Organisation for Economic Co-operation and Development

SKC(2022)1

Unclassified

English - Or. English

2 March 2022

OECD CENTRE FOR SKILLS

Skills Summit 2022: Strengthening Skills for Equity and Sustainability – Providing Effective Up-and reskilling Opportunities for All

Issues for Discussion

24-25 March 2022 Cartagena, Colombia.

This document provides background information for participants of the Skills Summit 2022: Strengthening Skills for Equity and Sustainability – Providing Effective Up-and reskilling Opportunities for All, co-organised by the Government of the Colombia and the OECD. It builds on OECD-wide expertise, notably its Centre for Skills; Economics Department; Directorate for Education and Skills; Directorate for Employment, Labour and Social Affairs; Directorate for Science, Technology and Innovation and Environment Directorate.

Since 2016, the OECD has organised biennial Skills Summits together with host countries. These summits provide ministers and senior officials with responsibilities for diverse skills-relevant portfolios – from employment and education to economic development and innovation – with a unique opportunity to engage in frank and open discussion about their experience in designing and implementing policies to develop and use skills.

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JT03490499

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Country coverage

This paper features data on all OECD countries as well as, when available, comparable data from other countries. The statistical data for Israel are supplied by and under the responsibility of the relevant Israeli authorities. The use of such data by the OECD is without prejudice to the status of the Golan Heights, East Jerusalem and Israeli settlements in the West Bank under the terms of international law.

Executive summary

1. Education and training systems have a key role to play to counteract rising inequalities and a lack of equal opportunities in OECD countries. Skills are key for individuals and particularly vulnerable groups to adapt and succeed in labour markets and societies. However, the demand for skills is likely to change in response to rapid technological innovations and the green transition. Investments in skills are crucial if countries are to be able to make the most of these changes. Furthermore, providing upskilling and reskilling opportunities that are accessible, affordable and sustainable could ensure that individuals will be resilient to changes in the economy and society.

2. The Skills Summit issues paper *Strengthening Skills for Equity and Sustainability – Providing Effective Up-and reskilling Opportunities for All* provides background information on trends that underpin the need for learners to upskill and reskill and highlights policy approaches.

3. The transition to digital and green economies is changing the skills demanded in the labour market and societies. To thrive in a digital and interconnected global economy, young generations need to acquire new skills, and older generations need to up- and reskill. This entails:

- Developing a diverse set of skills, e.g. foundational, digital and social and emotional skills with the aim of fully contributing to and participating in digital and green economies.
- Identifying changing skills needs for different groups in rapidly changing societies.
- Creating education and training that are responsive to changing skills needs.
- Strengthening modular learning and developing relevant national qualifications systems (including micro-credentials) to improve the development and utilisation of skills in the labour market.

4. Promoting equity and inclusiveness in learning opportunities in youth and adult education involves increasing participation in upskilling and retraining among, for example, disadvantaged groups refining the type of training offered so that it fulfils the learning needs and objectives of each individual. This entails:

- The development of a high quality education and training provision, with the aim of promoting the successful integration of vulnerable youth and adults in society.
- Ensuring that financial and non-financial incentives are deployed with the aim of raising participation in lifelong learning among underrepresented groups.
- Improving information and guidance on lifelong learning so that this is better targeted and tailored to respond to the needs of vulnerable groups.

1 Strengthening skills for equity and sustainability

5. Inequality is rising in many OECD countries alongside a lack of equal opportunities in the labour market, particularly for young people and individuals coming from socio-economically disadvantaged backgrounds. In the past decades, the income gap between rich and poor has widened, and social mobility has stagnated in many OECD countries. Across the OECD, while in the 1980s, the richest 10% of the population earned on average seven times the income of the poorest 10%, this ratio rose to almost 10 in 2015 (OECD, 2015[1]). The COVID-19 crisis further exposed persistent inequalities in OECD and non-OECD countries alike: inequalities in incomes, work and life chances; in the distribution of paid and unpaid work; and in access to learning opportunities both in initial education and in youth and adult learning.

6. Education and training systems have a key role to play to counteract inequalities of outcomes in the labour market and opportunities. Yet, in most countries they are facing increasing challenges to provide equal opportunities for children, as well as for those who have lost their jobs due to globalisation and technological change. Evidence from international large-scale assessments such as Programme for International Student Assessment (PISA) indicate that some countries have made significant progress in reducing the role family background plays in shaping educational outcomes, but progress is uneven. The opportunities children have to realise their potential still depends heavily on their parents' circumstances. For example, across OECD countries, 14% of 16-28 year-olds without a tertiary-educated parent were not in education, employment or training (NEET), compared to 6% of 16-28 year-olds with a tertiary-educated parent (OECD, 2021[2]). As a result, they develop fewer skills and are more likely when they start working, to enter occupations where skill development opportunities are limited. Lack of financial resources and other non-economic barriers such as family commitments, lack of information, lack of recognition of prior learning, and inflexible work schedules prevent many socio-economically disadvantaged young people and working-age adults from engaging in upskilling and re-skilling efforts.

7. Existing inequalities in access to formal education are likely reinforced by further divides in access to adult learning opportunities. Lack of investment in skills over the life course is not only likely to increase inequalities further but also risks constraining future prosperity and environmental protection. Education systems need to be re-engineered to support lifelong learning, and high-quality education and training needs to be provided at all life stages to all, irrespective of their socio-economic background. Skills systems need to be re-designed to provide coherent, permeable and attractive pathways for all learners, targeting in particular those who have so far failed to meaningfully engage in lifelong learning opportunities. Young people, and vulnerable groups, which are those who are most susceptible to changes in the labour market as skill requirements change due to megatrends and unexpected shocks, need to be empowered to create their own lifelong learning trajectories. Strong foundations should be provided early in life through early learning and formal education. However, because the demand for skills is likely to change in response to rapid technological innovations, investments in skills must be affordable and sustainable, thereby equipping individuals with skills that will make them resilient to changes in economy and society. Validating and certifying skills will be critical, thereby reflecting their relevance for individuals, economies, and societies by responding effectively to the implications of megatrends and unexpected shocks.

2 Risk factors and opportunities of global megatrends

Key points: Risk factors and opportunities of global megatrends

- The pace of technological change is increasing and policies need to be designed and implemented to help workers adapt to change, deal with risk and uncertainty, and to develop relevant skills to thrive in a digital world.
- The transition to a green economy creates opportunities for firms and workers in the long-term, but such opportunities must be enjoyed by all, and are likely to be associated with short and medium-term economic and social costs for some workers. People need to be equipped with the skills to take support and benefit from the green transition
- Populations in OECD countries are set to become significantly older over the coming decades. Upskilling and reskilling are important instruments to maintain the active participation of older people into labour markets and society.

8. Skills are key for individuals to adapt and succeed in labour markets and societies shaped by longer life expectancy, rapid technological advances, globalisation and demographic change, as well as sudden shocks such as the COVID-19 pandemic. Skills development starts in childhood and youth, but needs to continue throughout adulthood and into old age. Since the demand for skills in the labour market is undergoing substantial changes as a result of these trends, it is becoming increasingly important to ensure that workers and individuals have opportunities to upskill and reskill throughout life to ensure that they can continue to participate fully in the labour market and to avoid skills imbalances. Skills imbalances, such as shortages or mismatches can slow the adoption of new technologies, causing delays in production, increasing labour turnover and reducing productivity. Individuals who do not possess the "right" skills would also face poor labour market outcomes and low job satisfaction, and societies would also suffer as a result (Kis and Windisch, 2018[3]; OECD, 2018[4]). Skills help bridge social divides in the access and use of digital devices and skills help workers adapt to changing labour markets in a digital world of work.

Digitalisation

9. The pace at which new technologies are being developed is accelerating. Reaping the full benefits of digitalisation and technological innovations will ultimately depend on the ability of each country to develop a set of policies that help workers adapt to changes and develop relevant skills to thrive in the digital world. Digital technologies are also contributing to a new wave of automation, where robots are taking on more and more routine tasks, potentially displacing workers from some low-skilled and blue-collar jobs (Squicciarini and Staccioli, 2022[5]). For example, estimates on the impact of automation suggest that

close to one in two jobs are likely to be affected by automation (Nedelkoska and Quintini, 2018[6]). At the same time, robotics leverages breakthroughs in related technological fields, such as Artificial Intelligence (AI). As a result, workers in other jobs can call on ever more sophisticated technology to help them perform their tasks better. In this landscape, it is urgent for countries to focus on endowing workers with the necessary skills to develop and work with such technologies while building the skills of workers whose jobs are at high risk of automation. To thrive in a digital workplace, workers need a broad mix of skills – strong cognitive and socio-emotional skills, as well as digital skills. Even in technically advanced jobs, such as in the AI field, workers are expected to be equipped with skill sets beyond AI core competencies that also encompass communication, teamwork, problem-solving, creativity and writing (Samek, Squicciarini and Cammeraat, 2021[7]). And at the most basic level, without foundational skills, citizens are locked out of the benefits digitalisation can offer, or limited to its most elementary uses. Policies need to offer everyone ways to get the most out of the new technologies. This is particularly true for regions and individuals that are already lagging behind.

10. However, digitalisation is not only reshaping skills requirements and labour markets: new technologies bring many new learning opportunities but only to those who possess adequate information and communications technology (ICT) access and skills. For instance, although the COVID-19 crisis has been a catalyst for the adoption of digital technologies, it highlighted that digital readiness to adjust to remote learning and telework continues to vary substantially across countries thereby exacerbating pre-existing digital skills divides (OECD, 2021[8]). For example, data from the Programme for the International Assessment of Adult Competencies (PIAAC) shows that workers' digital readiness varies substantially across countries, with over 40% of adults in New Zealand and Sweden positioned in the two highest proficiency levels for problem solving in digital-rich environments, compared to around 30% of adults on average across OECD (OECD, 2019[9]). Equipping everyone with the necessary basic ICT skills ensures that no learner or worker is left behind and benefits from the digital learning revolution.

Green transition and sustainability

11. The transition to a green economy creates opportunities for firms and workers, but such opportunities could be accompanied by short and medium-term economic and social costs. A European Green Deal forecast scenario assesses employment changes linked to achieving the zero-carbon target by 2050. Sectors related to mining and quarrying, coke and refined petroleum, and gas, steam and air-conditioning are most negatively affected with around 27% fewer workers, while water supply and waste management appear to benefit most from the European Green Deal scenario with an employment increase of over 60% between 2020 and 2030 (Cedefop, 2021[10]). Such reallocation may be even more pronounced in the context of the challenging labour market conditions many workers and firms are experiencing in the wake of the pandemic. Policies fostering green growth could lead to job creation in a number of sectors – such as renewable energy, organic agriculture – but also job losses in emission-intensive sectors, including relatively high-paid jobs. Analysis on policy transitions towards a more resource-efficient and circular economy find that geographic impacts will be highly uneven, with some regions losing big employers, and even whole industries, and others benefiting from the creation of new job opportunities (Chateau and Mavroeidi, 2020[11]).

12. Labour market and skills policies play a key role in enabling countries to better manage and benefit from the green transition. Policy tools are needed to ensure that the green transition is a just transition, reducing inequalities in labour market outcomes between different groups of workers and, thereby, assisting individuals to make the most of its growth potential. Developing such tools will require analysis of emerging skills needs so as to: 1) better understand how schools, higher education and vocational education and training sectors can best equip youngsters for the future; 2) identify retraining and upskilling paths for current workers; and 3) map the geographical and sectoral distribution of new skill demands and their broader societal potential. Moreover, it is important to ensure that young people still completing their

education and training are aware of the ways in which demands for 'green skills' and digital competences are changing in the labour market.

Demographic change

13. Populations in OECD countries are set to become significantly older over the coming decades. Population ageing has already pushed the median age above 40 in many high-income countries. Populations in emerging economies that are currently relatively young are also expected to age rapidly. If nothing is done to change existing work and retirement patterns, the number of retirees per 100 workers (i.e. persons aged 50 and over who are not in the labour force) in OECD countries on average is projected to rise substantially from 42 per 100 workers in 2018 to almost 60 in 2050, putting severe strain on public finances and the ability to finance adequate pension benefits as well as constrain economic growth (OECD, 2019[12]). Many OECD countries have taken measures to encourage labour force participation among workers older than 50 years including upskilling and reskilling, and these have contributed to a rise in the effective age at which people exit the labour market since the early 2000s. The overarching policy response for OECD countries will be to develop their full productive potential by facilitating paid employment of both men and women at all ages. Better utilising the talents of people in quality jobs remains a key engine for inclusive growth and higher well-being.

14. Much of the policy focus to deliver longer working lives has been on reducing incentives to retire early and reward extending working lives, but sustained efforts are needed to tackle demand-side barriers. This entails changing firms' behaviour by fighting deep-rooted age discrimination practices and encouraging inclusive age-diverse cultures. In addition, ensuring that older people maintain their employability through skills policies will be key to helping them navigate a labour market that will increasingly involve adaptation to new jobs and skills needs.

15. Migration flows have been rising over the past few decades. Migration results not only in more diverse societies, but also has strong economic implications. While migrants boost the working-age population, thereby contributing to an economy's growth and technological progress, effective integration policies and education and training systems need to ensure that migrants are equipped with the skills needed to integrate in society and the labour market, among others language skills training.

Box 1. A resilient recovery from the COVID-19 pandemic

COVID-19 is just the last of a series of highly disruptive geopolitical, social and economic crises that the world has experienced in the past twenty years. The global pandemic is affecting every aspect of our lives, from health, jobs and education, to financial security, social relations and trust and has put a spotlight on equity challenges that existed well before the pandemic.

As countries move beyond the acute phase of the COVID-19 pandemic, the focus shifts to recovery and how to revive economic activity. An inclusive and transformative recovery that puts people's well-being at the centre includes strengthening educational opportunities and supporting people, jobs & small businesses.

The COVID-19 pandemic resulted in learning losses among children and adults due to forced school closures and interrupted physical learning opportunities that occurred informally or non-formally in the workplace due to containment measures. Children from disadvantaged backgrounds are more likely to have lost school hours and to have lacked the resources for effective remote learning. Among adults, low-skilled workers tend to be overrepresented in sectors that have been hardest hit by pandemic-induced closures and had fewer opportunities to transition to digital work and remote delivery. "Learning

loss" outcomes depend on workers' educational attainment. Estimates indicate that medium- and low-skilled workers lost, on average, twice as much informal learning opportunities than tertiary-educated adults. Learning systems need to pay close attention to ensure that existing inequalities in access and quality of learning are not exacerbated by ensuring that all learners have the tools and guidance they need to learn and succeed which is critical to recovery.

The COVID-19 crisis has led to a decline in employment, and millions of jobs and businesses in once secure sectors such as tourism, hospitality, retail and construction have been hit hard. Estimates suggest that the number of new jobs posted on line, on average across the OECD, dropped by approximately 60% by April 2020 compared to January-February 2020. By March 2021, several countries experienced a considerable improvement. However, total jobs published on line on average across OECD countries were still around 12% lower than during the pre-crisis period. While the COVID-19 pandemic hit virtually all sectors of the economy simultaneously, the analysis of online vacancies suggests that many low-paid and often low-educated workers were particularly affected during the initial phase of the COVID-19 crisis (OECD, 2021[2]).

Before the COVID-19 pandemic, demographic change, rapid technological advances, globalisation and the transition towards a green economy were already reshaping societies and the world of work at a breakneck speed. Those driving forces (megatrends) did not come to a sudden stop with the pandemic. Instead, they will likely compound the effects of the COVID-19 crisis, accelerating changes in the way work is organised, and skills are used and demanded in labour markets. Therefore, recovery efforts need to take into account changes in the labour market, such as changes in skill requirements or how jobs are performed.

3 Promoting equity in and through skill development

Key points: Promoting equity in and through skill development

- Lifelong learning is essential for individuals to thrive and adapt in a rapidly changing world transformed by megatrends such as digitalisation, environmental and demographic changes, and unexpected shocks.
- Engagement in adult learning is not only beneficial for individuals but also prepares them to actively engage and participate in society.
- Equity in education opportunities and skill development is important to ensure that lifelong learning processes do not create increasingly diverging opportunities. Equity in education can be fostered by education systems which are fair and inclusive.

16. Lifelong learning characterises all forms of learning and competency development over the lifecycle, from early childhood and youth throughout adulthood. The prerequisites for effective lifelong learning are built early in life by establishing strong cognitive foundations, and by building non-cognitive skills, attitudes, and dispositions to learn. Lifelong learning also implies a "life-wide" perspective that encompasses different forms of learning such as formal learning (in school and training centres), non-formal learning (e.g. workshops and employer provided-training) and informal learning (e.g. learning from others). Lifelong learning in a fast-changing and uncertain world not only helps individuals to adapt but is also a means to increase resilience to external shocks, thus reducing people's vulnerability, and allowing individuals to actively engage and participate in society. Therefore, it is important that individuals can access opportunities to develop and enhance their proficiency in a broad set of skills.

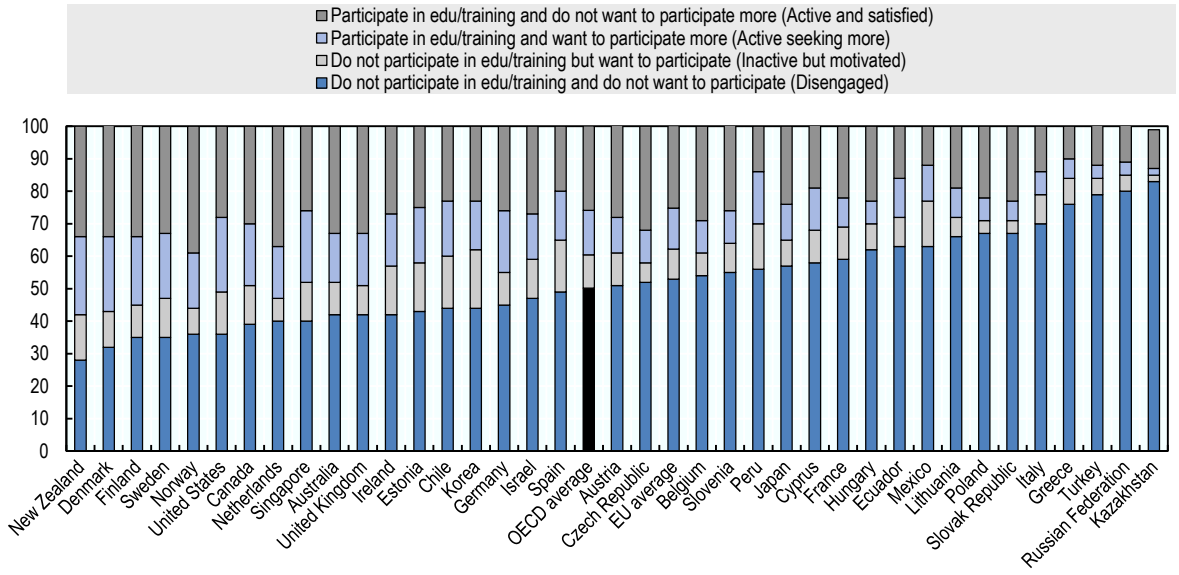
17. By engaging in education and training, adults can strengthen and broaden their skills and knowledge in line with changing demand, allowing them to remain engaged in the labour market. Despite labour markets being in a constant state of flux and the associated need for ongoing reskilling and upskilling, participation rates in adult learning in many OECD countries are strikingly low. Data from the Survey of Adult Skills (PIAAC) indicate that only 2 in 5 adults (40%) on average participate in job-related formal or non-formal training over the course of 12 months prior to being interviewed in PIAAC, see Figure 1 (OECD, 2021[2]). Looking at participation rates across countries shows considerable variation. While participation rates exceeded 55% in Denmark, Finland and New Zealand, they were below 25% in Greece, Italy and Mexico.

18. Participation rates in adult training not only vary across countries but also within countries by learners' socio-demographic characteristics and across regions. In many cases, those who do not participate in adult training are those who would benefit most from accessing high-quality learning opportunities. PIAAC data shows that adults with low levels of educational attainment are three times less likely to participate in adult learning. Participation also differs by gender, with women 5 percentage points less likely than men to participate (OECD, 2021[2]). Among currently inactive adults, meaning those who

do not participate in education or training, many express interest in doing so, indicating that they may in principle be willing to participate in training. PIAAC information also sheds light on potential contextual barriers to training participation (OECD, 2019[13]). Among these are family obligations and cost of training, which are among the most pressing barriers that impede access to learning opportunities. Adult education and training participation across OECD countries is low and empirical evidence suggest strong variation across different groups who face different barriers. This raises concerns as to whether training and education allow for equal participation in upskilling and reskilling opportunities to meet current labour market demands.

19. Equity in education opportunities and skills development is important to ensure that lifelong learning processes do not create increasingly diverging opportunities. Ensuring equity over the lifecycle starts in early childhood education and care and continues during upper secondary education and adult education and training. Failure of education systems to ensure and create educational equity from the outset can result in strong diverging opportunities across learners early on, making it difficult to close those gaps later on and potentially translating into unequal opportunities later in life.

Figure 1. Learner's profiles characteristics willingness to train and participation in adult learning, by country



Note: Participation relates to formal and non-formal job-related adult learning over the 12 previous months. Countries are sorted by the share of the "disengaged" group in a given country. Countries are ranked in ascending order of the percentage of 25-65 year-olds having completed initial education who are in the "disengaged" group.
Note regarding Cyprus[1].
Source: OECD (2019[14]) (2015[15]) (2012[16]) Survey of Adult Skills (PIAAC) databases, http://www.oecd.org/skills/piaac/publicdataandanalysis/.

[1] Note by Turkey: The information in this document with reference to "Cyprus" relates to the southern part of the Island. There is no single authority representing both Turkish and Greek Cypriot people on the Island. Turkey recognises the Turkish Republic of Northern Cyprus (TRNC). Until a lasting and equitable solution is found within the context of the United Nations, Turkey shall preserve its position concerning the "Cyprus issue". Note by all the European Union Member States of the OECD and the European Union: The Republic of Cyprus is recognised by all members of the

20. Providing a definition for equitable education systems in the context of lifelong learning is not straightforward. Definitions in the context of school systems encompass two dimensions: *fairness* and *inclusion* (OECD, 2007[17]). While fairness implies that neither personal nor social circumstances are obstacles to achieving educational potential, inclusion implies ensuring a minimum standard of education for all. Although this framework was developed primarily with school education in mind, it can be applied to lifelong learning systems. Alternative concepts take into account three different possible strategies underpinning policy making: seeking equal opportunities, equal treatment, or equal results across students and schools (Castelli, Ragazzi and Crescentini, 2012[18]) (OECD, 2021[19]). Equity in education means that access, participation and progression to obtain a quality education are available to all and obstacles to achieving educational potential are removed (OECD, 2021[19]). Equal lifelong learning opportunities should therefore exist across a number of equity dimensions, such as gender, education, country of origin or region.

21. Failure to create equity in education systems impose high costs on individuals, society and the economy. Unequal opportunities harm individuals since this may involve fewer life prospects, reflected by lower initial and lifetime earnings, higher risk of unemployment and difficulties adapting in a changing world (OECD, 2012[20]). Societies may suffer from individuals' lower ability to participate fully in civic and democratic aspects, while at the same time economies' growth and innovation potential is impaired (OECD, 2012[20]; Mezzanotte, 2022[21]).

22. Maintaining equity has been especially challenging in the context of the COVID-19 pandemic (OECD, 2021[19]). School closures and remote learning affected vulnerable students considerably more, increasing their risk of being disengaged with education (OECD, 2020[22]). Moreover, the pandemic reduced workers' learning opportunities during COVID-19-induced shutdowns by an average of 18% in the case of non-formal learning and 25% in the case of informal learning. Since low-skilled workers tend to be overrepresented in sectors that have been hardest hit by pandemic-induced closures, estimates indicate that on average, medium- and low-skilled workers may have experienced twice the reduction in informal learning opportunities than tertiary-educated adults (OECD, 2021[2]).

23. Several indicators hint at the lack of equity in education systems. Many students lack basic skills which can result in them being left behind on the educational pathway and dropping of school early. Dropping out of school early exacerbates the transition between school and labour market entrance, potentially leading to a detachment and leading to individuals not in education, employment or training (NEET).

Reducing share of NEETs

24. Issues in skill development can contribute to but also be the result of a high share of young people not in education, employment or training (NEET). Low educational achievements and skill mismatches are NEET risk factors: Young people who do not complete at least secondary education are significantly more likely to become and remain NEETs (OECD, 2016[23]). Disenchantment with school, negative social and learning experiences and outside factors such as a lack of support from home and pregnancy and mental health issues can spur drop-out as well as widen the gap between young men and women's life projects and the opportunity to realise them. A prevention strategy that includes the identification of, outreach to and support for at-risk students as well as a potential increase in the mandatory education participation age (OECD, 2021[24]) can reduce the high economic and social costs of dropout (OECD, 2012[20]). A mismatch between the skills young people acquire in formal education and those demanded on the labour market can also contribute to periods of inactivity, even among the highly educated (OECD, 2019[25]).

United Nations with the exception of Turkey. The information in this document relates to the area under the effective control of the Government of the Republic of Cyprus.

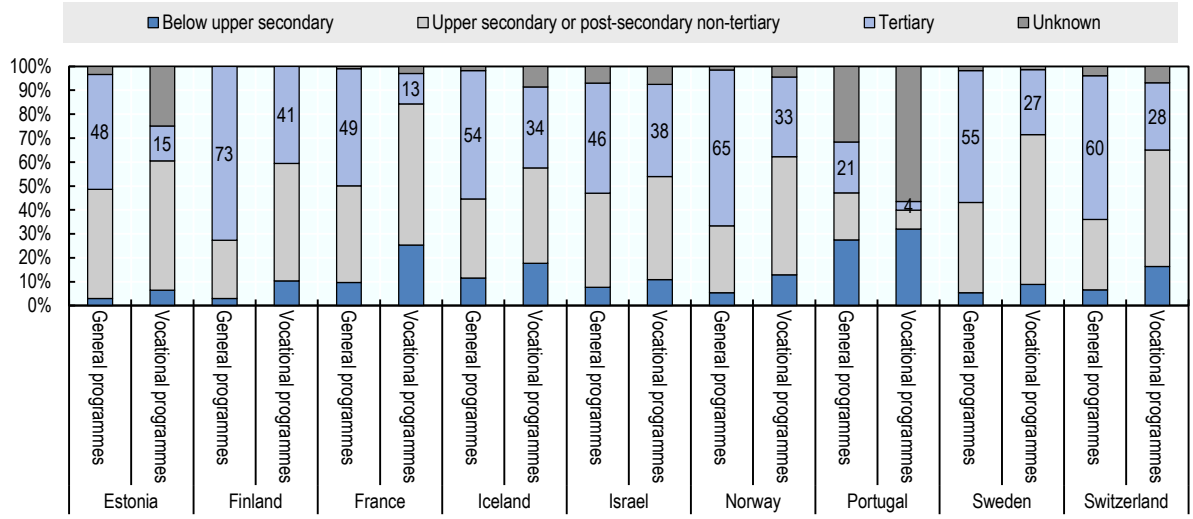
Quality career education and guidance can help students discover occupations in line with their interests and capabilities. Employer outreach programmes can alter perceptions of desirable economic sectors and contribute to young people choosing occupations with skills shortages. The NEET rate, in turn, is an important factor in explaining the lack of skill development in young adulthood. A high NEET rate is associated with an increased risk of failing to develop their skills through formal education or through learning on the job. For young people who have not yet completed their formal education, setting up educational policies and social benefits in a way to ease their return to school or university can be beneficial. For others, support through the Public Employment Services can facilitate their transition into the labour market (OECD, 2012[20]).

25. VET has been found to contribute to engaging students in the education system, with various studies finding a negative association between VET and dropout from secondary education (Vandeweyer and Verhagen, 2020[26]). It can provide an interesting alternative to general education for students who are less academically oriented or who are discouraged from learning in a traditional classroom setting. VET can therefore contribute to reducing dropout rates and to re-engaging early school leavers in the education system. Moreover, VET has been found to smoothen school-to-work transitions, with young adults with an upper-secondary VET degree having employment rates that are close to those of young adults with a tertiary degree in many countries (OECD, 2020[27]). Work-based learning plays a key role in this respect. Evidence from European countries shows that young adults with a VET qualification have higher employment rates when they had work experience during their studies (OECD, 2020[28]). For example data from the European Labour Force Survey (EU-LFS) shows that among the countries included in the analysis, adults with VET education have a 11 percentage point higher employment rate compared to adults with no work experience (OECD, 2020[28]). To support the most vulnerable young students, various countries have put in place pre-apprenticeship programmes and/or shorter apprenticeship programmes that provide additional support and coaching.

Promoting access to high quality further education and VET programmes.

26. Access to further education and VET programmes are strongly associated with socio-economic status. As a result, the composition of general and vocational programmes is associated with students' socio-economic background. Figure 2 shows that students whose parents have lower educational attainment are over-represented in vocational programmes (OECD, 2021[19]). In many countries, VET struggles with a negative image and is sometimes seen as a last resort option. However, as mentioned above, VET students generally have strong labour market outcomes, especially when they are designed and delivered in close cooperation with social partners. Strong career guidance services that raise awareness among students and their parents about VET and its labour market outcomes can contribute to changing the perception around VET. Moreover, students should be informed about the opportunities for progression in higher education and further learning after upper-secondary VET. In this respect, VET should never be a dead-end, and VET students need to have effective pathways into higher-level programmes. Across OECD countries, on average, about two-thirds of students enrolled in upper secondary VET are receiving an education that theoretically provides them with the opportunity to directly enter a higher education level, often short-cycle tertiary but also at bachelor's or equivalent level (OECD, 2020[28]). In some countries, VET students need to go through a bridging progress to prepare them for further studies. Some VET students might need additional courses or other type of support to be successful in higher education. Such bridging programmes, additional courses and support measures may contribute to better outcomes in higher education, as today completion rates in bachelor programmes are significantly lower for students with a VET background than those with a general education background in several OECD countries (OECD, 2020[28]).

Figure 2. Share of entrants to upper secondary education, by programme orientation and parents' educational attainment (2018)

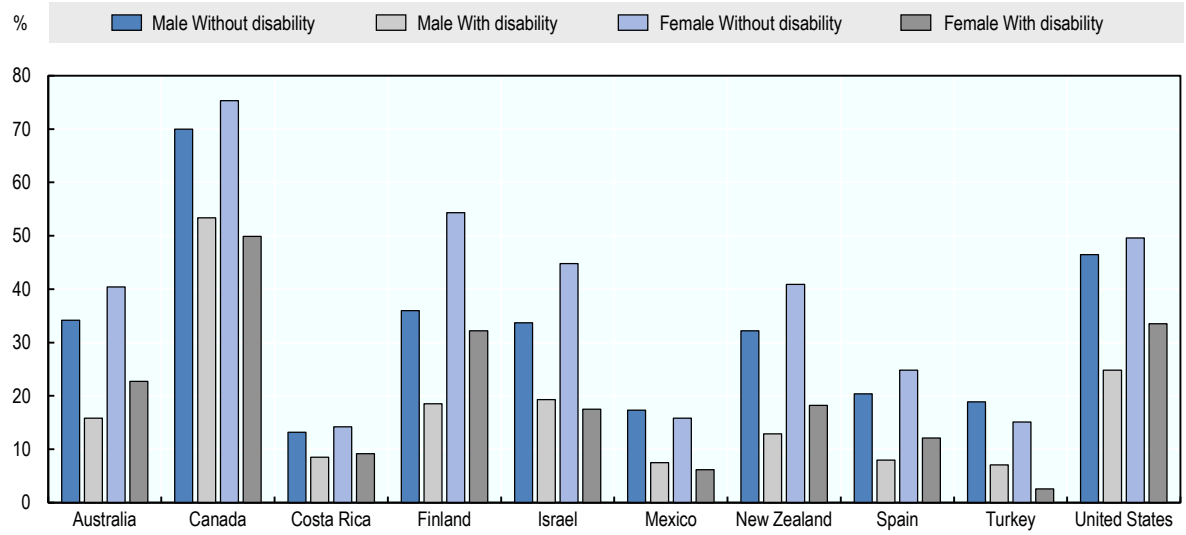


Note: The figure shows the composition of general and vocational programmes by parents' educational attainment.
Source: OECD (2020[28]), *Education at a Glance 2020: OECD Indicators*, https://doi.org/10.1787/19991487.

27. Access to further and higher education can differ for students with different dimensions of diversity, such as migrant status, gender, gender identity, socio-economic status, ethnic groups, Indigenous peoples and special education needs (Cerna et al., 2021[29]; Mezzanotte, 2022[21]; OECD, 2021[19]).

28. In addition, even if students are able to access further or higher education, not all of them may complete it. Variation in completion rates exists between different student groups. For example, evidence from the Washington Group on Disability Statistics shows (Figure 3.) that, in OECD countries, both male and female individuals with a disability have lower completion rates than their peers (Washington Group on Disability Statistics, 2018[30]).

Figure 3. University completion rates disaggregated by disability status and gender



Note: University completion: percentage of a cohort of individuals who have completed an undergraduate university degree. All countries reported data for individuals aged 25-54 except Finland, which reported the data for people aged 29-64 years. The countries have been selected based on their status as Members of the OECD, from the countries reported by the Washington Group.
Source: Washington Group on Disability Statistics (2018[30]), Selected SDG Indicators Disaggregated by Disability Status, https://www.washingtongroup-disability.com/fileadmin/uploads/wg/Documents/Disagregation-Data-Report .pdf.

29. Supporting all students throughout all levels of education, implementing early warning mechanisms, providing effective career and educational guidance, and offering scholarships to diverse students can help promote access to and completion of further education.

4 Adopting innovative approaches for inclusive lifelong learning opportunities

Key points: Adopting innovative approaches for inclusive lifelong learning opportunities

- Relevant and accessible learning offers to expand quality adult learning opportunities require innovative outreach efforts targeted to under-represented groups and the removal of those barriers that are most salient in preventing them from participating.
- The development of relevant skills among under-represented groups can be facilitated by the personalisation of learning, so that this is targeted and tailored to the needs of specific (vulnerable) lifelong learners.
- Information and guidance are crucial for all learners to be able to navigate a diverse and complex learning offer. Monitoring and evaluation mechanisms can ensure that learning programmes are of high quality.

30. Promoting equity and inclusiveness in adult education requires on one hand the development of effective approaches to remove barriers to participation and, on the other hand, tailored training that fulfils the learning needs and objectives of each individual. Therefore, achieving equity inherently entails policy action that reduces individuals' vulnerability to changes in skills needs in the labour market across several dimensions. First, there is a quantitative dimension which involves increasing participation in upskilling and retraining among, for example, disadvantaged groups. Second, there is the qualitative dimension which involves refining the type of training offered to ensure that it leads to positive benefits for individuals, companies and society. This does not only involve the general quality assurance of programmes but also the quality of the adult learning classroom.

31. Participation in adult learning opportunities is often highest among individuals who face low barriers to participation and reap high individual returns, but whose participation yields lower social returns; these are individuals who are typically highly educated, young and those from socio-economically advantaged households. In many countries and economies, therefore, the key challenge is to encourage greater participation in learning among those groups of adults that would most benefit from accessing high-quality learning opportunities, and whose participation would yield higher social returns. Financial barriers, the cost of training, as well as the relevance and quality of the training provided, appear to be the main obstacles to participation in training.

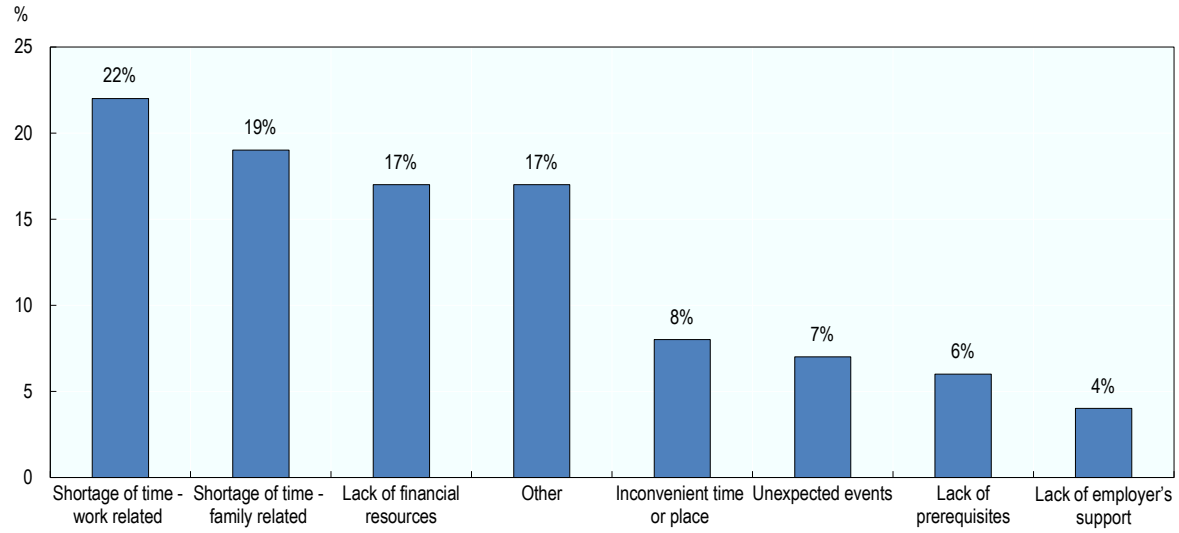
32. Adults with lower levels of education are much less likely than their more highly educated peers to participate in adult learning. For example, across OECD countries, adults with low levels of educational attainment are less likely to participate in adult learning than individuals with tertiary qualifications.

Concretely, only around 20% of adults without upper-secondary qualifications reported participating in at least one adult learning opportunity in the past year, compared to 58% of adults with a tertiary-qualification (OECD, 2021[2]).

33. In view of the scope and the speed of the changes taking place, a significant increase in the adult learning offer is needed and this can only be achieved through innovative solutions aimed at reducing the impact of barriers that prevent participation of key target groups. The barriers most frequently reported by low-skilled adults are the lack of time due to work (22%) or family (19%) reasons and the lack of financial resources (17%) (Figure 4). Most low-skilled adults earn low-wages that do not allow them to take time off to reskill or pay for childcare services while on a training course. Similarly, workers on precarious contracts do not have access to full financial support to attend training through their employers, due to their short seniority.

Figure 4. Barriers to participation in adult learning

Reasons for non-participation (% of low-skilled adults who wanted to participate but did not)



Note: Average of OECD countries participating in Survey of Adult Skills (PIAAC).
Source: OECD (2015[15]) (2012[16]) Survey of Adult Skills (PIAAC) databases, http://www.oecd.org/skills/piaac/publicdataandanalysis/.

34. Spurring effective and innovative teaching and learning methods is key to encouraging participation. Low-skilled adults whose earlier experience in education has been negative often associate traditional classroom learning with failure. They are instead more likely to be motivated by training that is more practical, problem-oriented and that is delivered in ways that make the relevance for day-to-day activities very clear. Some countries have started adopting good practices to engage low-skilled workers in training that is tailored to their initial skill level, needs and experience. The use of blended learning or story-based learning are some of the ways in which low-skilled adults can be enticed to take part in adult learning.

Developing an accessible learning offer

35. Innovative upskilling and reskilling initiatives are needed to expand quality adult learning opportunities among socio-economic groups that are especially at risk of not participating and of groups that are particularly vulnerable to rapid changes in labour markets driven by technological innovations and globalisation.

Innovative outreach efforts targeting under-represented groups

36. Many adults who do not participate in training report that there was no training they wished to participate in. Across OECD countries, these so called "disengaged" adults compose one in two 25 to 65-year-old workers (50%). These adults could be facing difficulties identifying training that is relevant to their needs or may face such high barriers that they perceive training as unachievable for them. Mostly, however, they could be adults who do not see the need for training and are simply not interested in participating. This is the case, for example, for low-qualified adults who are currently employed, receive modest but stable incomes and do not fully grasp the risks and changes that technological change could bring about for their jobs.

37. For this group of adults who are disengaged from learning, outreach is essential. Awareness campaigns exist in many places, but there is little evidence that they are successful. Recent evaluations show that campaigns generally raise awareness of the issue of low literacy in the general population but are less likely to be very successful in engaging the target group. Active and direct outreach to adults with low skills is preferable for engaging adults in learning. Reaching out to adults in their specific contexts and using existing channels of engagement lowers the barrier to connect with the topic of adult learning. This includes:

- Actively reaching-out to adults in the places they frequent, including workplaces, community institutions and public spaces.
- Identifying actors that have established links with adults with low skills; and
- Building the capacity of these actors to encourage adults with low skills to take-up learning opportunities.

38. The workplace is one of the key places where individuals identify their training needs and take part in training opportunities. Yet those who lack basic skills might be hesitant or unable to communicate their training needs to employers. There is evidence that trade unions can provide a bridging function between employers and employees with low skills (Stuart et al., 2016[31]; Parker, 2007[32]). Kindergartens and schools are places that low-skilled adults with children regularly visit or are otherwise in contact with. Family skill programmes approach adults in their role as parents, take place in the educational institutions of their children and link learning to their lived experience. Other community institutions can also provide links between adults with low skills and learning opportunities, reaching out in ways and places that are familiar to them. For example, some community services use Whatsapp while others engage with adults in locations where they usually spend time, e.g. at events, parks and public squares.

Remove barriers to participation

39. Many adults do not engage in education and training as different barriers prevent them from participating. Studies show that participation is often highest among individuals who face low barriers to participation and reap high individual returns. However, the key challenge is to reach those groups that would most benefit from accessing high-quality learning opportunities, and whose participation would yield higher social returns. There are many different factors that hinder adults from participating, such as financial and time constraints (related to work or family obligations), insufficient prerequisites for

participation and lack of interest in the training on offer. For example, gender differences in family obligations make participation in opportunities that clash with caring responsibilities especially inaccessible for many women. Up to 28% of inactive but motivated women mention family obligations as a barrier to participation in training, compared to only 8% of men. This gap is even more pronounced for the case of parents with dependent children (OECD, 2021[2]). To address these barriers, different policy options exist for countries to ensure that vulnerable groups and non-standard workers have access to adequate adult learning opportunities (OECD, 2019[33]). For example, policies could remove constraints by providing support to individual caring for elderly parents or dependent children.

40. Targeted financial incentives can make adult learning systems more equitable and prevent under-investment. They include wage and training subsidies, tax incentives, loans at preferential rates and individual learning account schemes (OECD, 2017[34]). In their design, it is important that they cover all costs related to training participation, including direct course costs, indirect costs and opportunity costs, i.e. foregone earnings or benefits.

41. Individual learning schemes have a number of particularly attractive features. They boost individual choice and responsibility with regards to training and increase competition among training providers and, thus, can positively influence the quality and relevance of training provision. In addition, their ability to make training rights "portable" from one job or employment status to another is particularly attractive in a world of work where careers are becoming increasingly fragmented (OECD, 2019[35]). To make these schemes work better for low-skilled adults, governments are developing access to career guidance and advice, investing significantly in outreach activities and simplifying access.

42. To address lack of time as a barrier to participation, modular learning opportunities, integrated in the adult learning and qualification system, allow adults to attend shorter training courses that build up to a qualification over time.

43. Statutory education and training leave is another key policy to ensure that a lack of time is not a barrier to adult learning. It is typically regulated in national legislation or set out in collective agreements; and it may be universal or provided to certain workers, e.g. those with a minimum tenure in the company. In order to ensure its uptake, many countries provide compensation for learners and employers alongside statutory leave. During their training leave, workers often receive full pay up to a capped amount, while employers can be compensated for the wages paid during training leave. In some countries job rotation schemes exist, which provide replacement for the employee during their training.

Fostering relevance and quality assurance of skills development

44. The adult learning landscape is shaped by a large variety of public and private training providers offering numerous different learning opportunities of varying quality. Therefore, quality assurance and the monitoring of education and training programmes is essential to ensure that adult education and training is associated with positive gains for individuals, firms and societies. Further, individuals need to be able to find the training and education programmes that match their needs best. Personalisation of learning, information and guidance are a means for adults to navigate through this jungle of offers.

Personalisation of learning

45. Lifelong learning includes young and old learners with different experiences, motivations and attitudes, which determine their learning objectives. However, learners are inherently heterogeneous, which ultimately requires the provision of diversity in terms of content and provision of learning. Providing personalised information and guidance support the provision of training opportunities that are targeted and tailored to the needs of specific (vulnerable) lifelong learners.

46. Adults learn best when learning is put into context, for example their workplace environment, and when it is practical and problem-oriented. Yet today, adult learning continues to take place primarily in the classroom. It often mimics the school-based teaching and learning styles. This approach can be particularly problematic for adults with low skills, as many of them have experienced failure in education and may find it difficult to return to a classroom setting. Successful adult learning provision takes into account how adults learn. This means that it should be hands-on, problem-oriented and closely linked to the context of the learner, most notably his or her workplace. When it comes to the mode of learning, there is not one way that works for every person and adults should have access to a range of different learning modes.

47. Until recently, personalised training options, relevant to individual needs were hard to deliver on a large scale and were relatively rare. AI technologies are changing that by allowing the development of training that is adapted to specific reskilling needs, at a significantly smaller cost than private tutoring. The advantages are multiple. Personalisation can be translated into time savings for some participants while also helping vulnerable groups that need more time to learn. AI-driven personalisation is scalable at little cost as it does not require additional classrooms, teachers or tailored curricula. This scalability has the potential to benefit employers, training providers and policy makers (Verhagen, 2021[36]). Moreover, technology can also help people find training programmes that are most relevant to their needs quickly and easily, which, in turn may increase individuals' motivation to participate in training. Tailored training recommendations, as well as automated assessments that are tailored to the learners' entry level and progress may also increase training relevance and reduce training drop-outs.

Information and guidance

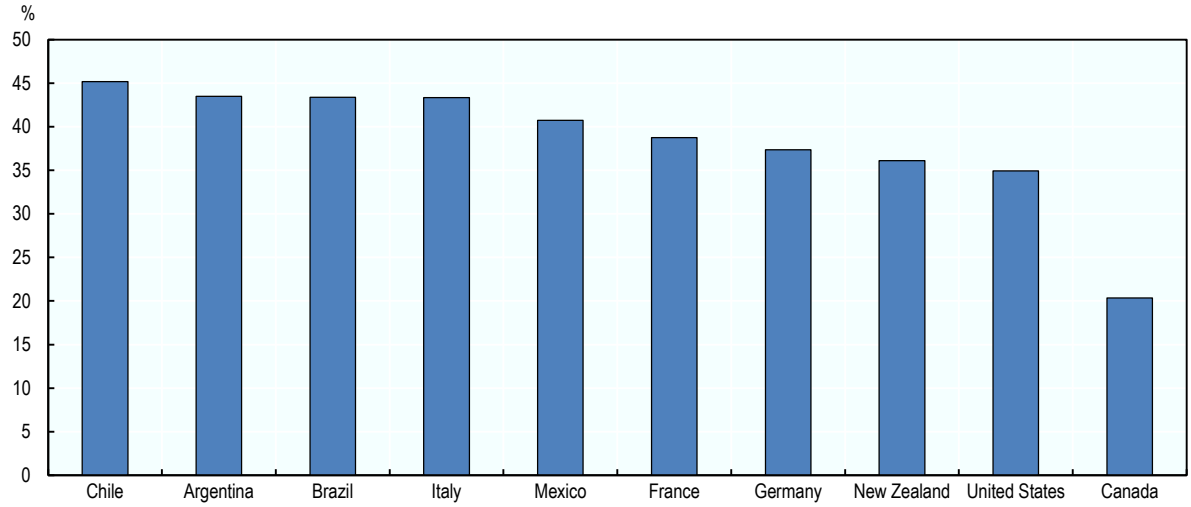
48. In most OECD countries, adults have the choice between numerous different learning opportunities. These can range from programmes to acquire formal basic and general education, through certified short courses to gain specific skills to non-formal learning opportunities in the workplace. Additionally, these learning opportunities are offered by numerous providers and many different approaches to teaching and learning. For this reason, it is a challenge for any adult to navigate the great diversity of offers (OECD, 2021[37]).

49. To identify the learning opportunity that fits their needs best and is most appropriate for them, adults need support in identifying their skills needs. Additionally, they need advice on how to tackle any barriers to participation, including limited finances, lack of time due to family commitments and distance to the training location. Targeted career information helps individuals to understand their skill set and developmental needs and, by extension, to navigate available learning opportunities. Effective career guidance begins from a young age and continues during adulthood. For example, PISA data show a positive relationship between teenage participation in career development activities and improved indications that young people are being better placed to transition well into the labour market (Mann, Denis and Percy, 2020[38]). During adulthood, career guidance actively supports in exploring potential futures in work, broadening and deepening understanding of potential careers whilst still in education, and guides adults through the learning opportunities offered through adult learning systems. It also provides opportunities for first-hand experiences of the labour market and encourages and enables a culture of personal reflection and investigation (Kis and Windisch, 2018[3]).

50. Despite the importance of career guidance to promote adult learning, few adults access it every year and strong variation exists across countries. In Chile, for example, around 45% of adults have spoken with a career guidance advisor, while only around 20% did so in Canada (Figure 5). However, differences between countries could for example reflect variations in career guidance providers. Additionally, differences in career guidance usage exist among different socio-economic groups. The largest gaps are found between prime-age individuals (25-54) and older people (age 55+) (22 percentage points), followed by adults living in cities and in rural areas (14 percentage points), high- and low-educated adults (11 percentage points) and men and women (8 percentage points) (OECD, 2021[37]).

51. The differences between groups reflect a mix of attitudes towards career guidance, awareness of available services, and how career guidance initiatives are targeted. Most adults who do not use career guidance services report that they do not feel they need to (57%). Older adults and less-educated adults are over-represented in this group. Another 20% of non-users report that they were not aware that career guidance services existed. A third sizeable barrier is the lack of time due to work or personal reasons (11%). Providers of career guidance range from the public employment services, dedicated public services, private services and social partners. The respective roles vary across countries and institutional setups (OECD, 2021[39]).

Figure 5. Share of adults who have spoken with a career guidance advisor over the past five years



Note: The figure shows the average number of adults who have spoken to a career guidance advisor in the past five years.
Source: OECD (2021[37]), Career Guidance for Adults in a Changing World of Work, https://doi.org/10.1787/9a94bfad-en.

52. Addressing these access barriers and reaching out to disadvantaged adults requires an expansion of career guidance services, delivered through a range of communication channels by qualified counsellors, and built on timely and granular labour market information. For adults with low-skills, advice and guidance are most successful when they are holistic, i.e. provide support for navigating education and training offers and other relevant services at the same time – for example, to address social, housing and health barriers. They further require skilled caseworkers, who have sufficient time and resources, to provide tailored assistance to the individual adult.

53. The COVID-19 pandemic has further underscored the importance of career guidance services as many adults have lost their jobs and require assistance identifying suitable career options in a labour market that has changed profoundly. The pandemic has had an impact on both the supply and demand for skills. On the supply side, low-skilled adults have been disproportionately represented among those who lost their jobs. Many will need to upskill or retrain to find work. On the demand side, the crisis is likely to accelerate the adoption of digital technologies and automation, increasing demand for high-level skills. Career guidance can facilitate re-employment by identifying new job opportunities and proposing relevant training.

Quality assurance, measuring and evaluating programmes

54. The learning landscape is shaped by a large variety of public and private training providers. Generally, compared to formal education – which is supervised by national or sub-national governments – non-formal learning is typically less regulated, and its quality remains highly variable, not only across countries but across providers within a country. At the same time, in all OECD countries, non-formal training plays a leading role for upskilling adults, in particular those with low levels of skills, who are usually reluctant to enter a formal education pathway. To ensure that education and training are associated with positive gains for individuals, firms and societies, the training provision should be of high quality. In the context of tight public and private budgets following the COVID-19 emergency, guaranteeing quality provision of training will become even more important to ensure that investments in training provide value for money.

55. Information on quality of training programmes and providers is essential for individuals and employers to make informed decisions on adult learning (OECD, 2019[13]). As some training activities do not always lead the desired outcome or may not be perceived as useful by participants, monitoring and evaluation of training programs is essential. Additionally, quality assurance is also seen as a key tool to create trust in the adult training system, especially in non-formal training and especially among adults with low qualifications. The granting of a quality assurance label can also act as a marker of prestige and credibility for providers.

56. However, the concept of quality is inherently complex. Quality and quality assurance are multifaceted and complex constructs, with most literature resisting to put forward single definitions. Moreover, quality is also a relative concept, as it can mean different things to different involved parties (e.g. learners, teachers and trainers, employers, government, funding agencies, auditors). In the context of learning and skills development, quality assurance can be defined as a set of policies and practices needed to ensure minimum quality standards in adult learning, which should be maintained and improved over time (OECD, 2021[40]). Therefore, a conceptualisation of quality assurance on a temporal dimension is introduced. More specifically, quality assurance encompasses: i) recognition and certification of adult education providers; and ii) monitoring of adult education providers and of adults' outcomes.

57. The process of recognition and certification of providers is a tool extensively used in the process of quality assurance in VET or adult education for examining the quality of an institution or a person that aims to provide training. Recognising and certifying adult education and training providers involves the assessment of an educational institution or a training programme by a certification body that subsequently grants to the provider an official recognition to operate. In this process, the certification body certifies that the institution or programme meets minimum pre-established quality criteria and standards. The recognition and certification process could involve several steps: (i) definition of criteria/standards required, including an assessment of human talent; (ii) institutional self-evaluation against the criteria defined and application; (iii) external assessment that can involve on-site visits, expert consultations and validation of self-reported information; (iv) examination of the evidence and a development of report with recommendations; and (v) follow-up procedures.

58. Although monitoring of adult education and training providers is an important element of quality assurance, individuals, employers and institutions can further benefit from more in-depth information on the quality of the education and training offering provided by monitoring adults' outcomes (OECD, 2019[41]). However, monitoring the outcomes of adult learning is difficult. First of all, it is difficult to track adults over time after the completion of the training. Second, the data sources with which to evaluate the outcomes (e.g. employer-employee databases, social security registries) are typically difficult to access due to privacy concerns.

59. However, there are several indicators that can be used to monitor and assess adult learning outcomes. The monitoring of completion rates is one of the most common indicators and is widely used

(OECD, 2021[40]). Learner dropout rates are also common indicators, which can signal students' dissatisfaction and demotivation, or the low quality or relevance of training. In addition to completion and dropout rates, countries such as the United Kingdom, make use of additional indicators, for instance, employment status (employee, worker, self-employed), or progression towards achieving the learning aims of the programme.

60. With respect to measuring economic outcomes, and especially those linked to labour market inclusion, different approaches have been implemented internationally. The most straightforward approach is to survey learners at the time of their training completion. However, this and other alternative approaches, such as follow-up surveys, have several limitations. For example, often the employment status is unknown at the time of, or shortly after training completion, In addition, response rates to follow-up surveys can be low, and tracking participants over time may prove particularly demanding (OECD, 2019[41]).

61. It is important to underline that beyond some of the technical challenges detailed above, there is a governance aspect to each of the three quality assurance processes. The governance of quality assurance in adult education and training is characterised by a considerable level of complexity, as shown by the plethora of actors involved in the functioning of the quality assurance system. This diversity may hamper effective coordination between and with ministries, and other governmental and non-governmental stakeholders, ultimately diminishing the efficiency, effectiveness and rigour of the quality assurance processes.

Teachers skills

62. Teachers play an important role in the skill development of learners. Evidence based on PISA data shows that among the factors shaping the formation of lifelong learning attitudes, teachers and the practices they adopt appear particularly effective (OECD, 2021[2]). Most adult learning, especially for the more vulnerable groups, occurs in informal or non-formal settings where there is no clear focus on teaching skills, since most of the teaching is done by trained workers and not teachers.

63. The example of vocational education and training (VET) highlights the importance of teachers having dual competences (OECD, 2021[42]). On the one hand, they need to have theoretical and practical knowledge of the subjects they teach and continuously update their expertise in response to changes in technology and working practices. They are often also required to have relevant work experience. On the other hand, they need to have pedagogical knowledge, but often have limited pedagogical preparation. To effectively prepare and develop VET teachers, well-designed initial teacher education and training and professional development opportunities are needed. However, according to 2018 Data from the Teaching and Learning International Survey (TALIS), initial teacher education and training (ITET) for VET teachers appears to be weaker in developing the required pedagogical skills than training for general education teachers. A significant proportion of VET teachers do not have the opportunity to develop the full mix of skills they need through ITET programmes. Moreover, a significant share of VET teachers report barriers to participation in professional development opportunities, mostly related to a lack of support or incentives, or conflicting work schedules. A significant share of teachers, especially older ones, do not feel comfortable using digital technology in their teaching. According to TALIS 2018 data, 30-60% of upper secondary VET teachers in the six OECD countries and regions with available data reported a moderate or high need for training in ICT skills for teaching. More efforts are needed to develop flexible training opportunities for VET teachers that allow them to develop pedagogical skills, but also industry skills – for example organised as short internships in industry.

Box 2. Potential discussion questions for participants during the Skills Summit Session 1: Adopting innovative approaches for inclusive lifelong learning opportunities

- What is your country doing to develop high quality education and training provision that promotes the successful integration of vulnerable youth and adults in society?
- What is your country doing to ensure that financial and non-financial incentives raise participation in lifelong learning for underrepresented groups?
- How is your country improving information and guidance on lifelong learning to be better target and tailor them to vulnerable groups?
- What is your country doing to make the education and training provision personalised and tailored to the needs/skills gaps of vulnerable groups?

5 Ensuring that the education system equips all people with the skills needed for success in the future

Key points: Ensuring that the education system equips all people with the skills needed for success in the future

- The transition to digital and green economies demands new skills in the labour markets and societies.
- Addressing and identifying skills gaps requires high-quality information on skills supply and demand, access to modular learning opportunities, and the validation and certification of skills.

64. The transition to digital and green economies is changing the skills people need to thrive in modern societies. As technology spreads through education systems, businesses and jobs, younger generations need new sets of skills and the older ones need to upskill and reskill to thrive in a digital and interconnected global economy. At the same time, new skills are demanded in the labour market and societies to adapt to climate change, and to limit global warming, loss of biodiversity and pollution. In addition, environmental conditions shape individuals' opportunities for skills development and how efficiently they put their skills to use. This scenario will require strong and coordinated skills policies to allow individuals to develop a combination of foundational, cognitive, social and emotional skills in order to participate fully and effectively in an increasingly digital and green economy.

65. Effective skills policies can mitigate the negative effects of worsening environmental conditions on human capital accumulation, can create conditions to make politically and economically viable policy reforms promoting a green transition, can ensure that new skills demand is met, and can limit the worst effects of labour market displacements. To reach carbon net neutrality by mid-century, OECD economies will have to undergo the deepest transformation since the Industrial Revolution, within just a few decades. The labour market impact of this transition will likely be highly unequal: many workers will benefit from new job opportunities and potential earnings growth in expanding industries and businesses; others, who work in high-carbon industries, will need to reskill, change jobs and occupation and will struggle to have access to the same opportunities. The geographic impact of this transformation is also likely to be highly uneven, with some regions losing large employers, and even whole industries, and others benefiting from the creation of attractive new green jobs. Upskilling and reskilling will be crucial to ensure that the green transition is not delayed by skills shortages in key areas, but also to ensure that the green transition is a just transition and that individuals remain active in the labour market in good quality jobs.

66. Human capital plays a crucial role in enabling the digital transformation of firms and industries, which in turn shapes skills and tasks to be performed on the job. The OECD's Going Digital project identifies jobs and skills as one of the seven policy dimensions that allow governments to shape digital

transformation and improve lives. Preparing workers for new jobs and helping them to adapt to changes in existing ones requires upskilling and reskilling to boost cognitive skills (literacy, numeracy and problem solving) needed to thrive in a digital and interconnected global economy. There is a growing consensus that transversal skills, such as thinking critically and creatively, solving problems, making informed decisions while using technology and behaving collaboratively, are critical (OECD, 2019[43]).

67. AI-related jobs, which are by their very nature part of the digital transition, are not only growing in number but are also becoming more skill intensive over time with Machine Learning and Python forming the foundation of AI workers' skill profiles (Squicciarini and Nachtigall, 2021[44]). Other important specialist skills include data mining, cluster analysis, natural language processing and robotics. However, in order to thrive in the digital era and work with AI successfully, it is not sufficient to be endowed with only technical skills. Instead, there is growing recognition of the importance of socio-emotional skills, especially related to communication, problem solving, creativity and teamwork, which complement the broader skill bundles related to programming, management of big data and data analysis (Samek, Squicciarini and Cammeraat, 2021[7]). Combinations of skills may be more valuable than the sum of the parts.

68. Participation in the digital economy remains highly unequal across genders. Women, who remain subject to strong stereotypes about their skills in mathematics and science, remain less likely to pursue fields of study and employment that allow them to perform well in the digital world. Addressing the digital gender divide requires raising awareness and tackling gender stereotypes; but also enabling enhanced, safer and more affordable access to digital tools and fostering strong co-operation across stakeholders to remove barriers to girl's and women's full participation in the digital world (OECD, 2018[45]).

69. The digital transformation is occurring alongside a transition to net-zero emissions – a "twin transition" that has been given further impetus by the COVID-19 pandemic. Digital technologies can contribute to reducing the cost of getting to net-zero, including by directly supporting emissions reduction technologies and practices throughout the supply chains, and by indirect means such as underpinning new business models and changing people's behaviours. This further highlights the importance of equipping people with the skills to contribute to and thrive in the digital age, as they could pay double dividends in helping tackle the climate challenge.

Identifying and addressing skills gaps in a dynamic economy

70. A dynamic economy requires the timely identification of skills needs, an education and training system that responds effectively to changing skills needs and national qualifications systems that contribute towards the development and utilisation of skills in the labour market.

71. Rapidly evolving skill needs raise challenges for lifelong learning policies and are contributing to skill mismatch and shortages. Some degree of misalignment between the supply and demand for skills is inevitable, particularly in the short run and in the context of dynamic transformations. However, the costs of persistent mismatch and shortages are substantial for individuals, firms and countries.

Assessing skills needs and acting upon them

72. High-quality information on skills supply and demand is essential in the context of changing skill needs brought about by megatrends such as technological change, demographic shifts and globalisation. Countries take different approaches to developing qualitative and quantitative information on skill needs. Quantitative analysis based on official statistics or big data can feed into complex statistical models that assess the balance between skills supply and demand. These are often complemented with qualitative insights, such as employer surveys and foresight scenarios.

73. Successful skill needs anticipation systems share a number of common features. They are clear about their principal objectives, whether these are to support policy formulation and contribute to strategic

planning, or to provide data for better-informed career choices, or both. They are user oriented, stakeholder owned and well-coordinated (OECD, 2016[46]; OECD and ILO, 2018[47]). Stakeholder engagement, notably through social dialogue, is key to ensuring that skills assessment and anticipation exercises provide information in a format and at a level that is consistent with policy objectives and which can inform and motivate policy action.

74. The real challenge is turning qualitative and quantitative information on skill needs into effective policy action. Skill challenges are relevant to several policy domains, thus information on skill needs has the potential to inform various policy dimensions and contribute to developing a systematic and comprehensive policy response to imbalances. In employment policy, skill needs information is commonly used to update occupational standards and to design apprenticeships, re-training courses and on-the-job training programmes. In education policy, it is used to inform curriculum development and set the number of student places at all levels of education and fields of study, including in technical and vocational education and training (TVET) programmes. Skill needs information also feeds into career guidance to inform students' choice. In migration policy, this information is also used to update shortage lists and to identify fast track candidates for migration with skills that are in high demand.

75. The relevance to such a broad range of stakeholders calls for the results of skills assessment and anticipation exercises to be widely disseminated in order to maximise their impact on policy making. The challenge for those who lead the skills assessment and anticipation exercises is to make the results available in a useful and accessible form.

76. Engagement of all relevant parties and mechanisms that help reach consensus are instrumental to ensuring that the required policy responses to skills imbalances are put in place. A variety of mechanisms have proven successful in helping to reach consensus, ranging from informal and ad-hoc consultations, to the setting up of independent bodies such as national skills advisory groups, to formal mandates to foster dialogue among stakeholders. Sectoral bodies provide the most favourable opportunities for both employer and trade union involvement in TVET and skills policy formulation and implementation.

Recognising and validating skills to facilitate transitions

77. To reap the benefits of learning and training, workers need to be able to credibly signal their skills, knowledge and potential in the labour market. Many adults, particularly those with low-qualifications, possess a range of valuable skills that are not certified. These skills have been acquired through years of work-experience and are equivalent to those associated with formal qualifications.

78. This requires that skills and knowledge acquired from different forms of learning are validated and accredited. Lifelong learning occurs in different settings including formal, non-formal and informal learning. Access to formal training programs may require knowledge that is acquired through non-formal or informal learning processes, and individuals may not have proof that they meet the eligibility criteria. Systems for validating and certifying existing skills are needed to help individuals signal that they meet eligibility requirements to access formal learning and/or to demonstrate to potential employers that they have the skills they require (OECD, 2019[13]).

79. Making these skills visible through validation and certification can benefit individuals, employers and the economy. For the individual, it recognises their learning effort, is motivational and can be a stepping-stone to further (formal) learning. Employers benefit through higher productivity when being able to better match employee's skillsets and jobs. Similarly, labour markets benefit as skill imbalances are reduced, lifelong learning is encouraged and equity increased (Kis and Windisch, 2018[3]). For these positive effects to materialise, it is important that employers and society at large recognise these certificates in practice.

80. There is no one approach to the validation and certification of existing skills and the aims processes and methods of recognition procedures vary widely across contexts. What is common to all procedures is that they can be difficult to navigate. Putting in place advice and guidance services that support individuals prior, during and after the recognition procedures are crucial to ensuring that these procedures are effective (Meghnagi and Tuccio, Forthcoming[48]).

Modular learning to address specific skill gaps

81. In contrast to traditional learning programmes, which need to be completed in full to gain a qualification, modular provision divides the programme into self-contained learning modules. Each module has its own distinct learning outcomes, which are certified as credits or part-qualifications once completed.

82. Modular training programmes can be particularly useful in the context of skill recognition procedures (see above). They allow adults to focus on learning those skills they are lacking towards gaining a full formal qualification. Together with the recognition of skills, they can be a stepping-stone towards continued learning for low-skilled adults.

83. In the last decades, adults have increasingly had access to modular learning opportunities. There are different approaches to modularising adult learning provision, for example concerning the number of learning hours that are associated with each module. What is clear is that modular learning opportunities work best when embedded in an already well-integrated adult learning system (OECD, 2003[49]).

Box 3. Potential discussion questions for participants at the Skills Summit Session 2: Ensuring that education systems equip all people with the skills needed for success in the future

- What are the skills (e.g. foundational, digital and social and emotional skills) people need to fully contribute to and participate in digital and green economies?
- What is your country doing to identify changing skills needs for different groups in rapidly changing societies?
- What is your country doing to make education and training responsive to changing skills needs?
- How can national qualifications systems (including micro-credentials) in your country help to improve the development and utilisation of skills in the labour market?

6 Conclusion

84. Skills policy has a central role to play in reducing high and growing economic and social inequalities, particularly for young people and individuals from socio-economically disadvantaged backgrounds. While technological change and the transition to a green economy are creating opportunities for many, they are also creating challenges for others. Many of those who are already falling behind, are also those who are most likely to be negatively affected by rapidly changing labour markets and societies that have been brought about by megatrends and unexpected shocks.

85. The COVID-19 crisis has starkly exposed and exacerbated existing inequalities in countries. Additionally, the recovery from the global pandemic remains incomplete and has become increasingly imbalanced. Workers in contact-intensive sectors, often from lower-income households, have also been particularly hard-hit, contributing to the incomplete recovery in labour markets. Increasing signs of labour shortages have also appeared in most major economies in the recovery, with unfilled vacancies rising sharply. In part, this may reflect changes in the skill mix required in the context of the pandemic or changes in matching efficiency. However, labour market conditions are projected to normalise progressively over the next two years in the OECD economies. The recovery in labour demand should facilitate a continued improvement in employment rates, which are projected to be broadly back to pre-pandemic levels by the end of 2022, and further reduce unemployment.

86. Lifelong learning will be key to achieving the aim of developing adaptable and resilient people. Ensuring equity in education opportunities and skill development through fair and inclusive skills systems is essential to ensure that lifelong learning processes do not exacerbate existing inequalities. Education systems need to be re-engineered to support lifelong learning, with high-quality education and training being provided at all life stages, supported by coherent, permeable and attractive pathways for all.

87. In this context, the Skills Summit 2022 provides Ministers with a unique opportunity to discuss what countries can do to develop skills systems to support equitable and sustainable growth. In particular, discussion at the Summit could focus on how to ensure that everyone in society – especially the most vulnerable youth and adults – can access effective upskilling and reskilling opportunities.

88. Given that existing policy has not been able to adequately address high and/or rising inequality in the labour market, going forward countries will need to redouble their efforts to ensure that their skills systems provide inclusive lifelong learning opportunities and reduce broader social inequalities (topic of Session 1). These could include the development of a relevant and accessible learning offer that promotes the successful integration of vulnerable youth and adults in society, including through innovative outreach efforts and targeted financial and non-financial incentives to raise their participation in lifelong learning. Moreover, new innovative approaches could be introduced to foster relevant and high quality skills development opportunities by better targeting and tailoring skills and learning information and guidance to the most vulnerable groups, as well as by making the education and training provision more personalised and tailored to the needs/skills gaps of different groups.

89. It also will be vital that skills systems equip all people with the skills needed for success in the future (topic of Session 2). To address the changing skills needs and resulting skills gaps in rapidly changing societies, countries will need to design responsive skills systems. In addition to identifying the

changing skills needs for different groups, countries will need to act upon them, including by strengthening modular learning and developing relevant national qualifications systems (including micro-credentials).

90. At a time when countries are investing large resources to ensure a prompt and sustainable recovery from COVID-19 world, there is an opportunity to use this momentum to make lifelong learning a reality once and for all. Increased awareness of and concern for high and rising inequality as well as reduced social cohesion and economic competitiveness must be a catalyst to gain momentum to reform skills systems to support more inclusive and sustainable growth. The Skills Summit 2022 provides ministers with a critical opportunity to engage in frank and open discussions on how to deliver reforms that will promote equity and sustainability.

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