduction of benefit amounts with wages from part-time unemployment.	• Income smoothing. • Prevent misuse. • Working incentives (reduce lock-in effect).	• Penalty on part-time unemployment. • Non-neutrality. • Lack of benefit adequacy. • Working incentives (stepping-stone effect).	• Earnings disregards. • Withdrawal rates below 100%.
Soft access conditions.	• Accessibility. • Neutrality. • Benefit adequacy.	• Incentivise job instability. • Incentivise collusion between employers and employees to abuse system.	• Waiting periods. • Moderately long requirement of minimum time in employment. • Reductions in case of frequent reclaiming. • Differentiated unemployment insurance contribution rates.
Keeping un-exhausted benefits for future use.	• Acquired rights. • Accessibility. • Neutrality.	• Encourage frequent periods of unstable employment. • Overextend the duration of unemployment benefits.	• Limits on the possibility of keeping and accumulating previous and new entitlements.

2.4.3. Activation

Unemployment benefit's *activation requirements* also play a role in strengthening incentives to look for, prepare for, and accept employment. Evidence suggests that unemployment benefit programmes featuring job-search monitoring and sanctions yield positive employment effects, while overly demanding eligibility criteria can exclude some intended recipients (Immervoll and Knotz, 2018[41]). Exceedingly strict sanctions and excessive reliance on job-search incentives could be counterproductive and increase the unemployment exit rate into unstable jobs. Profiling plays a crucial role. Workers in need of more intensive activation services (such as training) should be identified and supported (OECD, 2018[37]).

According to the 2018 *OECD Jobs Strategy*, unemployment benefits can play a pivotal role in the success of activation strategies through the rigorous enforcement of a "mutual obligations framework" (OECD, 2018[37]). Within a mutual obligations framework, governments have the duty to provide jobseekers with benefits and effective services to enable them to find work and, in turn, beneficiaries have to take active steps to find work or improve their employability. The threat of potential sanctions in terms of benefit withdrawal significantly increases the financial incentive for seeking and taking up gainful employment as well as seriously participating in active programmes. Thus, unemployment benefit recipients are referred to employment services.

Unemployment benefits are key to connect jobless people to active labour market programmes, by referring them to employment services, which provide job-search assistance or interventions to increase their employability. In the absence of unemployment (or social assistance) benefits, it is often difficult to reach out to those facing multiple barriers to employment, who risk being left behind. Similarly, in the absence of effective active labour market policies, there is a risk that unemployment benefits reduce work incentives and deepen labour market exclusion. Passive and active policies should therefore be conceived together rather than in isolation (OECD, 2018[37]).

Increasing the access of workers in non-standard dependent employment to unemployment insurance is, therefore, a promising avenue for promoting labour market security and inclusiveness, provided it is carried out together with the rigorous enforcement of a "mutual-obligations" framework to preserve work incentives.

2.4.4. Economic shock protection

Unemployment benefits play an important role as key instruments of social protection to provide income support and employment opportunities in all phases of the economic cycle. This role is stronger during and after an economic shock. By helping individuals and families cope with the consequences of economic shocks, unemployment benefits contribute to prevent temporary economic problems from turning into long-term disadvantage for workers and a social crisis for society (OECD, 2014[42]).

Unemployment benefits need to be sufficiently responsive to changes in circumstances, following an economic shock. In countries where access to, and duration of, unemployment benefits is restricted, there may be a case for, temporarily, loosening employment and other requirements and extending the maximum duration of the benefit (e.g. in the Canada and the United States). In a context of fewer job opportunities, the emphasis of active labour market policies may temporarily shift from work-first to train-first, in particular for hard-to-place jobseekers (OECD, 2018[37]).

Complementing the overall discussion in Chapter 1 on the challenges coming from the COVID-19 crisis, Box 2.6 discusses the measures introduced by countries that have revised unemployment benefit elements in order to extend unemployment protection of non-standard workers during the crisis.

2.5. Concluding remarks

This chapter provides an in-depth review of the key policy mechanisms that affect how unemployment benefits strike a balance between income security and financial work incentives for those with non-standard dependent employment trajectories. It presents new evidence on the scale and development of unstable and part-time dependent employment and the characteristics of workers with such trajectories. In particular, it shows that workers who experienced non-standard dependent employment trajectories make up for a considerable part of dependent employment and the majority of the unemployed; that their share of employees has increased, particularly among young workers; and that their poverty rates are several times higher than those of workers in standard employment.

The chapter also takes stock of and analysed the legal unemployment benefit provisions that apply to non-standard employees, and how these might give rise to an uneven treatment of standard and non-standard employees. Unemployment benefit rules can result in considerable differences between workers with standard and non-standard dependent employment trajectories in terms of the duration of benefit entitlements and the level of benefits paid. Some requirements are harder to meet for those in unstable or part-time employment.

Box 2.6. COVID-19 crisis: Non-standard dependent employment and extraordinary unemployment benefit measures

The coronavirus crisis has hit hard, with unprecedented job losses around the world. Workers in non-standard dependent employment are particularly vulnerable against the risks of job and income loss. Unemployment benefits and related income support are crucial for cushioning these losses. However, as discussed in the 2019 edition of the OECD Employment Outlook (OECD, 2019[1]) and in this chapter, workers in non-standard dependent employment are less likely to receive adequate unemployment support.

Many OECD countries have taken rapid action by adjusting their unemployment benefit systems to the new labour market circumstances. In line with the OECD Jobs Strategy (OECD, 2018[37]), most measures adjusted existing benefits by loosening requirements in order to facilitate access and revised entitlements to extend income support and duration. Some countries have introduced new benefits. Table 2.4 summarises the extraordinary unemployment benefit measures, with potential impact on non-standard dependent employment, which were introduced during the COVID-19 crisis between March and May 2020. Chapter 1 provides a wider analysis of employment- and social-policy responses to the COVID-19 crisis.

- **Facilitating access**: six OECD countries facilitated access to unemployment benefits. France, Israel, Spain and Sweden reduced or entirely waived minimum employment requirements to workers. In Norway, the minimum previous income to be eligibility to unemployment benefits was reduced. The length of the reference period to assess employment requirements was extended in Switzerland (doubled) and in France (by disregarding the confinement period for calculating the entitlements of new claimants). All these measures are, in particular, expected to facilitate access for workers with unstable trajectories, who often find it difficult to meet minimum employment requirements.
- **Extend benefit duration**: 13 OECD countries have extended the maximum possible duration of unemployment benefit payments. Some countries triggered automatic extensions. Other countries extended the expiring benefit claims until the end of the health crisis (Luxembourg, Portugal and Spain) or for a specific period (by up to one month in the Slovak Republic, two months in Greece, three months in Germany, Norway until the end of June, and four months in Switzerland). Denmark and France froze benefit entitlements for the duration of the health crisis. In the United States, the Federal Government extended the maximum unemployment benefit duration to nine months. Since, in some countries, non-standard employees are entitled to fewer months of unemployment benefits (Figure 2.13), these measures are likely to be particularly important for them.
- **Raising unemployment benefit generosity:** seven OECD countries temporarily increased benefit levels. Australia introduced, for six months, a “Coronavirus Supplement” of AUD 550 per fortnight to recipients of income support payments, including the unemployment benefit “Jobseeker Payment”. Austria increased the benefit amount of the second-tier unemployment benefit (*Notstandshilfe*) to the same level as the first-tier benefit (*Arbeitslosengeld*). Sweden raised, until the end of 2020, the unemployment benefit floor (by about 30%) and ceiling (by about 40%) for 100 days. New Zealand increased the amount of “Jobseeker Support” by NZD 25 per week. Norway increased the unemployment benefit from 62.4% to 80% of the calculation basis up to an income of NOK 24 966 per month. The United Kingdom raised the allowance of the second-tier unemployment benefit (*Universal Credit*) by GBP 20 per week. The United States raised the unemployment benefits by USD 600 per week for all recipients for a maximum period of four months, for up to four months. While all these measures are not

specifically targeted to non-standard employees, to the extent that those with "naturally" unstable jobs are likely to bear the brunt of the employment adjustment, they are among the categories potentially more positively affected by these measures. Moreover, non-standard employees are likely to benefit the most from the increase in generosity of second-tier benefits to the extent that the risk of poverty is greater for non-standard employees.

- **New unemployment benefits***:* six OECD countries introduced new temporary non-contributory benefits, which have clearly a greater impact for people with unstable trajectories. In Canada, the "Canada Emergency Response Benefit" provides CAD 500 a week for up to 16 weeks, to people who have involuntarily lost their job during the COVID-19 crisis, receive the first-tier unemployment benefit (*Employment Insurance*) or recently exhausted its claim. In Ireland, the new "COVID-19 Pandemic Unemployment Payment" supports individuals who lost their job during the COVID-19 crisis. Claimants receive EUR 350 per week until at least 8 June. The payment is fully compatible with other unemployment benefits. Latvia introduced a new temporary unemployment assistance benefit for unemployment insurance benefit recipients whose entitlements expire. Benefits are payable for up to four months, at the level equal to the unemployment insurance benefits paid during the 8th and 9th month (max. EUR 180 per month). New Zealand created the "COVID-19 Income Relief Payment" for people who lost their jobs from 1 March 2020 to 30 October 2020 due to COVID-19. The payment amount depends on previous hours worked, is means-tested against partner's earnings, is incompatible with receiving other main benefit (but people are allowed to choose) and is exempt from taxes. Slovenia introduced a temporary unemployment benefit (*Začasno denarno nadomestilo plače zaradi izgube zaposlitve v obdobju epidemije*) for those who lost their jobs in the crisis. Claimants receive EUR 513.64 per month for the duration of the temporary restrictions; the benefit is not compatible with the first-tier unemployment benefit.

Table 2.4. COVID-19 extraordinary unemployment benefit measures with potential impact on non-standard employees

	Existing benefits				New benefit	Details
	Access		Entitlement			
	Reduced minimum employment	Extended reference period	Extended benefit duration	Raised benefit amount		
Australia				●		→ "Coronavirus Supplement" of AUD 550 per fortnight. [1]
Austria				●		→ *Notstandshilfe* (2nd tier) amount increased to equal level as the *Arbeitslosengeld* (1st tier).
Canada			●		●	→ Automatic extension of maximum duration according to regional unemployment rate. → New "Canada Emergency Response Benefit" [2].
Chile			●			→ Automatic activation of the 6th and 7th monthly payments of the *Seguro de cesantía solidario* (2nd tier benefit). [3]
Denmark			●			→ Freezing of entitlement period for 3 months.
France	●	●	●			→ Exceptional access for people who voluntarily quit their job to take up a new job but whose job offer fell through. → The confinement period will not be considered for calculating the entitlements of new claimants. → Freezing of entitlement period during confinement.
Germany			●			→ Benefit extension by 3 months for all recipients whose entitlements end between May and December (announced).

Greece			●			→	Benefit extension by 2 months for all recipients whose entitlements end in the first quarter of 2020.
Ireland					●	→	New "COVID-19 Pandemic Unemployment Payment" for individuals who lost their job in the COVID-19 crisis. [4]
Israel	●					→	Reduction in the required employment history from 12 to 6 months.[5]
Latvia					●	→	New temporary unemployment assistance benefit for recipients of unemployment insurance benefit whose entitlements expire. Benefit level equal to unemployment insurance paid during the 8th and 9th months (max. EUR 180 per month), payable for up to 4 months.
Luxembourg			●			→	Benefit extension for recipients whose entitlements expire during the state of crisis.
New Zealand				●	●	→	Amount of "Jobseeker Support" increased NZD 25 per week. → Created "COVID-19 Income Relief Payment" for people who lost their jobs from 1 March 2020 to 30 October 2020 due to COVID-19 [6].
Norway	●		●	●		→	Temporarily reduced minimum income for eligibility to unemployment benefits. [7] → Prolonged benefit duration until end of June for recipients who had 18 weeks or less of remaining. → Benefit replacement rate increased from 62.4% to 80% for incomes lower than NOK 24 966 per month.
Portugal			●			→	Benefit extension until the end of the confinement period.
Slovak Republic			●			→	Benefit extension by 1 month for recipients whose entitlement expire during the crisis.
Slovenia					●	→	New temporary unemployment benefit for those who lost their jobs in the crisis. [8]
Spain	●		●			→	Suspension of the minimum contribution period. → Benefit extension until the end of the health crisis.
Sweden	●			●	●	→	Reducing employment requirements. [9] → Increased the benefit floor and ceiling. [10]
Switzerland		●	●			→	The reference period to assess employment condition was doubled to 48 months. → Benefit extension by 120 days.
United Kingdom				●		→	Raised weekly Universal Credit allowances (2nd tier benefit) by GBP 20.
United States*			●	●		→	Extension of maximum benefit duration to 9 months. → Benefit increase ("Pandemic Unemployment Assistance") by USD 600 per week for up to 4 months.

Note: * Information for the United States refers to the federal level.
[1] To recipients of income support payments, including the unemployment benefit "Jobseeker Payment". The supplement will be paid for 6 months.
[2] For newly unemployed and people who receive Employment Insurance or recently exhausted their claim. CERB provides USD 500 a week for up to 16 weeks. Newly unemployed must have involuntarily lost their job in the COVID-19 crisis. Claimants need to have earned at least CAD 5 000 in 2019 and may not have earned more than CAD 1 000 for the four-week period of the benefit claim.
[3] Maximum duration extension triggered as the national unemployment rate is 1 percentage point above its 4-year mean.
[4] Claimants receive EUR 350 per week until at least June, 08. Fully compatible with 1st and 2nd tier benefits.
[5] Claimants who only fulfil the shortened employment condition receive half the number of benefit days.
[6] The Income Relief Payment is paid for up to 12 weeks. The payment is NZD 490 per week if the person was previously working 30 hours or more a week, and NZD 250 per week if she was previously working 15 hours to 29 hours a week. The payment is means-tested against partner's earnings. A person cannot get the benefit if the partner earns NZD 2 000 or more per week (before tax). It is incompatible with receiving other main benefit (but people are allowed to switch to it if they meet the criteria for who can get it). The payment is tax exempt.
[7] Minimum income reduced from NOK 149 787 to 74 894 over the past 12 months, or from NOK 299 574 to 224 680 over the past 36 months.

[8] *Začasno denarno nadomestilo plače zaradi izgube zaposlitve v obdobju epidemije* is available for those who lost their jobs in the crisis for economic motives or due to the end of a temporary contract. Claimants receive EUR 513.64 per month for the duration of the temporary restrictions. The benefit is not compatible with the first-tier unemployment benefit.
[9] Shortening of the required membership period in the unemployment insurance fund from 12 to 3 months (1st tier); reduction of the employment requirement from at least 80 hours per months in last 6 months or 480 hours in last 6 months and at least 50 hours per month to 60 hours per months in last 6 months or 420 hours in last 6 months and at least 40 hours per month (1st and 2nd tier).
[10] minimum benefit amount from SEK 365 to 510 per day and maximum benefit amount from SEK 910 to 1 200 per day for the first 100 days (1st tier). All rules until end of 2020.
Source: Chapter 1 and OECD (2020[43]), "Supporting people and companies to deal with the COVID-19 virus: Options for an immediate employment and social-policy response", ELS Policy Brief on the Policy Response to the COVID-19 Crisis, OECD, Paris, http://oe.cd/covid19briefsocial.

Simulations of some policy-relevant employment trajectories for four OECD countries (Australia, France, Latvia and Spain) show that unemployment benefits provide different levels of support depending on the employment trajectory. Such differences are evident even when workers have the same personal characteristics, have earned the same amount of wages and have been in and out of work the same number of hours over a given period. In other words, the systems are not neutral in terms of social protection and incentives. Jobseekers with unstable employment trajectories (working either every other month or every other semester) are entitled to the same number of months and the same amount of unemployment benefits in Australia and France, but considerably less in Latvia and Spain, where contribution conditions are more demanding. In all of the four countries, workers with trajectories that include periods combining unemployment and partial work are entitled to lower unemployment benefit than workers with standard employment trajectories.

The chapter shows that there are several policy tools that can be deployed to design unemployment benefit systems that strikes the right balance between the sometimes conflicting objectives of income security and work incentives for those with unstable employment histories. For example:

Customised extensions of employment reference periods could be used for groups who are more prone to job instability, such as young workers and those on temporary contracts.

Earnings disregards and withdrawal rates applied to the benefits of jobseekers with earnings from casual or part-time work can be calibrated to enable such work to be used as a stepping stone to a better job.

Waiting periods, moderate minimum employment duration requirements, reductions in case of frequent reclaiming and limits on the accumulation of old and new entitlements can be used to reduce incentives to choose an unstable employment trajectory.

Differentiated unemployment insurance contribution rates could create financial incentives for employers and employees to choose more stable employment contracts and deter them from colluding in unstable arrangements that reduce workers' pay and maximise benefit entitlements.

Finally, the integration or at least improved co-ordination of in-work and out-of-work benefits can enhance work incentives. Activation measures can also strengthen incentives to seek and accept stable employment.

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Notes

[1] Employees with unstable jobs are closely associated with employees with temporary contracts (see Section 2.1.3). However, instead of being defined based on the type of contract they are identified based on the actual instability of their employment trajectories. Thus, this definition may include employees with permanent or long-term contracts who have frequent periods of unemployment and may exclude employees with temporary contracts who remain employed either with the same or with a new employer. It is possible that workers with permanent contracts have different underlying reasons and labour market pressures for changing jobs from workers with temporary contracts. However, regarding entitlements to unemployment benefit, rules are more sensitive to work tenure than the type of contract. Furthermore, across OECD countries, there is wide variation in the use of permanent and temporary contracts, partly reflecting differences in employment protection legislation (see Chapter 3).

[2] For example, a worker who was employed in the previous year may have experienced a period of unemployment before finding the current job. However, if the job status is recorded yearly, the period of unemployment will be missed and the change will be recorded as a job-to-job transition.

[3] On average across analysed countries, 1.4% of employees in the 2016-18 sample have employment trajectories that are both mostly part time and unstable (i.e. with many transitions).

[4] The impact of the demographic change on the incidence of standard and non-standard employment is mainly due to an “age effect” rather than a “cohort effect”. Even among young workers, the incidence of standard employment increases as a cohort ages.

[5] Average monthly wages were computed dividing the annual wage of the current year by the number of months in work. Since people experiencing many transitions are unlikely to have changed status at the first or last calendar day of each month, each month in work is likely to correspond to fewer hours of work than, say, a standard employee staying in the same job the whole year. This is particularly the case for those that are more employable and therefore are less likely to spend most of the month out of work. Therefore, the prevalence of unstable employment among below-median wages could in part driven by the underestimation of their wages.

[6] Previous OECD evidence suggests, however, that the average number of hours worked by part-timers does not explain much of the cross-country difference in poverty penalties (OECD, 2010[21]).

[7] Results from Table 2.1 also suggest that workers with unstable employment have lower wages, although these results control for the number of months and not for the number of hours worked.

[8] Jobseekers who are not entitled to first- or second-tier unemployment benefits may be protected by safety-net programmes, such as social assistance benefits, with neither employment nor employment-availability requirements.

[9] Some countries have unemployment benefits available for jobseekers not entitled to first-year and second-tier unemployment benefits. In Spain, for example, Active Integration Income (*Renta Activa de Inserción*) and Extraordinary unemployment allowance (*Subsidio extraordinario por desempleo*) are aimed at jobseekers in long-term unemployment who have extinguished their access to unemployment insurance and unemployment assistance benefits.

[10] In France, the contributions paid on wages are not the only source of funding. Unemployment protection is also funded by a general tax of 1.47% on market incomes.

[11] France implemented different contribution rates by contract types in 2013 but abolished them in 2017. Since January 2020, a fixed rate of EUR 10 applies on contracts based on "CDD d'usage"– this is a specific flexible temporary contract authorised only in certain sectors of activity. In addition, for certain activity sectors (dockers and entertainment workers), instead of this flat-rate tax, an increased rate of employer contributions to unemployment insurance of 0.05 points is applied to "CDD d'usage" fixed-term contracts shorter than three months.

[12] All benefit amounts assume a single individual without children and not eligible to any supplement. For other family circumstances, see annual OECD tax-benefit country reports.

[13] In 2020, the minimum base of social contributions in Austria was 461 EUR per month.

[14] In France, the benefit amount is reduced only for jobseekers with previous high wages (i.e. those who earned more than EUR 4 500 per month on average before unemployment).

[15] In Latvia, one can suspend the benefit for up to two months of work without losing entitlement.

[16] In Canada, entitlements are only retained if they were suspended due to high earnings from partial work. In the Netherlands, entitlements are only kept if the new job provides the same amount of working hours as the job prior to unemployment or if earnings from the new job are below 87.5% of the unemployment benefit level. In the United Kingdom, entitlements are kept for 12 weeks.

[17] The US Bureau of Labor Statistics defines displaced workers to be "persons 20 years and over who lost or left jobs because their plant or company closed or moved, there was insufficient work for them to do, or their position or shift was abolished" (Bureau of Labor Statistics, 2020[46]). According to previous OECD work, between 1% and 7% of the workforce is displaced annually, implying a significant probability that a typical worker will experience displacement one or more times during her working life. A considerable number of displaced workers find a suitable new job rapidly, but the majority experience significant losses of income and potentially would benefit from re-employment assistance and income support (OECD, 2018[5]).

[18] AW is the annual average wage among full-time employees in the non-agricultural business sector – sectors B to N (inclusive) of the International Standard Industrial Classification of All Economic Activities (ISIC rev. 4) (United Nations Statistical Division, 2008[45]). More details on the calculation of the AW measure for OECD countries are available in the methodological section of the OECD Taxing Wages publication (OECD, 2019[44]).

[19] In Figure 2.9, Figure 2.10 and Figure 2.12 (UB_2), waiting periods can be identified as the first and lower amount of benefit received over a period. Waiting periods shift the time of receipt, but not the *potential* duration and *potential* total amount of payments, which remain the same. Yet, in comparison to the case without waiting period, the *effective* duration and *effective* total amount may be lower if the jobseeker finds a job before exhausting the benefit.

[20] In Figure 2.11 and Figure 2.12 (UB_1), reductions due to the length of the receipt periods can be identified as the lower amounts once the benefit has been received for a few months.

3 Recent trends in employment protection legislation

Dismissal and hiring regulations – or employment protection legislation in short – are an important determinant of worker security and firm adaptability. This chapter provides an up-to-date review of employment protection legislation in OECD countries, building on earlier work by the OECD in the area. Taking into account legislation and actual practices, it describes the regulation of individual and collective dismissals of workers on regular contracts and the regulation for hiring workers on temporary contracts. It also discusses recent reforms in employment protection legislation. The comparison of employment protection across countries in this chapter brings evidence to the policy debate on the relative importance different systems attach to the twin aspirations of protecting workers and promoting adaptable labour markets.

In Brief

Key findings

Employment protection legislation is at the heart of the contractual working relationship between a firm and its employees. For the firm, it influences the ability to attract new staff and dismiss workers to react to changes in economic conditions and technology. For the employees, it is an important element of the stability of their job. Hiring and dismissal regulations therefore affect the rights and well-being of every employee in the labour market. As this chapter explains, one motivation for employment protection legislation is to induce firms to at least partially internalise the social costs of their hiring and dismissal decisions, in terms of unemployment benefit costs, psychosocial distress and income shocks.

The OECD has a long history of being at the forefront of international comparisons of employment protection legislation, also by providing comparable indicators via the *OECD Employment Protection Legislation Database*. Over the past three decades, these indicators have become one of the most widely used sources for benchmarking labour market regulation. The chapter extends the database, last updated in 2013, to 2019 and describes recent trends in employment protection in OECD countries.

Besides extending past series, the new indicators allow for a more systematic and accurate assessment of different types of job protection provisions, due to methodological improvements and the inclusion of important aspects that were not considered previously. For example, collective dismissals (i.e. dismissals of several workers) are now evaluated using the same methodology as the one for individual dismissals, and enforcement issues enter the quantitative comparisons in a substantial way for the first time. The new design of the indicators ensures better comparisons between countries and better assessments of reforms.

The main findings are as follows:

- The OECD indicators measure job dismissal regulations along four dimensions: i) procedural requirements before notice is given; ii) notice period and severance pay; iii) the regulatory framework for unfair dismissals; and iv) enforcement of unfair dismissal regulation. The new dimension on enforcement takes account of policies that, by explicitly limiting the scope for unfair dismissal complaints, ease de facto dismissal regulations. This can be the case with advance validations of dismissals and pre-termination resolution mechanisms (that allow a worker to leave an employer by mutual agreement or resignation without losing the right to unemployment benefits).
- Job dismissal regulations exhibit large differences across OECD countries: English-speaking countries are among those with fewer restrictions on dismissals, so that the layoff risk for workers is higher. Many European Union (EU) countries as well as a few non-EU countries have more restrictions on dismissals and high job security for workers on regular contracts.
- Countries with strict job protection provisions for regular workers usually have strict hiring laws for workers on fixed-term, or temporary work agency, contracts. Strict job protection provisions for regular workers require strict hiring laws for temporary workers to limit labour market duality and segmentation (the degree to which firms substitute less flexible regular contracts with more flexible temporary contracts).
- The granular comparisons of employment protection in this chapter highlight which elements of job dismissal regulations play a particularly important role in the different OECD countries. The chapter shows for example where notice periods and severance pay are the highest (in Turkey,

Lithuania and Israel for workers who have been in their job for four years), where there are relatively fewer rights relating to unfair dismissals (in the United States, the United Kingdom and Canada) and where advance validations of dismissals and pre-termination resolution mechanisms are strongest (in Austria and the Netherlands).

- Thirty-two of the 37 OECD countries impose more restrictions on collective dismissals than on individual dismissals, mostly because of stricter consultation requirements before notice can be given. These higher restrictions reflect the greater challenge for the economy of dealing with a collective dismissal. Nevertheless, pooling several individual layoffs in one collective dismissal can, in some cases, reduce the administrative burden of the firm.
- In the aftermath of the global financial crisis, a number of countries – including Greece, Portugal and several other EU countries – had eased strict dismissal regulations for regular workers to lower dualism in the labour market. In the following years from 2013 to 2019, the period under study in this chapter, 12 OECD countries reformed job dismissal regulations for regular workers, while 17 OECD countries reformed hiring regulations for temporary workers. Some reforms had as objective to reduce the stringency of employment protection against dismissals (as in France, Italy, Lithuania and Slovenia). A second category of reforms focused specifically on hiring regulations for temporary workers. Belgium and the Netherlands aligned dismissal regulation for different types of workers and dismissals. Among the countries that undertook a reform during 2013-19, more countries relaxed dismissal regulations for regular workers than strengthened them. Countries reforming hiring regulations for temporary workers were evenly split between those that reduced restrictions on the use of temporary contracts and those that imposed additional restrictions on them. In the current COVID-19 health and economic crisis, several EU countries have taken temporary action to considerably strengthen protection against dismissals.

Introduction

Regulations on the hiring and dismissal of employees – or employment protection legislation (EPL) in short – are one of the most discussed areas of labour market policy. They are an important policy intervention in the labour market as they usually affect every single employee and every firm, contrary to sector- or region-specific policies, for example. They are also important because they influence job security for employees (the risk of being dismissed and the chances of moving into a job) and firm adaptability (the scope for firms to respond swiftly to changing demand and new technologies). Losing a job and finding a job are pivotal moments in many people's lives, making job protection provisions a key determinant of well-being.

Employment protection is the central policy pillar that supports worker security, alongside publicly funded policies such as unemployment benefits, short-time work schemes and active labour market programmes (see Chapters 1 and 2). Well-designed dismissal regulations are motivated by the desire to protect workers against arbitrary dismissals and to have the company dismissing a worker bear some of the social costs (in particular the fiscal, psychological and health costs) of the dismissal (Pissarides, 2010[1]; Scarpetta, 2014[2]). At the same time, dismissal provisions tend to preserve existing jobs, rather than help workers move into better jobs; they therefore go against the often expressed principle that policy should "protect workers, not jobs". Another consideration is the interaction between regulations for regular contracts and temporary contracts, which influences who has access to stable jobs. These different functions and effects make the design of employment protection an important, complex matter.

This chapter provides a comprehensive overview of employment protection legislation in OECD countries and recent reforms in employment protection legislation. The chapter builds on and refines earlier streams

of work in the area by the OECD (Grubb and Wells, 1993[3]; OECD, 1999[4]; OECD, 2004[5]; OECD, 2013[6]; Venn, 2009[7]). These lines of work have fed into the *OECD Employment Protection Legislation Database* and associated research projects. Governments, organisations and researchers have used the OECD indicators extensively for cross-country benchmarking in reports, books and academic papers. The last vintage of the indicators dates from 2013, so the present analysis extends the database by six years to 2019.

The chapter is organised as follows. Section 3.1 provides an overview of the ways in which job protection matters for labour market outcomes. Section 3.2 describes the OECD Employment Protection Legislation indicators and how they aim to capture the main elements of job protection. It also presents the key aspects of the revision to the design of the indicators, made necessary to reflect ongoing changes in the labour market since the last revision in 2008. Section 3.3 describes employment protection legislation in all 37 OECD countries. Section 3.4 looks at employment protection reforms in the OECD during 2013-19 and how they are reflected in the indicators. The new data are available for free download at http://oe.cd/epl.

3.1. How job protection matters for labour market and economic outcomes

The rationale for job dismissal regulations is mainly twofold: to protect workers against arbitrary dismissals and to have the firm dismissing a worker carry some of the social costs of the dismissal (Cahuc, Carcillo and Zylberberg, 2014[8]). The need to protect workers against arbitrary dismissals is especially relevant for firms facing high labour supply relative to their labour demand. In such situations, some firms may undercut labour standards and threaten their workers that, if they are unhappy, they will be replaced. Dismissal regulations also reduce another possibly excessive motive for firms to dismiss a worker that can arise when the firm does not take into account the consequences of the job separation for fiscal revenues (due to lower labour income) and fiscal costs (higher expenditure on unemployment benefits). Regulation can also induce employers to internalise the health consequences of dismissals – see e.g. Bassanini and Caroli (2015[9]) – and the destruction of human capital following job loss and joblessness – see e.g. Neal (1995[10]). A further rationale for dismissal regulation, in particular an advance notice period, is that it helps workers, potentially with the early support of the public employment services, to smooth the transition to the next job (OECD, 2018[11]).

The intended effect of the two main motivations for job dismissal regulation – protecting workers against arbitrary dismissals and having the firm bear some of the dismissal costs – is that layoffs are less frequent than they would be in the absence of regulation. Economic theory predicts that job dismissal regulation also reduces hiring, since firms anticipate the higher layoff costs already at the time of hiring and because workers' opportunity cost of moving to another job is higher. Different models have obtained the result that job dismissal regulations reduce both hiring and layoffs and hence worker and job flows (Bentolila and Bertola, 1990[12]; Garibaldi, 1998[13]; Mortensen and Pissarides, 1994[14]; Nickell, 1978[15]).[1] Some reduction in hiring and layoffs as a consequence of job dismissal regulation is desirable to avoid excessive worker turnover; overly strict regulation can, however, reduce hiring and layoffs below their optimal level.

A large number of empirical studies, both cross-country and single-country analyses, confirm that dismissal regulation lowers worker and job flows (Autor, Donohue and Schwab, 2006[16]; Boeri and Jimeno, 2005[17]; Gielen and Tatsiramos, 2012[18]; Haltiwanger, Scarpetta and Schweiger, 2014[19]; Marinescu, 2009[20]; Micco and Pagés, 2006[21]; Millán et al., 2013[22]; OECD, 2010[23]; Salvanes, 1997[24]). Dismissal regulation is a multifaceted concept, which the design of the OECD Employment Protection Legislation indicators in this chapter will take account of. Among the various elements of job protection, the factor that has been found to reduce labour market fluidity the most is the regulatory framework for unfair dismissals (Bassanini and Garnero, 2013[25]). Of the features defining unfair dismissal regulation, long trial periods and strict reinstatement rules seem to play the most important role.

Job dismissal regulation therefore reduces job creation and job destruction, and it seems to do so to similar degrees, as most studies, including those relying on well-identified natural experiments, find that dismissal protection for regular-contract workers has no or a small negative effect on employment. Unemployment is little affected as well, although its duration tends to be longer. These are the conclusions of the *OECD Jobs Strategy* (OECD, 2018[26]) and several literature surveys (Boeri, 2011[27]; Martin and Scarpetta, 2012[28]; OECD, 2013[6]). One case when employment may be lower is when job protection increases step-wise with job tenure (i.e. with large hikes at specific seniority levels), as this may encourage firms to anticipate layoffs before their cost becomes too high (Cahuc, Malherbet and Prat, 2019[29]; García Pérez and Osuna, 2014[30]).[2] Moreover, in declining sectors strict employment protection may salvage jobs with no or little effect on hiring (Messina and Vallanti, 2007[31]), and in a macroeconomic downturn reforms relaxing dismissal regulation may depress employment, at least temporarily (Bassanini and Cingano, 2019[32]; OECD, 2016[33]).

The main downside of overly strict dismissal regulation is that, by lowering worker and job flows, it tends to make labour markets less adaptable to economic change, with too little worker movement from declining towards fast-growing businesses and reduced entry and exit of firms. Several empirical papers confirm that strict dismissal regulation dampens the scope for productivity-enhancing worker reallocation from low- to high-productivity firms (Andrews and Cingano, 2014[34]; Bottasso, Conti and Sulis, 2017[35]; Bravo-Biosca, Criscuolo and Menon, 2016[36]). It can thus weaken labour productivity growth and slow economic development.

Economy-wide labour productivity growth is determined not only by worker reallocation, but also by within-firm productivity growth, which depends on investment and innovation at a given firm. In principle, dismissal regulation can increase or decrease investment and innovation. Investment and innovation might be lower because actual and anticipated adjustment costs for firms are greater. However, investment could also be higher if firms substitute more flexible capital for less flexible labour. Innovation, too, could be higher to the extent that dismissal regulation reduces the risk of being laid off, making it more likely for employees with innovative ideas that they can reap the rewards for their initiative. The empirical evidence on the effects on investment is mixed (Autor, Kerr and Kugler, 2007[37]; Bai, Fairhurst and Serfling, 2020[38]; Cingano et al., 2010[39]; Cingano et al., 2016[40]), while most studies find that overly strict dismissal regulation is linked with fewer innovative activities and weaker multifactor productivity growth (Bartelsman, Gautier and De Wind, 2016[41]; Bassanini, Nunziata and Venn, 2009[42]; Bjuggren, 2018[43]; Griffith and Macartney, 2014[44]; Murphy, Siedschlag and McQuinn, 2017[45]).[3]

Summarising the effects of job dismissal regulations discussed so far: strict dismissal regulation tends to reduce layoffs, which is a direct result of its intended effect to raise the costs of dismissals. It also tends to reduce hiring, as firms factor in the higher costs for a potential dismissal already at the time of hiring. Dismissal regulation therefore reduces both flows out of jobs and flows into jobs. Aggregate employment and unemployment may only be affected insofar as the two effects do not balance. Fewer job flows means lower risk of job loss, which to a certain extent is a good outcome as it countervails an otherwise inefficiently high dismissal rate. When job protection is too high, however, innovation and efficient job allocation are likely to suffer. Hence, overly strict dismissal regulation tends to reduce productivity growth and increase the duration of unemployment spells.

One consequence of the negative effect of strict dismissal regulations on productivity growth is that strict dismissal regulation also limits the scope for pay increases, given that, at least to some degree, wage developments are tied to productivity developments. Higher dismissal costs may also dampen wage levels as they add to the total expected labour costs for firms which know that they will dismiss some workers. These negative effects of strict dismissal regulations on pay and pay increases may be countervailed by dismissal regulations increasing the bargaining power of workers and therefore the labour share – see the evidence from cross-country analysis and laboratory experiments (Ciminelli, Duval and Furceri, 2018[46]; Falk, Huffman and Macleod, 2015[47]). Moreover, the literature points to a distinction between newly hired workers and already employed workers: a higher stringency of dismissal regulations has been found to

lower wages of new hires (Leonardi and Pica, 2013[48]), while raising wages of incumbent workers (Martins, 2009[49]; van der Wiel, 2010[50]). One question for future research is whether stricter job dismissal regulation influences the pace of automation, which in turn would affect productivity and wage growth.

An important difference needs to be drawn between workers on regular contracts and workers on temporary contracts. Workers on regular contracts usually benefit from greater employment protection than workers on temporary contracts. The evidence indicates that, the larger is the gap in employment protection between these two contractual forms of work, the more firms use temporary contracts (Centeno and Novo, 2012[51]; Hijzen, Mondauto and Scarpetta, 2017[52]; Kahn, 2010[53]). Youth, women and the low skilled tend to be the population groups for which temporary work relationships are particularly common. Large use of temporary jobs can amplify the increase in unemployment during a business cycle downturn (OECD, 2017[54]). Simultaneously strict dismissal regulations for regular workers tend to be positive for the resilience of the labour market initially, but can hinder job creation in the subsequent recovery.

Larger duality – in the sense of a segmented labour market between highly protected workers on regular contracts and little protected workers on temporary contracts – has been shown to be associated with weaker productivity levels and growth rates (Bassanini, Nunziata and Venn, 2009[42]; Cahuc, Charlot and Malherbet, 2016[55]; Damiani, Pompei and Ricci, 2016[56]; Dolado, Ortigueira and Stucchi, 2016[57]; Hijzen, Mondauto and Scarpetta, 2017[52]). One reason is that the limited scope for career advancement in the firm for people on temporary jobs tends to reduce their commitment to the job and hence their incentives to invest in firm-specific knowledge and skills.[4] Another potential reason is that duality induces an inefficiently high share of temporary workers whose employment spell is too short to exploit all production opportunities of the firm.

A deeper divide between workers on regular contracts and others on temporary contracts has also been found to be associated with worse working environments, weaker job stability and greater wage inequality (García-Pérez, Marinescu and Vall Castello, 2018[58]; OECD, 2011[59]; OECD, 2014[60]). In addition, it can have negative effects from one generation to the next: children with fathers on a temporary contract have been shown to be more likely to drop out of the education system and be unemployed than children with fathers on a regular contract (Ruiz-Valenzuela, 2020[61]).

3.2. The design of the 2019 OECD Employment Protection Legislation indicators

Many of the papers referenced in the previous section rely on earlier vintages of the *OECD Employment Protection Legislation Database*. The indicators have been used to investigate the effects of employment protection on worker flows, employment, productivity growth, wages, investment, resilience to a downturn, the extent of use of temporary work, wage inequality, subjective job security and political economy aspects. They also serve as control variable or descriptive tool in many other papers. Denk and Georgieff (forthcoming[62]) survey the academic papers that have used the *OECD Employment Protection Legislation Database*. They refer as well to some of the numerous policy reports that have drawn on the indicators – by the OECD (e.g. *OECD Economic Outlook*, *OECD Economic Surveys*), national governments and supranational bodies and institutions (e.g. European Commission and International Monetary Fund). The wide use of the database underlines its importance for informing and influencing the setting of job dismissal and hiring regulations.

Besides legislation, the OECD indicators quantify also actual practices, by considering court rulings and collective bargaining agreements. The main distinction in the database is between indicators that assess dismissal regulation for regular workers and indicators that assess hiring regulation for temporary workers. The first part of this section looks at dismissal regulation for regular workers and the second part at hiring regulation for temporary workers.[5] Importantly, the OECD indicators quantify employers' dismissal and hiring costs and not the degree of protection for workers.

So far, three annual time series (Versions 1-3) existed, all ending in 2013. Version 1 begins in 1985, and the two subsequent versions sought to improve the ways in which the indicators capture job protection provisions. Version 2 begins in 1998 and has some coverage of collective (besides individual) dismissals of regular workers. Version 3 begins in 2008 and introduces certain aspects of enforcement for regular workers and additional items on hiring regulation for temporary workers. The present analysis extends Versions 1-3 to preserve the time series dimension of the database. For regular workers, however, the chapter develops, and mostly relies on, the new Version 4, which is available from 2013 to 2019. The design of the indicators for temporary workers is unchanged.

The indicators consider information on employment protection legislation in a detailed, but also pragmatic way: they take account of national and sectoral, but not firm-level, collective bargaining agreements. They focus on the private, not public, sector and evaluate regulation applying to medium-sized and large, not small, firms and their employees.[6] Where there are differences by firm size, the scored value is the average of the values for a firm with 35, 150 and 350 employees. Where there are differences between categories of workers (for example blue-collar and white-collar workers), the scored value is the average of the values corresponding to each category. These standardisations are necessary in light of the available information. A further consideration is the design of the scoring scale which, as from the beginning of the database, is constructed to enable quantitative comparisons of regulatory stringency. The nature of the indicators, which convert mostly qualitative information into numerical data, means that readers should nevertheless be cautious when interpreting small differences in scores across countries and over time.

3.2.1. The OECD Employment Protection Legislation indicators for dismissing regular workers

The new Version 4 of the OECD Employment Protection Legislation indicators for regular workers better reflects the differences in job protection regulation across countries and time. This is achieved in four ways: i) by improving the granularity of some elements of employment protection regulation that have already entered the indicators; ii) by adding important elements of employment protection regulation that have so far been absent from the indicators; iii) by expanding the assessment of employment protection regulation of collective dismissals to align it with the assessment of employment protection regulation of individual dismissals; and iv) by changing the way in which provisions on individual and collective dismissals are combined into the aggregate indicator of employment protection regulation of regular workers.

All employment protection legislation indicators in this chapter refer to no-fault dismissals; hence the stated reason for the dismissal is not related to illegitimate behaviour of the worker (such as theft, misconduct or unauthorised absence from work). The indicators, in the case of both individual and collective dismissals, take account of four aspects of dismissal regulations (Table 3.1): procedural requirements, notice period and severance pay, the regulatory framework for unfair dismissals and enforcement of unfair dismissal regulation. The first two of these categories are defined by two lower-level elements, the last two by four elements. The four broad categories determine with equal weight the aggregate score, and the lower-level elements determine with equal weight the scores for the four broad categories.[7] Where there are differences between dismissals for personal and for economic reasons, the scored value is the average of the two. Annex 3.A provides further details on the methodology and the full scoring scale.

Table 3.1. The OECD Employment Protection Legislation indicators for dismissing regular workers

Category of dismissal regulation	Lower-level elements of dismissal regulation
Procedural requirements	Notification procedures **(substantively revised)**
	Time delay before notice can be given **(substantively revised)**
Notice and severance pay	Length of notice period
	Amount of severance pay
Regulatory framework for unfair dismissals	Definition of unfair dismissal **(substantively revised)**
	Length of trial period (i.e. the initial period during which unfair dismissal claims cannot be made)
	Compensation to the worker following unfair dismissal
	Possibility of reinstatement following unfair dismissal
Enforcement of unfair dismissal regulation	Maximum time to make a claim of unfair dismissal
	Burden of proof when the worker files a complaint for unfair dismissal **(new item)**
	Ex-ante validation of the dismissal by an external authority **(new item)**
	Pre-termination resolution mechanism granting unemployment benefits **(new item)**

Note: The changes indicated in blue are with respect to the 2008 version (i.e. Version 3) of the indicators. The four broad categories of dismissal regulation determine with equal weight (25%) the aggregate score; the lower-level elements determine with equal – or almost equal – weight the scores of the four broad categories. Length of trial period is not included in the indicator for collective dismissals. Annex 3.A provides the full scoring scale.

Procedural requirements captures the actions that the firm must take before or when issuing the dismissal to the worker. It consists of two components: notification procedures and time delay before notice can be given. Notification procedures assess whether the dismissal notification needs to be provided with reasons, its legal value and whether it needs to be preceded by a warning procedure, a discussion with the worker and the consultation or authorisation of a third party, such as the relevant administrative body. This item on notification procedures was already included in previous versions of the indicators, but the new version modifies it to better reflect the differences in procedure linked with the various types of notification requirements. Also, in the new version, the scoring scale for the time delay before notice has been aligned with the one for the length of the notice period at four years of job tenure, so that days, weeks and months count the same in both these lower-level elements.

The second category considers the length of the notice period and the amount of severance pay, the two elements of dismissal regulation that often come first to mind. As in earlier versions, both are evaluated as the average of the values at three points of job tenure: 9 months, 4 years and 20 years.

The third category, the regulatory framework for unfair dismissals, is concerned with the breadth of the definition of fair and unfair dismissals and the stringency of remedies imposed by courts when a dismissal is judged to be unfair. It takes into account four aspects: the definition of unfair dismissal, the length of the initial (or trial) period during which the employee is not protected against unfair dismissal, the monetary compensation to the worker following an unfair dismissal and the possibility of reinstatement following an unfair dismissal.[8]

The new version substantially expands the item on the definition of (un)fair dismissal. This now considers unfair dismissals for economic reasons separately from those for personal reasons.[9] Within unfair dismissals for economic reasons, the item assesses the freedom that judges have in their decision, the restrictions on the firm as to which worker is to be selected for the dismissal and the requirements in terms of alternative employment and training opportunities that the firm needs to offer to the worker and without which the dismissal is considered unfair. The item on the length of the trial period has been slightly refined as well. It now takes higher values when the regulation for dismissing workers before the end of the trial period is more stringent in terms of notice and severance pay.

The new version of the employment protection indicators for regular workers places a stronger emphasis on enforcement of unfair dismissal regulation. Three items have been newly introduced: i) whether the worker alone has the burden of proof when filing a complaint for unfair dismissal; ii) whether an ex-ante validation of the dismissal limits the scope of unfair dismissal complaints; and iii) whether a pre-termination resolution mechanism exists that, by granting eligibility for unemployment benefits, offers an attractive alternative to dismissal for the employee.

In most countries, the burden of proof in unfair dismissal cases does not lie only with the employee. While this increases the cost and the uncertainty for the firm that it can prove that the dismissal was fair (Boeri, Garibaldi and Moen, 2017[63]), it reflects that the firm is the party that knows the reason or motivation for the dismissal. Validation of the dismissal as a preventive check is closely related with the item on notification procedures in the first category, procedural requirements. It tends to make notifications more burdensome for the firm, but has the advantage for the firm of limiting the risk that the dismissal will be judged as unfair later on. Pre-termination resolution mechanisms (termination by mutual consent or resignation) give the right to unemployment benefits in many OECD countries (sometimes with sanctions). France, for example, introduced in 2008 a formalised scheme of termination by mutual agreement that provides entitlement to unemployment benefits, and the reform has been found to have increased worker flows (Batut and Maurin, 2019[64]).

The coverage of enforcement issues in the OECD indicators remains limited overall, as the indicators do not take account of certain aspects of the functioning of the judicial system, such as access to labour courts or the length of proceedings. Such aspects of the complexity of judicial procedures matter for the decision of the firm whether to dismiss a worker (Espinosa, Desrieux and Ferracci, 2018[65]; Gianfreda and Vallanti, 2017[66]), but can also influence the incentives of the employee to file a complaint (Campolieti and Riddell, 2020[67]; Espinosa, Desrieux and Wan, 2017[68]; Fraisse, Kramarz and Prost, 2015[69]). Their effects on employers' costs remain therefore ambiguous, which makes it difficult to incorporate them in the indicators. Another consideration is that integrating statistics on judicial procedures in the indicators would be problematic given lack of data and poor cross-country comparability and raise issues concerning the endogeneity of judicial outcomes to regulation and labour market conditions (Ichino, Polo and Rettore, 2003[70]).

The overall employment protection legislation indicators for dismissing regular workers assign a weight of 5/7 to individual dismissals and 2/7 to collective dismissals, as in previous versions. In the design of the indicators, a dismissal is seen as collective when a firm lays off several workers at around the same time. More precisely, the indicator for collective dismissals evaluates the average for dismissals of 10, 45 and 120 workers by a firm within one month.[10] In all OECD countries with specific legislation for collective dismissals (and for the firm sizes considered by the indicator), this legislation always applies in the case of dismissals of 120 workers or more in one month, which will be referred to as mass dismissals in the remainder of this chapter.[11] Moreover, in contrast to individual dismissals, collective dismissals can only occur for economic reasons. Therefore, while the indicators for individual dismissals give the same weight to dismissals for personal and economic reasons, in the aggregate indicators dismissals for economic reasons take a weight of almost two-thirds.

3.2.2. The OECD Employment Protection Legislation indicators for hiring temporary workers

The OECD employment protection legislation indicators for temporary workers distinguish between fixed-term contracts and temporary work agency contracts. They focus on hiring restrictions instead of dismissal regulations, in contrast to the indicators for regular workers. This is natural to a certain extent, given that terminations of temporary contracts tend to be rare during the duration of the contract and easy at the end, while legislation in many countries aims to avoid an excessive use of temporary contracts. Nevertheless, dismissals of temporary employees do happen, and in some cases severance pay or other tools used in

dismissal regulation protect temporary workers when their contract expires. Future work is planned to go beyond hiring restrictions for workers on fixed-term contracts, by also considering regulations in the context of dismissals of fixed-term workers and expirations of fixed-term contracts.

The two categories of hiring regulations, for fixed-term and temporary work agency contracts (Table 3.2), contribute in equal shares to the total score. This is to be kept in mind in an environment where in all OECD countries fixed-term contracts are more common than temporary work agency contracts (OECD, 2014[60]). The first three lower-level elements serve the same purpose for the two types of temporary contracts: to capture constraints to the ease with which such contracts can be used in place of regular contracts. The fourth item on authorisation and reporting obligations is in practice mainly relevant for temporary work agency contracts. The last item on equal treatment of temporary work agency workers and regular workers at the user firm concerns both pay and working conditions. The full scoring scale is in Annex 3.A.

Table 3.2. The OECD Employment Protection Legislation indicators for hiring temporary workers

Category of hiring regulation	Lower-level elements of hiring regulation
Fixed-term contracts	Valid cases for use of fixed-term contracts
	Maximum number of successive fixed-term contracts
	Maximum cumulated duration of successive fixed-term contracts
Temporary work agency contracts	Types of work for which temporary work agency employment is legal
	Restrictions on the number of renewals of the assignment to the user firm
	Maximum cumulated duration of successive assignments to the user firm
	Authorisation and reporting obligations
	Equal treatment of regular workers and temporary work agency workers at the user firm

Note: There are no changes with respect to the 2008 version (Version 3) of the indicators. The two broad categories of hiring regulation determine with equal weight (50%), the aggregate score; the lower-level elements determine with equal weight the scores for the two broad categories, except for the first element in both cases ("Valid cases for use of fixed-term contracts" and "Types of work for which temporary work agency employment is legal") which carry a weight of 50% and 33% respectively. Annex 3.A provides the full scoring scale.

3.2.3. Comparison with other employment protection legislation databases

The last two decades have seen an increasing effort by international organisations and research centres to create indicators of labour market institutions, including of employment protection legislation.[12] Country coverage of the OECD Employment Protection Legislation indicators themselves was extended in 2013 to include, for example, several non-OECD Latin American and Caribbean countries, in a partnership with the Inter-American Development Bank. Besides the OECD indicators, among the most well-known are the EPLex by the International Labour Organization, the Labour Regulation Index by the Centre for Business Research (CBR-LRI) at the University of Cambridge and the (suspended) Employing Workers indicator in the Doing Business dataset by the World Bank.[13] While these three databases share some similarities with the OECD indicators,[14] important differences remain, as explained below. Overall, the OECD indicators continue to be the most widely used for cross-country comparisons in policy reports and academic papers (Denk and Georgieff, forthcoming[62]).

The three other databases cover more countries than the OECD indicators (from 100 countries for the EPLex to 190 countries for the Doing Business). However, they provide a less comprehensive overview of employment protection regulation.[15] In particular, the three other databases do not cover enforcement of unfair dismissal regulation, and the EPLex and the Doing Business do not cover temporary work agency employment. In addition, the CBR-LRI and the Doing Business have a less deep evaluation of collective dismissals and of the regulatory framework for unfair dismissals (for example they have no information on compensation following an unfair dismissal). There are also some aspects of job protection that the OECD

indicators do not cover, but the other three databases do (for example prohibited grounds for dismissal such as discrimination in the EPLex). Two other differences between the EPLex and the OECD indicators are that the EPLex is more descriptive, rather than quantitative, and available for a shorter time span, since the series starts in 2009, against 1985 for the OECD indicators. Also, the three other databases do not, or little, take account of sectoral collective agreements and case law.

3.3. Employment protection legislation in OECD countries in 2019

This section compares employment protection legislation in OECD countries, based on information in the *OECD Employment Protection Legislation Database*. It begins with a detailed look at the components of job dismissal regulation. It then presents assessments of the overall regulation of individual and collective dismissals of regular workers and the regulation for hiring temporary workers. These indicators of dismissal and hiring regulations are based on the methodology outlined in the previous section.

3.3.1. Country details on individual elements of dismissal regulations for regular workers

This part discusses country details on individual elements of job dismissal regulations for regular workers in the order of the four broad categories entering the indicator: procedural requirements before notice can be given, notice period and severance pay, the regulatory framework for unfair dismissals and enforcement of unfair dismissal regulation.

Procedural requirements

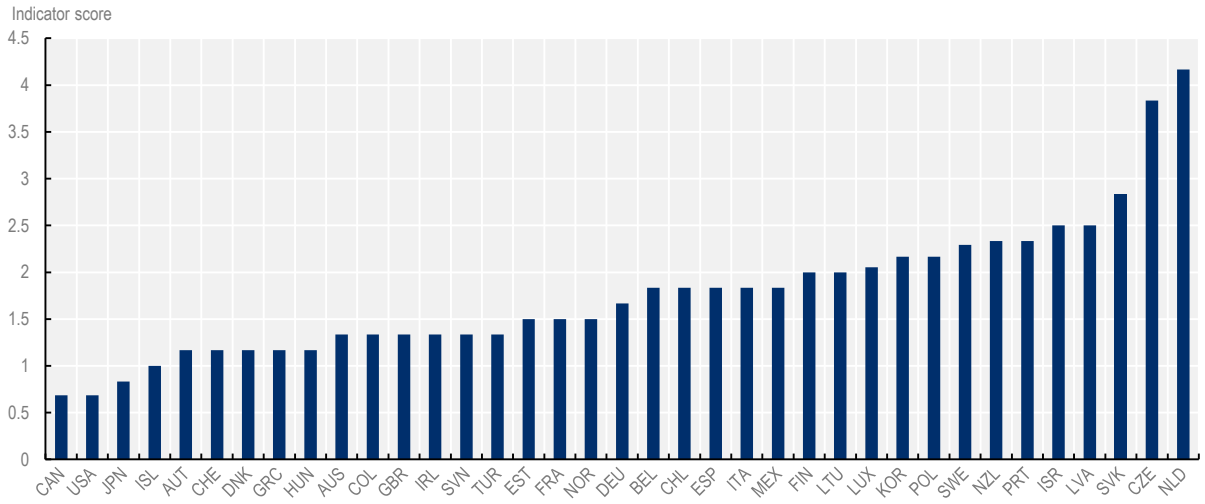
Procedural requirements for individual dismissals of regular workers vary significantly between countries (Figure 3.1). This variation is mostly due to differences in notification procedures, rather than in the time delay before notice is given, the other regulatory element entering this category.

The employer usually needs to inform the employee of the reason for the dismissal, at least if the worker requests it. This notification generally takes the form of a written statement. Some countries require, at least in some cases, a prior warning (Australia, Austria, Québec in Canada, the Czech Republic, Denmark, Estonia, Greece, Ireland, Lithuania, New Zealand, Portugal and the Slovak Republic), an interview with the employee (Australia, Colombia, France, Iceland, Ireland, Luxembourg, Slovenia and Turkey) or a consultation with a third party (the Czech Republic, Finland, Israel, Norway, Poland, the Slovak Republic and Sweden). Only in Canada (except Québec) and in most states of the United States, the firm never needs to provide a reason for the dismissal to the worker before or at the time of dismissal. By contrast, procedures are particularly stringent in the Netherlands, where a dismissal cannot occur without prior authorisation by the Public Employment Service or the Sub-district Court. In Germany and Sweden, the dismissal can be paused until the final judgement by the court if the work council (Germany) or worker (Sweden) objects to the dismissal.

Notification procedures for collective dismissals are more homogeneous and stringent than for individual dismissals for economic reasons (Denk and Georgieff, forthcoming[62]). All countries except some provinces in Canada, Chile and the United States require a consultation or even an authorisation before the dismissal can take place from a certain threshold number of workers dismissed. In particular, above this number of dismissals, a dismissal can never occur without the authorisation of the administration in Colombia and France (for firms with more than 50 employees). In Belgium, if the work council and worker object to the dismissal, the dismissal can be paused until the employer has provided evidence of compliance with the notification and consultation procedures. In Mexico, dismissals for economic reasons are allowed only if they involve several workers and they require an authorisation by the Labour Court.

Figure 3.1. Procedural requirements for individual dismissals of regular workers

2019



Note: Range of indicator scores: 0-6. Procedural requirements consists of two components: notification procedures and time delay before notice can be given.
Source: *OECD Employment Protection Legislation Database*, http://oe.cd/epl.

StatLink https://stat.link/x2zf8y

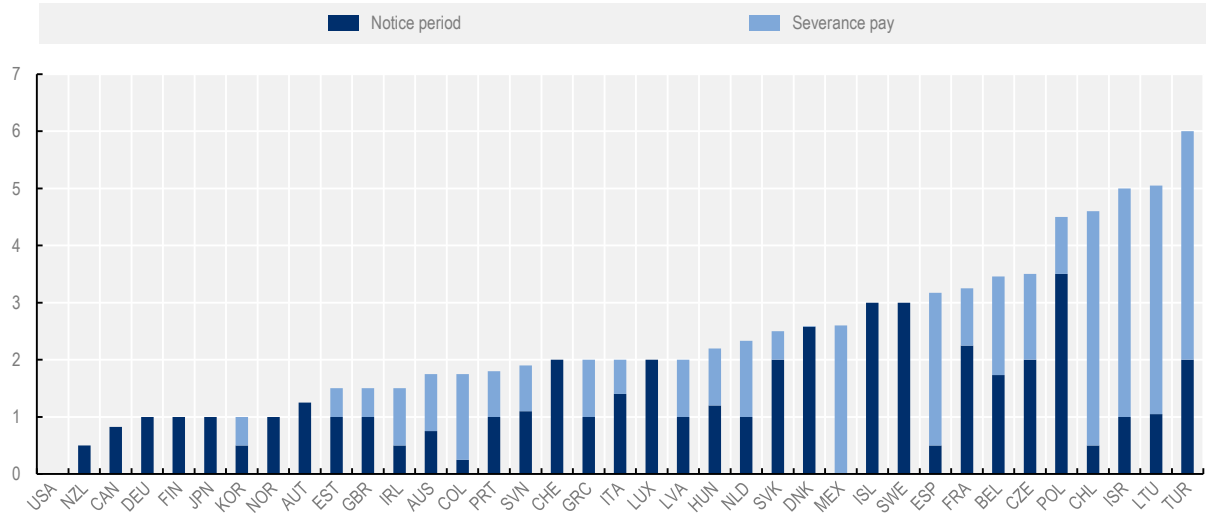
Notice and severance pay

At the point at which a firm decides to dismiss a worker, it often cannot do so without informing the worker in advance (i.e. respecting a notice period) and providing severance pay. Notice period and severance pay represent a cost to the firm. To the worker, they reduce the economic and possibly psychological burden of a layoff, by preventing an abrupt loss of labour income. Employees usually continue to work for the firm during the notice period. However, in some cases, notified employees are released from work, and even employees continuing work during the notice period are likely to be less motivated. A combined estimate of the costs to firms and the benefits to workers from notice period and severance pay is thus provided by the number of months a firm must give notice before dismissal and the amount of severance pay (in months of work).

The database collects information on notice period and severance pay at three points of job tenure: 9 months, 4 years and 20 years. At 4 years of job tenure, compensation in the form of notice period and severance pay in the case of an individual dismissal varies widely among OECD countries, from no compensation in the United States to six months of pay in Turkey (Figure 3.2). The compensation of half a year of pay in Turkey corresponds to one-eighth of the 4 years of labour income earned until then. Costs to firms and benefits to dismissed workers are also high in Israel and Lithuania, where more than an extra 10% of the labour income earned until then is paid as compensation to a dismissed worker. Notice periods are more widely used overall than severance pay is: only two countries have no notice period, while 11 countries have no severance pay. Nonetheless, countries with the highest total compensation stand out with very high severance pay. The variation in severance pay across countries is much greater than the variation in notice periods.

Figure 3.2. Notice period and severance pay for individual dismissals of regular workers

Four years of job tenure, measured in months of pay after dismissal notice, 2019



Note: These values are for individual (not collective) dismissals. They take the average of dismissals for personal and economic reasons.
Source: *OECD Employment Protection Legislation Database*, http://oe.cd/epl.

StatLink https://stat.link/brk4sa

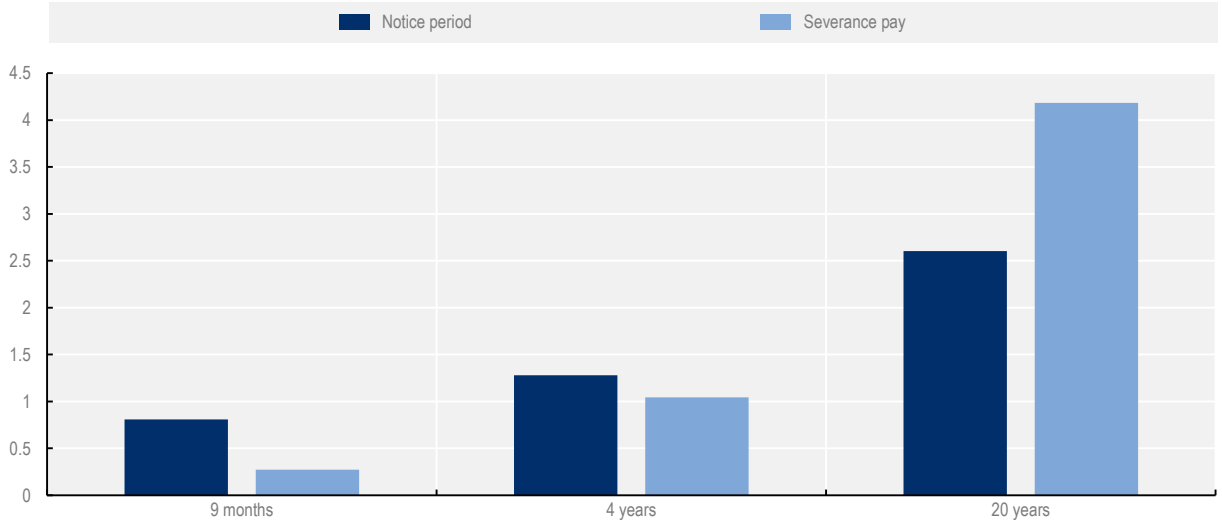
Notice period and severance pay both tend to increase with the length of job tenure. The longer workers stay with their firm, the more secure their job tends to be. This greater job security at higher job tenure may also contribute to the observed lower job mobility of long-tenured, and often older, workers. In all OECD countries, notice period and severance pay are increasing, or at least not decreasing, with longer job tenure across the three points of tenure in the database: 9 months, 4 years and 20 years. On average in OECD countries, together they are seven times as high at 20 years of job tenure as at 9 months of job tenure (Figure 3.3).

Severance pay increases more steeply with job tenure than notice period. On average in OECD countries, severance pay is smaller than notice period at 9 months of job tenure, but greater than notice period at 20 years of job tenure. At 9 months of job tenure, two-thirds of OECD countries require no severance pay. At 20 years of tenure, workers in nine OECD countries – Belgium, Chile, France, Israel, Luxembourg, Mexico, the Netherlands, Spain and Turkey – have the right to a severance pay that is worth at least half a year of work. It is relatively more common for the notice period to be the same at the three points of job tenure.

Notice periods are similar for dismissals for personal and for economic reasons. They are also similar for individual and collective dismissals, with the exception of a few countries where they are longer for collective dismissals. For example, in the United States dismissed workers are entitled to two months of notice in the case of mass layoffs and large plant closures. In Canada, the notice that must be given to an employee affected by a collective dismissal is often longer than for an individual termination of employment. In Luxembourg and the United Kingdom, in the case of a large dismissal, a long time period must occur between notification to the labour authority and the day the dismissal takes effect, de facto prolonging notice periods for employees with short job tenure.

Figure 3.3. The role of job tenure for notice period and severance pay

OECD average at three different points of job tenure, measured in months of pay after dismissal notice, 2019



Note: These values are for individual (not collective) dismissals. They take the average of dismissals for personal and economic reasons. OECD average is the unweighted average for the 37 OECD countries.
Source: *OECD Employment Protection Legislation Database*, http://oe.cd/epl.

StatLink https://stat.link/imrpqs

For severance pay, more notable differences arise between dismissals for economic and personal reasons and between individual and collective dismissals. At 20 years of job tenure, severance pay is higher in the case of dismissals for economic reasons in Australia, the Czech Republic, Estonia, Ireland, Poland, the Slovak Republic and the United Kingdom. At this point of tenure, no country has higher severance pay for dismissals for personal reasons. This on average somewhat lower level of security in the case of dismissals for personal reasons is potentially motivated by workers themselves sharing more of the responsibility for the layoff, for example due to insufficient performance. With regard to the comparison of individual and collective dismissals, additional compensation can often be granted for dismissals that exceed a certain number of workers, usually as a result of the consultation with worker representatives.

Counting months of advance notice and severance pay on equal terms as in the analysis of this section is necessarily a simplification. For the firm and the worker, notice periods are often somewhat less costly and more protective than severance pay: the worker is required to continue work while on notice and sufficiently long notice periods allow the employment services to intervene before the dismissal takes place, thereby facilitating the transition to another job. These considerations motivate OECD advice that countries, where notice periods are short and severance pay is high, could consider extending notice periods and lowering severance pay, while activating early interventions, to smooth job transitions without increasing employers' costs (OECD, 2018[11]).

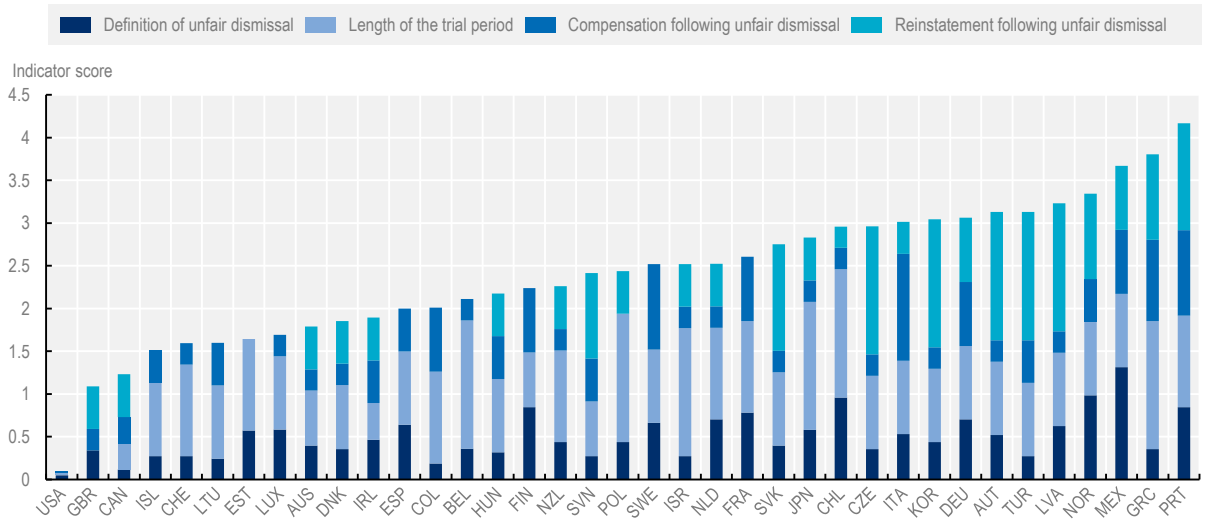
Regulatory framework for unfair dismissals

In almost all OECD countries, a dismissal based on a reason that is beyond the scope of allowed (or "fair") reasons can, if it is challenged in court, lead the employer to pay specific compensation to workers or even reinstate workers to the positions from which they were dismissed. The category "regulatory framework for unfair dismissals" captures the definition of unfair dismissal, the length of the trial period during which all dismissals are fair and the compensation and reinstatement rules following an unfair dismissal (Figure 3.4).

Fair reasons for dismissal generally include operational reasons (e.g. economic difficulties or technological changes) or personal reasons related to workers themselves (e.g. insufficient performance or unsuitability). In Canada (except Québec) and the United States, an employee can be fairly dismissed without reason, provided that the dismissal was not based on prohibited grounds.[16] Contrasting examples are Chile, which forbids dismissals for insufficient performance and unsuitability, and Mexico, which allows dismissals for economic reasons only if they involve several workers.

Figure 3.4. Regulatory framework for unfair individual dismissals of regular workers

2019



Note: Range of indicator scores: 0-6. Compensation following unfair dismissal is missing for Canada, Greece, Iceland and the United States; and length of the trial period is missing for Canada and the United States. Therefore, values for these subcomponents are set equal to the average of non-missing subcomponents of regulatory framework for unfair dismissals for the same country.
Source: *OECD Employment Protection Legislation Database*, http://oe.cd/epl.

StatLink https://stat.link/z5fnel

The scope of fair dismissals for economic reasons depends to a large extent on the freedom that judges have in their decision. In about half of the OECD countries, including Finland, Germany, Poland, Spain and the United Kingdom, dismissals for economic reasons can only be challenged if the reason for the dismissal was false or patently irrational. By contrast, in the other half of the countries (including Australia, Chile, Italy, Japan, the Netherlands and Norway), judges can question the operational need of the dismissal decision. In some countries, when redundancy could concern several workers occupying similar positions, the employer should select the employees who are to be dismissed based on objective criteria other than performance. Job tenure may be part of these criteria, as for example in France, Latvia, Portugal and Sweden.[17] In Italy, if the dismissal concerns five employees or more within a period of 120 days, judges cannot question the operational need for the dismissal and the firm must follow social and economic criteria for selecting the workers to be dismissed.

About two-thirds of OECD countries require substantive conditions for a dismissal for economic reasons. These conditions generally include attempting the transfer of the worker to another position, possibly with retraining. They may also require priority for rehiring (e.g. Finland and France) or provision of outplacement services (e.g. Belgium). Other countries have no conditions, at least for individual dismissals: Canada, the Czech Republic, Denmark, Greece, Hungary, Iceland, Israel, Slovenia, Spain, Switzerland, Turkey, the United Kingdom and the United States. However, Canada, Denmark, Greece, Slovenia, Spain,

Switzerland and Turkey have additional requirements from a certain number of workers dismissed. These requirements typically include the establishment of a social plan, i.e. a set of measures of reemployment, retraining, outplacement and, in some cases, extra monetary compensation for the workers.

Dismissals for personal reasons exist in most countries. Employers can dismiss workers who have become unsuitable for the position (due to medical or qualification reasons) or whose performance has become insufficient. In some countries, however, insufficient performance, without unsuitability, is not a fair reason for dismissal (e.g. Chile, Finland, France, Mexico, Norway, Portugal, Spain and Sweden). Attempting substantial alternatives can be required also in the event of a dismissal for personal reasons. For example, a transfer to a suitable position should be attempted in the case of a dismissal for medical unsuitability in Belgium and France and for all types of unsuitability in Finland and Italy. In Japan and Spain, workers should be trained to avoid a dismissal for insufficient qualification.

In almost all OECD countries, unfair dismissal regulation does not apply during an initial (or trial) period at the beginning of the employment relationship. Belgium, Chile, Greece, Israel, Japan and Poland are the only exceptions, although temporary contracts might sometimes act as a substitute for the trial period.[18] The median value of the trial period is three months. It is longest in the United Kingdom (24 months) and Ireland (12 months).

When judges deem the dismissal (at some point after the completion of the trial period) to be unfair, they can order the payment of a compensation or the reinstatement of the worker to the position. Compensation following an unfair dismissal is particularly high in Italy. Reinstatement is always made possible to the employee in Austria, the Czech Republic, Korea, Latvia and Turkey. By contrast, reinstatement, except in the case of dismissals on prohibited grounds, cannot be imposed on the employer in Belgium, Colombia, Estonia, Finland, France (for individual dismissals), Iceland, Lithuania, Luxembourg, Spain, Sweden, Switzerland and the United States. In France, in the event of a dismissal of more than ten workers in a firm with more than 50 employees, the absence (or insufficient elaboration) of a social plan can entail the nullity of the redundancy procedure; in these cases, the judge may order the reinstatement of the employees upon their request. Overall, reinstatements tend to be more common in countries with a more stringent regulatory framework for unfair dismissals (e.g. Greece, Korea, Latvia, Norway, Portugal and Turkey).

Enforcement of unfair dismissal regulation

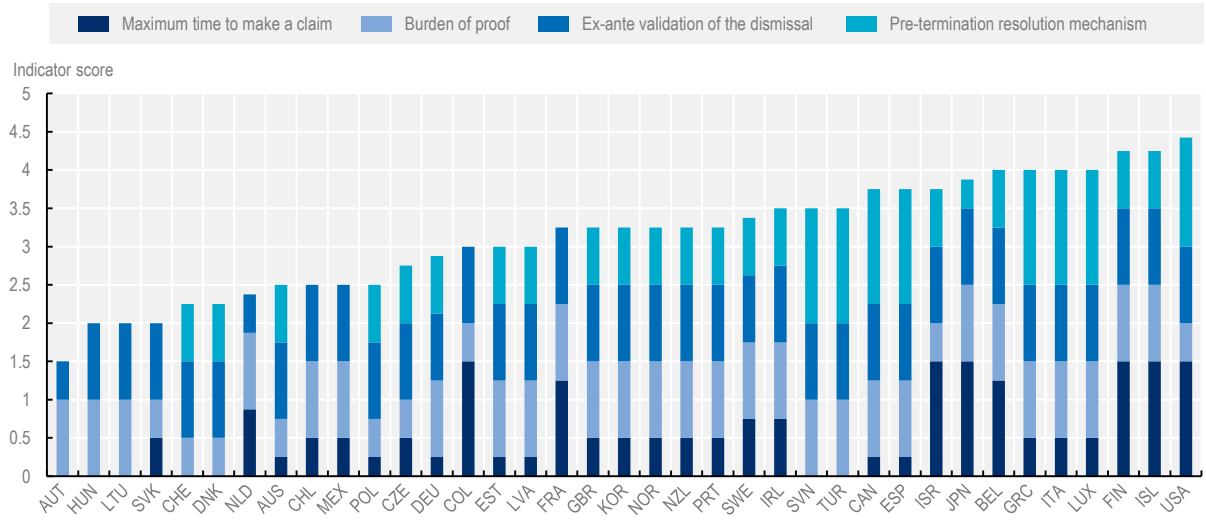
The indicators on enforcement of unfair dismissal regulation consider the maximum time to make a claim, the burden of proof, ex-ante validation of the dismissal and pre-termination resolution mechanisms (Figure 3.5). As explained in Section 3.2.1, this means that the coverage of enforcement issues in the indicators remains limited overall since the indicators, for various reasons, do not take account of certain aspects of the functioning of the judicial system, such as access to labour courts or the length of proceedings.

The median duration for the time period during which an employee can file an unfair dismissal complaint is two months among OECD countries. In some countries (Austria, Denmark, Hungary, Lithuania, Slovenia, Switzerland and Turkey), the maximum time available is so short that in practice claims must be filed before the dismissal takes effect. By contrast, it is longer than two years in Colombia, Iceland, Israel, Japan and the United States[19] (where it varies by state).

In most countries, following an unfair dismissal complaint, it falls, at least in part, on the employer to provide evidence that the dismissal was fair. Who bears the burden of proof matters for the incentives of the firm to dismiss a worker and of the employee to file a complaint. The only countries where the burden of proof lies solely with the employee in cases of unfair dismissal (not based on prohibited grounds) are Australia, Colombia, the Czech Republic, Denmark, Israel, Poland, the Slovak Republic, Switzerland and the United States.

Figure 3.5. Enforcement of unfair dismissal regulation for individual dismissals of regular workers

2019



Note: Range of indicator scores: 0-6. The minimum score for burden of proof and ex-ante validation of the dismissal is 0.5.
Source: *OECD Employment Protection Legislation Database*, http://oe.cd/epl.

StatLink https://stat.link/a914ig

Validation of the dismissal as a preventive check tends to make notification procedures more stringent, but it has the advantage for the firm of limiting the risk that the dismissal will be judged as unfair later on. Only in Austria and the Netherlands, all dismissals need to involve an advance validation that limits the scope for unfair dismissal complaints; dismissals should be approved by the work council in Austria and the Public Employment Service or the Sub-district Court in the Netherlands. A validation secures the dismissal for the employer, but only from a given number of workers dismissed, in Belgium (in some cases), Colombia, France, Greece, Mexico and Spain.

Resignation and some form of termination by mutual consent provide the right to unemployment benefits in many countries (possibly with sanctions) and are thus a popular alternative to dismissals. In a number of countries, they grant unemployment benefits under the same conditions as in the event of a dismissal. This is the case in Austria, Chile, Colombia, France, Hungary, Japan, Korea, Lithuania, Mexico (where there are no unemployment benefits), the Netherlands and the Slovak Republic. In other countries, resignation and termination by mutual consent entitle workers to receive unemployment benefits but often with long waiting periods (Immervoll and Knotz, 2018[71]). By contrast, resignation and termination by mutual consent never give access to unemployment benefits (in contrast to dismissals) in Canada, Greece, Italy, Luxembourg, Slovenia, Spain, Turkey and the United States[20] (in most states and in the case of individual termination). These countries are also among those for which the overall level of enforcement is particularly high.

3.3.2. Aggregate assessments of dismissal regulations for regular workers

This part assesses job dismissal regulation for workers on regular contracts by aggregating the individual elements that the previous section discussed. It does so first for individual dismissals, then for collective dismissals and finally for a composite of individual and collective dismissals.

Regulation of individual dismissals of regular workers

The OECD indicators show wide variation in the strictness of regulation of individual dismissals of regular workers across countries (Table 3.3). Five of the ten countries with the lowest measured regulation have a legal system with British common-law origin: the United States, Canada, Australia, the United Kingdom and Ireland (in order). Regulation is assessed to be low as well in Switzerland, Austria, Hungary, Denmark and Estonia. At the other end of countries with relatively strict regulation are the Czech Republic, Israel, Portugal, the Netherlands, Turkey, Belgium, Italy, Latvia, Greece and Luxembourg. In between are the remaining countries where policies seem to attach more equal importance to firm adaptability and job security.

The aggregate score is determined by the four categories of regulation: procedural requirements, notice and severance pay, the regulatory framework for unfair dismissals and enforcement of unfair dismissal regulation. One question is whether countries with high overall regulation have strict regulations along all four dimensions or whether certain categories of regulation are more typical of high-regulation countries. This is investigated statistically through the correlations among the four categories of dismissal regulation and their correlation with the aggregate score. This analysis indicates that the fourth category, enforcement of unfair dismissal regulation, plays a different role to the other three categories, underlining the importance of including it in the indicators to obtain a more complete picture of regulations. Procedural requirements, notice and severance pay and the regulatory framework for unfair dismissals are all positively correlated, suggesting that they tend to be complementary, rather than substitute policies.

The aggregate score is only weakly correlated with enforcement of unfair dismissal regulation.[21] Some countries with low regulatory protection in aggregate have a high score on enforcement of unfair dismissal regulation, notably Canada and the United States. Canada is one of the countries that provide no access to unemployment benefits except after dismissals and so offer no alternative pre-termination route that would be made attractive by granting unemployment benefits. In the United States, the time to make a claim of unfair dismissal is long (in case restrictions to dismissals exist in the contract or "implied contract", in which the employer gives certain assurances for continued employment to create a contract of sorts). The Netherlands, by contrast, a country with overall high regulatory protection, has a low score: the Public Employment Service or the Sub-district Court provide an ex-ante validation of the dismissal, and termination via mutual consent gives right to unemployment benefits without sanctions.

In pairwise comparisons, enforcement of unfair dismissal regulation is negatively correlated with the three other categories.[22] One reason may be that in countries, where unfair dismissals carry few rights (i.e. the regulatory framework for unfair dismissals is less strict), a high degree of enforcement of unfair dismissal regulation is less relevant. Another reason is design: in general, validation of a dismissal by a third party before the dismissal occurs enters the indicator negatively under enforcement as such validation reduces the chances for the dismissal to be qualified as unfair; and it enters the indicator positively under procedural requirements as it makes the notification procedure more stringent.[23]

The new Version 4 of the indicators changes the assessment of the stringency of job dismissal regulations in several countries compared with the previous Version 3. Job protection against individual dismissals is, for example, assessed to be less strict in Austria, France, Germany and the Netherlands and stricter in Canada, Ireland and the United States. Box 3.1 mentions some of the reasons behind the new evaluation, drawing on the analysis in Denk and Georgieff (forthcoming[62]). Conceptually, the differences in scores are due to three reasons: i) revisions to the categories procedural requirements and the regulatory framework for unfair dismissals; ii) the addition of the fourth category enforcement of unfair dismissal regulation; and iii) the reduction in the weight of the three categories that have already entered the indicator. As the examples in the box illustrate, the modifications to the indicator design ensure better overall comparisons between countries, because they improve the way in which the indicators map the costs for firms stemming from different regulatory aspects.

Table 3.3. The OECD indicators: Strictness of regulation of individual dismissals of regular workers

White / light blue / dark blue: countries with low / middle / high regulatory protection, 2019

	Procedural requirements	Notice and severance pay	Regulatory framework for unfair dismissals	Enforcement of unfair dismissal regulation	OECD Employment Protection Legislation indicator
United States	0.7	0.0	0.1	4.4	1.3
Switzerland	1.2	1.3	1.6	2.3	1.6
Canada	0.7	0.8	1.2	3.8	1.6
Australia	1.3	1.0	1.8	2.5	1.7
Austria	1.2	0.9	3.1	1.5	1.7
United Kingdom	1.3	1.3	1.1	3.3	1.7
Hungary	1.2	1.8	2.2	2.0	1.8
Denmark	1.2	2.1	1.9	2.3	1.8
Estonia	1.5	1.4	1.6	3.0	1.9
Ireland	1.3	1.2	1.9	3.5	2.0
Colombia	1.3	1.6	2.0	3.0	2.0
New Zealand	2.3	0.4	2.3	3.3	2.1
Japan	0.8	0.9	2.8	3.9	2.1
Iceland	1.0	1.9	1.5	4.3	2.2
Slovenia	1.3	1.5	2.4	3.5	2.2
Germany	1.7	1.3	3.1	2.9	2.2
Lithuania	2.0	3.4	1.6	2.0	2.2
Norway	1.5	1.0	3.3	3.3	2.3
Slovak Republic	2.8	1.5	2.8	2.0	2.3
Korea	2.2	1.0	3.0	3.3	2.4
Finland	2.0	1.0	2.2	4.3	2.4
Poland	2.2	2.5	2.4	2.5	2.4
Mexico	1.8	1.7	3.7	2.5	2.4
Spain	1.8	2.1	2.0	3.8	2.4
France	1.5	2.4	2.6	3.3	2.4
Chile	1.8	2.5	3.0	2.5	2.5
Sweden	2.3	1.7	2.5	3.4	2.5
Luxembourg	2.1	2.2	1.7	4.0	2.5
Greece	1.2	1.2	3.8	4.0	2.5
Latvia	2.5	1.8	3.2	3.0	2.6
Italy	1.8	2.0	3.0	4.0	2.7
Belgium	1.8	3.0	2.1	4.0	2.7
Turkey	1.3	3.4	3.1	3.5	2.8
Netherlands	4.2	2.3	2.5	2.4	2.8
Portugal	2.3	1.7	4.2	3.3	2.9
Israel	2.5	2.9	2.5	3.8	2.9
Czech Republic	3.8	2.5	3.0	2.8	3.0

Note: Range of indicator scores: 0-6. The ten countries with the lowest and highest score are classified as countries with low and high regulatory protection. Scores are rounded to one decimal, while classification is done with the actual scores. The OECD Employment Protection Legislation indicator is the average of the scores for the four broad categories.
Source: *OECD Employment Protection Legislation Database*, http://oe.cd/epl.

Box 3.1. New design, new assessment: What is different with the new OECD indicators?

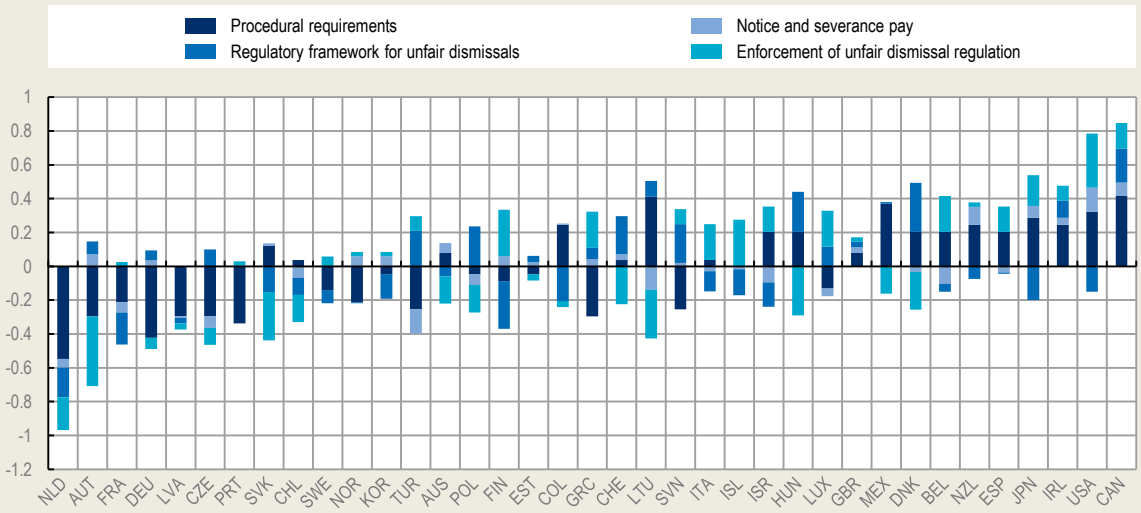
The main changes to the design of the OECD indicators for job dismissal regulations of regular workers are due to a substantive revision of the first category procedural requirements, the addition of the fourth category enforcement of unfair dismissal regulation and the expansion of the evaluation of employment protection regulation of collective dismissals. Each of the three aspects is important for improving the comparisons of countries in the new Version 4 relative to the previous Version 3. This box summarises the role of procedural requirements and enforcement of unfair dismissal regulation (Figure 3.6). Further details, also on the role of collective dismissals, can be found in Denk and Georgieff (forthcoming[62]).

Procedural requirements is the category with the largest influence on the differences between the two versions. Newly taking into account warning procedures and the obligation to consult the worker before the dismissal contributes to the higher scores for Québec (Canada) and Ireland. The need to notify a third party is now viewed as a constraint only when it involves a consultation or authorisation procedure, which is not always, or never, the case in Austria, France, Germany and Latvia. The alignment of the scoring scales for the time delay before notice and the length of the notice period is another explanation.

Two of the countries for which the addition of the enforcement category significantly lowers the scores are Austria and the Netherlands. In these countries, an advance validation of the dismissal acts as a preventive check, reducing the chances for the dismissal to be qualified as unfair, and terminations via mutual consent grant access to unemployment benefits under the same conditions as in the case of a dismissal. These aspects therefore enter the indicator with a minimum value for the two countries.

Figure 3.6. Changes in the assessed strictness of regulation of individual dismissals

Difference in the indicator score between the new Version 4 and the previous Version 3, 2019



Note: Range of indicator scores: 0-6. Countries are ordered based on the difference in the overall indicator score. A negative (positive) number means that regulation is evaluated to be less (more) strict with the new Version 4 than the previous Version 3. For further details, see Denk and Georgieff (forthcoming[62]), "The 2019 OECD Employment Protection Legislation indicators: New insights on job dismissal regulation in OECD countries", *OECD Social, Employment and Migration Working Papers*, OECD Publishing, Paris.
Source: OECD calculations based on *OECD Employment Protection Legislation Database*, http://oe.cd/epl.

StatLink https://stat.link/4l6xmo

Regulation of collective dismissals of regular workers

Periods of economic difficulty, due to for example a persistent decline in demand or required technological change, might lead firms to restructure their workforce, involving the dismissal of a large number of workers in relatively short time. It is common that specific regulations apply in these situations. Until the analysis in this chapter, the database considered such specific restrictions on collective dismissals only in selected dimensions of dismissal regulation and as a top-up to individual procedures. The new OECD data present, for the first time, employment protection legislation indicators for collective dismissals that are calculated analogously to the employment protection legislation indicators for individual dismissals. The section presents dedicated indicators for individual dismissals for economic reasons, as collective dismissals normally occur for economic reasons and the OECD indicators for individual dismissals described above reflect both dismissals for personal and economic reasons.

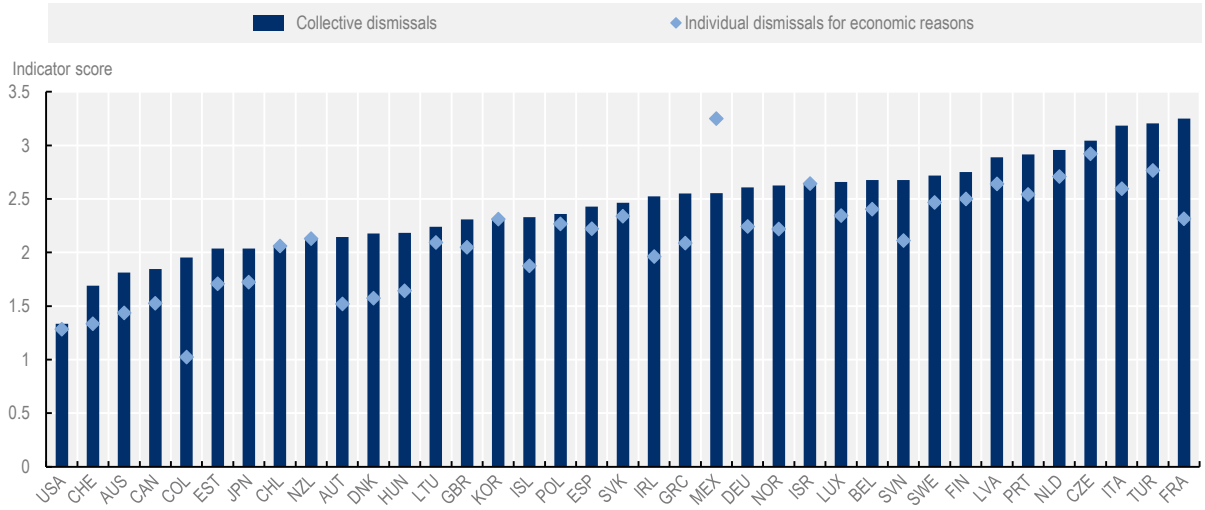
While important in its own right, a comprehensive assessment of regulation of collective dismissals has gained further relevance given developments over the past decade. In the wake of the global financial and economic crisis, the number of "zombie firms", i.e. firms with difficulty to meet their financial obligations, has increased (Andrews, Adalet McGowan and Millot, 2017[72]), potentially related with the regulation of collective dismissals. Moreover, the scope for firms in difficulty to adjust wages rather than the workforce has shrunk in the context of downward nominal wage rigidities, low inflation and weak nominal wage growth. Digitalisation and globalisation trends are also likely to make more firms restructure their workforce.

As mentioned in Section 3.2.1, the indicators define a dismissal as collective if several workers are laid off within one month, hence irrespective of whether specific regulations apply. More precisely, the indicators score the average of the values for 10, 45 and 120 dismissals in one month. In some countries specific regulations apply as of 10 dismissed workers or lower; in others they start only when the number of involved workers is greater. The dismissal threshold in all countries with specific regulations for collective dismissals is smaller than 120 workers. In this way, the indicators for collective dismissals reflect both the stringency of regulation, when several dismissals are subject to specific regulations, and the scope of the regulation, as captured by the dismissal threshold.

All OECD countries – with the five exceptions of Chile, Israel, Korea, Mexico and New Zealand – impose more stringent restrictions on collective dismissals relative to individual dismissals (Figure 3.7).[24] Chile, Israel, Korea and New Zealand regulate collective dismissals the same as individual dismissals; Mexico is a peculiar case, as legislation does not allow individual dismissals for economic reasons, only collective dismissals for economic reasons. Protection against collective dismissals is 10-15% higher than against individual dismissals in the OECD on average, mostly because of stricter procedural requirements before notice can be given – see Section 3.3.1 and Denk and Georgieff (forthcoming[62]). Countries' widespread use of specific restrictions on collective dismissals is likely to reflect the greater challenge for the economy of dealing with a collective dismissal. Nevertheless, pooling several individual layoffs in one collective dismissal can, in some cases, reduce the administrative burden of the firm.[25]

Figure 3.7. The OECD indicators: Strictness of regulation of collective dismissals (defined as dismissals of several regular workers in one month)

2019



Note: Range of indicator scores: 0-6. Individual dismissals refer to economic reasons, because collective dismissals are always for economic reasons. The indicators score the average of the values for 10, 45 and 120 dismissals within one month.
Source: OECD calculations based on *OECD Employment Protection Legislation Database*, http://oe.cd/epl.

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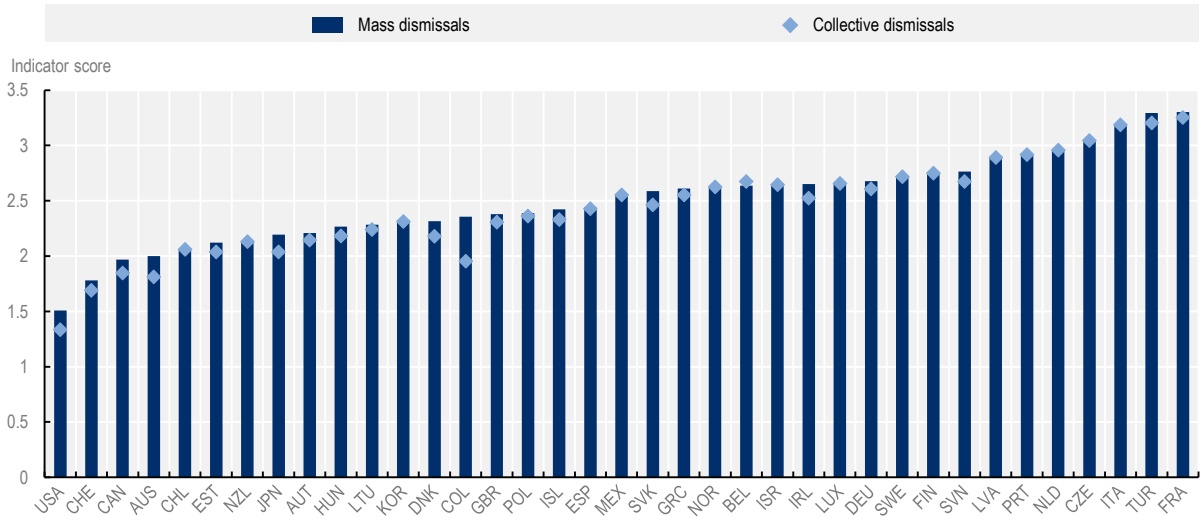
Where regulation of individual dismissals is strict, regulation of collective dismissals tends to be strict, as in practice regulation of individual dismissals often serves as a minimum for that of collective dismissals. Six of the ten countries with the lowest as well as highest regulation of individual dismissals are also among the ten countries with the lowest, respectively highest, regulation of collective dismissals. Across countries, additional restrictions on collective dismissals (the difference in regulation between collective and individual dismissals) are not significantly related with the strictness of regulation of individual dismissals. Therefore, the extent to which collective dismissals are subject to specific regulations appears to be more the choice of governments and countries, rather than a natural consequence of the regulation of individual dismissals.

An extreme form of collective dismissals are mass dismissals which the chapter defines as layoffs of at least 120 workers in one month. This definition ensures that the threshold for specific regulations applying to a series of individual dismissals is passed in all OECD countries with dedicated legislation for a series of individual dismissals. The measured degree of regulation is generally the same for mass dismissals as for smaller-scale layoffs with a number of dismissals that is above the threshold for specific regulations. Therefore, the higher is the threshold for specific regulations, and the more extensive are the additional restrictions on collective dismissals compared with individual dismissals, the greater is the difference between the indicator of regulatory strictness for mass dismissals relative to that for collective dismissals.

In one-third of OECD countries, the dismissal threshold for collective dismissals to be subject to specific regulations is (or is equivalent to) 10 or less workers in one month. In these countries, the regulation of mass dismissals is identical to the regulation of collective dismissals (Figure 3.8). The dismissal threshold is higher in some other countries, in particular in Australia, Colombia, Japan and the United States. This explains the comparatively high additional restrictions on mass dismissals in these countries.

Figure 3.8. Strictness of regulation of mass dismissals (defined as dismissals of at least 120 regular workers in one month)

2019



Note: Range of indicator scores: 0-6. The regulation of mass dismissals corresponds to the regulation of collective dismissals above the country-specific threshold for a series of individual dismissals to be subject to different legislation. The definition of at least 120 regular workers ensures that this threshold is passed in all countries with dedicated legislation for a series of individual dismissals.
Source: OECD calculations based on *OECD Employment Protection Legislation Database,* http://oe.cd/epl.

StatLink https://stat.link/lbgcwo

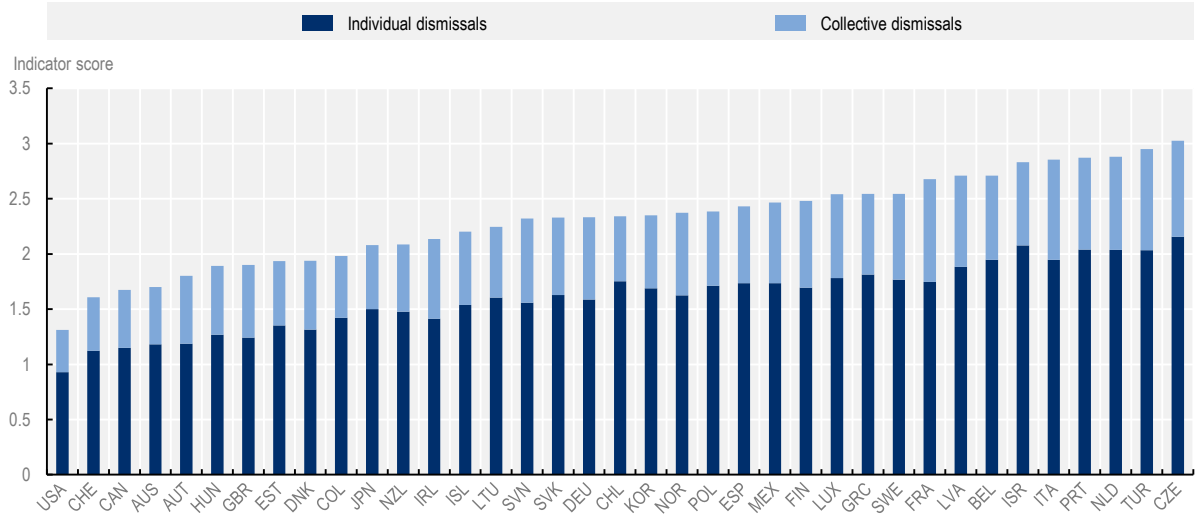
Overall regulation of dismissing regular workers

The stringency of overall regulation of individual and collective dismissals of regular workers, as assessed with the aggregate indicators, is similar to the regulation of individual dismissals and regulation of collective dismissals given their high correlation (Figure 3.9). Taking the indicators at face value suggests that dismissal regulation in the most regulated countries is close to twice as strict as in the least regulated countries.

The data bring out international differences in labour market and social models quite strongly. Three of the four countries with the least strict regulation are Anglo-Saxon: the United States, Canada and Australia. Geographically, OECD countries in North America and Australasia have regulation that is evaluated to be below the OECD average.[26] By contrast, regulation in the majority of the OECD countries that are also members of the European Union is above the OECD average. Four of the five countries with the highest regulation are EU countries: the Czech Republic, the Netherlands, Portugal and Italy. English-speaking countries combine low costs for firms with relatively few protective measures for workers, while dismissal costs and job security for regular workers are comparatively high in many EU countries.

Figure 3.9. The OECD indicators: Strictness of regulation of dismissing regular workers

Contributions of each component, 2019



Note: Range of indicator scores: 0-6. These aggregate indicators assign a weight of 5/7 to individual dismissals and 2/7 to collective dismissals.
Source: *OECD Employment Protection Legislation Database*, http://oe.cd/epl.

StatLink https://stat.link/v8jhd9

The role of collective bargaining and case law

Employment protection regulation is not based solely on the legislation, but it also depends on collective agreements and case law, and the indicators of employment protection legislation take this into account.

Collective agreements may influence dismissal protection for regular workers, for example by changing notice periods (e.g. in Australia, Austria, Denmark, France, Iceland, Italy, Sweden), the trial period (e.g. in Denmark, France, Hungary, Iceland, Italy, Sweden, Turkey), severance pay (e.g. in Australia, Denmark, France) or the criteria for selecting which workers to dismiss (e.g. in Finland, Norway, Sweden).[27] Box 3.2 examines in more detail the role of national and sectoral collective bargaining in France, Italy and Sweden, three countries where the share of workers covered by collective agreements is high. In some countries, firm-level collective agreements may derogate from the law or higher-level agreements, thereby reducing the binding effect of the regulation. This is, however, beyond the scope of the indicators.

Case law also matters for assessing aspects that are little or not addressed in the legislation, for example the freedom that judges have in their decisions or the legal value of the written statement on the reason for dismissal. Moreover, it can affect the interpretation of the legislation, as is the case for the transfer requirements and reinstatement options in Italy or the maximum delay to file a complaint for unfair dismissal in France.

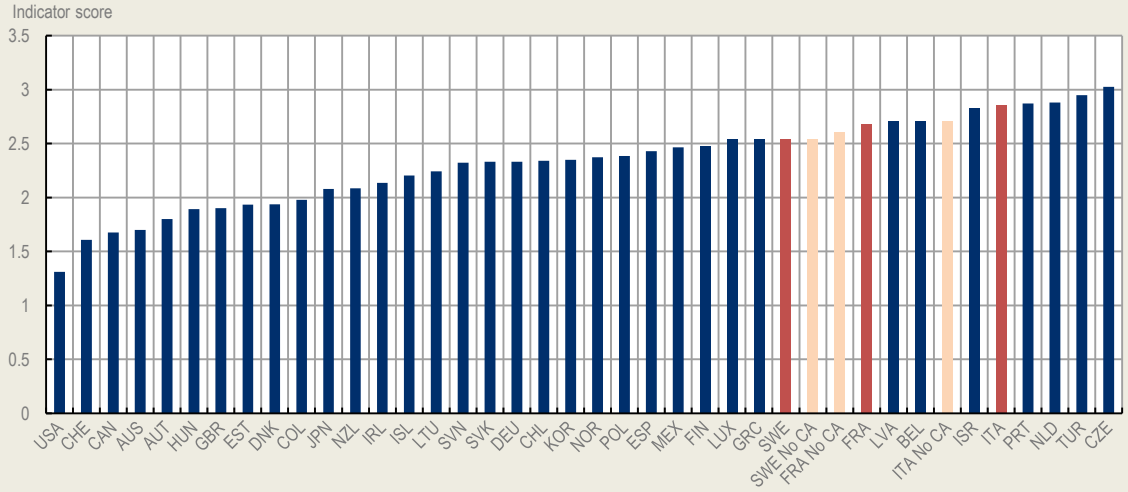
Box 3.2. Collective agreements and employment protection in France, Italy and Sweden

Collective agreements can affect job protection provisions, especially in countries with high collective bargaining coverage rates like France (99%), Italy (80%) or Sweden (90%). Collective agreements typically strengthen the standards of protection that are in the law, but sometimes they may also be allowed to "derogate", i.e. to set lower standards of protection.

The OECD indicators account for the rules in national and sectoral collective agreements. In France, sectoral agreements for managers and professionals (*cadres*) usually set longer notice periods and higher severance pay at long tenure. In Italy, sectoral agreements generally provide for shorter trial periods and longer notice periods. In Sweden, most sectoral agreements include exemptions to the "Last-In-First-Out" (LIFO) principle, according to which workers who were hired last are those to be dismissed first. In addition, collective agreements for white-collar workers frequently include a 55/10 provision (Söderqvist and Lindberg, 2019[73]): the notice period for workers aged 55 or older and with 10 or more years of tenure is 12 instead of 6 months. Taking account of collective agreements increases the job dismissal indicator for regular workers in France and Italy (Figure 3.10). In Sweden, the effect is small as the LIFO exemptions and the 55/10 provision influence protection in opposite directions.

Figure 3.10. How taking into account collective agreements affects job protection

Strictness of regulation for individual and collective dismissals of regular workers, 2019



Note: Range of indicator scores: 0-6. "No CA" refers to the hypothetical score when collective agreements are not taken into account.
Source: OECD calculations based on *OECD Employment Protection Legislation Database*, http://oe.cd/epl.

StatLink https://stat.link/46logn

The indicators do not capture a number of aspects of collective agreements due to limited coverage or the small size of the regulatory deviation involved. In France, many sectoral collective agreements for managers set longer trial periods, and derogations from several restrictions to the use of temporary employment are allowed (since 2017). In Italy, most collective agreements extend the length of the notification procedure. In Sweden, sectoral agreements for white-collar workers generally allow for an extended maximum duration for successive fixed-term contracts.

Small firm exemptions

All OECD indicators in this chapter focus on regulation as it applies to medium-sized and large firms, which generally employ most employees in OECD economies. For example, in 2013, firms with 20 employees or more employed 77% of all employees in Canada, 69% in Israel, 47% in Korea, 70% in Mexico, 73% in Turkey and 83% in the United States.[28] In some countries, however, small firms are subject to less strict regulation, which is beyond the scope of the indicators. In Australia, for example, firms with less than 15 employees do not have to pay redundancy pay. In Austria, firms with less than five employees are not required to have, and therefore to inform, a work council. In Germany, firms with 10 employees or less are exempt from dismissal regulation (except in cases of discriminatory and arbitrary dismissal). In Korea, firms with four employees or less are exempt from dismissal regulation, except regarding advance notice or equivalent compensation. In Portugal, in the event of an unfair dismissal, firms with less than 10 employees may submit a request to the court to oppose reinstatement. In Spain, in firms with 25 employees or less, the maximum duration of the trial period is three instead of two months (except for workers with a higher education degree) and the Wage Guarantee Fund pays part of the redundancy pay (except if the dismissal is deemed to be unfair). In Turkey, in the event of an unfair dismissal, firms with less than 30 employees do not have to reinstate workers or pay compensation and back-pay. A final example is the exemption from requirements for collective dismissals in firms with less than 20 workers in Belgium, the Czech Republic, Denmark, Germany, Hungary, Iceland, Switzerland and Turkey.

3.3.3. Regulation of hiring temporary workers

An important aspect of job protection regulations relates to the difference between regular and temporary workers. It is more difficult for firms to lay off (or not renew) regular than temporary workers (OECD, 2014[60]). To counteract potential overuse of temporary contracts by firms, governments usually impose restrictions on their use. As Section 3.2.2 described, the *OECD Employment Protection Legislation Database* therefore also gathers indicators on the regulation of hiring temporary workers. It distinguishes between regulation of fixed-term and temporary work agency contracts, attaching equal weight to the two.

OECD countries exhibit an even wider variation in the regulatory restrictions to hiring temporary workers, as measured by the indicators (Figure 3.11), than in the restrictions to dismissing regular workers. On average, higher regulation of the two types of temporary contracts tend to go hand in hand, although there are many idiosyncratic situations. The geographic pattern is similar to the one for the regulation of regular workers. All common-law OECD countries (Canada, the United States, the United Kingdom, New Zealand, Australia, Ireland and Israel) are at or near the bottom of the distribution of this type of regulation. Four of the five countries with the highest regulation are EU countries: Luxembourg, Italy, France and Spain.

Figure 3.11. The OECD indicators: Strictness of regulation of hiring temporary workers

2019



Note: Range of indicator scores: 0-6. These aggregate indicators assign the same weight to fixed-term contracts and temporary work agency contracts.
Source: *OECD Employment Protection Legislation Database*, http://oe.cd/epl.

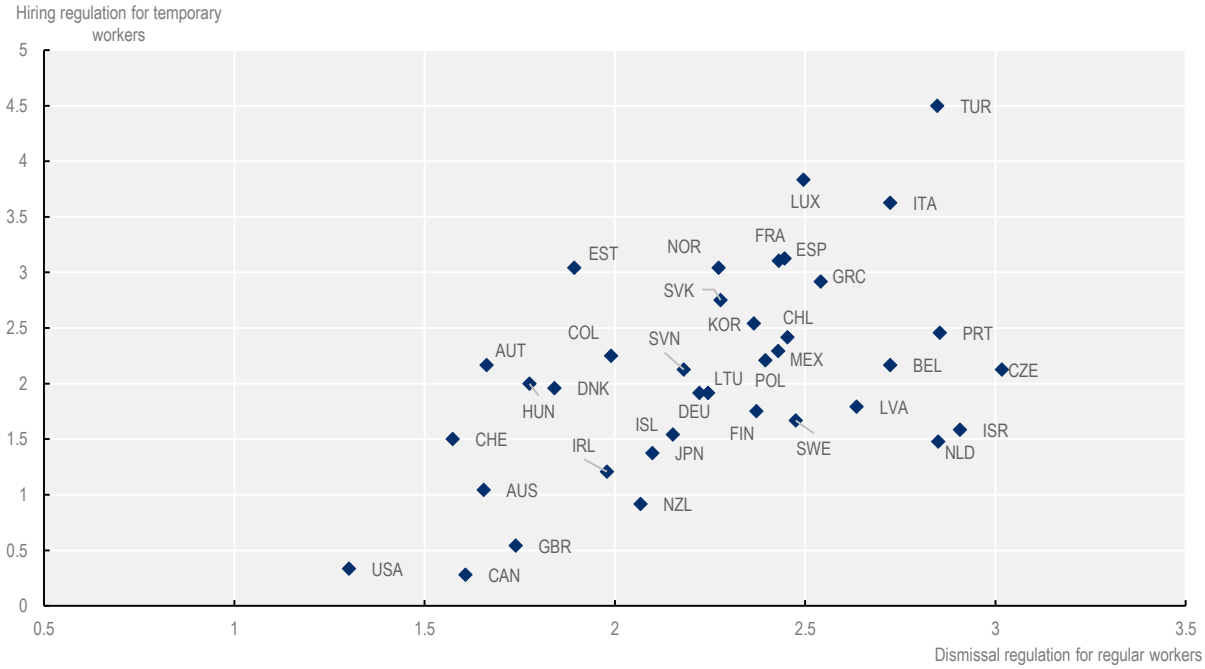
StatLink https://stat.link/botx04

The correlation between the two main indicators in the database – for dismissing regular workers and for hiring temporary workers – is highly positive (Figure 3.12). Countries with higher regulation on one tend to have higher regulation on the other. While this is generally the case, a small number of countries (including in particular the Czech Republic, Israel and the Netherlands) appear to step somewhat out of line. These are assessed to have relatively low regulation of temporary contracts given their high regulation of regular contracts.

The overall positive relationship between the regulation of regular and temporary contracts is likely to be the result of the differences in regulation of regular contracts together with policy makers' desire to restrain the use of temporary contracts. Where regular contracts are not much regulated, firms have few incentives to replace regular with temporary contracts; the need to restrict the use of temporary contracts is therefore not there. In countries with high regulation of dismissals of regular workers, strict regulation of temporary contracts can help avoid that these are over-used. As seen in the Netherlands, Portugal and Sweden for example (OECD, 2014[60]), relatively low regulation of temporary contracts in situations of high regulation of regular contracts can lead to strong, unintended labour market segmentation between highly protected regular workers and weakly protected temporary workers. Section 3.4 will shed further light on the extent to which recent reforms in job protection have gone in the direction of increasing or reducing the regulatory divide between regular and temporary workers.

Figure 3.12. Dismissal regulation for regular workers and hiring regulation for temporary workers are positively correlated

2019



Note: Range of indicator scores: 0-6. The indicator for dismissals of regular workers is for individual dismissals only, as the hiring indicator for temporary workers is also based on hiring one worker.
Source: *OECD Employment Protection Legislation Database*, http://oe.cd/epl.

StatLink https://stat.link/2w0ibc

3.4. Recent reforms in employment protection legislation

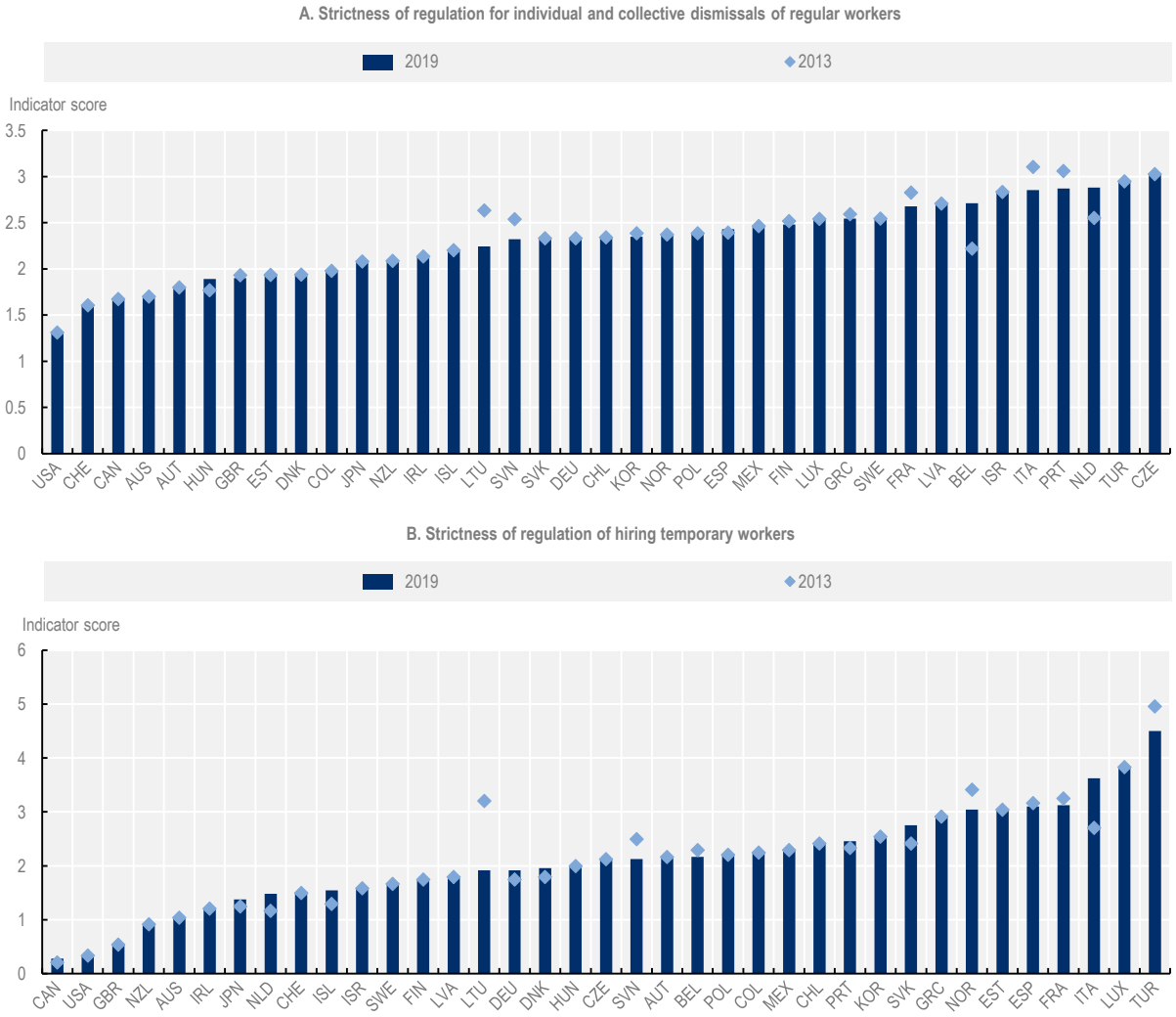
The focus of the analysis of employment protection reforms in this section is on the period between 2013, the year of the previous release of the OECD Employment Protection Legislation indicators, and 2019, the latest year in the database. This period follows the more immediate aftermath of the global financial crisis, during which a number of countries – including Greece, Portugal and several other EU countries – had eased strict dismissal regulations for regular workers to lower dualism in the labour market.

In the 2013-19 period, 21 OECD countries undertook at least one reform, as reflected in a change in the OECD indicator score for job dismissal regulation for regular workers or hiring regulation for temporary employment. The section focuses exclusively on those reforms that affected the indicators. It describes their main features and their impact on the assessed level of job protection, as measured by the indicators. Country-specific OECD reports describe some of the reforms in further detail (Carcillo et al., 2019[74]; OECD, 2018[75]).

These recent reforms can be classified into three categories. A first class of reforms went into the direction of reducing the restrictions to dismissing regular workers. Second, several countries changed restrictions on the use of temporary employment, in some instances to reduce labour market duality. A third group of countries (Belgium and the Netherlands) aimed to make regulation fairer and simpler by standardising the protection of regular workers against different types of dismissal. Among the reforming countries, those that relaxed dismissal regulations were more numerous than those which strengthened it, while a similar number of countries increased and decreased the stringency of hiring regulation for temporary workers.

Three figures provide the basis for the discussion in this section. Figure 3.13 depicts the changes in the regulatory indicator for individual and collective dismissals of regular workers and in the regulatory indicator for hiring temporary workers from 2013 to 2019. The following two figures, Figure 3.14 and Figure 3.15, decompose these changes in terms of the main dimensions of the regulation.

Figure 3.13. Quantifying recent reforms in employment protection legislation

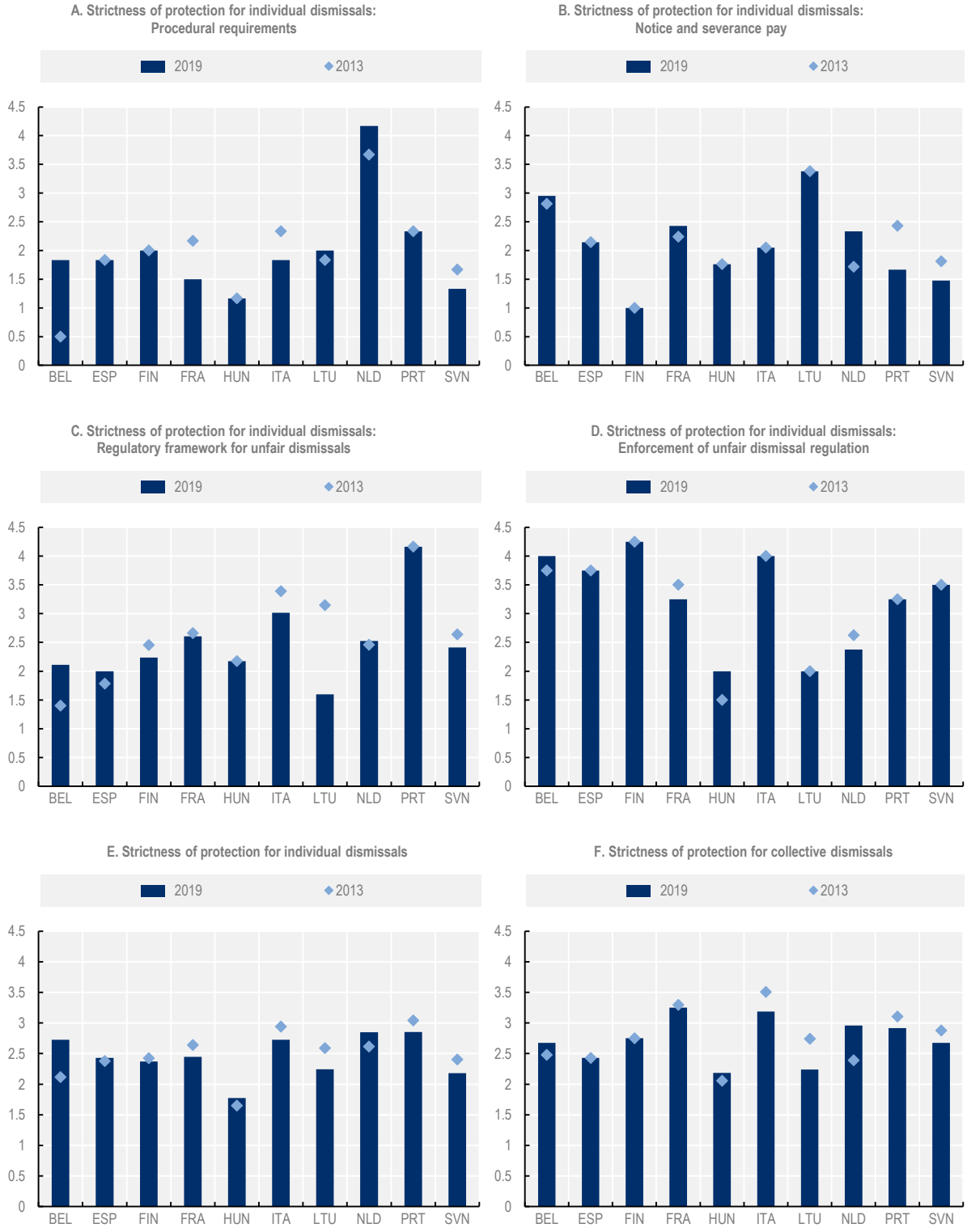


Note: Range of indicator scores: 0 to 6. Data for Colombia and Lithuania refer to 2014 instead of 2013.
Source: *OECD Employment Protection Legislation Database*, http://oe.cd/epl.

StatLink https://stat.link/ptrn4y

Figure 3.14. Regulatory changes of recent reforms of dismissal regulation for regular workers

Indicator score

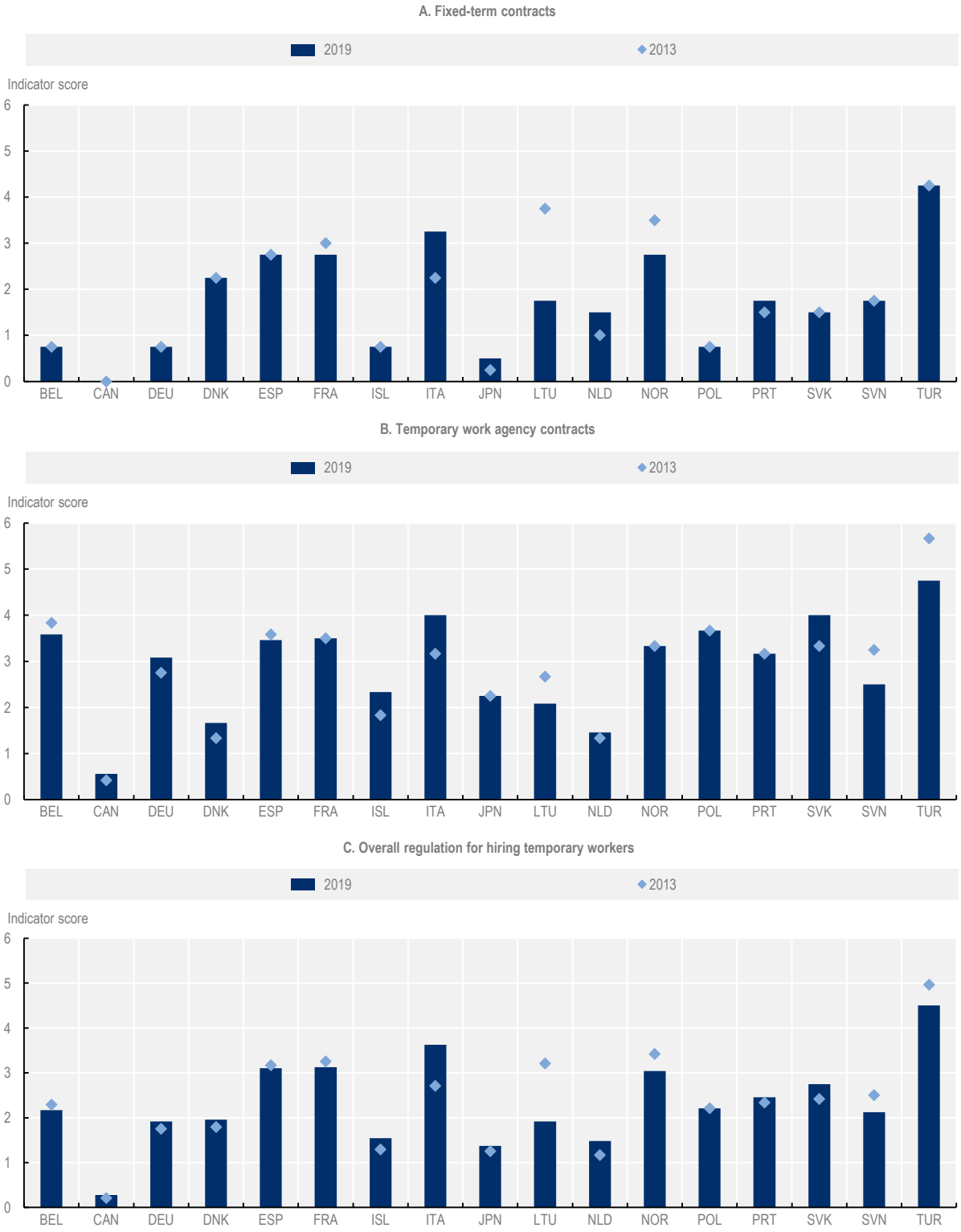


Note: Range of indicator scores: 0 to 6. All countries with changes in the indicator of protection for individual dismissals are displayed. Data for Lithuania refer to 2014 instead of 2013.

Source: *OECD Employment Protection Legislation Database*, http://oe.cd/epl.

StatLink https://stat.link/2i17w9

Figure 3.15. Regulatory changes in recent reforms of hiring regulation for temporary workers



Note: Range of indicator scores: 0 to 6. All countries with changes in the indicator of regulation for hiring temporary workers are displayed. Data for Lithuania refer to 2014 instead of 2013.
Source: *OECD Employment Protection Legislation Database*, http://oe.cd/epl.

StatLink https://stat.link/gdmq2o

3.4.1. Reforms that reduced the stringency of employment protection against dismissals

A number of countries implemented reforms aimed at easing dismissal regulations, sometimes at the same time as they eased restrictions on the use of temporary employment. Major reforms (or sets of reforms), involving several aspects of regulation, took place in France, Italy, Lithuania and Slovenia. Four other OECD countries enacted more specific relaxations of regulations concerning dismissals of regular workers, with notable effects on the job protection indicators.

Successive reforms in France

Between June 2013 and December 2017, France enacted a number of reforms that reduced the stringency of job dismissal regulation. Among the main measures adopted, the August 2016 Labour law clarified the definition of fair economic reasons for dismissals. A substantial reduction (larger than a specified threshold) in at least one of several economic indicators listed in the law, such as orders or turnover, must now be considered as fair by the court, while economic difficulties and technological changes can still be invoked even if the reduction does not reach the threshold (as before the reform). Subsequently, in the second half of 2017, the *Ordonnances* established a schedule for compensation following an unfair dismissal and introduced a formalised scheme of collective termination by mutual agreement (*rupture conventionnelle collective*). They also clarified the definition of procedural irregularity, which is far less penalised than unfair dismissals. In particular, an irregular notification of the reason for the dismissal in the dismissal letter is no longer sufficient to make the dismissal unfair. In addition, the maximum period to challenge a dismissal in court successively decreased from five years in 2013 to 12 months in 2018. With regard to collective dismissals specifically, the June 2013 *Loi relative à la sécurisation de l'emploi* limited the risk of a dismissal being classed as unfair by requiring a validation of the social plan by the administration before the dismissal (in firms with more than 50 employees), although this came at the cost of making the notification procedure more complex.

Overall, the reforms moderately affected employment protection for regular workers, as measured by the aggregate indicator (see Figure 3.13, Panel A). The reduction is mostly due to the lesser legal value of the reason stated in the dismissal letter, which considerably simplified the notification procedure in the event of an individual dismissal. In addition, the shortening of the period during which an employee can file a complaint to enforce unfair dismissal regulation plays a role as well (see Figure 3.14, Panels A and D).[29] The previous Version 3 of the OECD indicators did not capture the legal value of the dismissal letter for regular workers. Hence, France is a good example for how the new Version 4 better captures reforms of dismissal regulation. Box 3.3 below provides further information on these improvements.

The Jobs Act and the elimination of the mobility allowance in Italy

The March 2015 Jobs Act in Italy considerably reduced employment protection for regular workers against individual dismissals. One of the major measures of the Jobs Act was to eliminate the possibility of reinstatement (in firms with more than 15 employees) in case of individual dismissals for economic reasons and most collective dismissals, as well as in some cases of dismissals for personal reasons.[30] The Act also replaced the mandatory conciliation phase that was to take place before all individual dismissals for economic reasons, and before a dismissal for personal reasons if the employee requested it, with an ex-post conciliation procedure. These two changes significantly reduced the job protection indicator for regular workers (see Figure 3.13, Panel A), by limiting the consequences of both unfair individual and collective dismissals, and by simplifying the individual dismissal procedure (see Figure 3.14, Panels A, C and F).

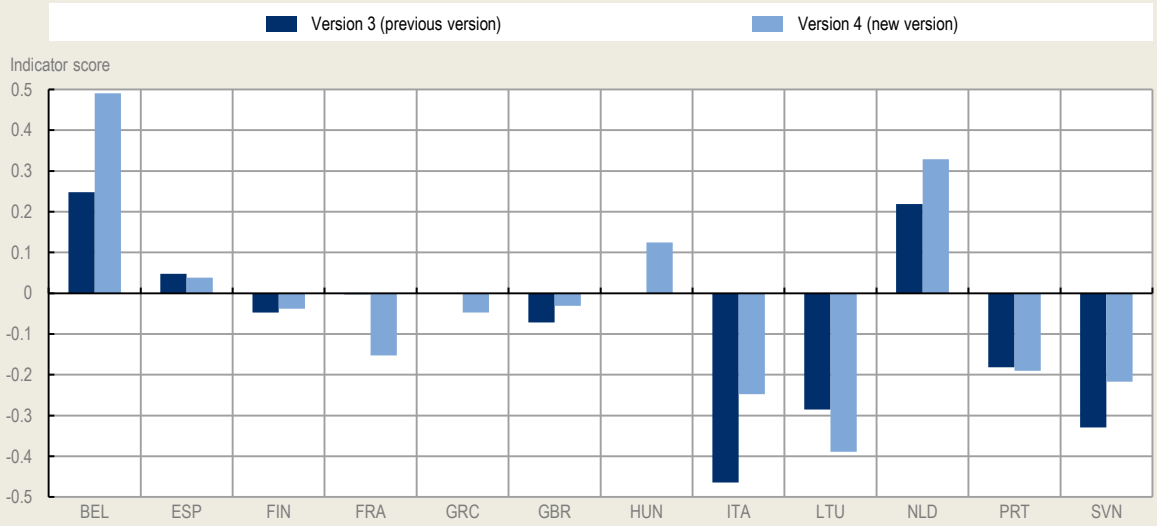
Box 3.3. How the new version of the indicators helps capture reforms of dismissal regulations

A comparison of the changes from 2013 to 2019 in the aggregate dismissal indicator for regular workers between the previous Version 3 and the new Version 4 shows how the new version allows to capture regulatory changes that were not (or very little) captured by the previous version (Figure 3.16).

This is especially the case for France, Greece and Hungary.[31] The more detailed assessment reflects the revision of existing, and the addition of new, items in a way that takes into account the legal value of the reason stated in the dismissal letter (for France), the authorisation requirements for collective dismissals (Greece) and the burden of proof in an unfair dismissal case (Hungary). Also, the changes in the indicator resulting from the reforms in Belgium, Lithuania and the Netherlands are considerably amplified in Version 4 with respect to those due to other reforms. For Belgium, Version 4 captures the shift of the burden of proof, which Version 3 does not. For Lithuania, the new labour code affected collective dismissal regulation in about the same way as individual dismissal regulation and hence is reflected in the new indicator for collective dismissal, while Version 3 only reflects collective dismissals to the extent that they represent additional restrictions relative to individual dismissals. For the same reason, Version 3 does not capture the extension of individual severance pay to collective dismissals in the Netherlands. By contrast, the Italian and Slovenian reforms are relatively less marked in Version 4 than Version 3. This is because the involvement of a third party in the notification procedure (for Italy) and transfer requirements (for Slovenia) matter less, as these are now part of a broader range of factors accounting for procedural requirements and unfair dismissal regulation.

Figure 3.16. The new version of the indicators tends to better capture reforms of dismissal regulations

Strictness of regulation for individual and collective dismissals of regular workers, change from 2013 to 2019



Note: Range of indicator values: 0 to 6. All countries with changes in the indicator of protection for individual and collective dismissals are displayed. Data for Lithuania refer to 2014 instead of 2013.
Source: *OECD Employment Protection Legislation Database*, http://oe.cd/epl.

StatLink https://stat.link/ahubcy

The decline in the indicator for collective dismissals (see Figure 3.14, Panel F) is not only due to the Jobs Act, but also, and more significantly, to an earlier reform of severance pay that came into force only in 2017. Before then, in the event of a collective dismissal, an employee with at least 12 months of job tenure was entitled to a "mobility allowance", replacing unemployment benefits, and the employer had to pay a contribution to this allowance that amounted to two to seven months of salary.[32] The suppression of this allowance, starting from January 2017, implies that the employer now needs to pay merely the same contribution as for individual dismissals, i.e. usually less than one month of pay.

The new labour code in Lithuania

In Lithuania, the new labour code, which entered into force in July 2017, provides more flexibility to employers, regarding both the dismissal of regular workers and the use of temporary forms of employment.

The reform reduced notice period and severance pay and made reinstatement subject to approval by the employer, although a specific compensation (capped at six months of wages) needs to be awarded if there is no reinstatement. In addition, the new labour code includes a special procedure for dismissals at the will of the employer, in which an employee can be dismissed for any reason at very short notice (three days) and high severance pay (six months of wage*).* This new procedure, together with the elimination of reinstatement obligations, significantly reduced the employment protection indicator for regular workers (see Figure 3.13, Panel A), by restricting both the definition and the consequences of an unfair dismissal (see Figure 3.14, Panel C).[33]

The new labour code also made the use of temporary employment easier. All restrictions on valid cases for the use of fixed-term contracts were lifted, provided that they do not account for more than 20% of all employment contracts. There are no limits on the number of successive fixed-term contracts, although they can only be used for a maximum of two years for a given employee in the same function and five years in different functions. As a result of these relaxations, Lithuania is the country with the largest decline in the indicator for temporary employment from 2013 to 2019 (see Figure 3.13, Panel B).

The new Employment Relation Act in Slovenia

In Slovenia, the new Employment Relation Act came into force in April 2013, with significant reductions in the protection of regular workers against dismissal and more flexible rules on the use of temporary work agency employment.

Following this reform, opposition by a trade union can no longer inhibit the dismissal procedure, notice period and severance pay are now lower, and a dismissal can be qualified as fair even when the employer did not attempt to retrain or transfer the worker to another position. These three aspects of the reform affected the indicator for regular employment (see Figure 3.14, Panels A, B and C), and the overall impact on the protection of regular workers is quite large (see Figure 3.13, Panel A).

Regarding the regulation of temporary contracts, the same Act waived the 12 months duration limit of successive temporary work agency assignments and the requirement for temporary work agencies to provide annual reports. At the same time, the Act established that temporary work agency employment can no longer exceed 25% of employment at the user firm. The impact of these changes on the indicator for temporary employment is negative and moderate overall (see Figure 3.13, Panel B).

Reforms in other countries

Based on the indicators, four other countries softened employment protection for regular workers, without changing restrictions on the use of temporary employment. Finland extended the trial period from four to six months in January 2017. In Greece, collective dismissals can take place without the approval of the administration since 2017. In Portugal, two acts of August 2013 reduced severance pay from 20 days to 12 days per year of tenure and created a "compensation fund" to help finance it.[34] In 2013, the

United Kingdom halved the minimum period between notification to the administration and a collective dismissal from 90 to 45 days.

The regulatory changes in Finland, Greece and the United Kingdom, which were either small or limited to collective dismissals, do not change the assessed overall level of employment protection much. The impact of the Portuguese reforms to severance pay and its financing is of similar magnitude to that of the major reforms in France, Italy, Lithuania and Slovenia (see Figure 3.13, Panel A).

The large majority of countries among those reforming dismissal regulations for regular workers reduced their stringency. Hungary and Spain are the only two countries that made dismissal regulations more stringent (see Figure 3.13, Panel A), besides Belgium and the Netherlands (see Section 3.4.3) where the increase in regulatory stringency came more as a by-product of standardising protection against different types of dismissals. In Hungary, the new code of civil procedure that entered into force in January 2018 shifted the burden of proof on the employer in labour law cases.[35] In Spain, employers can since January 2019 no longer hire under a "Permanent Employment Contract to Support Entrepreneurs". These contracts were restricted to firms with less than 50 workers and included a trial period of one year instead of four months.[36] The changes to dismissal regulations in Greece and Hungary are reflected in the new and finer Version 4 indicators, whereas the previous Version 3 would have shown no change (see Box 3.3).

Exceptional measures in the COVID-19 crisis

The evaluation of employment protection legislation in this chapter is particularly pertinent given the current COVID-19 health and economic crisis which has severely increased the dismissal risk for many employees in the private sector. Job dismissal protection, when coupled with effective short-time work schemes, has likely preserved jobs in countries badly affected by the crisis.[37] As Box 3.4 details, a few EU countries have further strengthened job dismissal protection in the crisis. The policy priorities in the area of employment protection over the coming months will depend on the evolution of the pandemic, restrictions to economic activity and developments in the labour market. They will likely require a shift from the immediate need to help preserve existing jobs and incomes to increasing support for firm-to-firm worker mobility, also in light of the structural changes in the labour market that the crisis is bringing (for example increased demand of workers for health care and online and delivery services).

3.4.2. Reforms of hiring regulation for temporary workers

In Lithuania and Slovenia, as discussed, one component of a broader labour market reform was to facilitate temporary employment. Five other countries undertook specific reforms to reduce restrictions on the use of temporary employment, with corresponding effects on the indicator. By contrast, reforms in several countries imposed additional restrictions on temporary contracts. Four countries introduced a maximum cumulated duration for successive contracts or assignments, while Italy and, to a lesser extent, Denmark implemented restrictions on the valid cases for use of these forms of employment.

Reforms that focused on facilitating temporary employment

In France, contracting on temporary employment was made easier in August 2015 with an increase in the maximum number of successive fixed-term contracts from two to three, which is reflected in the corresponding decline in the indicator for temporary contracts (see Figure 3.13, Panel B). The possibility for collective agreements to derogate from restrictions to the use of temporary employment, introduced by the 2017 *Ordonnances*, may further facilitate the use of temporary contracts in the future, as new agreements are signed and extended.

Box 3.4. Exceptional measures in job dismissal regulations during the COVID-19 crisis

The COVID-19 health and economic crisis has drastically reduced economic activity and put many firms in financial difficulty. It has hence severely increased the risk for many private-sector employees to be dismissed based on economic grounds. The crisis has heightened the risk to be dismissed for personal reasons as well, especially for workers who have difficulties maintaining high work performance in the face of increased care responsibilities (for example because they have families with a sick household member or young children whose schools are closed). To a certain degree, differences in labour market developments between countries reflect the stronger protection of employees in the European Union where, up to this point, employment has been resilient and the increase in unemployment mild (see Chapter 1).

Several countries in the European Union have further strengthened job dismissal protection during the COVID-19 crisis. Four EU countries (France, Greece, Italy and Spain) have taken significant, time-limited action to discourage economic redundancies, favouring the continuation of existing employment relationships. Two EU countries (again Italy and the Slovak Republic) have strengthened protection of employees against personal dismissals. The remainder of the box gives an overview of these measures.

France announced increased scrutiny of collective dismissals for economic reasons by the authorities as part of the notification procedure in firms with more than 50 employees. Firms are allowed to dismiss employees, if they can show that they were already in economic difficulty before the COVID-19 crisis and if they predict to be unable to restart part of their activity in the next six months. Economic dismissals related to the COVID-19 crisis are, in principle, only allowed when a firm ceases its activity or based on other, rather tightly defined economic considerations. Another objective has been to relax restrictions relating to the renewal or prolongation of fixed-term contracts.

Greece prohibited dismissals of employees in firms that have suspended their operations because of the lockdown measures. However, employers who are significantly affected by the COVID-19 crisis may suspend the contracts of their employees for up to one month. Upon expiry of the suspension of the contracts, companies must maintain the same number of employees for a period equal to that of the suspension.

Italy blocked individual and collective dismissals for economic reasons for the first two months of the crisis. The ban applies to layoffs on grounds connected to the reduction or transformation of activities, reorganisation of work or business closure. In addition, Italy limited the scope for dismissals for personal reasons. The absence from the workplace of parents of a child with a disability and of parents with a child aged between 12 and 16 cannot constitute a just cause for contract termination, provided that the employees communicated these reasons of absence to their employer.

Spain adopted the requirement that dismissals for reasons connected to the COVID-19 pandemic need to be reviewed by a judge and will be qualified as either null or inadmissible. If the dismissal is judged as null, the employee will be reinstated to the position. If the dismissal is seen as inadmissible, the employee receives a compensation of 33 days of pay per year of tenure (in addition to the statutory severance pay), as in any other case of unfair dismissal. In addition, Spain prolonged the duration of fixed-term contracts that expire during the health emergency.

The Slovak Republic strengthened the protection of workers against personal dismissals. The measure considers employees with a personal obstacle to working, such as caring for a sick family member or a young child due to school closure, as temporarily unfit for work, thereby protecting them from dismissal for the duration of their inability to work. The same provisions apply when the employee is subject to quarantine or isolation.

Four other countries lowered the restrictions for firms to hire temporary workers. In Norway, since July 2015, firms can use fixed-term contracts without restrictions on the reasons for their use for at most 12 months and within the limit of 15% of their workforce. Turkey, where temporary work agency employment was prohibited, introduced this form of work in 2016 in specific industries and for specific reasons. Belgium and Spain in 2013 extended the use of temporary work agency employment. The reforms in Norway and Turkey significantly reduced the restrictions to temporary employment, as reflected by the indicator, while Belgium and Spain experienced only a small decline in the assessed degree of restriction for temporary employment (see Figure 3.13, Panel B).

Reforms that increased restrictions to temporary employment

A number of countries introduced a legal limit for the cumulated duration of fixed-term contracts or temporary work agency assignments: Poland with 33 months for fixed-term contracts (February 2016), Germany with 18 months for temporary work agency assignments (April 2017) and the Slovak Republic with 24 months for temporary work agency assignments (March 2015). In Japan, the 2013 revision of the Labour Contract Act made it possible for workers who have had a fixed-term contract for at least five years to have their contract converted into a permanent one. These changes resulted in small, but nevertheless noticeable increases in the indicator (see Figure 3.13, Panel B).[38]

In Italy, reforms first reduced, but later increased restrictions to temporary employment. The March 2014 Poletti decree abolished the obligation to provide a rationale when using fixed-term contracts and allowed for five successive renewals (so long as these contracts do not exceed 20% of the number of permanent contracts in firms with more than five workers). The decree also allowed the use of temporary work agency contracts with no justification. However, the reform of July 2018 restored, and even reinforced, the obligation to provide a rationale when using a fixed-term contract for more than 12 months. Possible extensions (up to three) for a maximum duration of 24 months are allowed for temporary and objective needs or to replace some workers. The use of temporary work agency assignments was restricted to the same reasons and maximum duration. These policy changes explain why, of all countries, Italy exhibits the largest increase in restrictions to temporary employment during 2013-19 (see Figure 3.13, Panel B). Restrictions on the use of both fixed-term and temporary work agency contracts explain this increase (see Figure 3.15, Panels A and B).

Denmark implemented similar restrictions in July 2013 by conditioning temporary employment on objective reasons. However, this reform focused only on renewals of temporary work agency assignments and therefore resulted in a small increase in the indicator (see Figure 3.13, Panel B).

3.4.3. Reforms that standardised protection against different types of dismissal

Belgium and the Netherlands undertook significant employment protection reforms to standardise regulation, either across workers with different employment status (blue-collar and white-collar workers in Belgium) or across different types of dismissal (via the Public Employment Service or the Labour Court in the Netherlands).

The single status in Belgium

The January 2014 reform in Belgium introduced a single status to abolish regulatory differences between blue-collar and white-collar workers, which the Constitutional Court considered discriminatory and therefore unconstitutional.

The reform harmonised the time length of the period before the dismissal takes effect (delay before notice and notice period) and severance pay, resulting overall in an increase in protection for blue-collar workers and a decrease for white-collar workers. The reform also standardised the definition of an individual unfair dismissal and the course and consequences of the associated unfair dismissal procedure. In particular,

the burden of the proof is always shared between the parties (it was previously with the employee for cases involving white-collar workers), and the compensation granted in the event of unfair dismissal was aligned with the lower compensation previously granted to white-collar workers. In addition, the reason for the dismissal now needs to be provided upon the request of the employee. The reform also abolished the trial period and expanded the use of outplacement regimes (i.e. services provided by the employer to help dismissed workers find a new job) following an individual dismissal, previously restricted to older workers. As of December 2016, the newly created "Reintegration programme" has continued the trend towards more protection, by ensuring that workers with long-term medical incapacity are transferred to suitable jobs.

These regulatory changes considerably increased the strictness of dismissal rules, as measured by the indicators (see Figure 3.13, Panel A). This mainly reflects the new obligation to provide a reason for dismissal in the notification procedure, as well as the elimination of the trial period within which workers were not protected by unfair dismissal law. The partial shift of the burden of the proof towards the employer in unfair dismissal cases concerning white-collar workers played a role as well (see Figure 3.14, Panels A, C and D).

The Work and Security Act in the Netherlands

The Work and Security Act in the Netherlands comprised several labour market reforms to simplify the dismissal law. Since July 2015, employers can no longer choose the procedure for dismissal (via the Public Employment Service or the Sub-district Court); it is now determined by the reason for the termination (the Public Employment Service deals with dismissals for economic reasons or long-term disability). In addition, these two procedures were made more comparable: the notice period was extended to termination via the Sub-district Court and severance pay (the "transition allowance") to termination via the Public Employment Service, including for collective dismissals.

The extension of the notice period and severance pay to all dismissal procedures, and of severance pay to collective dismissals, explains most of the notable increase in the indicator for regular workers (see Figure 3.13, Panel A and Figure 3.14, Panels A, B, E and F).[39] The Work and Security Act also increased restrictions to temporary employment by lowering the maximum duration of successive fixed-term contracts from three to two years, slightly increasing the indicator for temporary workers (Figure 3.13, Panel B).

Employment protection reforms and labour market duality

Employment protection reforms can reduce labour market duality between secure and precarious jobs by lowering the opportunities and incentives for firms to replace regular with temporary contracts. This is the case for example for reforms that restrict the valid cases for use of temporary employment as in Italy 2018. Policy action to reduce labour market duality goes beyond restrictions on the use of temporary employment. In particular, it frequently involves aligning social contributions and working conditions between temporary and regular contracts. Such changes are largely beyond the scope of the indicators.[40] For instance, Slovenia's new Employment Relation Act introduced severance pay and additional social security contributions for fixed-term contracts. Another example is from the Netherlands, where the Balanced Labour Market Act, which entered into force in January 2020, increased the employer's unemployment insurance contribution rate for fixed-term contracts.[41]

3.5. Concluding remarks

Employment protection legislation is a widely debated policy and, as this chapter has shown, governments in OECD countries continuously adapt regulations in this field. During the 2013-19 period, 21 of the 37 OECD countries undertook one or several reforms in employment protection that are reflected in changes in the OECD Employment Protection Legislation indicators. Dismissal and hiring policies involve an inherent trade-off between job security for workers who have a job and firm adaptability to changes in demand conditions or technology. By comparing employment protection legislation in OECD countries, the chapter sheds light on the relative importance that different systems attach to these twin aspirations. The descriptive evidence in the chapter and the new indicators in the *OECD Employment Protection Legislation Database* can be used as tools to further analyse what design of employment protection may be better than others.[42]

The chapter gives a detailed description of dismissal regulations for regular workers and hiring regulations for temporary workers in OECD countries, issues that are of particular relevance in the current environment of high dismissal risk and low hiring chances. Subsequent work will look in greater depth at the regulations applying to dismissals of workers on fixed-term contracts and expirations of these contracts, examine the fate of temporary workers during the COVID-19 crisis and extend the update of the *OECD Employment Protection Legislation Database* to several non-OECD countries. With greater country coverage and better comparisons of employment protection of regular workers, employment protection of temporary workers and the differences between the two, the aspiration is to make this work the most useful for policy makers and citizens as they decide on how they would like to shape job protection provisions in the future.

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Annex 3.A. Methodology

Annex Table 3.A.1. Structure of Version 4 of the OECD EPL indicators for dismissing regular workers

Item	Version 4 values and description		Assigned score						
			0	1	2	3	4	5	6
Procedural inconvenience before notice can be given									
Item 1: Notification procedures	0	An oral statement is enough, or a written statement without reason for the dismissal to the employee is required.*	Multiply by (6/4.5), so that the score lies between 0 and 6.						
	1	A statement of the reason for the dismissal to the employee in writing or to a third party is required.*							
	2	A written statement sets the limits of disputes on the reason for the dismissal once for all (given the information available at the time of writing).*							
	3	A consultation of or an inspection by a third party is required.							
	4	An authorisation from a third party is required.							
	Add +0.5 if a warning procedure (i.e. a series of discussions with the employee on the issues) is required in the event of a personal dismissal. * Add +0.5 if an additional consultation of the employee only is required (+0.25 for personal reasons only, +0.25 for economic reasons only).								
Item 2: Time delay before notice can be given	Months Estimated time includes, where relevant, the following assumptions: six days are counted in case of a required warning procedure, one day when dismissal can be notified orally or the notice can be directly handed to the employee, two days when a letter needs to be sent by mail and three days when this must be a registered letter.		0	≤ 0.75	≤ 1.25	< 2	< 2.5	< 3.5	≥ 3.5
Notice and severance pay									
Item 3: Length of notice period	9 months tenure	Months	0	≤ 0.4	≤ 0.8	≤ 1.2	< 1.6	< 2	≥ 2
	4 years tenure	Months	0	≤ 0.75	≤ 1.25	< 2	< 2.5	< 3.5	≥ 3.5
	20 years tenure	Months	< 1	≤ 2.75	< 5	< 7	< 9	< 11	≥ 11
Item 4: Amount of severance pay	9 months tenure	Months pay	0	≤ 0.5	≤ 1	≤ 1.75	≤ 2.5	< 3	≥ 3
	4 years tenure	Months pay	0	≤ 0.5	≤ 1	≤ 2	≤ 3	< 4	≥ 4
	20 years tenure	Months pay	0	≤ 3	≤ 6	≤ 10	≤ 12	≤ 18	> 18

Item	Version 4 values and description		Assigned score						
			0	1	2	3	4	5	6
Regulatory framework for unfair dismissals									
Item 5: Definition of unfair dismissal	Individual dismissals: weighted average of Items 5a, 5b, 5c and 5d, with the following weights to ensure equal weight for dismissals for economic reasons and dismissals for personal reasons: 5a: (1/2)*(1/3) 5b: (1/2)*(1/3) 5c: (1/2)*(1/3) 5d: 1/2. Collective dismissals (only for economic reasons): weighted average of Items 5a, 5b and 5c, with equal weights (1/3 each).								
Item 5a: Dismissal for economic reasons: Degrees of freedom of the judges	0	No justification is required, or any justification is fair.	Multiply by 2, so that the score lies between 0 and 6.						
	1	The judges can only question patently irrational decisions or false reasons.							
	2	The judges can question the operational need of the dismissal decision.							
	3	Economic reasons are not a valid justification.							
Item 5b: Dismissal for economic reasons: Specific alternatives to the dismissal and binding obligations in the event of a dismissal	0 1 2 3 4 5	+1 for each of the following alternatives/obligations: - Transfer - Retraining - Outplacement services and training - Priority for re-hiring and/or no fixed-term contract on a similar job - Social plan (even if it includes some of the above obligations).	See previous column.						
	6	Economic reasons are not a valid justification.							
Item 5c: Dismissal for economic reasons: Selection criteria	0	No worker selection criteria or only performance criteria.	Multiply by 3, so that the score lies between 0 and 6.						
	1	Objective selection criteria other than performance.							
	2	Economic reasons are not a valid justification.							
Item 5d: Dismissal for personal reasons: Fair reasons for dismissal *NA for collective dismissals*	0	No justification is required, or any justification is fair.	Multiply by (6/4), so that the score lies between 0 and 6.						
	1	i) Insufficient performance, ii) unsuitability for medical reasons and iii) unsuitability due to insufficient skills/qualifications are fair reasons for dismissal.							
	2	One reason among these three cannot be a ground for a dismissal.							
	3	Two reasons among these three cannot be grounds for a dismissal.							
	4	These three reasons cannot be grounds for a dismissal.							
	Add +0.25 per fair reason (among the three mentioned under value 1 for which constraining alternatives to dismissal (such as transfer or retraining) must be attempted.								

Item	Version 4 values and description		Assigned score						
			0	1	2	3	4	5	6
Item 6: Length of trial period *NA for collective dismissals*	Months It is defined as the period within which regular contracts are not fully covered by employment protection provisions and unfair dismissal claims usually cannot be made.		≥ 24	> 12	> 9	> 5	> 2.5	≥ 1.5	< 1.5
			Add +1 to the score when notice period plus equivalent compensation just before the end of the trial period is at least two weeks. Add +1 to the score when no trial period. Multiply by (6/7), so that the score lies between 0 and 6.						
Item 7: Compensation for the employee following an unfair dismissal	Compensation in months pay Typical compensation at 20 years of tenure, including back pay and other compensation, but excluding ordinary severance pay.		≤ 3	≤ 8	≤ 12	≤ 18	≤ 24	≤ 30	> 30
Item 8: Possibility of reinstatement following an unfair dismissal	0	No right or practice of reinstatement.	Multiply by 2, so that the score lies between 0 and 6.						
	1	Reinstatement rarely or sometimes made available.							
	2	Reinstatement fairly often made available.							
	3	Reinstatement (almost) always made available.							
Enforcement of unfair dismissal regulation									
Item 9: Maximum time to make a claim of unfair dismissal	Duration in months Maximum time period after the contract termination date up to which an unfair dismissal claim can be made.		Before dismissal takes effect	≤ 1	≤ 3	≤ 6	≤ 9	≤ 12	> 12
New Item 22: Burden of proof when the employee files a complaint for unfair dismissal	Does the burden of proof lie with the employee only?		-	-	Yes	-	No	-	-
New Item 23: Ex-ante validation of the dismissal	Does an ex-ante validation of the dismissal (e.g. by an external authority) limit the scope of (or prevent entirely) unfair dismissal complaints?		-	-	Yes	-	No	-	-
New Item 24: Pre-termination resolution mechanisms granting unemployment benefits	0	Resignation or some form of mutual consent gives access to unemployment benefits **under the same conditions** as in the event of a dismissal.	Multiply by 3, so that the score lies between 0 and 6.						
	1	Resignation or some form of mutual consent gives access to unemployment benefits, but ***with a longer waiting period or lower replacement rate*** compared with the event of a dismissal.							
	2	Neither resignation nor any form of mutual consent gives access to unemployment benefits, while dismissal gives access to unemployment benefits.							

Note: Where there are differences by types of dismissal, the scored value is the average of the values for a dismissal for personal and for economic reasons. Where there are differences by firm size, the scored value is the average of the values for a firm with 35, 150 and 350 employees. Approximately the same coding is used for individual and collective dismissals; the only differences are that, as collective dismissals can only occur for economic reasons, Items 5d and 6 are removed, and warning procedures are not taken into account in Item 1. The indicator for collective dismissals evaluates the average for dismissals of 10, 45 and 120 workers by a firm within one month (based on the average of the three firm sizes for 10 dismissals, the two larger firm sizes for 45 dismissals and the largest firm size for 120 dismissals).

Annex Table 3.A.2. Weighting in the OECD EPL indicators for dismissing regular workers

Category of dismissal regulation	Lower-level elements of dismissal regulation	Weights: Individual dismissals (5/7)	Weights: Collective dismissals (2/7)
Procedural inconvenience (1/4)	1. Notification procedures	1/2	1/2
	2. Time delay before notice can be given	1/2	1/2
Notice and severance pay (1/4)	3. Length of notice period	3/7	3/7
	4. Amount of severance pay	4/7	4/7
Regulatory framework for unfair dismissals (1/4)	5. Definition of unfair dismissal	1/4	1/3
	6. Length of trial period (the initial period in which unfair dismissal claims cannot be made)	1/4	-
	7. Compensation to the worker following unfair dismissal	1/4	1/3
	8. Possibility of reinstatement following unfair dismissal	1/4	1/3
Enforcement of unfair dismissal regulation (1/4)	9. Maximum time to make a claim of unfair dismissal	1/4	1/4
	22. Burden of proof when the worker files a complaint for unfair dismissal	1/4	1/4
	23. Ex-ante validation of the dismissal by an external authority	1/4	1/4
	24. Pre-termination resolution mechanism granting unemployment benefits	1/4	1/4

Annex Table 3.A.3. Structure of Version 3 of the OECD EPL indicator for hiring temporary workers

Item	Version 3 values and description		Assigned score						
			0	1	2	3	4	5	6
Fixed-term contracts									
Item 10: Valid cases for use of fixed-term contracts	0	There are no restrictions on the use of fixed-term contracts.	Multiply by 2, so that the score lies between 0 and 6.						
	1	Exemptions exist on both the employer and employee side.							
	2	Specific exemptions apply in situations of employer need (e.g. starting a new activity) or employee need (e.g. workers in search of their first job).							
	3	Fixed-term contracts are permitted only for "objective reasons" or "material situation", i.e. to perform a task which itself is of fixed duration.							
Item 11: Maximum number of successive fixed-term contracts	Number		No limit	≥ 5	≥ 4	≥ 3	≥ 2	≥ 1.5	< 1.5
Item 12: Maximum cumulated duration of successive fixed-term contracts	Months		No limit	≥ 36	≥ 30	≥ 24	≥ 18	≥ 12	< 12

Item	Version 3 values and description		Assigned score						
			0	1	2	3	4	5	6
Temporary work agency contracts									
Item 13: Types of work for which temporary work agency employment is legal	0	Temporary work agency employment is generally allowed, with no or minimal restrictions.	Multiply by 6/4, so that the score lies between 0 and 6.						
	1	Temporary work agency employment is generally allowed, with specified exceptions.							
	2	Temporary work agency employment is only allowed for "objective reasons".							
	3	Temporary work agency employment is only allowed in specified industries.							
	4	Temporary work agency employment is illegal.							
Item 14: Restrictions on number of renewals of temporary work agency contracts	Are there restrictions on the number of renewals of temporary work agency contracts?		-	-	No	-	Yes	-	-
Item 15: Maximum cumulated duration of temporary work agency contracts	Months		No limit	≥ 36	≥ 24	≥ 18	≥ 12	> 6	≤ 6
Item 16: Authorisation and reporting obligations	0	No authorisation or reporting requirements.	Multiply by 2, so that the score lies between 0 and 6.						
	1	Special administrative authorisation required.							
	2	Periodic reporting obligations required.							
	3	Both authorisation and reporting requirements.							
Item 17: Equal treatment of regular and agency workers at the user firm	0	No requirement for equal treatment.	Multiply by 3, so that the score lies between 0 and 6.						
	1	Equal treatment required regarding pay or working conditions;							
	2	Equal treatment required regarding pay and working conditions.							

Note: Where there are differences by firm size, the scored value is the average of the values for a firm with 35, 150 and 350 employees.

Annex Table 3.A.4. Weighting in the OECD EPL indicators for hiring temporary workers

Category of hiring regulation	Lower-level elements of hiring regulation	Weights
Fixed-term contracts (1/2)	10. Valid cases for use of fixed-term contracts	1/2
	11. Maximum number of successive fixed-term contracts	1/4
	12. Maximum cumulated duration of successive fixed-term contracts	1/4
Temporary work agency contracts (1/2)	13. Types of work for which temporary work agency employment is legal	1/3
	14. Restrictions on the number of renewals of the assignment to the user firm	1/6
	15. Maximum cumulated duration of successive assignments to the user firm	1/6
	16. Authorisation and reporting obligations	1/6
	17. Equal treatment of regular workers and temporary work agency workers at the user firm	1/6

Notes

[1] Overviews of the main theoretical frameworks can be found in academic books such as Boeri and van Ours (2013[76]), Cahuc, Carcillo and Zylberberg (2014[8]) or Saint-Paul (2014[77]).

[2] However, a positive job tenure-protection profile tends to be efficient in the case of jobs requiring continuous firm-specific investments by workers (Boeri, Garibaldi and Moen, 2017[63]).

[3] A notable exception is Acharya, Baghai and Subramanian (2014[81]) who provide evidence for the United States that the passage of wrongful discharge laws spurred innovation.

[4] However, fixed-term contracts have been shown to induce higher effort by workers if they expect a high probability of conversion of their contract into an open-ended one (Ichino and Riphahn, 2005[83]).

[5] The collection of the information and data for the *OECD Employment Protection Legislation Database* is the result of a large collaborative effort by the labour ministries of OECD countries and the OECD Secretariat, which remains however solely responsible for the indicators.

[6] One interesting avenue for future research would be to evaluate employment protection for public-sector employees, also in comparison to employment protection for private-sector employees.

[7] The only exception is the lower-level category notice and severance pay, in which severance pay carries a slightly higher weight (4/7) than notice period (3/7). The rationale is that workers can still contribute to the firm's output while on notice. Consequently, the net cost to the firm is higher for a month of severance pay than for a month of advance notice. Yet, advance notice may protect workers better than severance pay, in particular if early support by the public employment services is in place (OECD, 2018[11]).

[8] The length of the trial period enters only the employment protection indicator for individual dismissals and not the indicator for collective dismissals, as trial periods are always associated with an individual worker.

[9] This is not the case for the employment protection indicator for collective dismissals, because collective dismissals can only occur for economic reasons.

[10] As mentioned, where there are differences by firm size, the scored value is the average of the values for a firm with 35, 150 and 350 employees. The indicator for collective dismissals is based on the average of the three firm sizes for 10 dismissals, the two larger firm sizes for 45 dismissals and the largest firm size for 120 dismissals.

[11] As 120 workers exceeds the dismissal threshold in all countries with specific legislation for collective dismissals (but not 10 and 45 workers), the regulatory differences between individual and mass dismissals enter the indicator for collective dismissals with a minimum weight of around one-third.

[12] An alternative approach is to focus on reforms in employment protection. Duval et al. (2018[78]) compile a dataset of major reforms in this area with a 0-1 reform variable covering 26 advanced economies over the period 1970-2015. The Labour Market Reforms (LABREF) Database by the European Commission monitors qualitatively job protection reforms in the 27 EU countries since 2000 (Turrini et al., 2015[84]).

[13] Other researchers have developed their own databases, among them Campos and Nugent (2018[82]) and Ciminelli and Furceri (2020[80]).

[14] ILO (2015[79]) shows that the OECD indicator for regular workers against individual dismissals is strongly correlated with the EPLex (the correlation coefficient equals 0.81). Calculations by the OECD suggest a significant, albeit weaker, correlation with a constructed CBR-LRI indicator focusing on dismissal regulation (0.66).

[15] The CBR-LRI and the Doing Business indicators go well beyond employment protection, which is only one focus of these databases in terms of institutional coverage.

[16] The United States has a rising number of cases in which employees pursue wrongful termination claims by alleging that the dismissal was based on an "implied contract" for continued employment (despite no formal contract), because certain assurances for continued employment were given. The probability of succeeding in claiming the existence of an "implied contract" increases with seniority and is likely to be extremely low or zero for only a few years of job tenure.

[17] In Sweden, a strict last-in-first-out rule applies except when collective agreements establish otherwise (see Box 3.2).

[18] For example, Poland has a special type of fixed-term contracts which in practice is used as a trial period. Belgium allows the use of temporary work agency employment for "insertion", i.e. to be hired under a regular contract for the same job after the assignment.

[19] In the United States, the prescription period in the situation of an "implied contract" depends on the state jurisdiction, but it is typically very long (for example four years in California and six years in New York).

[20] In the United States, when an employer offers voluntary separations but intends to implement involuntary dismissals in case of an insufficient number of volunteers, employees who take the voluntary separation package may be eligible for unemployment benefits.

[21] In cross-country regressions of the aggregate indicator on the four broad categories (one at a time), enforcement of unfair dismissal regulation is positively correlated with the aggregate indicator, but not in a statistically significant fashion. The other three categories are positively correlated with the aggregate indicator, statistically significant at the 1% level. The estimate is also much lower for enforcement of unfair dismissal regulation than for the other three categories.

[22] The pairwise negative correlations are not statistically significant. In line with the reasons provided, enforcement is more negatively correlated with procedural requirements and the regulatory framework for unfair dismissals.

[23] While for individual dismissals this is only the case in the Netherlands and, to some extent, in Germany and Sweden, for collective dismissals other countries as well require an authorisation pre-dismissal that can serve as validation post-dismissal.

[24] While additional notifications are required in Israel (to the Employment Service Bureau) and Korea (to the Ministry of Labour), they do not impose significant additional constraints on firms and hence are not reflected in the indicators.

[25] The way the indicators evaluate regulation of collective dismissals is by the stringency that would apply to one worker if this worker was dismissed by a collective dismissal. While this definition does not allow for fixed (in particular procedural) costs being spread across several workers, it is not obvious how the design of the indicators could, in a pragmatic way, take account of this possible fixed cost nature of some of the aspects relating to dismissal regulation.

[26] These are Canada and the United States (North America) and Australia and New Zealand (Australasia).

[27] They can also affect restrictions on the use of temporary contracts (e.g. in France, Italy, the Netherlands, Sweden).

[28] These are calculations for the whole business economy using the *OECD Structural and Demographic Business Statistics Database*.

[29] By contrast, the clearer definition of fair economic reasons for dismissals on economic grounds had little impact; it limits the freedom that judges have in their decision to classify a dismissal as unfair, but this accounts for only one-sixth of the score for the lower-level element "Definition of unfair dismissal". Moreover, the new schedule for compensation following an unfair dismissal does not sufficiently reduce the compensation to be reflected in the indicators. Finally, the introduction of the *rupture conventionnelle collective* also did not change the indicators, as it only formalised the existing voluntary separation plans which already granted eligibility for unemployment benefits.

[30] Initially, the Jobs Act set a schedule of two months of wage per year of tenure for compensation following an unfair dismissal for these types of dismissal. However, the Constitutional Court rejected this in a November 2018 decision. The indicators do not reflect this temporary change, as it is difficult to assess the extent to which the schedule was enforced and for how long. However, they reflect the new range of possible values for compensation, which now lie between 6 and 36 months of wages, compared with 12 and 24 before the Jobs Act. The resulting increase in the indicators mitigates the downward effect of the Jobs Act.

[31] Additional exercises conducted for important job protection reforms before 2013, such as the Spanish one, also show that the new Version 4 provides a more comprehensive assessment of reforms.

[32] The contribution of the employer was higher in the case of use of *Cassa Integrazione Guadagni* (the Italian short-time work scheme) before the collective dismissal.

[33] The changes in notice period and severance pay induced by the different reform measures, including the introduction of dismissals at will, exactly cancel each other out in the indicators, so that no change is visible on the aggregate component notice and severance pay (see Figure 3.14, Panel B).

[34] In May 2014, the obligation to attempt a transfer before dismissal and to follow criteria provided by the Labour Code when selecting the worker(s) to be dismissed were reintroduced, to comply with the September 2013 ruling of the Constitutional Court. These obligations had been lifted in August 2012. The indicators do not reflect these temporary changes, as it is difficult to assess the extent to which these were enforced and for how long.

[35] In particular, it is the employer's responsibility to show the contents of any collective agreement or internal document required for adjudicating the dispute.

[36] Moreover, a severance-pay subsidy in the case of fair dismissals in firms with less than 25 employees was suppressed in December 2013 (OECD, 2016[33]).

[37] In the absence of effective short-time work schemes, excessively strict job protection may, however, lead to firm bankruptcies, thereby failing to preserve jobs.

[38] The indicator for temporary contracts in Portugal increases due to the end of an extraordinary regime of renewals applying to fixed-term contracts until December 2016. An additional increase from 2.46 to 2.58

is due to the further reduction in the maximum cumulated duration of fixed-term contracts implemented in September 2019.

[39] The notice period can only start at the end of the month. Therefore, the extension of the notice period to all dismissal procedures also increased the delay before notice can be given.

[40] Still, the indicators include one item on equal treatment of permanent and temporary work agency workers, which makes it possible to reflect part of these changes. For example, in Québec (Canada), since June 2018, employers can no longer set different wages for workers solely based on their employment status, and temporary work agencies are prevented from paying lower wages than those regular employees receive who perform the same tasks. Similarly, in Iceland, since 2013, temporary work agencies workers should be paid at least the same wages and benefit from the same facilities as regular employees. In the Netherlands, the possibility to deviate from basic wage during the first 26 weeks of a temporary work agency assignment have been removed from the Collective Labour Agreement for Temporary Agency Workers. These changes explain all the increase in the indicators observed in Figure 3.15 Panel B for these countries (and Panel C for Canada).

[41] The Balanced Labour Market Act also made dismissals easier (employers can now combine personal reasons for dismissal that are by themselves insufficient to justify a dismissal), aligned severance pay for permanent and temporary workers, modified their calculation rules and extended the maximum cumulated duration for fixed-term contracts. The reform did not change the indicator of protection for regular workers, because the indicator does not capture the possible combination of insufficient grounds and the opposite changes in severance pay at different tenures cancel each other out. However, it reduced the indicator for temporary workers from 1.48 to 1.23.

[42] The chapter mostly focuses on developments since 2013. Researchers and other users interested in the full time series of the data and information available since 1985 can find these on the dedicated website (http://oe.cd/epl). Using these data, Denk and Georgieff (forthcoming[62]) depict long time series for employment protection.

4 What is happening to middle-skill workers?

Driven by mega trends such as automation, ageing and globalisation, the share of middle-skilled jobs has been declining in the majority of OECD labour markets (a process also referred to as job polarisation). Middle-skill jobs are defined as occupations in the middle of the occupation-wage distribution. One little explored question is what is happening to the workers who have traditionally occupied these jobs? This chapter starts by examining whether the fall in the share of middle-skill employment is explained primarily by attrition or transitions. Attrition accounts for fewer younger workers entering these jobs compared to older workers retiring. Transitions explain changes in career patterns after a person has started working. The chapter then studies the characteristics of what would have been a “typical” middle-skill worker and uses this profile to examine how the jobs they hold have changed over time.

In Brief

Key findings

The share of middle-skill jobs – defined as occupations whose average wages place them in the middle of the wage distribution – declined in OECD countries over the past two decades. From the mid-1990s (1994-1996) to the latest available period (2016-2018), the share of total employment accounted for by middle-skill occupations – e.g. truck drivers and machine operators for men, cashiers and secretaries for women – declined over 11 percentage points. This contrasts with growth of 9 percentage points in high-skill occupations and of 3 percentage points in low skill occupations. The employment share of middle-skill occupations declined because the number of jobs in low- and particularly high-skill occupations grew strongly, while the number of middle-skill jobs held broadly steady.

The key question addressed in this chapter is how this decline in employment shares of middle-skill occupations has taken place. Is it due to attrition or transitions? This difference amounts to whether the decline is borne by new entrants to the labour market, or mid-career workers. Attrition is primarily driven by new cohorts of workers entering the labour force in middle-skill occupations at lower rates than previous cohorts. Transitions are changes in the career patterns of different occupational groups, in which workers reallocate to other skill groups (including possible spells of non-employment) during their careers at different rates than in the past. Transitions could include earlier cohorts who started their working lives in middle-skill jobs being laid off mid-career, for example, while attrition could take the form of young workers entering the labour market in different occupations. Attrition is about labour market entry, while transitions account for mid-career changes.

The main findings of the chapter are as follows:

- In contrast to popular perceptions (and anecdotal evidence concerning mass dismissals), this chapter shows, using data primarily from European OECD countries, that the share of middle-skill employment has declined more because of attrition than transitions. Changing patterns of labour market entry appear to be key. For cohorts born before 1970, some 32.8% of workers were employed in middle-skill occupations when aged 25-29. For cohorts born after 1970, this share decreased to 26.5%. The share of those in high-skill employment exhibited the reverse pattern.
- Meanwhile, except during the financial crisis, workers separating from middle-skill jobs have tended to transition to other middle-skill jobs or to non-employment at similar rates as in the past.
- The changing demographic composition of younger cohorts entering the labour force is a contributing factor to the decline in middle-skill employment. New entrants to the labour force are more likely to be women and have a tertiary education compared with 20 years ago. Workers without a tertiary education were the most likely to hold middle-skill jobs in the past. There are therefore fewer workers entering the labour force who would typically hold middle-skill jobs, which would be expected to cause a mechanical decline in the share of middle-skill employment. However, the analysis confirms that this explains only part of the contraction in middle-skill employment shares.
- New cohorts of workers without tertiary education less often start their career in middle-skill jobs. In fact, even those who would have been regarded as “typical” middle-skill workers in the past are now much less likely to start working in middle-skill jobs, and more likely to be in low-skill

employment. A formal decomposition of changes in employment shares confirms that attrition accounts for most of the decline in middle-skill employment.

- Employment shares of women without a tertiary degree in low-skill occupations have increased dramatically. The largest percentage point increases for those holding low-skill jobs have been among men and women with a middle level of education (an upper-secondary qualification rather than a tertiary degree).
- In most countries, middle-educated workers are now also less likely to hold high-skill jobs than in the 1990s. A few countries appear to be exceptions, however. Over the past two decades, Sweden, Germany, Norway and Denmark have seen a significant rise in the propensity of middle-educated workers to be employed in high-skill occupations, for both men and women. Although not addressed explicitly in this chapter, these countries place an emphasis on vocational education and training, as well as maintaining a tradition of cooperative social dialogue (see also Chapter 5).

Introduction

At its peak, manufacturing employed millions of workers at wages solidly in the middle of the pay distribution, which helped support a strong middle class across industrialised nations (Helper, Krueger and Wial, 2012[1]; OECD, 2019[2]). However, since at least the 1970s, employment in OECD economies has been shifting from manufacturing to service industries. At the same time, the share of employment in middle-skill occupations within industries has steadily decreased. While these jobs declined, employment grew in high-skill occupations such as human resources administrators and information technology support. Low-skill service jobs such as janitors, home care workers and retail sales assistants flourished as well. Employment moved from assembling cars on the shop floor to stocking shelves on the sales floor.

Economists and policy makers termed this trend job polarisation. Defining the skill level of jobs by the average wage in an occupation (similarly using task content, or education), economists found that the employment shares of both higher- and lower-skill occupations have increased in many but not all countries, while shares of employment in middle-skill occupations have declined (Autor, Levy and Murnane, 2003[3]; Goos and Manning, 2007[4]; Goos, Manning and Salomons, 2009[5]). Subsequent research identified automation as the main cause of this job polarisation (OECD, 2017[6]; Autor and Dorn, 2013[7]).[1] Increasing penetration of information technology and robotics have eroded jobs consisting of routine tasks. These routine jobs were traditionally situated in the middle of the skill distribution.

A common concern is that the decline of middle-skill employment may have resulted in distress, job insecurity and displacement for workers who held those jobs – see e.g. Autor (2010[8]), Cortes (2016[9]), and OECD (2017[10]). Yet this need not be the case. If job polarisation results in workers transitioning to higher-paid jobs, its effects may be more benign than previously thought. Moreover, the theory of job polarisation and the history of job destruction is ambiguous with respect to overall employment and wages in the long run (Autor, 2015[11]; Autor, 2015[12]; Acemoglu and Restrepo, 2018[13]). The important question is then how are middle-skill workers who need to transition to new jobs affected by job polarisation?

This chapter reviews where workers holding middle-skill jobs are going in the face of the shrinking share of such jobs. The first question it seeks to answer is how this adjustment has taken place. Are firms increasingly dismissing middle-skill workers, forcing mid-career workers to find new employment in other skill groups (“transitions”), or are older middle-skill workers gradually retiring and younger workers

entering other, growing occupations ("attrition")? In addition to the adjustment mechanism, this chapter asks what types of jobs workers who fit the traditional profile of a middle-skill worker are taking.

Understanding both the nature of adjustment and the final destinations of middle-skill workers will help inform policy makers on the types of policies that can aid this restructuring of OECD labour markets. For example, if job polarisation is driven mainly by workers losing middle-skill jobs, then labour market policy needs to focus on helping these workers make the transition to other occupations where employment opportunities are emerging (OECD, 2018[14]). By contrast, if patterns of labour market entry are the key factor shaping this process, then policies need to accompany young workers in starting their career and ensuring its sustainability over time (see e.g. Chapter 5).

The analysis begins by briefly documenting the near universal trend of job polarisation, and disentangling the dynamics of the shifting share of jobs across occupation groups (Section 4.1 and Section 4.2). This includes evidence for whether middle-skill employment shares have shrunk due to transitions of mid-career workers, or through attrition and differences in the labour market entry patterns of younger cohorts. In Section 4.3 the chapter turns to building the profile of the "typical" middle-skill worker of the past and identifies the characteristics associated with middle-skill work two decades ago. Section 4.4 uses the profile of middle-skill workers to shed light on where they are going. Specifically, the analysis shows the types of occupations that workers of different demographic groups are employed in compared with two decades ago.

4.1. How are middle-skill jobs changing?

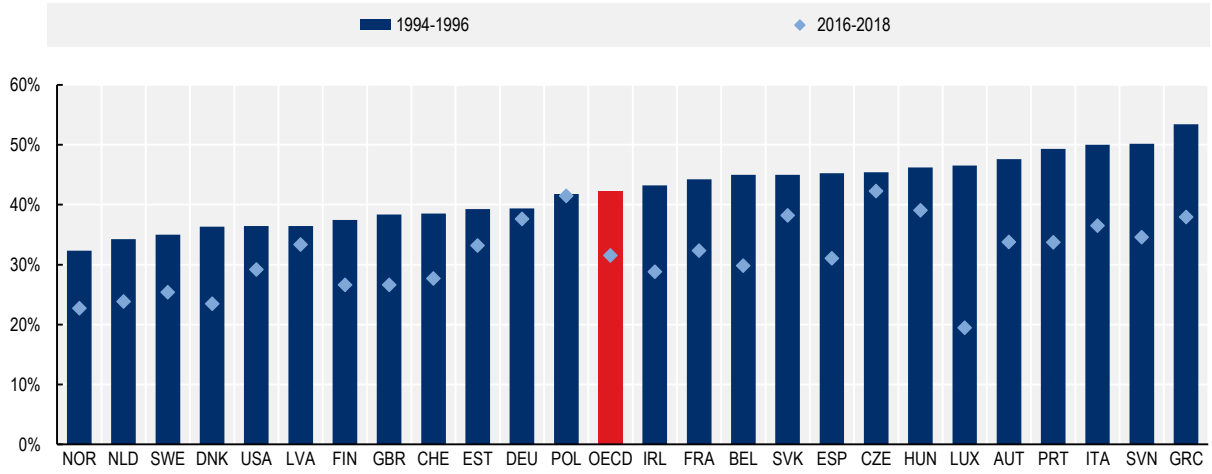
In order to better assess how middle-skilled jobs are changing, this section provides descriptive evidence on how the share of middle-skill jobs has changed over the preceding decade. The analysis in this section confirms that the share of employment in middle-skill jobs – defined by the average wage in an occupation (Box 4.1) – declined across OECD countries over the past decade. The remainder of the section attempts to disentangle how this transformation has taken place: by changing employment transitions of mid-career workers, or attrition of older cohorts and differential entry into the labour market of younger workers.

Confirming earlier analyses, the share of employment in middle-skill occupations in OECD countries declined from the mid-1990s (1994-1996) to the mid-2010s (2016-2018). The analysis in this chapter relies on cross-sectional and panel survey data from across Europe and the United States (see Annex 4.A). Figure 4.1 depicts the share of employment in middle-skill jobs at both time periods for a broad range of OECD countries.[2] Across countries, the share of middle-skill employment declined by a little less than 11 percentage points. This compares to increasing shares of high-skill employment (9 percentage points) and low-skill employment (3 percentage points).

The fall in the share of middle-skill employment across countries accompanied an increase in high- and low-skill employment shares. Two decades earlier, middle-skill employment comprised slightly more than 42% of employment in OECD countries compared to about 35% and 24% for high- and low-skill employment, respectively. In twenty years the share of middle-skill employment fell to be closer to low-skill employment than high-skill, with the shares averaging 32%, 43% and 27% for middle-, high- and low-skill employment respectively.

Figure 4.1. Employment shares of middle-skill occupations declined sharply

Employment in middle-skill occupations as a share of total employment, average of years 1994-1996 and 2016-2018



Notes: For countries with no data in 1994, "1994-1996" is the three earliest years of data. The earliest years are: 1995 (Austria), 1996 (Netherlands, Norway, Slovenia), 1997 (Estonia, Finland, Hungary, Sweden), 1998 (Czech Republic, Latvia, Slovak Republic), 2002 (Poland). OECD is an unweighted average of the countries shown.
Source: European labour force survey (EU-LFS), The German Socio-Economic Panel (SOEP) for Germany and the Current Population Survey (CPS) for the United States.

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Box 4.1. Defining occupations in terms of "skill levels"

The term middle-skill seems simple, but it typically means different things depending on the data available, the research question, or the country involved. The original research from Autor, Levy and Murnane (2003[3]), who documented the declining share of middle-skill jobs, defined "skill" by the underlying tasks performed in an occupation ("routine" or "non-routine") for the United States. Since this original research, further work on job polarisation employs an ever expanding conception of "skill", including task, wage, and education while sometimes finding contradictory evidence for job polarisation (Hofer, Titelbach and Vogtenhuber, 2017[15]; Tåhlin, 2019[16]; Oesch and Piccitto, 2019[17]).

This chapter will use "skill" or "occupation" as short-hand for a wage-based ranking of occupations. For continuity, and in order to build on previous OECD work, this chapter will use the classification of occupations employed in OECD (2017[6]). The occupation groups follow the classification defined in Goos, Manning and Salomons, (2014[18]), who define International Standard Classification of Occupations (ISCO) occupations by their average wage. The authors use data from the European Community Household Panel (ECHP, the predecessor of EU-Statistics on Income and Living Conditions EU-SILC), which has wage information, to define the occupations by their average wage at the same occupation level available in the EU-LFS. Workers whose occupation had an average wage in the middle of the occupation-wage distribution would be classified as middle-skilled regardless of their formal education, training, or labour market experience. This chapter uses the same EU-LFS data, and therefore employs the same country-invariant classification:

- High-skill, or high-occupation. ISCO-88 one-digit occupations 1-3.
- Middle-skill, or middle-occupation. ISCO-88 one-digit occupations 4, 7, 8.
- Low-skill, low-occupation. ISCO-88 one-digit occupations 5, 9.

The chapter uses a similar occupation-based grouping for the United States. OECD (2017[10]) mapped the ISCO-88 classification to Standard Occupational Classification (SOC) 2000 codes. This chapter then merged this mapping to Dorn (2009[19]) to provide harmonised Census codes from the 1990s to the present. The U.S. classification scheme shares many characteristics with classifications which group occupations based on tasks or education (Acemoglu and Autor, 2011[20]).

At its simplest, this chapter is concerned with how educational attainment maps into wage-based rankings of occupational outcomes, and how this relationship has changed. When referring to measures of education the following terms will be employed:

- High-education. This refers to a person who has at least a tertiary degree corresponding to International Standard Classification of Education (ISCED) level 5 and above.
- Middle-education. For persons with an upper-secondary degree or a post-secondary non-tertiary degree corresponding to ISCED levels 3-4.
- Low-education. This refers to all persons without an upper-secondary degree: ISCED level 2 and below.

4.2. What drives the fall in the share of middle-skill jobs?

To answer where middle-skill workers are going, it is important to understand how the share of middle-skill jobs declined. The share of middle-skill employment can decline for several reasons, which may evolve over time. A central question addressed in this chapter is whether the share of middle-skill employment adjusted due to gradual adjustment through attrition, and/or more abrupt adjustment through transitions.

The two different paths both lead to a diminished middle-skill employment share, but they point to different policy responses. With attrition, workers enter into different occupation groups early in their careers. This is primarily driven by new cohorts of workers entering the labour force by starting in low- and high-skill occupations at higher rates than previous cohorts. In the case of adjustment via transitions, workers reallocate to other skill groups (with possibly spells of non-employment) due to increased separations in middle-skill employment.

4.2.1. With the exception of the global financial crisis, middle-skill separation rates were stable

The level of middle-skill employment held steady in most OECD countries until the 2008-09 financial crisis, however employment growth was more robust in low- and high-skill employment. Table 4.1 shows average rates of hires and separations across European OECD countries for four time periods.[3] The time periods roughly align to the 1990s, 2000s pre-crisis, the crisis and immediate aftermath, and post-crisis. Before the financial crisis, on average across countries, middle-skill hiring and separation rates were about equal, while hiring rates clearly exceeded separation rates for low- and high-skill occupations. This implies that employment in absolute numbers was growing in low- and high-skill occupations before the crisis, while remaining more or less constant for middle-skill employment. The higher employment growth rate in low- and in particular high-skill employment led to a decreasing share of middle-skill employment.

During the financial crisis, the level of middle-skill employment declined, while high and low-skilled occupations continued to add jobs. For all occupation groups across countries, hiring rates have gradually declined over the past twenty years.[4] For low- and high-skill occupations, separation rates remained remarkably consistent, and below hiring rates. However, for middle-skill jobs, the crisis

resulted in a sharp increase in separation rates. During the recovery from the crisis, separation rates for all groups returned to their (lower) pre-crisis levels. For the dynamics of employment adjustment across occupation groups, the crisis accelerated the declining share of middle-skill employment by actually destroying jobs, rather than employment simply growing more slowly than other occupation groups as happened in the 15 years preceding the crisis.

Table 4.1. Middle-skill employment held steady until the global financial crisis

Hiring and separation rates by skill grouping in four time periods

	Low-skill		Middle-skill		High-skill	
	Hires (%)	Separations (%)	Hires (%)	Separations (%)	Hires (%)	Separations (%)
1995-2000	23.6	21.5	16.4	15.9	13.8	10.8
2001-2007	22.8	20.7	15.8	15.8	12.4	10.6
2008-2012	21.5	20.4	14.4	18.2	11.4	10.4
2016-2018	22.3	21.0	16.4	15.2	13.6	11.0

Notes: Countries included and time periods: Austria, Belgium, the Czech Republic, Estonia, Denmark, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Luxembourg, the Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom are included in all time periods averaging available years. Latvia, Poland and the Slovak Republic are included starting in 2001.
Source: European Labour Force Survey (EU-LFS).

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Looking more closely at individual countries reveals the large variation in separation rates between and within countries. Countries that experienced large decreases in middle-skill employment saw large increases in middle-skill separation rates during the crisis driving the overall increase in separations (Figure 4.2). These countries included Greece, Luxembourg and Spain. However, almost all countries in the sample have returned to, or experienced lower separation rates than their pre-crisis rates.

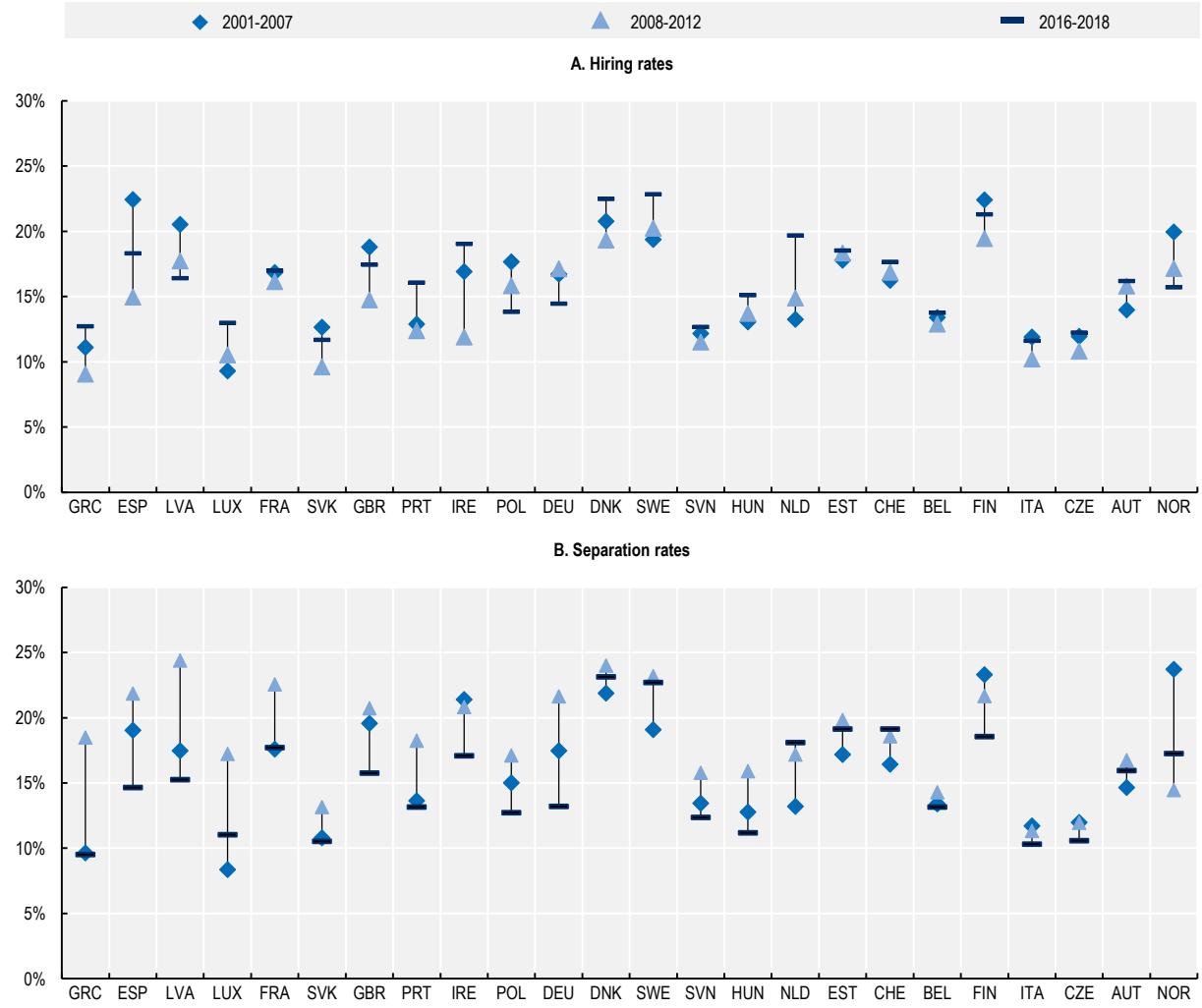
Employment adjustment across skill groupings is a tale of two time periods. Before 2007, labour markets experienced a declining share of middle-skill jobs caused by higher rates of growth in low- and high-skill occupations. The quantity of middle-skill employment remained mostly constant. During the crisis, low- and high-skill employment continued to grow, but at slower rates than pre-crisis. The quantity and share of middle-skill employment declined sharply because of a hike in separation rates. During the recovery, separation and hiring rates largely returned to their pre-crisis averages. In short, with the exception of the global financial crisis, separations have declined gradually, and middle-skill employment has held steady or declined slightly over the past twenty years.

With the exception of the financial crisis, labour market destinations for workers separating from middle-skill jobs also remained stable

Although middle-skill separations have remained mostly stable (except from the financial crisis period), one question that naturally arises is whether the destinations for workers separating from middle-skill jobs changed in any meaningful way. This has two important implications. First, a changing composition of the destinations (occupation groups for new jobs, or non-employment) of workers separating from middle-skill jobs is a signal that the change in middle-skill employment shares is happening through transitions (rather than attrition) of employed middle-skill workers. Conversely, a mostly stable distribution of labour market outcomes for workers separating from middle-skill jobs combined with mostly stable separation rates (as above) points to a diminished role of the transition channel.

Figure 4.2. Changes in separation rates were large during the global financial crisis, but have mostly returned to pre-crisis levels

Hiring and separation rates for middle-skill occupations, 2001-2018



Notes: Countries are sorted by their change in employment growth for middle-skill occupations from 2001-2007 to 2008-2012.
Source: European labour force survey (EU-LFS), The German Socio-Economic Panel (SOEP) for Germany.

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Second, the destinations of workers previously in middle-skill jobs provide evidence for the normative implications of the decline in middle-skill employment. If these workers are increasingly moving into high-skill jobs, policy makers may worry less about the implications of shrinking middle-skill employment. By contrast, increasing transitions into low-skill employment or non-employment may signal to policy makers greater distress among workers who previously held middle-skill employment.

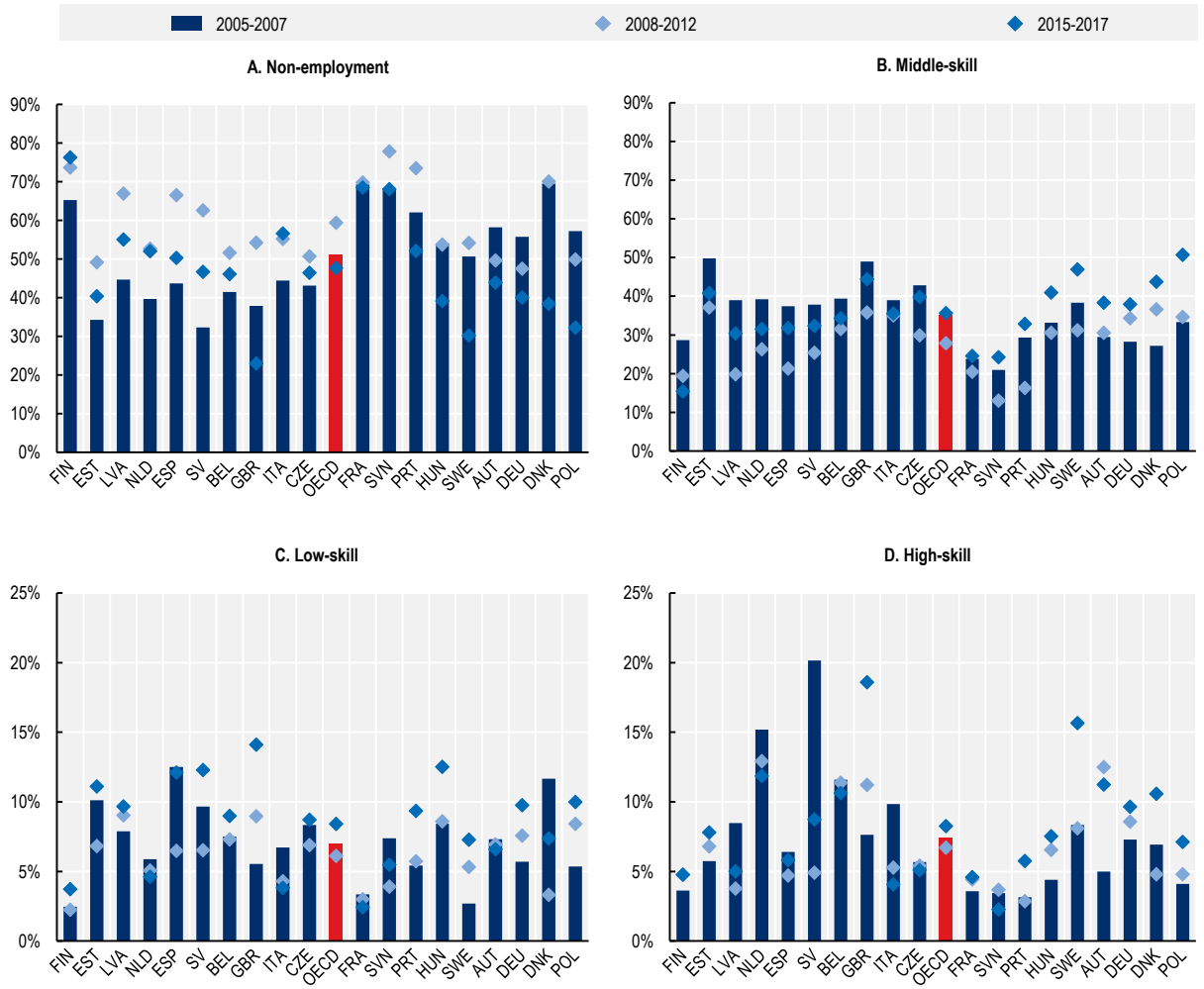
Across European OECD countries, the destinations for workers separating from middle-skill jobs have remained stable on average. Figure 4.3 shows the four mutually exclusive and collectively exhaustive destinations for workers who separated from middle-skill jobs one year earlier: low-, middle-, high-skilled employment and non-employment. The propensities are calculated one year after separating, which allows for short non-employment durations. The analysis compares the average of years 2005-2007, 2008-2012, and 2015-2017. Although separations grew during the financial crisis, this chapter is most

concerned with the long-term decline in the share of middle-skill employment, and omitting the crisis period attenuates movements due to cyclical variation.

Non-employment and transitions to other middle-skill jobs are the most likely destinations, and have remained so post-crisis. The countries are ordered by the percentage point change in the share of employment in middle-skill jobs one year later pre- and post-crisis – i.e. the difference between dark blue diamonds and bars in Panel B. Non-employment was the most likely destination pre-crisis with 51.4% of workers separating from middle-skill jobs to non-employment one year later followed by a different middle-skill job with 35.1%. Post-crisis the likelihood of ending up in non-employment fell to 47.6%, while the probability of working in another middle-skill job increased slightly to 35.6%.

Figure 4.3. Outcomes for workers separating from middle-skill jobs remain stable

Skill-group of employment and non-employment outcomes for workers who separated from a middle-skill job one year prior



Notes: Each data point depicts the frequency of each skill-group or non-employment for middle-skill workers who held a middle-skill job and separated from their employer or firm one year prior. Countries are ordered by the percentage point change in the share of employment in middle-skill jobs one year later between 2005-2007 and 2015-2017 – i.e. the difference between dark blue diamonds and bars in Panel B. Data are yearly averages over the indicated years. OECD is an unweighted average of the countries shown.
Source: EU-Statistics on Income and Living Conditions (EU-SILC), and the German Socio-Economic Panel (SOEP) for Germany.

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Once again, the largest changes in the patterns of workers separating from middle-skill jobs occurred during the crisis. The share of workers separating from middle-skill jobs into non-employment grew to 59.4% during 2008-2012. The shares separating into the other occupation groups all declined. In particular, the share separating into another middle-skill job one year later declined by over 7 percentage points to 27.8%.

The propensity to find low- or high-skill jobs within one year after separation increased uniformly, but modestly from pre- to post-crisis periods. On average, the low-skill propensity increased from 7.1% to 8.4% and the high-skill post-separation employment propensity increased from 7.4% to 8.2%. All but six countries in the sample saw an increase in the low-skill propensity with Sweden, Poland and the United Kingdom experiencing the largest percentage point increases. Transitions into high-skill employment were similarly broad-based. Austria, Sweden and the United Kingdom saw some of the largest percentage point increases. Of course, the composition of the labour force likely changed over this time period, a dimension which will be explored further in Section 4.4.

Younger workers were disproportionately affected by the financial crisis and concurrent spike in separation rates for middle-skill jobs

In addition to how employment is adjusting across skill groupings, the question of who is involved in the adjustment is just as important. The adjustment out of middle-skill work was mostly born by the young. Table 4.2 presents the same hiring and separation rates as Table 4.1 but limited to workers in middle-skill occupations and further divided into workers who are less than 30 years old and those that are 30 years old and older. The rate of hires and separations is much higher for workers younger than 30 than those that are older. This is expected as younger workers have more volatile employment histories due to increased job hopping, higher rates of temporary contracts, and generally trying to find their way in the labour market.

Table 4.2. Middle-skill employment adjustment led by younger workers

Hiring and separation rates for middle-skill occupations by age in four time periods

	Younger workers		Older workers	
	Hires (%)	Separations (%)	Hires (%)	Separations (%)
1995-2000	31.5	32.3	10.2	9.7
2001-2007	31.5	32.2	10.4	10.5
2008-2012	29.1	36.2	9.8	12.6
2016-2018	34.4	33.7	11.3	10.2

Notes: Younger workers are those aged 16-29, older workers are aged 30-64. Countries included and time periods: Austria, Belgium, the Czech Republic, Estonia, Denmark, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Luxembourg, the Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom are included in all time periods averaging available years. Latvia, Poland and the Slovak Republic are included starting in 2001.
Source: European Labour Force Survey (EU-LFS).

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The crisis led to decreased middle-skill employment in all age groups including prime age and older workers. The impact was much stronger for younger workers. During the crisis hires declined and separations increased for both older and younger workers in middle-skill occupations. The magnitudes differed greatly with younger workers experiencing a net employment loss of 7 percentage points annually compared to 3 percentage points for older workers. In sum, both older and younger age group workers experienced serious employment declines in middle-skilled occupations during the crisis, but younger workers incurred a disproportionate burden.

The results in this section compare well with the previous literature, which finds that polarisation is a result of differential hiring rates, as well as layoffs. Earlier research from the United States found that the decline in middle-skill employment was concentrated during the past two recessions (Jaimovich and Siu, 2014[21]). The work in this chapter suggests that the global financial crisis acted as an accelerant for job polarisation on average across European OECD countries as well. In these countries, adjustment took place gradually until the crisis. Separation rates then spiked for workers in middle-skill jobs during the crisis before mostly returning to pre-crisis levels. The results further generalize the finding – again, previously found in the United States – that job polarisation is the result of higher flows into low- and high-skill occupations, and lower flows into middle-skill occupations, with the pattern most pronounced among the young (Smith, 2013[22]).

4.2.2. Differential labour market entry of younger workers explains most of the change in middle-skill employment shares

The remainder of this section will examine workers by birth cohort to see how their employment shares across different occupation groups change over their working-ages. By examining workers by birth cohort, the analysis decomposes employment shares in different occupational groups, by labour market entry and labour market history. Figure 4.4 shows employment shares in low-, middle-, and high-skilled occupations as well as non-employment by birth cohorts.[5]

The analysis uses eight different European birth cohorts of six contiguous years with the number and size of the cohorts determined by the 24 years of available data.[6] Each panel of the figure displays the share for a given skill group and non-employment. For ease of interpretation, the figure averages the birth cohorts' shares into cohorts born before and after 1970.[7] Each line represents one of the two average birth cohorts. The figures present the shares such that they allow comparison for cohorts at the same age.

The entry shares for the two average cohorts shows the greatest divergence. Workers aged 25-29 worked in middle-skill occupations at a rate of 32.8% before 1970. For cohorts born after 1970, the share decreased to 26.5%. However, the employment trajectories of cohorts as they aged diverged only slightly. Birth cohorts before 1970 saw a slight decreasing propensity to work in middle-skill employment over the life cycle. For the post 1970 birth cohorts, the trajectory was mostly flat.

The shares in high-skill employment exhibited the reverse pattern. Workers aged 25-29 before 1970 entered high-skill employment at a rate of 22.9%. For birth cohorts after 1970 the rate was 30.7%. Both average birth cohorts saw a slight upward trajectory for the shares employed in high-skill jobs over the life cycle, but birth cohorts born after 1970 were and are employed in high-skill jobs at a higher rate at every age group.

Employment shares in low-skill jobs and non-employment did not diverge appreciably across average birth cohorts. Workers in the pre-1970 cohort entered low-skill employment at a rate of 16.3% as 25-29 year olds, while workers born post-1970 entered low-skill employment at a rate of 18.1%. Entry shares for non-employment also diverged only slightly. The pre-1970 birth cohorts were slightly more likely to be non-employed at age 25-29. For the pre-1970 birth cohorts the rate was 28%, while for post-1970 birth cohorts averaged 24.8%. After the youth entry share, the trajectories and propensities for the pre- and post-1970 average birth cohorts were remarkably similar. However, the post-1970 birth cohorts were always more likely to be both employed, and working in low-skill employment, although only slightly.

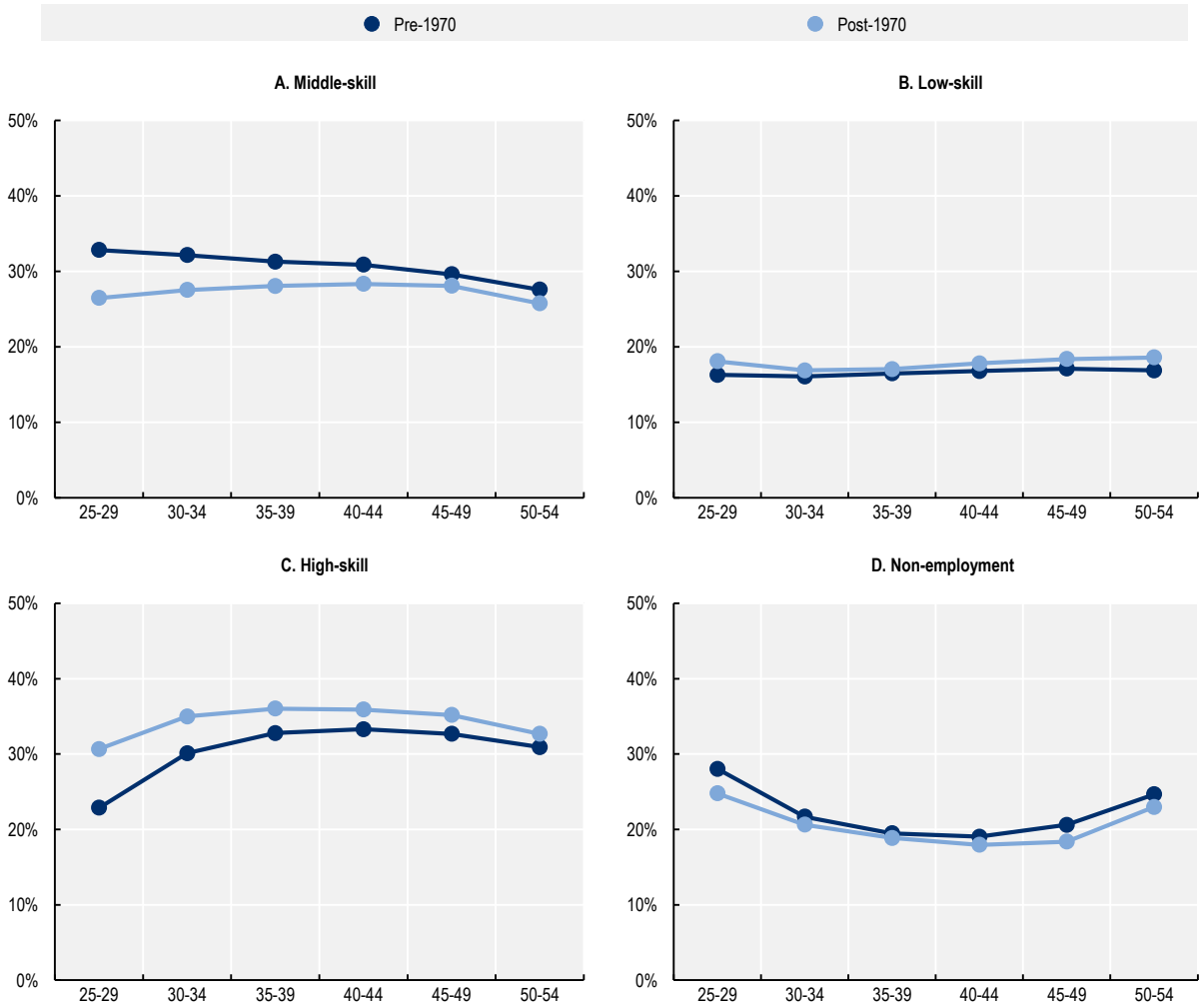
Although each successive cohort entered skill groups at different rates, their career trajectories followed markedly similar paths. Put differently, when examining Figure 4.4, the lines showing different employment shares at different ages for each cohort are largely parallel. After entering the labour market in their youth, each cohort has progressed in the labour market similarly.

The exception is the life-cycle patterns for employment shares in middle-skill and high-skill occupations. The employment shares do not seem to be decreasing for the post-1970 cohorts as they did for the

pre-1970 cohorts. Both have become flatter suggesting perhaps that young workers entering middle-skill occupations are less likely now to upgrade towards high-skill occupations. This seems consistent with findings (Chapter 5) on vocational graduates, which appear to have a flatter career pattern now with respect to the past. It also consistent with recent findings on the decline in internal labour markets (Maurin and Signorelli, 2019[23]).

Figure 4.4. Propensities to work in different skill groups have been driven by differential entry of younger cohorts

Shares of different occupation-skill groups at different ages by birth cohort



Note: Pooled data represents unweighted country averages. Shares are computed as the ratio of the number of workers in a given skill group (or non-employment) to the population of the relevant age group. Data encompass years 1994-2018. Pre-1970 encompasses birth years 1946-1970. Post 1970 consists of birth years 1970-1993. Countries included: Austria, Belgium, the Czech Republic, Estonia, Denmark, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Luxembourg, the Netherlands, Norway, Poland, Portugal, Spain, the Slovak Republic, Sweden, Switzerland and the United Kingdom.
Source: European Labour Force Survey (EU-LFS).

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The analysis in this section shows that, with the exception of the years after the Global Financial crisis, the rate of separations, and the destinations of workers separating from middle-skill jobs have stayed constant. Younger workers are more likely to enter low- and high-skill employment and are less likely to take

middle-skill jobs highlighting the greater importance of attrition for the decline in the share of middle-skill employment. Annex 4.B provides a formal decomposition of the forces of attrition, transition and cohort size on the change in middle-skill employment shares, which confirms that attrition is the dominant channel accounting for the decline in middle-skill occupations.

4.3. Who were middle-skill workers?

Looking at only the transitions of workers currently in middle-skill jobs misses the labour market decisions of new cohorts entering the labour market. As the previous section showed, this is likely the most salient mechanism for the shifting shares of skill groups. As the share of middle-skill occupations declines, the probability of any given worker finding a middle-skill job also declines and the probability she finds a job in either high- or low-skill occupations increases. To account for the full picture of "where middle-skill workers are going", one must therefore also consider what those workers who in the past *would have been* a middle-skill worker are doing today. In short, one needs to account for the possibly shifting demographics[8] of middle-skill workers.

To build a clearer picture of a "middle-skill worker", it is essential to define the profile of the "typical" middle-skill worker. Using variables which best identify a middle-skill worker in the period when job polarisation began, this chapter sketches the profile of a middle-skill worker from twenty years prior. Section 4.4 will examine workers with this profile to compare how their labour market outcomes compare to workers with the same profile twenty years prior. This approach helps remedy the problem of non-observability of counterfactual outcomes for cohorts who enter the labour market in times of more or fewer middle-skill jobs, and who may therefore look vastly different to someone holding that job in the past.

The rest of this section is concerned with identifying the characteristics that best describe a middle-skill worker from times past. The following analysis paints a picture of a typical middle-skill worker which remains relatively constant over time and does not change with shifts in the labour market.

4.3.1. Middle-skill workers are predominantly workers without a tertiary degree

To determine where middle-skill workers are going, it is necessary to find a set of characteristics that best predict work in middle-skill occupations. These characteristics should ideally be independent of labour market conditions and outcomes.[9]

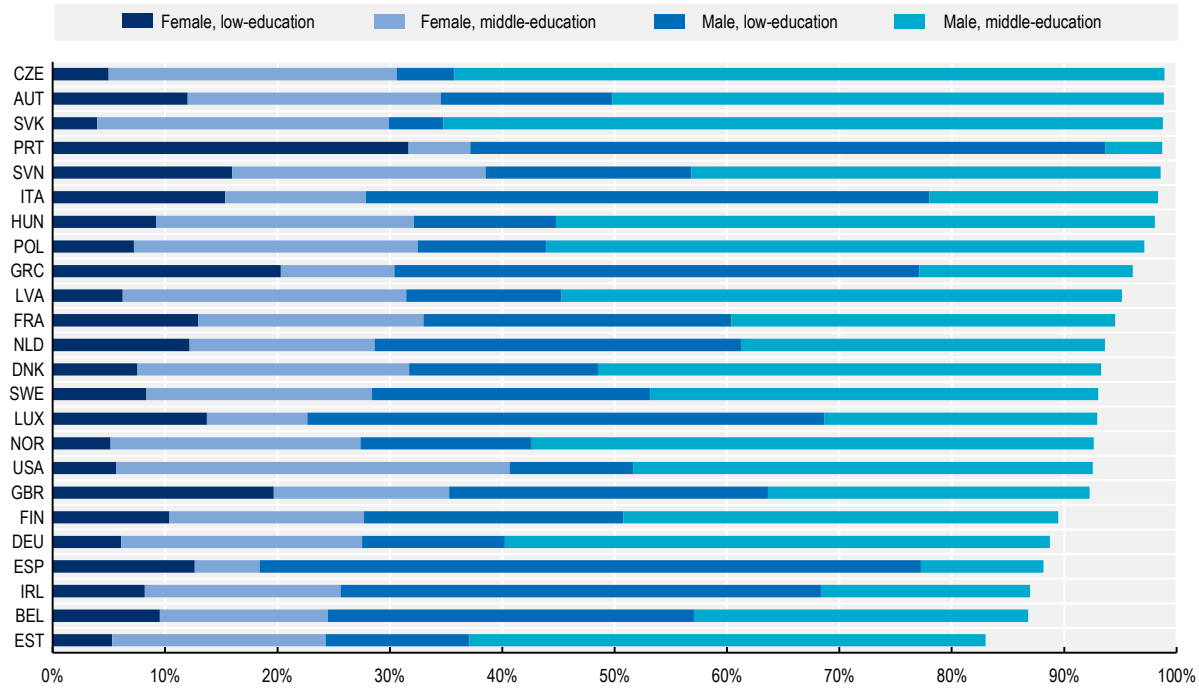
Education was the strongest indicator of middle-skill work

Education was the single best predictor of being a middle-skill worker twenty years prior. Figure 4.5 shows the share of middle-skill workers divided into four categories: men and women separately who had at least an upper-secondary degree but no tertiary degree, and men and women with less than an upper-secondary degree. The shares are averages for each country of the years 1994-1996 (years vary depending on availability, see figure notes). Across the OECD countries for which data are available, slightly more than 90% of middle-skill workers lacked a tertiary degree with the share increasing to over 95% in ten of the countries. The Czech Republic and Austria had the highest share while Estonia and Belgium had the lowest shares with 83% and 86.8%, respectively.

Among those without a tertiary degree, a majority of middle-skill workers did have at least an upper-secondary non-tertiary degree. On average in the OECD, 56.8% of middle-skill workers possessed an upper-secondary education. The highest shares were in the Slovak Republic, Poland and the Czech Republic, while the lowest shares of middle-skill workers holding at least an upper-secondary diploma were found in Portugal, Spain and Greece.[10] Over a third of middle-skill workers possessed less than an upper-secondary diploma implying that middle-skill jobs were accessible to even those with little education.[11]

Figure 4.5. Middle-skill workers were workers without a tertiary degree

Share of middle-skill workers by gender and education, 1994-1996 (average)



Notes: Mid-2000s refer to 2004, 2005 and 2006. For countries with no data in 1994, "mid-1990s" is the three earliest years of data. The earliest years are: 1995 (Austria), 1996 (Netherlands, Norway, Slovenia, Switzerland), 1997 (Estonia, Finland, Hungary, Sweden), 1998 (Czech Republic, Latvia, Slovak Republic), 2002 (Poland).
Source: European labour force survey (EU-LFS), The German Socio-Economic Panel (SOEP) for Germany, and the Current Population Survey (CPS) for the United States.

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Middle-skill workers were more likely to be male

Middle-skill employment was also dominated by men. Among middle-skill workers without a tertiary degree, a little less than two thirds were men on average across the OECD. Among countries for which data are available, the highest shares were found in Spain and Luxembourg, which had male shares of middle-skill workers without a tertiary degree of over 70%. The lowest shares were found in the United States and Slovenia. Despite having the lowest shares of men, men still exceeded 50% of middle-skill workers in each of these countries.

Further enforcing the gender disparities in middle-skill work, the share of men in middle-skill work without an upper-secondary degree exceeded the share of women with one. Men without an upper-secondary degree made up 26% of middle-skill workers on average. Women who held at least an upper-secondary degree, but less than a tertiary degree, comprised only 18.6% of middle-skill workers.

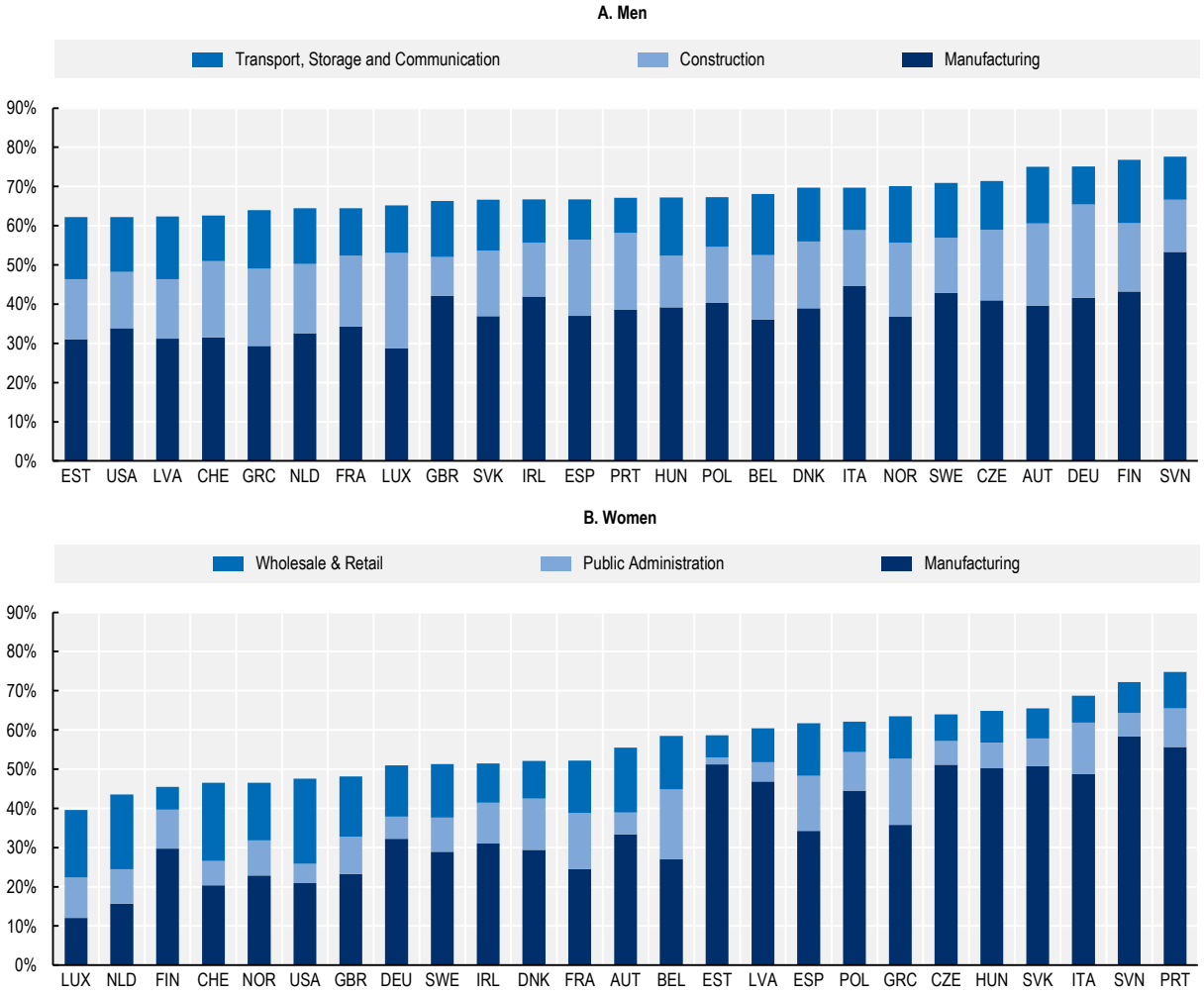
4.3.2. Both male and female middle-skill workers were most likely to work in manufacturing

Although substantial gender differences existed among middle-skill workers, both men and women were most likely to work in manufacturing. Figure 4.6 shows the share of middle-skill workers for men and women, respectively, in the three industries they were most likely to work in. For both men and women in middle-skill work, manufacturing represented the modal industry, employing 37.7% of men, and 35.3% of

women. Slovenia and Italy employed the highest share of male middle-skill workers in manufacturing. For women, Slovenia and Portugal employed the highest share of middle-skill women in manufacturing, with 58.3% and 55.7%, respectively.

Figure 4.6. Male and female middle-skill workers were concentrated in manufacturing

Share of middle-skill workers by industry for men (Panel A) and for women (Panel B), 1994-1996 (average)



Notes: Industry share of middle-skill workers in mid-1990s, 1994-1996. For countries with no data in 1994, "mid-1990s" is the three earliest years of data. The earliest years are: 1995 (Austria), 1996 (Netherlands, Norway, Slovenia, Switzerland), 1997 (Estonia, Finland, Hungary, Sweden), 1998 (Czech Republic, Latvia, Slovak Republic), 2002 (Poland).
Source: European labour force survey (EU-LFS), The German Socio-Economic Panel (SOEP) for Germany, and the Current Population Survey (CPS) for the United States.

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The gender differences for middle-skill workers are most apparent in industries other than manufacturing. For women, the next most probable industry was wholesale and retail trade which averaged 11.7% of women in middle-skill employment followed by public administration with 9.4%. The United States and the Netherlands employed the largest share of middle-skill women in wholesale and retail trade with 21.6% and 19.1%, respectively. For public administration, Belgium with 17.8%, and Greece with 16.9%, employed the highest shares.

Middle-skilled men were more likely to be employed in construction, as well as in transportation and storage. After manufacturing, construction employed the largest share of middle-skill male workers across the OECD followed by transportation and storage with 16.8% and 13.3%, respectively. The highest share of workers in construction were found in Luxembourg and Austria, with 24.3% and 21% respectively. For transportation and storage, the highest shares of middle-skilled male workers were found in Finland and Latvia with a little over 16% in both countries.

Occupations differed greatly for middle-skill workers by gender

For men, the industry distribution of middle-skill workers was reflected in their most common occupations. Table 4.3 shows the three most likely detailed occupations across OECD countries for middle-skill workers from two decades prior by gender.[12] The most likely occupations were drivers, building finishers, and machinery mechanics and repairers. The three most likely occupations are indicative of the three most likely industries: transportation & storage, construction, and manufacturing.

Table 4.3. Middle-skill occupations varied greatly by gender

Most common middle-skill occupations by gender, 1994-1996 (average)

Women	Men
Secretaries	Truck, Delivery Drivers
Cashiers	Machine Operators
Bookkeepers and Accounting Clerks	Building Finishers (floors, roofing, insulation)

Notes: First row is the most prevalent occupation for each gender, the last row is the third most prevalent. For countries with no data in 1994, "mid-1990s" is the three earliest years of data. The earliest years are: 1995 (Austria), 1996 (Netherlands, Norway, Slovenia, Switzerland), 1997 (Estonia, Finland, Hungary, Sweden), 1998 (Czech Republic, Latvia, Slovak Republic), 2002 (Poland).
Source: European labour force survey (EU-LFS), The German Socio-Economic Panel (SOEP) for Germany, and the Current Population Survey (CPS) for the United States.

The occupations most likely to be held by middle-skill women did not follow as clearly from the most likely industries to employ middle-skill women. Middle-skill women were most likely to be employed as secretaries, cashiers and book keepers or auditing clerks. The latter two reflect two of the modal industries most likely to employ female middle-skill workers: wholesale and retail trade, and public administration. The most likely occupation, secretaries, are employed across industries and therefore make up the modal occupation without any explicit tie to the modal industry, manufacturing.[13]

4.4. Where are middle-skill workers going?

This section ties together the results of the previous two sections. First, it shows that changes in the composition of the employed population are not the main cause of the declining share of middle-skill employment shares, an issue complicating the results of Section 4.2. It also establishes that groups likely to have been middle-skill workers in the past (Section 4.3) experienced a decreased tendency to work in middle-skill jobs. The rest of the section shows that groups who were previously likely to work in middle-skill jobs, especially workers with an upper-secondary degree but no tertiary degree, are now more likely to work in low-skill employment.

4.4.1. The decline in middle-skill employment is not primarily due to changing demographics

The working-age population is more highly educated today than twenty years prior. This shift alone may account for the decline in middle-skill employment. This would complicate the results in Section 4.2 because the types of workers holding middle-skill jobs today have a different demographic profile compared to middle-skill workers two decades prior. To answer the question of whether or not shifts in the demographic composition of the working-age population are causing the shares of middle-skill employment to shrink, the analysis turns to a shift-share analysis.[14] The shift-share analysis decomposes the change in the share of middle-skill employment into shifts induced by changes in the composition of the workforce and changes in propensity to be employed in middle-skill employment within groups. In other words, it shows what the share of middle-skill employment would have been if the skill composition of the work-force had not changed in each country over 20 years (composition effect), as well as if the propensity to work in middle-skill jobs among individuals of each skill groups had not changed over the same period of time (propensity).[15]

The analysis in this section is most similar to Cortes, Jaimovich and Siu (2017[24]) who perform a similar analysis for the United States. Researchers have performed similar analyses for Germany (Bachmann, Cim and Green, 2018[25]), Finland (Maczulskij and Kauhanen, 2017[26]), and the United Kingdom (Salvatori, 2015[27]).

A simple example helps to explain the shift-share and argue for its importance. From Section 4.3 it is apparent that workers with a tertiary degree are less likely to work in middle-skill jobs compared to workers with less education. If the share of the labour force with a tertiary degree increases over time, the share of employment in middle-skill work will likely decline. In this case, middle-skill workers are not “moving.” Workers across the education distribution are possibly employed in different skill groups at the same rates as before, but the shift in composition makes it look like middle-skill employment has declined.

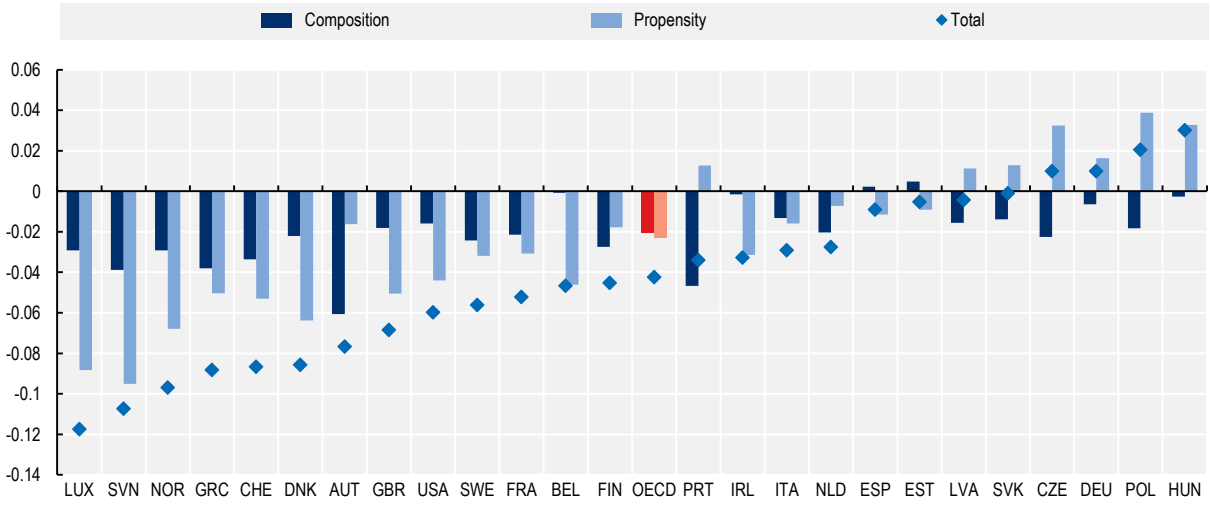
A key part of the shift-share is the division of workers into distinct groups. The analysis divides workers into mutually exclusive and collectively exhaustive groups based on education and gender. The analysis in the previous section found that they are the best predictors of middle-skill employment. The association between these predictors and middle-skill employment is the deciding factor for their inclusion. They are similar to the demographic characteristics used in Cortes, Jaimovich and Siu (2017[24]) who follow the same methodology for the United States.[16]

The results of the shift-share show that both changes in composition and changes in the propensity to work in middle-skill jobs contributed to the decline in the share of middle-skill employment. Across OECD countries in the sample, the share of middle-skill employment declined by 4.2 percentage points.[17] That decline can be decomposed into the part due to composition changes, 2.1 percentage points, and decreased propensity to work in middle-skill jobs within groups, 2.3 percentage points. The decrease in middle-skill employment due to compositional changes is not surprising given the increased share of the population with a tertiary degree.[18]

Decreases in the propensity to work in middle-skill employment exceed compositional effects in the majority of countries in the sample (Figure 4.7). Luxembourg, Slovenia, and Norway saw the largest declines in middle-skill employment due to decreased propensity in absolute numbers. The countries with the largest declines in propensity as a share of the total decline in middle-skill shares were Estonia, Spain, Ireland and Belgium.

Figure 4.7. Shrinking share of middle-skill employment due (slightly more) to diminished propensity to work more than changing composition

Percentage point change in share of middle-skill employment due to composition and propensity, mid-1990s to mid-2010s



Notes: Mid-1990s refer to 1994, 1995 and 1996. For countries with no data in 1994, "mid-1990s" is the three earliest years of data. The earliest years are: 1995 (Austria), 1996 (Netherlands, Norway, Slovenia, Switzerland), 1997 (Estonia, Finland, Hungary, Sweden), 1998 (Czech Republic, Latvia, Slovak Republic), 2002 (Poland). Mid-2010s refer to 2016-2018. The share of middle-skill employment includes the entire working-age population and includes non-employment as a possible category. OECD is an unweighted average of the countries shown.
Source: European labour force survey (EU-LFS) and the Current Population Survey (CPS) for the United States.

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4.4.2. Workers without a tertiary degree are more likely to be employed in low-skill occupations

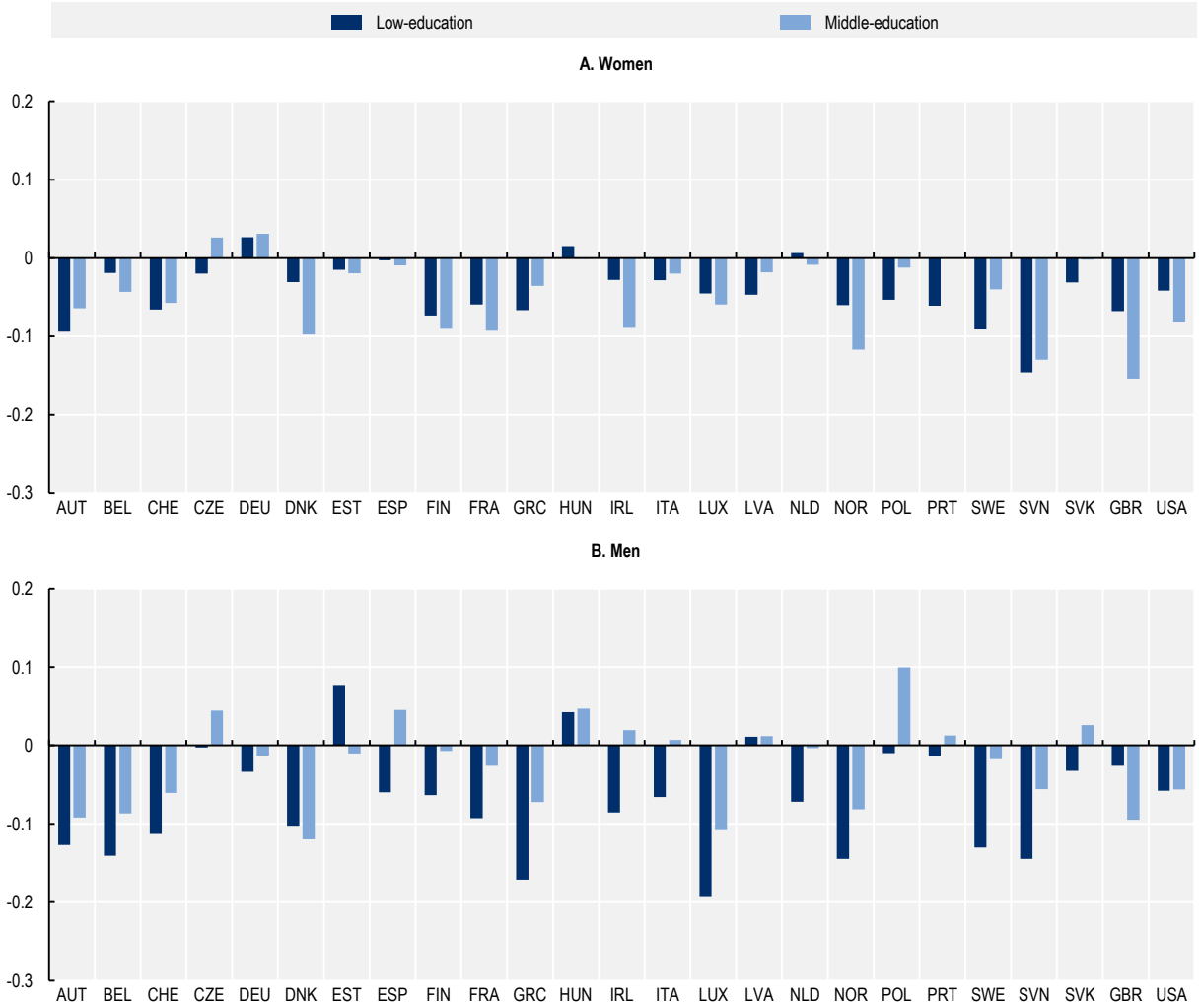
The preceding shift-share analysis confirmed that propensity to work in middle-skill jobs contributed to the decline in the share of middle-skill employment. Changes in the composition of the labour force – greater educational achievement and women's increased participation – are a contributing factor. The analysis did not show where workers are increasingly likely to work. To see where they are working, this analysis digs deeper into the changing propensities of where workers likely to be middle-skill are employed.

Middle-educated men have seen only a modest drop in middle-skill employment shares

Across OECD countries for which data are available, workers without a tertiary degree have become less likely to work in middle-skill occupations. This is not entirely surprising given the decline in middle-skill employment overall. However, it was not a given that all groups would experience a drop in their propensity to work in middle-skill occupations. Middle-educated men have been the least affected with the share of the working-age population in middle-skill occupations dropping a little over 2 percentage points (Figure 4.8). Low-educated men saw their share decrease by 7 percentage points. Women with low and middle-education experienced a decline of a little over 4 percentage points each.

Figure 4.8. The propensity to work in middle-skill occupations fell for all workers without a tertiary degree

Percentage point change in the shares in middle-skill jobs by gender-education groups, mid-1990s to mid-2010s



Notes: For each group, the bars report the change in the ratio of the number of workers of that group holding middle-skill jobs to the working-age population of that group. Mid-1990s refer to 1994, 1995 and 1996. For countries with no data in 1994, "mid-1990s" is the three earliest years of data. The earliest years are: 1995 (Austria), 1996 (Netherlands, Norway, Slovenia, Switzerland), 1997 (Estonia, Finland, Hungary, Sweden), 1998 (Czech Republic, Latvia, Slovak Republic), 2002 (Poland). Mid-2010s refer to 2016-2018.
Source: European labour force survey (EU-LFS), and the Current Population Survey (CPS) for the United States.

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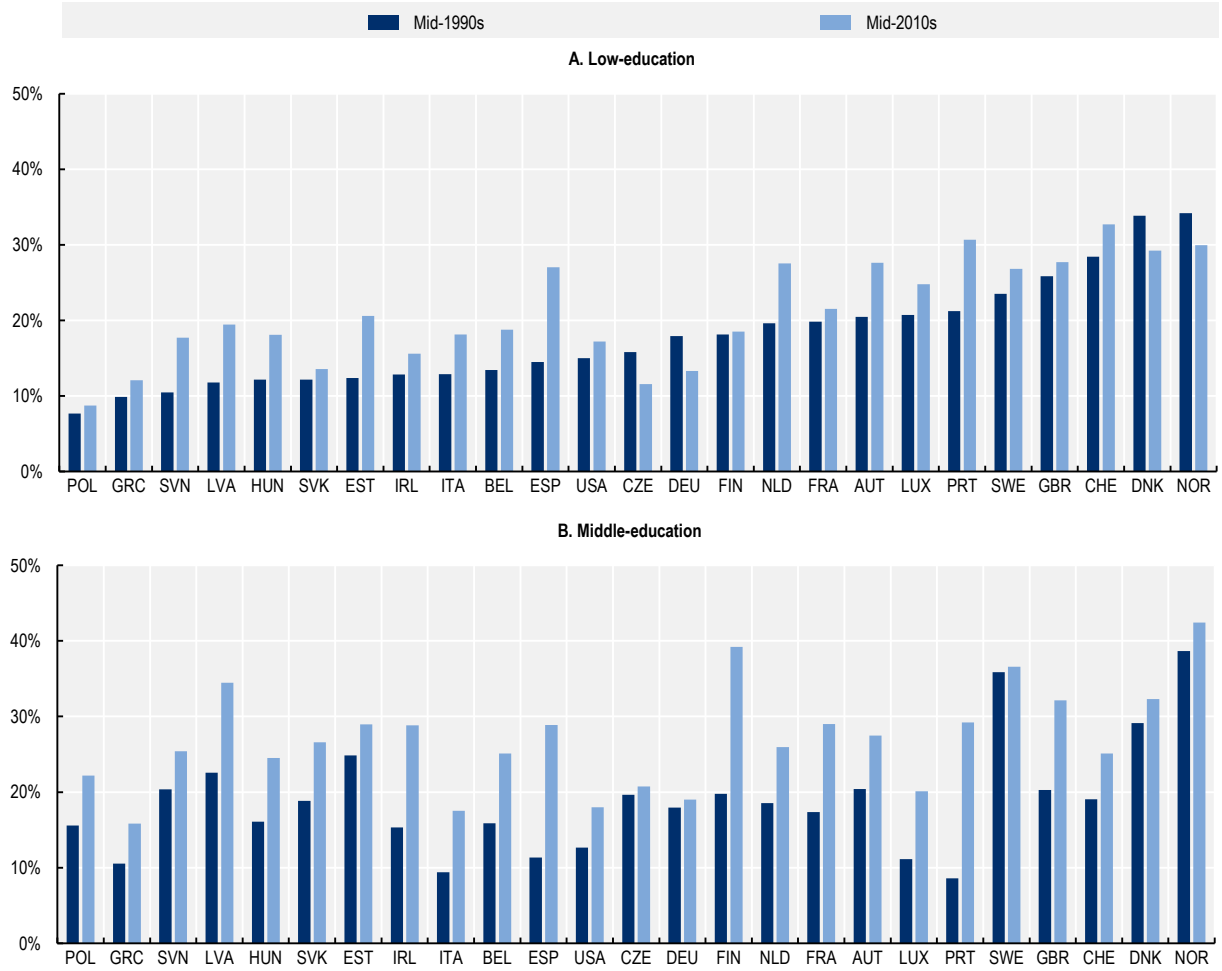
Middle-educated workers are much more likely to be in low-skill employment

As the share of middle-occupation employment has declined, workers without a tertiary degree are increasingly likely to work in low-skill occupations. Figure 4.9 shows the percentage point increase in the propensity to work in low-skill occupations for women without a tertiary degree. The figure further divides employed women into those without an upper-secondary degree, and those with at least an upper-secondary degree, but no tertiary degree. The shift is most pronounced for middle-educated women. The propensity of employed middle-educated women to work in low-skill occupations increased from 18.8% to 27% twenty years later. For low-educated women the increase was more muted. Low-educated

women saw their propensity to work in low-skill occupations grow from 17.8% in the mid-1990s to 21.2% in the mid-2010s.[19]

Figure 4.9. Women without a tertiary degree more likely to work in low-skill occupations

Women's shares in low-skill occupations by education, mid-1990s and mid-2010s



Notes: For each group, the bars report the ratio of the number of women of that group holding low-skill jobs to the working-age population of that group. Mid-1990s refer to 1994, 1995 and 1996. For countries with no data in 1994, "mid-1990s" is the three earliest years of data. The earliest years are: 1995 (Austria), 1996 (Netherlands, Norway, Slovenia, Switzerland), 1997 (Estonia, Finland, Hungary, Sweden), 1998 (Czech Republic, Latvia, Slovak Republic), 2002 (Poland). Mid-2010s refer to 2016-2018.
Source: European labour force survey (EU-LFS), The German Socio-Economic Panel (SOEP) for Germany, and the Current Population Survey (CPS) for the United States.

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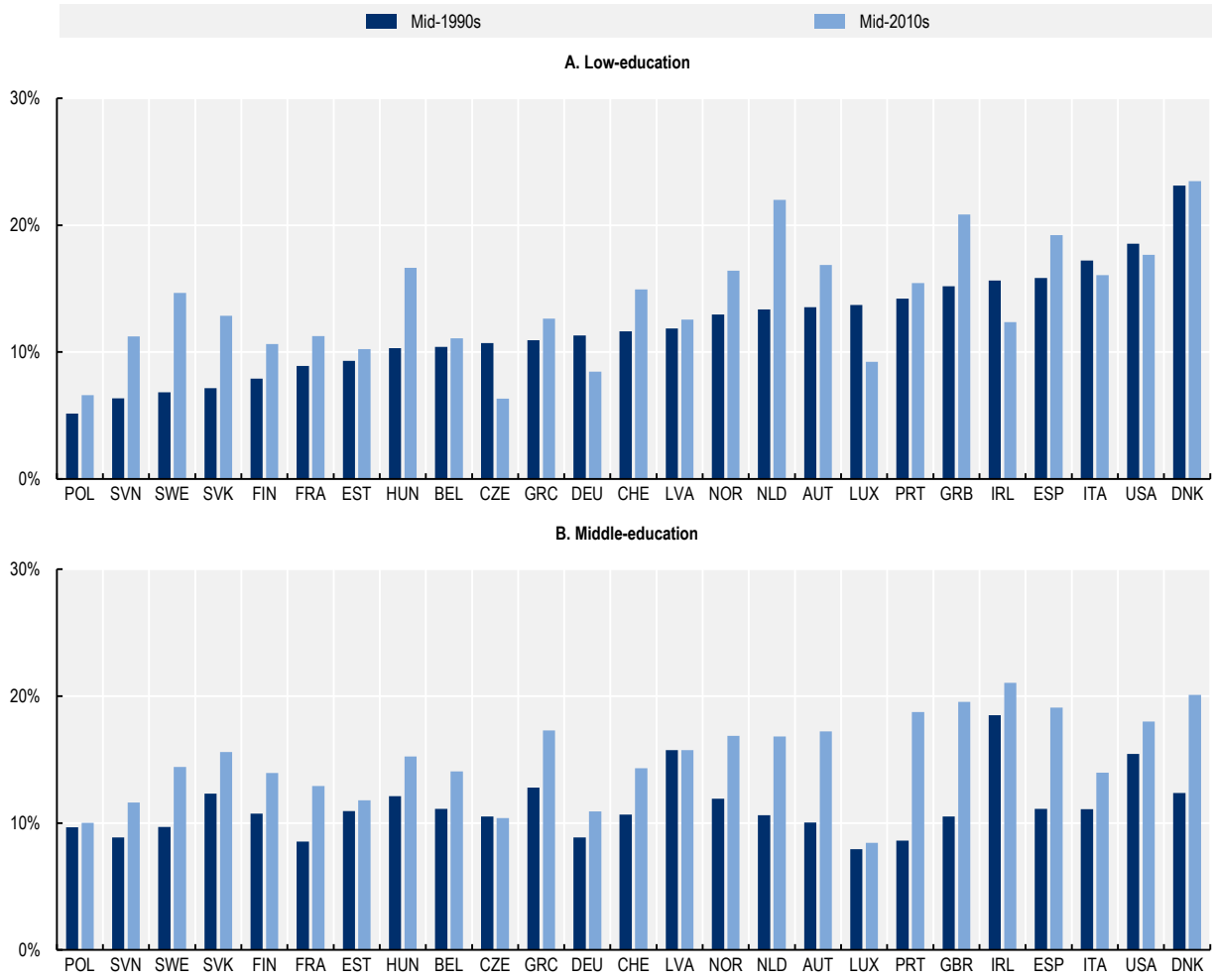
Middle-educated women in Finland, Portugal and Spain experienced the largest increase in the propensity to work in low-skill occupations. The percentage point increase in all three countries exceeded 17%. Low-educated women experienced the largest increase in the share working in low-skill occupations in Spain, Portugal and Estonia.

The propensity for employed men without a tertiary degree to work in low-skill occupations also increased across OECD countries. Figure 4.10 shows the change in the share in low-skill occupations for male, middle- and low-educated workers. Though still large, men saw a more muted shift towards low-skill

occupations compared to women. Low-educated men's propensity to work in low-skill occupations increased from 12.1% to 14% over the previous twenty years across OECD countries. For middle-educated men, the increase was larger, rising from 11.2% to 15.1%.

Figure 4.10. Men without a tertiary degree are also increasingly in low-skill occupations

Men's shares in low-skill occupations by education, mid-1990s and mid-2010s



Notes: For each group, the bars report the ratio of the number of men of that group holding low-skill jobs to the working-age population of that group. Mid-1990s refer to 1994, 1995 and 1996. For countries with no data in 1994, "mid-1990s" is the three earliest years of data. The earliest years are: 1995 (Austria), 1996 (Netherlands, Norway, Slovenia, Switzerland), 1997 (Estonia, Finland, Hungary, Sweden), 1998 (Czech Republic, Latvia, Slovak Republic), 2002 (Poland). Mid-2010s refer to 2016-2018.
Source: European labour force survey (EU-LFS), The German Socio-Economic Panel (SOEP) for Germany, and the Current Population Survey (CPS) for the United States.

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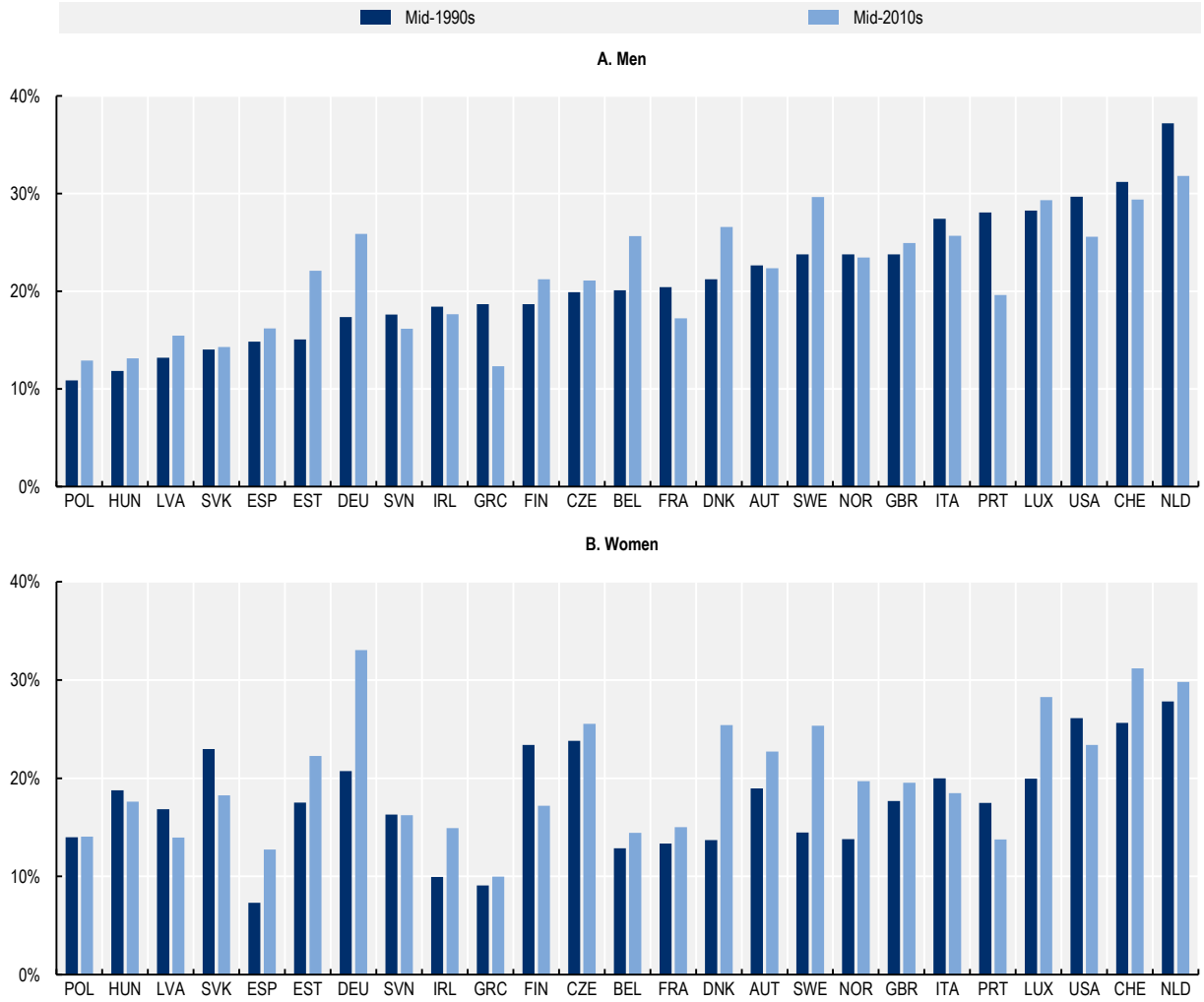
When examining individual countries, it is clear middle-educated men experienced a larger increase in the share of low-skill employment compared to low-educated men. Low-educated men in the Netherlands, Sweden and Hungary experienced the largest increase in the propensity to work in low-skill occupations. Their propensities increased by 8.6, 7.8 and 6.3 percentage points, respectively. For middle-educated men, the greatest increase occurred in Portugal, the United Kingdom and Spain, where increases topped 8 percentage points in each country.

Middle-educated workers of both genders are less likely to work in high-skill occupations, with some notable exceptions

There is not a corresponding increase in the propensity to work in high-skill occupations. Across OECD countries, the propensity to work in high-skill occupations declined by 0.5 percentage points for middle-educated men, and 0.4 percentage points for middle-educated women (Figure 4.11). For low-educated men, the change was a decline of 0.7 percentage. Low-educated women in OECD countries saw no change in the propensity to work in high-skill jobs.[20]

Figure 4.11. Middle-educated men and women are only slightly more likely to work in high-skill occupations

Shares of middle-educated workers in high-skill occupations by gender, mid-1990s and mid-2010s



Notes: For each group, the bars report the ratio of the number of workers of that group holding high-skill jobs to the working-age population of that group. Mid-1990s refer to 1994, 1995 and 1996. For countries with no data in 1994, "mid-1990s" is the three earliest years of data. The earliest years are: 1995 (Austria), 1996 (Netherlands, Norway, Slovenia, Switzerland), 1997 (Estonia, Finland, Hungary, Sweden), 1998 (Czech Republic, Latvia, Slovak Republic), 2002 (Poland). Mid-2010s refer to 2016-2018.
Source: European labour force survey (EU-LFS), The German Socio-Economic Panel (SOEP) for Germany, and the Current Population Survey (CPS) for the United States.

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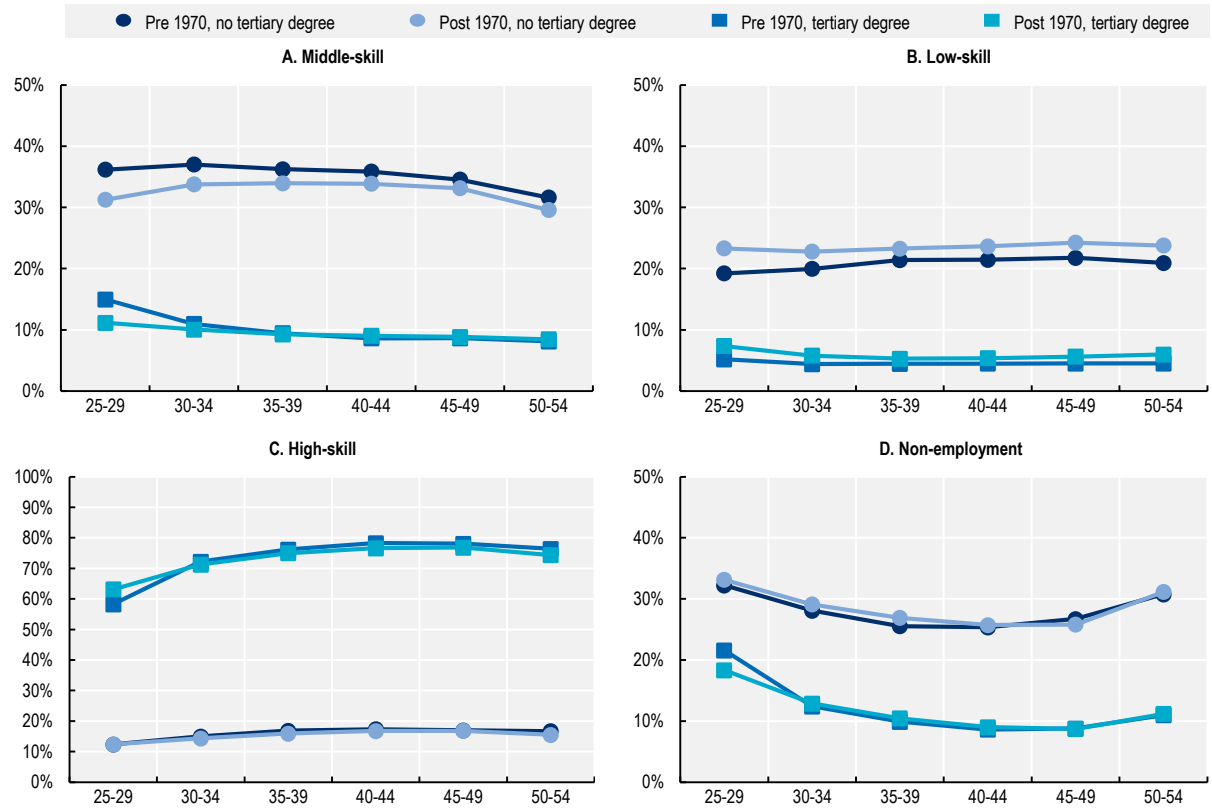
Although propensities to work in high-skill occupations declined, there were some countries that saw substantial increases in the share of workers in high-skill occupations. In Denmark, Germany, Norway and Sweden the share of middle-educated women in high-skill occupations increased by more than 5 percentage points. Denmark, Germany, Norway and Sweden (together with Estonia) also had the largest increases in the share of middle-educated men moving into high-skill occupations over the preceding twenty years. Interestingly, many of these countries have a vocational education and training system (VET) at the intermediate education level that seem to work particularly well (see Chapter 5).

Changing entry propensities for middle- and low-skill employment are almost entirely due to workers without a tertiary education

To bring the analysis to a close, the chapter returns to the cohort analysis introduced at the end of Section 4.2. Figure 4.12 shows the life-cycle labour market employment shares for pre- and post-1970 birth cohorts again, but this time further broken out by educational attainment. Breaking out the life-cycle employment shares by education further targets workers most likely to have been middle-skilled in the past (Section 4.3).

Figure 4.12. Propensities to work in different skill groups mostly driven by differential entry of younger cohorts without a tertiary degree

Shares in different occupation-skill groups at different ages by birth cohort and education



Notes: Pooled data represents unweighted country averages. Shares are computed as the ratio of the number of workers in a given skill group (or non-employment) to the population of the relevant age-education group. Data encompass years 1994-2018. Pre 1970 encompasses birth years 1946-1970. Post 1970 consists of birth years 1970-1993.
Source: European labour force survey (EU-LFS).

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Changing entry propensities for middle- and low-skill employment are almost entirely due to workers without a tertiary education. This finding reinforces the main results from the beginning of this section. There is little change in either entry propensities or life-cycle trajectories for high-skill employment and non-employment by educational attainment. Similarly, workers with a tertiary education show no discernible differences pre- and post-1970 with regard to employment in middle- and low-skill employment. The major change is that workers without a tertiary degree are less likely to work in middle-skill employment and more likely to work in low-skill employment. The trajectories to the eye are quite similar with entry patterns showing the greatest difference between pre- and post-1970 birth cohorts without a tertiary education.

4.5. Concluding remarks

The share of middle-skill jobs in OECD labour markets has declined over the past three decades. Middle-skill jobs once made up a large share of overall employment, but automation and offshoring have reduced the share of middle-skill employment relative to low-skill and high-skill occupations, a trend that has been termed job polarisation. What is happening to workers who could have previously expected to be employed in middle-skill occupations is an enduring and question for governments in OECD countries.

In the past, employment in middle-skill occupations provided many workers with a good standard of living. The decline in employment opportunities in these occupations has meant that workers who previously would have held these jobs are increasingly employed in low-skill occupations.

The shift in the share of middle-skill jobs towards low- and high-skill employment has mostly taken place through attrition, at least in European countries. That is to say through successive cohorts of younger workers being less likely to enter the labour force in middle-skill jobs, and more likely to start in low-skilled and to a lesser extent high-skilled jobs. Their subsequent job trajectories over the life cycle are a contributing but secondary factor. Workers without a tertiary education degree are sliding down the job ladder. Compared with twenty years ago, workers without a tertiary degree are less likely to work in middle-skill occupations. This has been matched almost exactly by an increase in low-skill employment for this group. The analysis in this chapter, however, relies on cross-sectional and panel survey data from across Europe and the United States. Further analysis would be required to fully generalise these findings to the whole OECD.

Although the answer to the question of what is happening to middle-skill workers appears bleaker than expected, some countries are performing well in mitigating the adverse effects of job polarisation. Over the past two decades in Sweden, Germany, Norway and Denmark, the rise in the employment shares of middle-educated workers in high-skill occupations was almost as sizeable as the rise in their employment in low-skill occupations. The relative success of these countries shows that good jobs for formerly middle-skill workers is not necessarily due to insurmountable structural forces. Automation and globalisation have reduced the number of middle-skill employment opportunities for workers without a tertiary degree. However, countries that have improved employment opportunities for middle-skill workers share a set of common policies. They have strong institutions and practices around social dialogue, as well as an emphasis on vocational education and training (Chapter 5). The explicit application of these policies to the dynamics studied in this chapter will be left for future research.

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Annex 4.A. Data Sources

Unless otherwise noted, all samples use the working-age population defined as individuals ages 16-64. Some samples further restrict the age range to younger workers (ages 16-24), prime-age (25-54) and older workers (55-64).

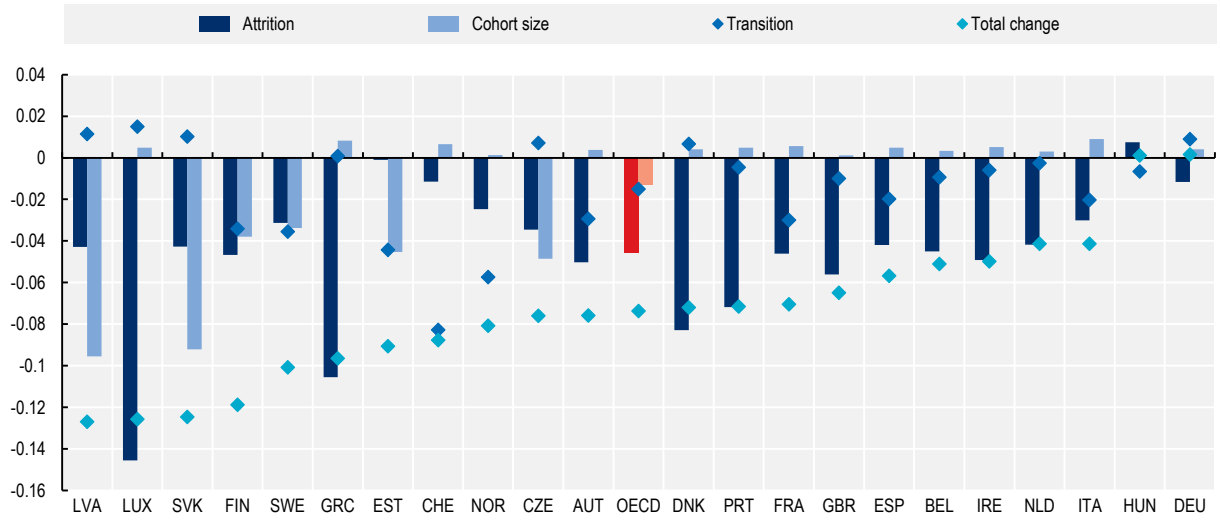
- **European Labour Force Survey (EU-LFS)**. The EU-LFS is the largest European household sample survey covering labour force participation of people aged 15 years and older as well as people outside the labour force. The national statistical institutes design and execute their own respective labour force surveys. Eurostat harmonises and distributes the microdata in consultation with the respective national statistical institutes. All OECD members who are members of the European Union or are EFTA countries are included in this study with the exception of Iceland.
- **German Socio-Economic Panel (GSOEP)**. The GSOEP is a longitudinal survey of private households in Germany from 1984 to 2016. The database is produced by the Deutsches Institut für Wirtschaftsforschung (DIW). The survey covers labour force topics, as well as household composition, health, and satisfaction.
- **Current Population Survey (CPS) including supplements**. The CPS is a monthly household survey conducted by the U.S. Census Bureau on behalf of the Bureau of Labor Statistics. The survey provides labour force information on household members age 15 years and older. In addition to the main questionnaire, each month one fourth of respondents rotate out of the survey and provide information on earnings.
- **European Union Statistics on Income and Living Conditions (EU-SILC)**. The EU-SILC is a European household sample survey covering income, poverty, social exclusion, living conditions and labour market outcomes. The EU-SILC began in 2004 and it now covers all EU countries, Iceland, Norway and Switzerland. The survey contains both a cross-sectional survey and a longitudinal element which observes individuals over-time. The longitudinal portion is employed in this chapter to track labour market transitions.

Annex 4.B. Attrition Transition Decomposition

The graphical analysis found in Figure 4.4 of the difference between transitions and attrition for the causes of the decline in middle-skill employment is useful, but incomplete. Annex Figure 4.B.1 shows the results of a more rigorous analytical decomposition of the contribution of attrition, transitions and cohort sizes to the decline in middle-skill employment shares. Attrition is meant as the contribution of younger cohorts showing different propensities to enter different occupation groups and non-employment when they are young (25-29 or 30-34, for example) while older cohorts exit the labour market. Transitions are meant to capture how propensities change as cohorts age, and whether these trajectories have meaningfully changed for subsequent birth cohorts. Finally, cohort size captures the fact that the analysis looks at the change in middle-skill employment over time, and birth cohorts appear at different ages at different points in time. Thus, the share of middle-skill employment can change – holding attrition and transitions constant – if birth cohort sizes vary.

Annex Figure 4.B.1. Attrition accounts for the majority of the decline in the share of middle-skill employment

Decomposition of the change in the share of middle-skill employment by attrition, transitions and cohort size, 1995-2018



Notes: Units are percentage point changes. Time period for change in the share of middle-skill employment is the average of 1995-2001 and 2013-2018. OECD is an unweighted average of the countries shown.
Source: European Labour Force Survey (EU-LFS).

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The more formal analysis shows that attrition is the primary mechanism for declining middle-skill employment shares. The figure shows the share of the change in middle-skill employment shares due to attrition, transitions and cohort size. Reported total changes differ from those shown in Figure 4.1 due to different time-periods. The first main finding is that the attrition component is sharply negative for almost all and in all countries except five – Estonia, Switzerland, Norway, Hungary and Sweden – the contribution from attritions is greater than that from transitions. This indicates that the lower propensity to enter middle-

skill employment for younger workers is driving the change. Second, the transition component is heterogeneous across countries. Few countries show a sharp negative contribution from transitions – Estonia, Switzerland, and Norway – while others show even a positive contribution. In countries where the transition component is positive, this implies that if entry rates were equal across age cohorts, the share of middle-skill employment would actually increase over-time. On average, attrition accounts for a little under two thirds of the change in middle-skill employment with the rest split almost evenly among transitions and cohort size.

Derivation of attrition and transition decomposition

What follows is the derivation of the decomposition into the two components (attrition and transition) as well as the age-cohort population weights. The derivation covers the general case of when the time period of the decomposition perfectly aligns with the minimum and maximum of the age groups. However, the decomposition generalizes to arbitrary time spans and the cases when cohorts are not perfectly observable. The analysis focuses on the cohort decomposition for middle-skill jobs (but the same reasoning/calculations hold for other types of jobs and non-employment).

There are three dimensions: age class *j*, cohort *c* and time *t*. Note that there is an unambiguous correspondence between any couple of these indexes and the third one. For example, class *j* at time *t* completely identifies cohort *c*. But at the same time cohort *c* and class *j* perfectly identifies time *t*, etc. To fix ideas, a unit of time in the derivation of the same span as the span of age classes. In Figure 4.4 age classes cover 5 years.

The derivation first proceeds with definitions. Let $M_{i,t}^{j}$ be the number of people of age class *j* in middle-skill jobs at time *t* (for cohort *i*) and $P_{i,t}^{j}$ the number of people of age class *j* at time *t*. We have, assuming that cohort *c* is in age class 1 at time *t*:

$$S_t = \frac{\sum_{j=1}^{k} M_{c-j+1,t}^{j}}{\sum_{j=1}^{k} P_{c-j+1,t}^{j}} = \frac{\sum_{j=1}^{k} \left(\frac{M_{c-j+1,t}^{j}}{P_{c-j+1,t}^{j}} \right) P_{c-j+1,t}^{j}}{\sum_{j=1}^{k} P_{c-j+1,t}^{j}} = \sum_{j=1}^{k} \left(M_{c-j+1,t}^{j} / P_{c-j+1,t}^{j} \right) w_t^j = \sum_{j=1}^{k} s_{c-j+1,t}^{j} w_t^j$$

where S_t stands for shares at time t, $s_{i,t}^{j} = \frac{M_{i,t}^{j}}{P_{i,t}^{j}}$ are age-class-specific share, *w* are population weights (the share of population with age class *j* in total population within the range defined by the selected set of age classes, e.g. 25-54) and *k* is the number of age classes.

The decomposition begins with a shift-share analysis between t and t+k-1 (with age-classes as the only grouping variable). This yields:

$$S_{t+k-1} - S_t = \underbrace{\sum_{j=1}^{k} w_t^j \left(s_{c+k-j,t+k-1}^{j} - s_{c-j+1,t}^{j} \right)}_{Shift[t;t+k-1]} + \underbrace{\sum_{j=1}^{k} s_{c+k-j,t+k-1}^{j} \left(w_{t+k-1}^{j} - w_t^j \right)}_{Share[t;t+k-1]}$$

The *Share* component simply gives the share of the change due to cohort size. The *Shift* component will yield the attrition and transition components. The idea is to compare each age-by-time specific share with the corresponding age-by-time specific share in the benchmark cohort.

We have:

$$Shift[t;t+k-1] = \sum_{j=1}^{k} w_t^j s_{c+k-j,t+k-1}^j - \sum_{j=1}^{k} w_t^j s_{c-j+1,t}^j$$

$$= \sum_{j=1}^{k} w_t^j s_{c+k-j,t+k-1}^j - \sum_{j=1}^{k} w_t^j s_{c,t+j-1}^j + \sum_{j=1}^{k} w_t^j s_{c,t+j-1}^j - \sum_{j=1}^{k} w_t^j s_{c-j+1,t}^j$$

$$= \sum_{j=1}^{k} w_t^j \left(s_{c+k-j,t+k-1}^j - s_{c,t+j-1}^j\right) - \sum_{j=1}^{k} w_t^j \left(s_{c,t+j-1}^j - s_{c-j+1,t}^j\right)$$

Before proceeding, define $\prod_{s=1}^{j} p^s$ as the transition path for the benchmark cohort which gives the trajectory of the benchmark cohort from its initial entry share. This implies that $s_{c,t+j-1}^j = s_{c,t}^1\left(\prod_{s=1}^{j} p^s\right)$. Similarly, defining $\prod_{s=j}^{k} q^s$ as the inverse transition path of the benchmark cohort, it maps the benchmark cohort back from its terminal share at age group *k* implying $s_{c,t+k-1}^k\left(\prod_{s=j}^{k} q^s\right) = s_{c,t+j-1}^j$. For clarity, in this example the benchmark cohort is cohort *c*, and enters the labour market (*j*=1) at time *t.*

The derivation into the transition and attrition components proceeds with the following two steps. First, substitute the two identities defined in the previous paragraph into the second and third terms of the most recent equation and then add and subtract $\sum_{j=1}^{k} s_{c+k-j,t+k-1}^j \left(\prod_{s=1}^{j} p^s\right) w_t^j$ and $\sum_{j=1}^{k} s_{c-j+1,t+k-j}^k \left(\prod_{s=j}^{k} q^s\right) w_t^j$, respectively. This yields

$$Shift[t;t+k-1] = TWTr[t;t+k-1] + TWAt[t;t+k-1]$$

Where *TWTr* represents the (weighted) transition component across dates and *TWAt* represents the (weighted) attrition component across dates. Operationally we have:

$$TWTr[t;t+k-1] =$$

$$= \sum_{j=1}^{k} \left(s_{c+k-j,t+k-1}^j - s_{c+k-j,t+k-j}^1 \left(\prod_{s=1}^{j} p^s \right) \right) + \sum_{j=1}^{k} w_t^j \left(s_{c-j+1,t+k-j}^k \left(\prod_{s=j}^{k} q^s \right) - s_{c-j+1,t}^j \right)$$

The first term fixes the benchmark trajectory to each post-benchmark cohort and compares their hypothetical share (using the benchmark trajectory) to their actual share in the *t+1* time period. The second term does the same with the pre-benchmark cohorts using the inverse transition path and comparing the hypothetical and actual share in period *t.* The result is the contribution of transitions. For attrition we have:

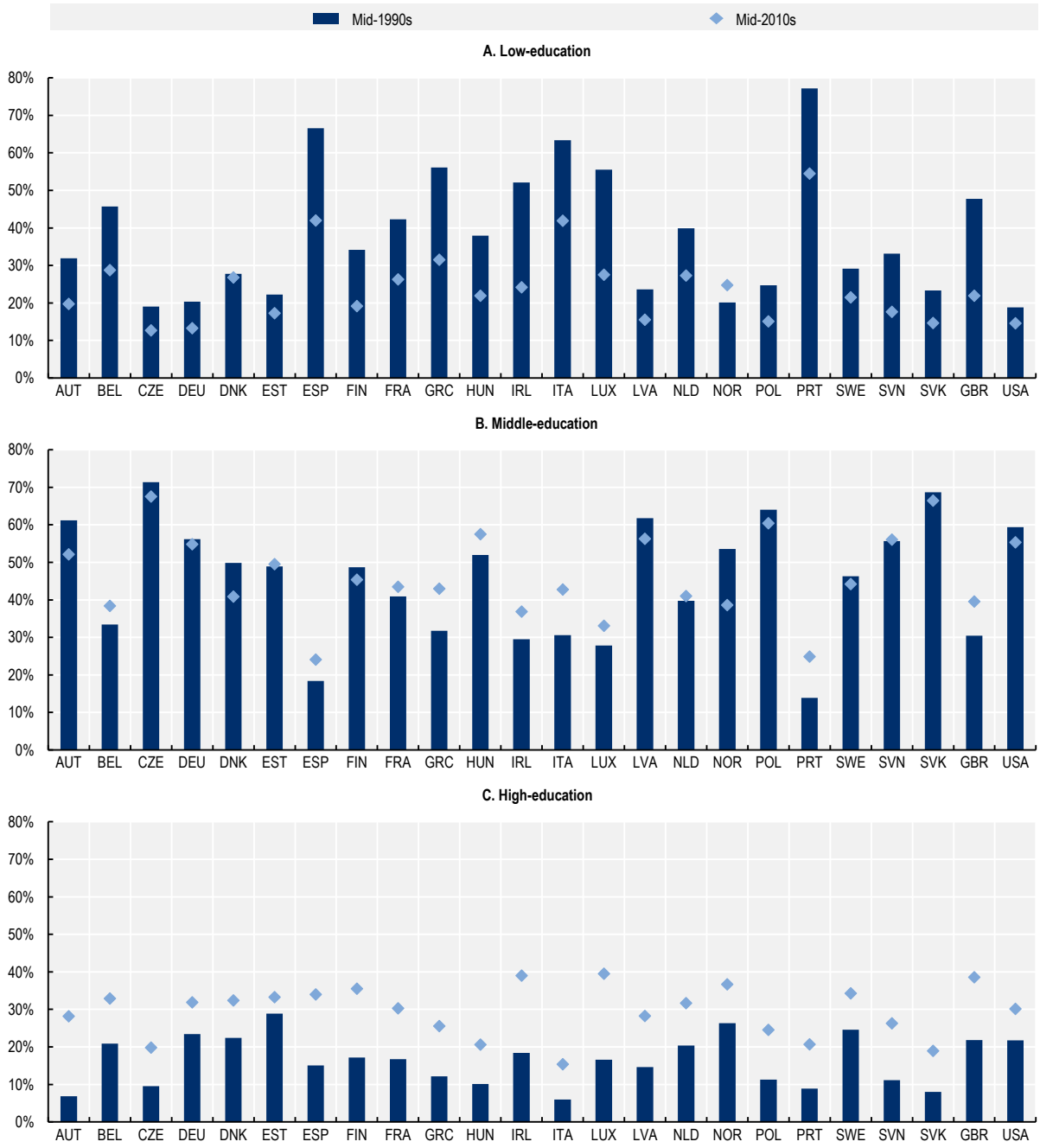
$$TWAt[t;t+k-1] =$$

$$= \sum_{j=1}^{k} w_t^j \left(\prod_{s=1}^{j} p^s \right) \left(s_{c+k-j,t+k-j}^1 - s_{c,t}^1\right) + \sum_{j=1}^{k} w_t^j \left(\prod_{s=j}^{k} q^s \right) \left(s_{c,t+k-1}^k - s_{c-j+1,t+k-j}^k\right)$$

The intuition is similar. The first term holds the transition component constant allowing the comparison of the entry share between the benchmark cohort, and each subsequent cohort. The second term does the same, except allowing the comparison of the benchmark cohort in its terminal age group (*j=k)* with the share in the terminal age group for all earlier cohorts. The result is the attrition component.

Annex 4.C. Additional Figures

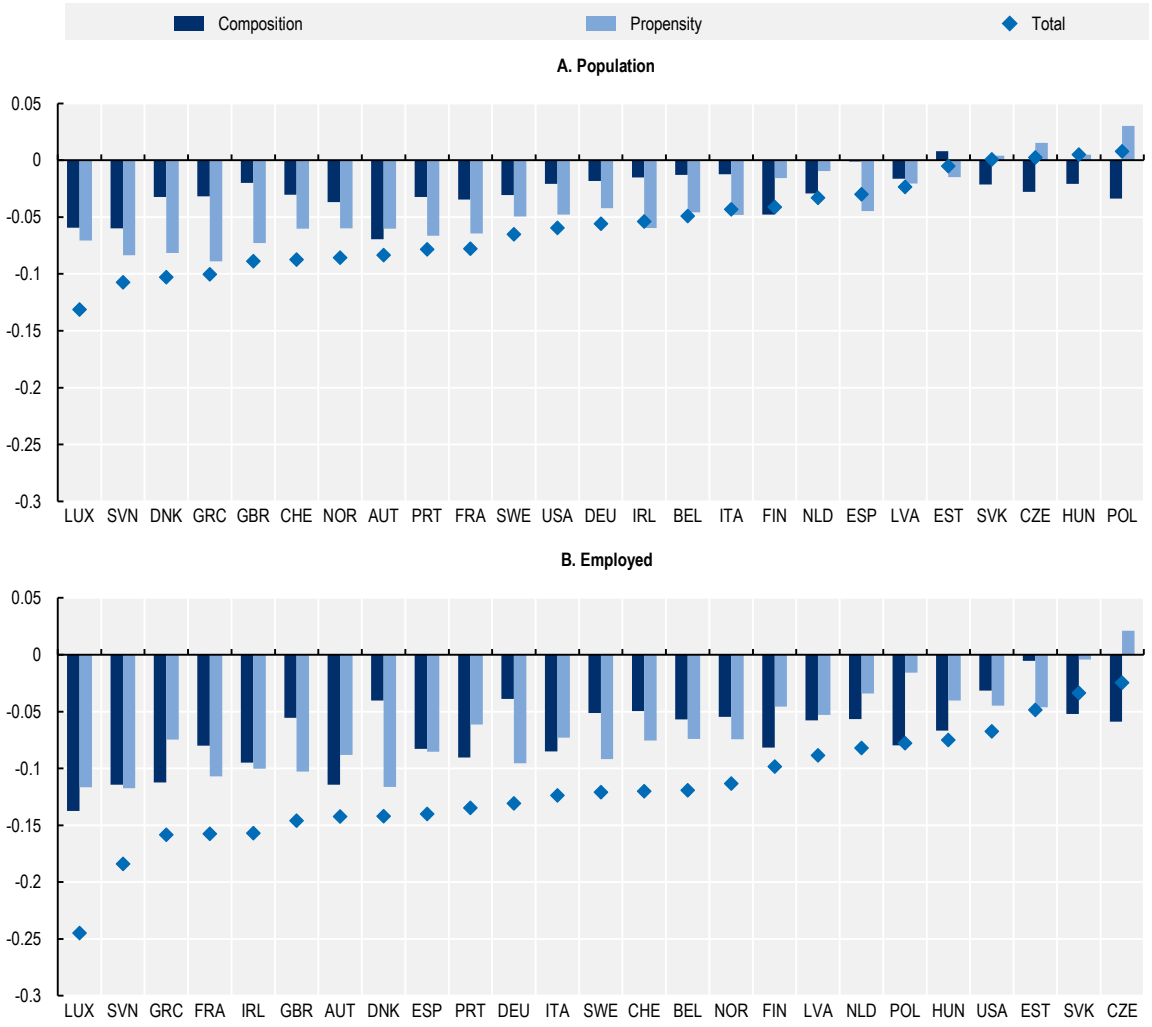
Annex Figure 4.C.1. Education shares of the working-age population



Notes: Education share are of population ages 15-64. Mid-1990s refer to 1994, 1995 and 1996. For countries with no data in 1994, "mid-1990s" is the three earliest years of data. The earliest years are: 1995 (Austria), 1996 (Netherlands, Norway, Slovenia, Switzerland), 1997 (Estonia, Finland, Hungary, Sweden), 1998 (Czech Republic, Latvia, Slovak Republic), 2002 (Poland). Mid-2010s refer to 2014-2016.
Source: European labour force survey (EU-LFS), The German Socio-Economic Panel (SOEP) for Germany, and the Current Population Survey (CPS) for the United States.

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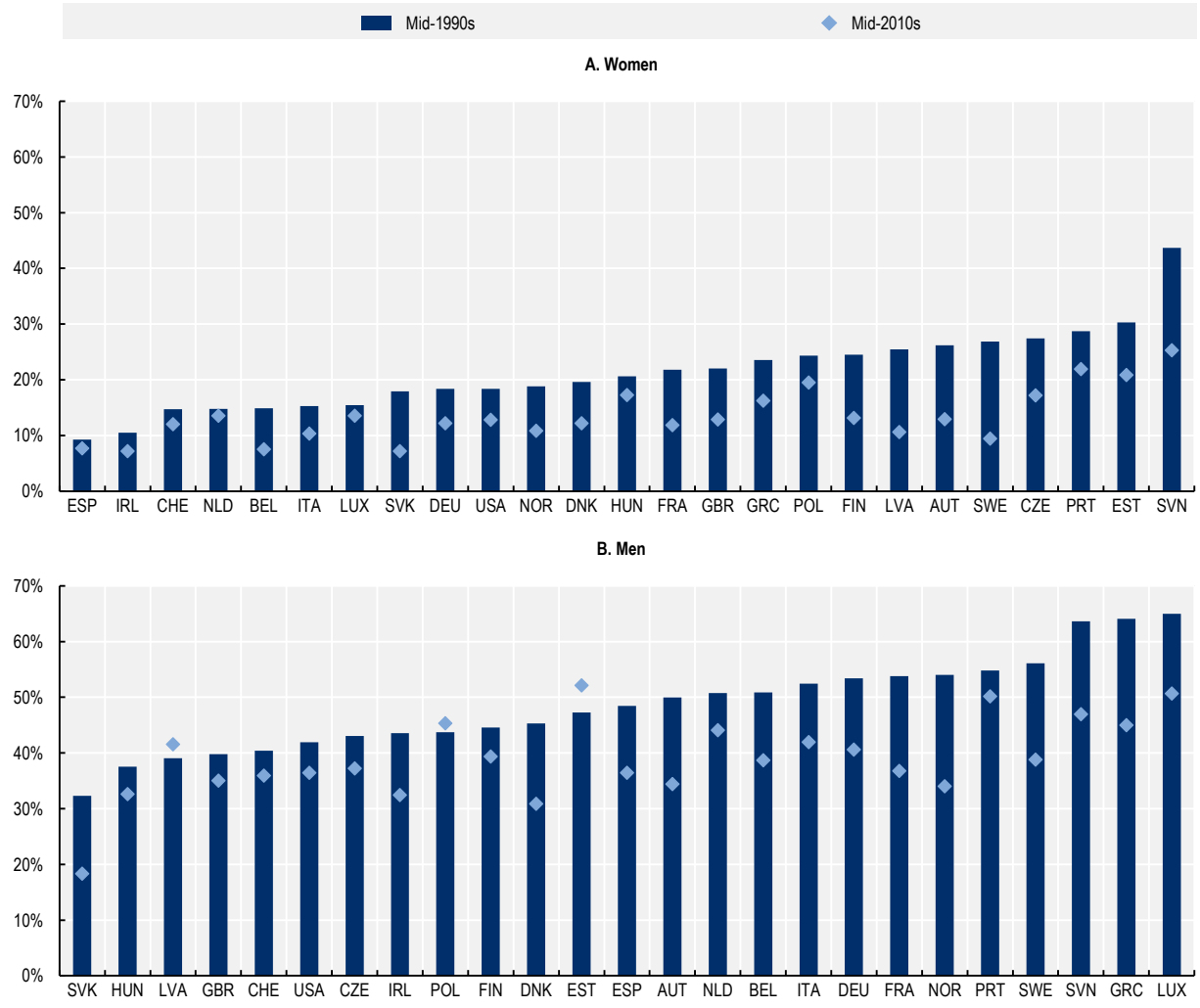
Annex Figure 4.C.2. Alternative shift-share analysis



Notes: Units are percentage point changes. Both shift-share analyses include age (young, prime, old) in addition to sex and education. Panel A decomposes changes in the share of middle-skill workers for the working-age population. Panel B does the same for the working-age employed only. Shift-share is from mid-1990s to mid-2010s. Mid-1990s refer to 1994, 1995, and 1996. For countries with no data in 1994, "mid-1990s" is the three earliest years of data. The earliest years are: 1995 (Austria), 1996 (Netherlands, Norway, Slovenia, Switzerland), 1997 (Estonia, Finland, Hungary, Sweden), 1998 (Czech Republic, Latvia, Slovak Republic), 2002 (Poland). Mid-2010s are 2014-2016.
Source: European labour force survey (EU-LFS), The German Socio-Economic Panel (SOEP) for Germany, and the Current Population Survey (CPS) for the United States.

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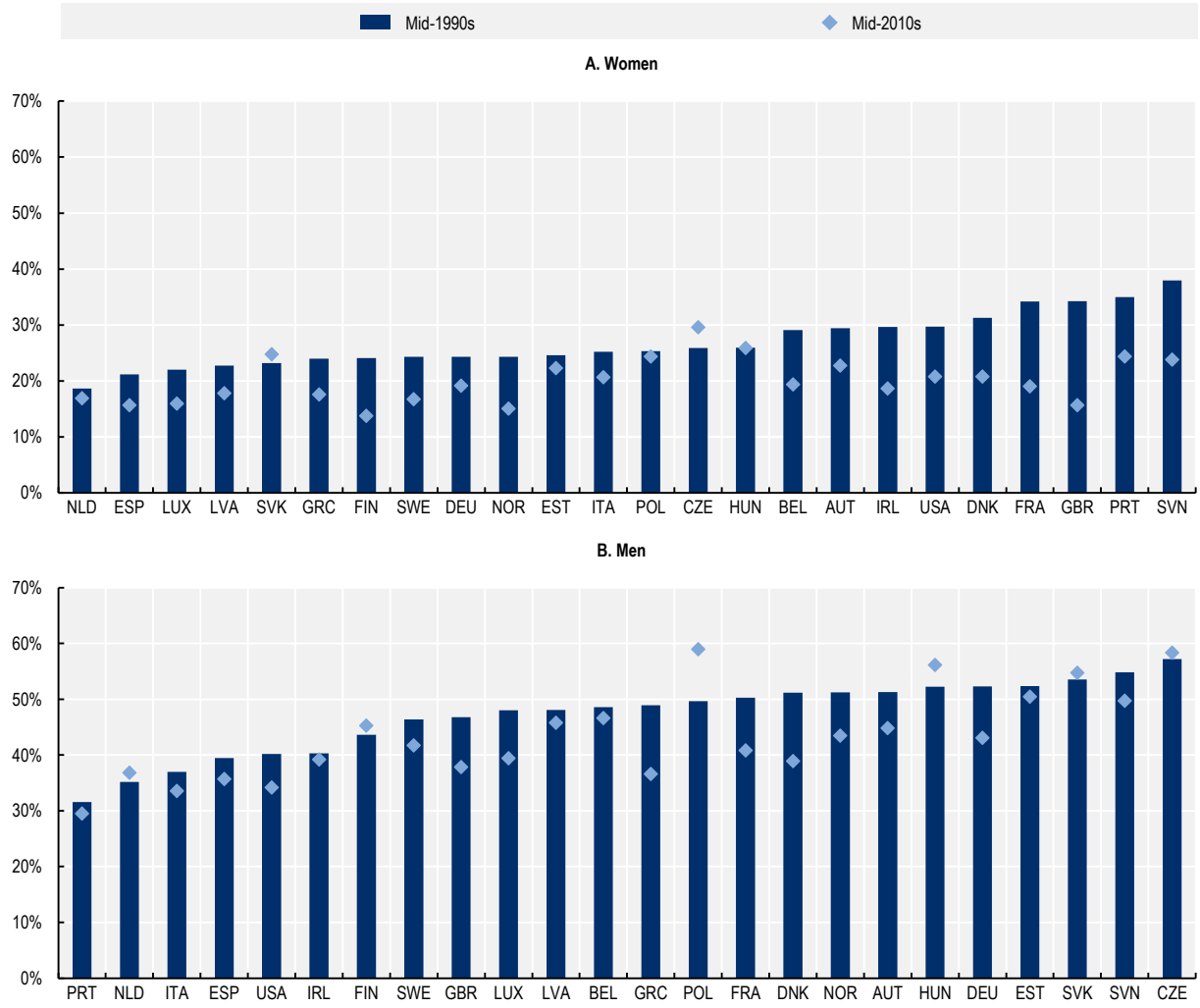
Annex Figure 4.C.3. Shares of low-education, prime-age workers in middle-skill employment



Notes: Mid-1990s refer to 1994, 1995 and 1996. For countries with no data in 1994, "mid-1990s" is the three earliest years of data. The earliest years are: 1995 (Austria), 1996 (Netherlands, Norway, Slovenia, Switzerland), 1997 (Estonia, Finland, Hungary, Sweden), 1998 (Czech Republic, Latvia, Slovak Republic), 2002 (Poland). Mid-2010s are 2014-2016.
Source: European labour force survey (EU-LFS), The German Socio-Economic Panel (SOEP) for Germany, and the CPS for the United States.

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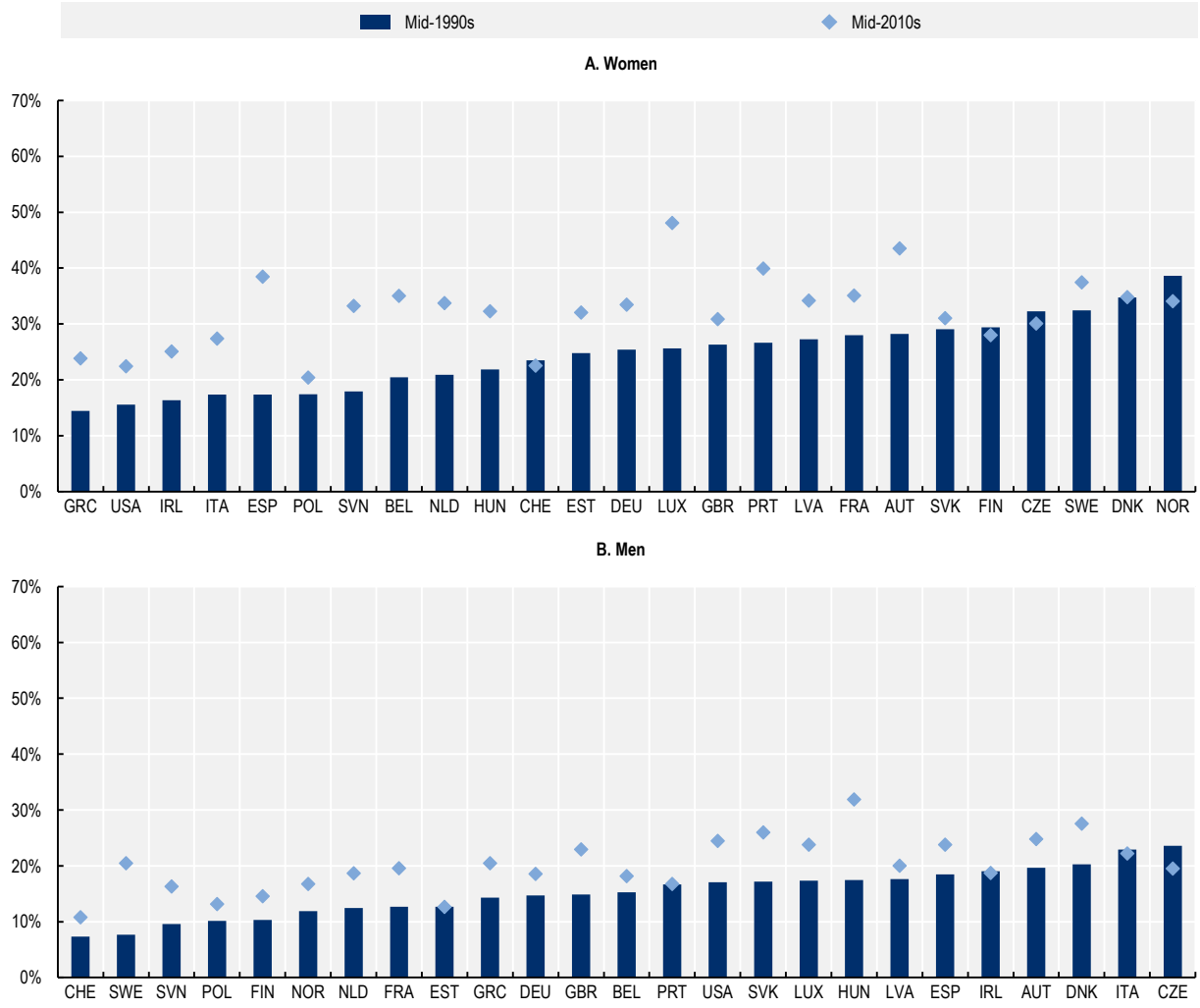
Annex Figure 4.C.4. Share of middle-educated, prime-age workers in middle-skill employment



Notes: Mid-1990s refer to 1994, 1995 and 1996. For countries with no data in 1994, "mid-1990s" is the three earliest years of data. The earliest years are: 1995 (Austria), 1996 (Netherlands, Norway, Slovenia, Switzerland), 1997 (Estonia, Finland, Hungary, Sweden), 1998 (Czech Republic, Latvia, Slovak Republic), 2002 (Poland). Mid-2010s are 2014-2016.
Source: European labour force survey (EU-LFS), The German Socio-Economic Panel (SOEP) for Germany, and the CPS for the United States.

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Annex Figure 4.C.5. Share of low-educated, prime-age workers in low-skill employment

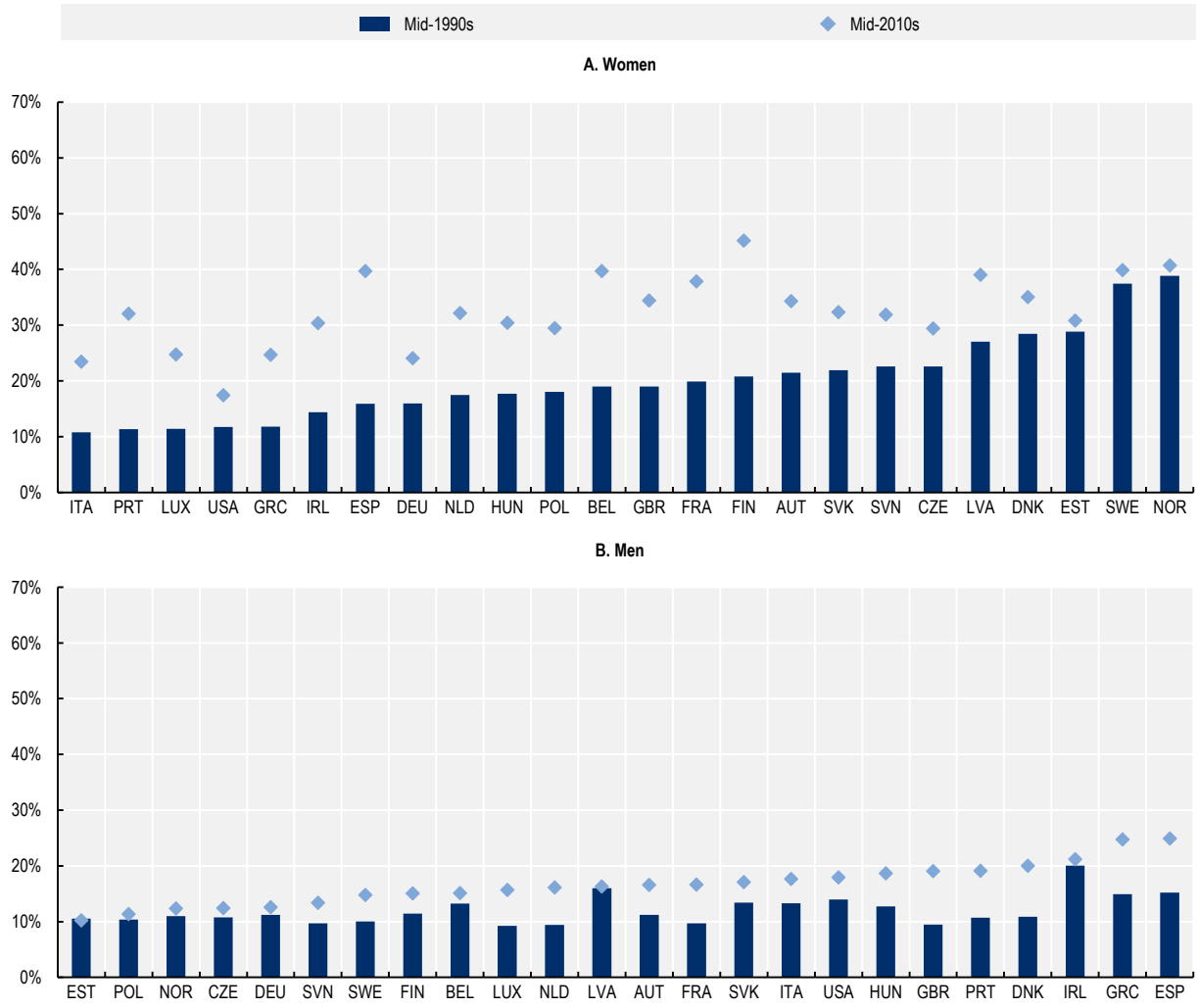


Notes: Mid-1990s refer to 1994, 1995 and 1996. For countries with no data in 1994, "mid-1990s" is the three earliest years of data. The earliest years are: 1995 (Austria), 1996 (Netherlands, Norway, Slovenia, Switzerland), 1997 (Estonia, Finland, Hungary, Sweden), 1998 (Czech Republic, Latvia, Slovak Republic), 2002 (Poland). Mid-2010s are 2014-2016.

Source: European labour force survey (EU-LFS), The German Socio-Economic Panel (SOEP) for Germany, and the Current Population Survey (CPS) for the United States.

StatLink https://stat.link/z57o3n

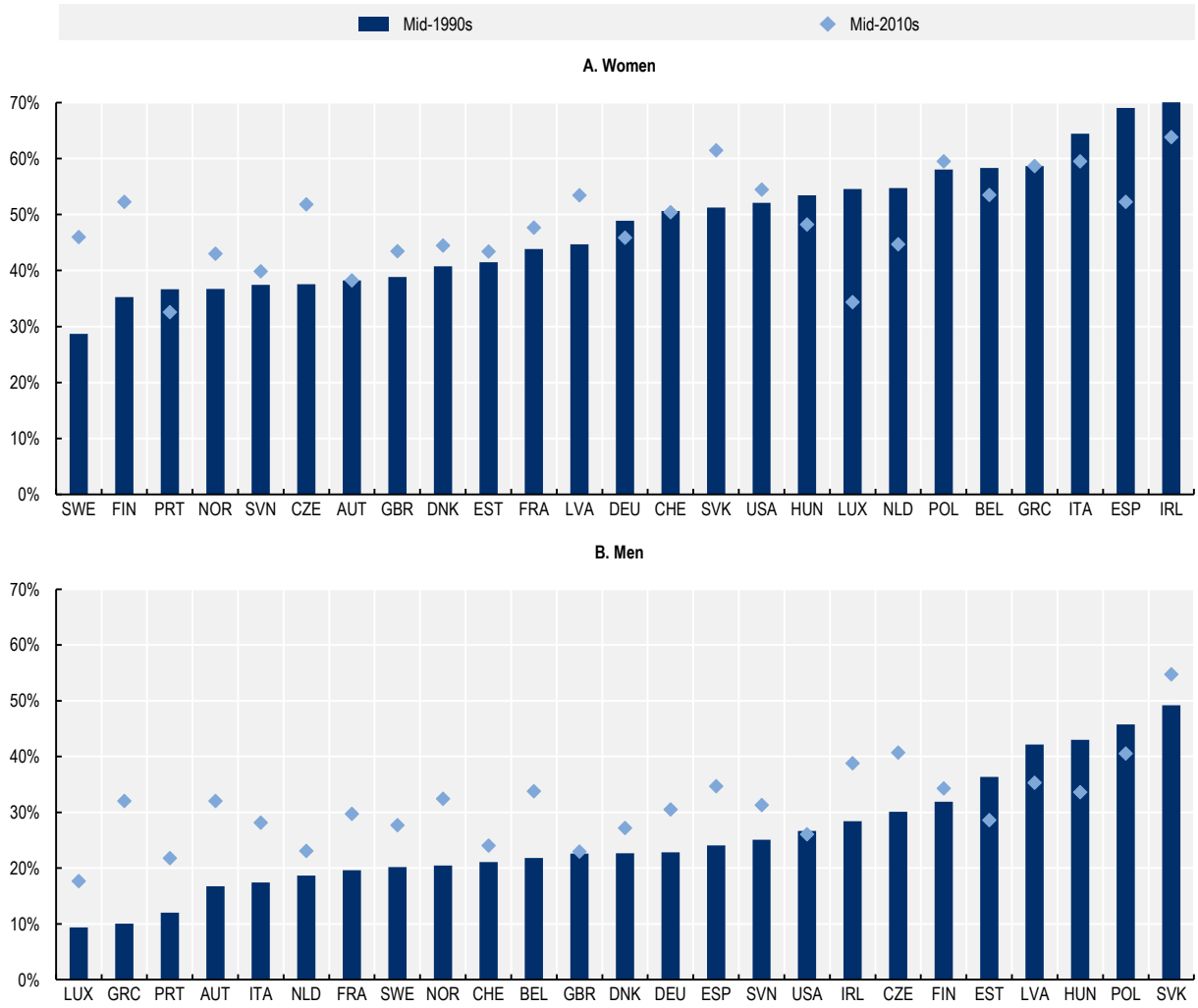
Annex Figure 4.C.6. Share of middle-educated, prime-age workers in low-skill employment



Notes: Mid-1990s refer to 1994, 1995 and 1996. For countries with no data in 1994, "mid-1990s" is the three earliest years of data. The earliest years are: 1995 (Austria), 1996 (Netherlands, Norway, Slovenia, Switzerland), 1997 (Estonia, Finland, Hungary, Sweden), 1998 (Czech Republic, Latvia, Slovak Republic), 2002 (Poland). Mid-2010s are 2014-2016.
Source: European labour force survey (EU-LFS), The German Socio-Economic Panel (SOEP) for Germany, and the Current Population Survey for the United States.

StatLink https://stat.link/cxbr2h

Annex Figure 4.C.7. Share of low-educated, prime-age workers in non-employment

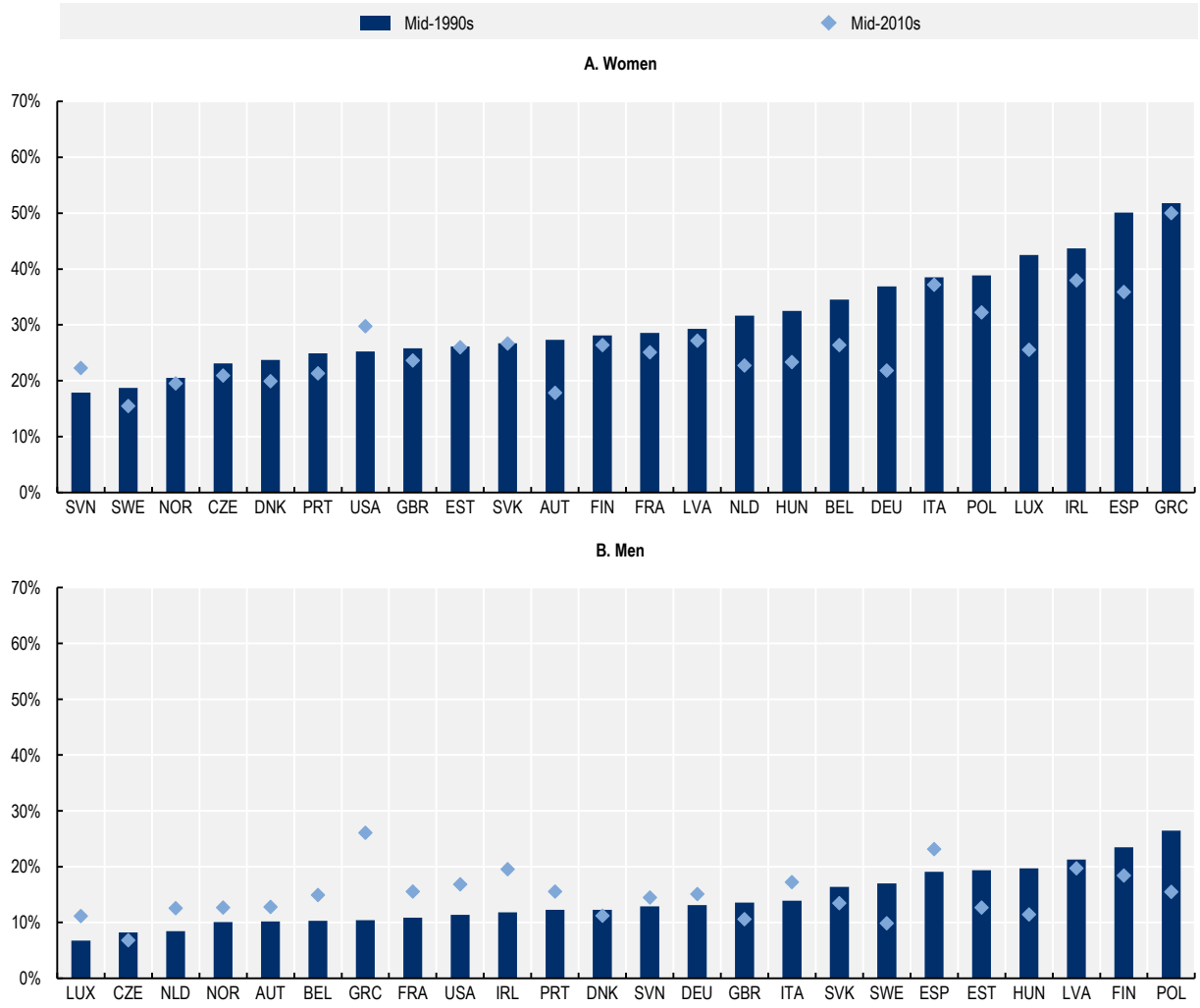


Notes: Mid-1990s refer to 1994, 1995 and 1996. For countries with no data in 1994, "mid-1990s" is the three earliest years of data. The earliest years are: 1995 (Austria), 1996 (Netherlands, Norway, Slovenia, Switzerland), 1997 (Estonia, Finland, Hungary, Sweden), 1998 (Czech Republic, Latvia, Slovak Republic), 2002 (Poland). Mid-2010s are 2014-2016.

Source: European labour force survey (EU-LFS), The German Socio-Economic Panel (SOEP) for Germany, and the Current Population Survey (CPS) for the United States.

StatLink https://stat.link/h6sfw5

Annex Figure 4.C.8. Share of middle-educated, prime-age workers in non-employment employment



Notes: Mid-1990s refer to 1994, 1995 and 1996. For countries with no data in 1994, "mid-1990s" is the three earliest years of data. The earliest years are: 1995 (Austria), 1996 (Netherlands, Norway, Slovenia, Switzerland), 1997 (Estonia, Finland, Hungary, Sweden), 1998 (Czech Republic, Latvia, Slovak Republic), 2002 (Poland). Mid-2010s are 2014-2016.

Source: European labour force survey (EU-LFS), The German Socio-Economic Panel (SOEP) for Germany, and the Current Population Survey (CPS) for the United States.

StatLink https://stat.link/zwk1xn

Notes

[1] The causes of job polarisation are not uniformly agreed upon. Researchers noted that the U-shaped pattern underpinning job polarisation does not hold across time periods. In addition, changes in occupation shares do not explain skill patterns as the theory intended (Schmitt, Shierholz and Mishel, 2013[28]). This chapter notes the existing research and makes no original claims about why the shares of middle-skill occupations are declining. Rather, it focuses on the dynamics of how the share has declined, and where workers who would have held those jobs in the past are doing now.

[2] European employment data beyond 2010 was mapped from ISCO-08 to ISCO-88 using a many-to-many mapping technique. This mapping technique is described in Annex 3.A4 (OECD, 2017[6]). For the United States, uniform Census codes come from Dorn (2009[19]).

[3] Employment flows for each group i, are derived following OECD (2009[31]): $\Delta Emp_i = Hires_i - Sep_i$, Where ΔEmp_i is the net employment change in group i between years t and $t-1$. $Hires_i$ is the gross hires for group i at time t, which is determined by the number of workers with tenure less than one year. Sep_i is the number of gross separations and is pinned down by the identity. In practice gross hires and separations are presented as a rate by dividing by average employment in years t and $t-1$.

[4] This is a longer term trend, which is well documented in the United States (Hyatt and Spletzer, 2013[29]), with varying trends in other OECD countries (Cazes and Tonin, 2010[32]).

[5] Unlike the previous section, this analysis uses labour force surveys, and does not follow the same worker over time.

[6] The size of each birth cohort is limited by sample size in the survey data. Ideally one would use each year as the size of a birth cohort, but that would leave too small a sample with labour force surveys. The number of age ranges is similarly limited by sample size, but also the maximum span of the surveys to 20 years of data.

[7] This allows for roughly equal years before and after 1970 with birth years between 1946 and 1993. It also roughly aligns with “baby boom” and “post baby boom” generations.

[8] This includes education.

[9] For example, age, and for the most part gender are fixed and pre-determined at birth, and do not change with labour market conditions. Education and region of residence are more problematic and partly reflect local labour market conditions. Both also involve high switching costs, and may reflect exogenous factors such as historical family ties (place of residence) and labour market conditions many years prior to observation (education). Given their importance in predicting middle-skill workers, both are included in the set of possible predictors. Variables conditional on employment, such as industry and occupation, are not included as predictors. Skill groups are determined by occupation, and its inclusion will make any inferences about occupation tautological. Due to the strong correlation between occupations and industry, industry is not included for similar reasons to occupation. Industry and occupation will be explored to complete the picture of the typical middle-skill worker from 20 years prior, but they will be excluded from defining a middle-skill worker.

[10] This cross-country variation partially reflects the relative abundance of low- and middle-educational attainment in the population.

[11] As noted, education is included as one of the main predictors, but its inclusion is potentially problematic. Education is an endogenous choice for young workers or young people deciding whether to enter the labour force or pursue further schooling. If a given young person is, for example, confronted with satisfactory job opportunities once she obtains an upper-secondary degree, she may decide to forgo further education. That same person entering a labour market at a different, hypothetical, point in time may instead pursue further schooling in the face of a poor job market. This choice for people at the margin of pursuing further education complicates the interpretation of the outcomes of education cohorts at different points in time. Fixing this problem is not trivial, and all results should be interpreted with this in mind.

[12] These are ISCO-88 3-digit occupations and the uniform Census codes from Dorn (2009[19]).

[13] While the decline in manufacturing shifted the industry distribution of middle-skilled jobs, perhaps surprisingly, the modal occupations remained relatively consistent compared to 20 years prior.

[14] See Annex 4.C for a depiction of the changing education shares of the working-age population.

[15] The shift share decomposes the change in the share of middle-skill employed according to:

$\bar{\pi}_1^j - \bar{\pi}_0^j = \sum_g \Delta w_{g1}\, \pi_{g0}^j + \sum_g w_{g0}\, \Delta \pi_{g1}^j$. The term $\bar{\pi}_t^j$ is the share of the population in skill group j at time t. The term w_{gt} is the share of the population in demographic group g at time t, and π_{gt}^j is the share of group g in skill group j at time t. The left-hand side of the equation is the change in the share of the population in skill group j. The two terms on the right-hand side of the equation are (from left to right) the composition and propensity effects, respectively.

[16] Other analyses include age as an important factor in middle-skill employment (Autor and Dorn, 2009[30]). The analysis also undertook the shift-share using age as a factor. All results are qualitatively similar. The change in propensities are stronger for younger workers, however. Results for the shift-share including age, and propensities for prime-age education by sex groups to be employed in different skill groups is available in Annex 4.C.

[17] This is significantly more modest than the percentage point decrease presented at the beginning of Section 4.1. In the first section, the shares are defined as shares of the employed as originally constructed in the literature (Autor, Levy and Murnane, 2003[3]). The formulation here constructs the shares as a share of the working-age population, which allows the shift-share to account for shifts out of employment.

[18] For some perspective, across OECD countries in this chapter, the share of the population aged 16-64 without an upper-secondary degree decreased from 38.5% to 24.5%, while the population with at least a tertiary degree increased from 15.9% to 28.9%. The share with at least an upper-secondary degree but without a tertiary degree increased from 44.7% to 45.8%.

[19] The increase in propensity for middle-educated women to work in low-skill employment was partly the result of increased rates of employment. Low-educated women saw no meaningful increase in their employment to population ratio.

[20] Not in the chart.

5 Smooth transitions but in a changing market: The prospects of vocational education and training graduates

This chapter looks at current labour market outcomes of young graduates from mid-level vocational education and training (VET), as well as how they have changed in the past 10 to 15 years and what can be expected in the medium-term. It looks at indicators of job quality and quantity, and zooms in on the types of occupations that employ VET graduates. The outcomes of VET graduates are compared to those of general education graduates (at the same qualification level), tertiary education graduates and graduates without an upper-secondary education degree. Differences in outcomes based on the features of each country's VET system are discussed. Finally, based on these findings, the chapter discusses key policy directions to improve VET graduates' access to high-quality secure jobs.

In Brief

Key findings

Vocational Education and Training (VET) embraces education, training and skills development in a wide range of occupational fields. VET programmes can include work-based components or be completely school based, but they generally lead to qualifications that are relevant in the labour market. They therefore enhance student engagement in education, through lower school dropout, and facilitate school-to-work transitions. However, structural changes in the labour market, as documented in Chapter 4, have raised concerns around the labour market outcomes of VET graduates. Many VET programmes are organised at medium levels of education and therefore prepare students for employment in middle-skill jobs that are declining. This is a particular concern in countries with weaker VET systems. This chapter looks at the current labour market outcomes of young graduates from mid-level VET, how these have changed in the past 10 to 15 years and what can be expected in the medium term. It compares the experiences of young middle-educated VET graduates and people leaving general education with the same level of qualifications. Middle-educated VET graduates are those who have obtained at most an upper-secondary education qualification (i.e. ISCED level 3) or a post-secondary non-tertiary education qualification (i.e. ISCED level 4). They are compared with individuals completing general education with non-vocational qualifications at the same level. These two groups are referred to as "VET graduates" and "general education graduates" for simplicity. For completeness, the outcomes of these two groups are also compared to those of individuals with higher and lower education levels. The key findings are as follows:

- VET plays a prominent role in education systems in OECD countries. On average, almost a third of 15-34 year-olds hold a mid-level VET qualification as their highest qualification. However, the way in which VET is organised and delivered has an impact on its quality, which in turn influences the attractiveness of VET and the labour market outcomes of graduates. Large differences exist between countries in the importance of VET in the education system, with mid-level VET playing a very prominent role in countries like Austria, the Czech Republic, Germany and the Slovak Republic, and only a limited role in Canada, Israel, Japan and Mexico. Countries also differ in the way they organise VET, with some countries, for example, having an important workplace learning component in their VET curricula (e.g. Austria, Germany, Norway and Switzerland) and others taking a predominantly school-based approach (e.g. Belgium, Finland and Slovenia).
- Young VET graduates in OECD countries have higher employment rates and lower unemployment rates than general education graduates on average, and these differences have remained stable over the past 15 years. This is particularly the case in Austria, Germany, Norway and the United States where the labour market performance of VET graduates is substantially better than that of general education graduates. At the same time, on average across countries, the difference disappears for older age groups, suggesting that VET does particularly well in facilitating rapid and successful school-to-work transitions, but potentially loses its comparative advantage over the working life
- At the start of their careers, VET graduates enjoy better job quality than general education graduates. Median wages of young VET graduates are slightly higher than those of general education graduates, but this difference cannot be observed for older age groups on average across countries. On the other hand, VET graduates earn less than tertiary education graduates

at all ages, even when employed in similar jobs. VET graduates are also more likely to have a permanent contract and to have supervisory responsibilities in their job than general education graduates at the very start of their careers.

- Just over a quarter of young VET graduates are employed as service and sales workers, and an additional 22% as craft and related trades workers, compared to 30% and 9%, respectively, of general education graduates. Furthermore, 20% of VET graduates are employed in high-skill occupations (i.e. managers, professionals and associate professionals and technicians), compared with 26% of general education graduates. However, this average hides significant differences across VET systems. In Germany, Switzerland and the United States, more than one-third of young VET graduates work in high-skill occupations.
- The occupational composition of VET graduates' employment has changed in recent decades, with service and sales occupations and elementary occupations representing a growing share of VET graduates' employment. High-skill occupations and clerical occupations have become relatively less prevalent for VET graduates. Interestingly, the share of young VET graduates employed in craft and related trades occupations has remained stable over the past 15 years, in spite of an overall decline in the importance of those occupations in the labour market. VET graduates' comparative advantage in these occupations therefore seems to have given them some protection against structural changes in the labour market.
- The short-term labour market prospects for VET graduates are on average better than for general education graduates, although they are less bright than for tertiary education graduates. Occupations that have a larger share of VET graduates among their young workers are more likely to have a surplus of labour (i.e. the supply of labour with the relevant skills exceeds the demand) than those that do not employ many VET graduates. Nonetheless, there are some exceptions, and the occupation that has the largest share of VET graduates among their workers, i.e. electrical and electronics trades, is facing a large shortage on average across countries. Labour surpluses are even more common in occupations that employ many general education graduates. The opposite is true for young tertiary education graduates, as occupations that employ a large share of these graduates are more likely to face labour shortage.
- On average, 21% of jobs held by young VET graduates are highly automatable, which is about the same as for general education graduates (22%), but much higher than for jobs held by tertiary education graduates (9%). Graduates without an upper-secondary qualification face the highest risk of job automation, with 28% of them working in jobs at high risk. A simulation of the impact of a surge in the adoption of technology to automate tasks on the occupational structure of employment suggests that VET and tertiary education graduates would mostly see relative employment gains in high-skill jobs, whereas the relative gains for general education graduates and those without an upper-secondary education degree would mainly be in low-skill occupations. Moreover, while automation and other structural factors imply that few new jobs might be created in the coming years in some occupations that are important for VET graduates, like crafts and related trades occupations, a significant number of job openings can still be expected to replace workers who leave these occupations (e.g. due to retirement).
- In a changing world of work, certain aspects of VET systems in certain countries might need to be re-engineered to further strengthen the positive impact VET can have on education and labour market outcomes. VET graduates are not facing the same challenges in all countries, and the need for intervention depends on the specific quality of each VET system and its ability to adapt to changes. Focusing on countries where VET graduates perform well provides some insights into the specific features of VET systems that might foster positive labour market outcomes. For instance, in Austria, Denmark, Germany and Switzerland – where labour market outcomes of VET graduates are good – the ties between VET institutions and social partners are very strong. This

suggests that co-operation between VET systems and the world of work is essential to ensure that graduates enter the labour market with skills that correspond to labour market needs. Such co-ordination will involve opening up the VET system to non-traditional fields of study linked to growing occupations and sectors, to help VET graduates access available job opportunities.

- As graduates need to be able to adapt to change, it is crucial that they have strong foundation skills. However, literacy, numeracy and digital problem-solving skills of young VET graduates are generally lower than those of graduates from general education. Exceptions are Canada, Ireland, New Zealand and the United States, where VET is predominantly organised at the post-secondary non-tertiary level and VET graduates are therefore exposed to more years of general education, but also Japan. Additionally, for VET graduates to remain resilient in light of changing skill needs, they need access to upskilling and reskilling opportunities. Only 43% of young VET graduates participate in formal or non-formal training. This is slightly higher than among general education graduates, but much lower than among tertiary education graduates.

Introduction

As a result of global megatrends, such as technological progress and globalisation, the demand for skills has undergone substantial changes in recent decades. At the same time, educational attainment has risen drastically in OECD countries, significantly altering the supply of skills. As documented in Chapter 4, labour markets have polarised, with middle-skill jobs becoming less important relative to high- and low-skill jobs. These changes have meant that middle-educated workers increasingly end up in low-skill jobs. This raises the question of the extent to which graduates from vocational education and training (VET), whose training generally prepares them for middle-skill jobs, are impacted by these changes. Are graduates from VET more strongly affected because many of the typical VET jobs are the ones most exposed to automation? Or are they better at withstanding the negative consequences of structural changes because VET systems are able to adapt and prepare students for the jobs that are in demand in the labour market?

VET is a comprehensive term commonly used to refer to education, training and skills development for a wide range of occupational fields. Many VET programmes have work-based components (e.g. apprenticeships, traineeships, dual-system education programmes), but VET programmes can also be entirely school based. Successful completion of VET programmes leads to market-relevant, vocational qualifications recognised as occupationally oriented by the relevant national authorities and in the labour market (OECD, 2018[1]).

This chapter compares the labour market outcomes of young middle-educated VET graduates and general education graduates with the same level of qualifications. Middle-educated VET graduates comprise those who have obtained a vocationally oriented upper-secondary education qualification (ISCED 3) or a post-secondary non-tertiary education qualification (ISCED 4) at most (see Annex 5.B for an overview of education programmes at these levels). These are compared with general education graduates with non-vocational qualifications at the same level (ISCED 3 or 4). Hereafter, these two groups are referred to as “VET graduates” and “general education graduates”. For comparison, the analysis also includes tertiary education graduates (i.e. all graduates with qualifications higher than ISCED 4, whether vocational or general)[1] and graduates who left education without an upper-secondary education. Individuals who are still in education are excluded from the sample.[2] It is important to note that differences in labour market outcomes between the education groups not only reflect the differences in quality, relevance and duration of education, but also other factors such as selection effects. Students entering the vocational track in secondary education might have very different characteristics than the ones opting for the general track. For example, PISA data show that 15-year old students in pre-vocational or vocational tracks have, on average across countries, lower skill levels than students in general tracks, even when comparing students with similar socio-economic characteristics (OECD, 2016[2]; 2016[3]).[3,4]

The chapter concentrates on 15 to 34-year-olds who are no longer in education (referred to as "graduates"), as these people all left the education system relatively recently, thus ensuring that comparisons are being made between individuals who enrolled in similar education and training programmes. Nonetheless, some of the analyses presented below compare young graduates' outcomes with those of older age groups. When interpreting these comparisons, it should be kept in mind that in these cases the different age groups did not necessarily go through similar education and training programmes.

The first section of this chapter looks at the importance of mid-level VET in the overall education system in OECD countries, highlighting the large differences between countries. In Section 5.2, job quality and quantity outcomes of VET graduates are compared with those of other types of graduates, including an analysis of the occupational composition of employment. Section 5.3 looks at the short- and medium-term labour market outlook for VET graduates. This includes a discussion of short-term employment prospects linked to current labour market imbalances and an analysis of the medium-term outlook related to the automation of tasks. Section 5.4 discusses possible avenues for making VET systems more resilient in a changing world of work.

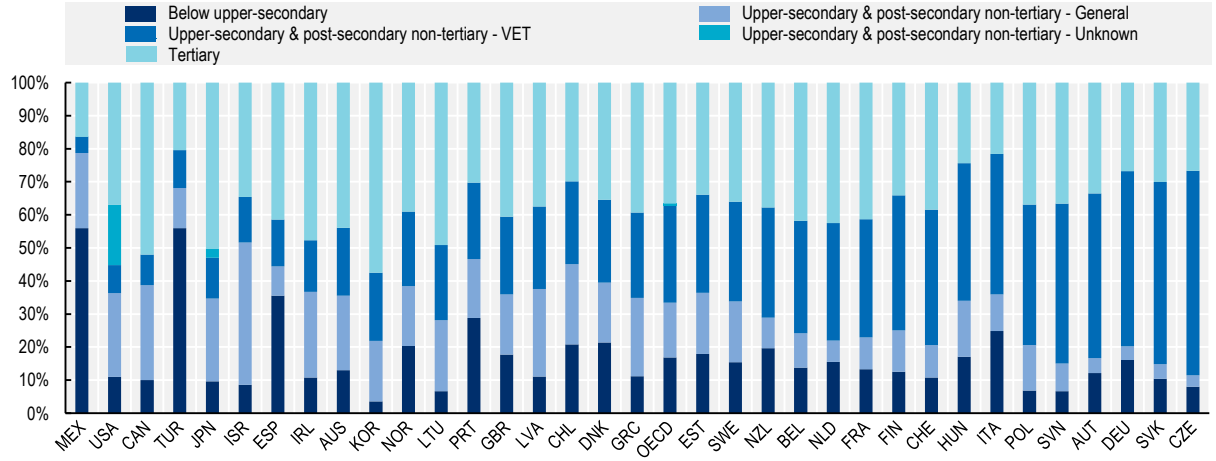
5.1. The importance of medium-level VET in the education system

When looking at the types of qualifications held by individuals aged 15 to 34 years old, it is clear that VET plays a prominent role in many OECD countries (see Figure 5.1). On average, the highest qualification obtained by almost one out of three individuals aged 15 to 34 is mid-level VET (i.e. upper-secondary (ISCED 3) or post-secondary non-tertiary level (ISCED 4) with vocational orientation). Seen from a different angle, VET graduates account for 64% of individuals whose highest qualification is at ISCED Level 3 or 4. The reason for a relatively low share of general education graduates among those with mid-level qualifications in most countries, is that the majority of general education graduates continue into higher education. In this chapter, general education graduates only include those individuals who left education after obtaining an upper-secondary or post-secondary non-tertiary degree (with a general orientation) or who continued to higher education but did not finish it (excluding those who are still enrolled).

In countries such as Austria, the Czech Republic, Germany or the Slovak Republic, almost everyone whose highest qualification is at ISCED Level 3 or 4 has a vocationally oriented degree (more than 90% among 15-34 year-olds). In other countries, such as Korea, Norway, Spain or the United Kingdom, VET graduates are not very common overall (less than 25% of all 15-34 year-olds), but still constitute at least half of those who completed at most a mid-level degree. Yet, there are also countries where VET is relatively rare, both in the full 15-34 year-old population, and among those with at most mid-level degrees (e.g. Canada, Israel, Japan, Mexico, Turkey and the United States where less than 15% of all 15-34 year-olds and less than half of those with at most a medium-level qualification have a vocationally oriented degree). OECD countries not only differ in the importance of VET in the education system, but also in the way VET is organised and delivered and the two are likely to be related. Box 5.1 describes some key differences with respect to workplace learning, employer engagement and the education level at which VET is organised.

Figure 5.1. VET is an important part of many education systems

Educational attainment of young adults (percentage of adults aged 15 to 34 not in formal education)



Note: VET: Vocational Education and Training. The chart includes individuals aged 15/16 to 34 who are not enrolled in formal education. Data refer to 2018 for all countries except Australia, Canada (2019), Korea, Japan (2011/12), Chile, New Zealand, Israel, Turkey (2014/15) and the United States (2011/12-2014-17). OECD is an unweighted average of the countries shown. Countries are ordered by ascending order of upper-secondary and post-secondary non-tertiary VET.
Source: European Union Labour Force Survey (2018), Turkish Labour Force Survey (2015), Australian Survey of Education and Work (2019), Canadian Labour Force Survey (2019), OECD Survey of Adult Skills (2011/12, 2014/15, 2017/18).

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Box 5.1. Understanding international differences in VET systems

There is wide variation across countries in how VET programmes are organised and delivered, as well as the stages of education at which individuals pursue VET. One of the key distinctions between VET systems concerns the use of workplace learning. Generally, VET programmes are classified as school-based, work-based or combined school- and work-based, and often countries provide different types of programmes in parallel.

- In school-based programmes, at least 75% of the curriculum is presented in the school environment (this may include distance education). This includes special training centres run by public or private authorities, or enterprise-based special training centres if they qualify as educational institutions. In countries like Belgium, Finland, Japan and Slovenia, upper-secondary or post-secondary non-tertiary VET programmes are predominantly school-based.
- In combined school- and work-based programmes, at least 10% but less than 75% of the curriculum is presented in the school environment or through distance education, with the remainder organised as work-based learning. These programmes can be organised in conjunction with education authorities or institutions. They include apprenticeship programmes that involve concurrent school-based and work-based training (e.g. in Denmark and Norway), and programmes that involve alternating periods of attendance at educational institutions and participation in work-based training (like in the dual system in Germany and Switzerland).
- In work-based programmes, the school-based component makes up less than 10% of the time. Such programmes are usually non-formal education programmes leading to a qualification that is recognised by national education authorities (or equivalent).

The quality of work placements in work-based and mixed systems is crucial. How work placements are regulated and organised determines whether students will systematically participate in quality-assured placements, which allow them to develop useful skills and connect with employers or whether work placements remain an optional add-on and of limited value. A lack of comparative data on the design features of workplace learning limits the international comparability of VET programmes and makes it difficult to categorise different VET systems.

Another important aspect of VET is the involvement of employers beyond their role in providing workplace learning opportunities. Employers can be involved in designing curricula, qualification standards and student evaluation guidelines. Moreover, employers can share information about student outcomes and skill needs to feed into the re-design of curricula, and can be involved in determining the optimal timing for curriculum re-design. In countries like Austria, Switzerland, Denmark and Germany, employer involvement in these aspects is strong (KOF Swiss Economic Institute, 2016[4]).

It is important to note that not all OECD countries offer VET programmes at both the upper-secondary and post-secondary non-tertiary level. In the United States, for example, there is no distinctive vocational path at upper-secondary level, but vocational courses are offered (optionally) within the general track. VET is provided mainly at post-secondary level, with community colleges being the main provider. Similarly, in New Zealand students in upper-secondary education can integrate vocational courses in general programmes, but fully fledged vocational programmes mostly exist at the post-secondary level. In Australia, Canada and Ireland, VET programmes are typically delivered at the post-secondary level (with Quebec being the exception in Canada). Also within the group of countries that have a substantial VET offer at the secondary education level, there are differences in terms of the age at which students are tracked into the different streams (i.e. VET versus general education).

Finally, countries also differ in terms of the pathways available for VET graduates to enter higher education. Many OECD countries allow for direct access of VET graduates to higher education or access through a bridging programme. In EU countries, two thirds of VET students at the upper-secondary level are enrolled in programmes that give direct access to tertiary education (2017 data – Cedefop (2020[5])). However, internationally comparable data on progression from mid-level VET to higher education is limited, and hence little is known about the use of the different pathways.

Source: Kís (forthcoming[6]), *Improving evidence on VET: Data and Indicators*; Cedefop (2017[7]), *Education and labour market outcomes for vocational education and training graduates in different types of VET systems in Europe*.

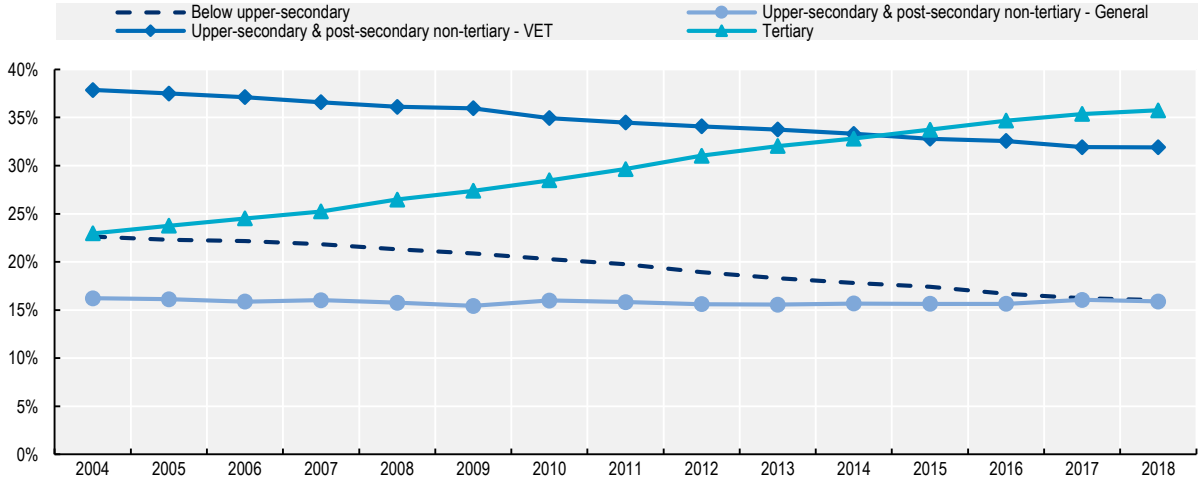
In the majority of countries, the most common fields of study for young VET graduates are “engineering, manufacturing and construction”, “social sciences, business and law”, and “services”. In some countries, like the Netherlands and the United States, “health and welfare” is also a common field of study for VET graduates. In most countries, women are significantly less likely to have a VET degree, and gender differences in field of study choice are large, with very few female VET graduates specialised in “engineering manufacturing and construction” but more in “social sciences, business and law”, “health and welfare” and “services”. These gender differences in VET specialisation could result in gender differences in labour market outcomes.

The share of young graduates who have at most a mid-level education qualification with vocational orientation decreased across OECD countries with available data in the period 2004-18, from 38% to 32% (Figure 5.2). The share of young graduates with qualifications at the same level but with a general orientation remained stable at 16%. The share of young graduates from tertiary education increased strongly (from 23% in 2004 to 36% in 2018), while the share of young graduates from the lowest educational levels (i.e. below upper-secondary) decreased from 23% in 2004 to 16% in 2018. The average trends mask substantial differences across countries. In Australia, Finland, Italy, Spain and Turkey the share of young graduates with at most a medium-level VET degree increased slightly over the period 2004-17, whereas this share declined substantially in countries like Denmark, Hungary, Poland, the

Slovak Republic and Switzerland. The decline could be the result of a decrease in attractiveness of VET, but could also mean that more VET graduates continue to (and complete) tertiary education.

Figure 5.2. Tertiary education is on the rise

Trend in educational attainment of young adults (percentage of adults aged 15 to 34 not in formal education)



Note: VET: Vocational Education and Training. The chart includes individuals aged 15 to 34 not in education or training. Unweighted average based on a balanced panel of countries, including Australia, Canada, Chile, Czech Republic, Estonia, Finland. Germany, Greece, Hungary, Latvia, Lithuania, Netherlands, Poland, Slovak Republic, Spain, Sweden, Switzerland and Turkey.
Source: European Union Labour Force Survey, Encuesta de Caracterización Socioeconómica Nacional, Household, Income and Labour Dynamics in Australia Survey, Turkish Labour Force Survey, Canadian Labour Force Survey.

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As the educational composition of the population is changing, this could imply that the characteristics of VET graduates relative to other graduates have changed as well. As shown in Annex 4.A, the share of women decreased among young VET graduates relative to graduates from general or tertiary education. The extent to which the education level of parents influence the choice between vocational and general programmes has also changed significantly over time: young adults with tertiary educated parents are less likely to obtain a VET degree than a general or tertiary degree, and this difference has increased over time. Changes in the educational composition of graduates could also have altered the relative skill levels of graduates, and Box 5.2 looks more closely into this using data from the OECD Survey of Adult Skills (PIAAC).The findings from Box 5.2 suggest that literacy and numeracy skills of VET graduates leaving the education system in the past 15 years have remained roughly stable relative to general and tertiary education graduates', while the skills of graduates who left education without an upper-secondary education degree worsened compared to VET graduates' skills.[5]

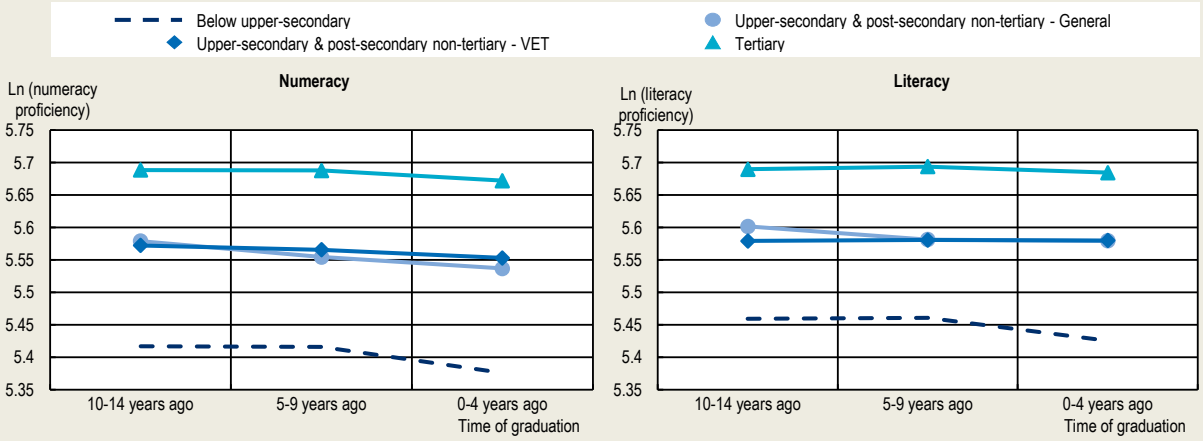
Box 5.2. Changing skill levels of young graduates

As educational attainment rates rise, one could expect the composition of graduates from different education groups to change, including their skill levels. Measuring these changes is not straightforward, as comparable information on the skill levels of graduates over time is not readily available. Using the OECD Survey of Adults Skills (PIAAC), one can compare graduates who obtained their degree in different time periods. The downside of such an analysis is that graduates who left the education system several years prior to the skill assessment carried out in the survey might have experienced skills depreciation or, conversely, their skills might have further developed because of the activities they have engaged in after leaving education.

The figure below compares the skill level of different graduates at different times since graduation. This allows comparing the skill levels of those who graduated recently (i.e. less than 5 years ago) to those who obtained their degree 5 to 9 years ago and those who graduated 10 to 15 years ago. To eliminate as much as possible the differences related to skills depreciation and/or skills development after education, the skill levels reported in the figure are corrected for a range of aspects. These include: accumulated work experience, current employment status, current occupation, current industry, self-reported willingness to learn, participation in formal or non-formal training in the last 12 months, gender, migrant status and number of children. Adults who graduated longer than 15 years ago are not included to avoid comparing adults who went through substantially different education systems.

Figure 5.3. The skill composition of graduates from the last 15 years has remained stable

Skill levels of different cohorts



Note: VET: Vocational Education and Training. Based on an OLS regression of skills (ln numeracy and literacy, respectively) on education group, years since graduation (+ an interaction of those two), labour market status, occupation (1-digit), industry (1-digit), years of work experience, willingness to learn, participation in formal or non-formal training, gender, migrant status, number of children, country (all included as dummy variables). The sample includes all individuals who are not enrolled in formal education and obtained their highest education qualification at most 15 years prior to the interview in all OECD countries except Colombia, Iceland, Latvia, Luxembourg and Portugal.
Source: OECD Survey of Adult Skills (2011/12, 2014/15, 2017/18).

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The results show that the numeracy and literacy proficiency of recent graduates is slightly lower than that of adults who graduated between 5 and 15 years ago (with the exception of literacy skills of VET graduates). The decline is steeper for graduates who left education without an upper-secondary education degree. Recent graduates from that group have lower literacy and numeracy skills than those who left education at least five years ago. The decline is also slightly stronger for general education graduates than

for VET graduates, although differences are small. These results suggest that all graduates from a specific education level/orientation who left the education system at most 15 years ago entered the labour market with a broadly similar skillset, at least concerning general skills, with the exception of those without an upper-secondary degree who now enter the labour market with lower skills than they did 5 to 15 years ago. Therefore, these results cautiously suggest that the relative skills of graduates leaving the education system in the past 15 years have remained roughly stable over time for VET, general and tertiary education graduates, and improved relative to those without an upper-secondary degree.

5.2. Job quality and quantity

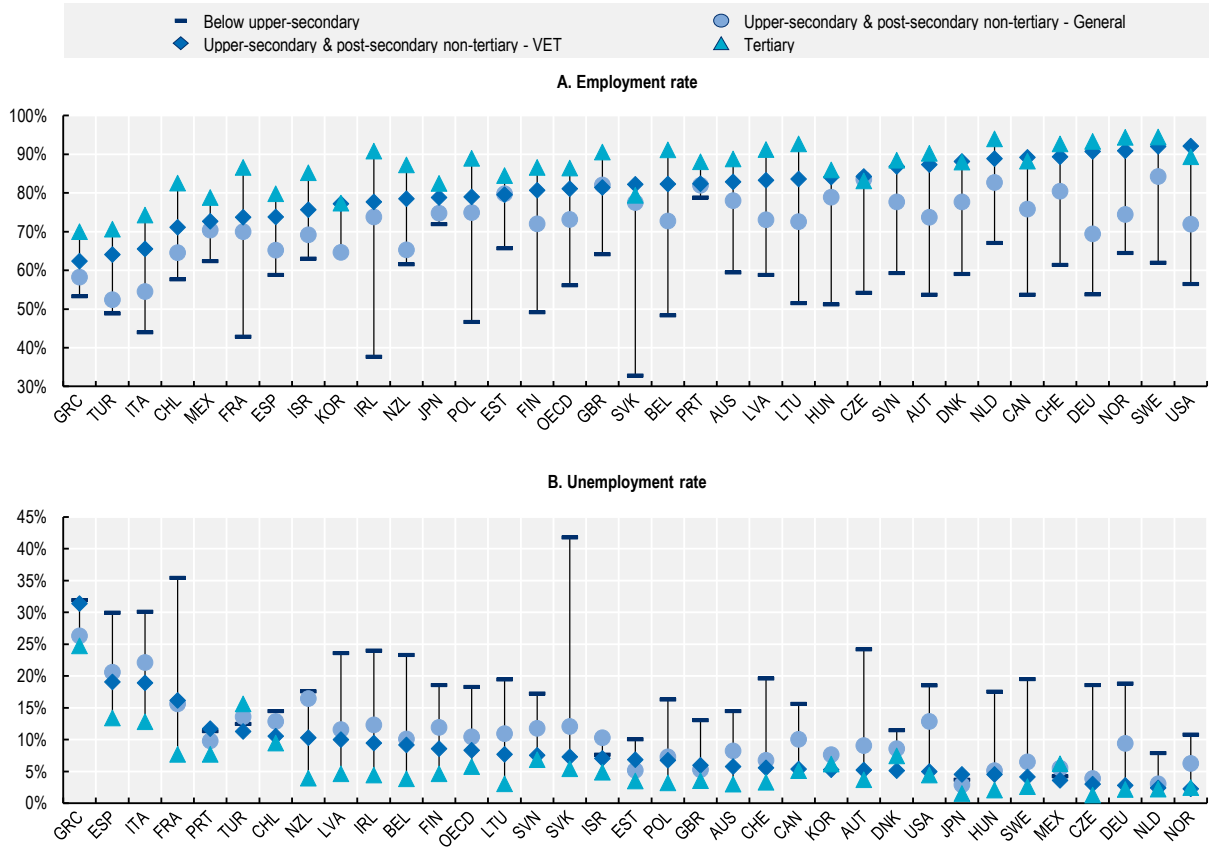
5.2.1. VET facilitates labour market entry of graduates

One of the most cited benefits of VET is that it helps graduates with their transition from school to work. Brunello and Rocco (2017[8]), for example, find that upper-secondary and post-secondary non-tertiary graduates from a vocational field have slightly lower wages, but better employment outcomes than graduates from general fields, both through higher probabilities of employment and larger shares of working life spent in paid employment.

Figure 5.4 (Panel A) shows that employment rates are indeed higher among young VET graduates than among graduates from general programmes at similar levels (except in Estonia and the United Kingdom, where VET graduates' employment rate is marginally lower than that of general education graduates) and for those without an upper-secondary degree. In several countries, VET graduates' employment rates are almost the same as those of tertiary education graduates. Similarly, young VET graduates are less likely to be unemployed than graduates from general education (except in Estonia, France, Greece, Japan, Portugal and the United Kingdom; Panel B). However, this difference is small in many countries. VET graduates' unemployment rates are higher than among graduates from tertiary programmes (except in Denmark, Korea, Mexico and Turkey), and significantly lower than for graduates without an upper-secondary degree. These findings suggest that it might be easier for young VET graduates to find work after leaving education than for general education graduates. They also support the view that VET programmes provide a valuable education pathway to retain youth at risk of dropping out of school without a qualification – i.e. without an upper-secondary degree – through more applied, often work-based, learning. Box 5.3 looks at school-to-work transitions of different types of graduates, and confirms that VET graduates have an advantage compared to general education graduates at the start of their career.

Figure 5.4. Young VET graduates have relatively strong employment outcomes

Employment (Panel A) and unemployment (Panel B) rates of graduates (aged 15 to 34 not in formal education)



Note: VET: Vocational Education and Training. Panel A includes all individuals aged 15/16 to 34 who are not enrolled in formal education. Panel B includes employed and unemployed individuals aged 15/16 to 34 not in education or training. Data refer to 2018 for all countries except Australia, Canada (2019), Korea, Japan (2011/12), New Zealand, Israel, Turkey (2014/15), and the United States (2011/12-2014-17). OECD is an unweighted average of the countries shown.

Source: European Union Labour Force Survey (2018), Turkish Labour Force Survey (2015), Australian Survey of Education and Work (2019), Canadian Labour Force Survey (2019), OECD Survey of Adult Skills (2011/12, 2014/15, 2017/18), Encuesta de Caracterización Socioeconómica Nacional (2017).

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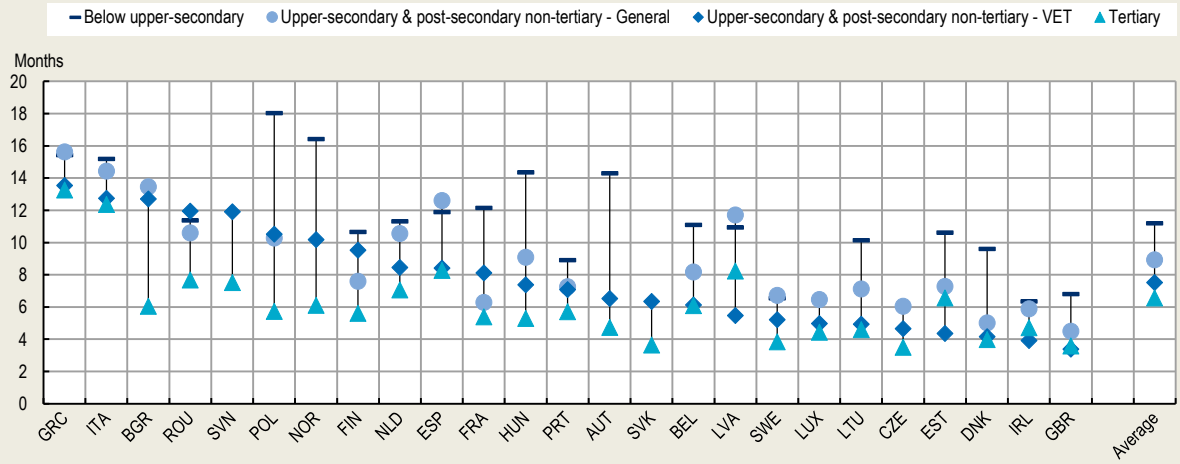
Box 5.3. School-to-work transitions in Europe

As a proxy of the smoothness of school-to-work transitions, Figure 5.5 shows the average time between obtaining one's highest education degree and the start of the first significant work experience. These data are available only for European countries. On average across countries, VET graduates have a gap of 7.5 months between ending their studies and starting their first significant job. This is shorter than for general education graduates (8.9 months). However, in a few countries, like Romania, France and Finland, VET graduates have slower transitions than general education graduates.

On average, the school-to-work transition of VET and general education graduates is slower than for tertiary education graduates, who spend 6.3 months between finishing their studies and starting their first job. However, in some countries the gap is of similar duration for VET and tertiary education graduates (e.g. Belgium, Denmark, Lithuania, Spain and the United Kingdom). In a few countries this gap is even shorter for VET than tertiary education graduates (Estonia, Ireland and Latvia). In all countries with available data, except Romania, VET graduates have shorter spells between graduating and their first significant job than those who left education without an upper-secondary education degree, and in many countries the differences are substantial. This is not the case for general graduates, whose performance is close to (or even worse than) that of those without an upper-secondary education degree in a number of countries.j

Figure 5.5. VET graduates spend less time than general education graduates between the end of their studies and their first job

Number of months between end of education and start of first significant job



Note: VET: Vocational Education and Training. Data were collected in 2009 and refer to individuals who obtained their qualification in the period 2004-09 (aged between 15 and 34 at the time of data collection). Significant work experience is identified as a job for pay or profit (as employee, self-employed or family worker) with a minimum duration of 3 months. Apprenticeships or unpaid traineeships, compulsory military or community service, and summer jobs are excluded. Germany and Switzerland excluded because of different data collection regarding the starting date of the first significant job. The average is calculated as the unweighted average of EU countries with available data for all four education groups.
Source: European Union Labour Force Survey 2009 ad hoc module.

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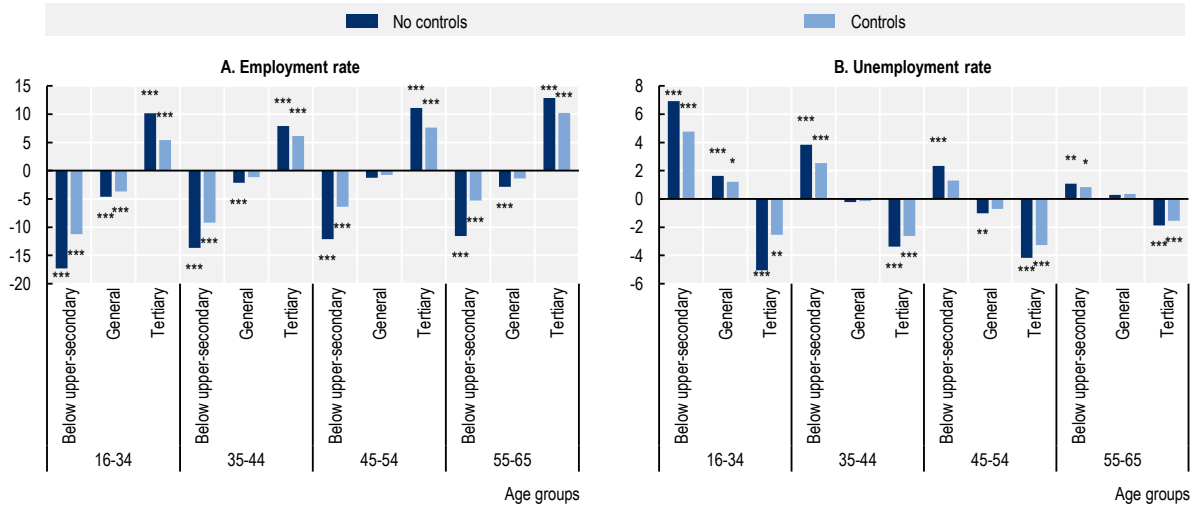
While school-to-work transitions might be smoother for VET than for general education graduates, evidence suggests that these positive employment effects disappear for older age groups. Brunello and Rocco (2017[8]), Forster, Bol and van de Werfhorst (2016[9]), Hanushek et al. (2017[10]), and Rozer and Bol (2019[11]) indeed show that individuals with a VET qualification have higher employment rates than those with a general qualification at the start of their career, but this pattern disappears later in life. This age-employment profile is more pronounced in countries that have a larger work-based learning component in their VET programmes, as the initial gains are relatively large (Hanushek et al., 2017[10]). Rozer and Bol (2019[11]) find that this life-cycle pattern did not change over time in the Netherlands (in the period 1996-2012). A declining labour market advantage for VET graduates is not found in all countries. Silliman and Virtanen (2019[12]), for example, show that admission to the vocational track in Finland significantly increases annual income compared to the general education track, and that these benefits do not diminish with time. However, their analysis only follows individuals for 15 years after entry into VET.

As discussed by Rozer and Bol (2019[11]) less steep long-run returns to VET could be caused by several mechanisms: i) VET preparing students for employment in manual and craft jobs that have limited potential growth opportunities; ii) VET graduates mostly having job-specific skills rather than transferrable skills; and iii) VET graduates participating less in on-the-job training, making them less flexible in light of structural or technological changes. Hanushek et al. (2017[10]) indeed find that VET graduates participate less in job-related training, and argue that this might lead to skills obsolescence which could be one of the reasons for poorer employment outcomes later in life. In addition, they link the decreasing employment advantage for VET graduates to poorer basic skills and hence lower adaptability. Brunello and Rocco (2017[8]) confirm that VET graduates have lower basic skills than graduates from general fields at the same education level. Moreover, Verhaest et al. (2018[13]) show that VET graduates at the start of their career are less likely to be mismatched by qualification and have a lower degree of over-skilling compared to general education graduates. VET programmes which combine a specific focus with workplace learning are found to be most effective in avoiding most types of educational and skill mismatches during the first part of the career of medium-skilled workers. However, the authors also find that this advantage of VET graduates declines with time elapsed since graduation and therefore conclude that VET graduates are more employable when they leave initial education because of the labour market focus of their qualification, but that their skills gradually become obsolete because of structural and organisational changes in the labour market.

Figure 5.6 confirms that the employment (and unemployment) advantage for VET graduates with respect to general education graduates is smaller for older age groups.[6] The gap in unemployment rates of individuals with VET and general education qualifications gradually declines and disappears by age 35, while the gap in employment rates disappears by age 45. Declining employment gaps with age are also confirmed when comparing individuals with similar skill levels and other personal characteristics.[7] Individuals with VET degrees maintain their advantage relative to those without upper-secondary education in all age groups. Individuals with tertiary education degrees have higher employment rates than all other education groups at all ages, and lower unemployment rates.[8]

Figure 5.6. The job quantity advantage for VET versus general education is smaller for older age groups

Percentage point difference in (un)employment rates between individuals with qualifications from below upper-secondary, general and tertiary education relative to individuals with VET qualifications



Note: Marginal effects after probit regressions. All regressions include country fixed effects. Controls include gender, migrant status, number of children (no, one, two or more), age (5-year categories), numeracy proficiency and literacy proficiency. The sample only includes individuals who are not enrolled in formal education in all OECD countries except Colombia, Iceland, Latvia, Luxembourg and Portugal. VET and general refers to ISCED levels 3 and 4. ***Significant at the 1% level, ** 5% level, *10% level.
Source: OECD Survey of Adult Skills (2011/12, 2014/15, 2017/18).

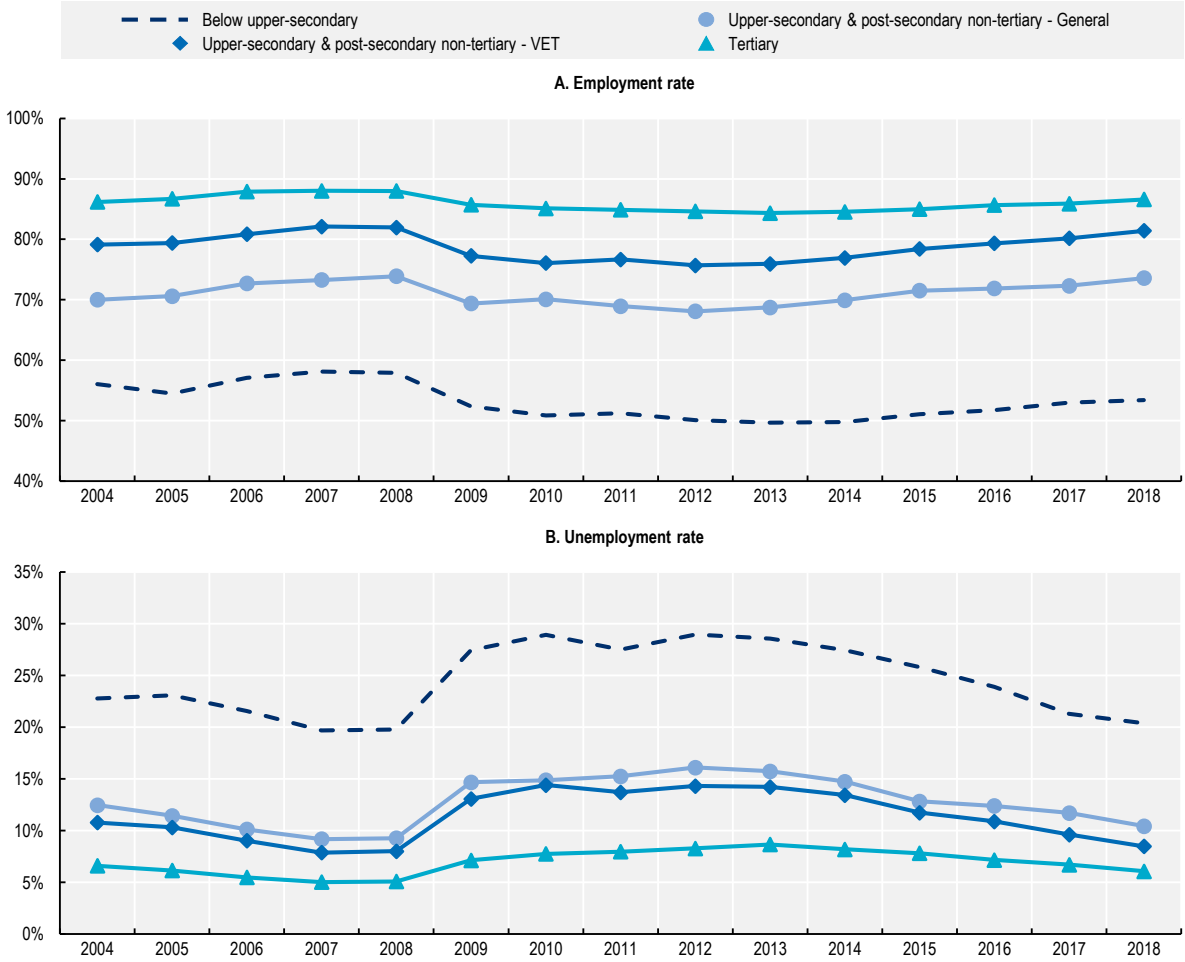
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Repeating this exercise by gender, shows that the advantage in terms of higher employment rates for young VET graduates relative to general education graduates is the same for men and women on average across countries (controlling for skill levels and other personal characteristics as in Figure 5.6). For the unemployment rate, the gap between young VET and general education graduates is only found for men. Both for men and women the advantage disappears for older age groups. For men, the gap in employment rates disappears by age 45, while for women it already disappears by age 35. The gap in unemployment rates for men disappears by age 35.

The evolution of employment rates in the period 2004-18 is comparable between young VET graduates and those with a general degree at a similar level (see Figure 5.7), but the former experienced a somewhat larger decline during the global financial crisis (2008-10). The crisis also had a stronger impact on employment rates of VET graduates than tertiary education graduates. The decline in the period 2008-10 was the strongest for those without an upper-secondary education degree. Likewise, the trend in unemployment rates is very similar for young VET and general education graduates, but the gap in unemployment rates temporarily closed in 2010. The increase in unemployment rates in 2008/2010 was also less pronounced for VET graduates than for those without an upper-secondary education degree, but stronger than for young graduates with a tertiary education qualification. Overall, these results suggest that the job quantity advantage of young VET graduates relative to general education graduates has remained stable in recent years, although VET graduates have been somewhat more exposed to the global financial crisis.

Figure 5.7. The job quantity advantage of young VET graduates relative to general education graduates has remained stable in recent years

Employment and unemployment rates of young graduates (aged 15 to 34 not in formal education)



Note: VET: Vocational Education and Training. The sample includes individuals aged 15 to 34 who are not enrolled in formal education. Unweighted average based on a balanced panel of countries, including Australia, Austria, Belgium, Canada, Chile, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Latvia, Lithuania, Netherlands, Poland, Slovak Republic, Spain, Sweden, Switzerland and Turkey.

Source: European Union Labour Force Survey, Encuesta de Caracterización Socioeconómica Nacional, Household, Income and Labour Dynamics in Australia Survey, Turkish Labour Force Survey, Canadian Labour Force Survey.

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5.2.2. Young VET graduates mainly work in crafts, sales and services jobs

The occupational composition of graduate employment (see Figure 5.8) shows that most young VET graduates are employed in middle-skill occupations (mostly crafts and related trades jobs: 22% of employed VET graduates) and low-skill occupations (typically services and sales jobs: 26%). Only 20% of young VET graduates are employed in high-skill occupations. However, there are substantial country differences in the occupational composition of VET employment. For example, the share of young VET graduates in high-skill occupations amounts to more than one third in Germany, Switzerland and the United States, where VET graduates often work as technicians and associate professionals. Gender differences in the occupational composition of VET graduates' employment are substantial. While crafts and related trades occupations employ

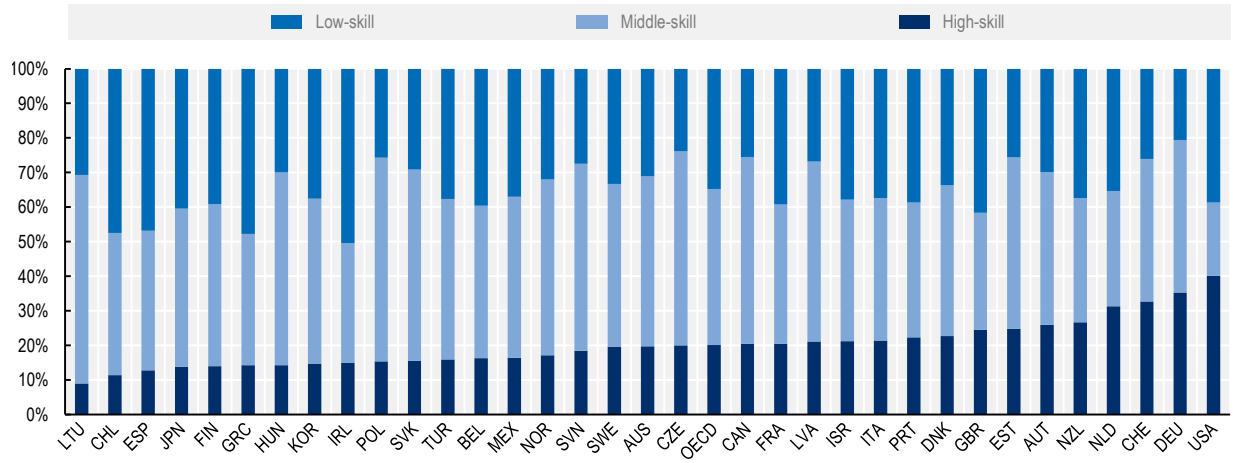
around one third of male VET graduates on average, these occupations only account for 4% of female VET graduates' employment. Sales and service jobs are the most important occupations for female VET graduates, accounting for 44% of employment, compared to only 15% of male VET graduates' employment. Employment in high-skill occupations is slightly more common for female than for male VET graduates (22% versus 19%).

The occupational structure of graduate employment differs strongly between education groups, see Figure 5.9. Young graduates from general education are mostly employed as service and sales workers, as are VET graduates. However, in contrast to VET graduates, only a small share of general education graduates work in craft and related trades jobs. General education graduates are more likely to work in high-skill jobs than VET graduates (6 percentage point gap in 2018). Young tertiary education graduates are predominantly employed as professionals or technicians, while those without an upper-secondary degree work mostly in elementary occupations, in service and sales jobs and in craft and related trades occupations (see Annex Figure 5.A.2).

Figure 5.9 also shows the trends in the occupational composition for VET and general education graduates.[9] It shows that young general and vocational education graduates are increasingly employed as service and sales workers (ISCO 5), while a declining share of these graduates end up in clerical jobs (ISCO 4). Elementary occupations are growing in importance for both education groups, albeit at a faster pace for general education graduates. Interestingly, while the share of general education graduates employed in crafts and related trades occupations (ISCO 7) has been on the decline – consistent with the overall trend in the labour market – the share of young VET graduates employed in this occupation group remained relatively stable. As shown in Annex Figure 5.A.2, young adults without an upper-secondary education degree mainly saw an increase in employment shares in elementary occupations and service and sales occupations, and a fall in agricultural and crafts and related trades occupations. For young tertiary education graduates, professional and technician occupations grew in relative importance, while relative employment in management and crafts and related trades occupations was on the decline.

Figure 5.8. A small share of VET graduates work in high-skill occupations

Percentage of employed VET graduates (aged 15 to 34)

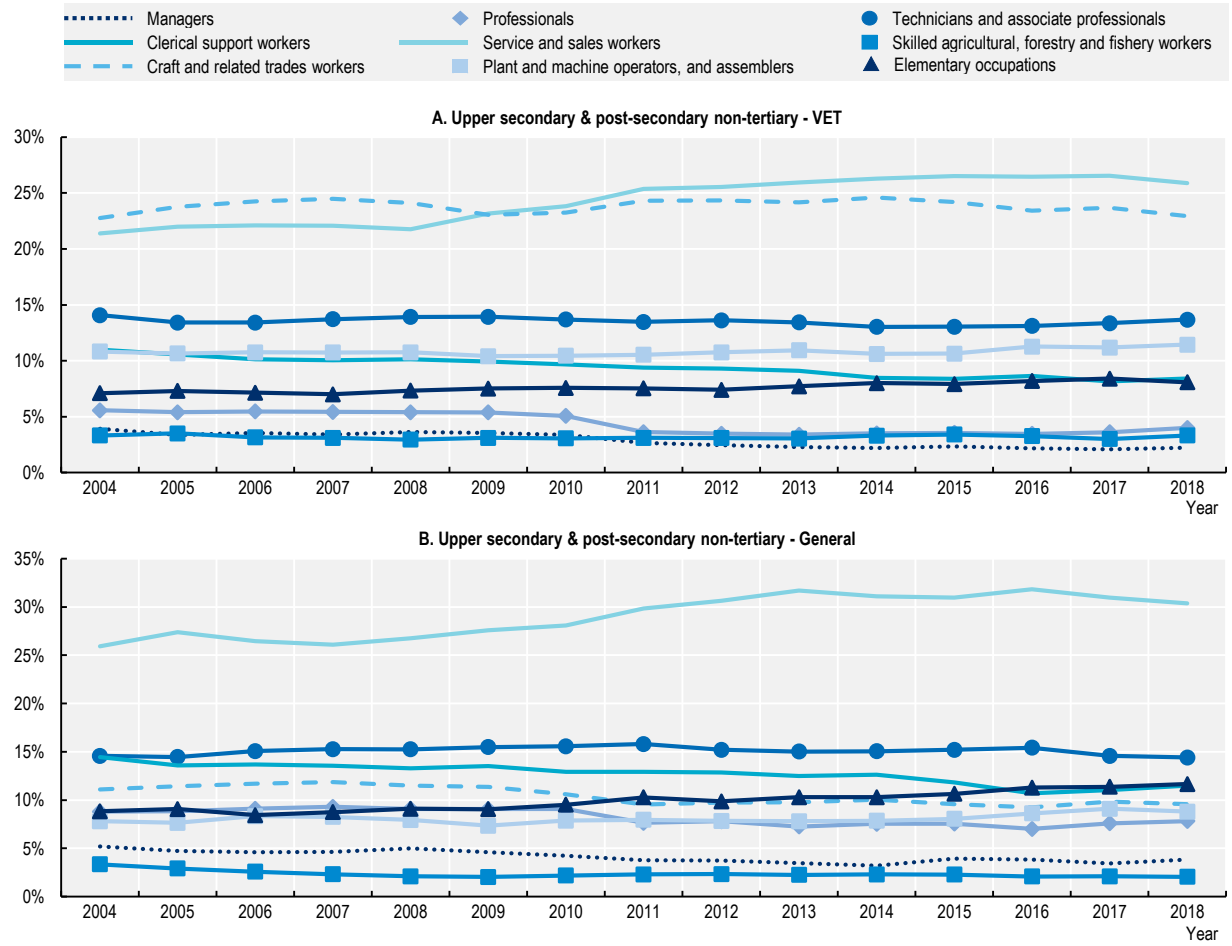


Note: VET: Vocational Education and Training. The sample includes employed individuals aged 15/16 to 34 who are not enrolled in formal education. Countries are sorted by the share of VET graduates who work in high-skill occupations (ISCO-08 1-3). Middle-skill occupations are defined as ISCO-08 4 plus ISCO-08 6-8; low-skill occupations as ISCO-08 5+ ISCO-08 9. See Chapter 4 for details on the skill groups. Australian data are mapped from ANZSCO to ISCO, Canadian data from NOC to ISCO. Data refer to 2018 for all countries, except Australia, Canada (2019), Korea, Japan (2011/12), New Zealand, Israel, Turkey (2015), United States (2011/12-2014-17). OECD is an unweighted average of the countries shown.
Source: European Union Labour Force Survey (2018), Turkish Labour Force Survey (2015), Canadian Labour Force Survey (2019), Australian Survey of Education and Work (2019), OECD Survey of Adult Skills (2011/12, 2014/15, 2017/18), Encuesta de Caracterización Socioeconómica Nacional (2017).

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Figure 5.9. The occupational composition of young graduate employment is changing

Percentage of employed graduates (aged 15 to 34), 2004-18



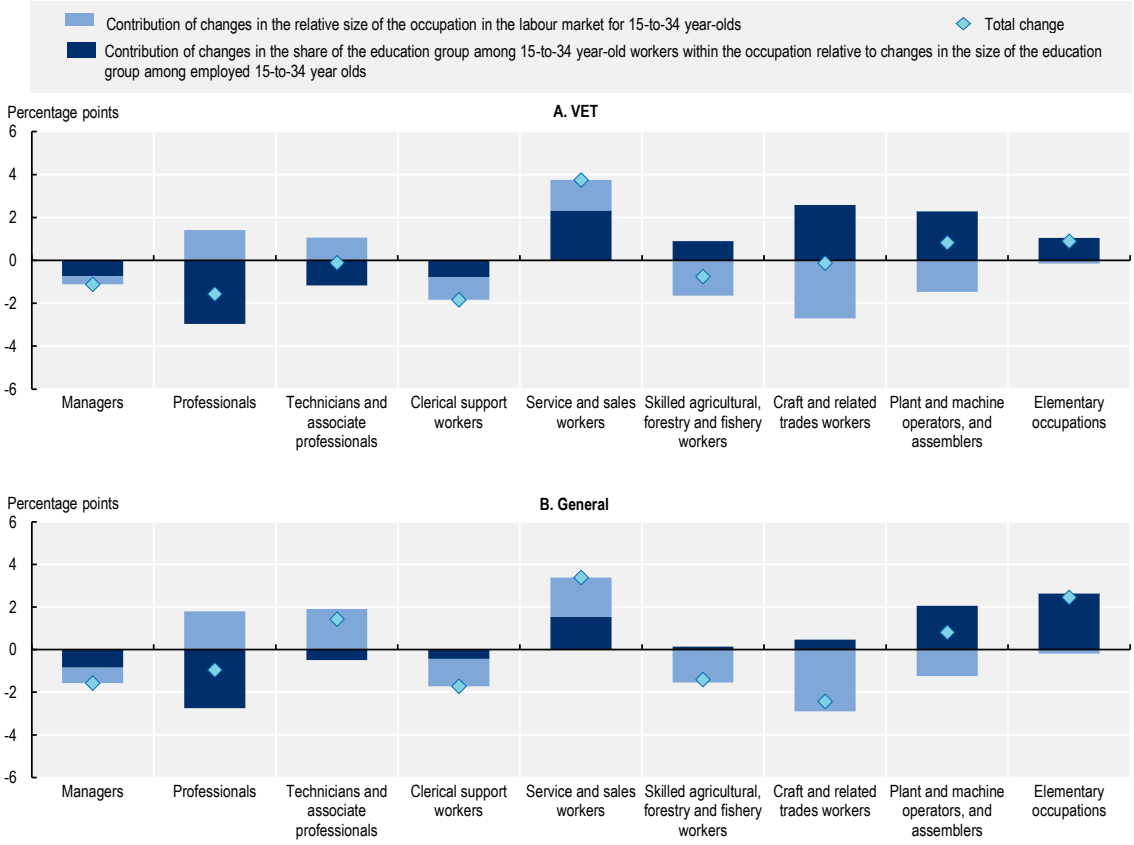
Note: VET: Vocational Education and Training. The sample includes employed graduates aged 15 to 34 who are not enrolled in formal education. Unweighted average based on a balanced panel of countries including, Australia, Austria, Canada, Chile, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Latvia, Lithuania, the Netherlands, Poland, Slovak Republic, Spain, Sweden, Switzerland, Turkey. Data refer to 1-digit ISCO-08 occupations (except in Australia where ISCO-88 occupations are used). For European countries and Turkey, the occupational classification used in the data changes in 2011 or 2012 (from ISCO-88 to ISCO-08), and the pre-2011/12 data are recoded to minimise the series break. In the Chilean and Australian data, occupations are coded in ISCO-88 in all years. In the Chilean data, the ISCO-88 occupations are recoded into ISCO-08 using a one-to-one crosswalk, while in Australia occupations are not recoded and the ISCO-88 classification is used (because of data limitation). Canadian data are mapped from NOC to ISCO-08.
Source: European Union Labour Force Survey, Encuesta de Caracterización Socioeconómica Nacional, Household, Income and Labour Dynamics in Australia Survey, Turkish Labour Force Survey, Canadian Labour Force Survey.

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Changes in the occupational composition of young graduates' employment are the result of changes in the overall occupational composition of the labour market, as well as changes of the educational composition of young graduates in the entire labour market and within occupations. To disentangle these components, Figure 5.10 decomposes the change in the share of young VET and general education graduates by occupation (as shown in Figure 5.9) into the contribution of: i) the change in overall graduate employment by occupation, i.e. the relative size of that occupation in the labour market for 15-34 year-olds, ii) the change in the share of young VET and general education graduates among all 15-34 year-old workers *within* each occupation, relative to the change in the share of VET and general education graduates in the overall labour market for 15-34 year-olds.[10]

Figure 5.10. Craft jobs remain important for young VET graduates despite an overall declining importance of those jobs in the labour market for young graduates

Percentage point change in employment shares of VET/general graduates (aged 15 to 34) between 2004 and 2018



Note: VET: Vocational Education and Training. The sample includes employed individuals aged 15 to 34 who are not enrolled in formal education. Average of changes in Australia, Austria, Canada, Chile, Denmark, Estonia, France, Finland, Greece, Hungary, Ireland, Latvia, Lithuania, Netherlands, Poland, Slovak Republic, Spain, Sweden, Switzerland and Turkey. Decomposition based on 1-digit ISCO-08 occupations (except in Australia where ISCO-88 occupations are used). For European countries and Turkey, the occupational classification used in the data changes in 2011 or 2012 (from ISCO-88 to ISCO-08), and the pre-2011/12 data are recoded to minimise the series break. In the Chilean and Australian data, occupations are coded in ISCO-88 in all years. In the Chilean data, the ISCO-88 occupations are recoded into ISCO-08 using a one-to-one crosswalk, while in Australia occupations are not recoded and the ISCO-88 classification is used (because of data limitation). Canadian data are mapped from NOC to ISCO-08.The bars represent the relative contribution of the three different components to the overall change, but cannot be interpreted as the size (in percentage points) of these components.
Source: European Union Labour Force Survey, Encuesta de Caracterización Socioeconómica Nacional, Household, Income and Labour Dynamics in Australia Survey, Turkish Labour Force Survey, Canadian Labour Force Survey.

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The chart shows that the importance of craft and related trades jobs remained stable for young VET graduates (i.e. "Total change", represented by the diamond shape) because of two countervailing effects: i) an overall decline in the importance of this occupation in total employment of 15-34 year-olds (dark blue), and ii) an increase in the share of VET graduates among the 15-34 year-olds working in this occupation that is larger than the overall decline of VET graduates in total employment of young graduates (light blue). Another way to interpret the results for these occupations is that although total graduate employment in these occupations is decreasing (dark blue), the share of young VET graduates who find employment in this type of occupation is stable over time

(diamond); therefore, the share of VET graduates *within* these occupations has increased despite an overall decline of VET in total employment. Services and sales jobs, on the other hand, gained in importance for young VET graduates, both because it is an occupation that is growing overall for 15-34 year-olds (dark blue bar) and because the decline in the share of VET graduates within the occupation is substantially smaller than the overall decline in the importance of VET in the labour market (light blue). Professionals are also growing occupations for young graduates, but because the share of VET graduates *within* these occupations is on the decline (and this decline is stronger than the overall decline of VET in the labour market), these occupations have become less important for young VET graduates in the period 2004-18.

Things look similar for general education graduates in most occupations. Unlike for VET graduates, the importance of crafts and related trades jobs declined for general education graduates, as the overall decline in the size of this occupation group was not made up for by a sufficiently large rise in the share of general education graduates employed within this occupation group. The importance of professional occupations only declined modestly for general education graduates compared to VET graduates, because the decline in the share of general education graduates within the occupation was relatively small.

Overall, these changes in the occupational structure show that both young VET and general education graduates have been impacted by structural changes in the labour market that reduce the relative importance of middle-skilled jobs (that is: clerical support workers; craft and related trades; and plant and machine operators – see Chapter 4 for a discussion of the partition of occupations into high-, middle- and low-skill jobs). However, the impact of these structural changes has been smaller for VET than for general education graduates, partially because young VET graduates managed to secure the remaining crafts and related trades jobs. For both groups of graduates, employment growth was strongest in low-skill occupations (sales, service and elementary jobs). The importance of high-skill occupations (managers, professionals, and technicians and associate professionals) remained almost the same for young general education graduates, but these jobs became less important for VET graduates. Looking at the occupation mobility among young graduates, Box 5.4 shows that VET graduates who change occupations are less likely than general education graduates to move into jobs with at a higher skill level or with a lower probability of automation.

Box 5.4. Moving between occupations

On average across European countries included in the EU-SILC dataset, 17.5% of young VET graduates change occupations from one year to the other.[11] This is slightly lower than for general education graduates (19.6%) and graduates without an upper-secondary education degree (19.3%), and roughly the same as for tertiary graduates (17.8%). In the vast majority of countries, differences between the education groups are small. Notable exceptions are Finland, the Netherlands and Norway, where general education graduates have considerably higher probabilities of changing occupations. Only in Portugal are VET graduates substantially more likely to change occupations than other young graduates.

However, there are substantial differences in the types of changes that are made by the different graduates. Table 5.1 compares young graduates from different education groups who changed occupations from one year to the next, to see if they have different probabilities of moving into jobs with higher skill levels (measured as average numeracy proficiency of workers in the occupation), higher wages (measured as median wage in the occupation) or lower risk of automation (see below for a discussion on the risk of automation).[12] The results show that young general education graduates are significantly more likely than VET graduates employed in similar occupations to move into occupations that have a higher average numeracy skill level and/or lower risk of automation. Also compared to

tertiary education graduates employed in similar occupations, VET graduates have a lower probability of making these positive moves (including moving to occupations with higher median wage levels), and the differences are much larger than between VET and general education graduates. Graduates who do not have an upper-secondary education degree are even less likely than VET graduates to make these positive moves.

Table 5.1. Among occupation changers, VET graduates are less likely than general education graduates to make positive occupation changes

Probit (marginal effects) and OLS regression estimates

	Skill level		Median wage level		Risk of automation	
	Probability of moving to occupation with higher average skill	% difference in average skill level	Probability of moving to occupation with higher median wage	% difference in median wage level	Probability of moving to occupation with lower risk of automation	% difference in average risk of automation
General (vs. VET)	0.050**	1.046***	0.027	3.617***	0.037*	-2.914***
	(0.020)	(0.373)	(0.018)	(1.251)	(0.019)	(0.937)
Tertiary (vs. VET)	0.258***	5.079***	0.187***	16.519***	0.206***	-12.648***
	(0.016)	(0.301)	(0.015)	(0.952)	(0.016)	(0.727)
Below upper-secondary (vs. VET)	-0.054***	-1.731***	-0.069***	-4.584***	-0.056***	2.051***
	(0.018)	(0.335)	(0.017)	(0.890)	(0.018)	(0.726)
Number of obs.	21 514	21 514	21 107	21 107	21 419	21 419

Note: VET: Vocational Education and Training. The sample includes graduates aged 15 to 34 who are not enrolled in formal education (at year t and t-1) and changed occupations from one year to the next. Individuals who have a different education level in year t compared to year t-1 are excluded. The estimated specifications include controls for age (15-24, 25-29, 30-34), gender, previous and current employment status (full-time employees, part-time employee, full-time self-employed, part-time self-employed, unemployed, inactive), previous occupation (at year t-1) and country. For the probit regressions, the independent variable is equal to 0 when the move is negative and 1 when the move is positive, and the estimated coefficient needs to be multiplied by 100 to obtain the percentage point difference in probabilities between the education groups. The sample includes all EU countries except Germany. Robust standard errors in parenthesis. ***Significant at the 1% level, ** 5% level, *10% level.
Source: European Union Statistics on Income and Living Conditions (2014-17).

5.2.3. Young VET and general education graduates have similar job quality

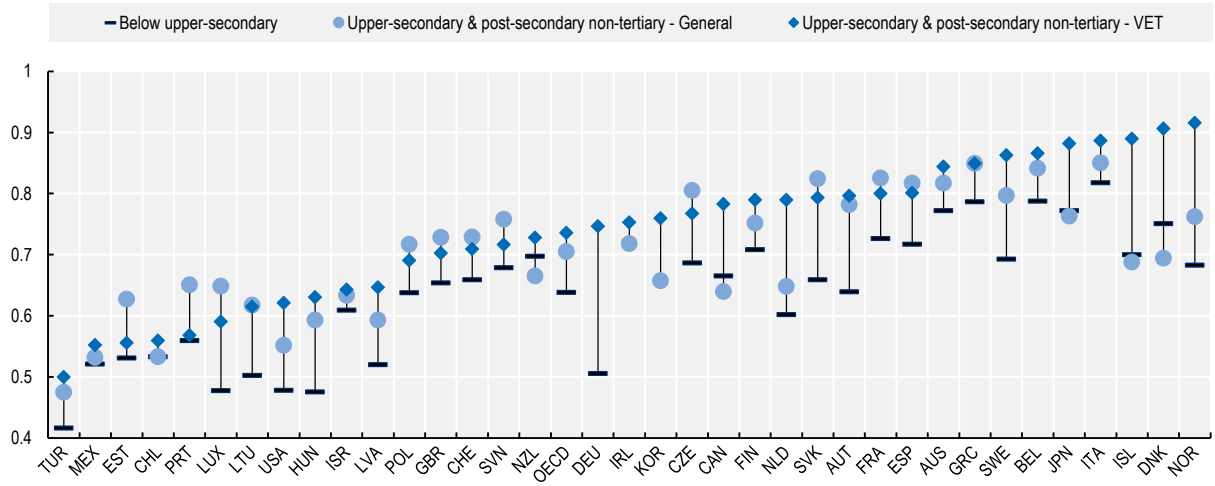
Earnings quality

Individual returns to education and skills, measured as the increasing earnings associated with additional years of schooling and/or higher skills, are a well-researched topic (Willis, 1986[14]; Heckman, Lochner and Todd, 2006[15]; Peracchi, 2006[16]; Pritchett, 2006[17]; Deere and Vesovic, 2006[18]). Wages are an important component of job quality and are therefore a key incentive for individuals to invest in education (Becker, 1993[19]). Figure 5.11 shows median hourly wages of each education group relative to tertiary education graduates. In all countries, VET and general education graduates have lower hourly wages than tertiary education graduates. The wages of VET graduates are on average higher than those of general education graduates but there is considerable heterogeneity across countries. In particular, in Canada[11], Denmark, Iceland, the Netherlands and Norway, VET graduates have considerably higher wages than general education graduates, while in Estonia, Luxembourg and Portugal, the opposite holds. In all countries for which data are available, VET graduates earn more than those without an upper-secondary education degree, while this is not systematically the case for general education graduates.

The wage difference between education groups persists when controlling for additional personal characteristics, including skill levels, and workplace characteristics (Figure 5.12).[13,14] This exercise is repeated for older age groups, to see if the wage differences remain the same over time or become less (or more) pronounced. As with other age group analyses, it has to be noted that differences between these groups do not only reflect how differences between graduates evolve over time, but also how VET systems, the socio-demographic composition of graduates and educational attainment levels have changed. The (small) wage advantage of VET graduates over general education graduates among youth (aged 16 to 34) disappears entirely when looking at older age groups. Among middle-age workers (aged 35 to 44), general education graduates actually earn more than VET graduates, but this difference disappears when the occupation and industry are taken into account. This implies that the wage difference between middle-aged VET and general education graduates can to a large extent be explained by the fact that general education graduates tend to work in occupations and industries with relatively higher wages.

Figure 5.11. Young VET graduates have slightly higher wages than general education graduates

Index: 1 = median hourly wage of tertiary graduates



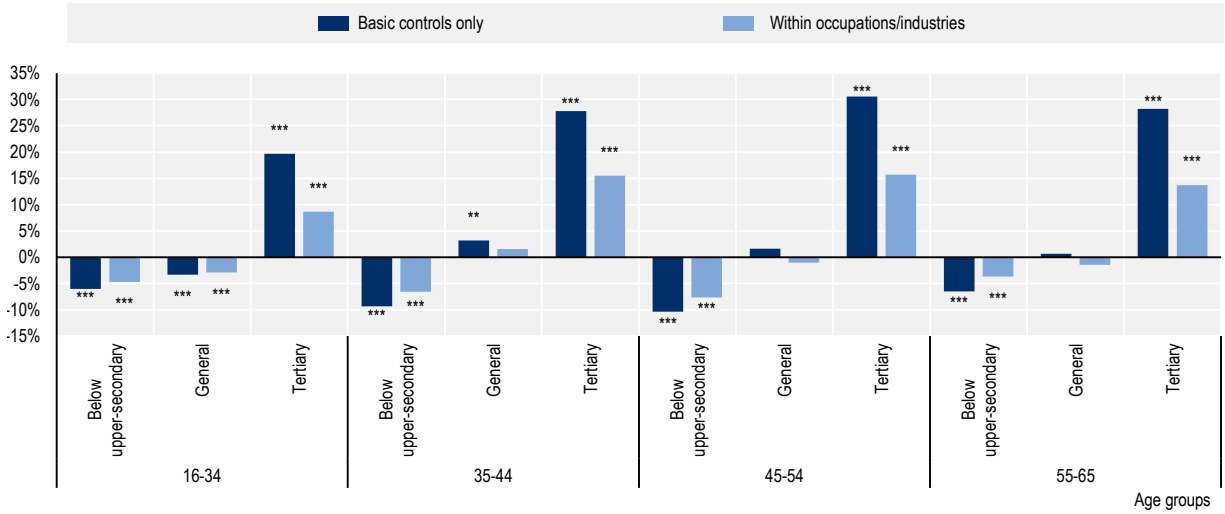
Note: VET: Vocational Education and Training. The sample includes employed individuals aged 15/16 to 34 not in education or training. Hourly wages are derived from annual, monthly or weekly earnings, by accounting for months spent in employment in the income reference year and information on average hours worked. Data refer to 2014-18 for all countries, except Korea, Japan, Canada, Germany, Ireland (2011/12), New Zealand, Israel, Turkey (2014/15), Australia, Chile (2017), United States (2011/12-2014-17). OECD is an unweighted average of the countries shown.
Source: European Union Statistics on Income and Living Conditions (2014-18), Turkish Labour Force Survey (2015), Encuesta de Caracterización Socioeconómica Nacional (2017), Household, Income and Labour Dynamics in Australia Survey (2017), OECD Survey of Adult Skills (2011/12, 2014/15, 2017/18).

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Repeating this analysis by gender shows that the wage advantage for young VET graduates relative to general education graduates is the same for men and women. This advantage disappears by age 35 for both men and women. When comparing individuals employed in similar occupations and industries, only young women with a VET degree are found to have significantly higher wages than their general education counterparts. These results show that both men and women with a VET degree have an advantage at the start of their career in terms of wage levels relative to graduates from general education. While this effect for young men is entirely due to VET graduates working in higher paying industries and occupations than general education graduates, for women it is due to a combination of selection into higher paying industries and occupations and higher pay than graduates from general education within the same industries and occupations.

Figure 5.12. The wage advantage for VET vs. general education disappears for older age groups

Percentage difference in hourly wages between individuals with qualifications from below upper-secondary, general and tertiary education relative to individuals with VET qualifications



Note: Basic controls are gender, literacy proficiency (5 categories), age (5-year categories), number of children, migrant status, job tenure with current employer (4 categories), firm size (5 categories), part-time working hours, contract type and country. Occupation controls are 1-digit ISCO, industry controls are 1-digit ISIC. The within occupation/industry regression also include the basic controls. Hourly wages include bonuses and are trimmed at the bottom and top 1% per country. The sample only includes individuals who are not enrolled in formal education. It includes all OECD countries except Colombia, Iceland, Latvia, Luxembourg and Portugal. *** Statistically significant at the 1% level, ** 5% level, * 10% level.

Source: OECD Survey of Adult Skills data (2011/12, 2014/15, 2017/18).

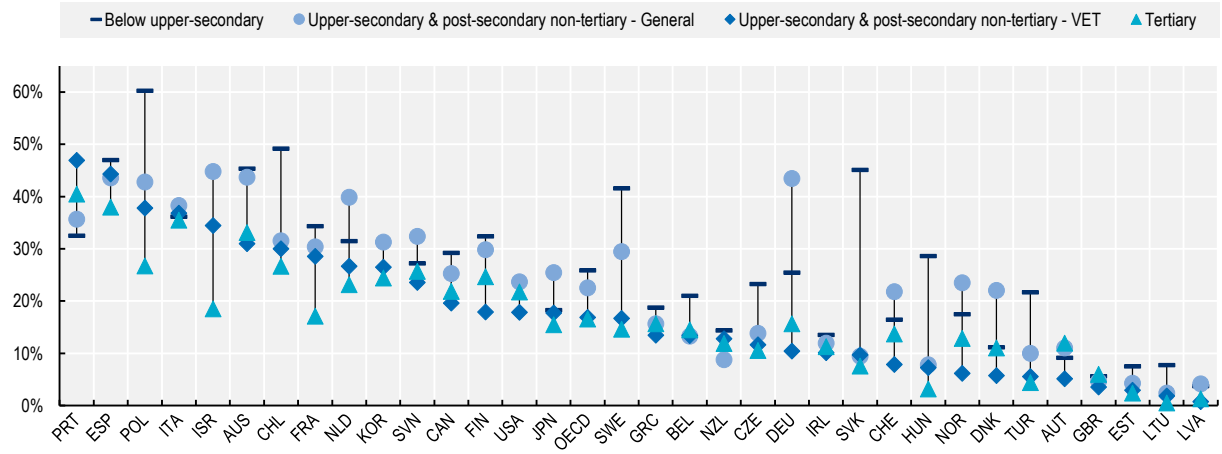
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Job security

As discussed above, young VET graduates have relatively low unemployment rates, contributing to high job security. In addition, when they are employed, young VET graduates are less likely to have a temporary contract than general education graduates or those without an upper-secondary degree (17% versus 22% and 26%, respectively, see Figure 5.13) but equally likely as tertiary graduates. This contributes further to their job security, as workers on temporary contracts enjoy lower job protection (see Chapter 3) and are forced to change jobs more frequently when their contract is not renewed (OECD, 2014[20]). The only exception is Portugal, where VET graduates are the most likely group to have a temporary contract. In contrast, in several countries the prevalence of temporary contracts is lower among VET graduates than among graduates from all other educational levels/types. These cross-country differences might be explained by differences in the way VET systems are organised, as well as differences in labour market institutions (which might affect graduates from different education groups differently, depending on their occupational or sectoral employment composition).

Figure 5.13. Young VET graduates are less likely to be employed on a temporary contract than general education graduates

Percentage of employed graduates with a temporary contract (aged 15 to 34)



Note: VET: Vocational Education and Training. The sample includes employed individuals aged 15/16 to 34 not enrolled in formal education. Data refer to 2018 for all countries, except Australia (2017), Canada (2019), Korea, Japan (2011/12), New Zealand, Israel, Turkey (2014/15) and the United States (2011/12-2014-17). Temporary employment in Australia includes casual workers. OECD is an unweighted average of the countries shown.

Source: European Union Labour Force Survey (2018), Turkish Labour Force Survey (2015), Canadian Labour Force Survey (2019 Encuesta de Caracterización Socioeconómica Nacional (2017), Household, Income and Labour Dynamics in Australia Survey (2017), OECD Survey of Adult Skills (2011/12, 2014/15, 2017/18).

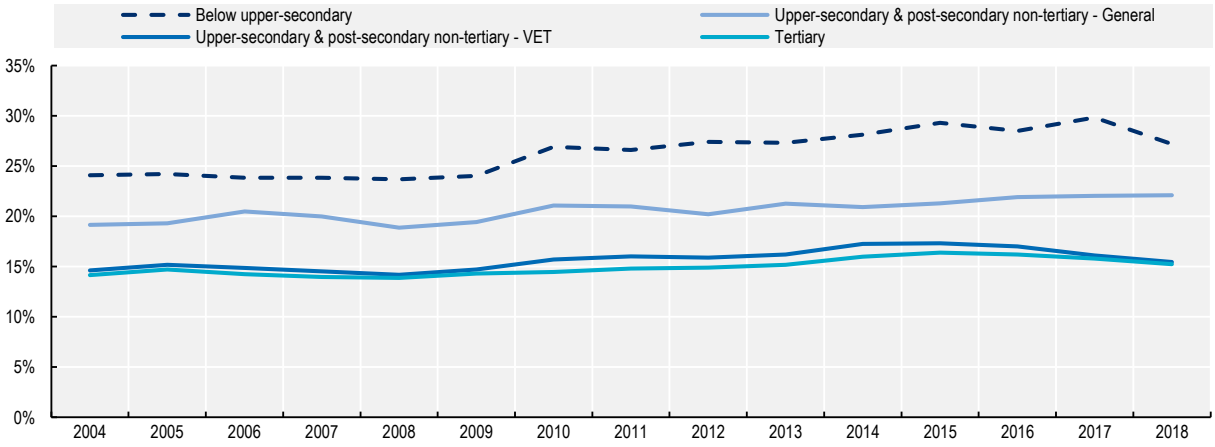
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In general, the most common reason for having a temporary contract is that the person could not find a permanent job (i.e. involuntary temporary work). Although VET graduates are less likely to have a temporary contract, in countries with available data[15], VET graduates who do have a temporary contract are more likely to be involuntary temporary workers than graduates from general and tertiary education (63%, compared to 52% and 60%, respectively). Only in Italy, Portugal and Turkey are VET graduates who are employed on a temporary contract less likely than general education graduates to be an involuntary temporary worker.

Temporary contracts have become increasingly common among young graduates from all education groups in the period 2004-18, see Figure 5.14. The increase was relatively small for VET graduates and graduates from tertiary education (+1.5 percentage points), but was more widespread for general education graduates (+2.9 percentage points) and especially for those who left education without an upper-secondary education degree (+5.7 percentage points). As such, the advantage of VET relative to general education graduates in access to permanent employment has increased over time.

Figure 5.14. The incidence of temporary employment is on the rise for all education groups

Percentage of employed graduates with a temporary contract (aged 15 to 34)



Note: VET: Vocational Education and Training. The sample includes employed individuals aged 15 to 34 not enrolled in formal education. Unweighted average based on a balanced panel, including Australia, Austria, Belgium, Canada, Chile, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Latvia, Lithuania, Netherlands, Poland, Slovak Republic, Spain, Sweden, Switzerland and Turkey. Temporary employment in Australia includes casual workers.
Source: European Union Labour Force Survey, Encuesta de Caracterización Socioeconómica Nacional, Household, Income and Labour Dynamics in Australia Survey, Turkish Labour Force Survey, Canadian Labour Force Survey.

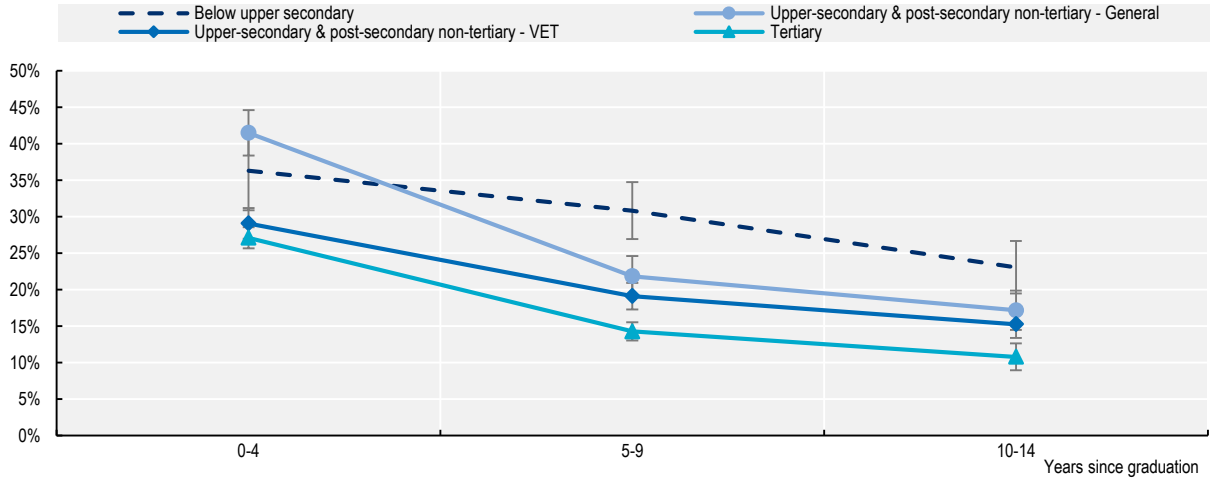
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One may expect that the probability of having a permanent contract increases as graduates accumulate more work experience and firms have completed their screening of recent hires – see e.g. Booth, Francesconi and Frank (2002[21]) and Faccini (2013[22]). For all types of graduates, and controlling for personal characteristics (including literacy and numeracy skills), workplace characteristics and occupation and industry, the probability of having a temporary contract is indeed lower among those who graduated longer ago (see Figure 5.15).[16] This declining age-probability profile is particularly steep for general education graduates. While VET graduates have a significantly lower probability of being employed on a temporary contract at the beginning of their working life compared to general education graduates, this gap disappears among those with at least five years of work experience. Moreover, while VET and tertiary education graduates are equally likely to have a temporary contract at the start of their career, tertiary education graduates are less likely to have this type of contract later in their career. Individuals without an upper-secondary degree are more likely to have a temporary contract than VET graduates, irrespective of the number of years since they left education.

Looking at this separately for men and women shows some interesting differences. Male VET graduates only have a significantly lower probability of being employed on a temporary contract relative to general education graduates in the first five years after graduation. In later years these probabilities are the same for male VET and general education graduates. Irrespective of the number of years since graduation, male VET graduates are more likely to be employed on a temporary contract than male tertiary education graduates. By contrast, female VET graduates are less likely than general education graduates to have a temporary contract in the first ten years after graduation. Moreover, female VET graduates are also less likely than tertiary education graduates to have a temporary contract in the first five years after graduation (but this difference is much smaller than between VET and general). For female VET graduates who graduated between 10 and 15 years ago, there is no statistically significant difference in the probability of temporary employment relative to general education graduates, but also relative to tertiary education graduates.

Figure 5.15. Young VET graduates are less likely to have a temporary contract than general education graduates only at the start of their career

Employed graduates' (aged 16 to 34) probability to have a temporary contract



Note: VET: Vocational Education and Training. The sample includes employed individuals aged 16 to 34 who are not enrolled in formal education. The figure shows marginal effects with 95% confidence intervals after a probit regression analysis, with a temporary/permanent dummy as the dependent variable. Independent variables are type of education, years since graduation (and an interaction of those two), literacy and numeracy proficiency, gender, migrant status, number of children, firm size, country fixed effects, occupation fixed effects (1-digit ISCO) and industry fixed effect (1-digit ISIC). The sample includes all OECD countries except Colombia, Iceland, Latvia, Luxembourg and Portugal.
Source: OECD Survey of Adult Skills (2011/12, 2014/15, 2017/18)

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Quality of the work environment

The nature and content of the work performed, working-time arrangements and workplace relationships, are equally important dimensions of job quality. Working more than 50 hours per week is an important indicator of job strain (OECD, 2014[23]). On average, around 8% of individuals aged 15 to 34 indicate that their usual workweek exceeds 50 hours. This percentage is similar across education groups. In the past 15 years, the share of young graduates whose usual workweek exceeds 50 hours has decreased, and the decrease happened at a similar pace in all education groups. Another aspect of job strain is the physical burden of the job, and as Box 5.5 describes, this is higher among VET graduates than among general education graduates.

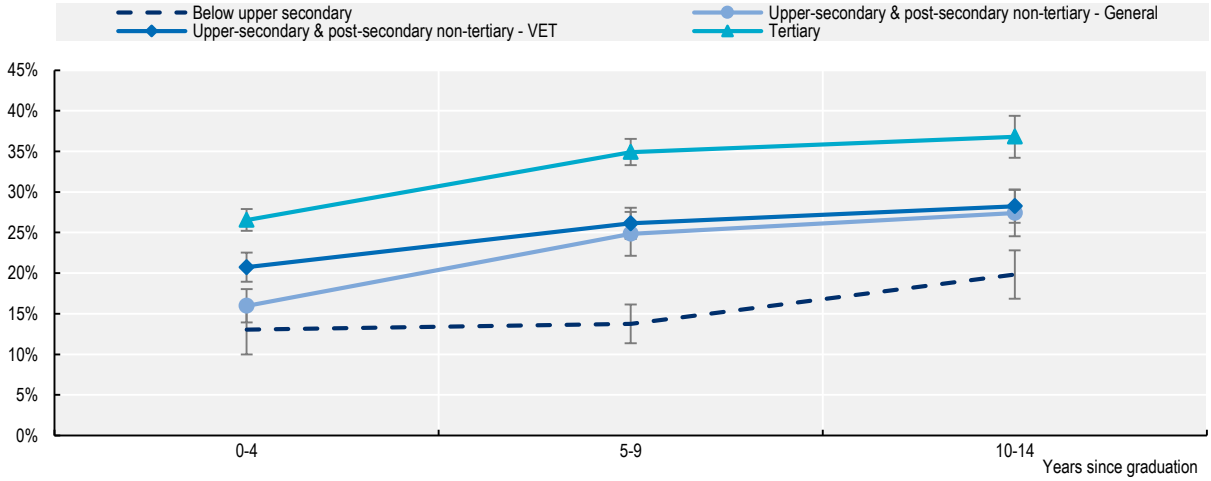
Having career progression opportunities in your job, such as the option of being promoted to a job with more supervisory responsibilities, is a key driver of job motivation, and therefore job quality. In most countries, young VET graduates are equally likely as graduates from general education to have supervisory responsibilities in their job. Only in Australia, New Zealand and Norway are VET graduates substantially more likely to have supervisory responsibilities, while the opposite holds in Korea. On average, 19% of VET and 18% of general education graduates have supervisory responsibilities, compared to 27% of tertiary graduates and 12% of those without an upper-secondary degree. The share of VET graduates with supervisory responsibilities has remained relatively stable over time (2004-17), in line with the trend observed among general education graduates.

One could expect that the probability of having supervisory responsibilities increases with age and experience (i.e. years since graduation) as people progress in their career. Figure 5.16 shows that for or all types of graduates, and controlling for personal characteristics (including literacy and numeracy skills), workplace characteristics and occupation and industry, the probability of having supervisory

responsibilities is indeed higher among those who graduated longer ago.[17] However, for VET graduates the probability to supervise others increases at a much slower rate than for graduates from general education. Recent VET graduates (less than five years after graduation) have a higher probability of having supervisory responsibilities in their job than recent graduates from general education, but this advantage rapidly disappears with time: VET graduates who obtained their degree at least five years ago, have the same probability of carrying out supervisory tasks as general education graduates. This pattern suggests that VET graduates enter the labour market with an advantage over general graduates (potentially because they have stronger job-specific skills and/or acquired work experience during education), but have fewer opportunities for upward mobility over time. The difference in the probability of having supervisory responsibilities between VET graduates and tertiary education graduates and those without an upper-secondary degree remains substantial and statistically significant over time. Repeating this analysis by gender shows that the advantage in terms of supervisory responsibilities for VET graduates relative to general education graduates at the start of their career only exists for men.

Figure 5.16. Young VET graduates are more likely than general education graduates to have supervisory responsibilities at the start of their career, but this advantage disappears later on

Employed graduates' (aged 16 to 34) probability of having supervisory responsibilities on the job



Note: VET: Vocational Education and Training. The sample includes employed individuals aged 16 to 34 who are not enrolled in formal education. The figure shows marginal effects with 95% confidence intervals after a weighted probit regression, with an indicator variable with value 1 if the respondent supervises others in their current job as the dependent variable. Independent variables include type of education, years since graduation (and an interaction of those two), literacy and numeracy proficiency, gender, migrant status, number of children, firm size, country fixed effects, occupation fixed effects (1-digit ISCO) and industry fixed effect (1-digit ISIC). The sample includes all OECD countries except Colombia, Iceland, Latvia, Luxembourg and Portugal.
Source: OECD Survey of Adult Skills (2011/12, 2014/15, 2017/18).

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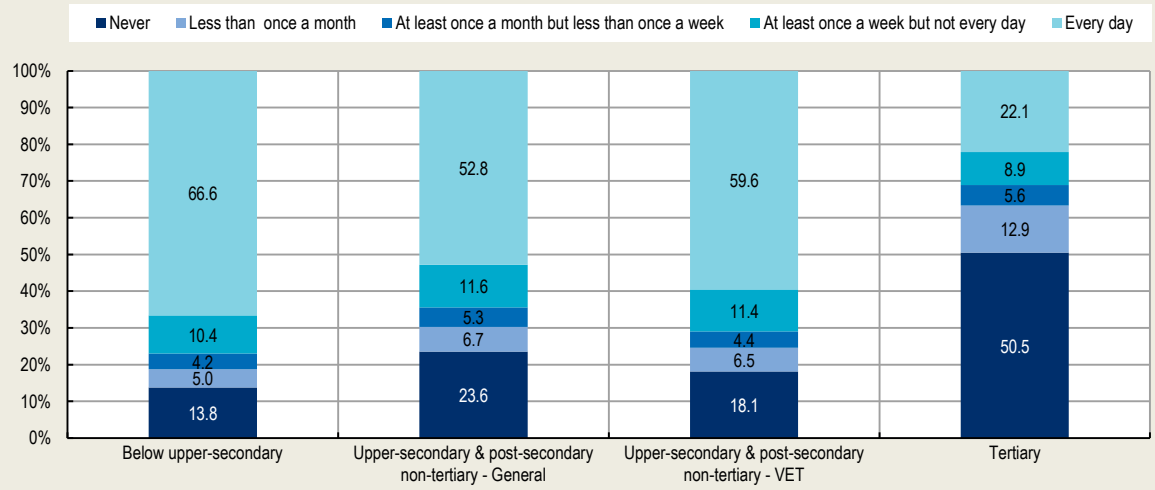
Box 5.5. Physically demanding jobs

One aspect of job strain is the extent to which workers are exposed to physical health risk factors, such as tiring or painful positions and carrying or moving heavy loads (OECD, 2014[23]). 59.6% of young VET graduates report working physically for long periods every day, which is higher than for general graduates (52.8%) and especially tertiary graduates (22.1%) – see Figure 5.17. However, it is substantially lower than among graduates without an upper-secondary degree (66.6%). Over 70% of VET graduates work physically for long periods in Lithuania, Poland, the Slovak Republic and Turkey, while only around 45% of VET graduates do so in Italy, Japan, Korea and Mexico.

When controlling for skill levels and personal characteristics (gender, age, migrant status, number of children), as well as for firm size, industry and occupation[18], the differences in the probability of working physically for long periods every day between education groups remain statistically significant. The difference between VET and general education graduates remains roughly the same when controlling for these characteristics, whereas the difference between VET and tertiary education graduates, as well as those without an upper-secondary education degree, increases slightly.

Figure 5.17. Young VET graduates work physically for long periods more often than general education graduates

Percentage of employed graduates (aged 16 to 34)



Note: VET: Vocational Education and Training. Unweighted average of OECD countries (except Colombia, Iceland, Luxembourg, Latvia and Portugal). The sample includes employed individuals aged 16 to 34 who are not enrolled in formal education.
Source: OECD Survey of Adult Skills (2011/12, 2014/15, 2017/18).

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Exposure to high performance work practices (HPWP), which include both aspects of work organisation – team work, autonomy, task discretion, mentoring, job rotation, applying new learning – and management practices – employee participation, incentive pay, training practices and flexibility in working hours – is another aspect of job quality. Higher exposure to HPWP has been linked to higher wages, higher job satisfaction, lower job-related stress, and higher labour productivity (OECD, 2016[24]). On average, young VET graduates are slightly more likely than general education graduates to be employed in jobs with high HPWP[19]. However, their exposure to HPWP is lower than among tertiary education graduates (with the

exception of graduates in Australia and Denmark), and higher than among graduates without an upper-secondary degree (except in Belgium, Czech Republic, Greece, Ireland and Poland). Tertiary education graduates are especially more likely to organise their own time, plan their own activities, teach other people, participate in training, and have flexible working hours. By contrast, VET and general education graduates more frequently cooperate with others in their job than tertiary education graduates. Differences between general and vocational education graduates are relatively small for all aspects of HPWP, with the exception of performance pay which is more common among VET graduates.

When comparing graduates employed in similar occupations and industries and with similar personal, job and firm characteristics, the differences in exposure to HPWP between the education groups persist although they become smaller (especially the gap between tertiary education and VET graduates).[20] However, repeating this analysis by years since graduation shows that the slightly higher exposure to HPWP among VET graduates than among general education graduates is mainly driven by differences at the start of their career, as no differences are found for those who graduated between five and 15 years ago. Moreover, the gap between VET and tertiary education graduates increases with years since graduation. HPWP has been linked to better skill use, and Box 5.6 describes differences in skill use between graduates. Consistent with the findings on exposure to HPWP, skill use is similar for general and VET graduates, but it is substantially lower than among tertiary education graduates (even when having similar skill levels and employed in similar jobs).

Box 5.6. The use of literacy, numeracy and problem-solving skills at work

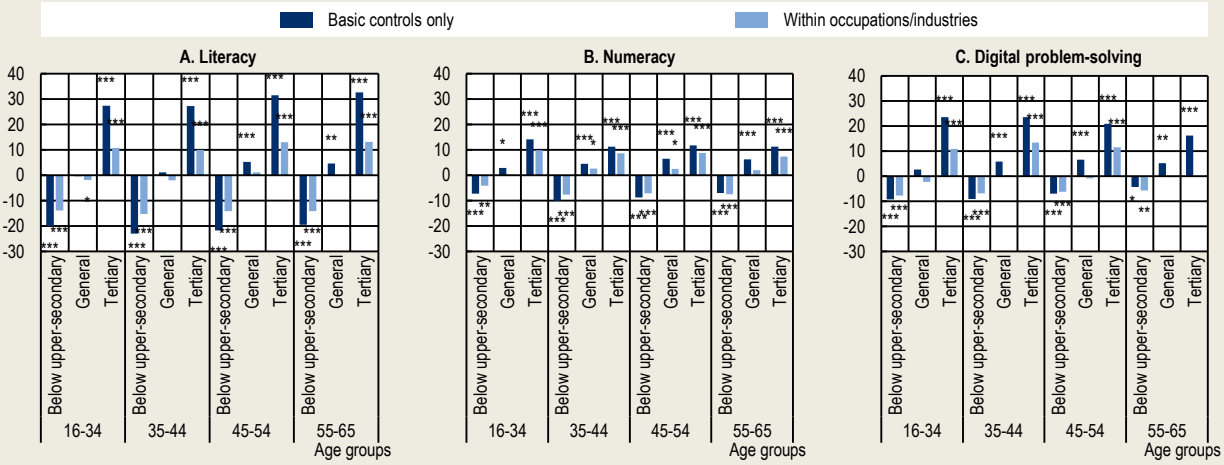
Graduates might not only differ in the level of their skills, but also in the intensity at which they use those skills. OECD (2016[24]) shows that countries rank differently in terms of skills proficiency and use, suggesting that these are indeed two different, albeit related, concepts. Higher skills use has been found to contribute to higher individual earnings and job satisfaction, as well as, at the aggregate level, productivity growth (OECD, 2016[24]). The use of HPWP is important to foster better skill use.

Young VET graduates use their literacy, numeracy and digital problem-solving skills at work to the same extent as general education graduates with the equivalent numeracy, literacy and problem-solving proficiency and similar personal characteristics (Figure 5.18).[21] Only numeracy skill use is slightly higher among young general education graduates than among VET graduates. Skill use is also similar for young VET and general education graduates employed in the same occupations and industries (except for literacy use which is slightly lower for general education graduates). Compared to tertiary education graduates with similar skill levels, young VET graduates use their skills significantly less intensively, even when employed in the same occupation and industry. By contrast, VET graduates use their skills more intensively than graduates without an upper-secondary education degree who have similar skill levels (also when working in similar occupations and industries).

Results look similar for older age groups, with individuals with VET and general education degrees working in similar occupations and industries having the same skill use. The only exception is numeracy use among 35-54 year-olds, which is higher for individuals with general education than for those with VET qualifications. Nonetheless, general education graduates aged 35 and more work more frequently in industries and occupations where literacy, numeracy and digital problem-solving skills are used more intensively (which explains why differences are significant when not controlling for industry and occupation). Differences in skill use between individuals with VET and tertiary education degrees employed in similar occupations and industries remain substantial in all age groups, as do differences between individuals with VET degrees and those without an upper-secondary education qualification.

Figure 5.18. Young VET graduates use their literacy, numeracy and problem-solving skills less intensively at work than tertiary education graduates with similar skill levels

Percentage difference in skill use intensity between individuals with qualifications from below upper-secondary, general and tertiary education relative to individuals with VET qualifications



Note: The sample includes all employed individuals who are not in formal education. All regressions include country fixed effects and controls for proficiency (literacy, numeracy and problem-solving, respectively), age, gender, migrant status, number of children and firm size. Occupations are included at the 2-digit level and industries at the 1-digit level (in addition to the basic controls). The skill use variables are a combination of more detailed tasks (which are measured on a 1-5 scale), see OECD (2016[24]). The sample includes all OECD countries except Colombia, Iceland, Luxembourg, Latvia and Portugal.

Source: OECD Survey of Adult Skills (2011/12, 2014/15, 2017/18) and OECD (2016[24]), *OECD Employment Outlook* 2016, https://dx.doi.org/10.1787/empl_outlook-2016-en.

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5.3. The labour market outlook for VET graduates

5.3.1. VET and general education jobs are likely to face excess supply

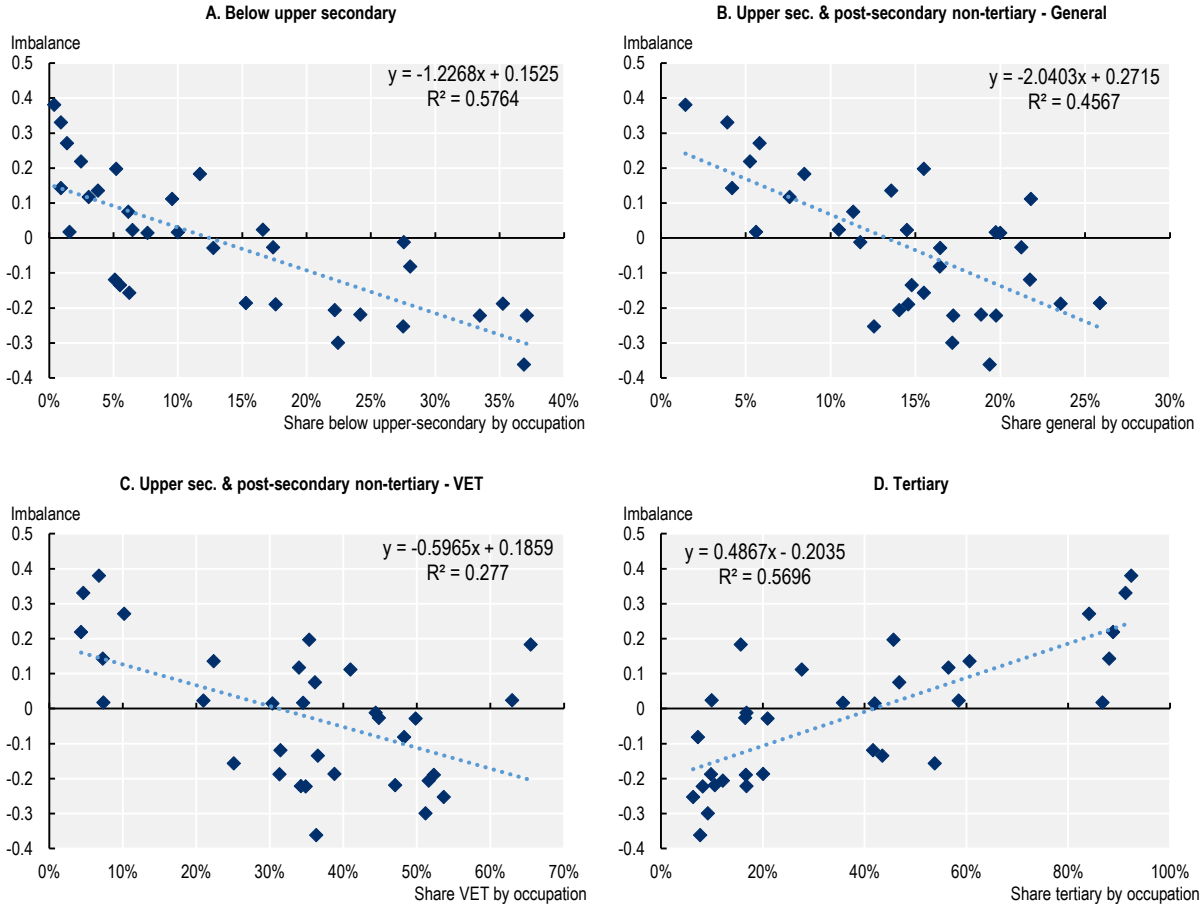
The ease of finding a job that matches one's skills depends on the demand for and supply of those skills. When the demand for a certain skill is higher than its supply (i.e. a situation of skills shortages), firms have difficulties finding the right workers for their vacancies. Individuals with those skills will find it easy to get a job matching their skills. In the opposite case, when the demand for a skill is lower than the supply (i.e. skills surplus), there is an abundance of workers with these skills, which makes it more difficult for individuals with these skills to find jobs that match their skill profile. The type of skills in shortage or surplus, and the intensity of these imbalances, will therefore be an important factor to understand the short-term employment outlook for adults with different skill profiles.

Using information from the OECD Skills for Jobs database[22], Figure 5.19 compares the shortage or surplus intensity of an occupation to the share of workers (aged 15 to 34) in that occupation with a certain education level. Current shortages and surpluses in occupations reflect relative changes in employment, hours worked, hourly wages and under-qualification, as well as relative unemployment rates. The negative relationship in Panels A, B and C suggest that occupations that employ mostly low-educated (Panel A) and/or middle-educated (Panels B and C) workers are more likely to experience (relatively large) surpluses. This negative relationship is stronger for young graduates from general education than for VET

graduates. Moreover, the two occupations that have more than 60% of workers with VET degrees among their workers aged 15 to 34 (i.e. metal and machinery workers and electrical and electronics trades workers), do not align with the overall pattern, as they experience no imbalance or a substantial shortage, respectively, on average across OECD countries. The picture looks very different for those with tertiary education degrees (Panel D), as occupations that mostly employ this type of graduates are experiencing substantial shortages. Hence, while the occupations that predominantly employ tertiary education graduates are facing excess demand, occupations that mostly employ lower-educated graduates face excess supply, albeit to a lesser extent for VET graduates.

Figure 5.19. Occupations employing mostly below upper-secondary, general education or VET graduates are more likely to face excess supply

Shortage(+)/surplus(-) intensity and graduate (15 to 34 years old) employment by occupation



Note: VET: Vocational Education and Training. Unweighted average of OECD countries with available data (Colombia, Iceland, Israel, Japan, and Luxembourg not covered). Each dot represents a 2-digit ISCO-08 occupation. The occupational shortage index (on the y-axis) aggregates information on employment growth, wage growth, hours worked growth, change in under-qualification and unemployment rates, and ranges between -2.5 and 2.5 (with negative values referring to surpluses and positive values to shortages). Values refer to the latest available year. For each occupation and education group, the employment share is the ratio of employment in that occupation from that education group to total employment of that occupation. Employment shares refer to employed individuals aged 15/16 to 34 who are not enrolled in formal education.
Source: European Union Labour Force Survey (2017), Encuesta de Caracterización Socioeconómica Nacional (2017), Turkish Labour Force Survey (2015) and OECD Survey of Adult Skills (2011/12, 2014/15, 2017/18) data and the OECD Skills for Jobs database.

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Medium-term projection exercises, such as the European one described in Box 5.7, but also the occupational projections from Canada and the United States[23], suggest that employment growth in some of the common occupations for VET graduates will be modest or even negative in the coming decade(s). This is especially the case for craft and related trades occupations, which have already seen declining employment relative to other occupations in recent years. While VET graduates seem to have managed to secure the remaining craft jobs (as discussed above), these projections suggest that fewer and fewer jobs will be available in those occupations. Nonetheless, negative or modest employment growth does not mean that no job opportunities will be available in those occupations. Job openings will continue to be created, mostly due to substantial replacement demand that exceed the number of new or lost jobs. Hence, while many graduates specialised in those declining occupations will still be able to find a suitable job, there is a risk of over-supply if VET systems do not adapt. Employment levels are projected to continue to grow in high-skill occupations (professionals and technicians), but also in sales and service occupations. If VET systems adapt to prepare students for high-skill jobs, such as technicians and associate professionals, VET graduates can benefit from the growing job opportunities in those types of jobs. Higher VET and smooth pathways for VET graduates to tertiary education are crucial in this respect (see Section 5.4).

Box 5.7. Medium-term employment projections in Europe

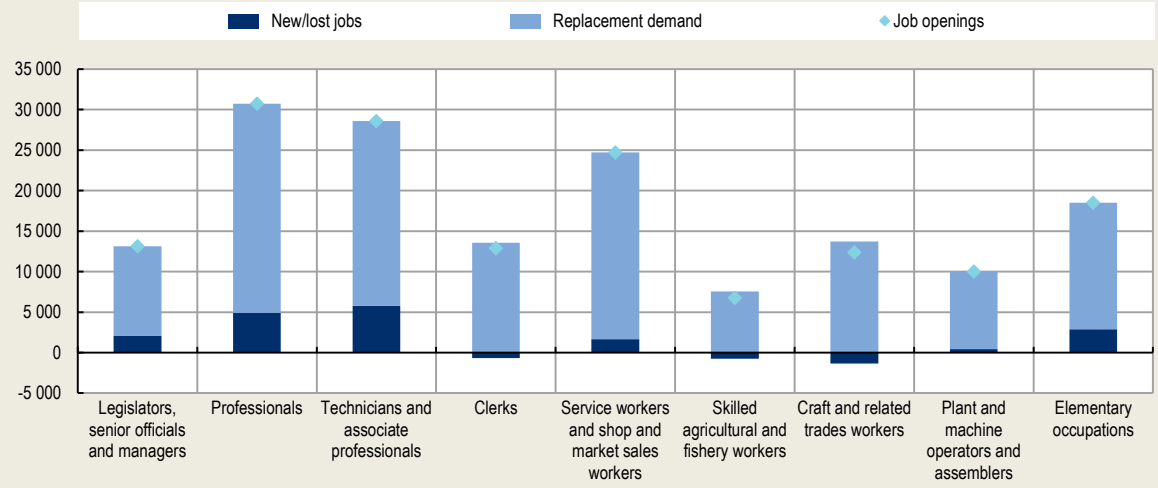
According to projections from Cedefop and Eurofound (2018[25]), the job polarisation trend observed in recent decades in EU countries is likely to continue in the next decades (2016-30). These forecasts show that across EU countries, total employment will grow the most for professionals, as well as technicians and associate professionals (new/lost jobs in the below chart). The sectors that are projected to have the strongest employment growth are R&D, consulting services, computer programming and advanced manufacturing. Managers, service and sales workers, and elementary occupations will also experience growth, but at a slower pace. Employment levels will go down for craft and related trades workers, clerks and skilled agricultural workers.

However, the demand for graduates does not only come from the creation of new jobs, but also from replacement demand, i.e. job openings arising from a worker leaving a job, temporarily or permanently. A very large part of the demand for skills in Europe is replacement demand (Cedefop and Eurofound, 2018[25]). Shrinking employment does not mean that an occupation disappears altogether, and openings will still be created to replace workers who leave those occupations. Replacement demand reflects to a large extent the size of the occupation, and as occupations shrink their replacement demand declines.

The patterns look largely the same across countries (for broad occupation groups), although there are some notable exceptions. In Ireland, for example, a substantial number of new jobs are projected in crafts and related trades occupations.

Figure 5.20. Job creation in middle-skill occupations is projected to be negative in the EU in the period 2016-30

Projected number of job openings, by occupation and type (thousands)



Source Cedefop and Eurofound (2018[25]), "Skills forecast: trends and challenges to 2030", *Cedefop reference series*, No. 108, Cedefop, http://dx.doi.org/10.2801/4492.

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5.3.2. Many VET jobs could be affected by automation

One of the key drivers of changes in the occupational structure of the labour market is technological progress. Technology has led to automation of certain tasks in the workplace, and this process is expected to continue to contribute to further changes in the occupational composition of the labour market but also in the task composition within occupations – see e.g. OECD (2019[26]). As discussed in Chapter 4, the occupational composition of employment has indeed changed in recent decades. Moreover, Box 5.8 shows that the task content of jobs has also changed in recent years, with communication- and ICT-related skills gaining in importance in the period 2012-17 (in the United States). According to estimates from Nedelkoska and Quintini (2018[27]), some of the occupations that employ many VET graduates, like craft and related trades occupations, have a relatively high probability of significant changes because of automation. On the other hand, some other typical VET occupations, like certain sales and personal care and service jobs, have a much lower risk of change due to automation.

Across OECD countries, 21.3% of jobs held by young VET graduates are highly automatable, meaning that a very large share of the tasks in those jobs could potentially be automated. This is slightly lower than for general education graduates (22.4%), but much higher than for jobs held by tertiary education graduates (9%) – see Figure 5.22. Graduates without an upper-secondary degree face the highest risk of automation, with 28% of them working in jobs at high risk. In the majority of countries, this risk of automation is similar for general education and VET graduates. In Denmark, Ireland and New Zealand, VET graduates have a substantially lower risk than general education graduates, while the opposite holds in France, Israel, Lithuania, the Slovak Republic and Sweden. In all countries, the share of workers at high risk of automation is higher among VET graduates than among tertiary education graduates. Differences between VET and tertiary education graduates are smallest in Denmark, Korea, Mexico and the United States, and largest in Belgium (Flanders), Lithuania and the Slovak Republic. In all countries except Japan and Lithuania, VET

graduates are less likely to be at high risk than graduates without an upper-secondary degree, although in some countries the difference is only very small (e.g. Belgium, Canada and Turkey). Gender differences in the risk of automation are small for all education groups.

Differences in the risk of automation between VET and other graduates can be explained by the fact that these graduates work in different occupations (which have a different risk of automation), but also by the fact that they carry out more or less automatable tasks in the same occupations. Using a standard shift-share decomposition, the importance of these two components in explaining the difference in the average risk of automation between VET and other graduates can be disentangled.[24] On average across OECD countries, the risk of automation of general education graduates is only marginally different from that of VET graduates, and can fully be explained by occupational composition differences. Young VET graduates have a higher average risk of automation than those with a tertiary education degree, and 68% of this difference can be explained by the fact that VET graduates work in more automatable occupations (i.e. the "between occupation" component). The remaining 32% is due to VET graduates carrying out more automatable tasks even when they are working in the same occupation as tertiary education graduates (i.e. "within occupation" component). The importance of the within component is larger for the difference between VET graduates and those without an upper-secondary education degree: 46% of the lower average risk of automation of VET graduates relative to those without an upper-secondary education degree is due to them carrying out less automatable tasks in the same occupations.

Box 5.8. The changing task content of jobs in the United States

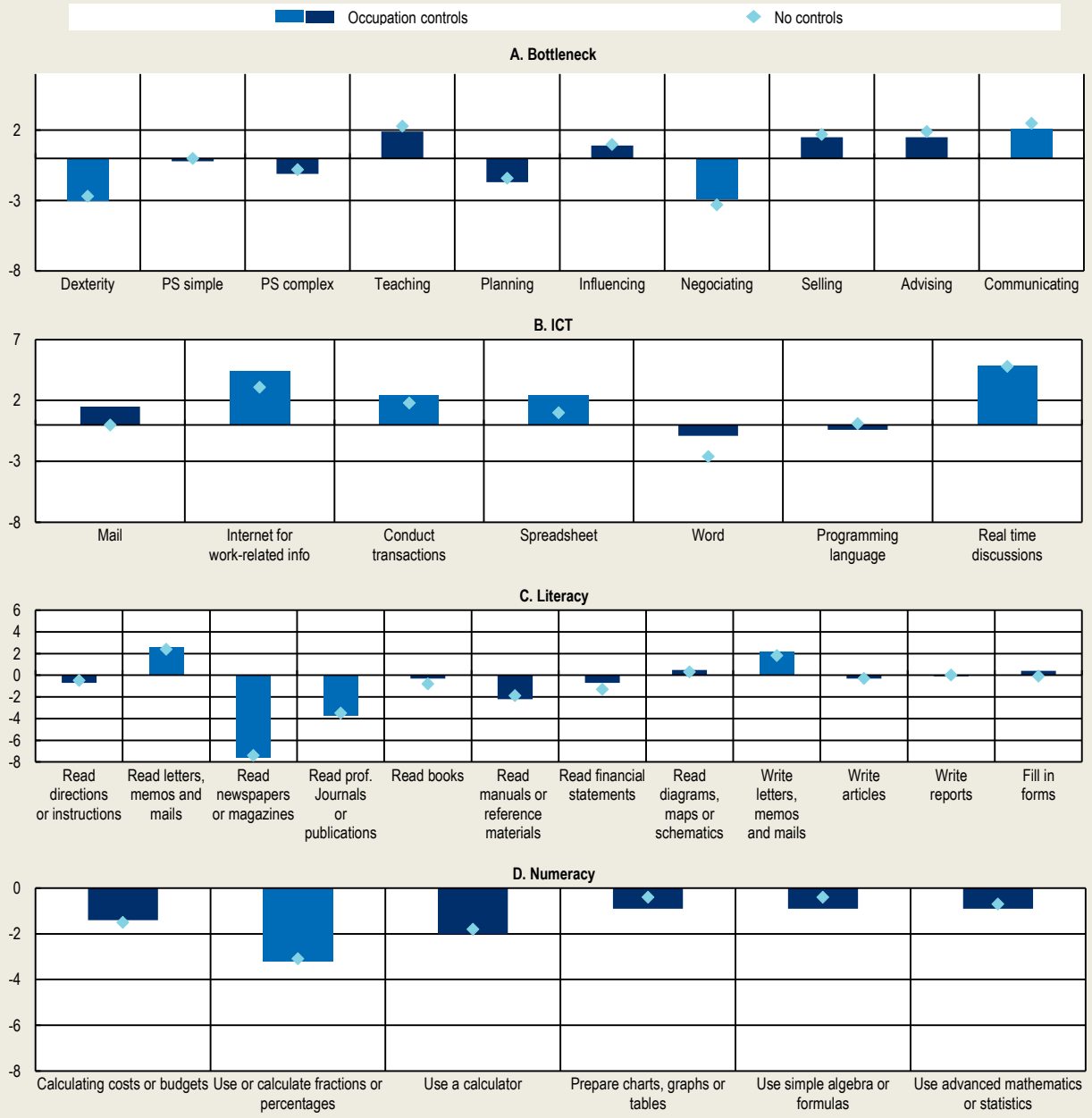
The task-approach to labour markets argues that changes in the allocation of workplace "tasks" between capital and labour, and between domestic and foreign workers, has altered the structure of labour demand, contributing to labour market polarisation (Autor, 2013[28]) (see Chapter 4. Moreover, the research on the risk of automation takes tasks as a starting point to estimate automation probabilities, based on experts' views on their automation probability (Nedelkoska and Quintini, 2018[27]).

Using the United States' data from the OECD Survey of Adult Skills (PIAAC), it is possible to analyse how the task content of jobs changed in the period 2012-17. PIAAC collects information on the frequency of carrying out a range of tasks at work, including literacy, numeracy and ICT-related tasks, but also several more specific tasks, such as selling, problem-solving and communicating. The new cycle of PIAAC data, which will be collected in 2021-22, will allow repeating this analysis for other OECD countries and over a longer time period.

The figure below shows the results of regressing the probability of carrying out certain tasks at least once a week on a time dummy (0 if 2012/2014, 1 if 2017) (with and without occupation controls).[25] The reported coefficients shows the change in the probability of frequently carrying out the respective tasks in 2017 relative to 2012/2014. The results show that for some tasks this probability changed significantly. This is particularly the case for ICT-related tasks, which increased considerably (with the exception of the use of email, word processing and programming). Other tasks that are more frequently carried out are communication and – related to this- writing and reading letters, memos and emails. On the other hand, workers carry out tasks like reading articles in newspapers and professional journals, and calculating fractions less frequently. Moreover, workers are less often involved in tasks that require the use of hands or fingers, as well as negotiation-related tasks, which are both considered difficult-to-automate tasks (i.e. bottlenecks to automation). In spite of these changes in the frequency of carrying out certain difficult-to-automate tasks, the average risk of automation did not change significantly in the analysed period.

Figure 5.21. The use of certain ICT tasks increased significantly in the period 2012-17 in the United States

Percentage point changes in the probability of frequently carrying out a certain task at work (marginal effects)

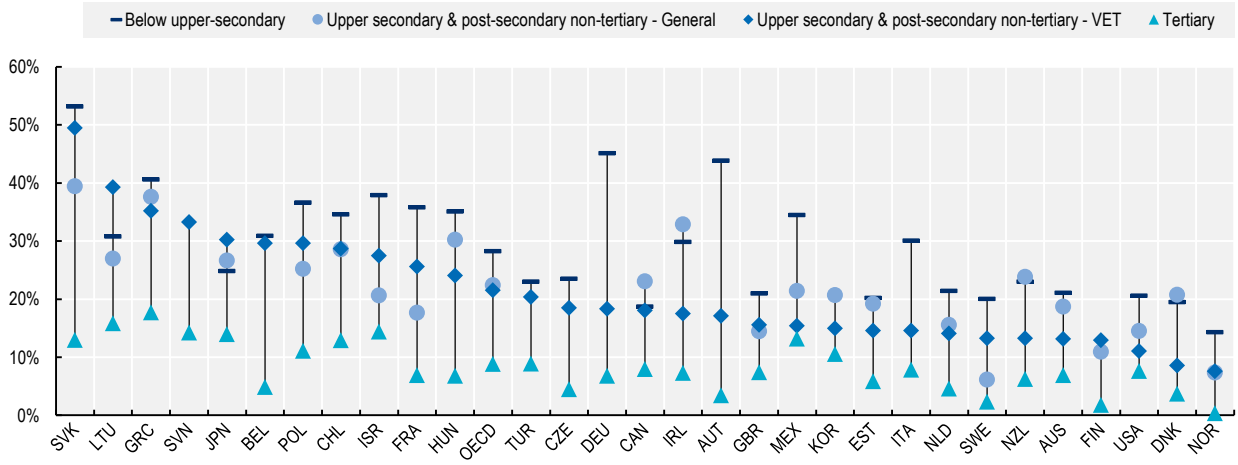


Note: Marginal effects after a probit regression of an indicator variable of frequency of carrying out a certain tasks (1 if carried out at least once a week) on a time dummy (1 if year is 2017) and occupation dummies (ISCO-08 2-digits). Lighter blue bars indicate statistical significance at (at least) the 10% level (others not statistically significant). Regressions include around 7 100 observations. The 2012/2014 sample is a combination of the initial sample analysed in 2012 and the top-up sample added in 2014.
Source: OECD Survey of Adult Skills (2011/12, 2014/15, 2017/18).

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Figure 5.22. Young graduates with tertiary education degrees face the lowest risk of automation of their jobs

Percentage of employed graduates (aged 16 to 34) with jobs at high risk of automation



Note: VET: Vocational Education and Training. High risk of automation is defined as having a probability of automation of at least 0.7. Belgium refers to Flanders only, the United Kingdom to England and Northern Ireland. The sample includes employed individuals aged 16 to 34 who are not enrolled in formal education. OECD is an unweighted average of the countries shown.
Source: OECD Survey of Adult Skills (2011/12, 2014/15, 2017/18).

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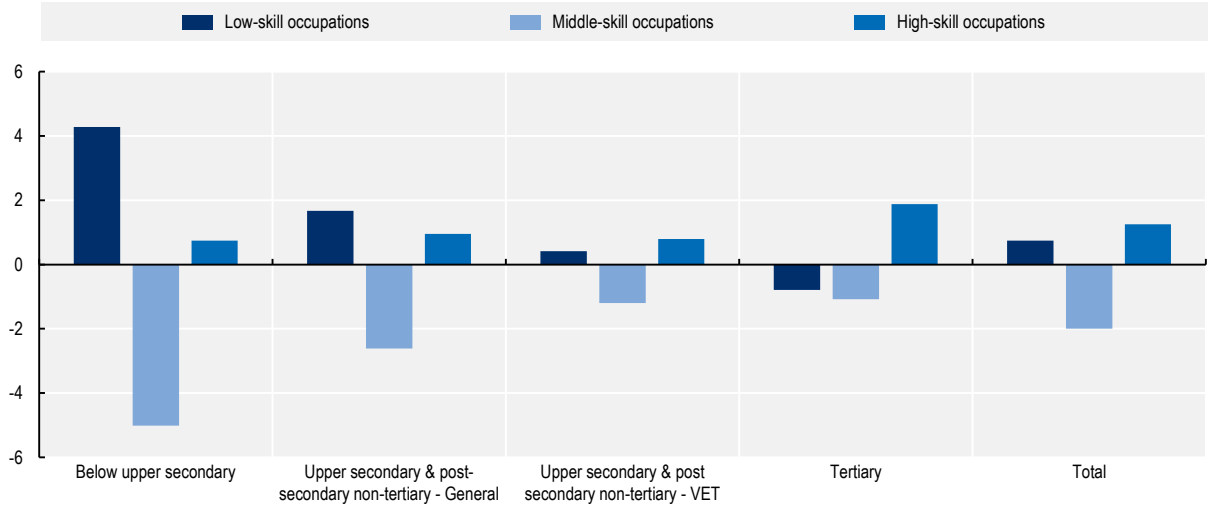
Using a simulation modelling approach, this chapter further explores how the types of jobs available are altered when bottlenecks to automation are overcome. To analyse the potential impact of the ensuring "burst" of automation, the model uses the Cedefop (2018[29]) sectoral employment forecasts as a baseline (see Box 5.7)[26], and incorporates the insight from Nedelkoska and Quintini (2018[27]) that automation affects jobs through its impact on individual tasks. Using estimates of task automation provided by Brandes and Wettenhofer (2016[30]), the model probabilistically automates certain tasks during a burst of automation. O*NET occupational data (National Center for O*NET Development, 2020[31]) are used to provide detailed breakdowns of task importance and frequency within occupations, as well as the knowledge requirement for workers to fulfil those tasks. After a burst of automation, firms no longer need workers for the automated tasks within an occupation, and thus the frequency of the remaining tasks (i.e. those not automated) increases. Annex 5.C describes the simulation model in detail.

According to the simulation results[27], the task content of jobs changes as a result of automation, and therefore the skillset that employers are looking for when they hire workers also changes. This means that employers might hire workers with a different education and work experience background than they did in the past. Figure 5.23 shows that an automation episode is expected to change the occupational composition of VET graduates' employment, with middle-skill jobs becoming less important for them, and low- and high-skill jobs gaining in importance. For all education groups middle-skill jobs become less important, as these are the jobs most exposed to automation (see Annex Figure 5.A.2), and the impact is smallest for VET and tertiary education graduates. Moreover, for VET and tertiary education graduates the employment structure shifts mostly towards high-skill jobs whereas general education graduates and those without an upper-secondary education degree mostly see relative employment gains in low-skill occupations. Despite the fact that the employment structure of general education graduates shifts more strongly to low-skill occupations than to high-skill occupations, their high-skill employment share change is still larger than the change in the high-skill employment share for VET graduates. For VET graduates, the larger employment share in high-skill occupations is fully driven by occupations that demand a management-type skillset, with VET graduates being more often employed as specialised managers (e.g. construction managers, wholesale and retail managers) after an automation episode.[28,29] For general education graduates, the employment shift towards high-skill occupations is mostly due to increased relative employment in professional and – to a lesser extent – management occupations.

These results suggest that automation can potentially further reduce the importance of middle-skill occupations in the labour markets of OECD countries. While this could affect all education groups, the impact on VET graduates' employment structure can be expected to be less strong than for general education graduates and for those without an upper-secondary education degree. VET graduates have a comparative advantage in middle-skilled jobs relative to other graduates, as their education specifically prepared them for those jobs. Employers might therefore prefer VET graduates over general education graduates (and graduates without an upper-secondary education degree) for the remaining middle-skill jobs. At the same time, the skills demanded in high-skill occupations (i.e. managers, professionals, technicians) are unlikely to be automated and these professions remain in demand (see Annex Figure 5.A.2). The ability of VET graduates to get access to these jobs crucially depends on the skills they acquired in education, as well as the willingness of employers to hire workers who do not fully fit the profile they are looking for and fill skill gaps through training.

Figure 5.23. The impact of a burst of automation on the skill composition of VET graduates' employment is relatively limited

Percentage point change in the employment share of each occupation group (by education level) that is attributable to a burst of automation



Note: VET: Vocational Education and Training. Figure presented the simulated change in employment within each educational group that is directly attributable to automation. Changed presented as a share of total employment within each educational group over the period. The total of the data points for each educational group sums to zero. High-skill occupations are defined as ISCO 1-3; middle-skill occupations as ISCO 4 plus ISCO 6-8; low-skill occupations as ISCO 5 plus ISCO 9. See Chapter 4 for details on the skill groups.
Source: OECD simulations, see Annex 5.C for details.

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5.4. Improving the future-readiness of VET systems

VET systems around the world have a crucial role to play in the education system. As documented above, they facilitate school-to-work transitions, resulting in better labour market outcomes for VET graduates compared to general education graduates at the start of their career. Earlier research has also shown that VET helps reduce high school dropout, especially for high-risk students (Kulik, 1998[32]; Henriques et al., 2018[33]). In this respect, VET is crucial for engaging students in education and therefore improving their labour market prospects. Nonetheless, in a changing world of work, certain aspects of VET systems might need to be re-engineered to further strengthen the positive impact VET can have on education and labour

market outcomes. As the characteristics of VET systems and the labour market outcomes of VET graduates differ widely between OECD countries, the extent to which a re-engineering of the system is important also varies.

5.4.1. Creating responsive VET systems

With many of the jobs commonly targeted by VET undergoing substantial changes, VET programmes need to be responsive, so that they remain relevant for students and employers. In responsive VET systems, existing VET programmes are updated in a timely way to reflect changing needs in the labour market, and new programmes are created when there is sustained demand for them. Strong coordination between the VET system and the world of work allows for a better understanding of how jobs and skill needs are changing and how VET systems should react to these changes. Strong ties between VET providers and social partners also facilitates the implementation of work-based learning. Social partners can be involved in different aspects of the VET system. According to KOF Swiss Economic Institute (KOF Swiss Economic Institute, 2016[4]), employer engagement can take place in the curriculum design, application and feedback phase. In the curriculum design phase, employers can be involved in setting qualification standards, as well as in the development of student evaluation guidelines. Employer involvement in the application phase mainly happens through the provision of work-based learning, but employers can also be involved in other areas, such as quality assurance of work-based learning, cost-sharing agreements, the provision of equipment and teachers, and the inclusion of a workplace component in student evaluations. Finally, in the feedback phase, employers can share information about student outcomes and skill needs to feed into the re-design of curricula, and they can be involved in determining the optimal timing for curriculum re-design. Among a range of countries that are deemed to have well performing VET systems, Austria, Switzerland, Denmark and Germany are found to score highest on employer engagement across the different dimensions (KOF Swiss Economic Institute, 2016[4]). In Germany, for example, employers have an important role in providing apprenticeship places, but are also key players in determining the content and organisation of VET programmes. Social partners can make the case for updating existing training regulations or developing new ones, and nominate experts who are involved in the development of these regulations (OECD, 2019[34]).

As discussed in the previous section, employment in high-skill occupations is expected to continue to increase at a faster pace than in medium-skill occupations. These changes imply that there is an increased need for higher-level vocationally oriented qualifications (at ISCED levels 5 and above) and for easy pathways between medium-level VET and these higher-level qualifications. Many countries have opened up higher education to individuals with vocational qualifications and/or with work experience, but actual use of these non-traditional access routes is still relatively low (Cedefop, 2019[35]). In addition to helping meet the demand for high-level skills, effective learning pathways can help increase the attractiveness of VET, support lifelong learning, reduce inequalities and promote social inclusion and mobility (Field and Guez, 2018[36]). In practice, many barriers hinder smooth pathways between mid-level VET and higher education, including fragmented education systems with limited transparency, limited development of general skills in mid-level VET to be successful in higher education, and a lack of flexibility in higher education programmes. In Austria, graduates from the dual system and 3-4 year VET schools can enter universities and *Fachhochschulen*, by completing special exams (*Berufsreifeprüfung*). Students can participate in preparatory courses provided by several institutions (OECD, 2014[37]). Since 2008, apprentices have the option of pursuing a double degree *(Lehre mit Matura)*, combining the occupational qualification and the special higher education entrance degree. In 2018, only around 6% of apprentices opted for this combined degree (Dornmayr and Nowak, 2018[38]). In Norway, graduates from the vocational track at the upper-secondary level have the option to continue to higher education after a one-year bridging course (Norwegian Directorate for Education and Training, 2013[39]). This bridging course covers six key academic subjects: Norwegian, English, Mathematics, Natural Sciences, Social Sciences, and History. For certain higher education programmes, mainly in the engineering field, entry is allowed for vocational qualification holders without going through the bridging programme.

VET provision, and especially apprenticeships, are often focused on a relatively narrow set of occupations and sectors. The popular image of an apprentice is often of working in a skilled trade or craft, such as construction or manufacturing. This accurately reflects the apprenticeship landscape in many countries, where apprenticeships are most common in manufacturing, construction and engineering (OECD, 2018[40]). Limiting apprenticeships to "traditional sectors" means missing out on the potential benefits of apprenticeships in sectors where most of tomorrow's jobs will be found. Moreover, skilled trade and craft occupations are often perceived as traditionally "male" with limited female participation. As a result, women seeking a vocational qualification mostly pursue school-based programmes and do not benefit from the advantages of apprenticeship schemes. In recent decades, many countries have sought to diversify the sectoral coverage of apprenticeships in recognition of the potential of apprenticeships as a pathway to a wider range of skilled jobs (OECD, 2018[40]). Australia introduced non-trade apprenticeships in the 1980s, and these now outnumber trade apprenticeships. In Switzerland, the three most popular apprenticeship occupations are business and administration, wholesale and retail sales and building and civil engineering. In Germany, the most popular apprenticeship occupations are in the management and retail sectors. In Ireland, new apprenticeship programmes were introduced in 2018 in the fields of software development, network engineering and cybersecurity.

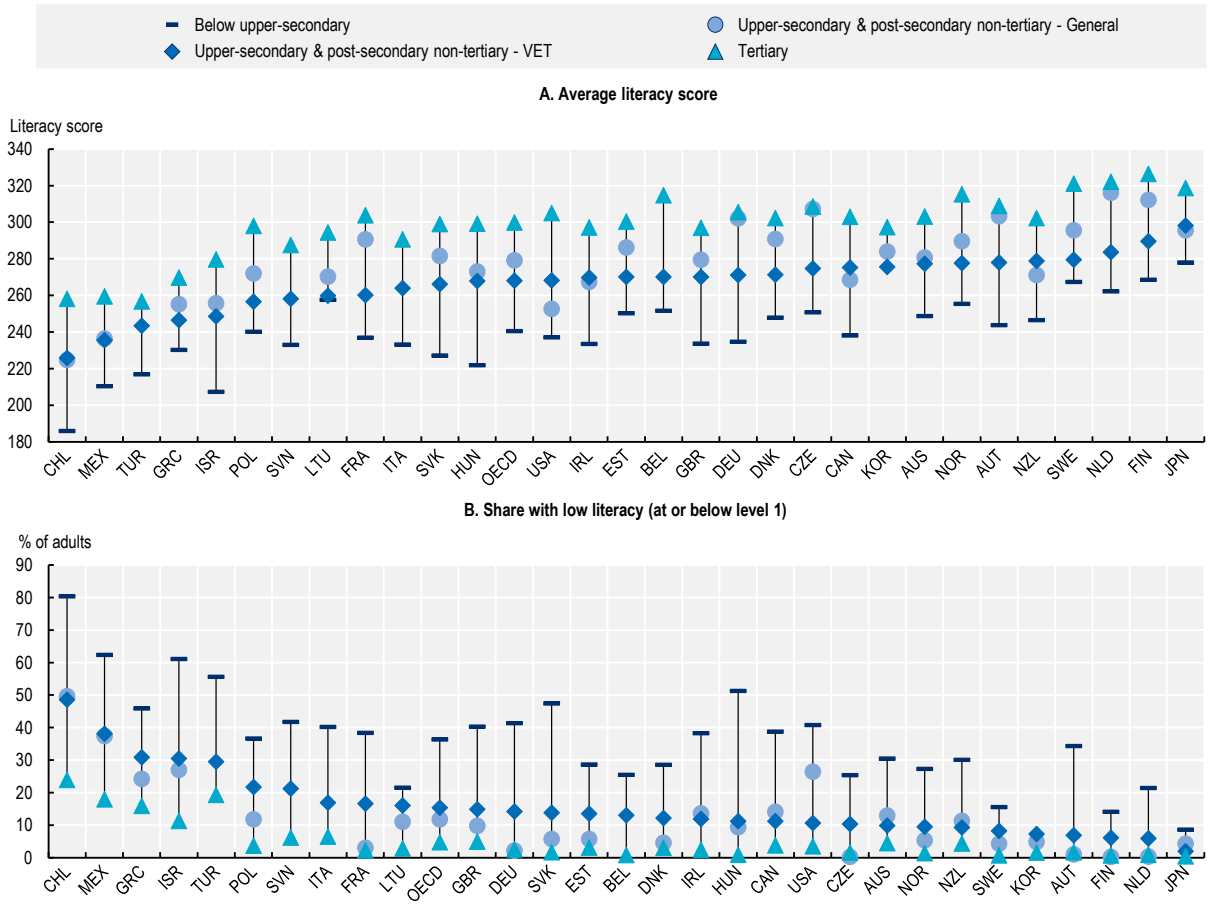
5.4.2. Smoothing transitions

General subjects, defined as leading to generic knowledge and skills that are not directly relevant to a specific occupation and applicable in most contexts of work and life, are an important part of vocational education and training. For example, a well-qualified electrician needs to be familiar with basic mathematics, but potentially also more specialised fundamental knowledge such as physical laws. Strong foundational skills are also key in helping students access further education and training. However, data from the OECD Survey of Adult Skills show that in the large majority of countries, literacy and numeracy skills, as well as digital problem-solving skills of young VET graduates are lower than those of graduates from general and tertiary education, although higher than those of graduates without an upper-secondary degree (Vandeweyer and Verhagen, forthcoming[41]).[30] On average across OECD countries young VET graduates have lower literacy skills than general education graduates, and only in Canada, New Zealand and the United States VET graduates are slightly more proficient in literacy than their general education counterparts (Figure 5.24). In these countries, fully fledged VET programmes mostly exist at the post-secondary level, implying that these graduates have been through more years of education and therefore had more exposure to general subjects than VET graduates in most other countries. Moreover, on average across countries, young VET graduates are marginally more likely to have low literacy skills than those from general education. Similar gaps are found for numeracy and digital problem-solving skills. Interestingly, even in countries that are considered to have particularly strong VET systems, like Germany, Austria and Denmark, skill gaps between VET and general education graduates are substantial.

Although there is a lack of internationally comparable information on the split between occupational and general subjects in VET programmes – see Kís (forthcoming[6]) for a discussion, it is known that countries differ widely in the extent to which they incorporate general subjects in their VET curricula. Finding the right balance between general and vocational subjects is not an easy tasks. For example, when reinforcing the general component in VET curricula it should be ensured that this does not have a detrimental impact on the motivation of students and their probability to obtain their degree. Some students might have chosen the vocational track because of negative experiences within a standard school-based setting, and might therefore be discouraged by curricula that have a substantial school-based academic component. One way to potentially overcome this issue is to integrate basic skills with vocational training. Not only general basic skills, but also non-cognitive skills are important to ensure that VET graduates are resilient in a changing world of work. These skills can be incorporated in the curricula of VET programmes, and can additionally be developed through workplace learning. VET graduates who have had ample workplace exposure during their studies might have an advantage compared to general education graduates with regards to non-cognitive transversal skills that are important for employers.

Figure 5.24. VET graduates have slightly lower literacy skill than general education graduates

Literacy proficiency of graduates (aged 16 to 34 not in formal education)



Note: VET: Vocational Education and Training. Belgium refers to Flanders only, the United Kingdom to England and Northern Ireland. The sample includes graduates aged 16 to 34 who are not enrolled in formal education. OECD is an unweighted average of the countries shown.
Source: Survey of Adult Skills (2011/12, 2014/15, 2017/18).

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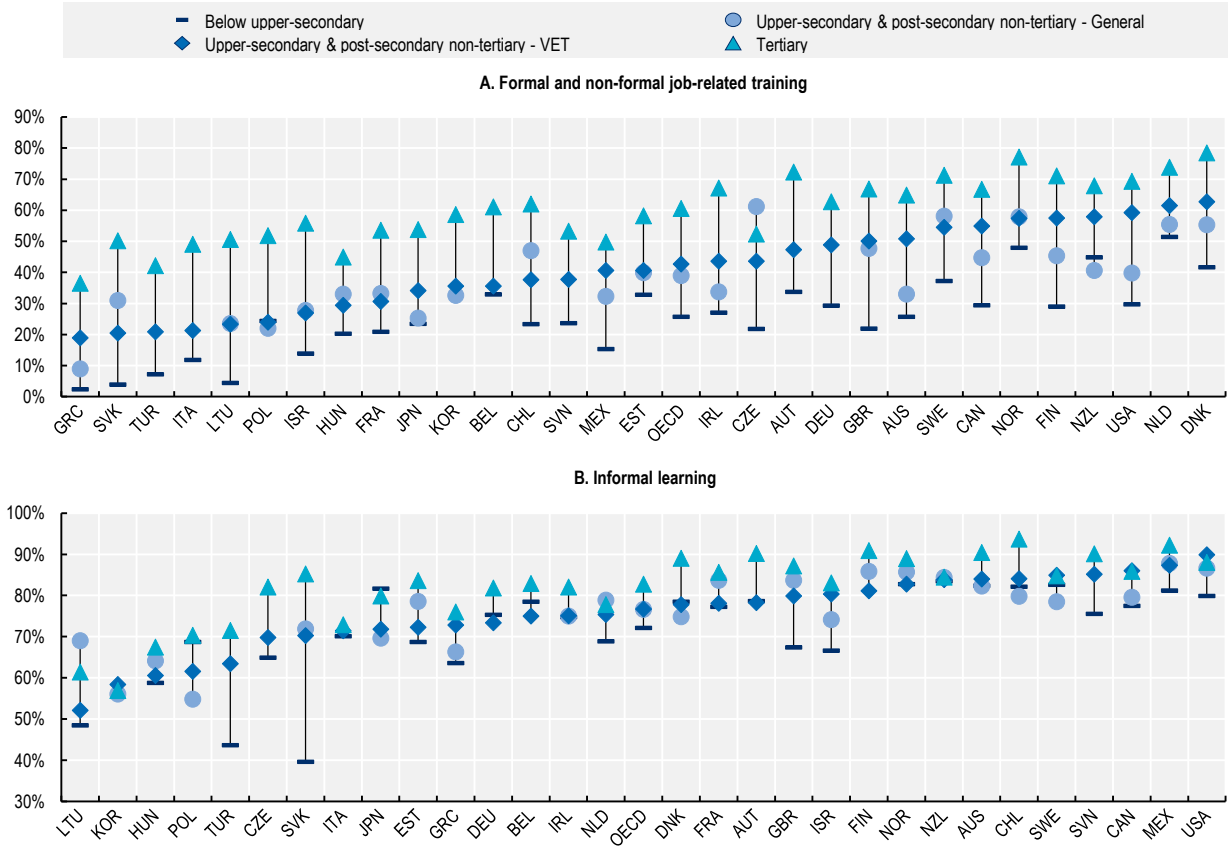
It is not only important to update the VET system to ensure that new graduates have skills that correspond with labour market needs and strong foundational skills to be adaptable, but also that they have continued opportunities to up-skill and re-skill after entering the labour market. Ensuring that adults have access to high-quality training opportunities that are aligned with the needs of the labour market, is therefore becoming increasingly important. This is certainly the case for VET graduates, as many of the jobs they hold are likely to change because of automation. At the same time, VET systems often prepare students for a rather narrow set of jobs, making it potentially more difficult for VET graduates to transition between jobs.

VET graduates are slightly more likely to participate in formal and non-formal training compared to general education graduates (see Figure 5.25). Across the countries included in the OECD Survey of Adult Skills, 43% of young VET graduates participate in formal or non-formal job-related training in a given year, compared to 39% of general education graduates. This is low compared to the participation rate of tertiary education graduates, which reaches 61% on average. Engagement in informal learning at work, defined as learning by doing, learning from others and keeping up to date with new products and services, is much higher than for formal and non-formal training for education groups. VET graduates and general education

graduates have the same probability of participating at least once per week in informal learning at work (77%), and this is only slightly lower than for tertiary education graduates (83%). Graduates without an upper-secondary education degree participate less in both forms of learning than VET graduates, although the difference is small in the case of informal learning at work.

Figure 5.25. Young tertiary education graduates are more likely to participate in training than graduates from lower education levels

Percentage of graduates aged 16 to 34 (employed only in the case of informal learning)



Note: VET: Vocational Education and Training. The sample includes graduates aged 16 to 34 who are not enrolled in formal education. Participation in informal learning is defined as learning by doing, learning from others, or keeping up-to-date with new products or services at least once a week. Informal learning refers to employed adults only, whereas formal and non-formal learning refers to all adults. Belgium refers to Flanders only, the United Kingdom to England and Northern Ireland. OECD is an unweighted average of the countries shown.
Source: OECD Survey of Adult Skills (2011/12, 2014/15, 2017/18).

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The slightly lower participation in formal and non-formal training by general education graduates compared to VET graduates is also confirmed when controlling for personal characteristics (see Annex 5.A).[31] The difference is not statistically significant when focusing on employed graduates only, also when comparing graduates employed in similar occupations and industries (i.e. adding occupation and industry controls). Similarly, differences in informal learning are not statistically significant. The difference in training participation (formal and non-formal, as well as informal) between VET and tertiary education graduates becomes smaller when comparing graduates employed in similar occupations, but remains significant. Similarly, the gap between VET graduates and those who do not hold an upper-secondary education

degree is smaller when comparing individuals employed in similar occupations and industries and even disappears for informal learning.

Adults face many barriers when it comes to participation in training opportunities, often related to lack of time or financial constraints. Moreover, many adults report little interest in participating in training. For example, 84.2% of VET graduates who did not participate in formal or non-formal training reported that there were no learning activities that they had wanted to participate in. This is higher than among general and, especially, tertiary education graduates (79.4% and 75%, respectively), but also higher than among those without an upper-secondary education degree (81.9%). For those VET graduates who did want to participate in (more) training[32], the main reason for not doing so is because they are too busy at work (24.6%), find training too expensive (22.9%), or have time constraints because of childcare responsibilities (16.7%). Adult learning opportunities and incentives need to be designed with these barriers in mind, making training flexible and providing financial incentives to those who need them (OECD, 2019[42]). Moreover, active outreach to underrepresented groups is crucial to engage adults in learning and making adult learning systems inclusive (OECD, 2019[42]). As pointed out by OECD (2019[43]), social partners can play an important role in increasing access to adult learning opportunities. With regards to informal learning, it is important to create a learning culture in the workplace and this can be fostered through the adoption of high performance work practices (Fialho, Quintini and Vandeweyer, 2019[44]). While this type of learning is valuable for skills development of workers, its disadvantage compared to more formalised types of training is that it is less visible to employers. To increase labour market transparency with respect to workers' informally acquired skills, tools to asses and certify competencies acquired through informal learning in the workplace need to be available (Fialho, Quintini and Vandeweyer, 2019[44]; OECD, 2019[42]).

5.4.3. Supporting students and adults in making informed choices

Deciding what to study is not an easy choice, especially not in the context of a rapidly changing labour market. Career guidance services can help students navigate the different options and make informed choices. Evidence suggests that career aspirations of students often not match with the demands in the labour market. Many students only consider a limited number of possible occupations, and career guidance could help broadening horizons. Several studies have found that students receive less information about VET programmes compared to general programmes (Musset and Mytna Kurekova, 2018[45]). A survey among EU citizens showed that 57% of students received information about VET when making a decision about their upper-secondary education – ranging from less than 45% of students in Ireland, Portugal, Italy and the United Kingdom to at least 80% in Estonia, Finland, Slovenia and the Slovak Republic (Cedefop, 2017[46]). Among those whose upper-secondary education was primarily vocational, 72% say that they were given information about VET, while this is true only for 48% of the ones whose upper-secondary was primarily general. Moreover, among those who took the general education track at upper-secondary level, 25% say that someone advised them against taking VET. Around half of respondents in Hungary and Italy were advised against VET, compared to less than 15% in the Netherlands, Denmark and the United Kingdom. Limited guidance on the choice of VET in certain countries might be linked to the poorer image of vocational programmes in those countries. Helping students understand the world of work is a crucial component of effective career guidance, and therefore close engagement between schools and employers is vital.

Career guidance is not only important to help young people make their study choice. Assisting individuals in their education, training and career choices remains important throughout their working lives. This is certainly the case in times of structural changes in the labour market. Evidence suggests that adults, in particular those with low skills, are not always able to recognise the need to develop their skills further (Windisch, 2015[47]). Career guidance for adults can help them understand the skills they already have, as adults have generally acquired skills informally in addition to the formal qualifications they hold, and which skills they want or need to develop further. It can also help them navigate available learning opportunities to develop those skills and available support measures. Public awareness campaigns may promote the

benefits of seeking career or training advice, advertise specific career guidance services, or reach out to underrepresented or vulnerable groups at risk of job change or skill obsolescence.

Career guidance should be available and accessible to all, but this is not usually the case. For instance, employed adults are less likely to access career guidance services than unemployed adults, and this is potentially linked to limited availability of such services for employed adults. This could be improved by making public employment services (PES) accessible to employed adults, or by encouraging collaboration between employers, trade unions and training providers in providing quality guidance services. For those individuals who do know where and how to find career guidance, it is important to give holistic and personalised advice. Effective career guidance takes into account a person's personal circumstances, skills, abilities and preferences, and navigates available relevant learning possibilities as well as other services to overcome barriers to participation. In France, workers and jobseekers have access to free and personalised career guidance services, under the *Conseil en Évolution Professionnelle*. The guidance services help participants understand their professional situation, the evolution of employment and jobs in France (and the specific region), as well as the possible tools to help advance one's professional development project. Guidance counsellors help participants in realising their project, by proposing, for example, training pathways and options for financing their project.

5.5. Concluding remarks

Structural changes in the labour market have raised concerns about the labour market prospects of graduates from VET programmes. Traditionally, this group has mainly been employed in middle-skill jobs, and – as discussed in Chapter 4 – employment in middle-skill occupations has declined in recent decades relative to other occupations. This chapter shows that young VET graduates have strong labour market outcomes at the start of their careers relative to general education graduates, both in terms of job quantity and several aspects of job quality. These labour market advantages decline as they move on in their careers, but remain at least on par with those of general education graduates for most aspects of job quantity and quality. While structural changes in the labour market in the past 15 years did not lead to a worsening of employment or unemployment rates of young VET graduates relative to other types of graduates, there have been considerable changes in the types of jobs that VET graduates carry out. A growing share of VET graduates are employed as sales and service workers, consistent with the strong growth of these occupations in the overall labour market. While high-skill occupations are growing in importance in OECD labour markets, the share of VET graduates in these jobs has not increased. Finally, in contrast to the sharp decline in the relative importance of craft and related trades jobs in the overall labour market, the share of VET graduates in these jobs has remained stable, suggesting that VET graduates are managing to secure the remaining jobs in these occupations. However, as employment in these occupations is projected to decline in the medium-term in many countries, opportunities for VET graduates trained to work in these occupations might shrink. Nonetheless, job openings will continue to be created as a result of substantial replacement demand.

In a changing world of work, VET systems might need to be redesigned to strengthen the positive impact they have on student outcomes. Closer co-operation between the VET system and the world of work is important to ensure alignment with labour market needs. VET graduates can be helped to access job opportunities through the development of smoother pathways into higher education and the expansion of the VET system to new fields of study related to growing occupations and sectors. At the same time, VET systems need to invest in the development of solid foundational skills, so that graduates are more adaptable and find it easier to further develop their skills. Strong career guidance in education is crucial to help students make informed education and labour market choices. And for VET graduates who are already in the labour market and are faced with job loss or changes in the content of their jobs, sufficient training opportunities need to be available.

Not all countries are facing the same issues for VET graduates, and a lot depends on the quality of the VET system and its ability to adapt to changes. In countries where the labour market outcomes of VET graduates are good in most dimensions – i.e. Austria, Denmark, Germany, the Netherlands, Norway, Sweden, and Switzerland – there are usually strong ties between VET institutions and employers, which may have helped VET graduates in these countries adapt better to global changes in the labour market. The cooperation between the VET system and the world of work is particularly strong in Austria, Denmark, Germany and Switzerland, at all stage of the VET design and implementation (KOF Swiss Economic Institute, 2016[4]). In most of these well-performing countries, the majority of VET students are enrolled in programmes with a strong workplace component. This is the case in the dual systems in Austria, Germany and Switzerland, but also in Denmark and Norway. In the Netherlands and Sweden most students are in programmes that are predominantly school-based. Another feature of VET in the well-performing countries is that most programmes allow for access to higher education, either directly or through bridging programmes, and that several vocationally oriented programmes are available at the tertiary level. This means that VET in these countries is not a dead-end. Young VET graduates also have strong labour market outcomes relative to general education graduates in many of the analysed dimensions in Australia, Canada and the United States. These good results can partially be attributed to the fact that VET is mostly organised at a higher level than general education (i.e. ISCED 4 versus ISCED 3) in those countries. While this clearly shows the value of VET at higher levels, it is also important to note that in this setup the potential role of VET in reducing school dropout is limited.

It should be noted that this chapter focuses on middle-educated VET graduates, and therefore does not look at VET graduates who continued to higher education or at graduates from vocationally oriented higher education. As the demand for high-skilled workers continues to increase, higher-level vocationally oriented education will become increasingly important, as will smooth pathways between medium-level VET and higher education. Better data collection on pathways between different levels of education is needed to understand the extent to which VET graduates from medium-level VET enter higher education.

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Annex 5.A. Additional tables and figures

Annex Table 5.A.1. Personal characteristics of graduates, 2004 and 2018 (European countries)

Marginal effects after logistic regressions

	(1)	(2)	(3)	(4)	(5)	(6)
	VET vs. Below upper-secondary		VET vs. General		VET vs. Tertiary	
	2004	2018	2004	2018	2004	2018
Gender (1=female)	0.028***	0.041***	-0.023***	-0.052***	-0.074***	-0.122***
	(0.003)	(0.005)	(0.002)	(0.004)	(0.004)	(0.012)
Parents' highest obtained qualification						
Below upper-secondary	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.
Upper-secondary	0.184***	0.192***	0.003	-0.037***	-0.097***	-0.096***
	(0.011)	(0.016)	(0.006)	(0.014)	(0.008)	(0.007)
Tertiary	0.197***	0.177***	-0.088***	-0.162***	-0.341***	-0.368***
	(0.010)	(0.009)	(0.021)	(0.016)	(0.010)	(0.010)
1st generation immigrant in current country of residence (1 = yes)	-0.135***	-0.108***	-0.081***	-0.006	-0.105***	-0.037***
	(0.010)	(0.006)	(0.018)	(0.023)	(0.015)	(0.011)
Age						
15-19 years old	-0.285***	-0.267***	-0.047**	-0.141***	0.207***	0.244***
	(0.024)	(0.014)	(0.019)	(0.013)	(0.007)	(0.005)
20-24 years old	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.
25-29 years old	0.058***	0.038***	0.018	0.031***	-0.188***	-0.186***
	(0.004)	(0.007)	(0.011)	(0.003)	(0.003)	(0.006)
30-34 years old	0.070***	0.049***	0.018	0.028***	-0.240***	-0.256***
	(0.019)	(0.008)	(0.018)	(0.003)	(0.013)	(0.003)
Children						
No own children	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.
One child	-0.058***	-0.053***	0.024***	0.036***	0.137***	0.147***
	(0.005)	(0.004)	(0.004)	(0.006)	(0.005)	(0.006)
Two children or more	-0.148***	-0.142***	0.012	0.046***	0.197***	0.240***
	(0.007)	(0.012)	(0.009)	(0.006)	(0.007)	(0.013)
Observations	170 661	218 111	117 360	193 925	157 271	263 816

Note: Results of six logistic regression analyses. The dependent variable is an indicator variable with value 1 if a person's highest obtained qualification is upper-secondary VET, and 0 if the highest obtained qualification is below upper-secondary (columns 1 and 2), a general upper-secondary programme (columns 3 and 4) or a tertiary qualification (columns 5 and 6). The regressions includes fixed effects for the region of residence 1 year prior to the survey. The analyses are conducted on a balanced sample of countries. VET: vocational education and training. Ref.: reference category. Robust standard errors, clustered at the regional Level 1 year prior to the survey, are reported in parentheses, *** p<0.01, ** p<0.05, * p<0.1.

Source: European Union Labour Force Survey data (2004, 2018).

Annex Table 5.A.2. Probability of participating in training

Marginal effects after probit regression

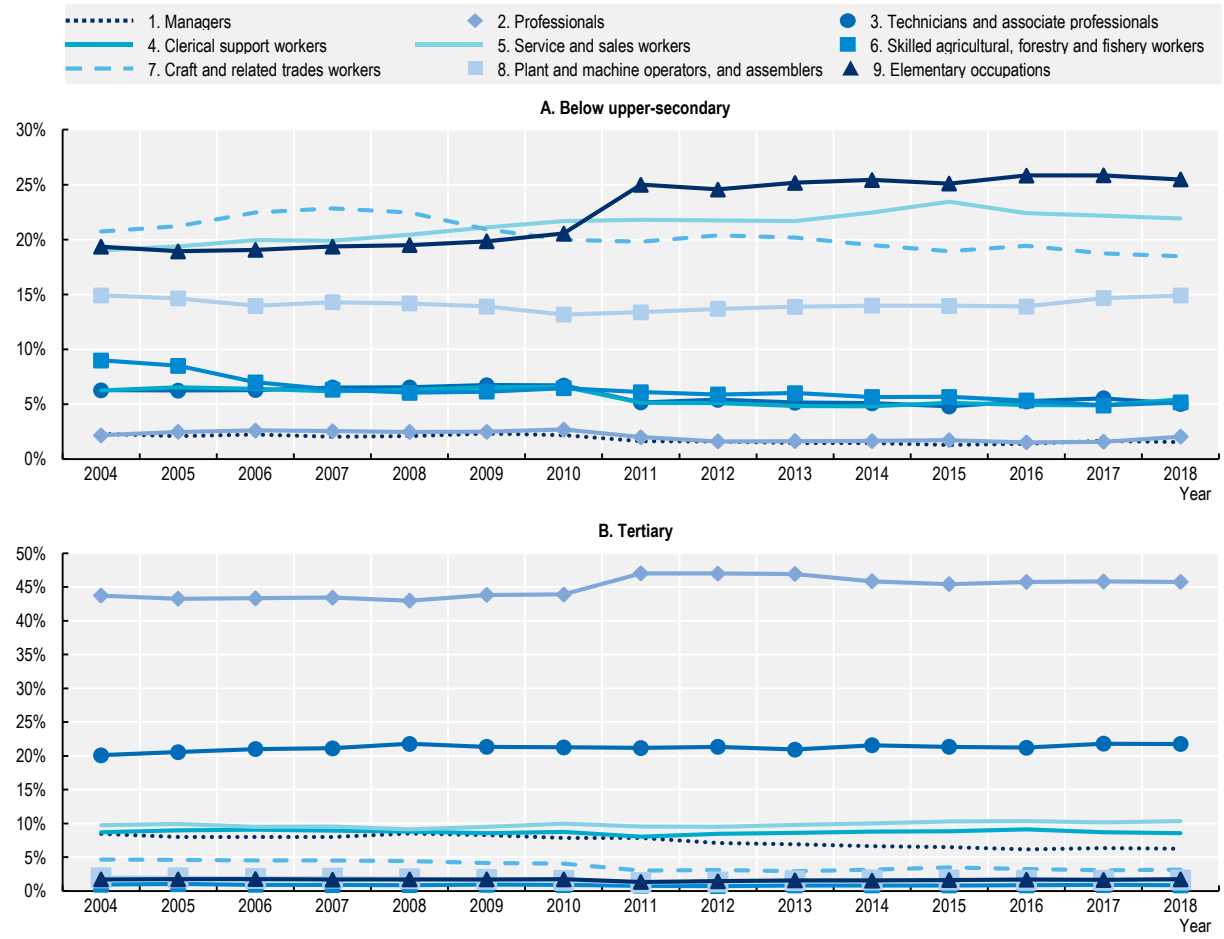
	Formal and non-formal training						Informal learning			
	All		Employed only				(i)		(ii)	
			(i)		(ii)					
Below upper-secondary (vs. VET)	-0.086	***	-0.078	***	-0.053	***	-0.037	***	-0.017	
	(0.009)		(0.014)		(0.014)		(0.012)		(0.012)	
General (vs. VET)	-0.017	*	-0.011		-0.018		0.005		0.001	
	(0.009)		(0.013)		(0.013)		(0.011)		(0.011)	
Tertiary (vs. VET)	0.137	***	0.130	***	0.050	***	0.084	***	0.033	***
	(0.007)		(0.010)		(0.012)		(0.009)		(0.010)	
Number of observations	42 988		23 180		23 173		24 465		24 454	

Note: VET: vocational education and training. The specifications include controls for age (15-19, 20-24, 25-29, 30-34), gender, number of children, migrant status, employment status (employed, unemployed, inactive), literacy and numeracy proficiency, tenure at the employer (less than 2 years, 2 to 10 years, 11 to 20 years, more than 20 years), firm size (1 to 10, 11 to 50, 51 to 250, 251 to 1000, more than 1 000), contract type (permanent or temporary), working time (full-time or part-time), and country. Tenure, contract type, working time and firm size controls are not included in the "All" regressions. Informal learning only relates to employed individuals, so the "All" category does not apply. Includes all OECD countries except Iceland, Luxembourg, Latvia and Portugal. Robust standard errors are included in parenthesis. *** p<0.01, ** p<0.05, * p<0.1.

Source: OECD Survey of Adult Skills (2011/12, 2014/15, 2017/18).

Annex Figure 5.A.1. Occupational composition of graduates' employment (below upper-secondary and tertiary)

Percentage of employed graduates (aged 15 to 34)



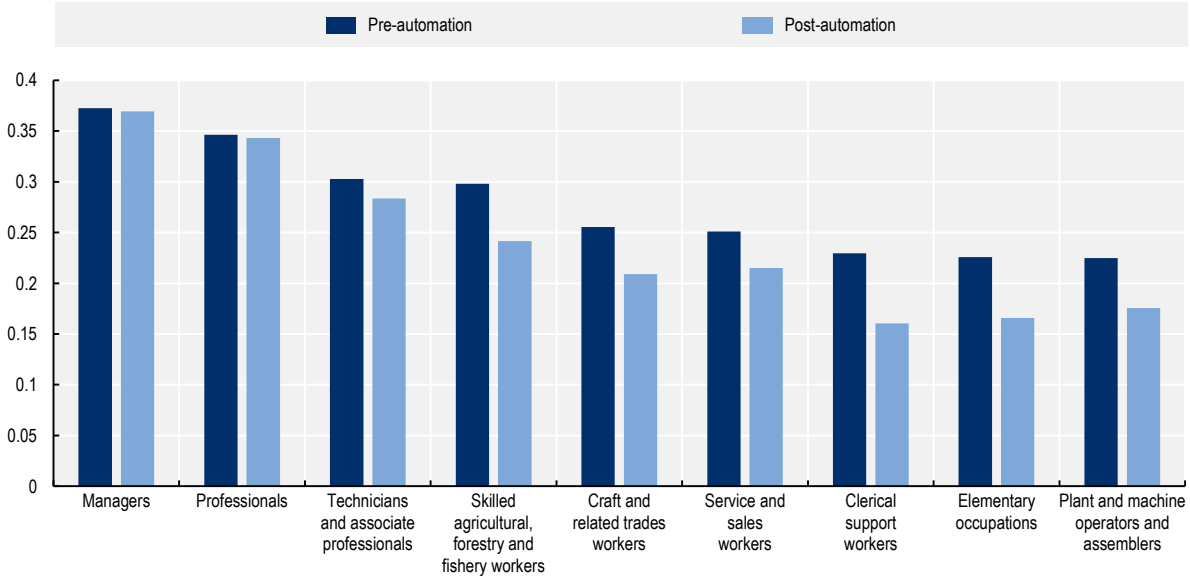
Note: VET: vocational education and training. The sample includes employed graduates aged 15 to 34 who are not enrolled in formal education. Unweighted average based on a balanced panel of countries including, Australia, Austria, Canada, Chile, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Latvia, Lithuania, the Netherlands, Poland, Slovak Republic, Spain, Sweden, Switzerland, Turkey. Refers to 1-digit ISCO-08 occupations (except in Australia where ISCO-88 occupations are used). For European countries and Turkey, the occupational classification used in the data changes in 2011 or 2012 (from ISCO-88 to ISCO-08), and the pre-2011/12 data are recoded to minimise the series break. In the Chilean and Australian data, occupations are code in ISCO-88 in all years. In the Chilean data, the ISCO-88 occupations are recoded into ISCO-08 using a one-to-one crosswalk, while in Australia occupations are not recoded and the ISCO-88 classification is used (because of data limitation). Canadian data are mapped from NOC to ISCO-08.

Source: European Union Labour Force Survey, Encuesta de Caracterización Socioeconómica Nacional, Household, Income and Labour Dynamics in Australia Survey, Turkish Labour Force Survey, Canadian Labour Force Survey.

StatLink https://stat.link/cjpr7e

Annex Figure 5.A.2. Change in skills demand after automation, by occupation

Average skill demands before and after a burst of automation



Note: Average skill demands are an unweighted average of 35 knowledge skills contained in the O*NET database. Skill demands have been normalised to values between 0 and 1. Presented results are for a representative simulation. See Annex 5.C for details on the simulation exercise.
Source: OECD simulations.

StatLink https://stat.link/hfwyj0

Annex 5.B. Overview of education programmes

This Annex provides an overview of education programmes that lead to a qualification at the upper-secondary (ISCED 3) or post-secondary non-tertiary (ISCED 4) education level in all OECD countries covered in this chapter. Programmes are grouped by their orientation, i.e. general or VET. The overview does not aim to be exhaustive. More details about the programmes can be found in the ISCED mappings published by UNESCO (UNESCO-UIS, n.d.[48]). The datasets used in this chapter do not necessarily classify education programmes in the exact same way as in this overview.

Annex Table 5.B.1. Education programmes, by education level and orientation

Education programmes at ISCED levels 3 (upper-secondary) and 4 (post-secondary non-tertiary)

Country	ISCED level	Orientation	Programme/qualification name (national language)	Programme/qualification name (English)
Australia	3	General	Upper Secondary or College; Enabling courses	Upper Secondary or College; Enabling courses
	3	VET	Certificate III	Certificate III
	4	VET	Certificate IV	Certificate IV
Austria	3	General	Allgemeinbildende höhere Schule, Oberstufe; Allgemein bildende höhere Schule für Berufstätige; Allgemein bildende Statutschule (inkl. internationale Schulen), 9. Schulstufe und höher; Polytechnische Schule; Realschule, 9.-10. Schulstufe	Academic secondary school, senior stage; Academic secondary school for adults; General school of own statutory right (incl. international schools), stages 9 and higher; Pre-vocational school; Secondary modern school, stages 9-10
	3	VET	Berufsbildende höhere Schule, Jahrgang 1-3; Berufsbildende mittlere Schule; Land- und forstwirtschaftliche mittlere Schule; Lehre (Duale Ausbildung); Haushaltungs-, Hauswirtschaftsschule und andere kurze Ausbildungen; Pflegehilfelehrgang; Ausbildung von Leibeserziehern und Sportlehrern; Berufsbildende Statutschule (soweit nicht anders zugeordnet); Notfallsanitäterausbildung; Santitäter: Berufsmodul; Schule für den medizinisch-technischen Fachdienst	Higher technical and vocational college, grades 1-3; Intermediate technical and vocational school; Vocational school for agriculture and forestry; Apprenticeship; One-year and two-year home-economic school and other short courses; Course for the training of auxiliary nurses; Training of physical educators; Private school of own statutory right (as not allocated otherwise); Advanced training of paramedics; Paramedics: module for professionals; School for medical services
	4	VET	Schule für Gesundheits- und Krankenpflege; Sonderausbildung im gehobenen Dienst für Gesundheits- und Krankenpflege; Berufsbildende Statutschule und Lehrgänge (soweit nicht anders zugeordnet)	School for nursing; Specific training in the field of nursing; Private school of own statutory right, courses (as not allocated otherwise)
Belgium (Flemish)	3	General	Gewoon secundair onderwijs – 1ste en 2de leerjaar van de 3de graad ASO and KSO; Buitengewoon secundair onderwijs – opleidingsvorm 4 – 1ste en 2de leerjaar van de 3de graad ASO en KSO	Regular secondary education – 3rd stage – 1st and 2nd year of the 3rd stage – general and artistic secondary education; Special secondary education – training form 4 – 1st and 2nd year of the 3rd stage general and artistic secondary education

Country	ISCED level	Orientation	Programme/qualification name (national language)	Programme/qualification name (English)
	3	VET	Gewoon secundair onderwijs – 1ste en 2de leerjaar van de 3de graad TSO en BSO (incl. modulair onderwijs); Gewoon secundair onderwijs – 3de leerjaar van de 3de graad BSO (incl. modulair onderwijs); Deeltijds beroepssecundair onderwijs; Leertijd (Syntra-Vlaanderen); Buitengewoon secundair onderwijs – opleidingsvorm 4 – 1ste en 2de leerjaar van de 3de graad BSO en TSO; Buitengewoon secundair onderwijs – opleidingsvorm 4 – 3de leerjaar van de 3de graad BSO	Regular secondary education – 3rd stage – 1st and 2nd year of the 3rd stage – technical and vocational secondary education; Regular secondary education – 3rd stage – 3rd year of the 3rd stage – vocational secondary education (including modular education); Part-time vocational secondary education; Apprenticeship (organised by 'SYNTRA' – Flemish Agency for Entrepreneurial Training); Special secondary education – training form 4 – 3rd stage – 1st and 2nd year of 3rd stage vocational and technical secondary education; Special secondary education – training form 4 – 3rd stage – 3rd year of the 3rd stage – vocational secondary education;
	4	General	Gewoon secundair onderwijs – 3de leerjaar van de 3de graad ASO en KSO; Buitengewoon secundair onderwijs – 3de leerjaar van de 3de graad ASO en KSO	Regular secondary education – 3rd year of the 3rd stage general and artistic secondary education; Special secondary education – 3rd year of the 3rd stage general and artistic secondary education
	4	VET	Se-n-Se (KSO en TSO); 4de graad BSO; Ondernemersopleiding (Syntra – Vlaanderen)	Advanced secondary education (artistic and technical secondary education); 4th stage vocational secondary education; Entrepreneurial training courses (organised by 'SYNTRA' – Flemish Agency for Entrepreneurial Training)
Belgium (French)	3	General	3e degré de l'enseignement secondaire ordinaire général, technique ou artistique de transition; 3e degré de l'enseignement secondaire spécialisé forme 4 général et technique de transition	regular secondary education -general, technical of transition and artistic of transition- 3rd stage; special secondary education form 4 – general and technical of transition- 3rd stage
	3	VET	3e phase de l'enseignement secondaire spécialisé de forme 3; 3e degré (hors 7e année) de l'enseignement secondaire ordinaire technique ou artistique de qualification plein exercice ou alternance; 3e degré (hors 7e année) de l'enseignement secondaire spécialisé forme 4 technique ou artistique de qualification plein exercice ou alternance; 3e degré (hors 7e année) de l'enseignement secondaire ordinaire professionnel plein exercice ou alternance; 3e degré (hors 7e année) de l'enseignement secondaire spécialisé de forme 4 professionnel plein exercice ou alternance; Apprentissage (IFAPME,…)	special secondary education form 3 3rd phase; regular secondary education – technical and artistic of qualification – 3rd stage (including part time education and work); special secondary education form 4 – technical or artistic of qualification – 3rd stage; regular secondary education – vocational- 3rd stage (including part time education and work); special secondary education form 4 – vocational -3rd stage; Apprenticeship training courses organised by IFAPME,…
	4	VET	7e année de l'enseignement secondaire professionnel ne donnant pas accès à l'enseignement supérieur (7PA); 7e année de l'enseignement secondaire professionnel pouvant donner accès à l'enseignement supérieur et à un CQ7 (après ou sans un CQ6); 7e année de l'enseignement secondaire technique de qualification; 4e degré de l'enseignement secondaire professionnel	7th year of regular secondary education without access to tertiary education; 7th year of regular secondary education with access to tertiary education and/or certificate of qualification (after one first certificate of qualification or without); 7th year of regular secondary education – technical of education; 4th stage – professional education
Canada	3	General	High School/Secondary School/Senior Secondary	High School/Secondary School/Senior Secondary
	3	VET	Vocational/Technical High School	Vocational/Technical High School
	4	General	Upgrading Program	Upgrading Program
	4	VET	Trade certificate/ Career, technical or professional training programme; Apprenticeship programme	Trade certificate/ Career, technical or professional training programme; Apprenticeship programme

Country	ISCED level	Orientation	Programme/qualification name (national language)	Programme/qualification name (English)
Chile	3	General	Enseñanza Media Humanista-Científico	General Upper Secondary Education
	3	VET	Enseñanza Media Técnico-Profesional; Enseñanza Media Artística	Technical Upper Secondary Education; Artistic Upper Secondary Education
Czech Republic	3	General	8leté gymnázium – vyšší stupeň (5.-8. ročník); 6leté gymnázium – vyšší stupeň (3.-6. ročník); 4leté gymnázium; Lyceum	"Gymnasium" – upper stage of 8-years courses (5th to 8th grade); "Gymnasium" – upper stage fo 6-years courses (3rd to 6th grade); "Gymnasium" – 4-years courses; Lyceum
	3	VET	Střední vzdělání; Střední vzdělání s výučním listem; Střední vzdělání s maturitní zkouškou (odborné); Střední vzdělání s výučním listem – 2leté obory; 8letý obor konzervatoře – 5.-6. ročník; 6letý obor konzervatoře – 1.-4. ročník; Nástavbové studium; Zkrácené studium s výučním listem; Zkrácené studium s maturitní zkouškou	Secondary education courses without maturita exam; Secondary education courses with apprenticeship certificate; Secondary technical and vocational courses with maturita exam; Secondary education courses with apprenticeship certificate – 2-years courses; Conservatoire – middle stage of 8-years courses (5th and 6th grade); Conservatoire – lower stage of 6-years courses (1st to 4th grade); Follow-up courses (for graduates of secondary education courses without maturita exam or secondary education courses with apprenticeship certificate); Shortened courses leading to apprenticeship certificate (second qualification for graduates of upper-secondary education with apprenticeship certificate or maturita exam); Shortened courses leading to maturita exam (second qualification for graduates of upper-secondary education with maturita exam)
	4	General	Další vzdělávání na vysoké škole: pro absolventy SŠ	Universities: the second qualification for graduates from upper-secondary education
	4	VET	; Rekvalifikační kursy s výučním listemJazyková škola (pomaturirní studium); Rekvalifikační kursy; Pomaturitní studium	Language schools with certificate of Ministry of Education (post-secondary courses); Courses for retraining, vocational type; Courses for retraining, vocational type, with apprenticeship certificate; Post-secondary courses, vocational type
Denmark	3	General	Den fri ungdomsuddannelse (FUU); Særlig ungdomsuddannelse; Gymnasiale uddannelser, AGYM/EGYM; Adgangseksamen, ingeniøruddannelsen	The free secondary education; Upper-secondary education; Admittance examinations for engineering programmes
	3	VET	EUD, hovedforløb; Øvrige erhvervsfaglige uddannelser; EUD, hovedforløb (access to higher level)	Vocational educational training, main course; Vocational educational training, others; Vocational educational training, main course (access to higher level)
Estonia	3	General	Üldkeskharidus	General secondary education
	3	VET	Kutseõpe põhihariduse baasil; Kutsekeskharidusõpe	Vocational courses based on basic education; Vocational secondary education
	4	VET	Kutseõpe keskhariduse baasil	Vocational education based on secondary education
Finland	3	General	Lukiokoulutus (ylioppilastutkinto); Lukion koko oppimäärän suorittamiseen tähtäävä koulutus aikuisopiskelijoille	Upper-secondary general programmes; Upper-secondary general programmes for adults (leading to the matriculation examination)

Country	ISCED level	Orientation	Programme/qualification name (national language)	Programme/qualification name (English)
	3	VET	Ammatillinen perustutkinto; Ammatillinen perustutkinto näyttötutkintona; Ammattitutkinto	Upper-secondary vocational programmes leading to initial vocational qualifications (including apprenticeship training programmes and special education programmes); Upper-secondary vocational programmes preparing for initial vocational qualifications taken as competence-based qualifications/skills examinations (including apprenticeship training programmes); Upper-secondary vocational programmes preparing for further vocational qualifications (including apprenticeship training programmes)
	4	VET	Erikoisammattitutkinto	Vocational programmes preparing for specialist vocational qualifications (including apprenticeship training programmes)
France	3	General	Enseignement de second cycle général du second degré conduisant au baccalauréat général ou technologique ou au brevet de technicien	General secondary education (2nd cycle), preparing to Bac général, technologique and Brevet de technicien
	3	VET	Enseignement de second cycle professionnel du second degré conduisant au CAP ou équivalent, à une mention complémentaire ou équivalent, au brevet professionnel, au Bacccalauréat Professionnel ou à un équivalent; Enseignement de second cycle professionnel des écoles sanitaires et sociales conduisant aux diplômes d'auxiliaires de puériculture et équivalents; Enseignement de second cycle professionnel des écoles sociales conduisant aux diplômes de moniteurs éducateurs et équivalents	Vocational secondary education (2nd cycle) preparing to Certificat d'aptitude professionnelle (CAP), to Mention Complémentaire (MC), to Brevet Professionnel (BP), to Bac Professionnel or to an equivalent diploma; Vocational secondary education (2nd cycle) in health and social services institutions, preparing to qualifications of child care assistants and equivalents; Vocational secondary education (2nd cycle) in health and care institutions preparing to qualifications of Moniteur éducateur (and equivalent)
	4	General	Enseignement pré-universitaire	Bridge programmes (university) to allow access to levels 5 or 6
	4	VET	Diplômes d'université postsecondaires et certificats d'écoles; Classes de mise à niveau des STS, classes préparatoires aux écoles paramédicales et aux écoles d'arts	Vocational postsecondary education preparing to local certificates; Preparatory courses to competitive entrance examinations
Germany	3	General	Allgemeinbildende Programme im Sekundarbereich II; Gymnasien (Klassen 11 – 13 oder 10 – 12, gymnasiale Oberstufe); Integrierte Gesamtschulen (Klassen 11 – 13, gymnasiale Oberstufe); Freie Waldorfschulen (Klassen 11 – 13); Allgemeinbildende Programme im Sekundarbereich II an beruflichen Schulen; Fachoberschulen zweijährig (Erstausbildung); Fachgymnasien Ziel: Studienberechtigung; Berufsfachschulen Ziel: Studienberechtigung	Upper-secondary schools (general); Grammar schools (grades 11-13 or 10-12); Comprehensive schools (grades 11-13); Free Waldorf schools (grades 11-13); Upper-secondary general programmes at vocational schools; Specialised vocational high schools, 2 years; Fachgymnasien, objective: University entrance qualification; Specialised vocational schools: objective: university entrance qualification
	3	VET	Berufsfachschulen Berufliche Kenntnisse/Sonderform für Abiturienten; Berufsschulen (Duales System) Erstausbildung; Berufsfachschulen, die einen Berufsabschluss vermitteln; Berufskollegs (Duale Berufskollegs in TZ-Form); Berufsfachschulen (Erstausbildung beruflich)	Special type of vocational skills programme at specialised vocational schools for students who have already obtained a university entrance qualification; Dual System; Specialised vocational schools: occupational qualification; Dual vocational college; Full-time vocational training programmes at specialised vocational schools
	4	General	Sekundarbereich II, Abendschulen; Fachoberschulen, 1 jährig;	Upper-secondary evening schools; Specialised vocational high schools, 1 year

Country	ISCED level	Orientation	Programme/qualification name (national language)	Programme/qualification name (English)
	4	VET	Berufsschulen (Duales System) (Zweitausbildung, beruflich); Berufsfachschulen, die einen Berufsabschluss vermitteln (Zweitausbildung nach vorherigem Erwerb einer Studienberechtigung); Fachgymnasien Ziel: Studienberechtigung und Berufsabschluss	Dual System (second cycle); Specialised vocational schools: occupational qualification (second cycle) for students with university entrance qualification; Programmes at Fachgymnasien offering both a university entrance qualification and a occupational qualification (simultaneously or one after the other)
Greece	3	General	Geniko Lykio	Unified Lyceum (Upper-secondary education)
	3	VET	Epagelmatiko Lykeio (EPAL) (including eklesiastical lykeia); Epagelmatiki Sxoli (EPAS)	Technical Vocational Educational Lyceium Schools (Upper-secondary education); Technical Vocational Educational Schools (Upper-secondary education)
	4	VET	Institouto Epagelmatikis Katartisis (IEK) leading to diploma epagematikis katartisis epipedou metadefterovathmias epagelmatikis katartisis (Diploma of vocational training level of upper-secondary of vocational training)	Institute of vocational training (post-secondary non-tertiary education)
Hungary	3	General	Gimnázium 9-12(13). évfolyam (nappali rendszerű képzés; felnőttoktatás); Szakközépiskola 9-12. (13) évfolyam (nappali rendszerű képzés; felnőttoktatás)	Upper-secondary general school (Grades 9-12(13)) (full-time education; part-time); Upper-secondary vocational school (Grades 9-12(13)) (full-time education; part-time).
	3	VET	Párhuzamos oktatás szakközépiskolában 9-12(13). évfolyam (nappali rendszerű képzés; felnőttoktatás); Szakiskolai és speciális szakiskolai oktatás, képzés 9-12(13). évfolyam (nappali rendszerű képzés; felnőttoktatás); Előrehozott szakképzés (duális képzés); Híd II. 6 általános iskolai évfolyamot végzettek részére (tanulásra és szakmaszerzésre motivál)	General and vocational education preparing for arts vocational qualification in upper-secondary (vocational) school (Grades 9-12(13)) (full-time education; part-time); Vocational and special vocational education (Grades 9-12(13)) (full-time education, part-time); Vocational school dual system; Bridging programme II.
	4	VET	Szakképző évfolyamok középiskola utolsó évfolyamára vagy érettségire épülő nem felsőfokú OKJ szakmákban (nappali rendszerű képzés, felnőttoktatás)	Non-tertiary NQR vocational programmes requiring upper-secondary qualification or certification of maturity examination (full-time education, part-time)
Ireland	3	General	Youthreach – Progression Level; Leaving Certificate Applied; Leaving Certificate Vocational Programme; Leaving Certificate (Established)	Youthreach – Progression Level; Leaving Certificate Applied; Leaving Certificate Vocational Programme; Leaving Certificate (Established)
	3	VET	Faille Ireland Bar/ Culinary/ catering/ accommodation/ hospitality/ restaurant/ front office skills; BIM Aquaculture Level 2, Engineer Officer Class II and Commercial Fishing Certificate; Failte Ireland Bar/ accommodation/ hotel/ restaurant operations	Faille Ireland Bar/ Culinary/ catering/ accommodation/ hospitality/ restaurant/ front office skills; BIM Aquaculture Level 2, Engineer Officer Class II and Commercial Fishing Certificate; Failte Ireland Bar/ accommodation/ hotel/ restaurant operations
	4	VET	Secretarial/Technical Training Programme; Failte Ireland Rural Business/ Tourism/ Hotel Front Office/ Hospitality/ Professional cookery/ Tour guiding/ Supervision/ Travel Agency; Teagasc Vocational Certificate in Agriculture/Horticulture/Forestry/ Equestrian Studies; Fás Apprenticeship; Vocational Preparation and Training II (PLC) Year 1 and 2; Teagasc Advanced Certificate in Agriculture; FAS Competency Development Programme	Secretarial/Technical Training Programme; Failte Ireland Rural Business/ Tourism/ Hotel Front Office/ Hospitality/ Professional cookery/ Tour guiding/ Supervision/ Travel Agency; Teagasc Vocational Certificate in Agriculture/Horticulture/Forestry/ Equestrian Studies; Fás Apprenticeship; Vocational Preparation and Training II (PLC) Year 1 and 2; Teagasc Advanced Certificate in Agriculture; FAS Competency Development Programme

Country	ISCED level	Orientation	Programme/qualification name (national language)	Programme/qualification name (English)
Israel	3	General	Hinuh al-yesody-hativa elyona, ziburi, tlat shnati, iyuni; Hinuh al-yesody-hativa elyona, ziburi, arba shnati, iyuni; Hinuh al-yesody,hativa elyona, prati metukzav (tarbuti-yihudi), tlat shnati; Hinuh al-yesody,hativa elyona, prati metukzav (tarbuti-yihudi), arba shnati	Three-year upper-secondary general education, public; Four-year upper-secondary general education, public; Three-year upper-secondary education, government-dependent private; Four-year upper-secondary education, government-dependent private
	3	VET	Hinuh al-yesody,hativa elyona, ziburi, tlat shnati,technologi; Hinuh al-yesody,hativa elyona, ziburi, arba shnati, technologi; Batey sefer taasiyatiim le hanihim, misrad ha-kalkala, tlat shnati; Batey sefer taasiyatiim le hanihim, misrad kalkala, arba shnati	Three-year upper-secondary vocational education, public; Four-year upper-secondary vocational education, public; Apprenticeship and Industrial schools, Ministry of Economy, three year education; Apprenticeship and Industrial schools, Ministry of Economy, four year education
	4	General	Mechina kdam akademit	Pre-academic preparatory programs
	4	VET	Mechina kdam handasaim	Preparatory programs for practical engineers
Italy	3	General	Istruzione liceale – (Liceo classico, scientifico, linguistico, delle scienze umane, musicale/coreutico); Corso integrativo del Liceo artistico quadriennale (5° anno integrativo); Corsi serali generalisti presso le scuole secondarie di secondo grado per adulti – corsi 4-5 anni	Liceo education (classical liceo, scientific liceo, artistic liceo, human sciences liceo, music/dance liceo); Integrated course of four-year study course Artistic Liceo (fifth year); Upper-secondary general education courses for adults (4-5 years)
	3	VET	Istruzione professionale (triennio di qualifica); Istruzione e formazione professionale – IeFP (corsi triennali); Istruzione e formazione professionale – IeFP (IV anno); Istruzione artistica – Istituto d'Arte (triennale, biennale post-qualifica); Istruzione artistica – Liceo artistico (quadriennale); Istruzione artistica – Corsi sperimentali di Istituto d'Arte (quinquennale); Istruzione professionale biennio post-qualifica; Istruzione Tecnica; Istruzione professionale (corsi quinquennali)	Vocational Institute (three-year study course); Education and vocational training (three-year courses); Education and vocational training (fourth year); Arts Institute (three-year study course, two-year study course); Artistic Liceo (four-years study course); Experimental five-year study course of Arts Institute; Vocational Institute (two-year study course); Technical Institute; Vocational Institute (five-years study course)
	4	VET	Formazione professionale regionale post diploma; Istruzione e Formazione Tecnica Superiore (IFTS)	Regional vocational training after the attainment of an ISCED3 qualification or diploma; Higher-level technical education and training
Japan	3	General	Koto-gakko Futsu/Sogo; Chuto-kyoiku-gakko-Koki-katei Futsu/Sogo; Tokubetsu-shien-gakko Koto-bu Honka Futsu	Upper-secondary school general/integrated course; Secondary education school-upper division general/integrated course; School for special needs education, upper-secondary department, general course
	3	VET	Senshu-gakko Koto-katei (Koto—senshu-gakko); Koto-gakko Senmon; Chuto-kyoiku-gakko – Koki-katei Senmon; Tokubetsu-shien-gakko Koto-bu Honka Senmon; Koto-senmon-gakko Honka	Specialised training college, upper-secondary course (Upper-secondary Specialised Training School); Upper-secondary school specialised course; Secondary education school – upper division, specialised course; School for special needs education, upper-secondary department, specialised course; College of technology, regular course
	4	General	Koto-gakko Senkoka (Futsu; Sogo); Chuto-kyoiku-gakko – Koki katei, Senkoka (Futsu, Sogo); Tokubetsu-shien-gakko Koto-bu Senkoka (Futsu)	Upper-secondary school advanced course (general; integrated); Secondary education school -upper division, advanced course (general, integrated); School for special needs education, upper-secondary department, advanced course (general, specialised)

Country	ISCED level	Orientation	Programme/qualification name (national language)	Programme/qualification name (English)
	4	VET	Koto-gakko Senkoka (Senmon); Chuto-kyoiku-gakko, Koki katei, Senkoka (Senmon); Tokubetsu-shien-gakko Koto-bu Senkoka (Senmon); Tanki-daigaku Bekka; Daigaku Gakubu Bekka	Upper-secondary school advanced course (specialised); Secondary education school, upper division, advanced course (specialised); School for special needs education, upper-secondary department, advanced course (general, specialised); Junior college, short-term course; University, short-term course
Korea	3	General	일반고등학교 (Ilban-kodeung-hakgyo); 자율고등학교 (Jayul-kodeung-hakgyo); 특수목적고등학교_마이스터고 제외 (Teuksumokjeok-kodeung-hakgyo_excluding Meister kodeung-hakgyo); 특수학교 (Teuksu-hakgyo), 고등학교과정 (Kodeung-hakgyo-kwajeong); 각종학교 (Kakjong-hakgyo), 고등학교과정 (kodeung-hakgyo-kwajeong)	General high school; Autonomous high school; Special-purposed high school(excluding Meister high school); High school course, Special school; High school course, Miscellaneous school
	3	VET	특성화고등학교 (Teukseonghwa kodeung-hakgyo); 특수목적고등학교_마이스터고 (Teuksumokjeok kodeung-hakgyo_Meister kodeung-hakgyo); 고등기술학교 (Kodeung kisul-hakgyo)	Specialised high school; Special-purposed high school (Meister high school); Trade high school
Latvia	3	General	Vispārējā vidējā izglītība, īstenojama pēc pamatizglītības ieguves	Secondary (upper-secondary) General Education implemented after acquisition of basic education
	3	VET	Arodizglītība (2.līmeņa profesionālā kvalifikācija), īstenojama pēc pamatizglītības ieguves. Mācību ilgums 3 gadi; Profesionālā vidējā izglītība (3.līmeņa profesionālā kvalifikācija), īstenojama pēc pamatizglītības ieguves. Mācību ilgums 4 gadi.	Vocational education (acquisition of 2nd level professional qualification), implemented after acquisition of basic education. Duration of programme 3 years; Upper-secondary vocational education (acquisition of 3rd level professional qualification), implemented after acquisition of basic education. Duration of programme 4 years.
	4	VET	Arodizglītība (2.līmeņa profesionālā kvalifikācija), īstenojama pēc vispārējās vai profesionālās vidējās izglītības ieguves. Mācību ilgums 1 gads; Profesionālā vidējā izglītība (3. līmeņa profesionālā kvalifikācija), īstenojama pēc vispārējās vidējās izglītības ieguves. Mācību ilgums 1.5-3 gadi.	Vocational education (acquisition of 2nd level professional qualification), implemented after acquisition of general or vocational secondary education. Duration of programme 1 year; Upper-secondary vocational education (acquisition of 3rd level professional qualification) implemented after acquisition of general secondary education. Duration of programme 1.5-3 years.
Lithuania	3	General	Vidurinio ugdymo programos; Suaugusiųjų vidurinio ugdymo programa	General upper-secondary education programmes; General secondary education programmes for adults
	3	VET	Profesinio mokymo programos kartu su vidurinio ugdymo programomis; Profesinio mokymo programos, neįgyjant vidurinio išsilavinimo	Vocational education programmes for person without basic education aimed at the acquisition of a professional qualification; Vocational education programmes for person without basic education aimed at the acquisition of a professional qualification and secondary education
	4	VET	Profesinio mokymo programos turint vidurinį išsilavinimą	Vocational education programmes for persons with secondary education
Mexico	3	General	Bachillerato General, Bachillerato por Cooperación, Bachillerato Pedagógico, Bachillerato de Arte	Upper-secondary Education (General Programs)
	3	VET	Bachillerato Tecnológico; Profesional Medio	Upper-secondary (combined General and Technical Programs); Upper Secondary (Vocational or Technical Programs)
Netherlands	3	General	Klas 4-5 HAVO; Klas 4-6 VWO; VAVO-HAVO; VAVO-VWO	Senior general secondary education; Senior general secondary education for adults

Country	ISCED level	Orientation	Programme/qualification name (national language)	Programme/qualification name (English)
	3	VET	WEB-basisberoepsopleiding, bol en bbl; WEB-vakopleiding, voltijd bol en bbl; WEB-middenkaderopleiding, voltijd bol en bbl	Vocational education, basic vocational training (Level 2); school based and dual programmes; Vocational education, professional training (Level 3); fulltime school based and dual programmes; Vocational education, middle-management training (Level 4); fulltime school based and dual programmes
New Zealand	3	General	Year 12 – National Certificate of Educational Achievement 2 (NCEA 2); Year 13 – National Certificate of Educational Achievement 3 (NCEA 3)	Year 12 – National Certificate of Educational Achievement 2 (NCEA 2); Year 13 – National Certificate of Educational Achievement 3 (NCEA 3)
	3	VET	Level 2 Certificates; Level 3 Certificates	Level 2 Certificates; Level 3 Certificates
	4	VET	Level 4 Certificates	Level 4 Certificates
Norway	3	General	Videregående opplæring, studieforberedende utdanningsprogram; Påbygg/forkurs utdanningsprogram	Upper secondary, general programmes; Preparatory courses
	3	VET	Videregående opplæring, yrkesfaglige utdanningsprogram; Videregående utdanning ved folkehøgskoler	Upper secondary, vocational programmes; Folk high school
	4	VET	Halårig til halvannetårig fagskoleutdanning	Short post-secondary vocational education
Poland	3	General	Trzyletnie liceum ogólnokształcące (dla młodzieży; dla dorosłych); Trzyletnie liceum ogólnokształcące specjalne (dla młodzieży); Dwuletnie uzupełniające liceum ogólnokształcące (dla młodzieży, dorosłych); Dwuletnie uzupełniające liceum ogólnokształcące specjalne (dla młodzieży); Trzyletnie liceum profilowane (dla młodzieży; dla dorosłych); Trzyletnie liceum profilowane specjalne (dla młodzieży)	General secondary school (for youth; for adults); Special general secondary school (for youth); Supplementary general secondary school (for youth; for adults); Special supplementary general secondary school (for youth); Specialised secondary school (for youth; for adults); Special specialised secondary school (for youth)
	3	VET	Czteroletnie technikum (dla młodzieży; dla dorosłych); Trzyletnie technikum uzupełniające (dla młodzieży; dla dorosłych); Czteroletnie technikum specjalne (dla młodziezy); Trzyletnie technikum uzupełniające specjalne (dla młodzieży); Ogólnokształcąca szkoła baletowa; Szkoła muzyczna II stopnia; Ogólnokształcąca szkoła sztuk pięknych; Zasadnicza szkoła zawodowa (dla młodzieży, dla dorosłych); Zasadnicza szkoła zawodowa specjalna (dla młodzieży); Zasadnicza szkoła zawodowa (dla młodzieży)- młodociani pracownicy	Technical secondary school (for youth; for adults); Supplementary technical secondary school (for youth); Special technical secondary school (for youth; for adults); Supplementary special technical secondary school (for youth); Arts / Ballet school; Second level music school; School of Fine Arts; Basic vocational school (for youth, for adults); Special basic vocational school (for youth); Basic vocational school (for youth) -young workers
	4	VET	Szkoła policealna (dla młodzieży, dla dorosłych); Szkoła policealna specjalna (dla młodzieży); Policealne studium wokalno-aktorskie; Pomaturalna szkoła animatorów kultury i bibliotekarzy	Post-secondary school (for youth; for adults); Special post-secondary school (for youth); Post-secondary vocal and stage performance school; Post-secondary culture animators and librarians school
Portugal	3	General	Ensino secundário – Regular – Cursos científico-humanísticos; Ensino secundário – Artístico especializado (orientado para jovens, regime integrado) – Música	Upper-secondary education – Regular – Scientific-humanistic courses; Upper-secondary education – Specialised artistic courses (young-oriented programmes) – Music

Country	ISCED level	Orientation	Programme/qualification name (national language)	Programme/qualification name (English)
	3	VET	Ensino secundário – Regular – Cursos tecnológicos; Ensino secundário – Artístico especializado (orientado para jovens, regime integrado) – Dança; Ensino secundário – Artístico especializado (orientado para jovens, regime integrado) – Artes visuais e audiovisuais; Ensino secundário – Cursos profissionais; Ensino secundário – Cursos de aprendizagem	Upper-secondary education – Regular – Technological courses; Upper-secondary education – Specialised artistic courses (young-oriented programmes) – Dance; Upper-secondary education – Specialised artistic courses (young oriented programmes) – Audio-visual and visual arts; Upper-secondary education – Vocational courses; Upper-secondary education – Apprenticeship courses
	4	VET	Ensino pós-secundário não superior – Curso de Especialização Tecnológica	Post-Secondary Non-Tertiary – technological specialisation course
Slovak Republic	3	General	4/6/8-ročné gymnázium	Gymnasium – 4/6/8 years
	3	VET	Odborné učilište; Stredná odborná škola – štúdium bez maturity; Stredá odborná škola – štúdium s maturitou	Vocational school; Secondary specialised school – programme without maturita; Secondary specialised school – programme with maturita
	4	VET	Nadstavbové štúdium; Pomaturitné kvalifikačné štúdium	Follow-up courses; Postsecondary qualification study
Slovenia	3	General	Srednje splošno izobraževanje (splošna: gimnazija in klasična gimnazija; strokovna: ekonomska, tehniška, umetniška, mednarodna gimnazija); Maturitetni tecaj in splošna matura	General upper-secondary education (general: gimnazija and classical gimnazija; gimnazija with specialisation: technical gimnazija, gimnazija of economics, gimnazija of art, international gimnazija); Matura course and general matura
	3	VET	Nižje poklicno izobraževanje; Srednje poklicno izobraževanje; Poklicno-tehniško izobraževanja; Srednje tehniško in drugo strokovno izobraževanje; Poklicni tecaj in poklicna matura	Short vocational upper-secondary education; Vocational upper-secondary education; Vocational-technical upper-secondary education; Technical upper-secondary education; Vocational course and vocational matura
Spain	3	General	Bachillerato	General upper-secondary education
	3	VET	Ciclos Formativos de Grado Medio; Escuelas Oficiales de Idiomas; Profesionales de Danza y de Música	Vocational training – intermediate level; Languages studies at the official school for languages; Dance and Music studies – intermediate level
	4	VET	Títulos propios de Unversidad (menos 2 años); Certificados de Profesionalidad de nivel 3	Specific degrees of universities (less 2 years); Professional Certificate – Level 3
Switzerland	3	General	Allgemeinbildende Schule, 2 Jahre; Fachmittelschule, 3 Jahre; Fachmaturitätsschule; Berufsmaturität, 3 und 4 Jahre; Berufsmaturität nach der Lehre, 1 Jahr; Gymnasiale Maturität	general education programmes, short; specialised middle schools – 3 years; specialised baccalaureat gives access to universities of applied sciences; vocational baccalaureat, dual system, 3 and 4 years; vocational baccalaureate after obtaining the certificate of vocational education, 1 year; school preparing for the university entrance certificate
	3	VET	Anlehre; 2-jährige berufliche Grundbildung mit Berufsattest; Nicht vom Bund reglementierte berufliche; 2-jährige berufliche Grundbildung mit Eidgenössischem Fähigkeitszeugnis; Berufliche Grundbildung mit Eidgenössischem Fähigkeitszeugnis 3-4 Jahre; Handelsmittelschule	elementary vocational education, dual system; vocational education, in dual system 2 years; vocational education without regulation on the federal level; vocational education, in school or in the dual system, 2 years leading to a Federal Diploma of Vocational Education and Training (Federal VET Diploma); vocational education, in school and in the dual system, 3 and 4 years leading to a Federal Diploma of Vocational Education and Training (Federal VET Diploma); Trade school Education and Training (Federal VET Diploma)

Country	ISCED level	Orientation	Programme/qualification name (national language)	Programme/qualification name (English)
	4	General	Passerellenlehrgang; Andere Übergangsausbildungen Sek. II- Tertiärstufe	preparatory course for University for persons with vocational baccalaureate; Other preparatory programmes giving access to the tertiary level
	4	VET	Zusatzausbildungen ohne Zugang zur nächsten Stufe; Andere Zusatzausbildungen	Other complementary programmes for people having attained a upper-secondary qualification without access to the tertiary level; Other complementary programmes for people having attained a upper-secondary qualification
Sweden	3	General	Gymnasieskolan, studieinriktade programme; Gymnasial vuxenutbildning (Komvux), allmänna kurser	Upper-secondary school (general); Adult education – upper-secondary adult education, general courses
	3	VET	Gymnasieskolan, yrkesprogram; Gymnasiesärskolan – nationella och specialutformade programme; Gymnasial vuxenutbildning (Komvux), yrkeskurser	Upper-secondary school (vocational); Upper-secondary education for pupils with learning disabilities – national and specially designed programmes; Adult education – upper-secondary adult education, vocational courses
	4	General	Tekniskt basår inom universitet/högskola	Technical Foundation Year in universities and university colleges.
	4	VET	Kompletterande utbildningar, 1-1.5 år; Kvalificerad yrkesutbildning eller YH-utbildning, <2 år	Supplementary education programmes, 1-1.5 years; Advanced Vocational Training, <2 yrs
Turkey	3	General	Genel Ortaöğretim; Açıköğretim Lisesi	General Upper Secondary Education Programmes; Open High School
	3	VET	Mesleki ve Teknik Ortaöğretim; İmam Hatip Lisesi/ Anadolu İmam Hatip Lisesi; Müzik ve Sahne Sanatları Lisesi; Mesleki Açıköğretim Lisesi; Özel Eğitim Mesleki Eğitim Merkezi (III. Kademe)/Özel Eğitim İş Uygulama Merkezi (Okulu)	Vocational and Technical Upper Secondary Education Programmes; Imam and Preacher High School/ Anatolia Imam and Preacher High School; Music and Stage Arts High School; Open Vocational High School; Special Education Vocational Training Center (Stage III)/ Special Education Work Practice Center (School)
United Kingdom	3	General	AS Level / Higher (Scotland); A Level / Advanced Higher (Scotland); Access to HE Diploma	AS Level / Higher (Scotland); A Level / Advanced Higher (Scotland); Access to HE Diploma
	3	VET	Diploma (Higher Level); NVQ Level 1; NVQ Level 2; Intermediate Apprenticeship; NVQ Level 3; Diploma (Advanced Level); Advanced Apprenticeships	Diploma (Higher Level); NVQ Level 1; NVQ Level 2; Intermediate Apprenticeship; NVQ Level 3; Diploma (Advanced Level); Advanced Apprenticeships
	4	VET	NVQ Level 4; Higher National Certificate (HNC)	NVQ Level 4; Higher National Certificate (HNC)
United States	3	General	GED or H.S. Equivalency Programme; Secondary education (grades 10-12)	GED or H.S. Equivalency Programme; Secondary education (grades 10-12)
	4	VET	Certificate Program	Certificate Program

Source: UNESCO-UIS ISCED mappings.

Annex 5.C. Simulation model – Methodology

How may VET graduates fare in a world where technological advances have automated many tasks? To answer this question, the OECD conducted a simple simulation exercise. This simulation mimicked a representative labour market, and modelled firm hiring behaviour both before and after a period of intense automation.

The model simulates 15 years of a simplified labour market. In this labour market, firms search for and hire the workers who are most compatible with their production plans. In the fifth year, a burst of automation makes some tasks redundant.[33] As some tasks are automated, firms seek workers with different skill sets to fulfil their changed task needs. This implies that, while firms still need workers to complete some tasks, they will likely change their hiring patterns to find the workers best suited for their changing needs.

The model takes various datasets as inputs. It is then initialised by generating some firms and workers, and matching their characteristics to observable distributions. The model then simulates a series of individual hiring processes, which is punctuated by the burst of automation. The results of the simulation are compared with an almost identical simulation that does not have a burst of automation. Comparing these results provides a counterfactual argument on the impact of automation on the labour market.

Input data

Employment forecasts

Overall employment levels in the model are determined exogenously by Cedefop's sectoral employment forecasts spanning the years 2015 to 2030 (Cedefop, 2018[29]). The employment forecasts project the total level of employment for the 28 European Union member countries (EU28) for six separate industrial sectors. The Cedefop forecasts also provide a projection of the total labour force within the EU28, which implies a gradually declining unemployment rate. However, to abstract away from variation in unemployment rates, the model adjusts the labour force forecast in order to maintain a fixed proportion of unemployment. Over the period, the labour force evolves to maintain a constant theoretical unemployment rate of 10%.[34]

Sectors

The simulation models the production patterns of firms in six industrial sectors according to the task makeup in each sector. The six sectors included in the simulation correspond to those reported in the Cedefop employment forecasts (Cedefop, 2018[29]). They are:

- Primary sector and utilities,
- Manufacturing,
- Construction,
- Distribution and transport,
- Business and other services, and
- Non-marketed services.

These six sectors were mapped to those industries reported in the PIAAC survey (OECD, 2013[49]) using an ISIC-Rev4 crosswalk (Annex Table 5.C.4), and occupational and sectoral employment weights were computed as the sum of employment in PIAAC OECD countries with non-missing occupation and industry data (see below).[35]

Tasks

The O*NET database (National Center for O*NET Development, 2020[31]), is a US-based classification of occupations and their various skill requirements. It contains a list of occupations, and each occupation includes a list of required tasks which themselves have indicators of frequency, importance and relevance. The simulation considers a universe of 2 066 unique tasks (or detailed work activities) reported in the O*NET database. These tasks are broad enough that they are common across many occupations. For each task in each occupation, the simulation computes normalised importance and frequency scores.[36] The importance scores range continuously between 1 and 5, and are rescaled to range between 0 and 1 for input into the model. The frequency scores are reported on a Likert scale from 1 to 7, indicating the frequency of a task. The simulation converts the frequency scores to continuous values, and scaled to values ranging between 0 and 100 within each occupation (see Annex Table 5.C.3).[37] These task frequencies and importance scores inform firms' production plans in each sector.

Knowledge and Skills

For each occupation, the O*NET database lists the 33 *Knowledge* requirements and 35 *Skill* requirements (see Annex Table 5.C.5). The simulation allows for the consideration of either *Knowledge* or *Skills*, depending on the choice of the modeller. For clarity, the remainder of this annex refers to both *Knowledge* and *Skills* as 'skills'. The results presented in this chapter are based on a simulation that uses *Knowledge* only. The database lists an importance score and a level score for each skills requirement. As these two scores were highly correlated, the simulation only used the level score.[38] Level scores are reported on a continuous scale from 0 to 7, and were rescaled to range between 0 and 1. During the initialisation phase of the simulation, the model links these skills with the educational and experience requirements of each occupation.

Education and Experience

Other inputs taken from the O*NET database are the educational attainment and experience requirements for each occupation.[39] O*NET reports the distribution of educational requirements in 12 bins, in which the sum of the bins totals 100. Using a crosswalk, these 12 bins were mapped into 8 bins corresponding to the ISCED-11 classification at the 1-digit level (see Annex Table 5.C.1). [40] After the simulation, these educational levels were aggregated into a 4-group classification for reporting purposes. The distribution of experience requirements are reported in 11 bins (also totalling 100), representing durations of working experience ranging from one month or less to over ten years (see Annex Table 5.C.2).

Weights

Sectoral task weights allowed for the determination of sectoral production plans. The production plans inform firms in each sector of the tasks they need to produce goods on a per-worker basis.[41] The PIAAC survey provides estimates of the number of employees in each sector at the ISCO-08 4-digit level of occupational classification (OECD, 2013[49]). The sectoral-occupation weight, for sector s and occupation o, is the sum of the full sample weights for workers, i, in sector s and occupation o:

$$w_{o,s} = \sum_{i} weight_{i,o=o,s=s}$$

These employment weights are used to derive weights for each task:

$$w_{o,s,t} = \frac{w_{o,s}}{\left|task_{o,s}\right|}$$

Where $\left|task_{o,s}\right|$is the number of unique tasks in occupation o in sector s. The resulting weight for each sector-task pairing is:

$$w_{s,t} = \frac{\sum_o w_{o,s,t}\, w_{o,s}}{\sum_o w_{o,s}}$$

Firms use these weights in the calculation of their sectoral production plans.

Automation probabilities

Frey and Osborne (2017[50]) identify bottlenecks that hinder the automation of three key sets of tasks: perception and manipulation tasks, creative intelligence tasks, and social intelligence tasks. Some of these tasks are automated during a burst of automation.

Previous estimates of automation risk provide the estimates of the risk of occupations being automated (Frey and Osborne, 2017[50]; Nedelkoska and Quintini, 2018[27]). However, the simulation requires automation probabilities at the task level. Brandes and Wattenhofer (2016[30]) provide these estimates using a machine-learning based decomposition of the estimates provided by Frey and Osborne (2017[50]).

Mapping between tasks and skills

In the model, firms evaluate their production plan according to their task deficits. However, they can only evaluate their employees according to their knowledge skillset. This requires a mapping between firms' task demands and individual workers' skillsets. Using data from the O*NET database, a neural network makes explicit the implicit link between tasks and knowledge.

The neural network was trained in the python programming language using the *Keras* component of the *Tensorflow* package. The input layer was a matrix of 2 066 tasks for 425 listed ISCO-08 4-digit occupations. The output layer was a matrix of 33 or 35 skills (depending on whether the modeller examined Knowledge or Skills) for the same 425 occupations. Between these two layers there was a dense hidden layer with a rectified linear unit (ReLu) activation function with 1 365 units (about 2/3 of the size of the input layer). The output layer has a sigmoid activation function. The neural network was trained using 250 epochs in batches of 10 with the 'adam' optimizer and a mean squared error loss function. Beginning at step 2000, the model was pruned every 100 steps from a sparsity of 10% to a sparsity of 95%. The final accuracy of the model was 95.53%.

Initialisation

During the initialisation phase, the model generates a predetermined number of people and firms, and then computes firms' production plans and determines various wage indicators. The number of generated people and firms is proportional to the observed data. The simulated labour market represents the working age population and firms within all EU28 member countries. By default, the model included a scaled-down number of workers at a scale of 1:250 000. To focus on larger firms that hire more employees, the simulations included firms at a scaling rate of 1:2500 000.[42] In the context of the EU28 labour force, this results in a simulation with approximately 1 000 individuals and 13 firms.

Person generation

When generated, individuals are given an age between 19 and 65, which is randomly sampled from the observed labour force age distribution in the PIAAC survey. The model also samples a level of educational attainment from the observed distribution in the PIAAC survey and assigns it to individuals.[43] Individuals' baseline skills, which influence worker wages and the hiring process, are then imputed based on their age and experience. When determining the skills gained from experience, the model assumes that they have been working continuously since leaving education. That is, that any unemployed individuals are short-term unemployed who have not had career breaks. As the model simulation progresses, workers also gain additional skills as their tenure increases. However, it is assumed that workers do not engage in further education and training. Once workers reach retirement age, they retire.[44]

When determining worker skills, the model uses an OLS regression model to infer the connections between skills and workers' education and experience. The equation to determine each skill, i, can be written as:

$$skill_i = \widehat{\alpha_\iota} + \sum_k \widehat{\beta_{\iota,k}} * education_k + \sum_j \widehat{\delta_{\iota,j}} * experience_j + \varepsilon_i$$

Where $education_k$ is a Boolean indicator of whether person has attained or surpassed educational attainment level k, and $experience_j$ is a Boolean indicator of whether a person has attained at least job tenure j; $\widehat{\alpha_\iota}$, $\widehat{\beta_{\iota,k}}$, and $\widehat{\delta_{\iota,j}}$ are estimated regression coefficients, and ε_i is a residual term. To reflect the dual track nature of many educational programs, where students either gain a general education or a vocational education, students who pursued tertiary educations have $\beta_{i,VET} = 0$, where $\beta_{i,VET}$ is the Boolean indicator for having attained a vocational education.

When the simulation generates people, their skills are determined by randomly sampling from the distribution of the estimated coefficients. On the assumption that additional education does not lead to a reduction in skills, these random samples are bounded at zero. The equation for a worker n's skill i can be written as:

$$skill_{n,i} = \max(0, a_i) + \sum_k \max\left(0, b_{i,k}\right) * education_{n,k} + \sum_j \max(0, d_{i,j}) * experience_{n,j}$$

Where a_i, $b_{i,k}$, and $d_{i,j}$, are random samples from the following distributions:

$$a_i \sim N(\widehat{\alpha_\iota}, \widehat{\sigma^2_{\alpha_\iota}})$$

$$b_{i,k} \sim N(\widehat{\beta_{\iota,k}}, \widehat{\sigma^2_{\beta_{\iota,k}}})$$

$$d_{i,j} \sim N(\widehat{\delta_{\iota,j}}, \widehat{\sigma^2_{\delta_{\iota,j}}})$$

Firm generation and production plans

When the simulation generates a firm, it assigns the firm to a sector. This assignment is randomly drawn from the sectoral distribution found in the Eurostat Business demography database (Eurostat, 2020[51]). Each firm is then provided with a production plan according to their assigned sector.

Firms' production plans are informed by the sectoral task distribution, which is derived from PIAAC and O*NET input data. The production plan in each sector are taken as aggregation of the importance and frequency scores for each task in each occupation, weighted by the distribution of employment by occupation in the sector. The sectoral task importance and frequency scores (that is, the per-person task requirements in each sector) for task i in sector s is as follows:

$$importance_{t,s} = w_{s,t} \frac{\sum_o importance_{t,o}}{\sum_o w_{o,s}}$$

$$frequency_{t,s} = w_{s,t} \frac{\sum_o frequency_{t,o}}{\sum_o w_{o,s}}$$

Where $importance_{t,o}$, and $frequency_{t,o}$ are, respectively, the unadjusted occupational task importance and frequency scores values taken from the O*NET database. The frequency score is then scaled to total 100 within each sector.[45]

Firms in each sector select workers to hire according to their existing task needs. These needs are proportional to the number of employees in each firm. For firm f their need for task t is:

$$need_{f,t} = \left|employees_f\right| * frequency_{t,s=s_f} * importance_{t,s=s_f}$$

Where $\left|employees_f\right|$ is the number of employees in firm f and s_f is the sector of firm f. Firms examine the tasks they need be completed, and compare that to the skillset of their employees – that is, their capacity. The capacity of firm f is the sum of the product of their employees' occupational task frequency and importance scores:

$$capacity_{f,t} = \sum_{e=1}^{|employees_f|} frequency_{t,o=o_e} * importance_{t,o=o_e}$$

Where o_e is the occupation of employee e. By comparing their needs and their capacity, firms determine their task deficit, a strictly positive weight for the hiring process:

$$deficit_{f,t} = \max(0, need_{f,t} - capacity_{f,t})$$

Examining their task deficits, firms then choose an occupation to hire that will best complement their existing workforce.

Wages

Wages enter into the model as the sum of workers' skill competencies. As outlined above, individuals' educational attainment and experience inform their skill competencies. Person n's wage can be written as the sum of their skills:

$$wage_n = \sum_i skill_{n,i}$$

Thus, in general, higher skilled workers demand higher wages, while lower skill workers demand lower wages, with consideration to a minimum wage.[46] Wages do not change with automation, as workers continue to value their skills, even if firms may not.

However, these wages are not the actual wages that workers receive from firms for performing tasks. Nor are they reservation wages where workers will not accept a job offer unless it exceeds their compensation expectations. In fact, there are no money exchanges between firms and individuals in the simulation. Rather, these wages represent worker's relative wage competitiveness relative to other workers. Firms consider wages as a final stage in the hiring process. After narrowing down to the best candidates for a position, these wages allows firms to select the worker who will likely accept a lower wage to perform the same work.[47] The real-world equivalent of this would be akin to firms not offering a job to over-skill or over-educated candidates for fear that they would be bored or would quickly search for a new job.

Firms also consider generic occupation wages when choosing which occupation to hire. Here, the wages are the sum of the skill importance for each of the occupation's skill requirements:

$$wage_o = \sum_i skill_{o,i}$$

These wages provide a counterweight to firms' desire to select always the most skilled occupations to hire. By considering occupation wages, firms instead choose the occupations that best address a firm's deficits.

Hiring process

The hiring process is the main action undertaken in the simulation. Each period, the model randomly shuffles the list of firms. In turn, and governed by the exogenous sectoral employment forecasts, each firm decides how many positions to hire in that period. For each position to hire, the firm then chooses an occupation to recruit, evaluates a number of unemployed candidates[48], and hires the best available candidate for the position by comparing their skillset to that of the firm's overall needs.

Choosing the occupation to hire

When choosing which occupation to hire, each firm evaluates their task needs and compares it with the tasks offered by each occupation. The resulting fit for occupation o for firm f can be written as:

$$jobfit_{f,o} = \frac{\sum_t frequency_{t,o} * \ importance_{t,o} \ * deficit_{f,t}}{wage_o}$$

This fit indicator gives priority to those occupations that contain frequently undertaken tasks that firms have in deficit. The firm selects the occupation with the best job fit to fill the position.

Choosing the candidates to consider

When choosing candidates for the position, the firm chooses those unemployed workers who best fit the skill needs of the occupation. Prior to the hiring process, the model evaluates each individual's fitness for each generic occupation, without regard to wages or a firm's specific production plans. For occupation o individual n's occupation fit can be written as the ratio of their skill deficits and the occupation's total skill requirements (that is, the generic occupation wage):

$$occfit_{o,n} = \frac{\sum_i \max(0, skill_{o,i} - skill_{n,i})}{wage_o}$$

The firm chooses the unemployed candidates with the best occupation fit for further consideration. By default, the model chooses ten candidates, though this parameter can be modifier by the analyst.

Choosing the best overall candidate

Once choosing the candidates with the best occupation fit, the firm evaluates them according to the skills deficits of the firm. Whereas the firm choses the occupation to hire based on task deficits, unemployed individuals cannot be evaluated on the basis of tasks. Rather, they need to be evaluated on the basis of their skills. Thus, the firm hires the candidate that best represents their ideal candidate. To determine the ideal candidate, each firm evaluates their current skills deficit, and adds to this the skills that they would require if they hired one more person, as outlined by their sectoral production plans. For each skill, i, firm f's skill needs are determined by a neural network that maps sectoral task importance to skill levels:

$$importance_{t,s} \ = importance_{t,f \in s} \ \Rightarrow neural \ network \ \Rightarrow needs_{f,i}$$

The firm's skills deficit is the difference between its employees' actual skills and the proportional skill requirements of the firm:

$$deficit_{f,i} = \left(\left|employees_f\right| * needs_{f,i}\right) - \sum_{e=1}^{|employees_f|} skill_{n=e,i}$$

The ideal skill level for firm f and skill i is the sum of the deficit and the skill needs from adding one more worker[49]:

$$ideal_{f,i} = deficit_{f,i} + needs_{f,i}$$

Candidate n's skill deficit for the position with firm f is thus the difference between the ideal candidate and their actual skills:

$$deficit_{f,n}^{hire} = \sum_i \max(0, ideal_{f,i} - skill_{n,i})$$

$$ideal_{f,n} = \sum_i ideal_{f,i}$$

Their overall job fit is the ratio of the deficit to the ideal candidate, divided by the workers wage:

$$jobfit_{f,n}^{hire} = \left(1 - \frac{deficit_{f,n}^{hire}}{ideal_{f,n}}\right) * \left(\frac{1}{wage_n}\right)$$

To conclude the hiring process, the firm offers an employment contract to the candidate with the best fit. As individuals are passive actors in the simulation and do not take active choices, the candidate accepts the offer.

Replacing current employees

As a final step in the hiring process, firms evaluate their current set of employees. If any of their employees are a worse fit than the least qualified candidate, the firm deems them replaceable. Firms fire replaceable employees and conduct a new hiring process.[50] The job fit calculation for the replacement process is slightly different than the hiring process, as replacements are compared against the generic skill needs of the firm.[51] The calculations for replacement job fit is thus[52]:

$$deficit_{f,n}^{replace} = \sum_i \max(0, need_{f,i} - skill_{n,i})$$

$$jobfit_{f,n}^{replace} = \left(1 - \frac{deficit_{f,n}^{replace}}{ideal_{f,n}}\right) * \left(\frac{1}{wage_n}\right)$$

The automation process

At some point during the simulation, there is a burst of automation.[53] This automation renders the human labour to complete some tasks unnecessary, as they are assumed to be completed by a digital or mechanised process. To model the automation for each task, the simulation makes a random draw from a uniform distribution and compares that to the task's automation probability. To incorporate the insight that an occupation-based approach to estimating occupation risk may overstate the risk of automation (Nedelkoska and Quintini, 2018[27]), a scaling factor is applied to each probability.[54] For tasks where the automation probability exceeds the sampled value, that task is automated. Once automated, these tasks are no longer needed by firms for their production plans, and an automated task is given an importance score of zero. The model assumes that if a task is automated in one sector it is also automated in all other sectors. Thus for the k sectors:

$$importance_{t,s=s_1} = \cdots = importance_{t,s=s_k} = 0$$

After the burst of automation, the frequency scores are re-scaled to 100 for the remaining tasks, both at the sectoral and occupational level. This re-scaling at the sectoral level implies a gain in efficiency for firms, as they will presumably produce more goods and services after automation (and will thus need the remaining tasks more frequently). For occupations, the model assumes that workers work full-time, and working in occupations containing automated skills will adjust by simply performing more of the un-automated tasks.

The analysis of the model consists of conducting two separate simulations. One without the burst of automation, and one with automation. The comparison of the differences between these simulations reflects the difference in outcomes that is attributable to automation.

Annex Table 5.C.1. O*NET to ISCED-11 educational crosswalk

Correspondence between 12 O*NET educational groups and 9 high-level ISCED-11 groups

ISCED-11 name	ISCED-11 1-digit	O*NET education	O*NET education name	Aggregated groups
Early childhood education	0			
Primary education	1			
Lower secondary education	2	1	Less than a High School Diploma	Below upper-secondary
Upper-secondary education	3	2	High School Diploma	Upper-secondary and post-secondary non-tertiary – General
Post-secondary non-tertiary education	4	3	Post-Secondary Certificate	Upper-secondary and post-secondary non-tertiary – VET
Short-cycle tertiary education	5	4	Some College Courses	Tertiary
Short-cycle tertiary education	5	5	Associate's Degree (or other 2-year degree)	Tertiary
Bachelor's or equivalent level	6	6	Bachelor's Degree	Tertiary
Bachelor's or equivalent level	6	7	Post-Baccalaureate Certificate	Tertiary
Master's or equivalent level	7	8	Master's Degree	Tertiary
Master's or equivalent level	7	9	Post-Master's Certificate	Tertiary
Master's or equivalent level	7	10	First Professional Degree	Tertiary
Doctoral or equivalent level	8	11	Doctoral Degree	Tertiary
Doctoral or equivalent level	8	12	Post-Doctoral Training	Tertiary

Annex Table 5.C.2. O*NET experience requirement categories

Experience Category	Experience Category Description
1	None
2	Up to and including 1 month
3	Over 1 month, up to and including 3 months
4	Over 3 months, up to and including 6 months
5	Over 6 months, up to and including 1 year
6	Over 1 year, up to and including 2 years
7	Over 2 years, up to and including 4 years
8	Over 4 years, up to and including 6 years
9	Over 6 years, up to and including 8 years
10	Over 8 years, up to and including 10 years
11	Over 10 years

Annex Table 5.C.3. Conversion factors for O*NET database frequency scores

Conversion factors for O*NET database frequency scores.

Frequency Category	Frequency description	Assumed days per year	Assumed hours per day	Assumed weight
1	Yearly or less	1	8	8 / 2 088 ≈ 0.004
2	More than yearly	6	8	48 / 2 088 ≈ 0.022
3	More than monthly	12	8	96 / 2 088 ≈ 0.046
4	More than weekly	52	4	208 / 2 088 ≈ 0.100
5	Daily	261	1	261 / 2 088 ≈ 0.125
6	Several times daily	261	4	1044 / 2 088 ≈ 0.500
7	Hourly or more	261	8	2088 / 2 088 ≈ 1.000

Note: Frequency values were converted assuming that there were 261 work days in a year (365 days less 104 weekend days), and 8 hours within each workday.

Annex Table 5.C.4. ISIC-Rev4 to CEDEFOP Sector crosswalk

Correspondence between 21 broad ISIC-Rev4 industry classifications and 6 sectors reported by Cedefop

ISIC-Rev4 Letter code	ISIC-Rev4 Industry name	Cedefop Sector
A	Agriculture; forestry and fishing	Primary sector and utilities
B	Mining and quarrying	Primary sector and utilities
C	Manufacturing	Manufacturing
D	Electricity; gas, steam and air conditioning supply	Primary sector and utilities
E	Water supply; sewerage, waste management and remediation activities	Primary sector and utilities
F	Construction	Construction
G	Wholesale and retail trade; repair of motor vehicles and motorcycles	Distribution and transport
H	Transportation and storage	Distribution and transport
I	Accommodation and food service activities	Distribution and transport
J	Information and communication	Business and other services
K	Financial and insurance activities	Business and other services
L	Real estate activities	Business and other services
M	Professional, scientific and technical activities	Business and other services
N	Administrative and support service activities	Business and other services
O	Public administration and defence; compulsory social security	Non-marketed services
P	Education	Non-marketed services
Q	Human health and social work activities	Non-marketed services
R	Arts, entertainment and recreation	Business and other services
S	Other service activities	Business and other services
T	Activities of households as employers; undifferentiated goods- and services-producing activities of households for own use	Business and other services
U	Activities of extraterritorial organisations and bodies	Business and other services
X	Not elsewhere classified	

Annex Table 5.C.5. O*NET Knowledge and Skill categories

Knowledge Code	Knowledge Title	Skill Code	Skill Title
1	Administration and Management	1	Reading Comprehension
2	Clerical	2	Active Listening
3	Economics and Accounting	3	Writing
4	Sales and Marketing	4	Speaking
5	Customer and Personal Service	5	Mathematics
6	Personnel and Human Resources	6	Science
7	Transportation	7	Critical Thinking
8	Production and Processing	8	Active Learning
9	Food Production	9	Learning Strategies
10	Computers and Electronics	10	Monitoring
11	Engineering and Technology	11	Social Perceptiveness
12	Design	12	Coordination
13	Building and Construction	13	Persuasion
14	Mechanical	14	Negotiation
15	Mathematics	15	Instructing
16	Physics	16	Service Orientation
17	Chemistry	17	Complex Problem Solving
18	Biology	18	Operations Analysis
19	Psychology	19	Technology Design
20	Sociology and Anthropology	20	Equipment Selection
21	Geography	21	Installation
22	Medicine and Dentistry	22	Programming
23	Therapy and Counselling	23	Operation Monitoring
24	Education and Training	24	Operation and Control
25	English Language	25	Equipment Maintenance
26	Foreign Language	26	Troubleshooting
27	Fine Arts	27	Repairing
28	History and Archaeology	28	Quality Control Analysis
29	Philosophy and Theology	29	Judgment and Decision Making
30	Public Safety and Security	30	Systems Analysis
31	Law and Government	31	Systems Evaluation
32	Telecommunications	32	Time Management
33	Communications and Media	33	Management of Financial Resources
		34	Management of Material Resources
		35	Management of Personnel Resources

Notes

[1] While many countries separate tertiary-level qualifications into vocationally oriented and general qualifications, a common international definition has only been agreed at ISCED Level 5 (short-cycle tertiary education). See OECD (forthcoming[55]) for more information and data on VET at the ISCED 5 level. At ISCED levels 6 to 8 (bachelor's, master's and doctoral degrees) such internationally agreed definitions on orientation categories are not yet available (OECD/Eurostat/UNESCO Institute for Statistics, 2015[53]).

[2] Being in education is defined as being a student/apprentice in formal education.

[3] It is important to note that in many countries some of the vocational tracks are only available for students older than 15 years old. The PISA sample therefore does not reflect the full range of vocational programmes. According to 2015 PISA data, 82% of students in OECD countries were in enrolled in general programmes. In 15 OECD countries, more than 99% of 15-year old students were enrolled in general programmes (OECD, 2016[3]).

[4] A recent study for Finland also shows substantial differences in skills before enrolment in VET and general tracks (Silliman and Virtanen, 2019[12]). They find that applicants who only apply to the general track have a mean compulsory school grade point average (GPA) of 8.5, while applicants who only apply to the vocational track have a mean GPA of 6.5. The mean GPA for applicants who apply to both the general and vocational tracks of secondary education is about 7.5.

[5] This is consistent with findings from Hanushek, Woessmann and Zhang (2011[56]), who show that literacy scores for VET and general education graduates follow a similar pattern over time in many OECD countries, providing some general evidence that the relative selectivity between vocational and general education programs has not changed substantially over time. Their analysis covers graduates aged 16 to 65.

[6] Figure 5.6 (which is entirely based on the OECD Survey of Adult Skills, since no other international survey reports the vocational orientation of the previous studies for prime age and older workers) confirms the pattern observed in Figure 5.4 (which is mostly based on Labour Force Surveys, where possible, to maximise sample size): general education graduates aged 16 to 34 have significantly lower employment and higher unemployment rates than VET graduates, even when controlling for skills, gender, migrant status and number of children.

[7] Employment and unemployment rate differences in Figure 5.6 are estimated using a probit regression with a dummy variable for (un)employment status as dependent variable and educational attainment (4 categories) and country fixed effects as explanatory variables. Regressions with controls add gender (dummy), migrant status (dummy), number of children (3 categories) and numeracy and literacy proficiency as explanatory variables.

[8] Repeating this exercise by country suggests that only in the Netherlands and Germany older adults with VET qualifications have (statistically significant) higher employment rates than those with general education qualifications. In Germany the advantage disappears for adults aged 45 and older, in the Netherlands only for adults aged 55 or older. In Israel and Estonia, adults aged 35-54 who have a VET qualification have higher employment rates than those with a general qualification, whereas their employment rates are the same among young adults (16 to 34). The regressions by country include control variables as described in Figure 5.6. Sample sizes are small for some countries, which partially explains the insignificant results.

[9] The occupational classification used in the data for European countries in Figure 5.9 changes in 2011 (2012 for Turkey), causing a break in the time series. The impact of this change in classification has been minimised by recoding the occupations from the old occupational classification into the new classification, using the methodology proposed by MacDonald (2019) for EU-LFS data and the information from double-coded occupations in the Turkish LFS. However, the recoding cannot entirely offset the break, and therefore the changes between 2010-12 need to be interpreted with caution.

[10] The decomposition for VET graduates is based on the following identity: $\Delta \ln\left(\frac{VET_i}{\sum VET_i}\right) = \Delta \ln\left(\frac{E_i}{\sum E_i}\right) + \Delta \ln\left(\frac{VET_i}{E_i}\right) - \Delta \ln\left(\frac{\sum VET_i}{\sum E_i}\right)$, where VET_i is the number of VET graduates aged 15 to 34 employed in occupation *i*, E_i the total number of individuals aged 15 to 34 employed in occupation *i,* and Δ the difference between 2017 and 2004. In words, the percentage change in the share of occupation *i* in total employment of VET graduates is the sum of the percentage employment growth of that occupation (among youth) and the percentage change of the share of VET graduates in the stock of employment of occupation *i* (among youth) minus the percentage change of VET graduates in total employment of youth. The decomposition for general education graduates is analogous. In Figure 5.10 the results are rescaled from % differences to percentage point differences, and the second and third component of the decomposition are combined.

[11] Occupations are defined at the 2-digit ISCO level. This means that all occupation changes that happen within a two-digit occupation will not be recoded as changes (e.g. from cook (ISCO 512) to waiter or bartender (ISCO 513)).

[12] Skill, wage and automation levels are measured by occupation and country. For EU countries that did not participate in the OECD Survey of Adult Skills, the average across participating EU countries is used for skills and automation.

[13] The regressions underlying Figure 5.12 use OECD Survey of Adult Skills data for all countries (as opposed to Figure 5.11) in order to be able to control for skill levels. The differences shown in Figure 5.12 are based on OLS regressions of log hourly wages on educational attainment (4 categories), gender (dummy), literacy proficiency and numeracy proficiency, age (5-year categories), number of children (3 categories), migrant status (dummy), job tenure with current employer (4 categories), firm size (5 categories), part-time working hours (dummy), contract type (6 categories) and country fixed effects (and industry and occupation dummies for the within occupation/industry specification).

[14] Figure 5.12 confirms that general education graduates aged 16 to 34 have slightly lower hourly earnings compared to VET graduates (3.3% difference), but that this gap is much smaller than the gap between VET and tertiary education graduates. The gap between VET and general education graduates is also substantially smaller than between VET graduates and those without an upper-secondary degree (3.3% versus 6%). When further controlling for industry and occupation, the gap between general education and VET graduates remains almost the same, while the gap between VET and tertiary education graduates falls from 20% to 8.7%. The gap between VET graduates and those without an upper-secondary degree falls slightly from 6% to 4.7%. These regression results show that young VET graduates earn slightly more than general education graduates. At the same time, they earn significantly less than tertiary graduates, even when they are employed in similar occupations and industries.

[15] Available data cove all EU OECD countries (except Latvia, Lithuania, Estonia and Slovenia), Switzerland and Turkey. Data are from the EU-LFS and Turkish LFS.

[16] Figure 5.15 shows the results from a probit regression analysis, with a temporary/permanent dummy as the dependent variable. Independent variables are type of education (4 categories), years since graduation (3 categories), an interaction between education and years since graduation, literacy and numeracy

proficiency, gender (dummy), migrant status (dummy), number of children (3 categories), firm size (5 categories), country fixed effects, occupation fixed effects (1-digit ISCO) and industry fixed effects (1-digit ISIC).

[17] Figure 5.16 shows the results from a probit regression analysis, with as the dependent variable a dummy that equals one if the worker has supervisory responsibilities. Independent variables are type of education (4 categories), years since graduation (3 categories), an interaction between education and years since graduation, literacy and numeracy proficiency, gender (dummy), migrant status (dummy), number of children (3 categories), firm size (5 categories), country fixed effects, occupation fixed effects (1-digit ISCO) and industry fixed effect (1-digit ISIC).

[18] This is estimated using a probit regression with as dependent variable a dummy that equals one if the worker says to work physically for long every day. Explanatory variables include educational attainment (4 categories), gender (dummy), age (5-year categories), migrant status (dummy), number of children (3 categories), literacy and numeracy proficiency, firm size (5 categories), industry (1-digit ISIC), occupation (1-digit ISIC) and country fixed effects.

[19] In the PIAAC data, HPWP is measured as a combination of: sequence of tasks; speed of work; how to do work; co-operating with co-workers; instructing, teaching and training others; sharing information with co-workers; organising own time; planning own activities; flexibility in working hours; annual bonus. See OECD (2016[24]) for more details.

[20] Results from a probit regression of high exposure to HPWP (dummy) on gender (dummy), age (5-year categories), literacy and numeracy proficiency, number of children (3 categories), migrant status (dummy), firm size (5 categories), occupation (1-digit ISCO), industry (1-digit ISIC) and country fixed effects. The regression includes employed adults aged 16 to 34 who are not enrolled in formal education (excluding self-employed).

[21] The results in Figure 5.18 are based on an OLS regression of log skill use on educational attainment (4 categories), skill proficiency, age (5-year categories), gender (dummy), migrant status (dummy), number of children (3 categories) and country dummies.

[22] The Skills for Jobs database uses information on relative employment growth, growth in hours worked, median wage growth, change in the share of under-qualified workers, and the unemployment rate to assess the shortage or surplus intensity of occupations. See OECD (2017[52]) for more details.

[23] Results from the Canadian Occupational Projection System for the period 2019-28 show similar concentration of projected new jobs in high-skill occupations (health occupations; occupations in education, law and social, community and government services; natural and applied sciences and related occupations) and sales and service occupations. The lowest number of new jobs are expected in Canada for natural resources, agriculture and related production occupations as well as occupations in manufacturing and utilities. Similarly, the US Bureau of Labor Statistics' employment projections shows that most new jobs will be created in the period 2018-28 in health care practitioners and technical occupations and personal care and service occupations, but also in food preparation and serving related occupations. By contrast employment levels in office and administrative support occupations and production occupations is projected to decline in the United States in that period.

[24] The decomposition is based on the one described in Nedelkoska and Quintini (2018[27]), but instead of comparing between countries, it compares between education groups within countries. The decomposition is based on the following identity: $\Delta A_i = \sum_o \left(E_{o,i} A_{o,VET}\right) + \sum_o \left(E_{o,VET} A_{o,i}\right)$, with ΔA_i the difference in average automation risk between VET graduates and graduates from education group *i,* $E_{o,i}$ employment

(expressed in hours) of education group *i* in occupation *o* relative to total employment of education group *i*, and $A_{o,i}$ the automation risk of education group *i* in occupation *o.* This decomposition is applied at the 2-digit occupation level (ISCO) using the OECD Survey of Adult Skills.

[25] This is estimated using a probit regression with a dummy variable equal to one of the worker carries out a certain tasks at least once per week as dependent variable. The explanatory variables are a time dummy (equal to 1 for 2017 observations) and country fixed effects. Occupation controls are added at the 2-digit ISCO level.

[26] The medium-term projections described in Box 5.7, do not explicitly consider automation risks. Rather, these forecasts represent baseline scenarios. These forecasts would shift if firms overcome some of the technological bottlenecks outlined by Frey and Osborne (2017[50]).

[27] The results here present an exploration of a single simulation. See Annex 4.B for more details, and MacDonald (forthcoming[57]) for additional results.

[28] The simulation model uses information from the O*NET database on education and knowledge requirements by occupation to link education levels and knowledge acquisition (see Annex 4.B for details). This means that if occupations that generally require a mid-level VET degree have higher knowledge requirements than occupations requiring a mid-level general education degree, VET graduates are deemed to have stronger knowledge on average. Since the O*NET database is United States-based, and VET is mostly organised at ISCED Level 4 in the United States (and a relatively large share of VET graduates in the United States work in high-skill occupations, see Figure 5.8), the simulation model might overestimate the knowledge levels of VET graduates relative to general education graduates in a representative OECD country. This could partly explain why Figure 5.23 finds that a burst in automation tilts the employment composition of VET graduates towards high-skill jobs and that of general education graduates towards low-skill jobs. Also, since the simulation model uses knowledge to capture individuals' skillsets, it does not consider transversal skills, such as critical thinking, complex problem solving and social perceptiveness.

[29] The simulation model assumes that workers' skills develop further with tenure and not through further education and training. Therefore, if in reality certain education groups have more access to (relevant) further education and training opportunities, they might have an additional advantage that is not captured in the model. As Annex Table 5.A.2 shows, the probability of participating in training is the same for VET and general education graduates. Hence, the assumption of no further education and training should not have a significant impact on the outcomes for VET graduates relative to general education graduates (unless there are differences in the quality and relevance of accessed training).

[30] Differences in literacy, numeracy and digital problem-solving skills between graduates from VET and general education (at the same level) could be due to differences in the skills acquired through these programmes, but also due to selection into the programmes (when lower-skilled students disproportionately enrol in certain programmes). This selection effect may be larger in some countries than in others, depending – among other things- on the image of VET versus general education.

[31] These results are based on a probit regression with a dummy variable for training participation as dependent variables. Explanatory variables include educational attainment (4 categories), gender (dummy), migrant status (dummy), number of children (3 categories) and age (5-year categories). The regressions for all adults additionally include labour market status dummies (4 categories). The regressions for employed adults only include controls for tenure with current employer (4 categories), temporary contract (dummy), part-time employment (dummy) and firm size (5 categories). Industry and occupation controls are added at the 1-digit level (ISCED and ISCO respectively).

[32] This includes adults who did not participate in training but wanted to, and adults who participated in training and wanted to participate in even more training.

[33] A burst of automation is a period where innovations allow firms to overcome the technological bottlenecks that make automating some tasks difficult.

[34] Retirements, hiring and firing frictions, and the size of the simulation, result in the simulated unemployment rate varying at a level just below 10%.

[35] The simulation also uses the PIAAC survey to inform the age and education distribution of the labour force.

[36] As the relevance and importance scores are highly correlated, the simulation is only based on the indicator of importance.

[37] O*NET occupations are reported using the 2018 Standard Occupational Classification (SOC). These occupation totals were converted to the 2008 International Standard Classification of Occupations (ISCO-08) via a crosswalk mapping.

[38] The correlation between the importance and level scores was 97 percent.

[39] The O*NET database additionally includes scores for the importance of apprenticeships and job-related professional certifications, as well as requirements for on-the-job training and on-site training. These data are not included as inputs into the simulation model.

[40] More information about ISCED-11 can be found here: http://uis.unesco.org/en/isced-mappings.

[41] The model ignores the production process itself, and only considers production needs.

[42] The additional firm scaling rate (default =10) is a parameter in the simulation.

[43] The sampling of education is not conditional on age.

[44] The retirement age in the simulation is 65 years of age.

[45] Frequency scores are also scaled to 100 for occupational tasks.

[46] The minimum wage is set to 40% of the average wage. This is approximately equal to the ratio of the minimum wage to the average wage in 2018 for OECD EU countries that have minimum wages (OECD, 2020[54]).

[47] The simulation model does not explicitly model wage offers. Individuals are considered passive in this model and accept any job they are offered.

[48] By default each firm evaluates ten unemployed candidates, though this is a modifiable parameter.

[49] The simulation abstracts away from modelling actual production and assumes that production is proportional to employment. This assumption holds both before and after the burst of automation, though the proportion is assumed to change. The simulation does not model this proportion.

[50] This process of deeming worker replaceable is not as strict as other potential decision rules, such as firing any employee once a firm finds any better candidate. This modelling decision recognises that workers often stay with their employers even if, on paper, they are not the best possible candidate for the position.

[51] This modelling decision was taken to reduce the computation time of the simulation. Ideally, during each hiring process, each firm would compare each candidate against each of their employees.

[52] In practice, firms in the simulation rarely deem workers replaceable.

[53] The default in the simulation is that this burst of automation occurs in the fifth period.

[54] The default scaling factor in the simulation is 75%.

OECD Employment Outlook 2020

WORKER SECURITY AND THE COVID-19 CRISIS

The 2020 edition of the *OECD Employment Outlook* focuses on worker security and the COVID-19 crisis. Chapter 1 provides an initial assessment of the labour market consequences of the COVID-19 outbreak and the resulting economic crisis. It also presents an overview of the emergency labour market and social policy measures implemented by OECD countries and discusses directions for further policy adaptation as countries move out of lockdown. Chapter 2 investigates the uneven access to unemployment benefits for workers in part-time and less stable jobs, which often accentuates the hardship they face in times of crisis, and discusses the difficult balance between work incentives and income security. Chapter 3 provides a comparative review of employment protection legislation (EPL) across OECD countries by developing a new version of the OECD's EPL indicators, which now include an improved assessment of regulations for collective redundancies, unfair dismissals and enforcement issues. Chapter 4 takes a fresh look at job polarisation, and in particular the hollowing out of jobs in middle-skill occupations. Finally, Chapter 5 examines the changing labour market outcomes for middle-education vocational, education and training graduates, whose labour market perspectives are challenged by the contraction of jobs in middle-skill occupations.



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