SKILLS FOR JOBS 2022

Key Insights

OECD
BETTER POLICIES FOR BETTER LIVES

Contents

Introduction

Improving the alignment between the skills required by employers and those of workers is increasingly challenging. Not only are digitalisation, globalisation and rapid population ageing continuing to affect the demand and supply of skills, the COVID-19 pandemic has exacerbated pre-existing skills shortages, particularly in the health sector. Additionally, many countries are implementing measures to support the green transition, which is changing skill demands. Without the right policies in place, countries risk facing a growing misalignment between skill supply and demand in the labour market.

Skills misalignment can emerge in the form of 'skill shortages', when employers are unable to recruit staff with the necessary set of skills at the going rate of pay and working conditions. Skill surpluses arise in the opposite case, when the supply exceeds the demand for a given skill. Qualification mismatches (mismatches for short) occur when someone's job does not match their qualification in terms of field or level[1]. Overall, skill imbalances (shortages, surpluses and mismatches) can have several negative effects on the aggregate economy as well as on individual firms and workers. For individuals, skill and qualification mismatches can negatively affect job satisfaction and wages (Quintini, 2011; Wolbers, 2003; Béduwé and Giret, 2011; Montt, 2015). At the firm level, shortages and mismatches have been associated with lower productivity, increased job turnover, increased costs of hiring and hindered adoption of new technologies (OECD, 2012). At the macroeconomic level, mismatches can increase

structural unemployment, reduce economic output and GDP growth via misallocation of human capital, while skill shortages have equally adverse effects on labour productivity (Adalet McGowan and Andrews, 2015; OECD, 2012; Sattinger, 1993).Information on skill needs is key for effective policies that align people's skills to the needs of the labour market. **The OECD Skills for Jobs database** is an analytical tool designed for policymakers, practitioners and the general public to understand where gaps are emerging between skill supply and demand. Since its first release, the database has expanded its country coverage significantly. The OECD Skills for Jobs database 2022 covers 43 OECD countries and partner economies across the world. It also leverages a new methodology for calculating the importance of skills in occupations, which relies on information retrieved from online job postings (OECD, 2022). This allows the skill-occupation mapping to vary over time, which should capture changing skill requirements within occupations, due to, for instance, an increased use of digital technologies at work. Furthermore, the mapping is now based on information from six English-speaking countries (Australia, Canada, New Zealand, Singapore, the United Kingdom and the United States), as opposed to the previous vintage, that relied on U.S. information only (O*NET). Finally, the new mapping now also includes digital skills.

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1 It should be noted that a qualification mismatch does not always imply a skills mismatch.

Box 1. How are skill imbalances calculated in the OECD Skills for Jobs database 2022?

The OECD Skills for Jobs database defines skills as either in shortage (hard-to-find) or as in surplus (easy-to-find). The indicator measuring skills shortages and surpluses is constructed following a two-step approach.

Step 1. An "occupational imbalance indicator" is calculated for 42 occupation groups at the 2-digit ISCO-08 level. This calculation is based on five sub-components by occupation: i) median wage growth, ii) employment growth, iii) average weekly hours worked growth, iv) change in unemployment rate, v) change in under-qualification rate. For every country, occupational group and sub-component, long-run trends are compared to the economy-wide trend. This comparison sheds light on whether the specific occupational group is outperforming/underperforming the rest. Since no single sub-component perfectly signals which occupations are in shortage or surplus, a composite indicator of occupational imbalances is created. See OECD (2017) for more information.

Step 2. The composite occupational imbalance indicator is linked to a mapping of skill requirements in occupations. In the OECD Skills for Jobs database 2022, this skill-occupation mapping is created using information on skill keywords retrieved from online job postings for the years 2012-2019, for the combined set of postings in six English speaking countries. For more information, see OECD (2022). Using a semi-supervised Machine Learning algorithm, more than 17 000 unique skill keywords are classified into 56 detailed skill categories, themselves grouped into 14 broad categories (Lassébie et al., 2021). By aggregating the data by broad and detailed skill category, using number of employed by occupation as a weight, skill imbalance indicators are created for each country. For instance, occupational shortages of health professionals will contribute intensively to a country's shortage of medical knowledge, because Health professionals is a relatively large occupational group, and because vacancies for health professionals mention Medicine knowledge relatively often. Conversely, large surplus-occupations that require physical skills will contribute mostly to surpluses of physical skills.

For ease of interpretation, the absolute values of skill imbalances shown in this note are transformed into five categories, ranging from 'large surpluses' to 'large shortages', using a so-called 'quantile method' (Wieling, de Grip and Willems, 1990). The categorisation is based on the distribution of the OECD average of skill imbalances at the broad or detailed level, respectively, across years. Within this distribution, the bottom 10% of the OECD average values across skills are 'large surpluses' and the top 10% are 'large shortages'. When shortages or surpluses are so small that they could be considered negligible (i.e., values in the middle 40% of the distribution of the OECD average, or the 30th to the 70th percentile) the skill is considered 'in balance'. These cut-off values are then applied to all countries. Although this categorisation implies a loss of detail, it makes it easier to compare skill imbalances across skills, countries and years.

Current and changing skill imbalances

Some degree of skill imbalance is inevitable, since trends such as technological developments continuously and rapidly change skill demand, and supply adjusts with some lag because it requires (re)training and upskilling workers. However, persistent imbalances may be the symptom of labour markets functioning sub-optimally. Based on the latest data, this is particularly the case for the broad skill categories *medical knowledge, training and education skills, business processes and resource management* (see Figure 1). *Medical knowledge and training and education* skills have been in large and increasing shortages for the past eight years, pointing towards a structural problem of under-supply. The persistent shortage of medical knowledge is particularly worrying in light of the COVID-19 pandemic, as it left countries even more unprepared to meet the sudden increase in the demand for health services.

At the other end of the spectrum of broad skill imbalances, *business processes and resource management* are increasingly in surplus, and *physical skills* and *production* and t*echnology knowledge* are persistently in surplus. This implies that more people have these skills than there are jobs that require them. Although these skills are therefore relatively easy to find on the labour market and jobs that require these skills may be easier to fill, it also implies that people who have these skills may need to strengthen other skills in order to remain employable or to improve their wages.

Since technological developments increasingly require workers to be able to operate and work alongside digital innovations and to cope with unpredictable and non-codifiable tasks, high-level cognitive skills and digital skills are arguably in high demand. The OECD Skills for Jobs database 2022 shows that, despite an important demand for these skills, the shortages of the broad skill categories *cognitive skills* and *digital skills* are relatively small or 'in balance' on average across the 43 countries,

indicating that supply is approximately keeping up with demand (see Box 1).

Note that the broad skill categories have been constructed from a larger number of more specific skills (see Box 1). Therefore, they may obscure quite different results for some of the sub-skills. Some of these results will be explored in more detail in the following sections.

Figure 1. Trends in broad skill imbalances, OECD average
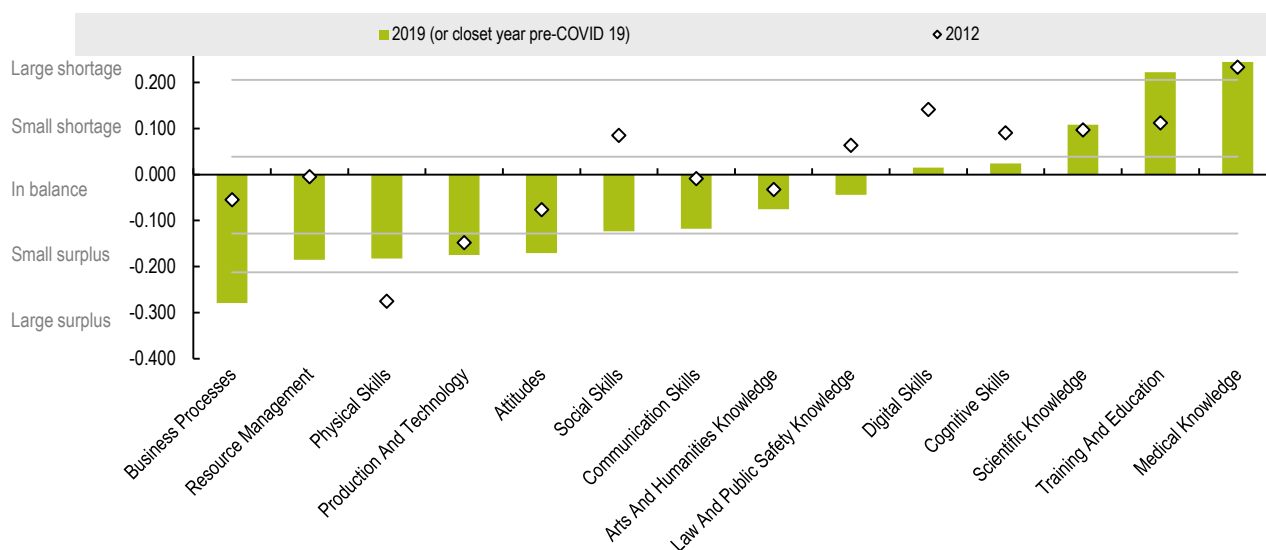
Note: The graph shows the unweighted average of skill needs across OECD countries in each country's most recent available year prior to 2020, and each country's first available year in the data. The first available year is 2012 for all countries included in the database. The final year is 2019, with the following exceptions: it is 2018 for CHE, FRA, IRL, ITA, POL, THA; 2017 for DEU, GBR, KOR; 2016 for AUS; 2015 for BRA, TUR; and 2012 for ISL, SVN. The value of 1 represents the largest shortage and the value of -1 the largest surplus across OECD countries, broad skill categories and years - see OECD (2022) for more information.
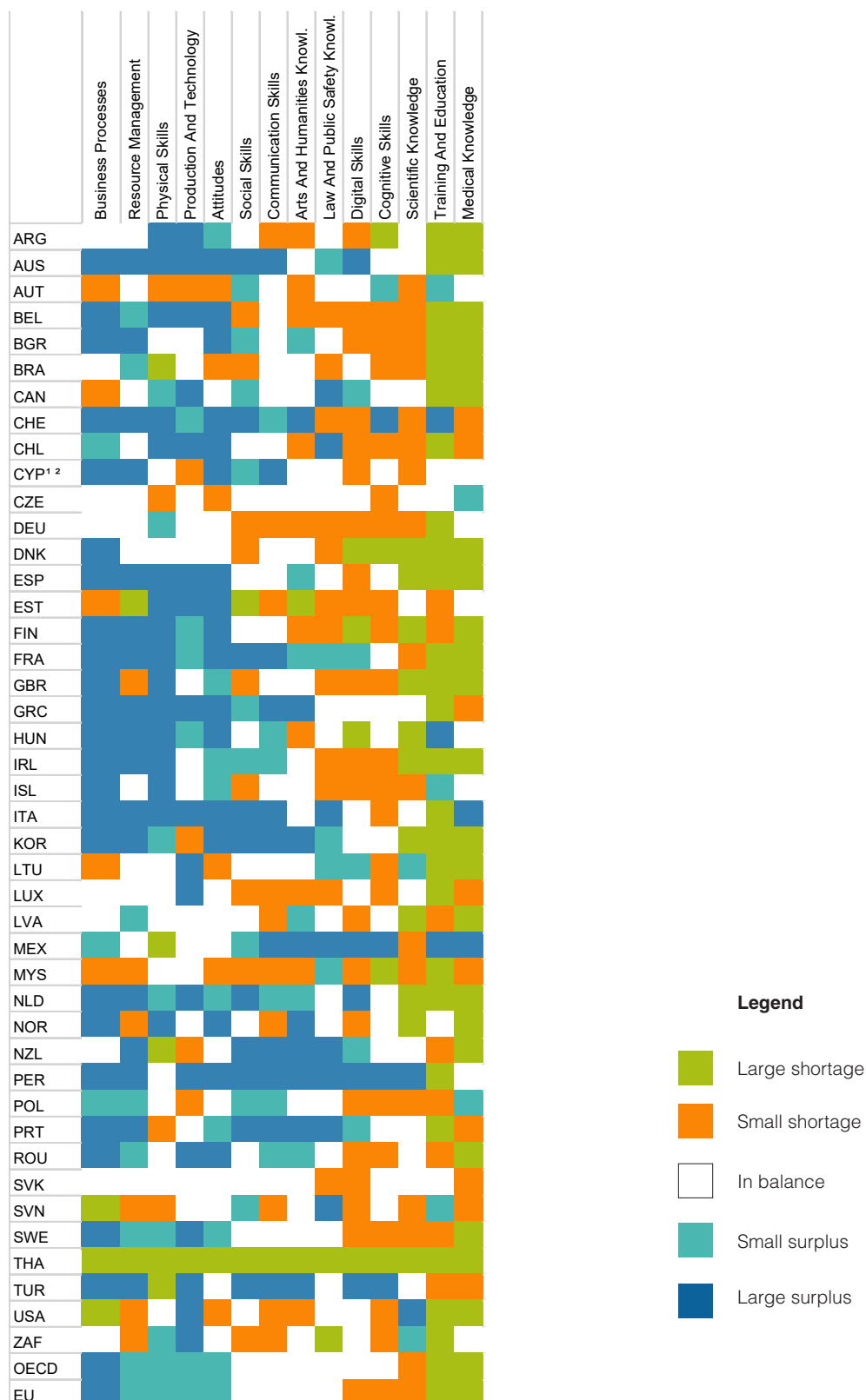*Source: OECD Skills for Jobs database 2022.*

Table 1 reveals that the shortfall of *medical knowledge* and *training* and *education skills* is substantial across countries included in the database. These skills are even in shortage in countries where skills shortages are relatively uncommon across skills, such as in Australia, Greece, Italy, Mexico and Peru. Other skills that are in shortage in the majority of countries are *scientific knowledge*, *cognitive skills* and *digital skills*, although these skills shortages are often small.

In most countries, *business processes, resource management, physical skills, production* and *technology knowledge* and *attitudes* are in surplus. On average across OECD countries, surpluses of business processes are mostly driven by large surpluses of customer and personal services skills; the surpluses of resource management by *management of material resources*; the surpluses of physical skills by physical abilities; and the surpluses of attitudes are mostly driven by relatively large

surpluses of *motivation/commitment*. Although a surplus in *motivation/commitment* implies that highly motivated and committed workers are relatively easy to find, it may also mean that motivation and commitment are not highly rewarded by the labour market.

Skills that are relatively often in balance are *communication skills, cognitive skills, arts and humanities knowledge* and *law and public safety knowledge.* While these types of skills are becoming increasingly important in the labour market, for instance because digitalisation and automation require people to enhance their uniquely human capabilities, the data imply that the supply of these skills meets the demand for them relatively well in many considered countries.

Table 1. Skill imbalances across countries in 2019

Columns (skill categories): Business Processes, Resource Management, Physical Skills, Production And Technology, Attitudes, Social Skills, Communication Skills, Arts And Humanities Knowl., Law And Public Safety Knowl., Digital Skills, Cognitive Skills, Scientific Knowledge, Training And Education, Medical Knowledge

Rows (countries): ARG, AUS, AUT, BEL, BGR, BRA, CAN, CHE, CHL, CYP[1][2], CZE, DEU, DNK, ESP, EST, FIN, FRA, GBR, GRC, HUN, IRL, ISL, ITA, KOR, LTU, LUX, LVA, MEX, MYS, NLD, NOR, NZL, PER, POL, PRT, ROU, SVK, SVN, SWE, THA, TUR, USA, ZAF, OECD, EU

Legend

- Large shortage
- Small shortage
- In balance
- Small surplus
- Large surplus

Note: The data refer to 2019, with the following exceptions: they refer to 2018 for CHE, FRA, IRL, ITA, POL, THA; 2017 for DEU, GBR, KOR; 2016 for AUS; 2015 for BRA, TUR; and 2012 for ISL, SVN.

1 Note by Türkiye: 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. Türkiye recognises the Turkish Republic of Northern Cyprus (TRNC). Until a lasting and equitable solution is found within the context of the United Nations, Türkiye shall preserve its position concerning the "Cyprus issue".

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

Source: Elaborations based on the OECD Skills for Jobs database 2022.

Digital skills

The detailed skills underlying the broad category of digital skills vary from basic and widespread digital skills, such as office tools and collaboration software, to more advanced digital skills such as digital content creation, which are more specific to certain occupations or harder to supply. At the detailed level, the largest and growing shortages of digital skills are found in digital content creation (see Figure 2), particularly in countries such as Latvia, Norway, Denmark, Poland, Spain and Korea. Although computer programming skills are in shortage, the size of the shortage has decreased since 2012, indicating that the supply of this skill in the labour market is increasing faster than its demand, including because some of these skills are being automated away. A similar pattern can be observed for the other detailed digital skills, i.e. *ICT safety, networks and servers, web development*

and cloud technologies, digital data processing and office tools and collaboration software, where the shortage in 2012 has decreased to a very small surplus that might better be considered as 'in balance'.

This trend may be the result of successful education policies, policies that facilitate job transitions and upskilling and reskilling pathways, as well as due to growing interest among the population to acquire these skills irrespective of the policies put in place. It may also be the case that shortage-occupations where these digital skills are very important are still relatively small in terms of employment, or that nowadays digital skills are required in most occupations. If both shortage and surplus-occupations require these digital skills, the aggregate skill needs may show that they are balance.

Figure 2. Trends in detailed digital skill imbalances, OECD average
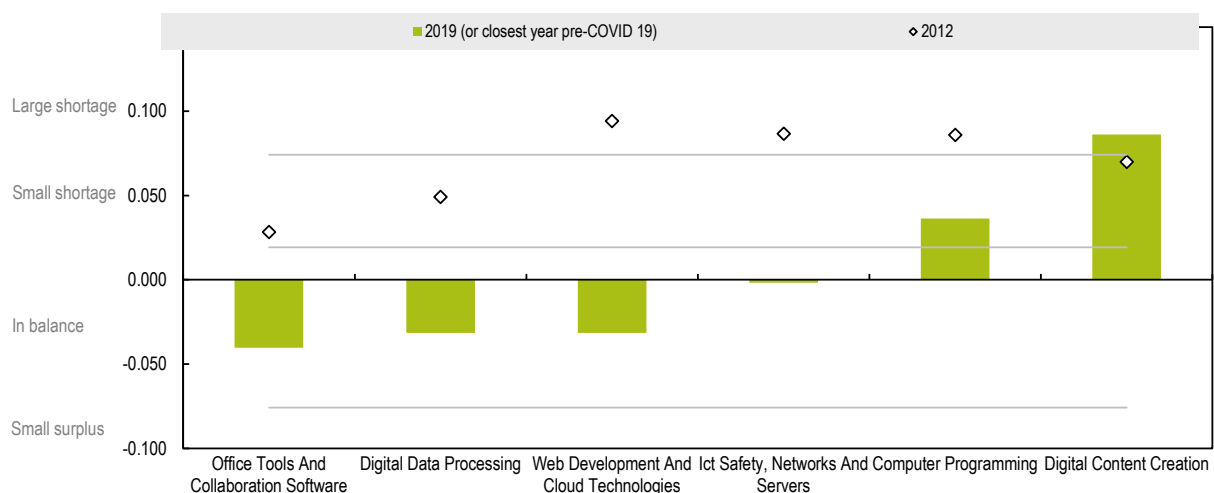
Note: The graph shows the unweighted average of skill needs across OECD countries in each country's most recent available year prior to 2020, and each country's first available year in the data. The first available year is 2012 for all countries included in the database. The final year is 2019, with the following exceptions: it is 2018 for CHE, FRA, IRL, ITA, POL, THA; 2017 for DEU, GBR, KOR; 2016 for AUS; 2015 for BRA, TUR; and 2012 for ISL, SVN. The value of 1 represents the largest shortage and the value of -1 the largest surplus across OECD countries, detailed skill categories and years - see OECD (2022) for more information.
Source: OECD Skills for Jobs database 2022.Source: OECD Skills for Jobs database 2022.

Social skills

Figure 1 showed that, on average across OECD countries, social skills went from a small shortage in 2012 to being in balance in 2019. It may seem surprising that the imbalance of this skill category is decreasing, considering that the demand for it is arguably increasing (Deming, 2017). The general explanation is that the supply of social skills has grown faster than the demand for them. Additionally, Figure 3 shows that the aggregate trend masks substantial

differences across the detailed sub-categories of social skills.

The small surplus of *judgment and decision making* in 2012 decreased to the point that it can now be considered as 'in balance' across OECD countries. One of the reasons for this trend is that *judgment and decision making* skills are becoming increasingly important in occupations with large shortages such

as for health services workers (see Figure 5). The imbalances of other detailed categories of social skills evolve in the opposite direction.

While *social perceptiveness* was in shortage in 2012, it was in surplus in 2019. While social perceptiveness was most important by far in managerial and other high-skilled occupations in 2012, it became relatively important for certain middle-skilled occupations (such as craft and related trades workers and clerical support workers) as well in 2019. Since high-skilled occupations are more often in shortage and middle-skilled occupations are more often in surplus, the increasing importance of social perceptiveness across occupations resulted in a switch from a small shortages to a small surplus in the aggregate. A similar pattern can be found for *persuasion and negotiation skills*.

Figure 3. Trends in detailed social skill imbalances, OECD average
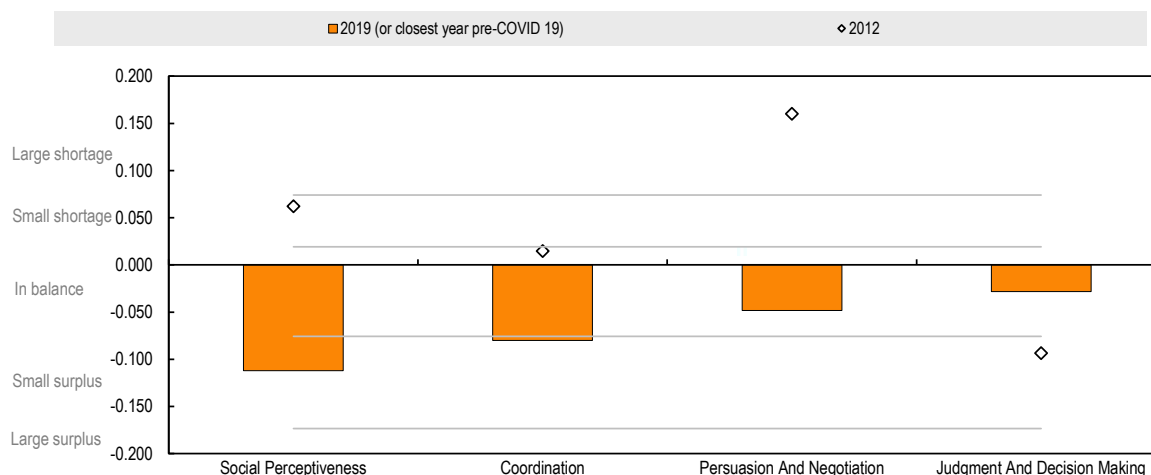
Note: The graph shows the unweighted average of skill needs across OECD countries in each country's most recent available year prior to 2020, and each country's first available year in the data. The first available year is 2012 for all countries included in the database. The final year is 2019, with the following exceptions: it is 2018 for CHE, FRA, IRL, ITA, POL, THA; 2017 for DEU, GBR, KOR; 2016 for AUS; 2015 for BRA, TUR; and 2012 for ISL, SVN. The value of 1 represents the largest shortage and the value of -1 the largest surplus across OECD countries, detailed skill categories and years - see OECD (2022) for more information.
Source: OECD Skills for Jobs database 2022.

Medical and psychology knowledge

As shown in Table 1, *medical knowledge* is one of the broad skill categories with the most pronounced shortage in most countries included in the OECD Skills for Jobs database 2022. Analysing the data by detailed skills shows that, even prior to the COVID-19 pandemic, the vast majority of countries included in the database experienced shortages of medical knowledge and psychology, and particularly in *psychology, therapy and counselling* (Figure 3).

The most pronounced shortages of medical and psychology knowledge are found in the Netherlands, Thailand, Denmark for *medicine and dentistry*, and in Belgium, the Netherlands, Canada and Spain for *psychology, therapy, counselling*. A few countries (Mexico, Italy and the Czech Republic) experienced surpluses of both detailed medical skills prior to the pandemic. This could be due, for instance, to low-quality skills anticipation exercises for the health workforce, or because countries over-

correct to perceived or expected health workforce shortages (for more information on skills anticipation exercises in the health workforce, see (OECD/ILO, 2022[13]). It is also possible that these surpluses are driven by surpluses in specific occupations that require medical knowledge (e.g., specific medical specialisations), while other specialisations are in shortage. In other words, surpluses of medical and psychology knowledge at the aggregate level do not exclude the possibility that specific health service workers and health facilities (in certain regions) experience shortages, but this cannot be examined with the data at hand.

**Figure 4. Detailed medicine and psychology skills imbalances, by country in 2019**
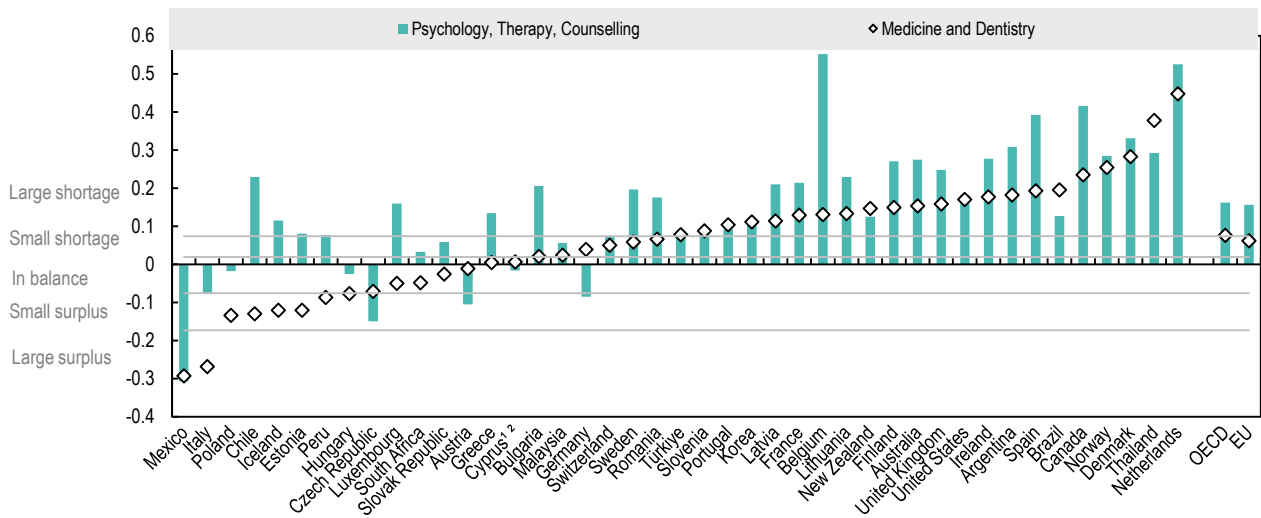
Note: The value of 1 represents the largest shortage and the value of -1 the largest surplus across OECD countries, skill categories and years. The graph shows each country's most recent available year prior to 2020, which is 2019 with the following exceptions: 2018 for CHE, FRA, IRL, ITA, POL, THA; 2017 for DEU, GBR, KOR; 2016 for AUS; 2015 for BRA, TUR; and 2012 for ISL, SVN. Notes on Cyprus: see notes to Table 1.
Source: OECD Skills for Jobs database 2022.

Although the minimum qualification requirements of health service workers are relatively stable over time, and even though job-specific knowledge, such as psychology, therapy and counselling, and medicine and dentistry, are consistently the most important skills for health service occupations, some changes in the relative importance of skills can be observed (Figure 5). For instance, *learning and judgment and decision making* skills are becoming increasingly important for health services workers, while the relative importance of physical skills (*psychomotor abilities*) is decreasing. This could reflect the increasing use of technology in health service delivery, which can lighten some of the physical burden on health service workers, while putting a greater emphasis on doctors' social and decision-making skills.

Figure 5. Trends of the relative importance of a selection of skills within health services occupations
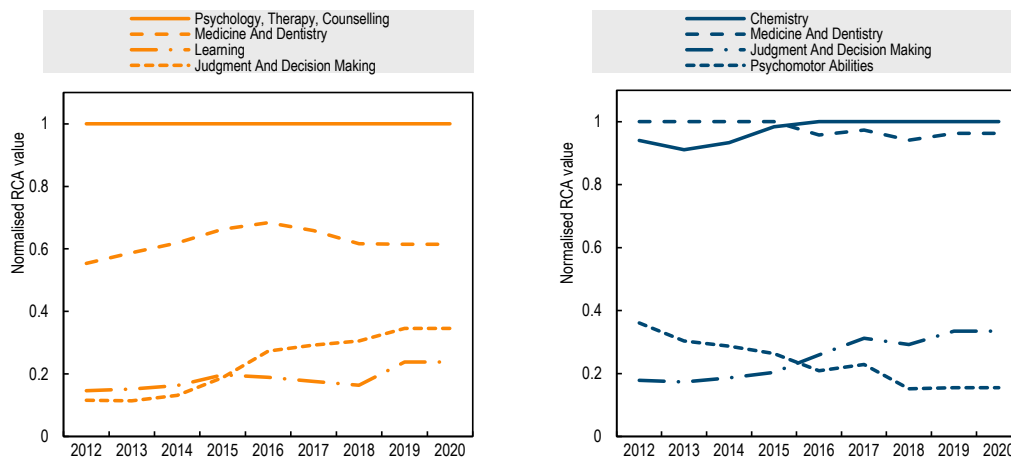
Note: The graph shows the normalised Relative Comparative Advantage (RCA) of a selection of skills. A normalised RCA value of 1 indicates the most important skills for a given occupation, compared to other skills; while a value of 0 indicates the least important skills. See OECD (2022) for more details about how normalised RCAs are calculated.
Source: Elaborations based on the OECD Skills for Jobs database 2022.

Skill level of shortage occupations

Evidence suggests that countries with higher productivity levels tend to face shortages that are more concentrated in high-skilled occupations than in less productive economies (OECD, 2018[14]). When countries have several firms at the technology frontier that produce and adopt new technologies, employers may struggle to find workers with adequate skills to operate these innovations. In those labour markets, the demand for high-skilled professionals may be substantial, often translating into shortages in high-skilled occupations. Conversely, labour market demand in certain countries may be dominated by more traditional organisational forms or well-established technologies for production. In these economies, the demand for medium or even low-skilled workers may be driven by firms operating in sectors with relatively low value added, outdated productive strategies or obsolete technologies.

On average across the countries included in the Skills for Jobs database 2022, more than half of the people working in jobs that are in shortage[2] work in high-skilled occupations (see Figure 6). These jobs range from managerial positions to highly skilled professionals in health care, teaching or ICT. This share is largest in Belgium, Estonia and Finland,

where more than 80% of employment in shortage occupations is highly skilled.

A relatively large share of occupational shortages (41% of total employment in hard-to-fill jobs across OECD countries) is also found in medium-skilled occupations, such as personal service workers or electrical and electronic trades workers. Mexico, the United States and Austria experience the largest share of shortages in middle-skilled occupations, well above the OECD average and exceeding 50%. This is also the case of Brazil, outside the OECD.

Conversely, less than 10% of employment in shortage across the OECD is found in low-skilled occupations, but this proportion rises to about a third of employment in non-OECD countries such as Bulgaria, Romania and Argentina. In several OECD countries such as Belgium, Estonia, Finland and Iceland, there are no low-skilled occupations that are in shortage. This means that – by construction – all low-skilled occupations are in balance or in surplus in these countries. This does not imply, of course, that all employment in surplus-occupations is low skilled necessarily, depending on each country's occupational structure.

Figure 6. Employment shares within shortage occupations, by skill-level in 2019
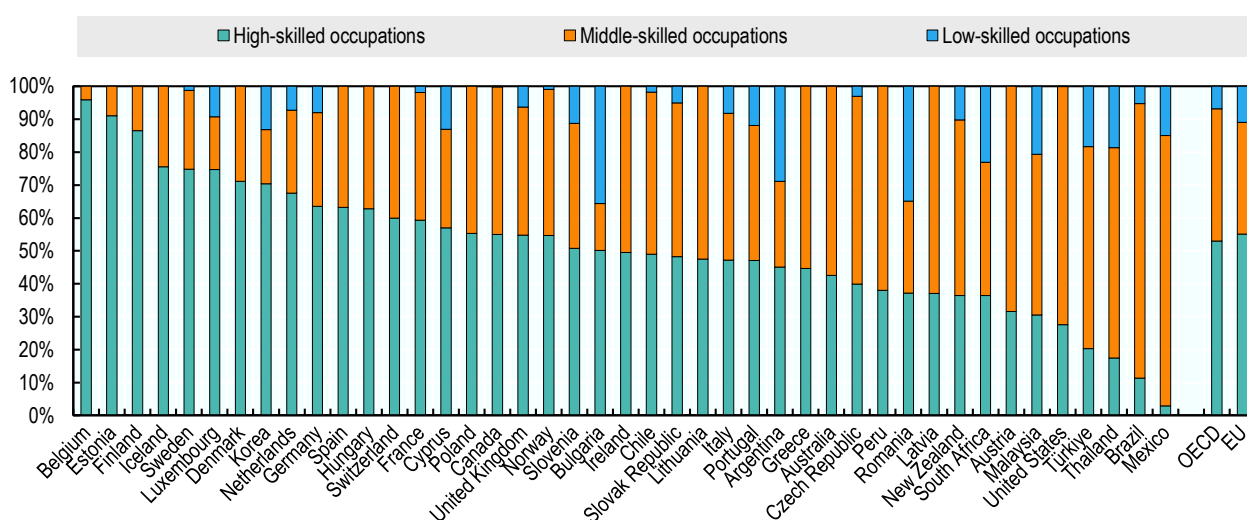
Note: High, medium and low skilled occupations are ISCO occupational groups 1 to 3, 4 to 8 and 9 respectively. Shares of employment in each skill tier are computed as the corresponding employment in each group over the total number of workers in shortage in each country. Data refer to 2019 with the following exceptions: they refer to 2018 for CHE, FRA, IRL, ITA, POL, THA; 2017 for DEU, GBR, KOR; 2016 for AUS; 2015 for BRA, TUR; and 2012 for ISL, SVN. Notes on Cyprus: see notes to Table 1. Source: Elaborations based on the OECD Skills for Jobs database 2022.

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2 The selection of 'shortage occupations' is based on the distribution of the OECD average of occupational imbalances across years. Within this distribution, the bottom 10% of the OECD average values across occupations are 'large surpluses' and the top 10% are 'large shortages'. When shortages or surpluses are so small that they could be considered negligible (i.e., values in the middle 40% of the distribution of the OECD average, or the 30th to the 70th percentile) the skill is considered 'in balance'. These cut-off values are then applied to all countries.

Qualification and field of study mismatches

Besides providing indicators of skill needs, the OECD Skills for Jobs database also provides detailed information on the misalignment between the quantity and quality of education credentials of workers and those required by their job. Indicators of qualification mismatch measure the alignment of a worker's qualification level to that required in her/his job. Over-qualified (respectively, under-qualified) workers have higher (resp. lower) qualifications than usually required in those jobs. On the other hand, indicators of field of study mismatch measure the alignment between a worker's specialisation (her/his field of study) and the field in which they are employed. Note that qualification mismatches do not necessarily go hand-in-hand with skill mismatches, for instance because individuals can have more or different skills than the ones they acquired in their highest obtained qualification.

Box 2. How are mismatch indicators calculated in the OECD Skills for Jobs database 2022?

The mismatch indicators included in the OECD Skills for Jobs database are calculated following a widely agreed methodology in the substantial empirical literature on mismatch.

Qualification mismatch

The qualification mismatch index calculates the share of workers in each economy/occupation that are under- or overqualified relative to the requirements of a given job. The requirement is computed using the mode (i.e. most common) highest educational attainment of workers in each occupation in each country and point in time. A worker is over-qualified (under-qualified) when his/her highest educational attainment is above (below) the requirement of his/her job.

Field-of-study mismatch

Field-of-study mismatch is calculated following Montt's (2015) normative approach, based on a pre-defined correspondence between fields of study (ISCED) and occupations (ISCO). As a result, individuals are considered well matched by field of study if they work in an occupation that is considered to be a good fit for their field of study and mismatched otherwise. This type of mismatch can be due to an imbalance between what individuals study and labour market requirements. It is worth noting, however, that the need for specialised education varies across occupations, which leads to naturally different levels of field-of-study mismatch across them. In addition, field-of-study mismatch tends to matter more for new entrants to the labour market and those without work experience
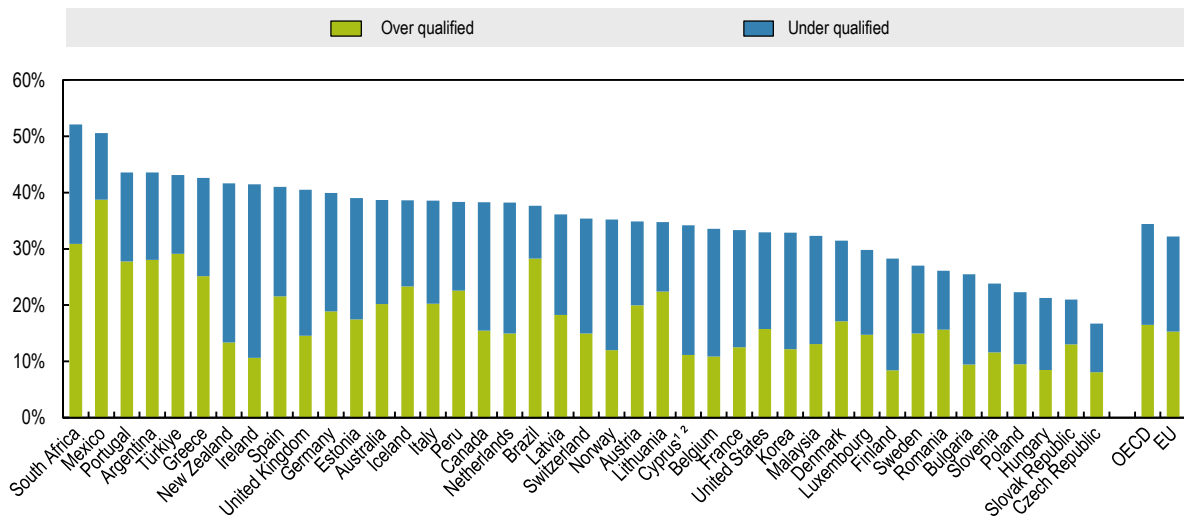
Source: (OECD, 2017).

Figure 7 ranks countries by the share of workers whose highest obtained qualification does not match their job, because they are either over-qualified or under-qualified. On average across OECD countries, a third of workers have a qualification that does not match their job's requirement.

The figure shows significant country heterogeneity in the size and type of mismatch. The largest shares of qualification mismatches are observed in South Africa and Mexico, where more than half the workers have a qualification mismatch, mostly due to over qualification. This may reflect that these countries are investing in higher education to upskill their workforce, while their labour markets still rely on more traditional modes of production. Other countries such as New Zealand, Ireland and the United Kingdom, have relatively large shares of under qualified workers, reflecting difficulties finding enough people to match the demand for higher-skilled workers. Qualification mismatches are least common in the Czech Republic, Slovak Republic, Hungary, Poland and Slovenia, where less than a quarter of workers are over- or under-qualified for their job.

Figure 7. Qualification mismatches by country in 2019

Note: Data refer to 2019, with the following exceptions: they refer to 2017 for Korea; to 2016 for Australia; to 2015 for Türkiye; and to 2014 for Brazil. Notes on Cyprus: see notes to Table 1.
Source: OECD Skills for Jobs database 2022.

Ways forward

The OECD Skills for Jobs database 2022 shows that there are important skill imbalances (shortages, surpluses and mismatches) across OECD countries and partner economies. One of the most pronounced shortage is for Medical knowledge and related skills. This points to a structural problem of under-supply in the health workforce, which left countries even more unprepared to meet the sudden increase in the demand for health-care services during the COVID-19 pandemic. Most countries are also facing a persistent shortage of training and education skills, which is problematic considering the increasing need for people to upskill and reskill due to an ever-changing labour market. Physical skills, on the other hand, are increasingly in surplus, indicating that people who have these skills may need to strengthen other skills in order to remain employable. The OECD Skills for Jobs database 2022 also shows that shortages in social, cognitive and digital skills are relatively small or 'in balance' in many countries. This suggests that an increasing demand for social, cognitive and digital skills due to technological developments does not need to translate automatically into shortages in these skills, if supply keeps up with demand.

Since skill imbalances can have severe negative consequences for the economy, firms and workers alike, it is crucial that countries improve the alignment of skill supply and demand in the labour market. They have several policy tools at their disposal to do so, which should be promoted as follows:

• Not only it is crucial to adapt education and initial training to changing skill needs, but countries also have to design and implement responsive adult learning policies that enable individuals to continuously upskill and reskill in order to stay employed and/or find new jobs. See OECD (2019) for more information about future-ready adult learning systems.

• Career guidance for adults is a fundamental policy lever to motivate adults to train and steer training choices towards growing and emerging occupations and skills. Such services are particularly important amid the ongoing COVID-19 pandemic and its aftermath, as many adults have lost jobs and require assistance navigating their career options in the changed

labour market. See OECD (2021) for more information about career guidance for adults in a changing world of work.

- While the OECD Skills for Jobs database provides a comparative overview of current skill imbalances, more detailed country- (or region-) specific exercises are needed to anticipate future skill needs. See OECD (2016) for more information about how countries assess and anticipate changing skill needs. Current OECD work is expanding the analysis of skills anticipation instruments to address skill imbalances in the health-care workforce and those that could arise in the green transition.

Useful links

- OECD work on adult learning and career guidance:
  https://www.oecd.org/employment/skills-and-work/adult-learning/
- OECD work on changing skill needs:
  https://www.oecd.org/els/emp/skills-and-work/changingskillsneeds/
- OECD Survey of Adult Skills (PIAAC):
  https://www.oecd.org/skills/piaac/

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