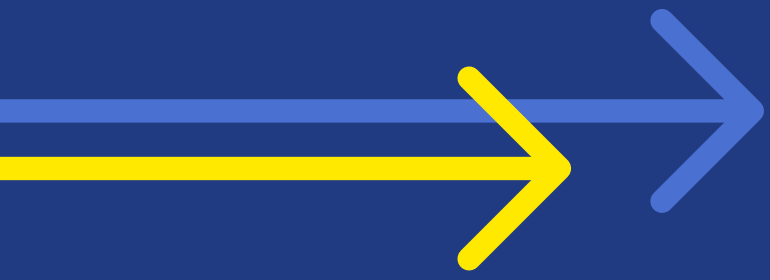
EURES

Report on labour shortages and surpluses

2023



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Acronyms

ACRONYM	FULL TITLE
BCS	Business and Consumer Survey
BIM	Building Information Models
Cedefop	European Centre for the Development of Vocational Training
CSR	Corporate Social Responsibility
EBC	European Builders' Confederation
EFBWW	European Federation of Building and Wood Workers
EFTA	European Free Trade Association
EGD	European Green Deal
ELA	European Labour Authority
ERM	European Restructuring Monitor
EMEA	Europe, Middle East, and Africa
EPSU	European Federation of Public Service Unions
EU	European Union
EU27	European Union with 27 Members
EURES	European Employment Services
FIEC	Fédération de l'Industrie Européenne de la Construction - European Construction Industry Federation
GDP	Gross Domestic Product
HOSPEEM	European Hospital and Healthcare Employers' Association
ICT	Information and Communications Technologies
ISCED '11	International Standard Classification of Education; 2011
ISCO '08	International Standard Classification of Occupations; 2008
JVR	Job Vacancy Rate
LFS	Labour Force Survey
MMC	Modern Methods of Construction
NCO	EURES National Coordination Office
NGO	Non-Governmental Organisation
PES	Public Employment Service
PP	Percentage points
PPE	Personal Protective Equipment
SMEs	Small and Medium-sized Enterprises
SOC	Standard Occupation Classification
STEM	Science, Technology, Engineering, Mathematics
TCNs	Third Country Nationals
TWA	Temporary Work Agency
VET	Vocational Education and Training

Country codes

CODE	COUNTRY	CODE	COUNTRY	CODE	COUNTRY	CODE	COUNTRY
AT	Austria	**EE**	Estonia	**IT**	Italy	**PT**	Portugal
BE	Belgium	**EL**	Greece	**LT**	Lithuania	**RO**	Romania
BG	Bulgaria	**ES**	Spain	**LU**	Luxemburg	**SE**	Sweden
CH	Switzerland	**FI**	Finland	**LV**	Latvia	**SI**	Slovenia
CY	Cyprus	**FR**	France	**MT**	Malta	**SK**	Slovakia
CZ	Czechia	**HR**	Croatia	**NL**	The Netherlands		
DE	Germany	**HU**	Hungary	**NO**	Norway		
DK	Denmark	**IE**	Ireland	**PL**	Poland		

Definitions

VARIABLE	DEFINITIONS
Advanced robotics	The branch of robotics dedicated to the development of robots that, through the use of sensors and high-level and dynamic programming, can perform 'smarter' tasks, that is, tasks requiring more flexibility and accuracy than those of traditional industrial robots.
Artificial intelligence	Artificial intelligence (AI) systems are software (and possibly also hardware) systems designed by humans that, given a complex goal, act in the physical or digital dimension by perceiving their environment through data acquisition, interpreting the collected structured or unstructured data, reasoning on the knowledge, or processing the information derived from these data and deciding the best action(s) to take to achieve the given goal.
Beveridge curve	The Beveridge curve provides a graphical representation of the relationship between the vacancy rate and the unemployment rate.
Bogus self-employment	Bogus self-employment refers to an employment relationship in which a worker formally registered as self-employed works under the same working conditions as direct employees (Williams and Horodnic, 2020).
ISCED	The International Standard Classification of Education (ISCED) is the reference international classification for organising education programmes and related qualifications by levels and fields. ISCED '11 has nine education levels, from level 0 to level 8.
ISCO	The International Standard Classification of Occupations (ISCO) is an international classification under the responsibility of the International Labour Organization (ILO) to organise jobs into a clearly defined set of groups according to the tasks and duties undertaken in the job.

VARIABLE	DEFINITIONS
Labour hoarding	Labour hoarding can be defined as that part of labour input which is not fully utilised by a company during its production/service delivery process at any given point in time (Source: ECB).
Labour shortage	When there is a sufficient number of people with the required skills , but for various reasons an insufficient number of them take up employment in the occupation and location in question.
Labour migration	Movement of third country nationals to EU Member States for the purpose of employment.
Intra-EU labour mobility	Movement of EU citizens or third country nationals benefitting from free movement from one Member State to another for the purpose of employment.
Labour market slack	An unmet demand for paid labour within a given population. The term describes the shortfall between the workers' desired amount of work and the amount of paid work available.
Labour surplus	When there is a higher number of people with the required skills looking to take up employment in the occupation and location in question than there are jobs available.
NACE	The statistical classification of economic activities in the European Union (NACE) is a four-digit classification providing the framework for collecting and presenting statistical data according to economic activity in a wide variety of European statistics in the economic, social, environmental, and agricultural domains.
Replacement demand	The number of openings created by people leaving the labour market on a temporary basis (such as maternity leave or sickness) and those retiring or dying.
Severe shortage	Severe shortage is equivalent to a shortage of a high magnitude, as defined by EURES National Coordination Offices (NCOs) for their national context.
Skills shortage	Where there is insufficient supply for the skills needed.
Skills surplus	Where there is insufficient demand for the skills available.
Vulnerability	A person (or household) is vulnerable to future loss of well-being below some socially accepted norms if he or she lacks (or is strongly disadvantaged in the distribution of) assets which are crucial for resilience to risks (Morrone et al., 2011).
Widespread shortage	A labour shortage occupation that has been identified by EURES National Coordination Offices (NCOs) in at least 11 countries.
Widespread surplus	A labour surplus occupation that has been identified by EURES National Coordination Offices (NCOs) in at least five countries.

Executive summary

The sixth edition of the EURES report on labour market imbalances explores the current status of labour shortages and surpluses and how they have evolved over time. Since the first report, published in 2016, much of the methodology for identifying labour shortages and surpluses has remained unchanged

The structure of the report, however, has undergone considerable change in the past two years. The primary source of the data on labour market imbalances continues to be the EURES National Coordination Offices (NCOs), complemented by other quantitative and qualitative sources. In addition, this edition of the report brings some innovations by including specific analyses from a sector perspective (i.e. the construction sector), a more in-depth exploration of the role of intra-EU labour mobility and migration and insights from five countries of the EURES network.

Labour market imbalances in Europe

The EU labour market is subject to a number of simultaneous changes. While the labour force shrinks as a consequence of demographic and societal change (e.g., population ageing, workers' preferences and labour market situation when entering to the labour market, working time flexibility etc.), the economy and the demand for labour continue to grow albeit at a slightly slower pace than in 2022. The greening of the EU economy and ongoing technological change (not least in the guise of artificial intelligence and advanced robotics), affect the structure of labour demand at least in some sectors and occupations. All of these developments contribute to a tightening of the labour market across the EU.

According to the NCOs, 367 of the 436 distinct 4-digit ISCO '08 occupations (i.e., about 84%) were in shortage in one or more country and employed 37.9 million workers in the EU27 in 2022, approximately 20% of the total employed population in the EU in the same year.

Overall, there was no consistent statistical correlation between the number of labour market imbalances identified and the unemployment rate or the job vacancy rate in the respective country. In some cases (e.g., the Netherlands), the correlation was strong, while in others (e.g., Czechia) it was weak. This finding suggests that factors other than labour market conditions also contribute to the emergence and persistence of labour market imbalances.

At least 11 countries identified 'widespread shortages' in 38 occupations. They belonged to the construction and engineering crafts, healthcare professionals and ICT professional occupations. The most critical shortage occupations, i.e. occupations that are widespread and severe, were broadly similar to those identified in previous editions of the report. Examples are heavy truck drivers, nursing professionals and (specialist) doctors, electricians, roofers, waiters and construction labourers, to name just a few. Most of the identified widespread and severe shortage occupations are not transient but rather reflect structural factors in the European economy, foremost unattractive employment and working conditions, ageing population, the diffusion of modern technology, and the impact of the green agenda. This is especially evident in the construction and engineering sectors.

About 67% of the total available 4-digit ISCO '08 occupations were identified by at least one country as being in surplus. Five or more countries of the EURES network identified 34 surplus occupations (i.e., widespread surplus occupations). The widespread surplus occupations were mainly clerical, professional, and elementary occupations. The clerical occupations' dominance of the list of surplus occupations in the current report reflects the situation in all previous reports. The obvious explanation is the technological displacement of workers. In general, clerical-related occupations are routine, and routine operations are vulnerable to being replaced by technology. It is apparent that jobseekers continue to be attracted to work in occupations where the employment prospects are limited.

Characteristics of workers employed in shortage and surplus occupations

Women have a less favourable labour market situation compared to men. In 2022, female workers represented more than 60% of those employed in surplus occupations in the EU, compared to only 27% of those employed in the shortage occupations.

Most of those employed in the widespread shortage or surplus occupations in the EU in 2022 had a medium level of education attainment (ISCED 3-4). In the case of shortage occupations, this referred to a craft qualification – typically obtained through an apprenticeship or other pathways of vocational education – while in surplus occupations it referred to the completion of the second level school cycle.

A significant number of workers in the widespread surplus occupations was highly educated (i.e., ISCED 5+). This challenges the view that higher qualifications are always associated with better employment prospects. It indicates that a high level of education attainment not necessarily corresponds to very good employment opportunities.

Significant labour market imbalances refer to occupations employing low-qualified work (e.g., construction labourer, kitchen helper, etc.). This is confirmed by the share of low-educated workers (i.e., ISCED 0-2) being considerably higher in both the widespread shortage and surplus occupations than in all occupations.

In some of the widespread shortage occupations the share of young workers is low. As a result, the structural shortages are expected to remain in the future, and partly even grow, when incumbent workers retire and the influx of young workers cannot fill the gap.

Intra-EU labour mobility and labour market imbalances

The share of mobile / migrant workers in the EU27 in 2022 was higher in the shortage occupations than in all occupations. This finding is to be expected as there are many schemes in EU countries which are designed specifically to attract foreign workers, especially third country nationals (TCNs).

The widespread shortage occupations with the highest share of mobile / migrant workers in some countries were cooks, concrete placers, plasterers, building construction labourers, and chefs. The corresponding widespread surplus occupations in some other countries were kitchen assistants, cleaners and assistants in offices and hotels, translators, freight handlers, and construction labourers. With the exception of translators and interpreters which understandably have a relatively high share of mobile / migrant workers, none of the other occupations are highly qualified.

One of the objectives of identifying both shortage and surplus occupations is to assess the potential for cross-border matching. Indeed, about 250 cross-border occupation matches are possible in principle, i.e., at least one country identified a shortage of a given occupation, and another country identified a surplus in the same occupation (constituting about two thirds of all identified shortage occupations), among the widespread shortages. However, the relatively low number of countries reporting a surplus for a given occupation which is in shortage in other countries limits the scale of the matches. Construction labourers are a notable exception, as this occupation figures in the list of both widespread shortage in some countries and surplus occupations in other countries.

An exploration of labour shortages in the construction sector

Labour shortages in the construction sector are among the most persistent in Europe. Numerous factors contribute to this situation. Partly, it stems from demographic change resulting in an ageing population and, in some countries, a net decline in population. This is exacerbated by the sector's low employment attractiveness, which fails to draw a sufficient number of young workers. The widespread use of subcontractors, self-employed individuals, and temporary labour to meet production demand contributes to defining a market where work in the sector requires individuals to regularly change contracts, which increases precariousness. This may inhibit individuals to enter and remain in the sector.

While the share of mobile and migrant workers in the sector is higher than in other industries, evidence suggests that this has not been able to alleviate labour shortages. Increasing the share of underrepresented categories, particularly women, would likely contribute to address the shortages.

Finally, the shortages in the sector are not solely due to the low number of people employed but are also a matter of skills mismatch. Numerous occupations in this sector require new or changing skills due to the digital and green transition which are not yet provided by a sufficient number of workers.

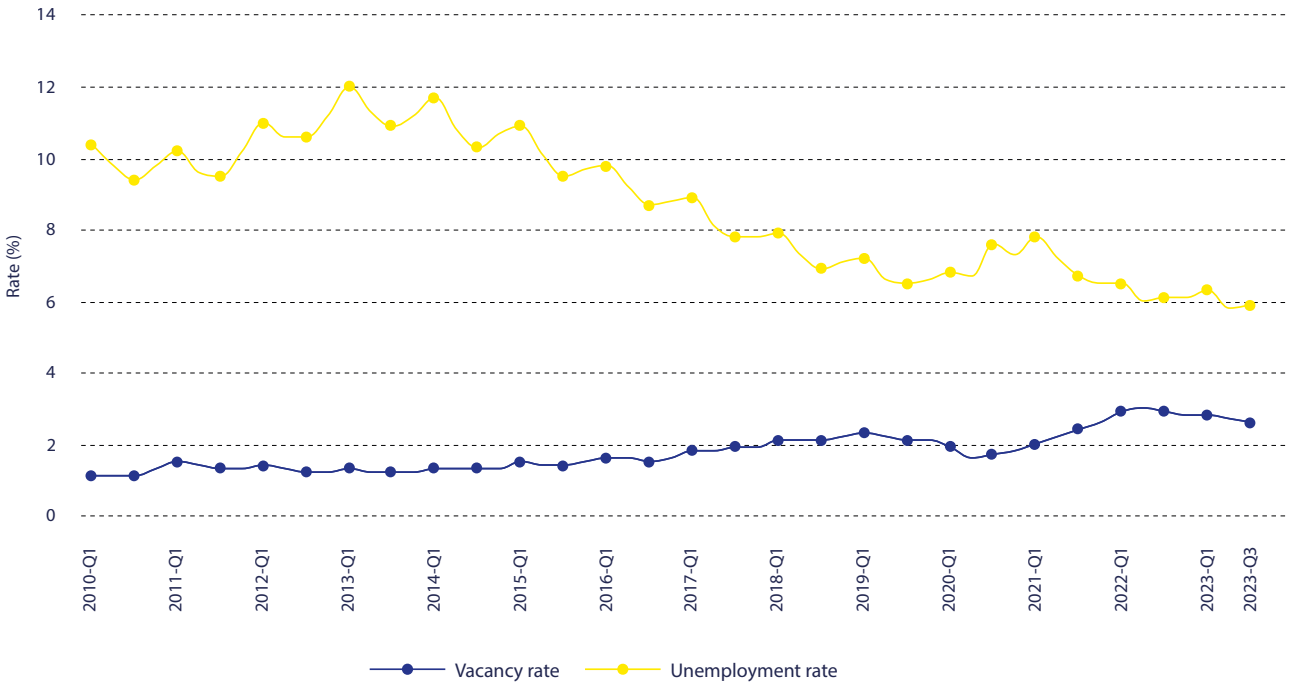
1. Introduction

1.1. Background

Although there are signs that growth in the European economy began to lose momentum during 2023 after the strong rebound from the COVID-19 pandemic, the European labour market has remained strong (DG ECFIN, 2023). In 2023Q3, the employment rate in the EU27 stood at 70.7%, while in 2013Q3 it stood at 63.6%. Similarly, the unemployment rate stood at 5.9% in 2023Q3, just over half the level of 10.9% a decade earlier.

The strength of the labour market reflects, at least in part, the steady recovery of the European economy from COVID-19 and the financial crisis. Employment and unemployment rates have successfully weathered the economic shock resulting from Russia's invasion of Ukraine and the increase in energy prices further reveals the robust state of labour demand in Europe. It has also resulted in a tightening of the labour market as the vacancy rate increased, reaching a peak in 2022Q1 and 2022Q2. It has since declined slightly but still stands at a historically high level while unemployment rates have remained at historically low levels, as shown in Figure 1.

Figure 1: Unemployment and vacancy rates in the EU27, 2010 – 2023



Source: Eurostat job vacancy statistics [jvs_q]; unemployment statistics [lfsq_urgan]

In this context, long-lasting labour market imbalances persist, particularly in terms of labour shortages. Data indicates a rise in both labour and skills shortages over the past few decades (Arpaia and Halasz, 2023). A tight labour market might be regarded as favourable for employees and jobseekers, insofar as a relatively high incidence of labour shortages increase the probability of finding employment and improve the likelihood that workers will be able to find jobs that satisfy their preferences (e.g., with respect to the terms and conditions of employment) (European Commission, 2023a).

There are, however, concerns that tight labour market conditions characterised by high levels of labour shortages might slow down economic growth. Wage-push inflation is a potential risk where employers increase wage levels to recruit and retain workers. Additionally, evidence suggests that labour shortages are associated with increased costs of production and constrained order books.[1] Labour shortages can also result in increased workloads and longer working hours for those workers employed in establishments with insufficient labour.

It might be tempting to think that labour market imbalances are cyclical phenomena that resolve over time. If indications from the labour market are suitably acted upon by a range of institutional actors, then labour market imbalances should resolve. One might consider that the relatively high levels of labour shortages observed over recent years are simply a consequence of the pace of economic recovery following COVID-19. But if one returns to Figure 1, it is readily apparent that the tightening of the labour market in Europe predates COVID-19. A longer-term trend of falling unemployment and rising vacancy rates is evident for 10 years. This suggests that a range of structural factors are at play. These likely include a mix of:

- demographic (most notably the ageing of the population which results in a shrinking of the labour force, but also in an increased demand in sectors structurally characterised by labour shortages such as the healthcare and long-term care sectors) and societal factors (e.g., workers' preferences regarding working hours and flexibility; involvement in education / training before entering and while being active in the labour market etc.);
- technological change including increased use of robots and artificial intelligence (which have the potential to transform the structure of employment and the types of jobs and / or tasks workers are required to undertake);
- the green transition and how it impacts the occupational and sectoral structure of employment and the skills required across a range of jobs;
- prevailing policy regimes in relation to both employment regulation and the supply of labour and skills (Hall and Soskice, 2001);
- the capacity of employers to adapt how they hire, retain, and develop their workforces, given the changes listed above, so that they possess the capabilities to meet their product market strategies (however defined) (Eurofound, 2023a; European Commission, 2023a; ELA, 2023a).

How the factors listed above have, and will continue to have, some bearing on the incidence of labour market imbalances, especially shortages, was explored in last year's EURES report (ELA, 2023a). It is increasingly apparent that labour shortages are a persistent feature of employment in certain sectors and occupations. Information contained in several reports (e.g., ELA, 2023a; European Commission, 2023a) points to the persistence of labour shortages in sectors such as construction, ICT, and health and social care.

Labour shortages are sometimes conflated with skills shortages but findings reveal that many shortage occupations require relatively modest levels of skill from their incumbents.[2] This is not to play down the importance of skills supply being an important cause of labour shortages but, as last year's EURES report demonstrated, many labour shortages result from employers providing an insufficiently attractive employment offer and working conditions to successfully attract jobseekers (ELA, 2023a). In other words, even if skills supply was to be increased, there would be no guarantee that these employers would be able to recruit the labour they required.

Labour market imbalances are addressed by a range of labour market actors which in the medium to long-term should ultimately result in the shortages or surpluses dissipating. The challenge for policymakers is to act before prospects become impaired. Concerns regarding labour and skills shortages have thus consistently held a prominent position on policymakers' agendas, including the European Commission.

1. Some of this is evident from the IAB Establishment Survey conducted in Germany, which recorded the way in which employers responded to labour shortages: overtime working increased (reported by 60% of establishments with labour shortages); orders were not fully served (59%); and orders were rejected (55%) (Walwei, 2023).
2. Shortage occupations include, among others, cooks; waiters and bartenders; shop salespeople; building frame and related trades workers; building finishers and related trades workers; sheet and structural metal workers (European Commission, 2023a).

1.2. Scope and methodology

The present EURES report offers an overview of labour shortages and surpluses in Europe and provides additional insights as to their main causes, in line with the aims of EURES, the European Network of Employment Services for the free movement of workers coordinated by ELA[3]. Its purpose is to inform both jobseekers and employers, along with EURES staff, about current opportunities, and bottlenecks on the labour market. It also assists EURES National Coordination Offices (NCOs) in their work programme planning by identifying potential cooperation projects on cross-border mobility.

The 2023 edition marks the 6th edition of this report series. The consistent yet evolving methodology applied throughout the various editions allows to compare, with due caveats, key findings over time (as documented in previous reports) and to develop insights on which shortages may be structural rather than transient. The current edition additionally bears a thematic focus on intra-EU labour mobility and on the construction sector. It also goes beyond the profiling of vulnerable groups proposed in previous editions and investigates whether certain labour market imbalances are linked to multiple vulnerabilities. Additionally, it provides short information on some examples of initiatives established across Europe to tackle labour shortages.

The report seeks to give practical effect to Article 30 of EURES Regulation (EU) 2016/589 which states that 'Each Member State shall, in particular, collect and analyse gender / disaggregated information on [. . .] labour shortages and labour surpluses on national and sectoral labour markets, paying particular attention to the most vulnerable groups in the labour market and the regions most affected by unemployment'.

In accordance with Article 30, the primary data collection tool for this study was a structured reporting template and a questionnaire distributed to NCOs (see Annex 2 and 3) in the second half of 2023 to identify occupations characterised by labour shortages and surpluses in the EURES countries (EU Member States plus Iceland, Liechtenstein, Norway and Switzerland), as well as the provision of additional information on these labour market imbalances (e.g., their nature, magnitude, and geographic scope) and other aspects of these imbalances, particularly focused on intra-EU labour mobility and the construction sector.

When answering the structured reporting template, each NCO was asked to provide a list of shortage and surplus occupations in their country expressed in 4-digit ISCO '08 occupation codes. Among the EURES countries, only Iceland and Liechtenstein did not complete the template. All three Belgian NCOs (Brussels-Capital, Flanders, and Wallonia) reported their respective regional labour market imbalances, and all of the shortage and surplus occupations identified by at least one Belgian region were included in the overall contribution from Belgium. While most of the countries identified occupations in shortage and surplus, five Member States only provided information on occupations in shortage (i.e., Ireland, Italy, Malta, Poland, and Switzerland). In Ireland, Malta and Italy, the data sources used to identify shortages do not identify surpluses.

The data received was quality checked to ensure its nature was comphrensive and consistent, NCOs were contacted for clarifications. More detail on the methodology and data cleaning process is included in Annex 1.

NCOs used a variety of sources and indicators to identify shortage and surplus occupations (see Table 1). The most common source was the administrative data of public employment services (PES) – in particular the data on vacancies notified to PES by employers and the data on the individual characteristics of jobseekers. It is to be noted that PES tend to accumulate vacancies and jobseekers with specific characteristics, as opposed to covering the whole economy and labour market. Furthermore, there exists national differences as regards, e.g., obligations of companies to submit vacancies to PES, and jobseekers' requirements to engage with PES. As exclusively relying on PES data would result in biases, findings of relevant and contemporary skills studies were used, as were the national lists of occupations which qualify for work permits, as such lists typically refer to occupations which the national authorities consider to be in short supply. Other sources included forecasting studies and national employment barometers.

Table 1 shows that data sources were not confined to quantitative sources. Employers and labour market experts were also consulted. The utilisation of a wide range of different quantitative and qualitative data sources is reflected in the fact that shortage and surplus occupations in practice are not limited to those professional occupations which are typically associated with the vacancies submitted by employers to the PES. Examples include healthcare and software-related professions, marketing and journalism and a range of artistic pursuits.

Most of the NCOs used concrete indicators to identify labour market imbalances. For example, the ratio of the volume of vacancies in a particular occupation to the number of jobseekers seeking employment in that occupation was frequently used, as was the total number of jobseekers or vacancies, and the duration of vacancy filling. Data used refer to the second half of 2022 and / or the first half of 2023[4].

3. EURES is a European cooperation network between the European Commission, ELA, the national public employment services, and other admitted Members and Partners in all EU Member States, Iceland, Liechtenstein, Norway and Switzerland. It facilitates the free movement of workers by providing information and employment support services to jobseekers and employers, and by enhancing cooperation and information exchange between its member organisations.
4. Only Switzerland submitted data referring to a different timeframe (2019-2021).

Table 1: Main sources and indicators used to identify labour shortages and surpluses, 2023

Data source	Number of reporting countries	Indicator used	Number of reporting countries
PES administrative data	29	Ratio of jobseekers to vacancies	24
PES employment survey	4	Total number of jobseekers	13
Third party employment survey (i.e., survey not conducted by PES)	4	Total number of vacancies	13
Views of employers (qualitative)	4	Employers' views but without survey (i.e., qualitative)	12
Views of experts (qualitative)	6	Duration of vacancy filling.	9
Views of national and regional stakeholders (qualitative)	4	Employer skills shortage surveys	9
Views of PES (qualitative)	4	Number of work permits issued	8
Immigration data	3	Companies sourcing labour abroad	8
National skills forecast	3	Views of experts (i.e., qualitative)	8
Occupation Barometer[5]	2	Views of the PES (i.e., qualitative)	7
		Vacancy rate (i.e., estimated number of vacancies divided by employment plus estimated number of vacancies	4
		Ratio of vacancies to total employed	3

Note: Countries could select up to three data sources and indicators. Another source mentioned and not listed in the table was provided by Lithuania (Employers' announcements targeting non Lithuanian nationals employed). Other indicators used are 'job proposals to jobseekers' (Luxembourg), 'ratio of jobseekers to employment' (the Netherlands, Hungary, and Spain), 'ratio of unemployed to registered vacancies' (Germany), 'tension' (France), 'total number of jobseekers willing to move abroad' and 'ratio of non-filled to total vacancies' (Portugal), and 'yearly increase / decrease of non Maltese nationals' (Malta).

Source: Data submitted by EURES National Coordination Offices

A range of secondary data was used to further explore and contextualise the labour market imbalances identified. The general results were corroborated by referencing concurrent studies conducted between 2022 and 2023. Data triangulation was achieved through comparison with Cedefop skills forecasts, job vacancy rates (JVR), and Eurobarometer data to enhance the robustness and plausibility of the findings. Additional national-level data were incorporated to conduct a more detailed analysis in five selected countries – i.e., Ireland, Italy, Latvia, the Netherlands, and Poland. More detailed country fiches for these countries are published as stand-alone documents supplementing this report.

Furthermore, data extracted from the European Labour Force Survey (LFS) was cross-referenced with identified labour market imbalances to gauge their impact on vulnerable groups. The report includes a detailed analysis of four individual key characteristics - gender, education profile, age, and country of origin - enabling a nuanced understanding of the demographics experiencing heightened vulnerability.

Additionally, two roundtable discussions were conducted in 2023Q4 on the relationship between labour market imbalances and intra-EU labour mobility, and the construction sector, respectively. Participants were NCOs and representatives from European and national employer organisations and trade unions.

5. An occupation barometer is often based on qualitative data and has a shorter time horizon than a typical forecast.

2. Identified labour market imbalances

2.1. Geographical distribution of labour market imbalances

2.1.1. Countries reporting shortages

All 29 EURES countries that contributed to this report identified shortage occupations. About 85% of all available 4-digit ISCO '08 occupations were identified as a shortage by one or more countries, resulting in a total of 1 764 occupations[6], corresponding to an average of 60 for each country. However, the average does not represent the significant differences in the number of shortage occupations identified by each country. Large numbers of shortage occupations were identified by countries in the north, west and east of the EURES network. The six countries reporting the highest number of shortage occupations (i.e., the Netherlands, Norway, Belgium, Romania, Slovenia, and France) together accounted for more than half (53%) of all the identified shortage occupations (see Figure 2).

Box 1: Labour shortages in the Netherlands

The Netherlands identified 194 shortage occupations, the highest number of all respondents. This is not surprising, as the Netherlands recorded the highest job vacancy rate (JVR) in the EU in 2023Q2 (4.7%). A recent study by Opinium Thought Leadership of 100 Dutch recruitment agencies found that half of them believe that there is a skills shortage in the Netherlands. According to these managers, skills shortages exist in every sector, but the biggest skills gaps occur in healthcare, construction, and education. Interestingly, only a marginal share of respondents identified IT and manufacturing as experiencing a skills shortage in either of these sectors (Opinium, 2023).

Several factors play a role in the current tightness of the Dutch labour market that was exacerbated by the quick economic recovery following the COVID-19 pandemic. Economic growth is likely the main cause for the high number of shortage occupations identified by the NCO. At the same time, labour productivity growth in the country is relatively limited, contributing to a rise in employment demand. Labour supply on the other hand is growing at a slower pace and the Dutch Central Planning Bureau estimated an almost flat trend in workforce growth expectations between 2028-2040. Anticipated measures to reduce migration inflows might further exacerbate this problem. Imperfect information and the geographical location of labour demand and supply contribute to the mismatch.

6. These are not unique occupations, and all 29 different countries and regions could mention the same occupation. Overall, 367 of the 436 distinct 4-digit ISCO '08 occupations are identified as shortage occupations by one or more countries.

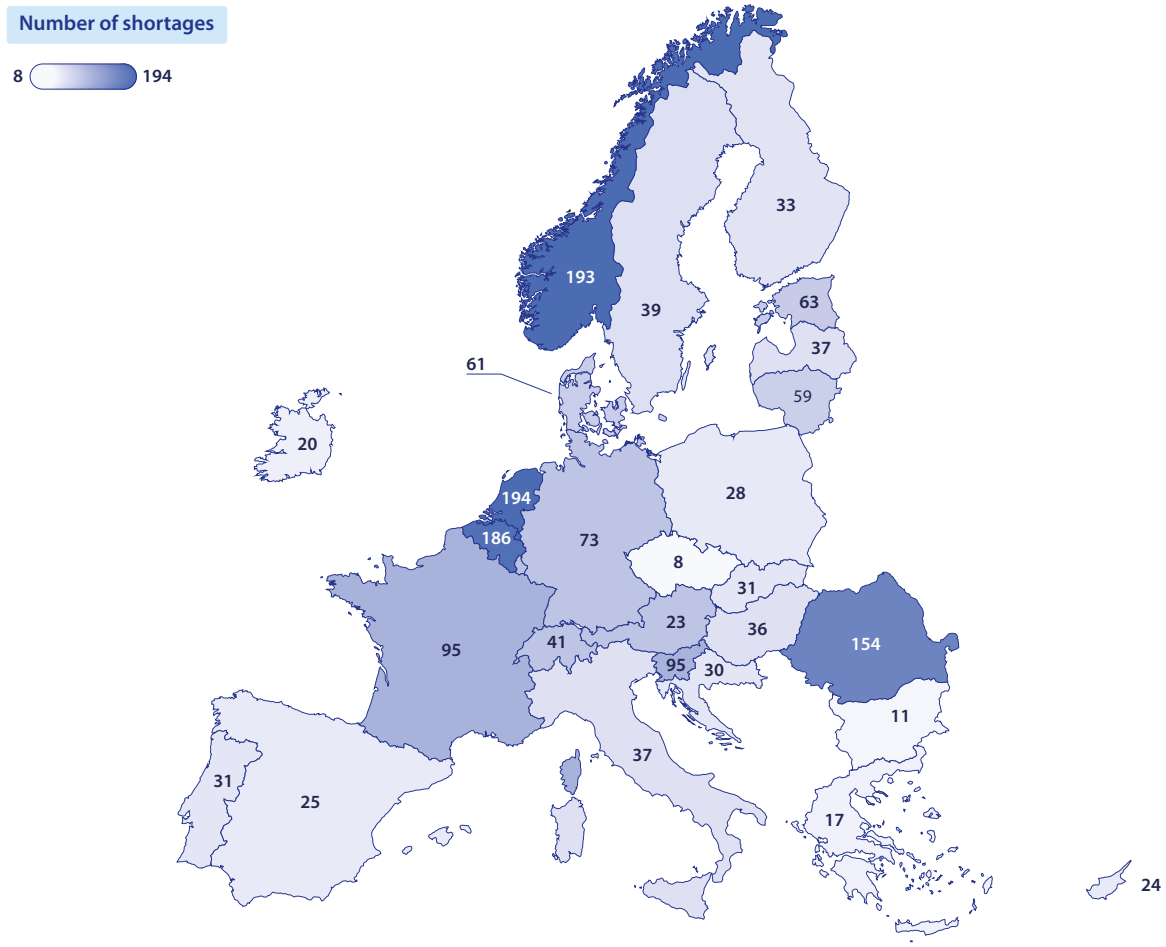
There is no hard evidence that ageing contributed to the tightness of the Dutch labour market. The percentage of workers who left the labour market annually due to retirement has been almost constant at 1.0% for approximately 10 years. Yet, some sectors are likely to be more heavily impacted by the ageing of the population – e.g., public administration, transport, education, manufacturing, and healthcare – as the share of 50+ workers in these sectors is above the national average.

Without an increase in the supply of the labour force, whose demand is projected to grow in the future, including in sectors affected by shortages such as in the healthcare sector, economic growth is at risk of being hampered.

Source: Qualitative explorations with the Dutch NCO

In sharp contrast, the six countries which reported the lowest number of shortage occupations (i.e., Austria, Ireland, Malta, Greece, Bulgaria, and Czechia) jointly identified just under 100 occupations, or 6% of the total. Czechia identified the lowest number of shortage occupations (eight).

Figure 2: Number of shortage occupations identified by country, 2023



Source: Data submitted by EURES National Coordination Offices

Intuitively, one might expect that the countries which identified the most shortage occupations are associated with low unemployment rates or high JVR. While this is the case for some of these countries, such as the Netherlands and Norway, it is not true for all of them. For example, France had a relatively high unemployment rate of 7.3% in 2023Q2 and yet it identified a high number of shortage occupations (95). Similarly, countries which identified the lowest number of shortage occupations do not necessarily have a relatively high unemployment rate. While Greece has one of the highest unemployment rates among EU Member States (11.2%) in 2023Q2, Czechia and Malta have

very low unemployment rates of 2.6% and 2.5% respectively. The Irish JVR is low (1.3%), hence coherent with the short list of shortage occupations identified in the country.

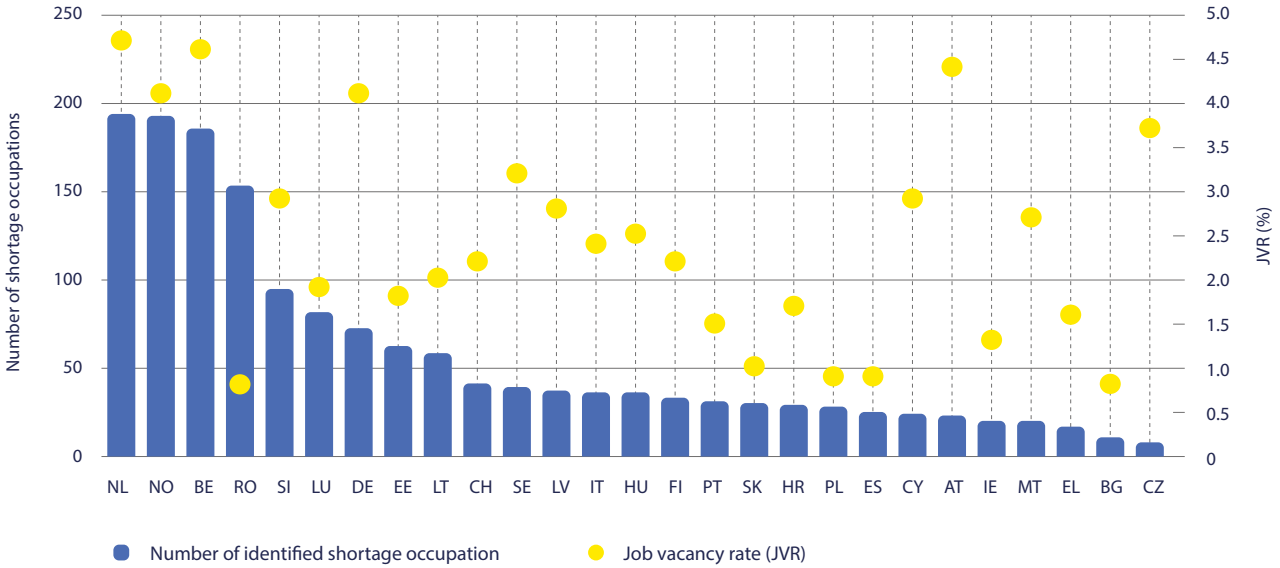
Figure 3 explores the relationship between the vacancy rate and the number of shortage occupations identified by each country. While theoretically a high number of shortage occupations should relate to a higher JVR, Figure 3 shows that there are three obvious outliers: Romania, Austria, and Czechia. Romania submitted the fourth highest number of identified shortage occupations (154), but it had the lowest JVR with Bulgaria, which only submitted 11 shortage occupations. In sharp contrast, the number of shortage occupations identified by Austria and Czechia is low, but the former had the 3rd highest JVR (4.4%) and the latter had the 5th highest rate (3.7%).

There were also significant differences between the number of identified shortage occupations and the JVR in Germany, Cyprus, and Malta. This is likely due to the interaction between different variables, such as the JVR, the unemployment rate, and the number and type of identified shortage occupations.

This can be illustrated on the example of Czechia. The unemployment rate in 2023Q2 was very low, at 2.6%, and the JVR was among the highest in Europe at that time at 3.7%. Therefore, the relationship between unemployment and vacancies was as expected, yet the relationship between the number of shortage occupations identified and the JVR was unexpected, as Czechia submitted the lowest number of shortage occupations.

The shortage occupations identified by Czechia were very varied, including one management occupation, three professional occupations, one craft occupation, one operative occupation, and two elementary occupations. Consequently, one could argue that the apparent disparity between the number of shortage occupations identified, and the overall JVR is not linked to specific occupations. Rather, the explanation may lie in the fact that Czechia also submitted a low number of surplus occupations and, like most other countries, used the ratio of jobseekers to vacancies as the indicator for identifying labour market imbalances. It is probable that Czechia used a higher threshold to identify labour market imbalances.

Figure 3: Comparison of each country's ranking in terms of the number of shortage occupations identified and its job vacancy rate, 2023Q2



Source: Data submitted by EURES National Coordination Offices and Eurostat (jvs_q_nace2)
Note: France and Denmark do not post JVR with Eurostat.

Based on the above there does not appear to be a clear relationship between the national labour market situation and the number of shortage occupations identified. Unemployment rates and job vacancy rates are not the only possible explanatory factors for the number of shortage occupations identified, and several others exist, linked for instance to the age structure of the workforce, the specificities of the production and services sector, and the functioning of the labour market systems etc. Importantly, these could also be linked to the varying criteria used by NCOs to identify shortage occupations.

In this edition of the report, the geographical scope of each shortage or surplus occupation was explored to understand whether the labour market imbalances occurred at the national level or was confined to one or more regions. Most of the shortage occupations were classified by

NCOs as national (1 353 occupations, or 77% of the total). Only five countries (Belgium, Bulgaria, Cyprus, Lithuania, and Portugal) mentioned regional labour shortages.

Belgium is the only country where more occupations were classified as regional rather than national shortages.[7] Most shortage occupations common to all three regions are science and engineering associate professionals, business, and administration associate professionals, and building and related trades workers, while all others are regional shortage occupations. Waiters are an interesting case from a regional perspective. While they were classified as a shortage in both Flanders and the Brussels Capital Region, they were highlighted as a surplus in Wallonia. In Portugal, regional shortages also relate to the hospitality sector (e.g., kitchen assistants and bartenders) in holiday destination regions such as the Algarve, Greater Porto, and Greater Lisbon. Such shortages are seasonal, occurring between April and October. Box 2 includes practices to address seasonal shortages in the hospitality sector.

In Lithuania, the pattern is not as clear, and a similar number of shortage occupations are reported at the national level and the regional level, especially around the Kaunas and Vilnius counties. Among these, two broad occupation groups (building and related trades workers, and metal, machinery, and related trades workers respectively) experience shortages in specific regions.

Box 2: Addressing seasonal shortages in the hospitality sector

'Seize the summer with EURES' is a European online job fair annually organised through the EURES European Job Days[8] platform since 2017 with participation of Croatia, Portugal, Slovenia, Spain, Italy, Greece, Malta, Cyprus, and France. The motivation for this event was the recognition of employers' converging recruitment needs for the tourist season during summer, for staff with different levels of expertise and language skills, young people willing to move for a few months and professionals willing to invest in their international careers.

The main objectives of the initiative are to inform potential jobseekers of employment opportunities and living and working conditions in the participating countries, to provide employers the opportunity to promote their vacancies across countries, and to raise awareness that southern European countries are no longer exclusively countries of origin for labour mobility, but also countries of destination.

The event consists of information and recruitment sessions for four to six hours. This includes country presentations covering sector specificities, living and working conditions, recruitment companies and available jobs as well as roundtables where testimonials (jobseekers, employers, education providers) inform participants about practical experiences. Participants can also access information about the different companies (e.g., values, history, activities etc.) through videos, images or texts. Jobseekers can apply for jobs directly via the events platform, and online job interviews in virtual meeting rooms can be organised.

It is promoted through the EURES network, Europe Direct Centres, Eurodesk, Europass, Euroguidance and Erasmus+, as well as relevant multipliers such as hotel and tourism schools, vocational training centres, universities, and language schools.

In 2023, 2 600 jobseekers registered for the event[9] and more than 6 800 applications to more than 7 100 vacancies were submitted. 171 exhibitors participated, most of them being employers. The occupations chiefly concerned in the event were chefs, cooks, pastry cooks, kitchen stewards, waiters, bartenders, hotel receptionists, entertainers, travel agents, photographers, lifeguards, room service staff, and maintenance workers.

Source: ELA Call for Good Practices 2023[10]

7. This result is due to the methodology used to collect Belgian data, i.e., each region submits its own data which are aggregated at a later stage. When a given occupation is mentioned as a shortage (or surplus) by all three regions, it is considered as a national labour market imbalance. In all other cases, the labour market imbalances is classified as regional (see Annex 1).
8. EURES - European Job Days | EURES - European Job Days
9. www.europeanjobdays.eu/seizethesummer2023
10. Call for good practices 2023 | European Labour Authority (europa.eu)

National shortage occupations also characterise countries that are usually marked by strong regional disparities, such as Italy and Poland. In Italy, the Excelsior Information System[11] provides annual forecast data on labour market trends and the professional needs of companies, estimating the share of vacancies that are considered 'hard to fill'. While regional differences persist between the north and the south, data between 2018-2022 show a progressive increase in the percentage of vacancies with recruitment difficulties in the southern regions. This means that shortage occupations are no longer confined to areas characterised by a stronger economy, such as the regions of the north-east (Unioncamere and ANPAL, 2022). Evidence from Poland also suggests a high degree of convergence of labour shortages[12], although regional disparities emerge from national data sources. According to Statistics Poland data, labour shortages occur primarily in dynamically developing regions, mainly in large urban agglomerations. For example, in 2022, 534 800 new jobs were created in Poland, with newly created jobs mainly in the Mazowieckie Voivodeship (126 300) – a more developed region by cohesion policy standards[13] which employs 5.2% of all the people in employment in the country (2 437 300 in 2022) - and the fewest new jobs were created in the Opolskie Voivodeship (8 200) – a less developed region constituting 2.4% of all employed in the region (346 700 in 2022). Also the distribution of vacancies was uneven across the regions – in 2022 out of 139 800 vacancies, the largest number was in the Mazowieckie Voivodeship (36 700) and the Wielkopolskie and Śląskie Voivodeships (14 900 and 14 800 respectively), and the smallest in the Świętokrzyskie Voivodeship (2 000)[14]. At the end of 2023Q3, the highest JVR occurred in the West Pomeranian region (1.2%), Warszawa (1.1%) and Lubuskie (1.2%). The lowest JVR was recorded in the Lublin region (0.4%) (Statistics Poland, 2023).

2.1.2. Countries reporting surpluses

There were a total of 691 surplus occupations, 67% of the total available 4-digit ISCO '08 occupations available, identified by the 24 countries that submitted data on surplus occupations, which is an average of 29 occupations for each country.[15] [16] However, as in the case of shortage occupations, the average hides significant differences among countries. The top eight countries - Denmark, Sweden[17], Romania, Latvia, Belgium, Slovakia, Slovenia, and Hungary[18] – identified a total of 484 surplus occupations, equivalent to 70% of the total number of surplus occupations identified (see Figure 4).

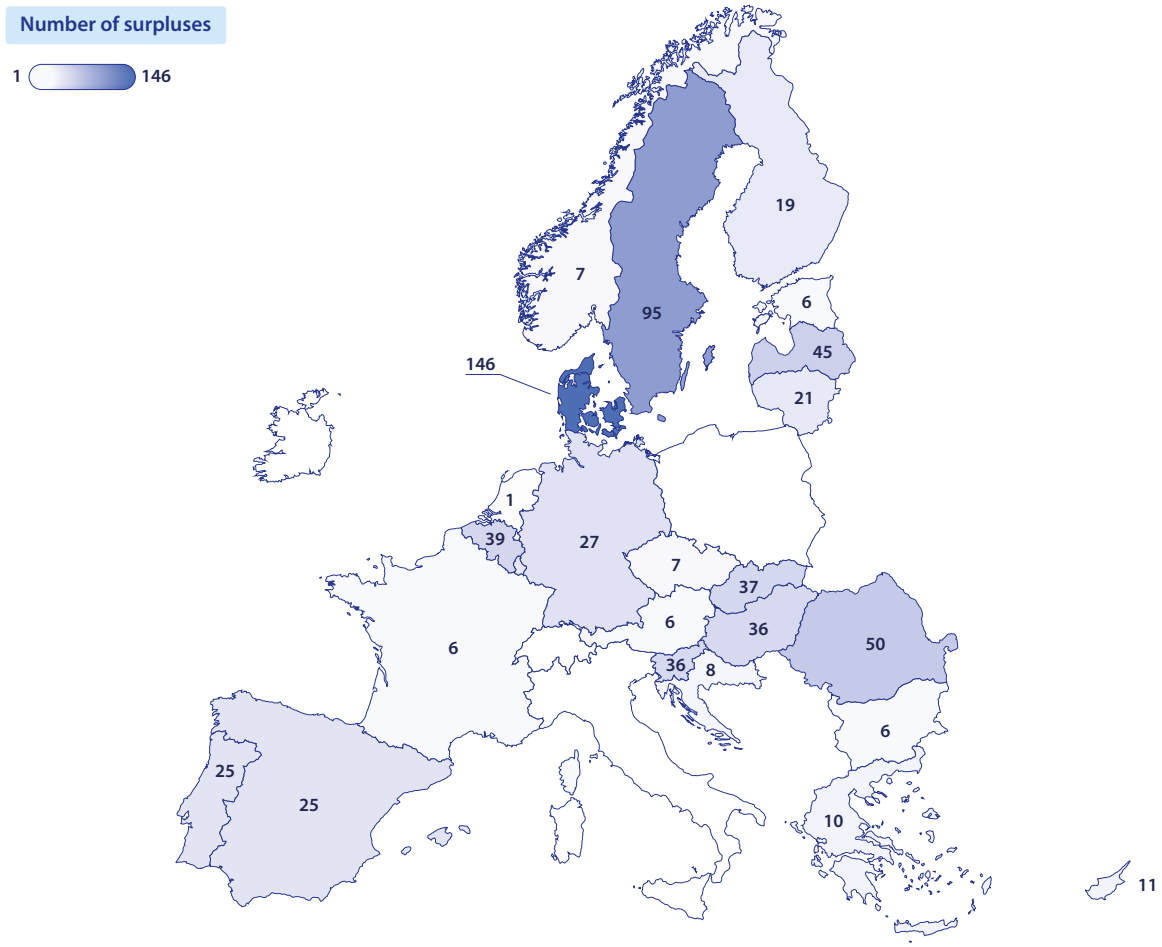
Countries in the south, west, and north of Europe reported large numbers of surplus occupations. The eight countries which identified the lowest number of surpluses – Croatia, Czechia, Norway, Austria, Bulgaria, Estonia, France, and the Netherlands – reported a total of 47 surplus occupations which is 7% of the total number of surplus occupations identified. The Netherlands – which identified the highest number of shortage occupations – reported the lowest number of surplus occupations amounting to just one occupation.

It might be expected that countries reporting a relatively high number of surplus occupations are associated with low numbers of shortage occupations. This, however, is not always the case. For example, Romania, Belgium, and Slovenia reported the highest number of shortage occupations and are among the countries which also reported the highest number of surplus occupations. Accordingly, these countries were characterised by the strongest labour market imbalances in Europe.

Denmark reported 146 surplus occupations and 61 shortage occupations. However, Denmark classified more than half of the shortage occupations as skills shortages, which may explain why many of the workers employed in the surplus occupations were not available for employment in many of the reported shortage occupations. There was not a significant degree of transferability between surplus and shortage occupations which would have been the case if many of the shortage and surplus occupations had been unskilled.

11. https://excelsior.unioncamere.net/
12. Qualitative, ad-hoc requests to the NCO.
13. https://ec.europa.eu/regional_policy/policy/how/is-my-region-covered_en
14. The numbers constitute 1.5% of all employed people in Mazowieckie voivodeship, 0.97% in Wielkopolskie, 0.87% in Śląskie and 0.46% in Świętokrzyskie.
15. These are not unique occupations, and the same occupation could be mentioned by different countries. Overall, 290 of the 436 distinct 4-digit ISCO '08 occupations are identified as surplus occupations by one or more countries.
16. Between 2022 and 2023, Finland changed the system to measure labour market imbalances, which resulted in a substantial decrease in the number of surplus occupations detected. Sweden also changed the methodology used to measure labour market imbalances, which increased the number of surplus occupations identified.
17. Although Sweden's unemployment rate declined between 2021 and 2022, the rate remained above the EU average and Sweden's identification of significantly more surplus occupations in 2023 compared to 2022 may reflect the fact that its labour market is not clearing effectively.
18. In 2023, Hungary experienced a significant increase in demand for occupations that were still in surplus in 2022, which resulted in a decrease in the number of surplus occupations reported (Source: qualitative, ad-hoc request to the NCO).

Figure 4: Number of surplus occupations identified by country, 2023



Source: Data submitted by EURES National Coordination Offices

Similar to the shortage occupations, surplus occupations are usually classified as national-level imbalances, with a few exceptions. Portugal includes two surplus occupations in the hospitality sector (kitchen assistants and waiters) in three regions (Algarve, North, Greater Lisbon), occurring from November to March, which are linked to the seasonality characterising the tourism industry. Five occupations are in surplus in two counties in Lithuania (Kaunas, Vilnius), and nine occupations are in surplus locally in Cyprus (either in Larnaca / Famagusta district or Paphos town). In Belgium, there are no national surpluses, as surplus occupations were only identified in Wallonia.

2.2. Identification of shortage occupations

2.2.1. Broad occupation groups

The 1 764 shortage occupations cover the whole range of the 4-digit ISCO '08 classification system. Table 2 shows the distribution of shortage occupations across broad occupation groups at the 1-digit level of ISCO '08.

When estimating the type of profiles that are in short supply, it is important to express the number of identified shortage occupations as a share of specific occupations (i.e., 4-digit level) in each broad occupation group (i.e., 1-digit level).

For example, as shown in the third column of Table 2, there are 92 unique professional occupations, while there are only 29 clerical occupations. Thus, ceteris paribus, it is expected that more professional than clerical occupations are identified as shortage occupations because there is a wider variety of occupations. By controlling for this variation in the number of unique occupations in the 1-digit ISCO '08 broad occupation group, it is possible to

compare the responses of the NCOs assuming that the same number of occupations were in each group.

Thus, in the professional occupations group, 81 unique occupations were identified as shortages by the NCOs out of the 92 occupations to choose from, representing 88% of the occupations. In contrast, only 21 unique shortage occupations in the broad occupation group of clerical and support workers were identified by the NCOs, representing 72% of the occupations available. Thus, although the share of different unique professional occupations identified as shortages at 88% is higher than the corresponding share of clerical workers (72%) the difference is far less than the difference in the actual number of unique occupations identified in each group (i.e., 81 versus 21).

Table 2: Number of identified shortage occupations by broad occupation group, 2023

Broad occupation group (1-digit level)	Occupations identified by NCOs	Number of unique occupations (4-digits level) in each group	Number of unique occupations in the broad occupation group identified by NCOs	Share of single occupations in the broad occupation group identified by NCOs	Number of identified occupations against number of unique occupations
Professionals	**459**	92	81	**88%**	**5.67**
Craft and related trade workers	**388**	66	56	**85%**	**6.93**
Technicians and associate professionals	**267**	84	71	**85%**	**3.76**
Plant and machine operators and assemblers	**179**	40	36	**90%**	**4.97**
Services and sales workers	**169**	40	36	**90%**	**4.69**
Elementary occupations	**106**	33	29	**88%**	**3.66**
Managers	**76**	31	23	**74%**	**3.30**
Clerical support workers	**70**	29	21	**72%**	**3.33**
Skilled agricultural, forestry, and fishery workers	**25**	18	11	**61%**	**2.27**
Armed forces occupations	**7**	3	3	**100%**	**2.33**
Total	**1 746**				

Source: Data submitted by EURES National Coordination Offices, and International Classification of Occupations (ISCO) classification list

Table 2 shows that the total number of craft occupations (388) was almost seven times (6.93) the number of unique craft occupations identified by the NCOs. This shows that craft occupations had the highest level of repeated mentions by the NCOs. They are closely followed by the professional occupations (459), where the total number identified was almost six times the number of unique occupations in this broad occupation group identified by the NCOs. In contrast, there were relatively few repeated citations in the skilled agricultural industry or in the armed forces.

Another insight provided by Table 2 relates to the share of unique occupations identified by the NCOs. Almost all the occupations in both the operations, services, and sales broad occupation group were identified by the NCOs as shortages and the figures are also high for professional and elementary occupations. In contrast, the figures are low for managers, and clerical and agricultural workers.

In summary, out of the 436 occupations which make up the ISCO '08 4-digit occupation classification system, only

69 (16%) were not classified as a shortage by at least one of the 29 countries who participated in this study.Table 3 shows the severity – i.e., the magnitude of the labour shortage - assigned by the NCOs to identified shortage occupations by broad occupation group[19]. A total of 531 occupations were assigned a high severity, while almost the same number of occupations were given a medium severity (each corresponding to 43% of the total), and 180 occupations were deemed as being of low severity (15%). This indicates that labour shortages in Europe are generally perceived as being of high or medium severity.

Table 3: Severity of identified shortages by broad occupation group, 2023

Occupation	Number of occupations with			Total occupations
	High severity	Medium severity	Low severity	
Professionals	169 (48%)	144 (41%)	42 (12%)	**355**
Craft and related trade workers	129 (45%)	116 (40%)	44 (15%)	**289**
Technicians and associate professionals	54 (31%)	96 (56%)	22 (13%)	**172**
Services and sales workers	51 (41%)	53 (43%)	19 (15%)	**123**
Plant and machine operators and assemblers	52 (46%)	46 (40%))	16 (14%)	**114**
Elementary occupations	36 (47%)	29 (38%)	12 (16%)	**77**
Clerical support workers	20 (44%)	18 (40%)	7 (16%)	**45**
Managers	10 (22%)	20 (44%)	15 (33%)	**45**
Skilled agricultural, forestry, and fishery workers	10 (53%)	6 (33%)	3 (13%)	**19**
Total	**531 (43%)**	**528 (43%)**	**180 (15%)**	**1 239**

Note: Don't know (501) and armed forces (6) are excluded from the analysis

Source: Data submitted by EURES National Coordination Offices

The table above shows that almost half of all professional shortage occupations for which a degree of severity was identified were classified as shortages of high severity. Similarly, almost half (47%) of the shortage occupations in the broad group of elementary occupations were assessed to be of high severity. This finding highlights the fact that severe shortages are not confined to highly skilled occupations. In line with this consideration, the broad group of managers shows the overall lowest level of severity of shortage occupations.

19. Just over 70% of the occupations were assigned a degree of severity. As mentioned in Chapter 1, NCOs use a variety of criteria to assess the presence of labour shortages. Different thresholds are utilised to gauge the severity of shortage occupations. For instance, in the Netherlands, each occupation can attain a maximum score of 10 points based on indicators such as the ratio of vacancies to jobseekers and the tension indicator, where 10 represents the highest level of severity. The results are subsequently assessed by sectoral experts to provide qualitative insights, taking into consideration any potential difficulties in counting registered jobseekers and CVs. In Germany, shortage occupations of high intensity have a ratio of unemployed individuals to registered vacancies lower than one. In Italy, shortage occupations are identified through employer skills shortage surveys, and the ratio of jobseekers to vacancies reported. Highly severe shortage occupations are those where at least 60% of the vacancies are challenging to fill, while low-severity shortages are characterised by less than 40% of the vacancies being difficult to fill.

2.2.2. Single occupations

In order to assess the significance of an occupation-specific shortage the number of countries identifying a single occupation as a shortage and the severity of the shortage as reported by the NCOs are analysed.

In order to ensure comparability with last year's report, and to maintain a reasonable representation of countries relative to the frequency of shortages, a widespread shortage occupation is defined as a shortage which is reported by at least 11 countries.

As shown in Table 4, the most widespread shortage occupations are welders, plumbers, pipefitters, heavy truck drivers, specialist doctors; all identified by at least 18 NCOs, usually at national level. Only two countries identified welders and flame cutters, and plumbers and pipe fitters in shortage at the regional level (Belgium and Lithuania, and Cyprus and Lithuania respectively). Many of the listed shortage occupations belong to the same broad occupation groups (i.e., at the 2-digit level ISCO '08). These are:

- healthcare professionals, i.e., specialist medical practitioners, nursing professionals, generalist medical practitioners;
- software professionals, i.e., systems analysts, software developers, software and applications developers and analysts not elsewhere classified, application programmers;
- construction trades workers, i.e., plumbers and pipe fitters, carpenters and joiners, bricklayers and related workers, roofers, concrete placers, concrete finishers and related workers, air conditioning and refrigeration mechanics, spray painters and varnishers, plasterers, floor layers and tile setters, painters and related workers;
- metal and machinery trades workers, i.e., welders and flame cutters, motor vehicle mechanics and repairers, metal working machine tool setters and operators, agricultural and industrial machinery mechanics and repairers, sheet metal workers, structural metal preparers and erectors; and
- electrical and electronics trades workers, i.e., building and related electricians, electrical mechanics and fitters.

As in the 2022 edition of the report, the most widely identified shortages include many craft occupations in both engineering and construction (i.e., construction trades workers, metal and machinery trades workers and electrical and electronics trades workers). Furthermore, most of the occupations are specific in that they are associated with the performance of very distinct and recognisable tasks, such as the construction and maintenance of buildings, the operation and repair of machinery, the development of software, and the provision of culinary services.

Finally, except for some culinary services, the occupations in Table 4 are for the most part sector specific. Indeed, most of those working in these occupations are employed in the construction, engineering, software and healthcare sectors. This is not the case for many other occupations such as clerical work, cleaning, sales, or financial occupations such as financial services. All of these occupations are widely distributed throughout an economy.

The 2023 Eurobarometer survey on skills shortages (Eurobarometer, 2023) gathered information on the occupations difficult to recruit among small and medium-sized companies in the EU. Companies hiring technical staff (e.g., mechanics, etc.) experienced most difficulties (42%), followed by those recruiting customer service staff (23%). Results show that technical occupations are difficult to recruit but a more precise identification of what is meant by 'technical skills' can be derived by exploring the qualifications which the companies were seeking. Each company was asked to select three levels of qualification that were most difficult to recruit between master's degree, bachelor's degree, secondary education, and vocational qualifications. Findings show that vocational qualifications – whether they be apprenticeships, journeyman, or master level – were by far the most difficult to recruit. Only five out of the 27 Member States – i.e., Ireland, Croatia, Italy, Malta, and Slovenia – cited a different qualification (bachelor's and secondary level education diploma). Furthermore, the number of responses classifying vocational qualifications as the most difficult to recruit were typically more than twice as high as the number of responses for the next most difficult category to recruit qualification.

Despite the different methodologies applied in the current study and the Eurobarometer, 17 Member States identified the same qualification level as the one most difficult to recruit, confirming the strong association between shortage occupations and those requiring occupation-specific qualifications.

The situation in Ireland and Italy is unusual, as the identified shortage occupations in both studies are associated with degree-level qualifications. Ireland, where as many as 62% of those aged 30-34 years had a third-level qualification in 2022(third highest in the EU),has very strong industry sectors in software, pharmaceuticals, and medical devices. Most applicants for jobs in those sectors require a degree qualification as a minimum. The list of shortage occupations identified by the Irish NCO, however, suggests that the very high share of graduates is still not sufficient to satisfy market demand. In marked contrast, the share of those aged 30-34 years with a third-level qualification in Italy in 2022 was only 27% (second lowest before Romania). Thus, while the reasons for the shortage may be different in the case of Ireland and Italy, in both cases there is an insufficient number of graduates to meet the existing demand (Central Statistics Office, 2023).

In Poland, employers are not legally obliged to report vacancies to PES, which in turn includes only a relatively small proportion of all vacancies available on the market. This

could explain why occupations that are usually advertised on the open labour market (e.g., IT specialists, engineering, service professionals, managers, etc.) are not included as shortage occupations in Poland, despite being identified as such by other sources within the country. For example, the Manpower Group (2022) includes IT as one of the top five in-demand roles that also experience difficulties in recruitment, but no IT occupation is included as a shortage occupation in the current study.

To acquire a sense of how significant each identified shortage is, the number of countries that identified a shortage occupation can be combined with the rating that each country assigned to that shortage (high, medium or low severity), shown in column three of Table 4. Motor mechanics and professional nurses, for example, are both identified as being in shortage by the same number of countries (17), but the latter has twice as many ratings of high severity. Consequently, it is reasonable to assume that the level of shortage among professional nurses is more acute than the one of motor mechanics. Another interesting case is that of floor layers and tile setters, which is one of the less frequently mentioned occupations in the table – identified by 11 countries – but has the highest severity (64%).

Table 4: Widespread shortage occupations (identified by at least 11 countries) by number of countries and share of high severity, 2023

Occupation	No. of countries	High severity
Welders and flame cutters	21	38%
Plumbers, pipefitters	20	40%
Heavy truck drivers	19	58%
Specialist doctors	18	44%
Motor mechanics	17	29%
Nursing professionals	17	53%
Waiters	17	47%
Metal, machine setters	17	35%
Cooks	16	38%
Electricians	16	44%
Systems analysts	16	25%
Doctors	16	50%
Civil engineers	15	33%
Healthcare assistants	15	33%
Carpenters and joiners	14	29%
Software developers	13	38%
Bus and tram divers	13	23%
Electrical mechanics and fitters	13	46%
Butchers, fishmongers, and related food preparers	13	15%
Bricklayers and masons	13	31%
Chefs	13	23%
Software workers	12	25%
Roofers	12	58%
Early childhood educators	12	42%
Agricultural mechanics	12	25%
Sheet metal workers	12	25%
Application programmers	12	42%
Construction labourers	12	50%
Concrete placers, finishers	12	42%
Structural metal preparers	11	36%
Air conditioning and refrigeration mechanics	11	55%
Special needs teachers	11	45%
Security guards	11	18%
Spray painters, varnishers	11	27%
Plasterers	11	27%
Earth moving plant operators	11	27%
Floor layers, tile setters	11	64%
Painters and related workers	11	27%

Note: The most problematic occupations are the ones with severity over 50% - marked in red.

Source: Data submitted by EURES National Coordination Offices

Accordingly, there is a significant shortage of certain healthcare professionals including specialist doctors, general practitioners, and professional nurses. As these occupations are both identified by many countries and also attract a high share of severe shortage rating. OECD data shows two patterns of geographic mobility of medical doctors and nurses across the EU and neighbouring countries: Cross-regional mobility takes place from eastern and southern Europe towards western and northern Europe, and subregional mobility is observed within western and northern European regions (Visser et al., 2023). Among the EURES countries, Ireland, Norway, and Switzerland show the highest dependency on foreign-trained doctors and Ireland, Switzerland, and Austria show the highest dependency on foreign-trained nurses. The most important countries of origin of nurses include Romania, Spain, and France, and Germany, Romania, and Italy, respectively as regards doctors. While labour mobility alleviates labour shortages in the countries of destination, it raises concerns about aggravating the shortages (and hence service delivery capacity) in the countries of origin.

While the COVID-19 pandemic surely had an impact on such shortages, the demographic challenges in the countries are also likely to further increase demand, and hence the number of shortage occupations in the health sector.

For example, Poland faces a significant shortage of medical and nursing staff. According to the data of the Supreme Medical Chamber (NIL), in 2022 the number of all NIL members amounted to 201 067. Attention should be paid to the difference between the total number of members of medical chambers and the number of those practising the profession (185 609 in total), which is over 15 000 less. This means that a significant number of doctors have been deprived of the right to practice, have renounced this right or have not practised their profession for a long period of time – aggravating the situation further. In the years 2008-2020, the percentage of doctors authorised to practice aged 65 and over in relation to the total number of doctors increased (from 18.7% to 25.1%), meaning the shortage in the sector is likely to aggravate once they retire.

Also, in Italy, a significant number of doctors are likely to retire in the coming years. In the 2022 employers' needs forecast, two out of the six occupations with the most hiring difficulties were related to the health sector: general practitioners, nursing, and midwifery health professions. The challenges stem from a shortage of candidates. Furthermore, when comparing national data with the EU averages, it appears that while the current healthcare workforce in Italy relative to the population has an adequate number of doctors, it has a lower number of nurses. Furthermore, the number in specific occupations – primarily as regards to general practitioners – falls below the EU average nor are they evenly distributed across the territory. General practitioners are particularly in shortage in low-population density areas or regions in the south of Italy (Agenas, 2022; SMIVEZ, 2023).

A recent study for Austria (Juraszovich et al., 2023) estimated an increase in demand for care staff (in hospitals and long-term care) from the current level of about 120 800 to about 143 200 in 2030, 163 500 in 2040 and 190 700 in 2050. Accordingly, the demand is expected to grow by about 70 000 – or almost 60% - in the next 30 years, mainly as a result of by demographic developments. In long-term care, additional staff will be needed in the area of at-home care services (with an estimated increase from about 18 200 to 36 500). The study furthermore estimates replacement demand in the care sector (i.e., to compensate for those entering retirement) to amount to about 20 600 until 2030, 57 300 until 2040 and 92 100 until 2050. In total, this means that in order to maintain the current level of care, up to 2030 about 51 100 staff need to be replaced or newly recruited. By 2040 this number could amount to about 119 900 and by 2050 to about 196 400. The study concludes that it is unlikely that this demand can be satisfied by graduates. Rather, reactivation of the labour market slack, recruitment from abroad, measures to improve efficiency in the care sector (including the use of modern technology) and focus on prevention and health promotion will be needed.

Box 3: Addressing labour shortages in healthcare

As labour shortages have remained a significant challenge in many Member States, sectors, and occupations, the discussion around the identification of effective policy measures to address such shortages has intensified. Eurofound (2021 and 2023) emphasises the importance of understanding the specific drivers of shortages in a given occupation, sector, and region to effectively address them. Data shows that a significant share of shortages arises where jobs are of poor quality in remuneration and working conditions. Measures to attract labour into these occupations therefore must address not only wages but also other factors impacting job quality, such as geographical concerns and (desired) working hours flexibility, access to training and career progression, and factors in the broader working environment such as social and managerial support. Other issues, such as exposure to violence and harassment, particularly on the part of customers and clients, may also have to be addressed. Detailed case studies in the health and care sector (Eurofound, 2023a) demonstrate that while wage increases can have an impact in terms of reducing brain drain to other countries or to encourage workforce to move to more rural or remote areas, the measures are often insufficient in attracting the required number of

workers and need to be combined with other incentives, such as better healthcare infrastructure and training opportunities, but also an improved regional infrastructure in terms of access to public transport, cultural and leisure offers. This demonstrates a need for closer collaboration between different national and regional stakeholders.

Already in 2008, the European Federation of Public Service Unions (EPSU) and the European Hospital and Healthcare Employers' Association (HOSPEEM) signed a code of conduct on ethical cross-border recruitment and retention. One of the objectives of this initiative was to address the trade-off between labour shortages and improving health service provision in destination countries for mobile workers while ensuring the service delivery capacity in the countries of origin (Visser et al., 2023).

Additional problematic occupations are heavy truck drivers, floor layers, tile setters, roofers, and construction labourers, all with large shares of severity of over 50%. In contrast, the identified shortages among occupations such as butchers, chiefs, sheet metal workers, and agricultural mechanics, appear to be less critical as they were identified by fewer countries, and only in a few countries with high severity.

In Ireland, ICT occupations offer a particularly interesting case. Employment in these occupations expanded significantly during the pandemic, and it subsided and partly reversed once the pandemic eased. The reason why the Irish NCO identified the shortage in software developers as of high magnitude is likely due to high employment growth recorded in this occupation towards the second half of 2022 and during 2023. Shortages for systems analysts, on the other hand, were recorded as having a medium severity, and ICT managers were assigned a low severity. It is noticeable that doctors also received a high severity rating from the Irish NCO.

2.2.3. Nature of shortages: transient or structural

One method of exploring whether the concentration of shortage occupations within a small number of broad occupation groups reflects structural factors or is a consequence of more recent temporary developments and may dissipate in time is to compare the findings of different iterations of this report.

Table 5: Widespread shortage occupations identified in 2023 compared to previous reports

Occupations	Trend	Current report	Rankings from previous editions of this report				
Year	2023 vs. 2022	2023	2022	2021	2020	2019	2017
Welders and flame cutters	▲	1st	2nd	3rd	3rd	2nd	3rd
Plumbers and pipefitters	=	2nd	2nd	1st	2nd	4th	2nd
Heavy truck drivers	▼	3rd	2nd	4th	3rd	1st	4th
Specialist doctors	▲	4th	7th	8th			
Motor mechanics	▲	5th	6th	8th	7th	6th	6th
Nursing professionals	▼	5th	2nd	2nd	1st	6th	4th
Waiters	▲	5th	7th				
Metal, machine setters	▼	5th	2nd	9th			
Cooks	▼	6th	5th	10th	3rd	5th	1st

Occupations	Trend	Current report	Rankings from previous editions of this report				
Year	2023 vs. 2022	2023	2022	2021	2020	2019	2017
Electricians	▼	6th	3rd	7th	5th	4th	6th
Systems analysts	▲	6th	8th	3rd	6th	2nd	5th
Doctors	=	6th	6th	6th	4th	7th	2nd
Civil engineers	▲	7th	9th	5th	6th	8th	
Healthcare assistants	▲	7th	9th	8th	7th		
Carpenters and joiners	▼	8th	2nd	6th	6th	4th	
Software developers	▼	9th	5th	5th	4th	8th	4th
Bus and tram drivers	▼	9th	6th				
Electrical mechanics and fitters	▼	9th	6th	7th			
Butchers, fishmongers and related food preparers	▼	9th	8th				
Bricklayers and masons	▼	9th	1st	7th	5th	7th	6th
Chefs	***New***	9th					
Software workers	▼	10th	7th	10th	6th	8th	
Roofers	▼	10th	9th				
Early childhood educators	▼	10th	7th				
Agricultural mechanics	▼	10th	8th	7th	6th	3rd	5th
Sheet metal workers	▼	10th	4th				
Application programmers	▼	10th	6th	8th	4th		
Construction labourers	▼	10th	5th				
Concrete placers and finishers	▼	10th	4th	6th	6th	6th	

Source: Data submitted by EURES National Coordination Offices, compared with previous editions of the EURES report (2022 to 2017)

There is a high level of recurrence regarding the occupations identified by the highest number of countries in the six iterations of this report. For example, the occupations which occupy the top three rankings in the current report – i.e., welders and flame cutters, plumbers, and pipefitters, and heavy truck drivers – are the same occupations which occupy the top four rankings in all previous reports. With the sole exception of waiters, the occupations ranking 4th-6th – i.e., specialist doctors, motor mechanics, professional nurses, metal, machine setters, cooks, electricians, systems analysts, and doctors - were also identified in 2022 and 2021.

The level of recurrence declines over time. Thus, only two of the 29 widespread shortage occupations in the current report were not identified as widespread shortages in the 2022 report; this figure rises to eight occupations in the 2021 report; 10 in the 2020 report; 13 in the 2019 report and 17 in the 2017 report.

There may be several reasons as to why the list of the most widespread occupations becomes less homogeneous over time. One possible factor is that before the 2022 report, the NCOs had to submit 30 shortage occupations, whereas in 2022 and this year, there was no limit placed on their number. It will be of interest to learn over time whether the absence of a specific number of requested submissions results in a greater similarity between the identified shortage occupations in the future.

Only one occupation (chefs) among the most widespread shortage occupations in the current report was not identified as such in any of the previous reports.

Some of the patterns displayed in Table 5 are worthy to note. While doctors and professional nurses figure prominently in all of the reports, healthcare assistants only emerged as a widespread shortage in 2020 and specialised doctors only emerged as a widespread shortage a year later. Both occupations, however, have remained on the list, and it is reasonable to speculate that the COVID-19 pandemic may have contributed to these widespread shortages across the EU.

Additional information on the nature of the identified shortages can be derived from an exploration of the severe shortage occupations identified in the previous reports.[20]

Table 6: Severe shortages identified in 2023 compared to previous reports

Occupations	Trend	Current report	Rankings from previous editions of this report				
Year	2022 vs. 2023	2023	2022	2021	2020	2019	2017
Heavy truck drivers	▲	1st	2nd	3rd	2nd	1st	4th
Nursing professionals	=	2nd	2nd	1st	1st		3rd
Welders and flame cutters	▼	3rd	2nd	2nd	2nd	2nd	2nd
Plumbers and pipefitters	▼	3rd	2nd	2nd	2nd	2nd	2nd
Doctors	=	3rd	3rd	4th	2nd	3rd	
Specialist doctors	*New*	3rd					
Waiters	*New*	3rd					
Floor layers and tilers	*New*	4th					
Roofers	=	4th	4th				
Electricians	*New*	4th					
Metal working, tool setters	▼	5th	4th				
Cooks	▼	5th	4th				
Electrical mechanics and fitters	*New*	5th					
Construction labourers	*New*	5th					
Air conditioning and refrigeration mechanics	*New*	5th					

Source: Data submitted by EURES National Coordination Offices, compared with previous editions of the EURES report (2022 to 2017)

20. Given the limited number of occupations that received such a rating over the last years, the comparison is made against the top five placed occupations in the current report – which is composed of 15 occupations.

The recurrence of shortage occupations which have been identified as being of high severity is much lower than in the case of the most widespread shortages. There are several reasons why this is the case.

Firstly, there has been a notable change in the type of skills associated with shortage occupations of high severity. The occupations which attracted a high severity rating in previous editions of the report included several software-related occupations such as systems analysts, software developers, programmers, and software workers not elsewhere classified. While all these occupations are included in the list of the most widespread shortages, only four countries classify them as shortage occupations of high severity. This is a lower number of countries than in previous reports and consequently, these occupations do not qualify for inclusion in the top-15 shortage occupations which have been assigned a high severity in 2023.

From a demand-side perspective, it is probable that the retrenchment that the European software industry experienced in 2022 and 2023 contributed to this situation. There were significant redundancies in many EU countries including Germany, France, Spain, Italy, Portugal, and Ireland as detailed in Box 4.

Box 4: Lay-offs in large tech companies

Between mid-2022 and the end of 2023, over 400 000 employees working for 'big tech' companies were laid off across the world. The largest lay-offs occurred in companies such as Google, Meta, Microsoft, and Amazon, as captured in Eurofound's European Restructuring Monitor (ERM)[21]. These are well-known, US-based, relatively recently founded, fast-growing digital-age corporations. Most enjoy a reputation for offering good working conditions and well-paid employment. Each announced collective redundancies of over 10 000 staff globally during the period, with the most intense period of redundancies occurring between summer 2022 and early 2023. In January 2023 alone there were nearly 90 000 announced job losses in the IT sector broadly defined.

The most common narrative explaining the job losses was the overexpansion that took place during the COVID-19 pandemic, as the companies responded to increasing demand for their respective products and services in a context of the transition of work and consumption towards remote methods. As pandemic era restrictions were phased out, however, the boost to online activity proved short-lived. The companies reacted to declining revenues – and to abrupt declines in their previously ascendant share prices – with large redundancies. Meta (owner of Facebook) backtracked on earlier commitments to invest the company's future on the 'multiverse' and refocused on its core advertising business.

However, the 2022-2023 job loss announcements in these big companies need to be seen in context. From 2019 to 2022, the employment headcount in each of the four grew by at least half and in the case of Amazon and Meta nearly doubled. In just the four companies cited, employment grew by nearly 900 000 globally over the period. The 2022-2023 cuts amounted to less than one tenth of net hiring in the previous three years.

All of these multinationals have major offices in Europe. Microsoft's biggest offices in Europe are in Ireland, the Netherlands, Germany, and France. From ERM data, it is clear that Ireland has been relatively, most affected by big tech restructurings (for example at Meta, Google, Twitter and Microsoft), since most of these companies' European or EMEA headquarters are situated there. However, even here, confirmed redundancies amount to no more than 1% of sectoral employment.

Most laid off workers are likely to have limited difficulty in finding alternative employment, given the labour demand for and shortages of their specific skills. The main enduring impact on the EU workforce may lie in the way the big tech restructurings are managed and implemented. In particular, trade union participation in restructuring processes has been limited or non-existent in most cases. However, in the wake of the 2022-2023 restructurings, a European Works Council for Google's workforce has been organised and existing unions, for example in financial services, have actively sought to increase their representation in the sector.

Source: Adapted from Litardi and Plaumann (2023)

Against this background, shortages in software related occupations were classified as less severe than in previous reports. This trend might have also been reinforced by a growing supply of workers in this sector which is attractive to the younger generations (and for which replacement effects might yet be less severe than in other sectors / occupations).

21. European Restructuring Monitor | European Foundation for the Improvement of Living and Working Conditions (europa.eu)

2.3. Identification of surplus occupations

Table 7 displays the 34 occupations which were identified as surplus occupations by the highest number of countries. The list includes occupations requiring a wide range of different qualifications. For example, there are six occupations which are typically associated with degree-level qualifications. These include journalists, multi-media graphic designers, advertising and marketing professionals, translators, and a number of occupations in the arts. However, other than professionals, the elementary group of occupations and the clerical group of occupations contain the highest number of specific surplus occupations (six and eight respectively).

The dominance of professional, elementary, and clerical occupations among the most widespread surplus occupations is illustrated by the fact that these three groups contain only 154 specific occupations, which represent 36% of the total occupations in the nine major occupation groups in the ISCO '08 classification system. However, they represent 59% of the 35 most widespread identified surplus occupations. Further, the technological displacement of employees might explain the dominance of clerical occupations in the surplus list as such occupations entailing a high degree of routine operations. Interestingly, freight handlers did not appear in the list of most widespread surplus occupations in the 2022 report, while it was the most often mentioned surplus occupation this year.[22]

Four occupations (i.e., kitchen assistants, teachers aides, secretaries, and freight handlers) were classified by two countries as regional surpluses. The other 30 occupations on the list of the most widely reported surplus occupations were classified as a regional shortage by only one country or not at all.

Latvia is one of the three countries that submitted more surplus than shortage occupations (45 compared to 37) – the others being Denmark and Slovakia.

Almost 60% of all occupations in surplus fall under the categories of managers, professionals, and technicians. Specifically, technicians alone contribute to over 40% of the surplus occupations, predominantly in business and administration associate professionals, as well as legal, social, cultural, and related associate professionals. Since the pandemic, the demand for labour has been increasing but is still below pre-pandemic levels, which might contribute to this phenomenon. Shortage occupations are confined in two economic sectors – information and communication and services, and health and social care – while all other sectors have surplus occupations[23]. Despite the anticipated increase in labour demand within the industry by 2030, the supply of workers remains well above, resulting in continued surplus occupations in the sector.

Table 7: Widespread surplus occupations (identified by at least five countries), 2023

Occupation	No. of countries	Occupation	No. of countries
Freight handlers	12	**Journalists**	6
Graphic and multimedia designers	10	**Data entry clerks**	6
General office clerks	10	**Commercial sales representatives**	6
Administrative and executive secretaries	10	**Musicians, singers, composers**	6
Receptionists (general)	9	**Visual artists**	6
Secretaries (general)	8	**Photographers**	6
Beauticians and related workers	8	**Translators, interpreters**	6
Car, taxi and van drivers	8	**Advertising, marketing professionals**	6
Shop sales assistants	8	**Manufacturing labourers**	6
Elementary workers	8	**Cashiers and ticket clerks**	5
Interior designers and decorators	8	**Travel guides**	5

22. Countries reporting such surplus are Austria, Belgium, Cyprus, Germany, Denmark, Lithuania, Luxemburg, Norway, Romania, Sweden, Slovenia and Slovakia. Only Hungary identified the occupation as a surplus in 2022 and not in 2023.
23. https://prognozes.em.gov.lv/en/correspondence-demand-supply

Occupation	No. of countries	Occupation	No. of countries
Construction labourers	7	Teachers' aides	5
Product and garment designers	7	Messengers, package deliverers	5
Tailors, dressmakers, furriers	7	Travel consultants and clerks	5
Hairdressers	7	Cleaners and assistants in offices etc.	5
Kitchen assistant	7	Gardeners, horticulturalists	5
Accounting, booking clerks	7	Library clerks	5

Source: Data submitted by EURES National Coordination Offices

2.4. Relationship of intra-EU labour mobility, labour migration and labour market imbalances

2.4.1. Mobility as a strategy for addressing skills shortages

According to the latest intra-EU labour mobility report, as of 1 January 2022, there were about 9.9 million working-age EU citizens living in an EU country different from their country of citizenship ('EU movers'). On average during 2022, there were about 7 million 'active movers', i.e., employed or looking for work. This corresponds to about 3.4% of the total labour force. Additionally, there were 1.8 million cross-border workers (i.e., people living in an EU Member State and working in an EU or EFTA country) and an estimated number of 3.1 million posted workers (European Commission, 2024). EU movers are most commonly active in elementary occupations (19%), as professionals (18%) and services and sales workers (16%). The sector with largest number of EU movers is manufacturing (16%).

During a roundtable discussion organised in the framework of this report in December 2023, several stakeholders pointed to the possible negative impact of intra-EU labour mobility on the labour market. In particular, it was argued that where the labour market in destination countries is poorly regulated, intra-EU labour mobility may contribute to the growth of undeclared work, as well as to an increase in illegal and poor working conditions. In countries of origin, outflow of workers can contribute to increasing the severity of labour shortages in key sectors. The construction sector was mentioned as a sector where, given the recurring use of project-based contracts and a high level of subcontracting, mobile workers could reinforce the negative loop through which temporary and low-quality jobs are created, without posing a permanent solution to labour shortages in the sector, nor fostering innovation (see Chapter 4 for more details). The discussion highlighted the need for workers with leverage to ask for higher wages.

Posting was pointed out during the roundtable as a trend in transport and construction, including through temporary work agencies (TWA), and was mentioned as a way to alleviate shortages in destination countries. Other elements brought forward referred to the higher wages of some occupations when filled through TWA, as well as the legal challenges in hiring mobile workers, language constraints and, more broadly, integration issues during training and assignment.

Importantly, the discussion stressed the need to consider the extent to which intra-EU labour mobility can improve job quality, what factors drive people out of jobs, and what can be done to increase the attractiveness of sectors in need of workers. The need to abandon a short-term approach was identified as key when discussing the integration of mobile workers.

To this end, BusinessEurope recently conducted a major survey of companies in every sector of the European economy to elicit their views on the major issues impacting labour shortages in Europe. One of the key topics addressed in the survey is intra-EU labour mobility (BusinessEurope, 2023). The response demonstrated that employers favourably view intra-EU labour mobility or migration from third countries (i.e., labour migration) as a means to address their skills shortages. A total of 60% of employers were in favour, while a further 18% said they may consider it as an option under certain circumstances. Only 14% were opposed to utilising this strategy, while 8% did not respond. The respondents mentioned four conditions which would encourage them to utilise mobility to a greater extent:

- better information provision on the recruitment of mobile workers both for employers and the workers themselves;
- a legislative framework at EU and national level combined with policy approaches that facilitate the employment of workers from third countries (i.e., migrant workers);
- a process of ensuring that candidates have the necessary language skills for working in the EU country of their choice;
- the willingness of mobile workers to engage in whatever training or education necessary to perform their specific employment duties, and to familiarise themselves with the location in which they are working.

Similar challenges were mentioned in the roundtable discussion, which highlighted language skills, recognition of diplomas and qualifications, skills level, and cost of living as some of the main challenges hindering mobility of workers. In Luxemburg, for instance, the impact of labour mobility has traditionally been largely positive, without negative effects on working conditions. Differences between cross-border (frontier) and mobile workers are mainly explained by language proficiencies, skills, and cost of living – more accessible for highly qualified workers. While resident workers with Luxemburg nationality work more often in public sectors and the social sector, cross-border workers from e.g., Germany are employed in craft and industry, and from the French-speaking countries in the service industry.

Discussions within the roundtable also brought up issues concerning 'virtual labour mobility' / cross-border telework. On the one hand, this new phenomenon has the potential to alleviate labour shortages as, by reducing the need for physical relocation, it might be especially attractive for highly skilled individuals working in professional sectors. At the same time, it carries concerns with respect to social protection and taxation. Acknowledging the increasing significance of telework, the Administrative Commission for the Coordination of Social Security Systems has recently implemented a new framework to ensure flexibility and address social security challenges. As of 1 July 2023, the Guidance Note on Telework and the Framework Agreement on Cross-Border Telework (TWA) are in effect.

Finally, during the roundtable discussion, strong support was expressed for the development of an EU Talent Pool to facilitate recruitment of third country nationals to assist employers in successfully addressing their skills shortages. According to the participants in the roundtable discussions, this would entail Member States regularly updating their list of national shortages and ensuring that all Member States apply an agreed labour market test. It would also mean devising a process whereby employers would have the ability to recognise third country qualifications – especially at the non-professional level where the mutual recognition of qualifications on occasion presents challenges to employers. Such a process should also allow for the recognition of relevant experience as a proxy for formal qualification in non-regulated professions. In this regard, though, the roundtable discussion highlighted the importance of fair recruitment to avoid aggravating and / or creating labour shortages in countries outside the EURES network.

2.4.2. The current situation

Responding to the qualitative questionnaire, one in three NCOs stated that there was no significant outward mobility from their countries – i.e., Czechia, Denmark, Lithuania, Malta, Norway, Spain, Iceland, Cyprus, Belgian Brussels region and Poland. Moreover, the destination of outward mobility from these countries was predominantly to other countries within the EURES network, with Germany identified as the main destination by half of the respondents. This finding is consistent with trends highlighted by the intra-EU labour mobility report, according to which 33% of working-age EU movers were indeed located in Germany, the primary working destination for EU citizens in 2022 (European Commission, 2024).

Only one of the 10 countries that joined the EU in 2004 – Czechia – featured as a destination for mobile workers from another EURES country (Slovakia). The bulk of immigration to countries in the EURES network comes from third countries. Indeed, India, Russia, Turkey, Albania, and many of the Balkan states feature as origin countries for migrant workers in Cyprus, Czechia, Italy, Poland, Romania, Bulgaria, Slovakia, Slovenia, and Spain. Similarly, the latest intra-EU labour mobility report indicates total inflows of working-age movers are mainly driven by third country nationals (TCNs) (i.e., migrant workers), at 49%, followed by EU movers (27%) and returning nationals at 23% (European Commission, 2024). Additionally, immigration trends have been impacted by the Russian aggressions in Ukraine, as 14 of the 18 responding countries identified Ukraine as a significant source of immigration to their country.

In terms of the employment of mobile / migrant workers, the construction and HORECA sector, agriculture and low-skilled jobs in manufacturing featured most prominently in the questionnaire responses, with most mobile / migrant workers reported to be employed either in semi-skilled or unskilled occupations. Migrant workers were also commonly employed in construction craft occupations such as bricklayers, steel erectors, carpenters, painters, and electricians. Notably, in some countries, such as Lithuania and Poland, skilled construction craft workers are being sourced from third countries. Yet, skilled construction workers from these two countries were also mentioned among the mobile workers population in some other countries of the EURES network (e.g., Italy, Belgium, Czechia). This suggests an element of

brain drain in intra-EU labour mobility across the EURES network, i.e., skilled workers moving from countries in the EURES network to other countries in the Network, while being replaced in the countries of origin largely by TCNs.

Some available national data show that countries are increasingly seeking workers from abroad. In Ireland, for example, roughly 37 000 employment permits were issued in 2022 which is a record and far exceeds the 14 000 issued in 2021. Virtually all construction crafts are now included on the list of eligible occupations – an acknowledgement that there are not sufficient construction craft workers available within the domestic labour force to deliver the government's targets regarding house building and the retrofitting of domestic dwellings. Similarly, Italy is also constantly increasing the number of work permits for TCNs. Compared to 2019, the number of permits authorised in 2021 rose by over 100%, and by over 300% in 2022. For the triennium 2023-2025, a total of 452 000 TCNs will be admitted to Italy for seasonal and non-seasonal work. Among eligible professions are electricians, plumbers, bus drivers, and workers in family and socio-medical care. Permits will be issued in different sectors, including road transport, construction, hospitality, mechanics, telecommunications, food, shipbuilding, and agriculture. Despite the further increase in the number of permits, in 2023, companies submitted a total of 607 904 applications, 4.4 times more than the available permits, highlighting the severity of the labour shortages in the country (Ortensi, 2023; Gagliardi, 2023).

To explore how the share of mobile / migrant workers in shortage occupations changed over the last four years, an exploration was conducted on five 2-digit groups of occupations which include two thirds of the 38 most widespread shortage occupations. These groups are health professionals, ICT professionals, skilled construction craft workers, skilled engineering craft workers, and electric and electronic craft workers. Findings show that the importance of migrant workers is growing over time in all analysed occupation groups, while changes in the share of mobile workers show different trends.

In 2019, 5.6 million health professionals were employed in the EU27, which increased to just over 6 million in 2022 – an increase of 7%. However, the number of mobile / migrant workers employed increased by 83 619 or 15%. This rose the share of mobile / migrant workers in the professional healthcare workforce in the EU27 from 9.8% in 2019 to 10.5% in 2022 as shown in Figure 5. The increase was greater among migrant workers.

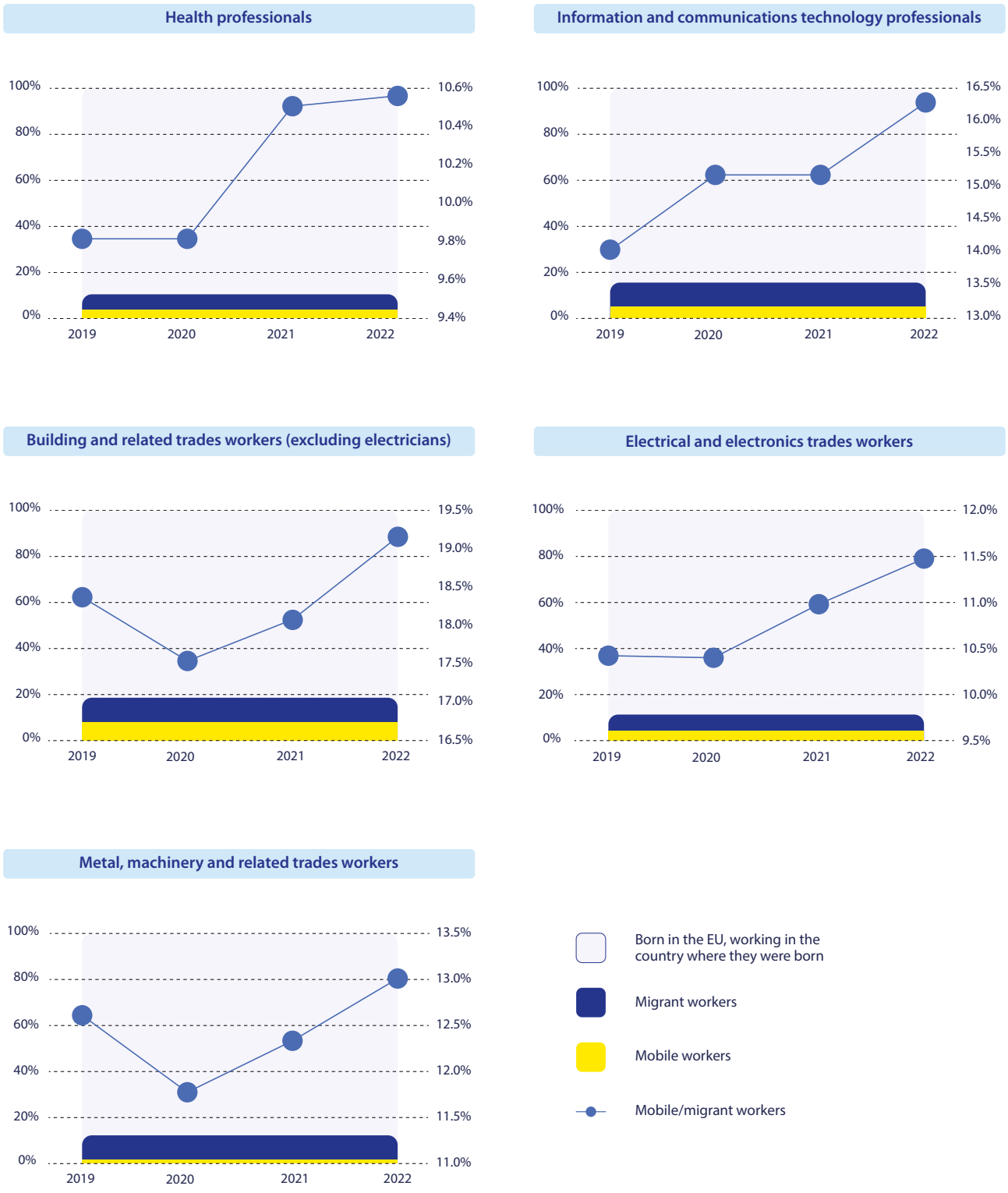
In the case of ICT professionals, the numbers employed increased from 3.6 million in 2019 to 4.7 million in 2022 – an increase of 30%. Most of the increase in employment consisted of mobile / migrant workers (509 403 in 2019 and 758 615 in 2022 – an increase of almost 50%). As in the case of healthcare professionals, most of the increase came from inflows from third countries rather than other EU27 countries, and occurred predominantly during the years of the COVID-19 pandemic (2020 and 2021). As a consequence of the increase in employment, the share of mobile / migrant workers employed in software and data analysis rose from 14.2% in 2019 to 16.3% in 2022.

The building and related trades workers included more shortage occupations than any other group. This may reflect the fact that employment in these occupations contracted slightly over the period 2019-2022, from 7.7 million in 2019 to 7.7 million in 2022. The employment trend was very uneven over the period, with a very significant decline in employment in 2020 followed by a recovery in both 2021 and 2022. The number of migrant workers increased by 7% between 2019 and 2022, while the number of those born in the country in which they were employed declined by 1%.

The number of workers employed in the EU27 in metals, machinery, and related trades in 2019 was 7.6 million and slightly lower at 7.5 million in 2022. However, despite the contraction in total employment of roughly 80 000, the number of migrant workers increased by almost 20 000. All this increase was of migrant workers (+32 000) which increased by 5% over the period. In contrast, the number of mobile workers declined by roughly 12 000 or 3.7% over this period. A similar employment pattern occurred among the electric and electronic trades. In total, 3.2 million workers were employed in these occupations in 2019, and 3.1 million in 2022. However, there was a significant increase of roughly 27 600 employed in 2022 which is equivalent to an increase of 13%.

Data suggest that some share of mobile migrants in craft occupations returned home during the pandemic and have not returned to their previous employment, contributing to the decreasing number of people employed in the sector.

Figure 5: Share of employed by country of origin in five occupations at the 2-digit ISCO '08 broad occupation group in the EU27, 2019-2022



Note: y-axis on the right-hand side shows the share of those not born in the country (both born in another EU country and not born in the EU)
Sources: European Labour Force Survey special data extracts

2.4.3. Cross-border matching opportunities

As shown, labour shortages in Europe tend to be common among countries and widely structural. This limits the possibilities of intra-EU labour mobility in tackling labour market imbalances. Some opportunities do however exist. Indeed, the analysis of this report shows that for about 250 occupations there exists a theoretical cross-border matching potential as they have been identified as shortage in at least one country and as surplus in at least one other country (see Annex 4). This means that for about two thirds of the identified shortages occupations in 2023 intra-EU labour mobility could alleviate at least some share of the existing labour market imbalances, if the 'match' between employer and jobseeker is adequately facilitated and also works at individual level, considering the specific requirement and preferences of employers and workers.

As shown in Table 8, construction labourers is the widespread shortage occupation for which a relatively high number of matches is possible, as it was classified as a shortage in 12 countries and as a surplus in seven other countries. Other occupations that have some promising matching potential include painters and decorators, and security guards. In both cases, the occupations were identified as shortages in 11 countries and surpluses in four countries. Waiters were identified in 17 countries as a shortage and in three countries as a surplus, while bricklayers and related trades were identified as a surplus occupation in three countries and as a shortage occupation in 13 countries. In the case of six other occupations, there were only two possible cross-border matches, while there was only one potential match for nine other occupations.

Table 8: Cross-border matching possibilities to alleviate labour market imbalances in Europe – number of countries identifying a certain occupation as labour shortage or surplus respectively, 2023

Occupation	Shortage	Surplus	Occupation	Shortage	Surplus
Construction labourers	12	7	**Floor layers, tile setters**	11	2
Security guards	11	4	**Nursing professionals**	17	1
Painters, decorators	11	4	**Software developers**	13	1
Waiters	17	3	**Electrical mechanics, fitters**	13	1
Bricklayers and related	13	3	**Butchers, fishmongers**	13	1
Motor mechanics	17	2	**Software workers**	12	1
Cooks	16	2	**Early childhood educators**	12	1
Healthcare assistants	15	2	**Agricultural mechanics**	12	1
Special needs teachers	11	2	**Sheet metal workers**	12	1
Plasterers	11	2	**Structural metal preparers**	11	1

Source: Data submitted by EURES National Coordination Offices

Italy stands out as one of the four countries that categorise other artistic and cultural associate professionals as a shortage, whereas most art-related occupations are classified as surplus by other EURES countries. This categorisation is supported by an upward trend in the JVR, with the highest increase recorded between 2021 and 2022 (0.9 percentage points). Interestingly, this is not the sole example of occupations that face shortages in Italy but are considered surpluses by other countries. Notably, Italy includes six of the most widespread surpluses as shortages: advertising and marketing professionals, commercial sales representatives, secretaries (general), beauticians and related workers, manufacturing labourers not elsewhere classified, messengers, package deliverers, and luggage porters.

Box 5: EURES cross-border partnerships and cross-border services to facilitate intra-EU labour mobility across borders

ELA (2023a) identified neighbouring cross-border regions as promising areas to balance out labour market imbalances across countries through intra-EU labour mobility. However, cross-border workers face a variety of obstacles which may hinder them to work in another country. In EURES cross-border partnerships, EURES Members and Partners as well as other organisations cooperate across borders to assist workers and employers to establish and maintain cross-border work.

In this context, experience from the Dutch GrensWerkt shows that effective services can indeed remove barriers to start working in / hiring from another country. The initiative provides (potential) cross-border workers (Belgium and the Netherlands) tailored advice by experts in the field of taxation, social security, labour law, living and working conditions and other relevant topics when working in another country. After having explored with the participants their specific questions and issues, the administrators of the initiative invite experts from the competent institutions and inform them about the participant's questions. Participants then have four to five specialised and confidential meetings where they can explain their situation and received individualised advice. After the sessions, all involved parties receive a report of the sessions. Since 2018, about 150 (potential) cross-border workers participated in this initiative.

With a similar intention, the Austrian trade union Bau-Holz (construction – wood) since 2017 runs the initiative 'Faire Arbeit' (fair work) to support Slovenian and Croatian workers to find employment in the Austrian construction sector and to inform short-term mobile workers (including posted workers) on rights related to work and employment. Amongst others, a trilingual website was launched to inform Slovenian and Croatian workers about work in Austria. Furthermore, there is a local information office in Austria where workers can receive information and advice in German, Slovenian, and Croatian. Since its establishment, more than 6 000 consultations have been provided. Faire Arbeit also provides advocacy services to improve working conditions in the construction sector in cooperation with other stakeholders (e.g., ministries, social partners, companies).

Source: ELA Call for Good Practices 2023

2.5. Chapter summary

The data reveal a number of characteristics of labour market imbalances in Europe. Firstly, imbalances occur throughout all EURES countries. Large numbers of shortage occupations were identified by countries in the north, west and east of the EURES network, while countries in the south, west and north reported large numbers of surplus occupations.

Secondly, in general, there is no obvious correlation between the number of shortage or surplus occupations reported and the country's unemployment rate. There are some instances where a relatively high number of shortage occupations is identified by countries with relatively low unemployment rates, but this relationship is not evident throughout the EURES network. Likewise, the report also explores the relationship between a country's JVR in 2023Q2 and the number of shortage occupations it identified in this study. The results are mixed. Most of the countries that identified the highest number of shortage occupations also exhibited the lowest JVR as might be expected. However, in the case of countries that identified a lower number of shortage occupations, there was considerable variation in their JVRs. Three countries (Romania, Czechia, and Austria) were significant outliers. Romania identified a very large number of shortage occupations, but the JVR was relatively low. Austria and Czechia submitted a relatively low number of shortage occupations despite the fact that their JVR was relatively high.

Thirdly, based on information provided by NCOs, it was overwhelmingly the case that the reported shortage occupations occurred throughout the country and were not limited to a particular region. Typically, only one or two countries identified an occupation as a regional rather than national shortage and the occupation tended to be classified as a labour rather than a skills shortage (e.g., waiter).

Fourthly, there is a strong overlap between the shortage occupations which were identified by the largest number of countries in the current and in previous reports. This finding suggests that there is a structural component to the shortages which are commonly reported.

Many of the most widely identified shortage occupations relate to STEM (science, technology, engineering, and mathematics) occupations. Most of them were at the craft level. While several software-related occupations are included in the list of most widespread shortages – together with civil engineers – most of the STEM occupations were in the construction and engineering crafts. This pattern repeats what was observed in last year's report.

Two indicators are combined in the report to acquire an understanding of the seriousness of an identified shortage occupations. These are the number of countries that identified the occupation as a shortage and the number of countries that classified the shortage as being of high severity. By combining the two indicators, the analysis shows that occupations which are generally considered to be a severe shortage (e.g., professional nurses) can be distinguished from occupations which are identified by many countries as a shortage (e.g., motor mechanics) but which would not be widely considered as a severe shortage.

The list of shortage occupations identified by the NCOs is supported by several reports. In particular, the Eurobarometer survey of small and medium-sized companies found that employers experienced the greatest recruitment difficulties in trying to source jobseekers with appropriate occupation-specific qualifications. This finding is consistent with the dominant position of occupations which are associated with specific qualifications on both the list of the most widespread and most severe shortage occupations.

Finally, the analysis shows that about two thirds of the identified shortages occupations could be matched by labour surpluses in the same occupations in other countries. However, among the most widespread shortage occupations intra-EU labour mobility can contribute to alleviate labour market imbalances to a limited extent only.

3. Profile of workers in shortage and surplus occupations

3.1. Number and characteristics of people working in identified shortage and surplus occupations

As shown in Chapter 2, a total of 72 different occupations were identified as widespread shortage and surplus occupations. These occupations employed approximately 81.5 million workers in 2022 of which 37.9 million were working in the identified 38 widespread shortage occupations and 43.6 million workers were working in the identified 34 widespread surplus occupations.

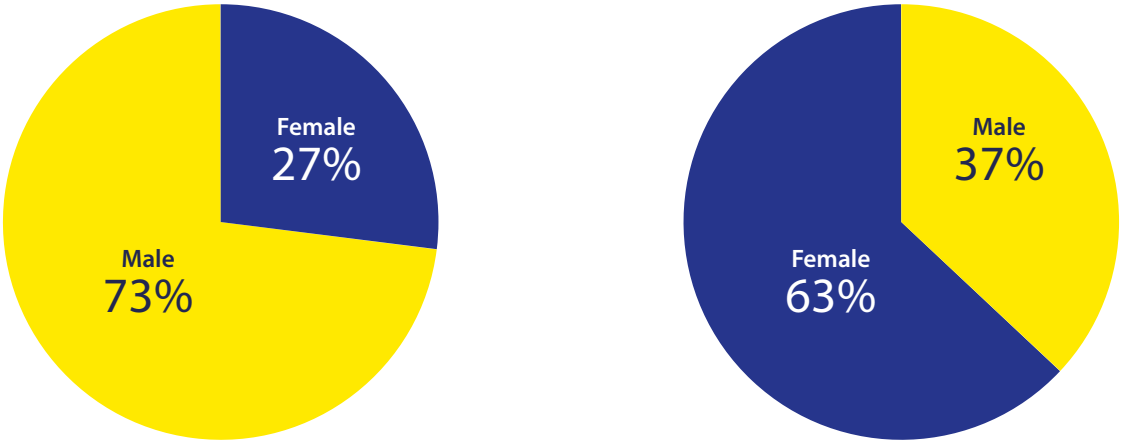
The 81.5 million workers represent just over 42% of the roughly 193.5 million people who were employed in the EU27 in 2022 – a ratio of approximately one worker in every 2.5 employed people. If the widespread shortage and surplus occupations were an average distribution in terms of their employment, they would represent only 16.5% of the 436 occupations that make up the ISCO '08 classification system. Yet, the most widespread shortage and surplus occupations include some of the occupations that employ the highest number of workers in 2022 (e.g., secretaries, shop sales assistants etc.).

Important differences emerge when the distribution of workers by gender, education, age, and country of origin is considered.

3.1.1. Gender profile

There was a total of 37.6 million women and 43.9 million men employed in the identified widespread shortage and surplus occupations in 2022. The distribution of workers by sex is similar to the workforce as a whole (46% being women). However, a striking difference emerges if the distribution of workers by widespread shortage and surplus occupations is considered (Figure 6). Specifically, the share of women in the widespread shortage occupations is only 27% compared to their share in widespread surplus occupations at 63%. An analysis of the female share in each of the 72 shortage and surplus occupations provides some insights as to why the female share is so low in the shortage occupations (Figure 7).

Figure 6: Left: Share of females in the most widespread shortage occupations in the EU27, 2022. Right: Share of females in the most widespread surplus occupations in the EU27, 2022



Source: European Labour Force Survey special data extracts

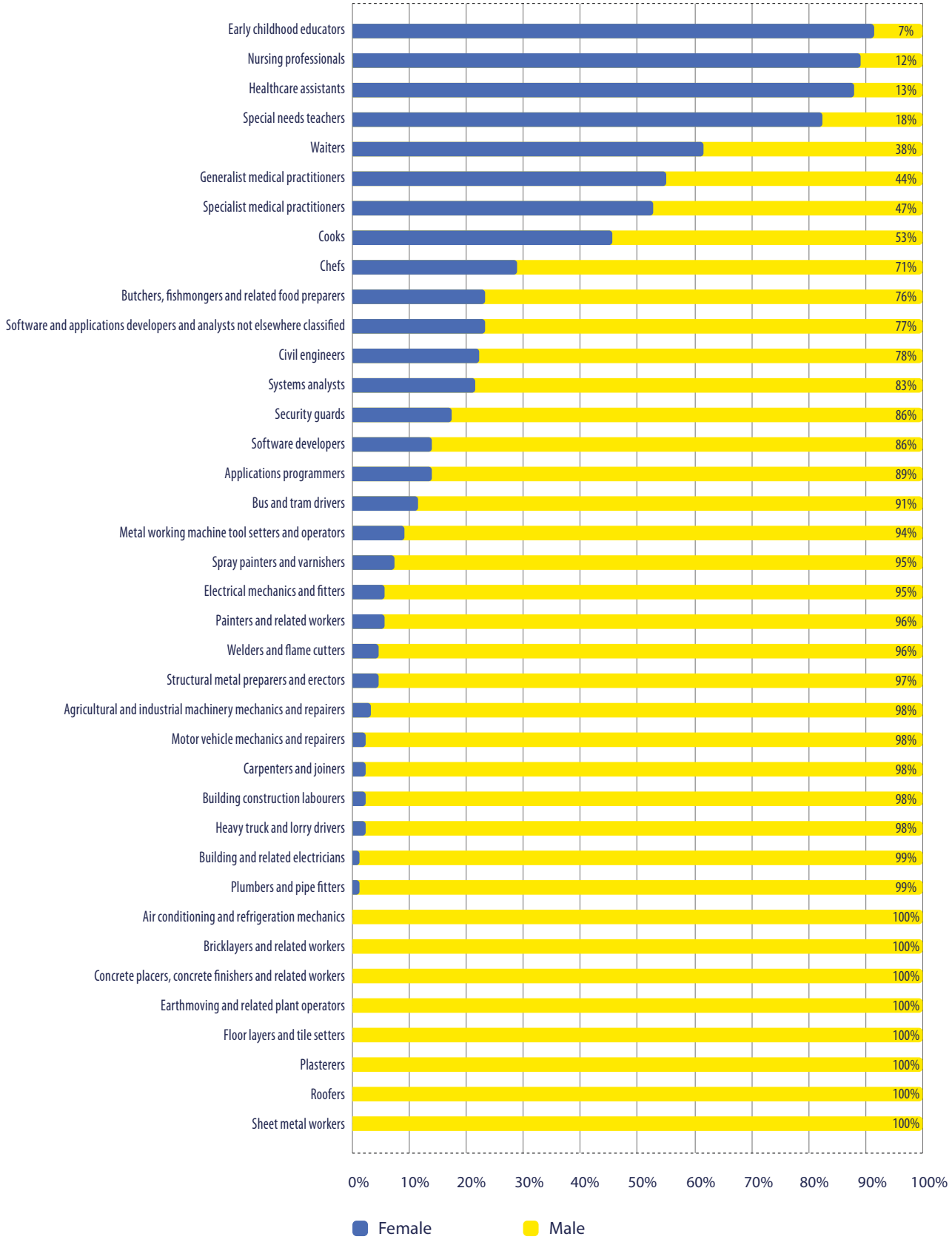
The three broad occupation groups which dominate the list of widespread shortages, (construction crafts, professional software engineers and healthcare professionals) (especially nurses and midwives, and therapists) were all characterised by a high level of gender segregation.

Data show that females were virtually non-existent among the largest group of widespread shortage occupations – namely the skilled construction trades. Female representation was also very low among engineering and electrical trades, with similar findings among software professions. Indeed, with the sole exception of waiters, female representation among the identified shortage occupations was only significant among teaching and healthcare occupations. In sharp contrast, women were highly represented in many widespread surplus occupations. This was particularly evident in the clerical occupations. The gender distribution is, however, more evenly spread among the six professional occupations that are included in the list of the most widespread surpluses.

From an individual worker perspective, it is generally more desirable to be employed in a shortage occupation rather than in an occupation which is in surplus to the market requirements as the stronger demand gives better labour market prospects in terms of being recruited and employment retention. The analysis shows that women are over-represented in occupations that are characterised by widespread labour shortages and hence are in this respect more vulnerable, to e.g., unemployment, than men.

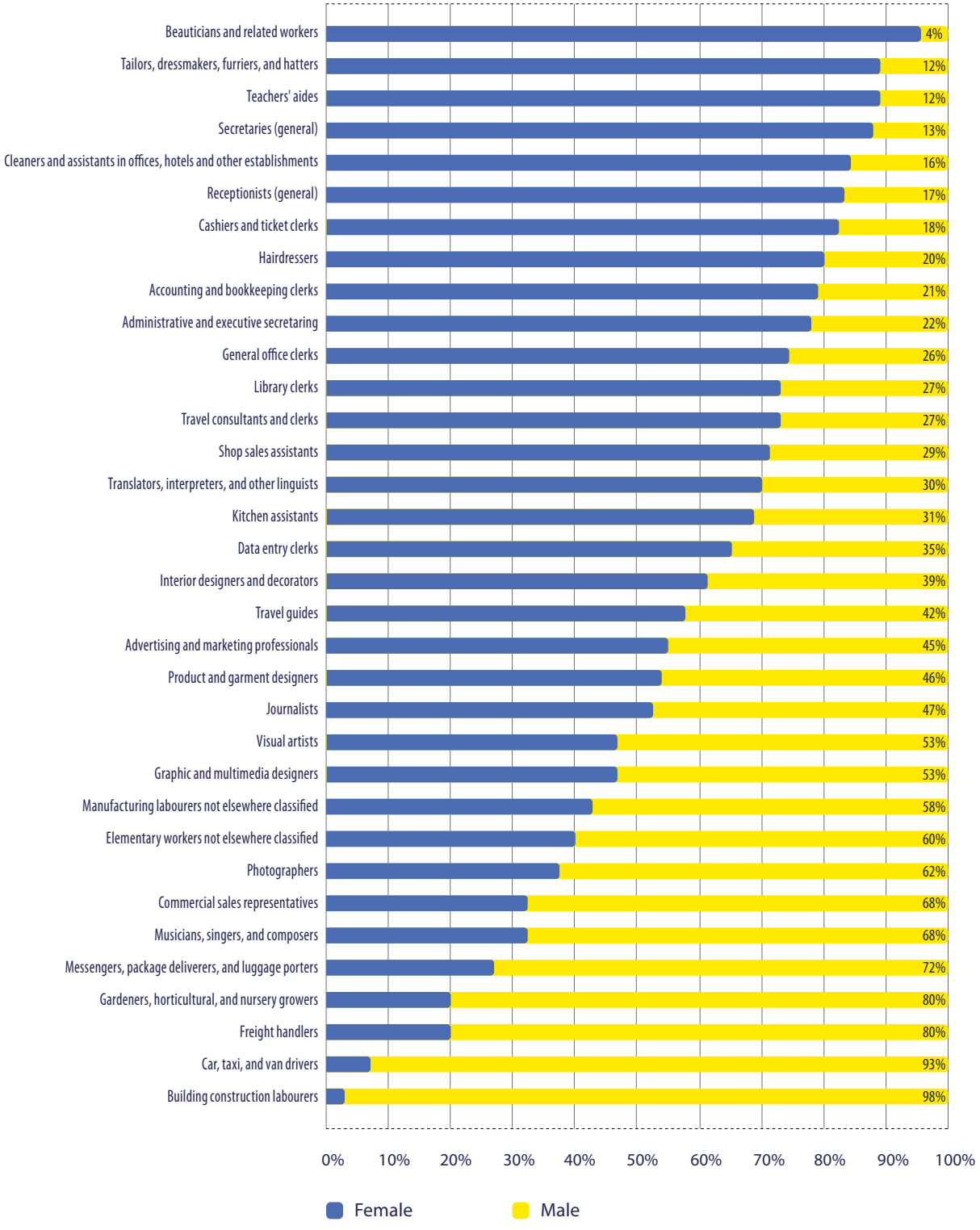
While Chapter 5 investigates some of the reasons that impact the low participation of women in the construction sector, other studies help understand gender segregation in other sectors. For example, results from the OECD programme in international student assessment (PISA) shed light on the role of relative academic strength among the (relatively) low number of female students in STEM disciplines. The study found that across 67 countries that participated in PISA 2022, boys outperformed girls in mathematics while girls on average outperformed boys in reading across OECD countries. In science, the performance difference between boys and girls was not significant. The results suggest that boys and girls pursue careers which involve the subjects they performed best in while in secondary education. Although a more systematic exploration of this hypothesis is required, it may provide at least part of the explanation for why some occupations are dominated by one gender, as in the case of software engineers. (OECD, 2023a)

Figure 7a: Share of women in the most widespread shortage occupations in EU27 (by occupation), 2022



Source: European Labour Force Survey special data extracts

Figure 7b: Share of women in the most widespread surplus occupations in EU27 (by occupation), 2022

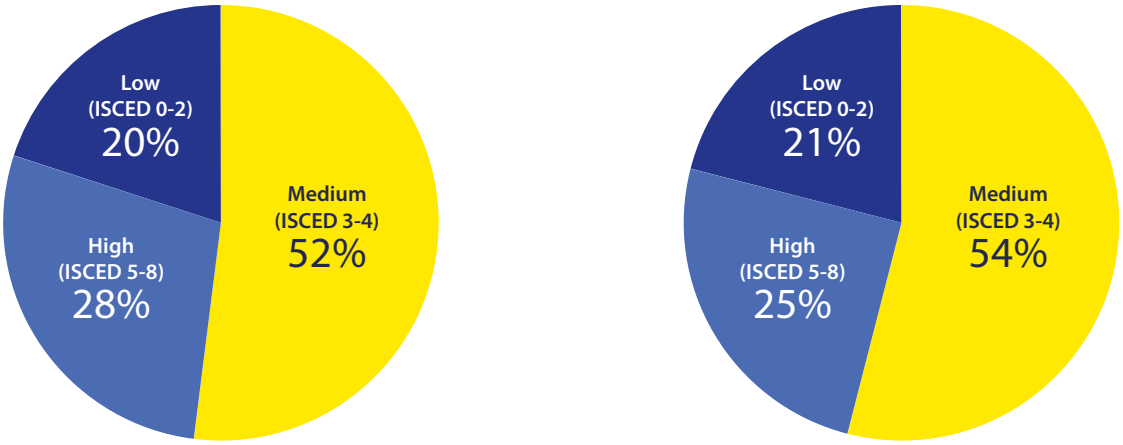


Source: European Labour Force Survey special data extracts

3.1.2. Education profile

The education profile of those working in the widespread shortage and surplus occupations was broadly similar to that presented in the EURES report of 2022 (2021 data). In terms of the ISCED classification of education attainment, the share of workers who have a third-level education or higher (ISCED 5+) was 28% in the widespread shortage occupations and 25% in the widespread surplus occupations. The share of workers with a medium level of education (ISCED 3-4) was 52% and 54% respectively in shortage and surplus occupations, while the share of those with low levels of education (ISCED 0-2) was 20% and 21%.[24] In the same year, according to Eurostat, within the EU27 workforce as a whole, the share of those with a low level of education was 15.5%, while those with a medium level of education was 46.6% and those with third level and higher qualification was 37.8%.

Figure 8: Left: Share of employed by education level in the most widespread shortage occupations in the EU27, 2022. Right: Share of employed by education level in the most widespread surplus occupations in EU27, 2022



Source: European Labour Force Survey special data extracts

Figure 9 shows that the specific education qualifications associated with each widespread shortage and surplus occupation were quite different, despite their inclusion in a similar ISCED classification. This was particularly the case for workers with a medium level education. In the case of the shortage occupations, that level of education was associated in general with the craft occupations and referred to an education stream that involved apprenticeships or other pathways of vocational education and training. In contrast, in the case of surplus occupations, the medium level of education was associated with occupations which typically require the completion of general second-level education.

There are also clear differences between the shortage and surplus occupations which were associated with third-level education qualifications. In the case of the widespread shortage occupations, these were either in the healthcare, teaching, software, or engineering professions. In other words, they related to a specific type of work, requiring occupation-specific qualifications – albeit at third-level rather than at the craft level. In sharp contrast, the ISCED third level of qualifications associated with the widespread surplus occupations was mainly in the humanities or the arts and design area, i.e., qualifications more transversally applicable. This suggests that labour shortages are driven by skills specificities as employers prefer workers with occupation-specific or even job-specific technical qualifications rather than general qualifications.

In Ireland, half of the shortage occupations identified (10) are typically associated with third-level degrees or higher qualifications. This is an unusual situation. Furthermore, Ireland was one of the few countries to identify managers of information and communication technology services as a shortage. Specifically, the shortage relates to IT project managers for which a high number of employment permits were issued in 2022. Engineers also feature prominently in the list of shortage occupations, including mechanical engineers, civil engineers, and engineering professionals not elsewhere classified. Chemists were also included both at the professional and technical levels. The reason for the Irish economy to require workers with third-level degrees varies by sector. For many scientists and some engineering occupations, shortages occur particularly in niche areas which often require several years of relevant work experience and would not be suited to a recent graduate. For IT profession-

24. Source: European Labour Force Survey special data extracts.

als, as discussed above, there was a considerable expansion in employment in recent years, although there are some signs of growth slowing. Although supply from the education system is strong, demand in both the ICT sector and across many other sectors for IT roles (e.g., financial services, industry, public sector etc.) means that shortages have persisted in the country (OECD, 2023b).

Overall, findings on the severity and frequency of labour shortages illustrated in this report indicate that an increase in the supply of higher educated jobseekers would not resolve all shortages identified, although it would be certainly beneficial in respect of the shortages identified in healthcare, software, and teaching skills. The increase of labour supply with intermediate education could, on the other hand, contribute to address shortages in craft occupations, especially as regards to occupations in construction and engineering. Examples of relevant practices already in place across the EURES countries are included in Box 6.

Box 6: Examples of practices to increase apprenticeships and other forms of training (intermediate education)

The Netherlands promotes a special multi-disciplinary apprenticeship with very good employment prospects, the so-called cross-over scheme[25].

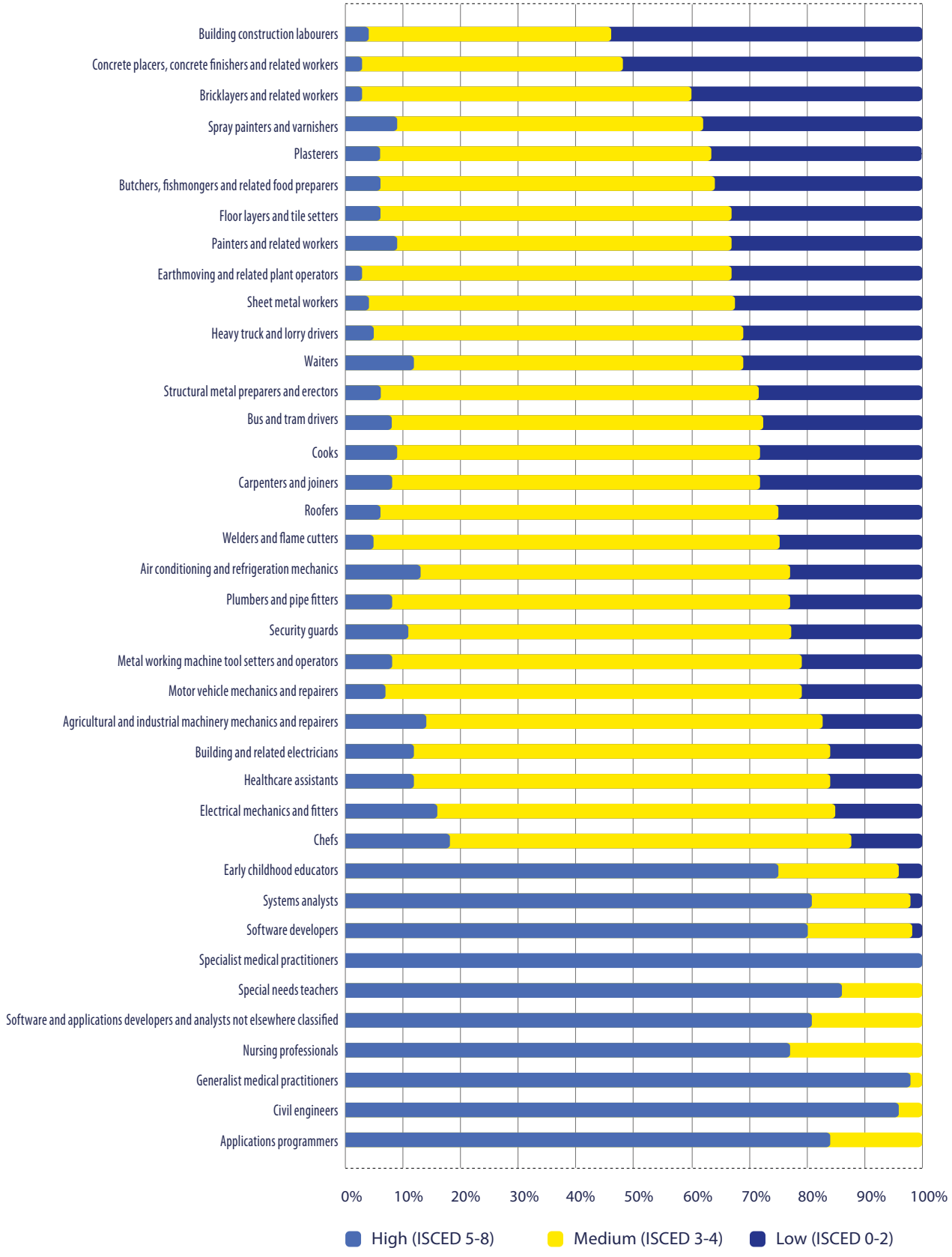
Ireland provides subsidies to employers who sponsor apprentices in trades which are in short supply and allows apprentices to retain social welfare benefits such as child dependant allowances which could potentially encourage more women into these roles. The scheme was introduced in the summer 2022 and expired at the end of December 2022. It was a response to a chronic shortage of construction trade apprentices[26].

In France, special apprenticeships target disadvantaged youth (professionalisation apprenticeship)[27]. More generally, France promotes training to all citizens through an Individual Learning Account Scheme funding (Compte Personnel de Formation[28]) with a grant payment of EUR 500 each year up to EUR 5 000.

Other practices include the use of micro-credentials to accredit relatively short training courses; various kinds of funding initiatives such as individual learning accounts; and online training provisions that ease access to skills development.[29]

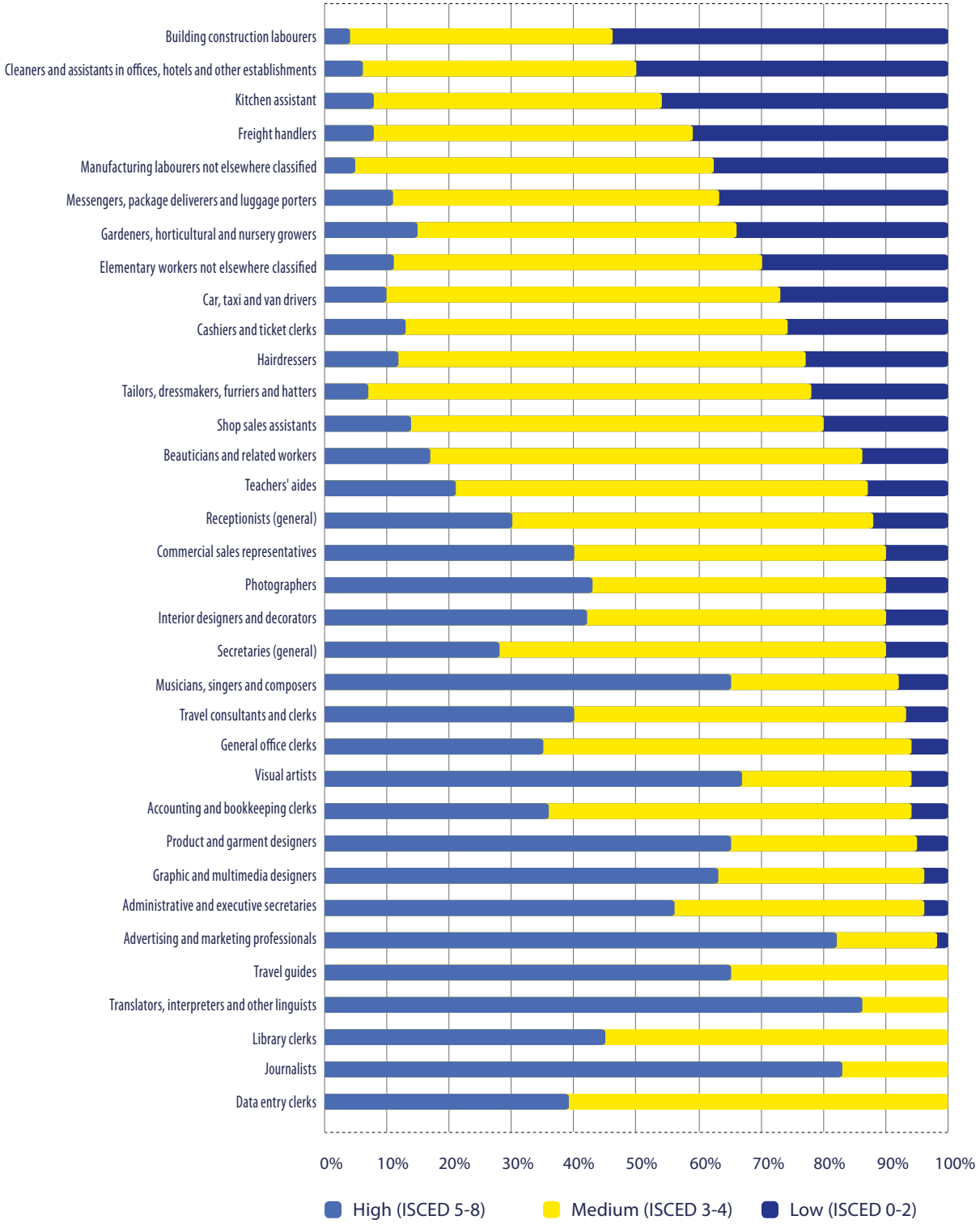
25. https://www.cedefop.europa.eu/files/6212_en.pdf
26. https://apprenticeship.ie/
27. https://www.cedefop.europa.eu/files/6212_en.pdf
28. https://www.moncompteformation.gouv.fr/espace-public/aide/mon-compte
29. https://education.ec.europa.eu/education-levels/higher-education/micro-credentials

Figure 9a: Share of employed by education in the most widespread shortage occupations in the EU27 (by occupation), 2022



Source: European Labour Force Survey special data extracts

Figure 9b: Share of employed by education in the most widespread surplus occupations in the EU27 (by occupation), 2022

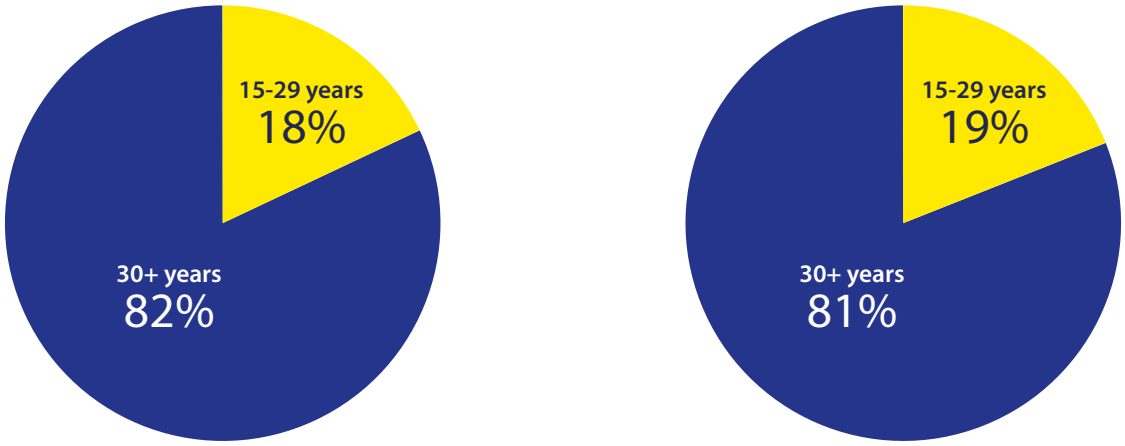


Source: European Labour Force Survey special data extracts

3.1.3. Age profile

According to LFS data, 35.1 million workers in the EU27 were under the age of 30 years in 2022. This represents 18% of the total workforce in the 27 Member States. In the case of the most widespread shortage occupations, there was a total of 38 million employed, of which 7 million were under 30 years of age. This represents 18% of the total employed which is equivalent to the national average. In the case of the most widespread surplus occupations, there was a total of 43.6 million employed of which 8.5 million were under 30 years of age. This represents 19% of the population which is marginally higher than the national average of 18%.

Figure 10: Left: Share of employed by age group in the most widespread shortage occupations in the EU27, 2022. Right: Share of employed by age group in the most widespread surplus occupations in the EU27, 2022



Source: European Labour Force Survey special data extracts

However, the age distribution shows considerable variations between the specific shortage and surplus occupations (Figure 11).

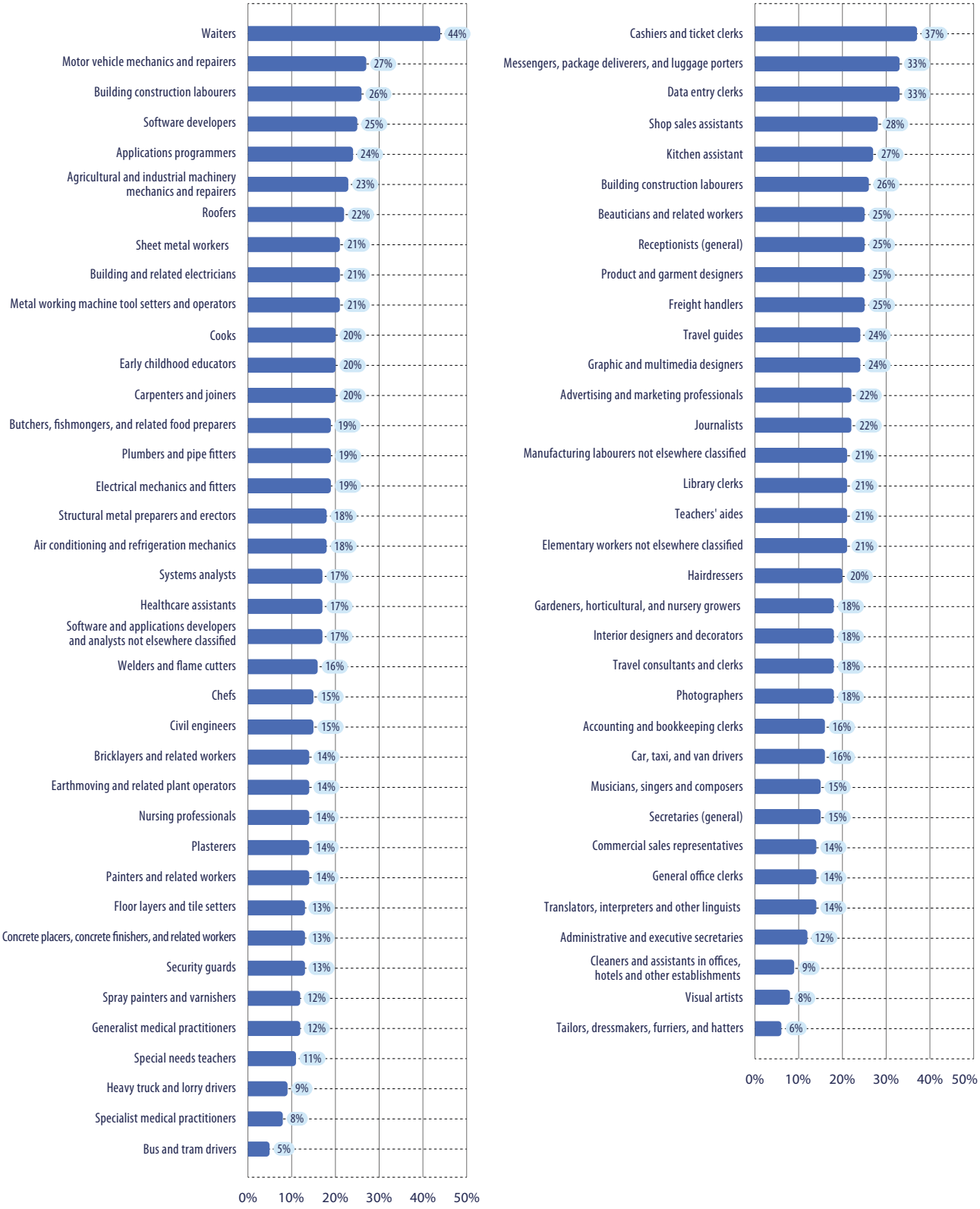
For example, among the widespread shortage occupations, over 40% of waiters were young workers. Only nine other occupations on the list employed more than 20% of young people (including a range of software occupations and construction trades), while in all other occupations young people accounted for less than 20% of the total workers employed in 2022.

Among surplus occupations, a higher number of occupations had a relatively large share of youth employment. Three of the identified occupations had a share above 30%, and a further 14 occupations had a share of young people that was above 20%. Thus, half of the 34 identified widespread surplus occupations had a share of youth employment above 20% in 2022. This implies that there are relatively high numbers of young people employed in occupations where the supply has been identified as being in excess of market demand.

An underrepresentation of young workers in shortage occupations causes concerns as it suggests that the shortages will continue unless measures are taken to increase the supply of workers into these specific occupations. The occupations in question are those with a workforce under 30 years of age that is close to – or even below – 10%. These include heavy vehicle truck drivers, a number of crafts, doctors, specialist doctors, and nurses (although the fact that the healthcare occupations are associated with relatively long periods of education and training contributes to their youth profile being below average and is to a certain extent intrinsic to the occupation).

In contrast to other occupations, craft workers are classified as being in employment the moment they enter into apprenticeship. Consequently, craft workers are expected to have an above average share of employed youth (i.e., workers under 29 years). As shown in Figure 11, this was not the case for plasterers, painters, concrete placers, finishers, and bricklayers. But even for plumbers and pipefitters – whose share of youth was roughly equivalent to their average share in the EU27 workforce – the share should be higher in view of the fact that many apprentices enter the workforce shortly after completing their second level education or indeed before completing second level.

Figure 11: Left: Share of workers under 30 years in the most widespread shortage occupations in the EU27 (by occupation), 2022. Right: Share of workers under 30 years in the most widespread surplus occupations in the EU27 (by occupation), 2022



Source: European Labour Force Survey special data extracts

3.1.4. Country of origin

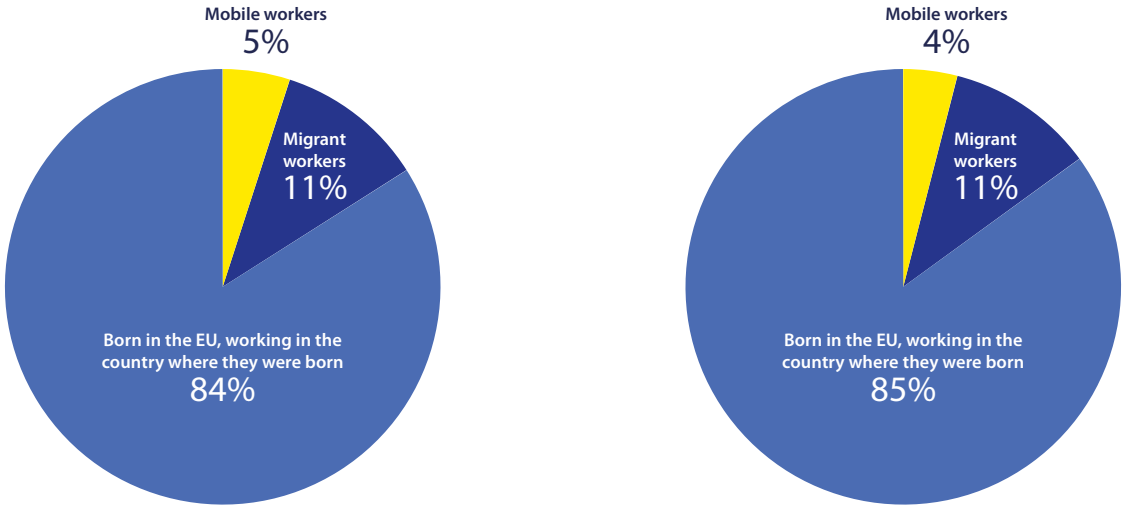
Section 2.4.2 delves into how the proportion of mobile / migrant workers has evolved over the past four years across five major occupational groups (at the 2-digit ISCO '08 classification level). To complete the analysis, it is important to examine the distribution of workers according to their country of origin within each of the widespread shortage and surplus occupations.

In 2022, in the 38 most widespread shortage occupations, 84% of the workers were born in the Member State they were employed in, while 5% were mobile workers born in another EU Member State. 11% were migrant workers born in a third country. The figures for the widespread surplus occupations are broadly similar, with 85% of those working in the 34 most widespread surplus occupations born in the Member State they were employed, 11% were migrant workers, and 4% were mobile workers. The share of the overall EU mobile workforce amounted to 4%, and 9% were migrant workers.

It is to be expected that the share of migrant workers employed in shortage occupations in 2022 was somewhat higher than the average share employed in all occupations. Indeed, many of the Member States operate work permit systems which are specifically designed to attract workers from abroad who possess qualifications which are in shortage in the EU.

As regards the relatively high share of migrant workers in some of the surplus occupations, many of these occupations are associated with low barriers to entry and therefore may be accessible to TCNs who wish to earn some money in the EU – perhaps on a temporary basis.

Figure 12: Left: Employed by country of origin in most widespread shortage occupations (EU27), 2022. Right: Employed by country of origin in most widespread surplus occupations (EU27), 2022



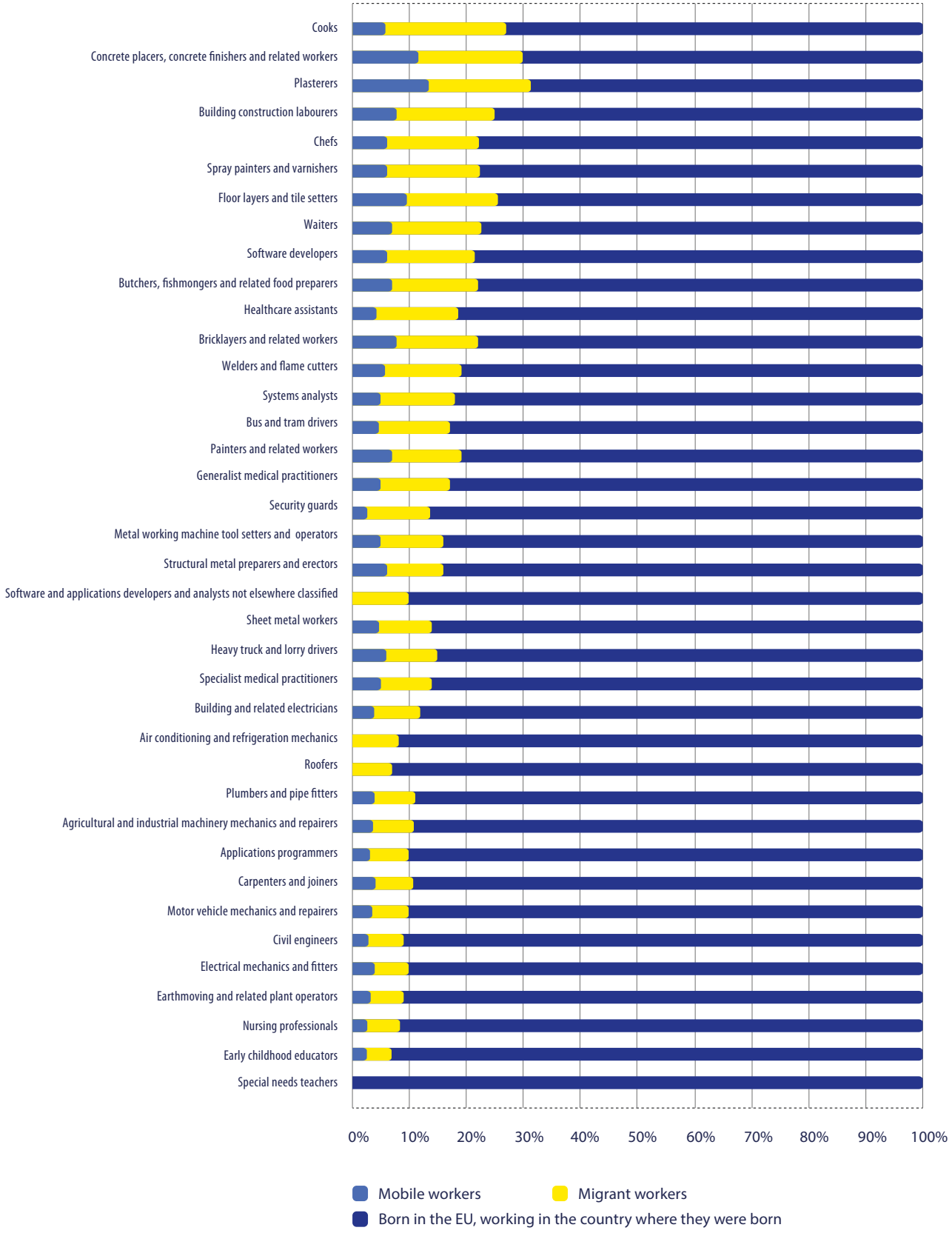
Source: European Labour Force Survey special data extracts

Box 7: Migrant workers to alleviate labour shortages

In recent years, in the context of an increased migration flow from third countries as a result of conflict and other factors, many measures in the EU Member States have focused on facilitating the more rapid integration of migrants into the labour market. Thereby, an emphasis on minimising brain waste is observable. Recent Eurofound research (forthcoming in 2024) demonstrates that although the integration rates among migrants from Ukraine are relatively positive, the share of individuals performing work outside and below their qualifications is high. Therefore, focus has to be placed on suitable language training and the recognition of qualifications gained in another country.

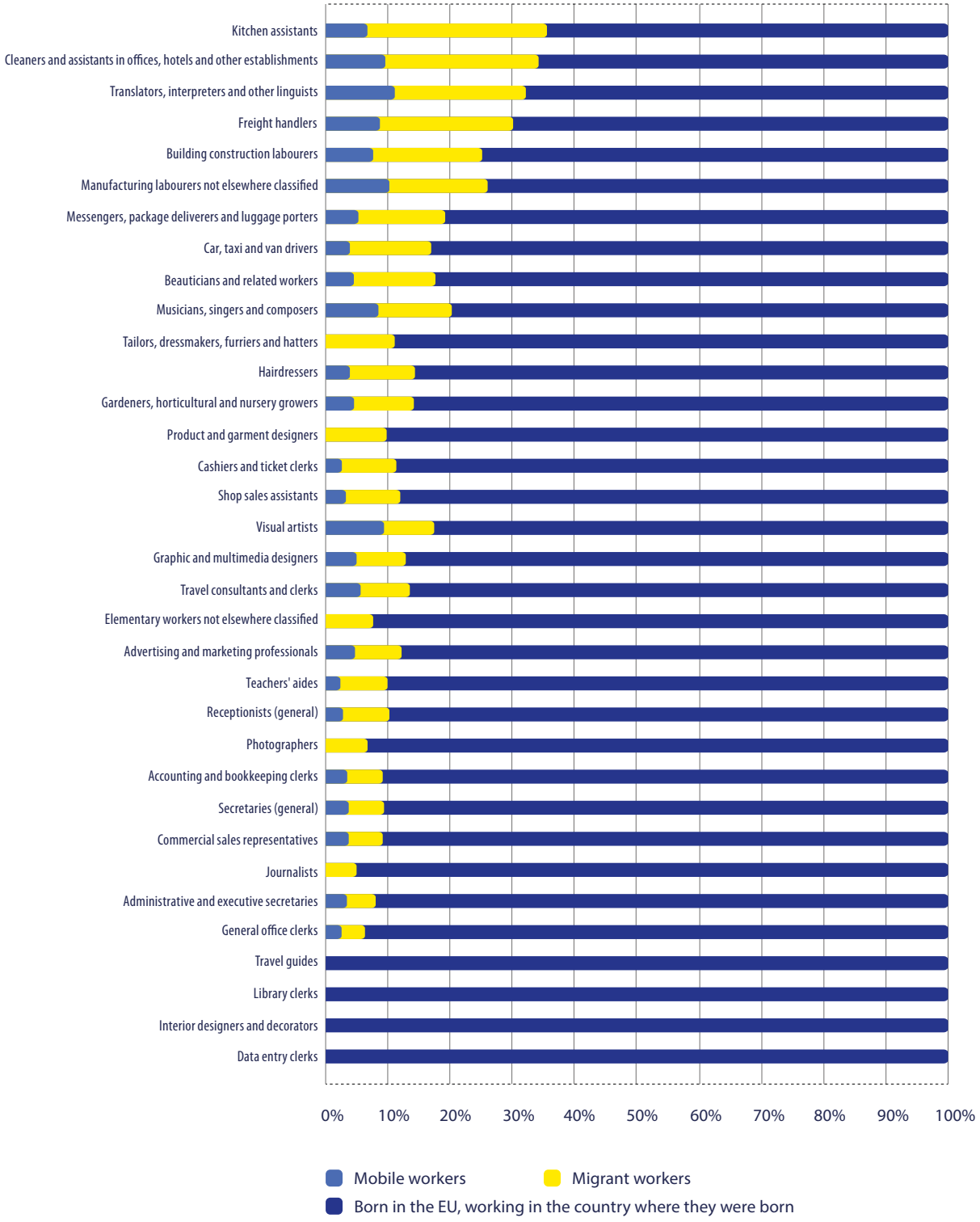
The surplus occupations which display the highest share of migrant workers are shown in Figure 13. They include kitchen assistants, cleaners in hotels and other buildings and labourers in both construction and manufacturing. While the list also includes translators for obvious reasons, most of the occupations do not require specific education qualifications.

Figure 13a: Share of employed by country of origin in the most widespread shortage occupations in the EU27 (by occupation), 2022



Source: European Labour Force Survey special data extracts

Figure 13b: Share of employed by country of origin in the most widespread surplus occupations in the EU27 (by occupation), 2022



Source: European Labour Force Survey special data extracts

3.2. Multiple vulnerabilities linked to labour surpluses

The previous section analysed four characteristics of workers who were employed in the identified shortage and surplus occupations in the EU in 2022 that are commonly regarded as indicators of disadvantage in the labour market (gender, age, education status and nationality/country of origin etc). Building upon this, this section focuses on those employed in surplus occupations and explores whether they are associated with multiple disadvantages. Surplus occupations are chosen as these per se already pose a higher potential disadvantage for labour market entrance and sustainable labour market integration to the workers, given the higher supply of workers in comparison to jobs available in these sectors.

Among the unskilled occupations that have been identified as widespread surpluses, all except of one (unskilled workers not elsewhere classified) were characterised by an above-average share of workers falling into three of the four vulnerable workforce groups. For kitchen assistants, this even holds true for all four characteristics. This means that there was a high share of young, low-educated mobile / migrant workers that seeked work in unskilled occupations which were did not command high labour demand in the market. This results in an accumulation of a stock of surplus workers, who are of greater need other occupations and indicates the need for an enhanced provision of information as regards to labour market development, employment, and education / training opportunities for this specific workforce group.

Similar holds true for services and sales workers. In half of the surplus occupations in this occupational group workers are characterised by three of the four vulnerability elements. Compared to the unskilled occupations, the share of mobile / migrant workers is lower while a dominance of female workers is prevalent, next to low educational qualifications and young age. For the other occupations in this group, the combination of vulnerabilities refers to gender and age. Accordingly, to address labour surpluses in this occupational group, targeted measures addressing young women might be most effective. The same applies for clerical support workers for whom the most common combination of vulnerability elements also relates to gender and age.

Among gardeners and horticultarists, the workforce is characterised by an above average share of low-educated and mobile / migrant workers. From a policy perspective, this target group is likely difficult to identify and approach to inform them about their potentially limited labour market opportunities and to try to attract them to and prepare them for other occupations. Maybe initiatives jointly designed and implemented by public authorities, social partners, NGOs, and community groups as well as employers might be most promising.

Finally, workers in the occupational group of technicians and associate professionals are those with the most widespread surpluses who are least characterised by multiple vulnerabilities. Only one occupation – translators, interpreters, and other linguists – show an above-average share of workers with two vulnerability elements (women and mobile / migrant workers). The other surplus occupations in this group have an above-average share of workers characterised by one vulnerability element (either women or mobile / migrant workers) or none at all. Accordingly, this occupation group can be considered as the 'least disadvantaged' among the surplus occupations.

Table 9: Share of vulnerable categories in surplus occupations in EU27, 2022

	Average share of all workers employed in the EU	46%	16%	18%	13%
	Occupation title	Women	Low educated	Youth	Mobile / migrant workers
Professionals	*Product and garment designers*	54%	5%	25%	10%
	Graphic and multimedia designers	47%	4%	24%	13%
	Advertising and marketing professionals	55%	2%	22%	12%
	Journalists	53%	0%	22%	5%
	Translators, interpreters, and other linguists	70%	0%	14%	32%
	Visual artists	47%	6%	8%	17%
	Musicians, singers, and composers	32%	8%	15%	20%

	Average share of all workers employed in the EU	46%	16%	18%	13%
	Occupation title	Women	Low educated	Youth	Mobile / migrant workers
Technicians and associate professionals	*Commercial sales representatives*	32%	10%	14%	9%
	Administrative and executive secretaries	78%	4%	12%	8%
	Photographers	38%	10%	18%	7%
	Interior designers and decorators	61%	10%	18%	0%
Clerical support workers	*General office clerks*	74%	6%	14%	6%
	Secretaries (general)	87%	10%	15%	9%
	Data entry clerks	65%	0%	33%	0%
	Travel consultants and clerks	73%	7%	18%	13%
	Receptionists (general)	83%	12%	25%	10%
	Accounting and bookkeeping clerks	79%	6%	16%	9%
	Library clerks	73%	0%	21%	0%
Services and sales workers	*Travel guides*	58%	0%	24%	0%
	Hairdressers	80%	23%	20%	14%
	Beauticians and related workers	96%	14%	25%	18%
	Shop sales assistants	71%	20%	28%	12%
	Cashiers and ticket clerks	82%	26%	37%	11%
	Teachers' aides	88%	13%	21%	10%
Agricultural, forestry and fishery workers	*Gardeners, horticultural and nursery growers*	20%	34%	18%	14%
Elementary occupations	*Tailors, dressmakers, furriers, and hatters*	88%	22%	6%	11%
	Car, taxi, and van drivers	7%	27%	16%	17%
	Cleaners and assistants in offices, hotels, and other establishments	84%	50%	9%	34%
	Construction labourers	2%	54%	26%	25%
	Manufacturing labourers not elsewhere classified	42%	38%	21%	26%
	Freight handlers	20%	41%	25%	29%
	Kitchen assistants	69%	46%	27%	36%
	Messengers, package deliverers, and luggage porters	28%	37%	33%	19%
	Elementary workers not elsewhere classified	40%	30%	21%	8%

Source: European Labour Force Survey special data extracts

3.3. Chapter summary

In 2023, as already in previous years, women were mainly concentrated in surplus occupations, increasing their vulnerability to unemployment.

The situation of younger workers was less clear-cut. While the share of workers between 15-29 years was similar in the widespread shortage and surplus occupations, it varied considerably between individual occupations. While young people were overrepresented in only few shortage occupations – those including cashiers, messengers, and data entry clerks – they were underrepresented in critical shortage occupations in the healthcare sector and in some craft occupations. This increases the possibility of exarcerbated shortages in the future.

Findings also show that the share of workers with third-level qualifications tended to be higher among the widespread surplus occupations. Highly educated workers were, however, also well represented in shortage occupations, as most of these occupations required specific rather than general / transversal qualifications. The findings show that some of the workers employed in shortage occupations might be overqualified for the position.

Looking at the country of origin, the share of migrant workers in both widespread shortage and surplus occupations was higher than the share of those workers in the EU economy as a whole. While this is to be expected in the case of widespread shortages, for instance, due to the operation of schemes facilitating the entrance of TCNs to fill vacant positions in specific sectors, what is more surprising is the higher share in surplus occupations. However, there was no difference between the widespread shortage and widespread surplus occupations in respect of their shares of mobile and migrant workers. Findings indicate that the contribution of migrant workers to resolving labour market imbalances is not only in respect of addressing identified shortages but also in providing labour in areas which – for whatever reason – is not provided by the domestic labour force.

Looking at whether workers in widespread surplus occupations are characterised by multiple disadvantages on the labour market, the analysis shows that this is particularly the case for workers in elementary occupations. Technicians and associate professions are least disadvantaged.

4. Causes of labour market imbalances: an exploration of shortages in the construction sector

4.1. Labour demand in the construction sector

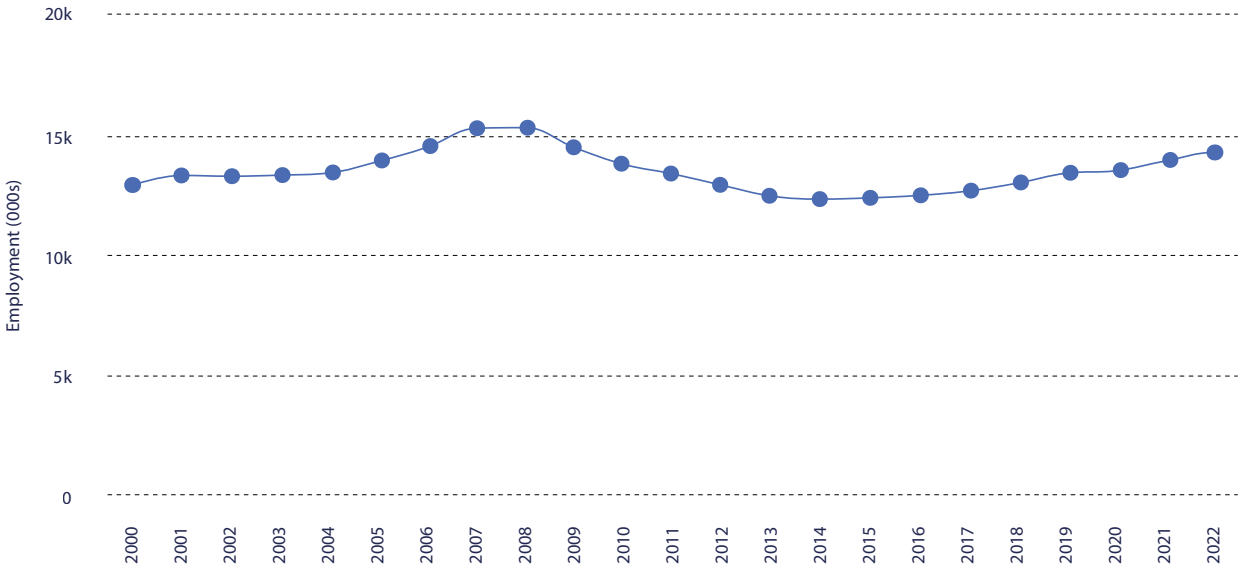
The construction sector accounts for around 6% of output and about 7% of employment – i.e., 14 million people – in the EU (Eurostat, 2023). It is strategically important given its function in building homes and its civil engineering role in developing physical infrastructure across Europe. It has also been central to the recovery of the EU economy given the sizable share of the NextGenerationEU budget allocated to construction, notably through the emphasis placed on energy efficiency.[30] This highlights the sector's role in the green transition which extends to, amongst other things, building solar and wind farms, alongside retrofitting buildings to increase sustainability.

The 2022 EURES report on the current state of labour market imbalances in Europe drew attention to the persistent labour shortages the sector has endured (ELA, 2023a). This is also confirmed by the findings of this year's report, where almost half of the occupations classified as being in shortage belong to the construction sector.[31]

The past decade has been marked by a gradual recovery in employment in construction following the 2008 financial crisis that adversely affected the sector (see Figure 14). Between 2008 and 2014 employment fell by 3 million in the EU, equivalent to around a fifth of the sector's employment in 2008. By 2022, employment still stood below its peak of 15.3 million in 2008. It should be noted that employment levels in construction demonstrate a degree of volatility. Figure 15 reveals that employment in the construction sector tends to experience sharper twists and turns than the economy as a whole: troughs are deeper, and peaks are higher. This implies that employment in the sector may be less secure than in the economy as a whole, with implications for the recruitment of workers during periods of growth especially if workers previously laid off are unprepared to return to the sector.

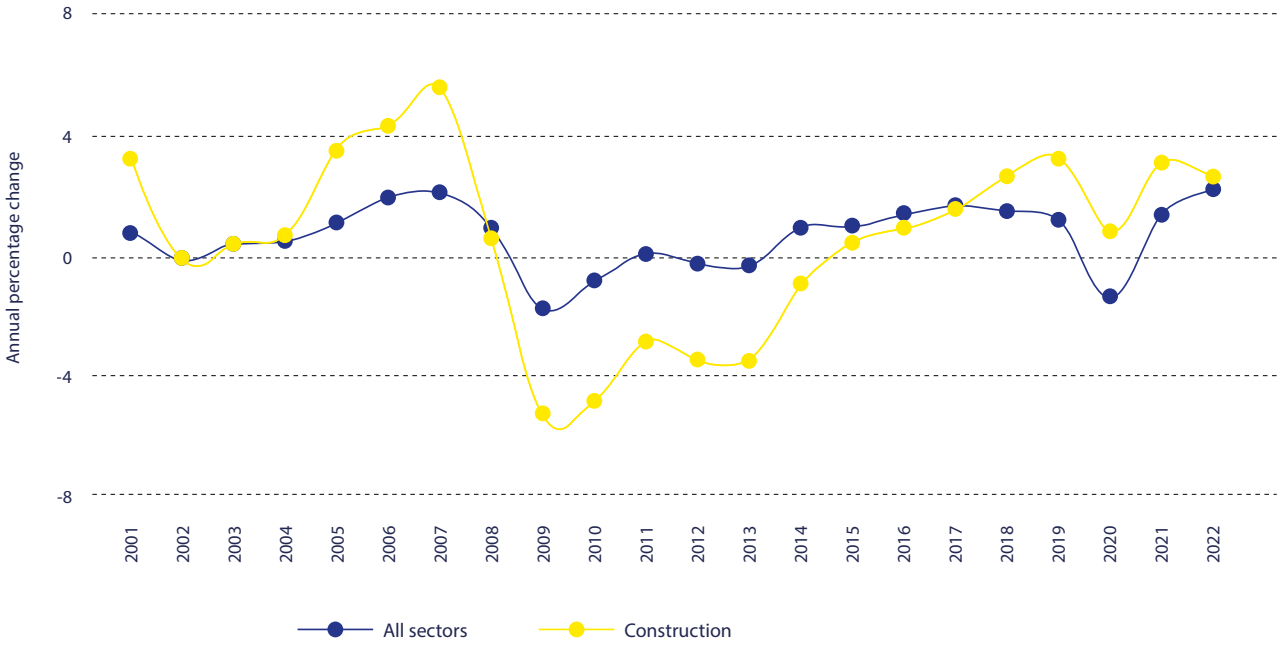
30. NextGenerationEU is the EU's recovery plan so that it emerges stronger from the pandemic. It plans to invest EUR 806.9 billion. See - https://next-generation-eu.europa.eu/index_en
31. From Table 4: welders; plumbers, pipefitters; electricians; civil engineers; carpenters and joiners; bricklayers; roofers; building construction labourers; concrete placers, finishers; structural metal preparers; air conditioning, refrigeration; plasterers; earth moving plant operators; floor layers, tile setters; painters and related trades.

Figure 14: Employment in construction, EU27, 2000 - 2022



Source: Eurostat National accounts employment data by industry [nama_10_a64]

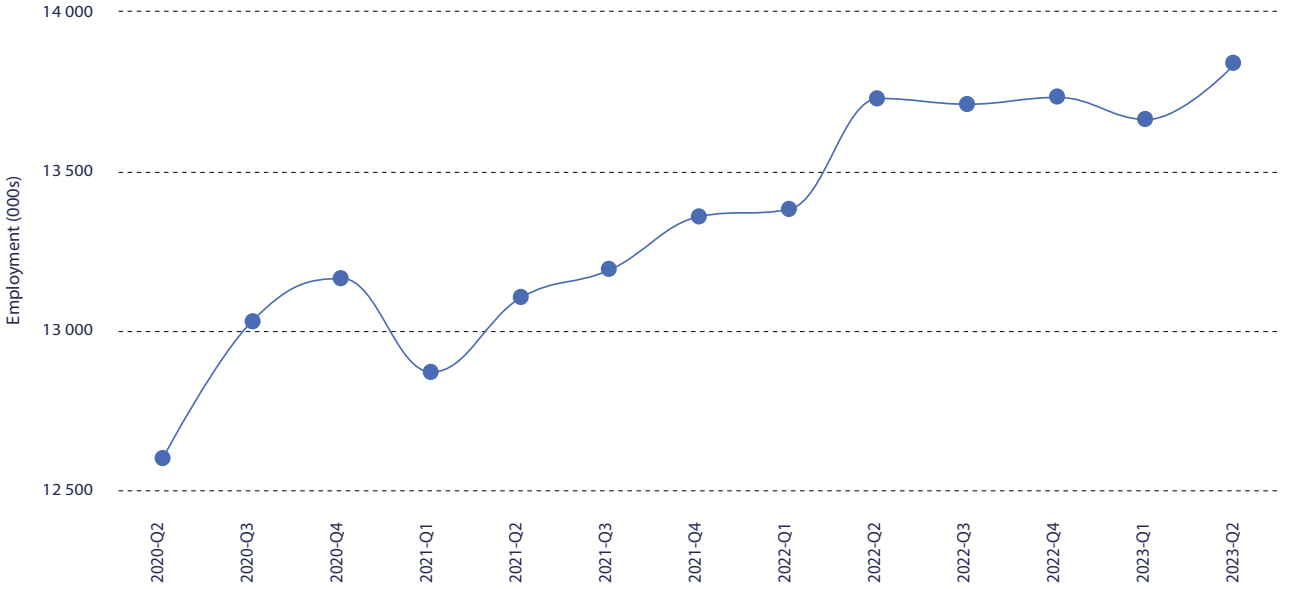
Figure 15: Year-on-year employment growth in construction and all sectors, EU27, 2000 - 2022



Source: Eurostat National accounts employment data by industry [nama_10_a64]

More recently the sector has had to recover from the impact of the COVID-19 pandemic. Figure 16, based on quarterly employment data, shows the recent pattern of employment change. Employment dipped during 2021Q1 as COVID-19 wreaked havoc across Europe but has since recovered from its pandemic-induced employment losses and continued to grow.

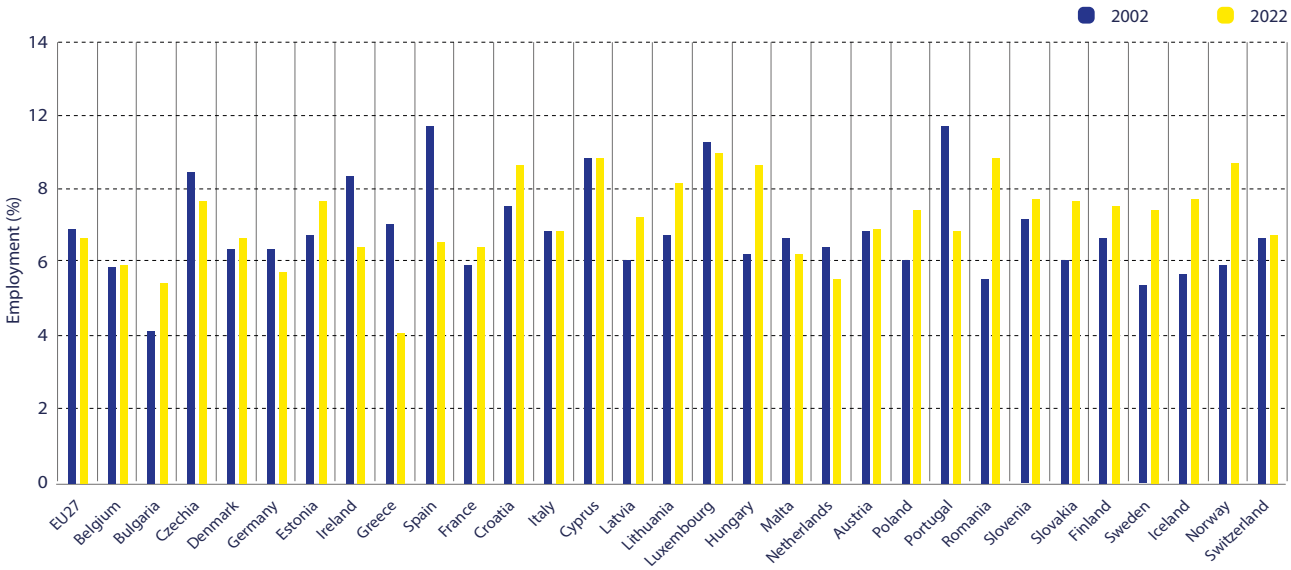
Figure 16: Changes in construction employment since the pandemic, EU27, 2020Q2 - 2023Q2



Source: Eurostat Labour Force Survey [lfsq_egdn2]

As noted above, in 2022, construction employment accounted for around 7% of all employment in the EU. There is, however, substantial variation by Member State: from 4.1% in Greece to 10.4% in Luxembourg (see Figure 17). Some countries appear to have experienced relatively sizable changes in the share of employment accounted for by construction over the past 20 years. In Spain, for instance, the sector accounted for 11.7% of employment in 2002 but this had fallen to 6.6% in 2022. A similar picture emerges for Greece where the share of employment fell from 7.1% to 4.1%, and in Portugal.[32] These are countries which took longer to recover from the financial and economic crisis.

Figure 17: Share of employment by country accounted for by construction, 2002 and 2022



Source: Eurostat National accounts employment data by industry [nama_10_a64]

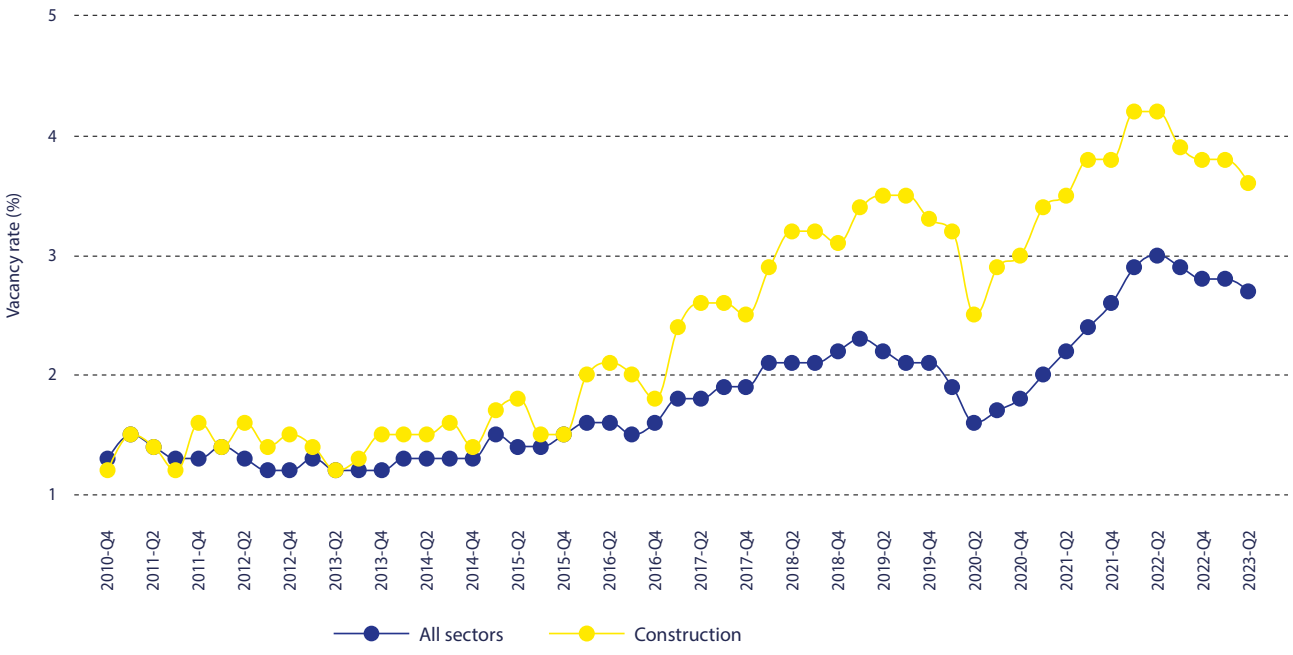
32. It has been noted that where countries and / or sectors are dependent upon posted workers this may result in employment levels being underestimated because incoming posted workers are not included in employment data (De Wispelaere and Rocca, 2023).

There is evidence of labour hoarding in the construction sector, which is likely to reflect employers' concerns about their capacity to recruit personnel during periods of growth. The European Commission's indicator of labour hoarding is based on the responses of employers to questions in the Business Consumer Survey about their future output and employment expectations (European Commission, 2023c). Labour hoarding refers to situations where labour is not fully utilised by an employer at a given point in time. The indicator reveals that the economic crisis in 2008 triggered a construction crisis which resulted in year-on-year declines in output until 2013 after which output was stagnant up to 2016. The sector's recovery commenced in 2016, at which point there was an observed increase in labour hoarding. This signals that the sector as a whole has tried to insulate itself from labour shortages through retaining labour inputs in excess of its current needs. While this may reduce the impact of labour shortages, it also potentially dampens the sector's productivity.

4.2. Vacancies in the construction sector

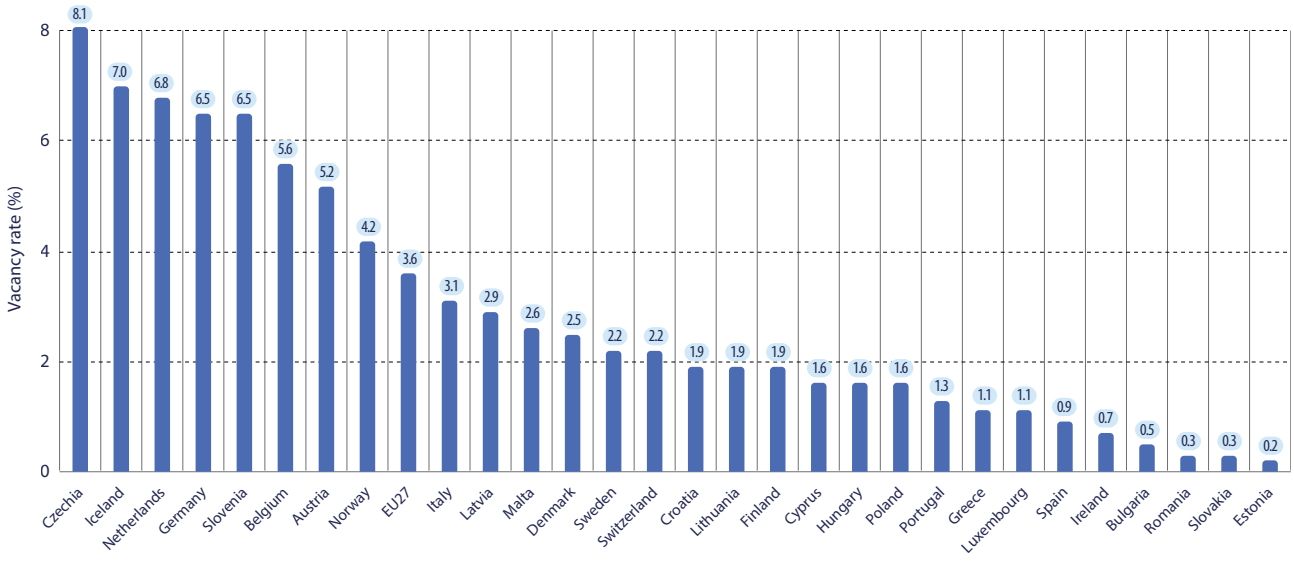
Vacancy data provides an indication of the extent to which there is unmet demand for labour. In 2023Q2, the construction sector recorded the fourth highest JVR of any sector in the EU with only administrative and support services, professional scientific and technical activities, and accommodation and food services recording higher rates. Figure 18 shows the JVR, respectively, for construction and all sectors over, more or less, the past 10 years. It reveals how since 2016 the JVR in construction has increased at a faster pace than across all sectors in the EU. In 2023Q2, there was nearly a one percentage point difference in the vacancy rate between construction (3.6%) and all sectors (2.7%). It should be noted that JVR in construction varies substantially by country: from 8.1% in Czechia to 0.2% in Estonia (see Figure 19). East European countries appear to be particularly affected by labour shortages.

Figure 18: Vacancy rates for construction and all sectors in the EU27, 2014Q4 - 2023Q2



Source: Eurostat job vacancy statistics [jvs_q_nace2]

Figure 19: Job vacancy rates in construction by country, EU27, Iceland, and Switzerland, 2023Q2

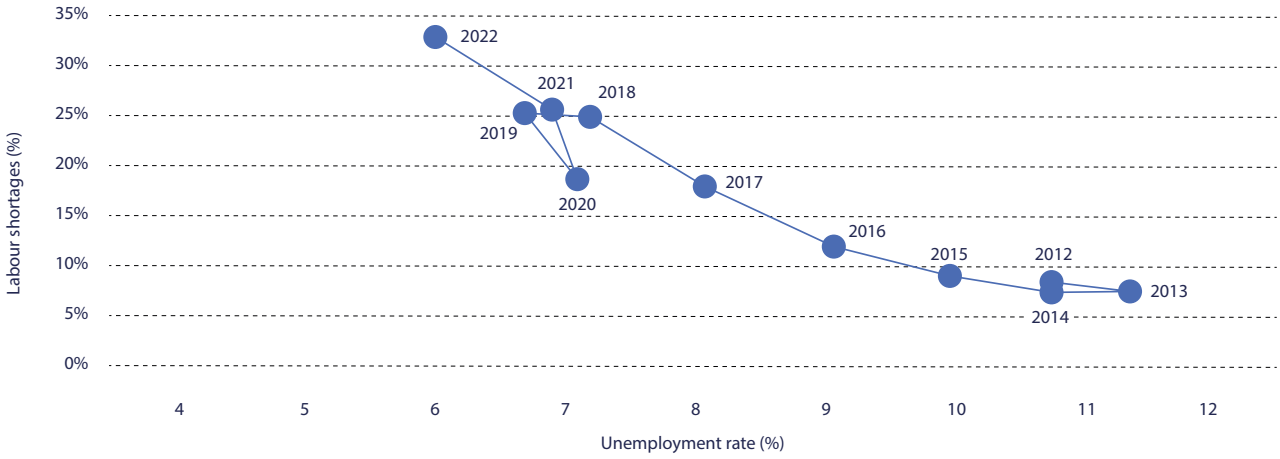


Source: Eurostat job vacancy statistics [jvs_q_nace2]

Analysis of the European Commission's Business and Consumer Survey (BCS), which provides an indication of labour shortages in the economy,[33] combined with data on unemployment rates from the EU-Labour Force Survey, reveal that the main sectors of the EU economy have followed a similar trajectory over the recent past: since 2012, unemployment rates have decreased, and labour shortages have increased. COVID-19 disrupted the trend when unemployment levels rose, but following the pandemic, the evidence reveals that unemployment has fallen while shortages have continued to increase (European Commission, 2023b).

The situation seems to have been particularly acute in the construction sector. Figure 20 provides a Beveridge curve for construction. It reveals that since 2012, labour shortages have increased at a relatively fast rate in construction to stand higher than in industry or services. While the BCS labour shortage indicator stood at 28.3% in 2022 in the industry sector, an increase of 22.2 percentage points since 2012, that for construction stood at 32.8% - an increase of 24.4 percentage points over the same period. In services, the labour shortage indicator stood at 31.2% in 2022, an increase of 21.4 percentage points compared with 2012.

Figure 20: Beveridge curve for the EU27 construction sector, 2012 – 2022



Source: Eurostat [ei_bsin_q_r2 ; ei_bsbu_m_r2 ; ei_bsse_q_r2 ; une_rt_a]

33. This is measured as the share of managers reporting that a shortage of labour limits production (European Commission, 2023b).

Figure 21 gives a snapshot of the labour shortage situation in October 2023. It shows that there is variation between Member States with countries such as Poland and Slovenia experiencing relatively high levels of shortages and low levels of unemployment, whereas in Spain the opposite is the case.[34] The degree to which the evidence provided in Figures 20 and 21 is a temporary phenomenon which reflects not much more than the strength of the bounce back from the pandemic and the associated economic lockdowns, or marks something much more structural, is explored in the remainder of this report.

Figure 21: Snapshot of the Beveridge curve by Member State, October 2023

Source: Eurostat [ei_bsin_q_r2 ; ei_bsbu_m_r2 ; ei_bsse_q_r2 ; une_rt_m]

4.3. Structural factors affecting labour market imbalances

There is a range of factors affecting labour shortages in the construction sector – in addition to the cyclical nature of demand and the extent to which this is characterised by troughs and peaks in employment (addressed in the previous section) – including:

- the age structure of the workforce and the pressures this places on the sector to replace those who have retired. There are also outflows of construction workers in some countries who leave to work in other Member States (there is evidence of an east to west flow here);
- the attractiveness of the sector to would-be recruits either from within a Member State or from other Member States or outside the EU. Related to this, the relative quality of work in the sector including wages and conditions of employment;
- the structure of employment in the sector, especially in relation to the multiple tiers of subcontracting in the sector which tends to see larger companies subcontract activities to smaller ones, which then contract to even smaller ones (ELA, 2023b). There are also relatively high levels of self-employment (both with and without employees) and temporary employment. The implication is that there is a large tranche of the construction labour force, which is continually moving between construction contracts such that, in some respects, the sector is constantly looking to find people to work on new construction projects;
- the extent to which the sector makes the most of available sources of labour supply. It has been observed that relatively few women work in the sector. The sector also reveals a degree of dependence on workers from other countries including TCNs (see Section 3.1.4 for more details on single occupations);
- the availability of skills and the extent to which the sector's skill needs are subject to change resulting from, amongst other things, the green and digital transitions.

34. Poland and Slovenia are countries with high levels of outgoing posted workers. Whether the outflow of posted workers affect labour shortages in their country of origin is explored later on in this chapter.

4.3.1. Age structure of the workforce

FIEC (2023) draws attention to the ageing workforce and the fact that in Belgium, for example, it is estimated that by 2027, over 20 000 skilled construction workers will retire and in Sweden an estimated 10% of the workforce in the construction sector will retire by 2028.

A more comprehensive view of the demographic challenge facing the sector can be obtained from Cedefop's skills forecast, which provides an estimate of the scale of replacement demand over the period 2021 to 2035. Replacement demand is likely to be substantial over the period because of people leaving the sector for one reason or another, but mainly as a result of retirement. One can obtain an indication of the scale of replacement demand analysing the key occupations in the sector: building and related trades workers. Over the period 2022 to 2035, employment in the occupation is expected to increase by 88 000. But there will be a need to replace an estimated 4 127 000 people who will leave the occupation. This means that there will be a net requirement to find an additional 4 215 000 people to work in the occupation. In other words, there will be a need to recruit around half of those who are expected to be employed in the occupation by 2035 (see Table 10).

Analysis by Eurofound (2021) revealed that the ageing of workforce in eastern European countries can be exacerbated by significant outflows of workers to western Europe.

Table 10: Projected future labour demand for building and related trades workers, 2022 - 2035

	Projected employment levels (000s)				Change 2022 – 2035 (000s)		
Year	2022	2025	2030	2035	Net change	Replacement demand[1]	Total requirement[2]
ISCO 71: Building and related trades workers	8 028	8 052	8 058	8116	88	4 127	4 215

Source: Cedefop Skill Forecast

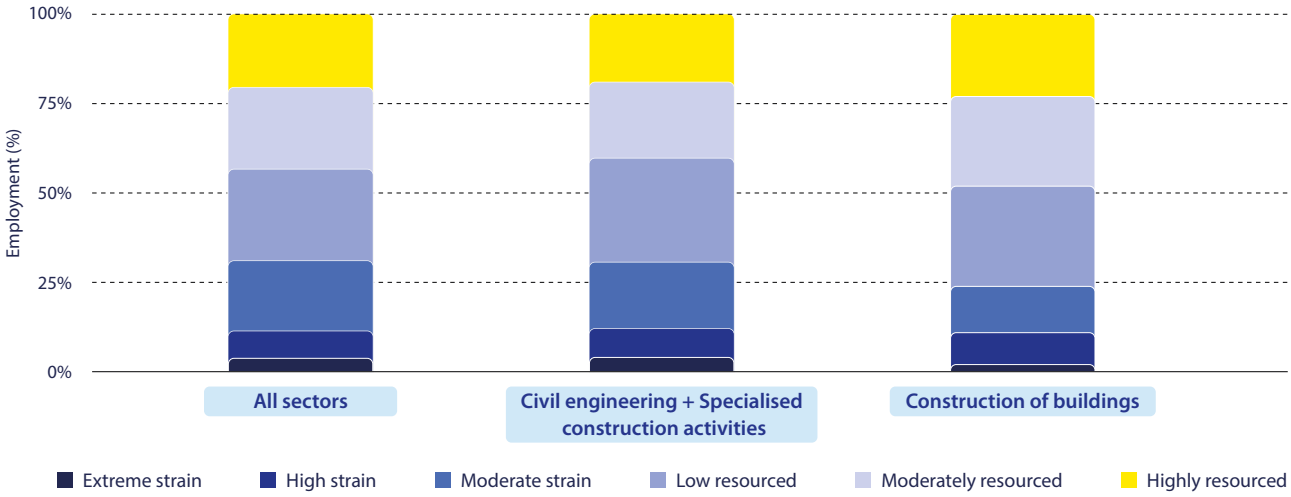
Notes: (1) Replacement demand refers to the number of people who are expected to leave an occupation or sector over a given period of time for a variety of reasons such as retirement. (2) Total requirement refers to the total number of job openings that will need to be filled over a period of time. It is the sum of net change and replacement demand.

4.3.2. Attractiveness of the sector to would-be recruits

The attractiveness of the sector to would-be recruits has been succinctly expressed in a report from the European Construction Industry Federation (FIEC, 2023; p. 3): 'The construction sector still has to work to improve its image in the society. There is little interest for young people to pursue a career in construction. Despite technical innovation, the sector's representation in the public mind did not improve much and it continues to be unattractive. The working conditions have been improving significantly but, in spite of higher wages than in other sectors, innovation that eased the tasks of the workers and better health and safety policies and practices, they remain an obstacle in attracting workers.' The sector is characterised by subcontracting and relatively high levels of temporary employment and self-employment, which may affect the attractiveness of the sector vis-à-vis career development, and the availability of fringe benefits available in other sectors (ELA, 2023b).

The evidence on working conditions from the European Working Conditions Survey reveals that workers in the sector are more likely to be subject to physical demands (loud noises), exposure to chemicals, repetitive movements involving tiring and painful positions and carrying heavy loads (Eurofound, 2022). Work in construction often requires working outside (one of the reasons why construction employment was slightly less affected by COVID-19 than some other sectors). Working outside may well be increasingly affected by climate change, as increased exposure to heat and UV radiation which make working conditions even more challenging. The evidence, it should be noted, also points to positive features about working in construction, such as the relatively high levels of support from colleagues and management. The measure of job quality developed by Eurofound (2022) also revealed that workers involved in the construction of buildings are less subject to strain in their current job compared with other sectors.

Figure 22: Job quality in the construction sector, 2021



Source: Adapted from Figure 2.29 in European Commission (2023b)

Wage levels are an important feature of job quality. The evidence suggests that relatively low wage levels are associated with persistent labour shortages regardless of the sector. Although the construction sector as a whole is not necessarily a low-wage one, there are pockets of low wage work, such as in the construction of buildings sub-sector where 26% of workers are defined as being in the low wage category (European Commission, 2023b).

Participants in the roundtable discussions held with stakeholders from the construction sector identified the low attractiveness of the sector as one of the main reasons why the sector experiences labour shortages. There was recognition that working conditions in the sector had improved, though further progress is still required, and changes had not necessarily registered in the minds of those who might work in the sector. Box 8 provides an example of an initiative to improve the sector's attractiveness to would-be employees, especially young people.

Box 8: Addressing the attractiveness of the construction sector

The Spanish Confederació Catalana de la Construcció (Catalan Construction Confederation), a non-governmental organisation active in the construction sector, from May 2022 to May 2023 ran a communication plan to attract workers to the construction sector by, amongst other things, disseminating information about construction companies' Corporate Social Responsibility (CSR) practices. Among the reasons for establishing this initiative was the need to address labour shortages, the low share of young people and female workers in the sector, and the intention to reverse the general perception that construction is characterised by unfavourable working conditions.

The plan had a budget of about EUR 130 000 and was aimed at young people in the process of entering the labour market or looking to change jobs, as well as at female workers with the aim to attract them to work in the sector; and promoting a modern, professional, and responsible image of the sector by highlighting existing CSR practices in the sector. Operational activities included the establishment of a website, the creation of an Instagram account, articles in the media, the production of audiovisual materials, and participation in a large-scale information event. The website consists of two sections. One section aims to promote workforce inclusion in the construction sector, covering training, contract types, salaries, and industry insights. The second section highlights exemplary sector practices related to energy, environmental protection, circular economy, social inclusion, and innovation, to showcase responsible activities of the sector. The Confederation also participated in an event with more than 12 000 visitors dedicated to promoting and facilitating employment and engaged with schools to communicate employment opportunities to students. These activities aimed to attract workers to the sector.

The success of the initiative resulted in its extension for one year, with a budget of around EUR 78 000.

Source: ELA Call for Good Practices 2023[35]

35. Call for good practices 2023 | European Labour Authority (europa.eu)

4.3.3. Characteristics of employment

The factors associated with persistent labour shortages, across sectors, include: high levels of self-employment and high shares of mobile / migrant workers (European Commission, 2023a). These are common features of employment also in the construction sector, as is a low level of part-time employment and relatively high levels of temporary employment (see Table 11). Levels of bogus self-employment are also relatively high (Williams and Horodnic, 2020). Bogus self-employment is associated with relatively poor terms and conditions of employment which may have some bearing on the attractiveness of the sector to prospective employees.

Table 11: Characteristics of employment in construction, 2022

	Share of employment	
	All sectors	Construction
Self-employment (all)	13.8	24.5
Self-employment with employees	4.4	8.7
Self-employment without employees	9.4	15.9
Temporary employment	12.0	10.1
Part-time employment	18.5	7.0

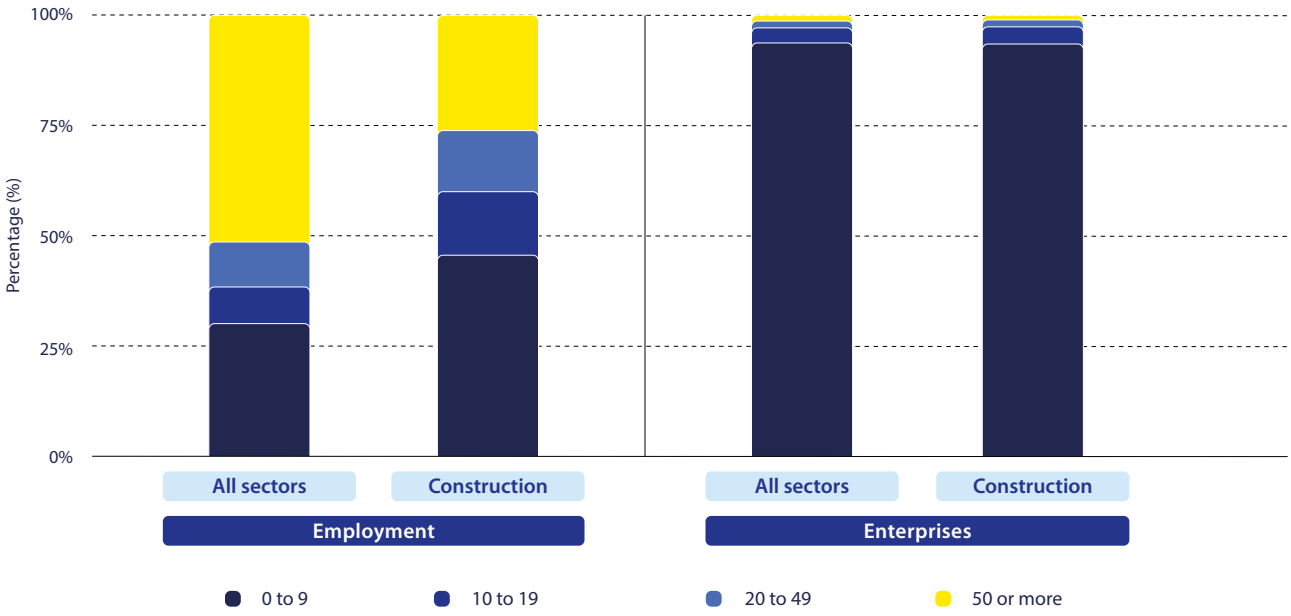
Source: EU-Labour Force Survey

As previously noted, subcontracting is a common practice in construction. It provides a means by which construction firms can access specialist services and even out fluctuations in demand (ELA, 2023b). Some of the participants in the roundtable discussions with stakeholders from the construction sector said that the prevalence of subcontracting brought about fragmentation in the sector. This meant that it was difficult to negotiate or coordinate the introduction of improved working conditions (including pay).

The sector is also characterised by a relatively high share of employment in small and medium-sized enterprises. Figure 23 shows the share of enterprises and employment by size of enterprise. The size structure of enterprises shows little difference between construction and the economy as a whole. But if the data are looked at from the perspective of employment, it can be seen that a much higher share of employment in construction is concentrated amongst relatively small enterprises. Across all sectors, enterprises that employed up to nine people accounted for 30% of employment compared with 46% in construction. It is estimated that 49% of employment across all sectors was in enterprises with fewer than 50 employees, compared with 74% in construction.

This is important in that small firms are sometimes less able to obtain advice about how to acquire the personnel they require (Eurobarometer, 2023). The OECD (2023c) has highlighted some of the problems which are unique to SMEs in obtaining the labour they require, such as not being linked into networks that might provide access to labour, not having in place the human resource strategies or capabilities necessary to navigate tight labour markets, and lacking the ability to put in place those practices which might aid labour or skill retention such as being able to afford training. In turn, this may make SMEs a less attractive employer in part because they are not able to offer the training and career opportunities of their larger counterparts (OECD, 2023c).

Figure 23: Enterprise size by share of enterprises and employment in construction and all sectors in EU27, 2021



Source: Enterprise statistics by size class and NACE Rev.2 activity [sbs_sc_ovw], own estimates

4.3.4. Socio-demographic characteristics of the workforce

Female employment

There is evidence that the sector fails to make anywhere near full use of the labour resources potentially available to it. For instance, the level of female employment in the sector is relatively low compared with the situation across all sectors (see Figure 24).[36] In 2008, female employment accounted for 8.4% of overall employment in the sector and by 2022 it had increased by 2.0 percentage points to stand at 10.4%. By way of contrast, women accounted for 46.2% of employment across all sectors in 2022. There is some variation by country, but even in the country which records the highest share of female employment in construction, Luxembourg, it only stood at 15.6% in 2022 (see Figure 25).

A Woman Can Build report (2020) highlighted some of the reasons why women may be discouraged from working in the construction sector.

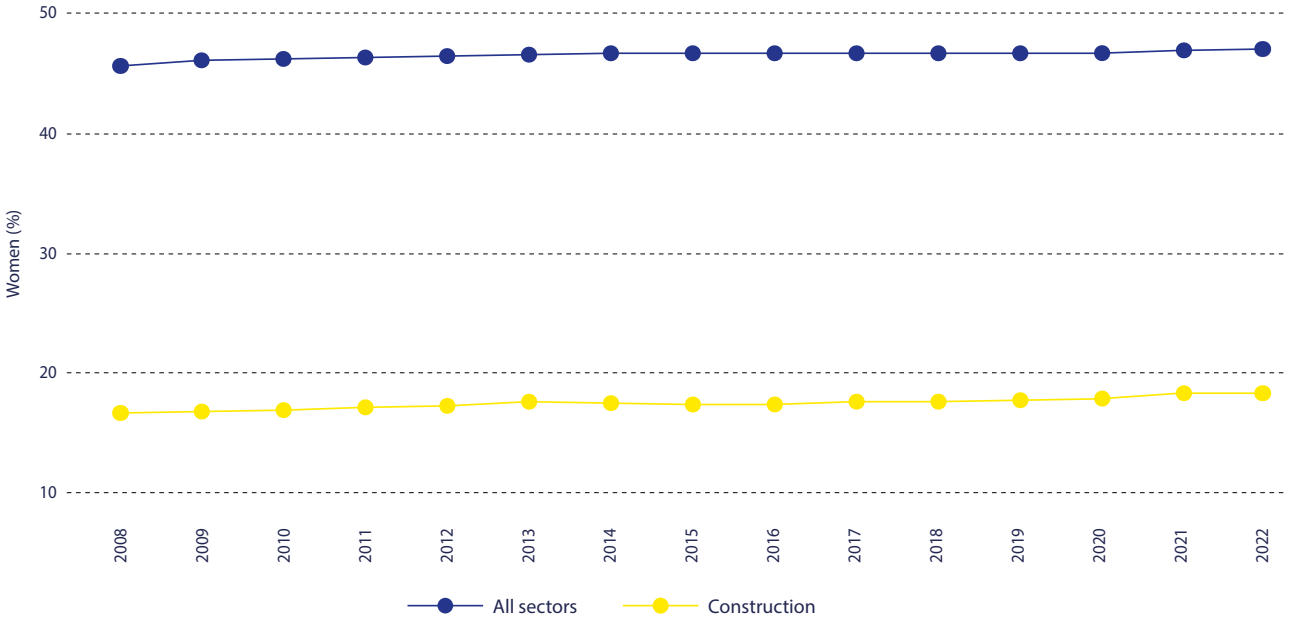
These stemmed from a view that because the sector is dominated by men:

- women may be expected to behave in a certain way on site to be accepted;
- jobs are masculine ones which require strength;
- teams are led by men (lack of women leaders);
- work-life balance, especially where women have caring responsibilities, is not well developed.

It was mentioned in one of the roundtable discussions that personal protective equipment was often not designed with women in mind (e.g., the design of exoskeletons). Clarke (2021) notes that women have always worked in the construction sector, including in trades such as bricklaying and carpentry, but there appears to be obstacles preventing women making the transition from completing construction training courses to working in the sector.

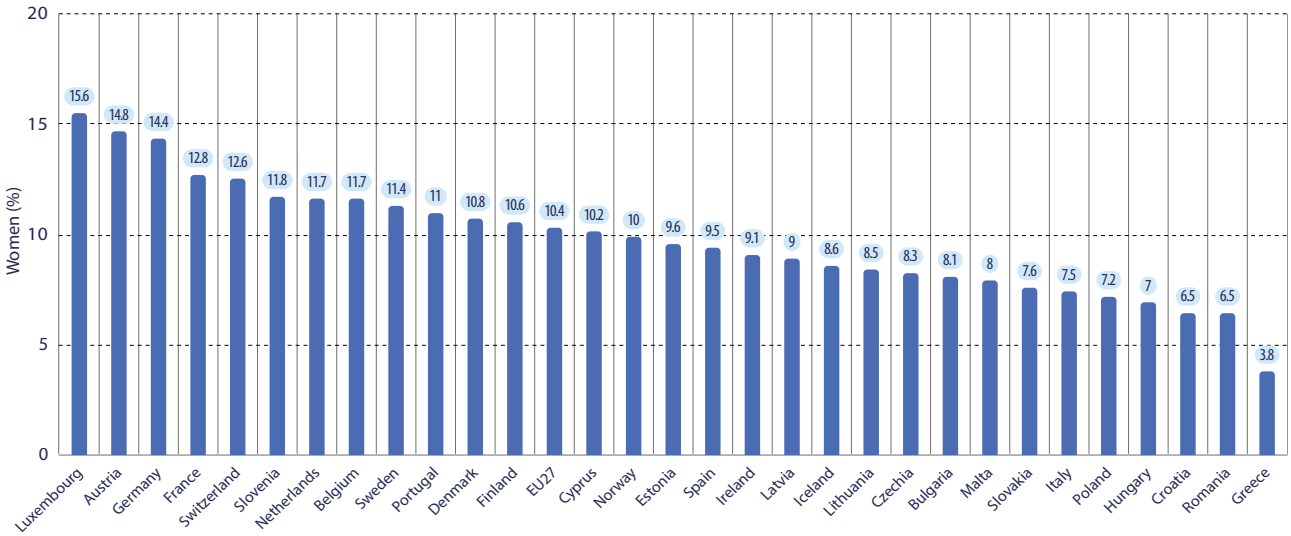
36. Section 3.2.1 provides further information

Figure 24: Share of construction employment accounted for by women in the EU27, 2008 - 2022



Source: Eurostat EU-LFS Employment by sex [lfsa_egan2]

Figure 25: Share of construction employment accounted for by women by country, 2022



Source: Eurostat EU-LFS Employment by sex [lfsa_egan2]

During the roundtable discussion with stakeholders from the construction industry there was a consensus on the necessity for additional efforts to be made to improve the sector's appeal to women. While there was general agreement that potential solutions to increase female participation are cross-cutting and applicable to various other

industries - such as improving daycare services - specific measures tailored to the construction sector were also emphasised. These measures included ensuring that construction sites were women-friendly (e.g., by providing women-only facilities on sites). Additionally, addressing the need for Personal Protective Equipment (PPE) designed to fit women was identified as another key aspect to bring about increased inclusivity within the sector. The progressive digitalisation of the industry could reduce the physical tasks required in the sector, thus contributing to changing the current perception of the sector as one more suited to people with masculine strength. Furthermore, digitalisation allows for increased networking opportunities for women in the sector, which could serve as a valuable incentive for women to enter the field (UCLan, n.d.).

Labour supply from other countries

The construction sector is relatively dependent upon workers from other countries including TCNs. It is estimated that one in four posted workers are working in the construction sector. Based on administrative data derived from the completion of the Portable Document A1, which needs to be completed for posted workers, there were an estimated 855 650 posted workers in the construction sector in 2021 (see Table 12). Germany was the main recipient country where posted workers accounted for 5% of construction employment in 2021, and the main country of origin was Poland, where posted workers accounted for 10% of construction employment (De Wispelaere et al., 2023).

Table 12: Main Member States of destination and origin of postings in the construction sector, based on PDs A1 issued under Article 12, 2021

Receiving Member State			Member State of origin		
Member State	No. of PDs A1 issued under Article 12	Estimated postings as % total employment in the construction sector	Member State	No. of PDs A1 issued under Article 12	Estimated postings as % total employment in the construction sector
DE	151 146	5	PL	104 308	10
BE	54 852	17	DE	64 813	2
FR	47 125	3	SI	41 785	52
AT	36 923	10	SK	41 209	28
NL	24 549	4	PT	34 635	9

Source: Table 3, p. 17, ELA (2023b) based on data published in De Wispelaere et al. (2023)

Table 13 shows that the share of TCNs in the construction workforce has remained stable over the period 2010 to 2020, as have levels of employment which stood at 796 110 in 2010 and 750 178 in 2020 (Danaj et al., 2023). Most TCNs are engaged in skilled work with 69% employed as crafts and related trades workers. Slovenia (23%), Latvia (23%), Greece (19%), Estonia (17%) and Cyprus (17%) had the highest share of TCNs working in construction in 2020. The implication here is that as workers move from eastern to western Europe, construction companies in the east of Europe look to recruit from outside the EU.

Table 13: Share of third country nationals in the construction sector in the EU27, 2010 - 2020

	TCNs	EU / EFTA	Native
2010	5.6	4.6	89.8
2019	5.6	6.0	88.4
2020	5.8	5.1	89.1

Source: Table 9, Danaj et al. (2023)

The relevance of posted workers and TCNs relates to their impact on the quality of work in the sector. ELA (2023b) draws attention to practices which are sometimes associated with the movement of labour across borders including, amongst other things, bogus self-employment and undeclared work, a lack of respect for working conditions, and fraudulent use of posted workers / TCNs. The implication is that unlawful practices adversely affect the attractiveness of work in the sector.

4.3.5. The green and digital transition

Cedefop's comprehensive analytical insight on the EU construction sector highlights a number of changes which are likely to be introduced as a consequence of, amongst other things, the European Green Deal, EGD (Cedefop, 2023). The EGD is designed to: '…transform the EU into a modern, resource-efficient and competitive economy, ensuring:

- no net emissions of greenhouse gases by 2050;
- economic growth decoupled from resource use;
- no person and no place left behind'.[37]

Meeting the EGD's ambition is expected to have a substantial impact on construction sector employment because:

- the sector needs to reduce its sizable carbon footprint;
- of the demand to construct a more sustainable energy supply infrastructure (e.g., the construction of new wind and solar farms); and
- of the need to renovate the existing stock of buildings to improve there energy efficiency.

In relation to the last point, the EU's Renovation Wave outlines the magnitude of the challenge facing the construction sector, and the implications for labour demand, if the EU is to make existing building more energy efficient (see panel).

Box 9: The renovation wave

The Commission aims to at least double renovation rates in the next 10 years and make sure renovations lead to higher energy and resource efficiency. This will enhance the quality of life for people living in and using the buildings, reduce Europe's greenhouse gas emissions, foster digitalisation and improve the reuse, and recycling of materials. By 2030, 35 million buildings could be renovated and up to 160 000 additional green jobs created in the construction sector.

Buildings are responsible for about 40% of the EU's energy consumption, and 36% of greenhouse gas emissions from energy. But only 1% of buildings undergo energy efficient renovation every year, so effective action is crucial to making Europe climate-neutral by 2050. With nearly 34 million Europeans unable to afford keeping their homes heated, public policies to promote energy efficient renovation are also a response to energy poverty, support the health and well-being of people and help reduce their energy bills.

Source: European Commission https://ec.europa.eu/commission/presscorner/detail/en/IP_20_1835

37. https://commission.europa.eu/strategy-and-policy/priorities-2019-2024/european-green-deal_en

Eurofound suggests that the EU's climate change policies will have a modest, but positive net impact on employment levels in the construction sector with an estimated net increase in employment of 204 000 over the 2019 to 2030 period (Hurley, 2023; Eurofound 2023b). But given the difficulties the sector faces in obtaining the labour it requires – as revealed in the earlier sections of this report – it is questionable whether this level of employment growth can be realised. As noted above, Cedefop's skill projections reveal that the sector will need to attract a large number of new entrants to replace those who have left the sector, for one reason or another, such as retirement if it is to realise its future projected levels of employment.

Technologies, including digital ones, have the potential to reduce labour intensity of production and potentially increase the attractiveness of the sector to would-be construction workers. Key digital technologies include, amongst others:[38]

- building information modelling which provides a virtual representation of a building before it is constructed thereby reducing the chance of errors occurring in the construction process;
- drones which can detect, amongst other things, maintenance requirements;
- sensors of various kinds which can, for example, provide real-time information monitoring construction activities;
- augmented reality which can be used to visualise building design which, amongst other things, can indicate where there may be safety hazards in the building process;
- 3D printing whereby complex and / or unique components can be readily produced;
- mobile technologies which can improve project management because information can be readily accessed regardless of location.

To date, the take-up of digital technologies has been modest compared with other sectors (Cedefop, 2023; McKinsey and Co., 2016). It is also apparent that many are concerned with the design process and the extent to which this affects the tasks of manual construction workers, where labour shortages are substantial, rather than, for example, roles such as architects and engineers. That said, should the diffusion of the types of technology listed above increase, then potential new skill demands may increasingly arise (i.e., those related to using a variety of digital tools on site).

4.3.6. Skills versus labour shortages

Skill levels in construction

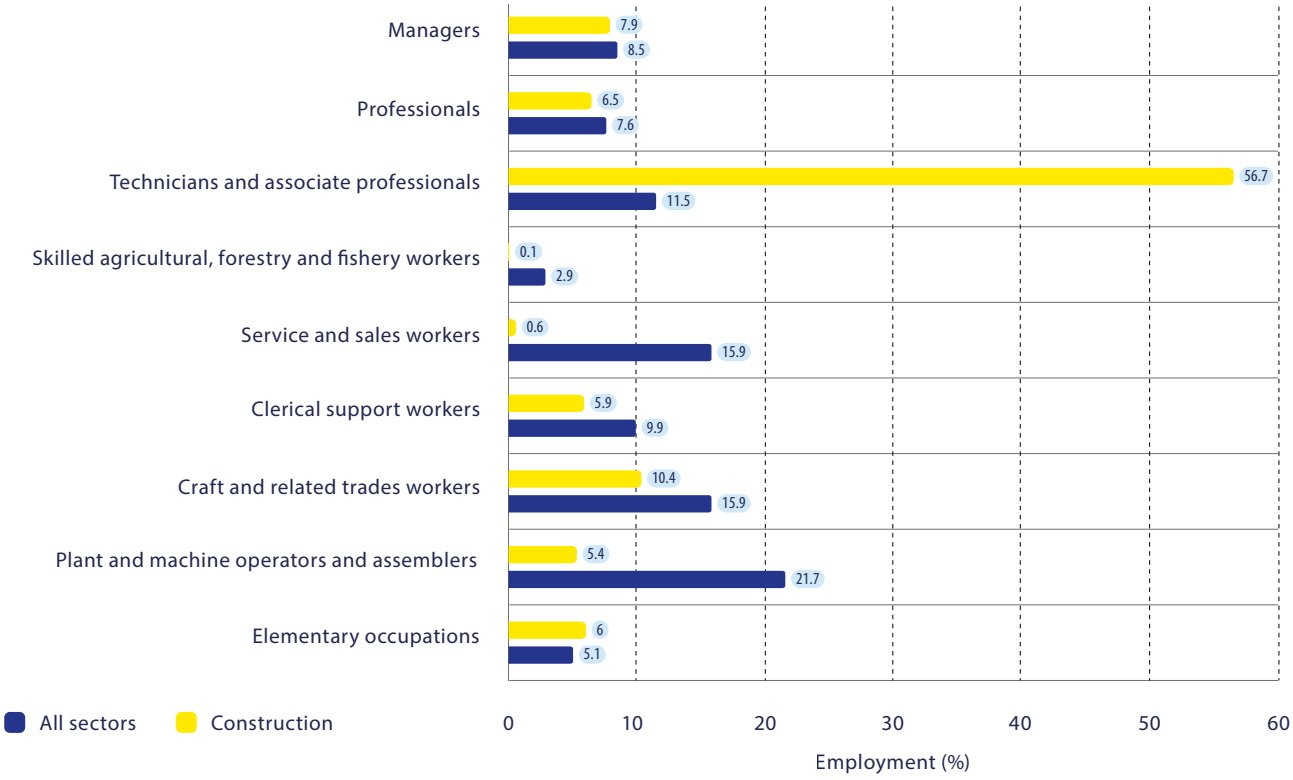
While the construction sector employs a significant share of people in low-qualified jobs (e.g., labourers) it cannot be described as a low skill sector. The sector is relatively dependent upon craft and related trades workers or, to be more specific, building and related trades workers excluding electricians (ISCO code 71) which are typically associated with people being trained and qualified to an intermediate level (i.e., equivalent to completing upper-secondary vocational education). As noted in Chapter 2, this is one of the groups with most occupations in shortage.

Figure 26 compares the occupational structure of employment in construction with that across all sectors. It is immediately apparent that the sector is much more dependent upon craft and related trades workers than is the case across all sectors. They accounted for over half of all employment in 2022. In contrast, the sector's demand for technicians and professionals is substantially lower than that in the overall economy.

This pattern of occupational employment, despite innovations in the sector which include, amongst other things, the increased use of pre-fabricated components, 3D printing, drones and robots which one might expect to have some impact on occupational employment, has shown little change over the past 10 years (see Figure 27). The qualification profile of those working in the sector also reveals that it is relatively less dependent upon those with tertiary level education than across the economy as a whole (see Figure 28).

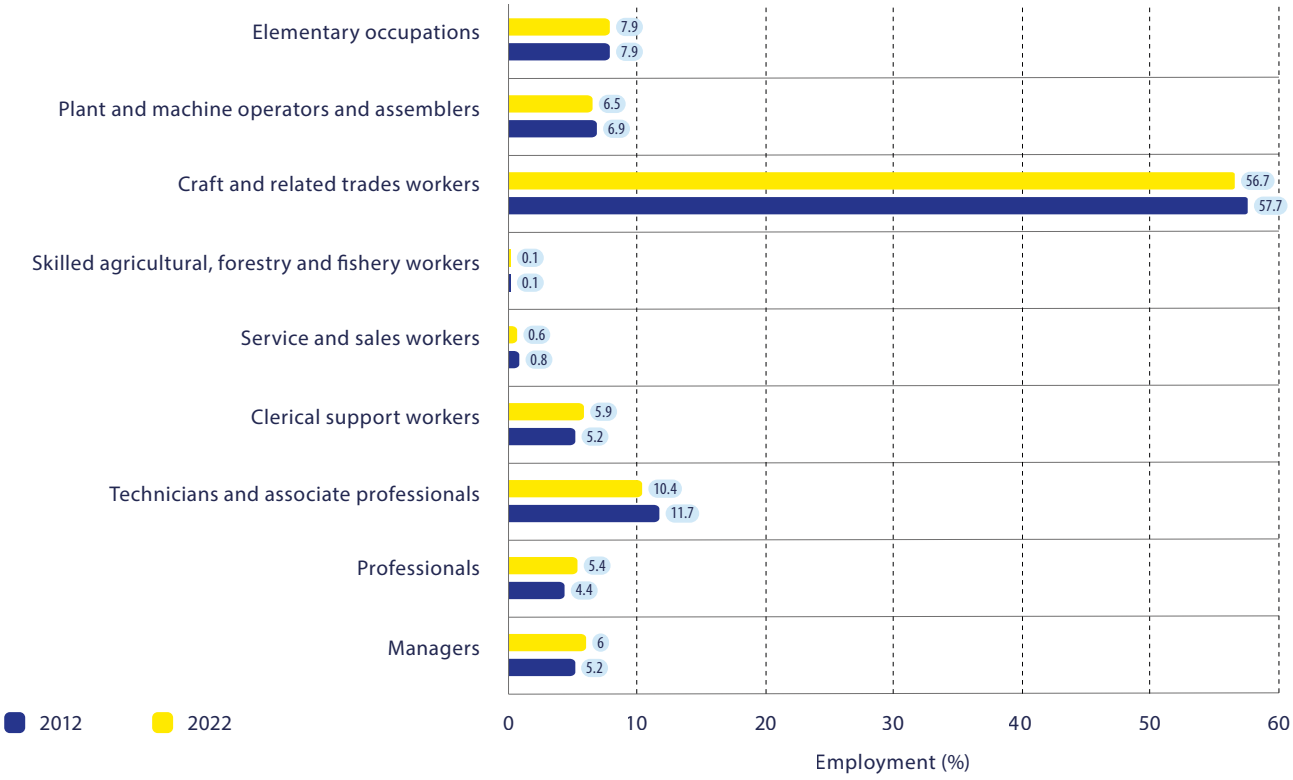
38. For example, see: https://ccemagazine.com/news/top-10-digital-technologies-construction-companies/

Figure 26: Occupational structure of employment in construction and the overall economy in EU27, 2022 (%)



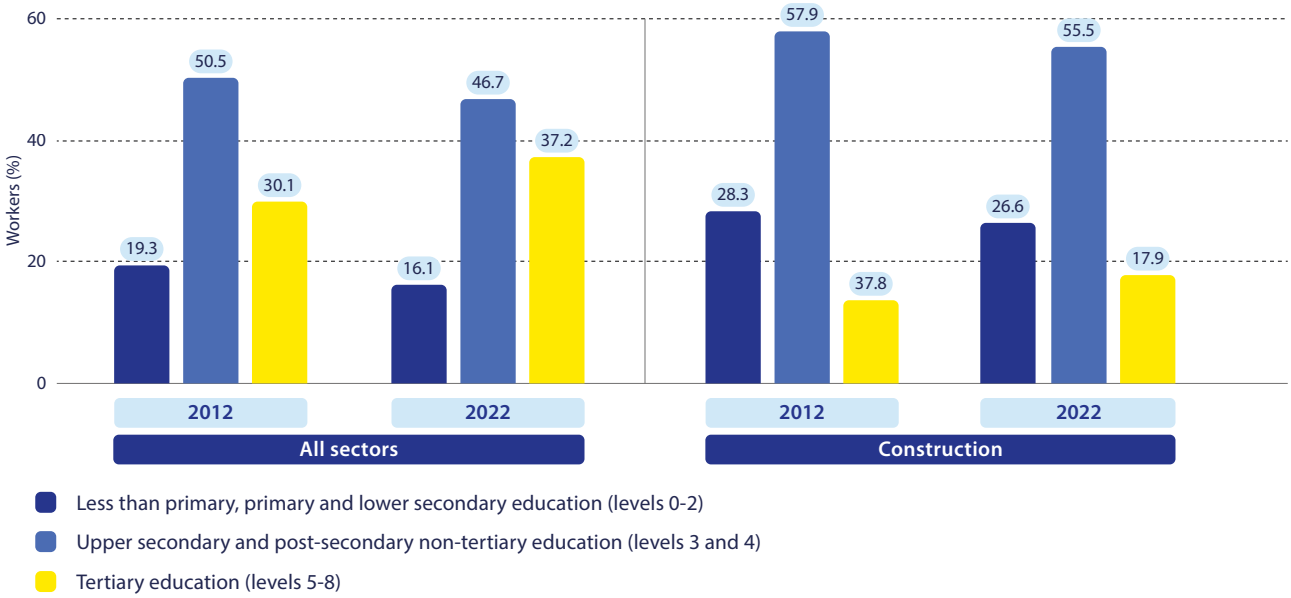
Source: Eurostat Labour Force Survey [lfsa_eisn2]

Figure 27: Occupational structure of employment in construction in EU27, 2012 and 2022



Source: Eurostat Labour Force Survey [lfsa_eisn2]

Figure 28: Educational attainment in the construction sector in EU27, 2012 and 2022



Source: Eurostat employees by educational attainment [edat_lfs_9910]; Data are for 15- to 74-year-olds

The information on the skill and qualification structure of the sector gives the impression of relatively little change having taken place over the past 10 years. There is evidence that the digital and green transitions are creating a demand for new types of skills or tasks to be undertaken in existing jobs. As noted above, while technological change in the sector is relatively modest compared with other sectors, changes are taking place which are likely to have some impact on skills. These include the introduction of digital technologies alongside the use of pre-fabrication and use of new materials / sustainable materials (BUILD UP, 2024; Oertwig et al., 2023).

Changes in skill needs also result from the green transition and the central role that construction companies have played and will continue to play in, amongst other things, retrofitting buildings to meet new environmental standards, using new materials in construction processes, and building wind and solar farms. Concerns have been expressed that there is a lack of definition about the skill requirements that the green transition will increasingly give rise to, which in turn, has implications for the capacity of companies, individuals, and training providers to respond to them (Eurofound, 2023a; Mella and Werna, 2023). Nevertheless, there is acknowledgement that the green transition is dependent upon the construction sector and the skills of its workforce (Eurofound, 2023b). Participants in the roundtable discussion with stakeholders from the construction sector confirmed that the digital and green transitions were giving rise to new skill needs. Concerns were expressed that the introduction of new technologies might drive people out of the sector if their skills become obsolete. This suggests that the sector may face a need to re- and up-skill its existing workforce to accommodate changes resulting from the digital and green transitions.

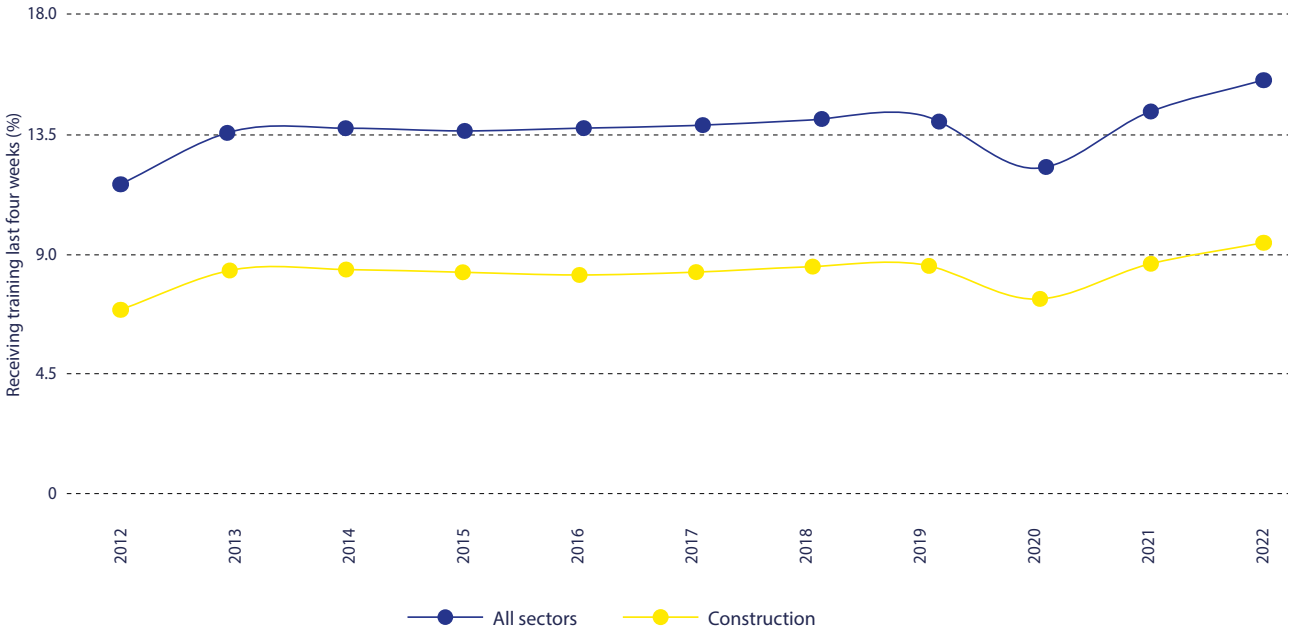
Evidence of skills shortages

The European Company Survey 2019 reported that across all sectors 26% of employers found it very difficult and 51% fairly difficult to recruit people with the skills required. In other words, 77% overall found it difficult to do so (Cedefop and Eurofound, 2021). In the construction sector the corresponding share was 86%. At the same time, the construction sector reports relatively high shares of employees who are overskilled. In 2022, 34% of workers in the sector were considered to possess a level of educational attainment higher than that required to do their jobs, compared with 22% across all sectors. This may again suggest that the sector does not necessarily make use of the resources available to it. It is notable in this regard that, as reported by the European Company Survey, companies in the construction sector were amongst the least likely to look to their existing workforce to fill vacancies.

The Eurobarometer on SMEs and skill shortages (Eurobarometer, 2023) revealed that 'difficulties in finding employees with the right skills' was the most serious problem SMEs currently faced. Overall, across all sectors, 25% said that it was very difficult to find staff and 50% that it was slightly difficult. The comparable figures for construction were 47% and 20%. Where construction companies face most problems recruiting is at the technician level.

There is indicative evidence that skills supply is failing to keep pace with the demand for skills. Figure 29 shows that those working in the sector are likely to participate in training at a lower level than the average across all sectors. It is also possible to look at the evidence from particular countries where participation in initial vocational education and training related to construction has been in decline. In Germany, for instance, the evidence points to the number of learners enrolling in apprenticeships in general – an important source of skills supply to construction – has been in decline between 2007 and 2020 (Walwei, 2023).

Figure 29: Participation in training in the last four weeks in construction and all sectors in EU27, 2012-2022



Source: Participation rate of employees in education and training (last 4 weeks) [trng_lfs_08b]

Responding to skills shortages

It was noted earlier that many Member States are dependent upon workers from other countries to fill their construction jobs. This can result in the mismatch of skills if no measures are in place to ensure that incoming workers have the skills required to work on a construction site. Box 10 shows an example of how this has been addressed in Estonia.

Box 10: Addressing the challenge of assessing mobile construction workers' skills before they move

In Estonia, the observation was made that amongst other reasons labour shortages in the construction sector are caused by recruiters' inability to verify mobile workers' competences. Many workers arrive on construction sites lacking the necessary skills, are sent back after a few days, and thereby prompt a cycle of replacement. This led to the development of a tool to verify the competences of job applicants before they arrive in the country. Werk[39] was developed in 2023. It is an AI-based tool that assesses workers' skills levels through a 20-minute multilingual test to be taken by the workers to assess their strengths and weaknesses as regards, for example, the use of specific tools, knowledge of materials, and roles within a work team. The tool focuses on different components that make up a single trade (e.g., tiler, drywaller, painter) and breaks these down into different modules which are to be completed through an open-text questionnaire that mimics actual building processes on site. Workers can conclude the assessment in their own language and the hiring company can see the results in their preferred language. Several anti-cheat measures are incorporated. The assessment results in a report showcasing the worker's strengths and weaknesses which facilitates not only the employer's hiring decision but also helps to compose suitable crews at construction sites, balancing the characteristics of each team member.

The tool is free for workers; companies pay a monthly service fee.

It was tested on more than 5 000 skilled mobile / migrant workers and validated on construction sites in Finland, Sweden, and Estonia.

Source: ELA Call for Good Practices 2023[40]

39. https://werk.eu/
40. Call for good practices 2023 | European Labour Authority (europa.eu)

There are other initiatives, too, which might alleviate skill shortages such as increasing female employment in the sector. Femcon (2024) makes the following point: 'Construction labour shortages in the EU are also expected to worsen in the future as the population declines and the workforce ages. During the pandemic, the number of women in construction fell even further. According to a survey conducted in honour of International Women's Day 2021 (Search Consultancy), 'despite research indicating that 83% of managers in the construction sector believe their industry is suffering from a skills shortage, little is being done to encourage a more diverse workforce and, as a result, widen the talent pool available'.' It goes on to conclude: 'The EU construction needs to employ more women if it is to have a sustainable future.'

Investing more in skills will be required to meet the sector's skill demands. There is now a variety of initiatives or programmes with which the sector can engage to increase its skills supply. FIEC (2023) mentions that upskilling and reskilling of workers needs to be supported as well as training and the provision of adult apprenticeships. It also draws attention to two specific initiatives which have the potential to increase skills supply (see Box 11).

Box 11: Initiatives to increase skill supply

Pact for skills in construction

The EU sectoral social partners for the construction industry, FIEC (the European Construction Industry Federation) and EFBWW (the European Federation of Building and Wood Workers), in cooperation with EBC (the European Builders' Confederation), adopted a Pact for skills in construction in 2022, which sets the ambition to upskill and reskill overall at least 25% of the workforce of the construction industry in the next five years, to reach the target of 3 million workers.

Construction blueprint

Establishing a new strategy on construction skills in Europe from 2019 to 2023, FIEC participated in the 'Skills blueprint for the construction industry', an EU-funded project, which aimed at identifying existing and emerging skills needed in order to translate them into vocational curricula responding to these needs. The project focused on digitalisation, energy efficiency and circular economy.

Source: FIEC (2023)

Ultimately the sector will need to make itself attractive to young people so that they enrol in the variety of training programmes which equip individuals with the skills to enter the variety of construction trades and professions.

4.4. Chapter summary

There are a range of factors responsible for labour shortages in construction – first, a shortage of skills is evident. Jobs in construction tend to be skilled ones, and the skills required are changing as a result of the digital and green transitions. That said, the role of technological change or the green transition should not be overestimated. The evidence suggests that the introduction of digital technologies has been modest to date. Similarly, the need to retrofit buildings to make them more energy efficient has been ongoing for a number of years. This suggests that technological change has been incremental, providing time for skill systems to adapt to any changes in the demand for skills.

There are factors other than skills which help explain the sector's labour shortages. Important here is demographic change. Europe's population is ageing and the size of the working age population is shrinking. Accordingly there is a decreasing number of young people available to take up entry level jobs and increased competition between sectors to recruit them. This stresses the importance of the sector making itself a more attractive destination for those making the transition from the education system to work. There is a wider point about how the sector might make itself more attractive to people of all ages. Undoubtedly, features such as exposure to noise and hazardous materials, plus working in physically demanding positions and working outside might prove unattractive to some employees, but the sector also reveals aspects of job quality that compare favourably to other sectors. It is also evident that the sector fails to make use of female labour and skills supply.

There are other features of employment in the sector that are likely to have some influence on the extent of labour shortages. These are bound up with the sector's dominant business model, where large companies use a mix of subcontractors (often self-employed people) and temporary labour to meet production demand. This is designed to provide the larger construction firms with access to specialist skills when required, and as a means of evening out fluctuations in demand. It results in a situation whereby work in the sector requires individuals to shift between contracts – especially where individuals are self-employed subcontractors – which can make work transient and, possibly, insecure. This may well inhibit individuals entering and remaining in the sector, whilst also creating an environment where investments in skills are less than they might be. Larger employers, in particular, may be reluctant to invest in training because the workforce on which they are reliant is not necessarily in their direct employment. This places further pressures on the demand for skilled labour.

To date, the sector appears to have responded to labour shortages by hoarding labour (and skills), as well as by recruiting labour from other countries (including TCNs). The evidence, presented throughout this report, suggests that this has not been sufficient to redress labour shortages.

5. Summary of key findings

The EU labour market is subject to a number of simultaneous changes which have implications for labour demand. Demographic change and societal developments mean that the labour force is shrinking, while the economy and the demand for labour continue to grow, albeit at a slower pace than reported last year. At the same time the transition to a green EU economy and ongoing technological change (not least in the guise of artificial intelligence and advanced robotics), affect the structure of demand by both sector and occupation. All of the above have contributed to the further tightening of the labour market across the EU.

Labour shortages and surpluses in the European labour market

In 2023, across Europe almost 85% of the occupations in the economy have been identified by at least one country participating in this study as being in shortage. This shows the wide diversity of demand for labour. That said, there are about 40 occupations that have been classified as 'widespread shortages', as they have been reported by more than one third of the countries participating in this study with labour demand being higher than the supply. Based on the analysis of data and information provided by National Coordination Offices (NCOs) of the EURES network, the most widespread labour shortages are broadly similar to the ones in previous years. Construction and engineering, craft occupations, software, and healthcare-related occupations continue to feature in this edition of the report. Labour shortages in Europe are generally perceived as being of high or medium severity.

Next to the continuation of structural labour shortages, new developments are emerging. Specialist doctors and healthcare assistants only entered the list in recent years, probably as a response to the COVID-19 pandemic. While software-related occupations continue to feature among most widespread shortage occupations, their severity appears to have somewhat abated. This might be linked to the significant job losses in many of the major software companies that took place between November 2022 and the middle of 2023, as reported by Eurofound's European Restructuring Monitor (ERM)[41]. The job loss announcements in the software industry followed a period of significant employment expansion from 2020 and the sharp reversal in employment appears to be the reason why shortages in software skills are less severe than previously reported.

The list of surplus occupations also contains many occupations which were on the lists of previous editions of the report. In particular, the clerical occupations' dominance of the list of surplus occupations in the current report reflects the situation in all previous reports. Among the explanations is the technological displacement of workers. In general, clerical-related occupations are often routine, and routine operations are vulnerable to being replaced by technology. Enhanced awareness raising among workers in these occupations by experienced career and labour market advisers about the likelihood of limited sustainable employment at early stage (e.g., addressing students and their parents) and tailored advice and transition support towards a new career could help alleviate this part of the labour market imbalances.

The dominance of craft occupations among the list of widespread and severe shortages and the dominance of clerical type occupations among the widespread surplus occupations combine to create a situation where medium level qualifications (i.e., ISCED 3-4) are those most associated with labour market imbalances. However, there is a distinct difference between the type of medium level qualifications which is associated with shortage occupations compared to the medium level qualifications which are associated with surplus occupations.

The shortage occupations are mostly associated with occupation-specific qualifications, while the surplus occupations are mostly associated with the completion of general second level education. This finding is consistent with the European Employment Barometer of 2023Q3. According to the Barometer, employers found that jobseekers with occupation-specific qualifications were the most difficult to recruit for many of the countries of the EURES network, in line with many of the occupations identified by the NCOs.

Data reported by NCOs points to the existence of national rather than regional imbalances as most of the shortage occupations are classified as national, with only five coun-

41. Eurofound's ERM monitors large-scale restructuring among European establishments

tries (Belgium, Bulgaria, Cyprus, Lithuania, and Portugal) mentioning regional labour shortages. National shortage occupations also characterise countries that are usually marked by strong regional disparities, such as Italy and Poland. This is an unexpected finding that could be further explored in the future. Similarly, anecdotal findings of this report hint towards temporary / seasonal labour market imbalances that could be further analysed, for example, by the EURES network or the Network of the European Public Employment Services as a basis for more targeted effective initiatives tackling labour shortages and surpluses.

Labour mobility and cross-border matching

The report explores intra-EU labour mobility and labour migration from third countries as strategies to address skill and labour shortages. Quite a high share of migrant workers (i.e., those born outside of the EU) in some of the construction craft occupations which are traditionally in shortage. More generally, while 9% of workers in all occupations were migrant workers, the share in both the most widespread shortage and surplus occupations was 11% in 2022. Specifically, in craft occupations such as plasterers, and concrete placers and finishers and related workers the share reached 18%, while for floor and wall tilers 16%. The share of migrant workers in the hospitality sector was also high. Among the most widespread shortage occupations, cooks had the highest share of migrants employed at 21%, followed by chefs (16%) and waiters (15%). Kitchen assistant - listed among the most widespread surplus occupations – had one of the highest overall shares of migrant workers (29%).

One of the objectives of identifying both shortage and surplus occupations is to assess the potential for cross-border matching to alleviate labour market imbalances across Europe. While about 250 cross-border occupational matches are possible in principle - i.e., at least one country identified a shortage of a given occupation, and at least one other country identified a surplus in the same occupation – it is intuitive that these matches do not necessarily happen automatically. EU-level initiatives, national authorities, and social partners could collaboratively consider what could be done to further enhance intra-EU labour mobility with the specific objective to address European labour market imbalances. That said, among the most widespread shortages the relatively low number of countries reporting a surplus for a given occupation limits the potential of intra-EU mobility as effective 'tool' to tackle labour market imbalances. Construction labourers are an exception, as a relatively high number of countries report labour surpluses that could alleviate the shortages in other countries.

Characteristics of workers employed in labour market imbalance occupations

The proportion of workers with higher levels of education in the most widespread shortage occupations is slightly higher than of those employed in the widespread surplus occupations (28% vs. 25%). These figures compare to an overall share of 37% across all occupations. The share of workers with a low level of education (ISCED 0-2) is 20% and 21% for shortage and surplus occupations and this is higher than the share in the EU27 workforce as a whole in 2022 (16%). Overall, this year's data confirm the findings of previous editions of this report: higher levels of qualification is not necessarily a guarantee to find employment, and some low-qualified occupations are high in demand. Young people and their parents might require better information about the realities of the labour market, and Member States and social partners could continue their initiatives to improve the reputation of vocational education and training to address structural and transient mismatches.

In line with previous trends, there is a persistent and significant underrepresentation of female workers in the shortage occupations, and a persistent and significant overrepresentation of female workers in the surplus occupations. This points to the existence of gender segregation in labour markets, at the expense of women who are more likely to face challenges in entering and remaining in the labour market. At the same time, this finding highlights that there is room for increasing the supply of (female) workers in shortage occupations by, for example, finding ways of expanding the scope of occupations that women consider to pursue as careers. This is aimed to increase the occupational mobility of women towards "tighter labour markets", supporting them in such move by improving working conditions, tailoring these jobs to the specific needs of women (e.g. taking into account working hours, workplace facilities, adjacent care facilities and counteracting stereotypical attitudes in the workplace". This could be achieved by better proision of information to female workers on education and training pathways as well as employment and career prospects in shortage occupations across Europe, including job opportunities in other countries. Assisting them in preparing for occupational and spatial mobility and accompanying them through the process could be a meaningful intervention, as might be awareness raising among employers as regards the benefits of workforce diversity.

The analyses show a low share of workers under 30 years in healthcare and many craft occupations which have been identified as shortages. Undoubtedly, the relatively long period of education and training that doctors, specialist doctors, and professional nurses are required to complete influences the age profile of those who are qualified, but the opposite should be the case for craft workers, as they are classified as employed as soon as they enter their apprenticeship. Thus, the relatively low share of under 30-year-old craft workers suggests that the supply of apprentices and people engaging in other pathways of vocational education in Europe is contracting.

Moreover, a number of structural shortage occupations are characterised by a high share of older workers who can be expected to retire within the next few years, further aggravating labour shortages. Means to attract the younger generation to these occupations must be identified, likely related to the improvement of employment and working conditions to better consider the young workers' preferences, and hence by social partners and national authorities in cooperation.

Focusing on the vulnerabilities of workers in surplus occupations, the available exploratory evidence hints towards workers in elementary occupations being most affected by multiple disadvantages. In contrast, technical and associate professionals tend to be the least disadvantaged surplus workers. This points towards a diversity of individual workers' characteristics across the groups of surplus occupations, and the need to better identify the needs of the respective target groups. Furthermore, the means to best to reach out to these workers is integral if national authorities and social partners aim to create sustainable labour market integration of these sections of the workforce.

Labour market imbalances in the construction sector

The report provides a closer view of the construction sector, which is arguably one of the sectors that is most affected by labour shortages. Based on evidence collected from NCOs and other stakeholders as well as a broader literature review, labour market imbalances in construction largely mirror the wider issues affecting the supply of, and demand for, labour across many sectors in the EU. In particular, the evidence points to:

- the challenge to attract sufficient people to work in a sector which is sometimes perceived to offer relatively poor terms and conditions of employment, at a time when there are many job openings also available in other sectors;
- employers having sought to address labour shortages through labour from within and outside the EU, with a general movement from countries on the eastern borders of the Union to northern and western EU countries;
- labour hoarding;
- skill shortages and concerns that insufficient training is taking place to equip people with the required skills.

However, there are specificities which appear to exacerbate shortages in the construction sector. The evidence provided draws attention to the fragmented nature of employment and the multiple levels of subcontracting from larger to smaller companies, with some of the latter comprising self-employed people. There is also a relatively high incidence of temporary employment. This suggests that the nature of the employment relationship for a sizeable share of the workforce is an impermanent one, with workers required to move from contract to contract. Concerns have been expressed by the European Labour Authority (2023b) that where mobile / migrant workers are employed there may be a risk, in some situations, of labour standards being eroded, with workers not being aware of their employment rights or how to enforce them. The reliance on migrant and mobile labour appears to be relatively high, as indicated by the data available on posted workers. It is also apparent that the sector has relied upon a relatively narrow pool of labour and skills supply. Attention has been drawn, for instance, to the low share of employment accounted for by women which, in some Member States, is close to being negligible.

From a policy perspective, there is a degree of consensus about how the construction sector might better address its labour and skill needs. This is seen to rest in finding the means to improve working conditions, to attract labour from a wider range of groups than at present, especially from the female labour force. The provision of training – which involves the social partners in its design – is also seen as important to improve the attractiveness of the sector, as well as to ensure that workers have the skills required to support technological change and adapt to the greening of the construction process and the built environment.

Final remarks

Looking to the future, consideration might be given to how the labour intensity of production might be reduced to decrease the level of labour shortages currently observed across the EU without impeding economic growth and social standards. There are reforms on the supply side which can contribute to reducing shortages. In general, there is sometimes less consideration given to the demand side with respect to how employers might need to rethink how they produce their goods and services so that their order books are not adversely affected by labour shortages. Additionally, to what employers can do to make their employment and working conditions more attractive to jobseekers is integral. If the supply of labour continues to be constrained – population projections suggest that this is likely at least over the short-term - then more thought might well need to be devoted to adapting companies and sectors to better cope with and address labour shortages.

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7. Annexes

Annex 1: Methodology of the study

7.4.1. Primary data collection

8. Reporting template to NCOs

The template (see Annex 2) was circulated to the NCOs of 30 countries and three regions, covering the 27 Member States of the European Union (EU), Iceland, Norway, Switzerland, and Liechtenstein. Belgium's NCOs from the Flemish Region, Brussels-capital region, and the Walloon Region provided distinct regional data. Each NCO was asked to provide comprehensive information on shortage and surplus occupations within their respective jurisdictions, without any prescribed numerical constraints. The requested data were to be presented using 4-digit ISCO '08 classification system, maintaining continuity with previous report editions.

Recognising the need for methodological refinement, adjustments were made to enhance the accuracy, relevance, and user-friendliness of the data collection process. Two specific questions on the geographical distribution of shortage and surplus occupations were included. The first question inquired about the nationwide or regional occurrence of the identified occupation imbalances, with a user-friendly drop-down list for response selection. The second question sought details on the name(s) of the region(s) where imbalances occurred, requiring an answer only if the first question indicated a regional occurrence.

Upon receipt, the collected data underwent rigorous quality checks for completeness and consistency. Where necessary, NCOs were contacted for clarifications, leading to adjustments for comparability purposes. Consequently, in some instances, the number of shortage and surplus occupations reported in templates may differ from the figures transferred to the database for subsequent analyses.

The introduction of a regional dimension allowed for the clarification of information that might have been deemed inconsistent in previous report editions. This was exemplified in cases where a single occupation was reported as a shortage in one region and a surplus in another.

Several countries employ bespoke and refined occupation classification systems. In some of these cases, such countries incorporated a single 4-digit ISCO '08 code multiple times, accommodating the granularity of their code systems. While data cleaning procedures removed these duplicates, a few notes were recorded, as detailed in the box below. Notably, the example in Box 12 illustrates the disparity between the number of labour market imbalances reported by NCOs and the number considered in the subsequent analysis.

Box 12: Notes on data cleaning

France

France included occupations based on their national classification and translated them into the ISCO '08 classification system, resulting in numerous duplications. Examples include:

2514 (application programmes): Encompasses two types, namely engineers and managers in IT design, research and development, IT project managers, and IT design and development technicians.

3122 (manufacturing supervisors): Encompasses supervisors and similar staff in the manufacture of electrical and electronic equipment, maintenance and environmental technicians and supervisors, supervisors and equivalents in process industries, supervisors and equivalents in mechanical manufacturing, maintenance supervisors.

3322 (commercial sales representatives): Includes retail sales representatives, intermediate commercial occupations, and commercial attachés.

9329 (manufacturing labourers not elsewhere classified), includes apprentices and unskilled food processing workers (excluding food processing industries), and unskilled woodworkers and furniture makers.

Portugal

In Portugal, certain occupations are reported both as shortages and surpluses, typically aligning with seasonal variations. For instance:

9412 (kitchen assistant) and 5131 (waiters): Reported as shortages between April and October but as surpluses between November and March.

Other seasonal occupations that only occur as shortages in specific periods include 4224 (hotel receptionist), 5120 (cooks), 5132 (bartenders), and 9211 (crop farmers labourers).

Sweden

In Sweden, the list of labour market imbalances includes two occupations, 5321 (healthcare assistants) and 5322 (home-based personal care workers), categorised as both shortages and surpluses. This dual classification results from the conversion of the occupation from the national classification system SSYK to the ISCO '08. Although the team opted to remove any duplicate entries for occupations in shortages or surpluses, it chose to retain both entries when they referred to different types of labour market imbalances.

Hungary and Slovakia

Hungary employs two distinct indicators to discern occupations facing shortages and those experiencing surpluses. The ratio of vacancies to total employed identifies shortage occupations, while the rate of jobseekers to total employment identifies surpluses. Using these indicators has led to cases where the same occupation appears on both shortage and surplus lists (e.g., creative artists, hairdressers). This report interprets this situation as indicating that while there are numerous vacancies in the occupation (indicating a shortage), there are also many jobseekers (indicating a surplus), but for various reasons, some of these jobseekers are not filling all the vacancies.

A similar scenario arises in Slovakia, where the total number of vacancies and jobseekers is used to identify shortages and surpluses. Additionally, the number of work permits issued in the country contributes to the identification of labour market imbalances. This report interprets this situation as indicating that national jobseekers may not be applying to certain occupations, which are typically filled by migrant workers.

Ireland

Ireland provided a table detailing each occupation submitted further. For example, chemists includes analytical, process, and medical scientists; mechanical engineers includes engineers (mechanical, electrical, automation, validation).

Note: These are some of the most significant examples of data cleaning performed.

Aggregation of the Belgian data

Regarding Belgium, the lists of shortages and surpluses obtained from the three autonomous regions were merged into a unified national Belgian response. If a specific occupation was identified as a shortage or surplus by all three regions, it was categorised as a national shortage or surplus. Conversely, if there was no unanimous classification among the regions, the occupation was deemed regional, and the specific region(s) were specified.

Concerning other information provided, such as the type of shortage, indicator, etc., instances where information did not align were addressed. For example, if the same shortage occupation received a high magnitude ranking from one autonomous region and a low magnitude ranking from another, the national result was designated as 'no clear convergence.' These particular outcomes, characterised by a lack of consensus, were subsequently excluded from the analysis to maintain the integrity and reliability of the overall findings.

Qualitative information on intra-EU labour mobility and the construction sector

The focus of this year's edition of the report is intra-EU labour mobility and the construction sector.

The study involves stakeholders to, on one hand, gather comprehensive information on the main movements of workers and the activities implemented by EURES to influence these movements, on the other, to better understand the root causes of persistent shortages in the construction sector. Data collection took place through two primary channels: an open question questionnaire distributed to NCOs (see Annex 3) and two roundtable discussions with key stakeholders. While both data collection tools aimed to gather similar information, they targeted different respondents.

The open question questionnaire served as a written instrument for NCOs to articulate their perspectives on construction skills shortages and describe intra-EU labour mobility in their country. It was circulated in November 2023 and received 20 responses. NCOs were presented with a set of questions designed to elicit qualitative information and were encouraged to provide multiple relevant answers, as the issues are often multifaceted.

Additionally, two roundtable discussions were organised to facilitate open dialogue with stakeholders, further enriching the understanding of the issues at hand. The discussions were held on 5 and 6 December 2023 to complement the preliminary findings of the EURES 2023 report with a discussion on, respectively, the construction sector and intra-EU labour mobility. In each discussion, 22 stakeholders were invited to share their experience around four discussion points, namely:

- **For the construction sector:** 1) Understanding the root causes of persistent labour shortages in the sector; 2) Impact of green and digital transitions; 3) Skills mismatch vs. poor employment and working conditions; 4) Innovations and solutions.
- **For intra-EU labour mobility:** 1) Cross-border labour vs. labour migration; 2) Barriers to integrating; 3) Wage disparities and working conditions, 4) Brain drain vs. brain gain.

Initial information on the discussion points were provided ahead of the meeting in two invitations letter (see . Annex 4).

Secondary data collection

In addition to primary data collection, the present study leveraged secondary data to corroborate findings and enrich the analytical depth. To validate the identified labour market imbalances, the latest data from the Eurobarometer and the JVR were used.

To further substantiate the results, additional data at both the EU and national levels were employed to validate findings across five countries selected for an in-depth analysis, namely Ireland, Italy, Latvia, Poland, and the Netherlands. The selection of data in each instance was contingent on the specific findings and the availability of relevant data. ELA's National Liaison Officers were consulted to provide a list of additional sources to be used.

The five countries were selected based on a number of criteria that ensured their representativeness. First, countries represent different geographic areas of the EURES network, including former accession countries of Eastern Europe, Northern Europe, and the Mediterranean area. The selected countries encompass a range of different data sources, including PES administrative data, national skills identification system, and occupational forecast. Further, countries present a different mix of share between JVR and unemployment rates and a different range of population and their projected growth. Finally, countries proposed have different challenges in relation to the construction sector as some countries are usually classified as countries of origin while other as receiving ones.

Special data extracts were sought from Eurostat, detailing profiles of individuals employed in the EU27 across 4-digit ISCO '08 occupations, encompassing gender, youth (15-29 years), education level, and place of birth. The amalgamation of these datasets allowed for the computation of a vulnerability index in the top 11 occupations experiencing surpluses.

Finally, a literature review was conducted to analyse reports at the European level published in the last year since the publication of the 2022 EURES report. A more extensive review – including documents at the national level – was undertaken to analyse the current situation of the construction sector and drivers likely to contribute to such persistent shortages.

Annex 2: Template (standardised questionnaire) for data collection

Information sought	Format
ISCO-08 code at 4-digit level (or lower if 4-digit not available)	Drop-down list
Occupation title (EN)	Automatic
Shortage/surplus indicator	Drop-down list
Only for shortages (optional): If you wish, you may indicate whether the labour shortage is a skills shortage (i.e., due to a lack of qualified jobseekers)	Drop-down list
Occupational classification used in your country	Free text
What indicator(s) suggested that there is a shortage/surplus?	Drop-down list
Please indicate the magnitude of the labour shortage or surplus using an objective source or criterion	Drop-down list
Source or criterion according to which labour shortage magnitude is identified	Free text
Year for which the shortage/surplus refers to (YYYY) and if possible the first or second 6 months of that year	YYYY QY
Source of information on shortages/surplus (e.g., PES administrative data (vacancies, jobseekers), PES survey, third party survey, national occupational forecasts, other (specify) etc.)	Drop-down list
Does the shortage/surplus occur throughout the country (i.e., is national) or is confined to a region or regions.	Drop-down list
If regional, please state the region or regions.	Free text

Annex 3: Open question questionnaire

EURES 2023 Report on labour shortages and surpluses - Word questionnaire

Focus on labour mobility

Question 1.1. Does your labour market experience significant	
Inward mobility/migration	YES /NO
Outward mobility/migration	YES /NO
Both	YES /NO
Q.1.2: In the case of inward mobility/migration, please identify the countries which are the main countries of origin (and if possible, give an indication of the scale of workers).	
Q.1.3: In the case of outward mobility/migration, please identify the countries which are the main destinations (and if possible, give an indication of the scale of workers).	
Q2. Which skills in your PES jobseeker register contain the highest shares of foreign workers (i.e., persons who are not nationals of your country)? Identify as many occupations as needed, and if possible, give an indication of the countries of origin and scale of workers.	
Q3. Do you host 'job fairs' in countries which you consider there are surplus skills which are in short supply in your country?	YES /NO
If yes, please identify the countries where you have recently hosted a jobs fair as well as the relevant sectors/occupations (if applicable).	

Focus on the construction sector

Q4: Is the shortage in construction skills in your country due to any of the following:	
Supply-side factors:	
Young people not entering construction apprenticeships or related training and education courses in sufficient numbers.	YES /NO
Qualified craft workers emigrating to European countries where wages are higher or other elements of working conditions are better.	YES /NO
Population ageing reducing the labour force	YES /NO
Immigrant workers from other EU countries or third countries are employed in the industry, but not in sufficient numbers to compensate for the lack of supply from the domestic labour force.	YES /NO
Please include any additional information or supply-side driver, important to understand the shortages:	
Demand side factors:	
Increasing demand due to the need to reduce carbon emissions, for example retrofitting houses to improve insulation and heat retention.	YES /NO
Growth in the population resulted in an increase in the demand for houses, schools, shops etc.	YES /NO
Poor working conditions (e.g., low levels of remuneration; heavy physical work etc.) make it less appealing to people.	YES /NO
The digitalisation of the industry, for example, the greater use of computer-controlled manufacturing processes applied off-site to the manufacture of building components	YES /NO
Please include any additional information or demand-side driver, important to understand the shortages:	

Annex 4: Cross-border matching possibilities

Occupation

Accounting and bookkeeping clerks

Shortage: DE; FI; FR; MT; NO; PL
Surplus: BE; DK; EE; LV; SE; SI; SK

Accounting associate professionals

Shortage: BE; DK; FR; IT; LU; NL; NO; PL; SI
Surplus: LV; RO; SE

Administrative and executive secretaries

Shortage: BE; MT; NL; RO
Surplus: BE; BG; DK; EE; FI; LT; PT; SE; SI; SK

Advertising and marketing professionals

Shortage: IT; LU; NL; NO; RO
Surplus: AT; DK; FI; PT; SE; SI

Agricultural and industrial machinery mechanics and repairers

Shortage: AT; BE; DE; EE; ES; FR; LT; LU; NL; NO; PT; SI
Surplus: RO

Air traffic safety electronics technicians

Shortage: RO
Surplus: DK

Aircraft pilots and related associate professionals

Shortage: LV
Surplus: DK

Apiarists and sericulturists

Shortage: HU
Surplus: HU

Armed forces occupations, other ranks

Shortage: BE; HU; SI
Surplus: LV

Assemblers not elsewhere classified

Shortage: BE; CZ; NL; NO; PL; RO; SK
Surplus: SE; SK

Bakers, pastry-cooks and confectionery makers

Shortage: BE; DE; DK; FR; HR; IT; LT; NL; NO; RO
Surplus: SK

Bank tellers and related clerks

Shortage: NO; RO
Surplus: FI; LV; SE

Bartenders

Shortage: BE; CY; EL; MT; NL; NO; PT; RO
Surplus: DK; SE

Beauticians and related workers

Shortage: HU; IT; RO; SK
Surplus: DE; DK; FI; HU; LT; NO; PT; SK

Biologists, botanists, zoologists and related professionals

Shortage: SI
Surplus: DE

Bookmakers, croupiers and related gaming workers

Shortage: MT; RO
Surplus: DE

Bricklayers and related workers

Shortage: BE; DE; FR; HR; LT; LU; LV; NL; NO; PT; RO; SI; SK
Surplus: DK; HU; SK

Broadcasting and audio-visual technicians

Shortage: RO
Surplus: DK; SE; SI

Building architects

Shortage: BE; NO; RO
Surplus: SE; SI

Building caretakers

Shortage: BE; FI; IT; LU; RO
Surplus: DK; ES; NO; SK

Building construction labourers

Shortage: BE; CZ; EL; FI; HR; HU; LV; MT; NO; PL; SI; SK
Surplus: DE; DK; LT; PT; RO; SE; SK

Building frame and related trades workers not elsewhere classified

Shortage: BE; FR; LT; NL; NO; RO
Surplus: BG

Building structure cleaners

Shortage: BE; LU; NO
Surplus: SE

Business services agents not elsewhere classified

Shortage: RO
Surplus: SE

Business services and administration managers not elsewhere classified

Shortage: FR; MT; NO; RO
Surplus: DK

Butchers, fishmongers and related food preparers

Shortage: BE; DE; FR; HR; HU; LT; LU; NL; NO; RO; SE; SI; SK
Surplus: DK

Buyers

Shortage: BE; LU; NL; NO; RO
Surplus: ES; SE; SI

Cabinet-makers and related workers

Shortage: BE; DE; DK; FR; HU; NO; SI
Surplus: RO; SK

Car, taxi and van drivers

Shortage: BE; MT; NL; NO; RO
Surplus: BE; CZ; DE; DK; LT; LU; SE; SK

Cartographers and surveyors

Shortage: BE; DE; FR; NL; RO
Surplus: DK

Cashiers and ticket clerks

Shortage: RO
Surplus: CY; ES; LU; PT; SI

Chemical engineering technicians

Shortage: BE; NO
Surplus: SE

Chemical engineers

Shortage: CH; NL; NO
Surplus: SE

Chemical products plant and machine operators

Shortage: BE; DE; ES; LT; NL; NO; SI
Surplus: RO

Chemists

Shortage: DK; FR; IE; LU
Surplus: DE; LV; SE

Child care service managers

Shortage: BE
Surplus: DK

Child care workers

Shortage: BE; DK; FI; FR; MT; NL; NO; RO
Surplus: ES; HU; LT; PT

Civil engineering labourers

Shortage: BE; DK; FR; HU; LV; NL; SI
Surplus: LU; RO; SE

Cleaners and assistants in offices, hotels and other establishments

Shortage: BE; CY; EE; EL; FI; MT; NL; NO; RO; SI
Surplus: BE; DE; DK; LU; SK

Cleaning and housekeeping supervisors in offices, hotels and other establishments

Shortage: ES; NL; NO
Surplus: BE; DK; LV

Clearing and forwarding agents

Shortage: BE; NL
Surplus: LV; SE

Commercial sales representatives

Shortage: BE; FR; IT; LU; NL; PT; RO
Surplus: AT; DK; PT; SE; SI; SK

Companions and valets

Shortage: HU; RO
Surplus: DK; ES; LV; SI

Construction supervisors

Shortage: AT; BE; DE; EE; FI; FR; IT; LT; NL; SI
Surplus: DK

Contact centre information clerks

Shortage: BE; EL; MT; NL; NO; PT
Surplus: SE; SI

Contact centre salespersons

Shortage: FR; NL; NO
Surplus: SE; SI

Cooks

Shortage: AT; BE; CY; DE; DK; FI; FR; LT; LU; NL; NO; PL; PT; RO; SI; SK
Surplus: HU; SK

Craft and related workers not elsewhere classified

Shortage: FR; NO
Surplus: LV; SE

Creative and performing artists not elsewhere classified

Shortage: HU
Surplus: DE; HU

Credit and loans officers

Shortage: BE; LU; NL; NO
Surplus: DK; SE

Crop farm labourers

Shortage: CY; HU; LV; PT
Surplus: BE

Dancers and choreographers

Shortage: DE
Surplus: DK

Debt collectors and related workers

Shortage: NL; RO
Surplus: DK

Dental assistants and therapists

Shortage: DE; DK; FI; NL; RO; SE; SI
Surplus: LV

Domestic cleaners and assistants

Shortage: BE; CY; EL; FR; NL; RO
Surplus: DE

Domestic housekeeper

Shortage: HU
Surplus: HU

Door-to-door salespersons

Shortage: NO; RO
Surplus: EL

Drivers of animal-drawn vehicles and machinery

Shortage: IT
Surplus: SE

Driving instructors

Shortage: BE; LV; RO; SI
Surplus: DK

Early childhood educators

Shortage: BE; CY; DE; DK; EE; FI; FR; LT; LU; NO; SE; SI
Surplus: EL

Economists

Shortage: DK; LU; NL; NO
Surplus: BE; HR; RO

Education methods specialists

Shortage: BE; LU; NL; NO; RO; SE
Surplus: DK

Electrical and electronic equipment assemblers

Shortage: BE; EE; EL; FR; LU; NL; NO; RO; SK
Surplus: SE

Electrical engineering technicians

Shortage: AT; BE; DE; DK; FR; LT; NL; NO; SI
Surplus: RO

Electrical mechanics and fitters

Shortage: AT; BE; DE; DK; EE; FR; HR; IT; LT; NL; NO; PT; SI
Surplus: RO

Electronics engineers

Shortage: AT; NL; NO; RO; SI
Surplus: DK

Electronics mechanics and servicers

Shortage: BE; DE; FR; HR; NO
Surplus: DK

Elementary workers not elsewhere classified

Shortage: HU
Surplus: CY; CZ; DE; HU; LV; SE; SI; SK

Employment agents and contractors

Shortage: NL; RO
Surplus: DK; SI

Engineering professionals not elsewhere classified

Shortage: AT; CH; EE; FR; IE; NO; RO; SI
Surplus: DK

Environmental and occupational health and hygiene professionals

Shortage: BE; CH; LU; NL; RO; SE
Surplus: DK; HR

Environmental protection professionals

Shortage: NL; NO
Surplus: DK

Farming, forestry and fisheries advisers

Shortage: SI
Surplus: DK; RO

Field crop and vegetable growers

Shortage: HU; LV
Surplus: BE; HU; RO; SE

Financial analysts

Shortage: LU; NL; NO; RO; SI
Surplus: DK; SE

Financial and investment advisers

Shortage: BE; LU; NL; NO
Surplus: RO; SE

Fitness and recreation instructors and programme leaders

Shortage: NO
Surplus: DK; HU; LT; SE

Floor layers and tile setters

Shortage: BE; DE; EE; HR; LU; LV; NL; NO; RO; SI; SK
Surplus: ES; HU

Food and related products machine operators

Shortage: BE; FR; IT; LT; NL; NO; RO; SK
Surplus: DK

Food service counter attendants

Shortage: BE; IT; NL; NO; RO
Surplus: BE; LV; PT; SE

Forestry and related workers

Shortage: DE; FR; HU; LT; NO; SI
Surplus: HU; RO; SE

Forestry labourers

Shortage: HU
Surplus: ES; RO; SK

Freight handlers

Shortage: BE; NL; SK
Surplus: AT; BE; CY; DE; DK; LT; LU; NO; RO; SE; SI; SK

Fruit, vegetable and related preservers

Shortage: HU
Surplus: BG; HU

Fumigators and other pest and weed controllers

Shortage: NL
Surplus: SE

Garbage and recycling collectors

Shortage: HU; LT; NL; NO; RO
Surplus: DK; LU

Garden and horticultural labourers

Shortage: BE; LT; PT
Surplus: DE; DK

Gardeners, horticultural and nursery growers

Shortage: BE; BG; DK; HU; NL; NO
Surplus: ES; HU; LU; LV; SE

Garment and related patternmakers and cutters

Shortage: LT; RO
Surplus: HU

General office clerks

Shortage: CY; FR; MT; NO
Surplus: CY; CZ; DK; EL; HR; LU; PT; RO; SE; SK

Geologists and geophysicists

Shortage: BE
Surplus: DK

Glass makers, cutters, grinders and finishers

Shortage: FR; SI
Surplus: DK

Government tax and excise officials

Shortage: BE
Surplus: LV

Hairdressers

Shortage: BE; DK; FR; HU; NO
Surplus: HU; LT; LU; PT; RO; SE; SK

Hand launderers and pressers

Shortage: LT; NL; RO
Surplus: BE; LV; SE

Hand packers

Shortage: NO; RO
Surplus: CY; PT; SE; SI

Handicraft workers in textile, leather and related materials

Shortage: FR; NO
Surplus: DK; RO

Handicraft workers in wood, basketry and related materials

Shortage: HU
Surplus: DE; HU

Health care assistants

Shortage: BE; CY; EE; ES; FI; FR; IE; IT; LU; MT; NL; NO; RO; SE; SI
Surplus: EL; SE

Home-based personal care workers

Shortage: BE; DK; EE; FI; IE; NL; NO; PT; SE; SI
Surplus: DE; RO; SE; SK

Hotel managers

Shortage: BE; FR; NL
Surplus: BE; DK; LU

Hotel receptionists

Shortage: BE; DK; EL; FR; NL; NO; PT; RO
Surplus: HR; SE

House builders

Shortage: BE; IT; LT; PL; SK
Surplus: RO

Human resource managers

Shortage: BE; FR; LU; NL; NO; RO
Surplus: LV

Hunters and trappers

Shortage: ES
Surplus: DK; HU

Information and communications technology installers and servicers

Shortage: BE; DK; NL; NO
Surplus: RO; SI

Information and communications technology operations technicians

Shortage: BE; ES; FR; LU; NO
Surplus: DK; RO

Information and communications technology sales professionals

Shortage: BE; NO
Surplus: SE

Information and communications technology service managers

Shortage: BE; CH; CZ; EE; IE; NO
Surplus: DK

Information technology trainers

Shortage: NO
Surplus: DK

Inquiry clerks

Shortage: LV; NL; RO
Surplus: ES; LU; SE; SK

Insurance representatives

Shortage: BE; FR; LU; NL; RO; SI
Surplus: LT; LV; SE

Interior designers and decorators

Shortage: NL
Surplus: DK; EE; ES; HU; LT; LU; LV; SI

Jewellery and precious metal workers

Shortage: BE; RO
Surplus: DK

Journalists

Shortage: NO
Surplus: DK; EE; FI; FR; LV; SI

Kitchen assistant

Shortage: BE; CY; EL; NL; NO; PT; RO; SI
Surplus: BE; DE; DK; LU; PT; SE; SK

Landscape architects

Shortage: DE; EE
Surplus: DK

Laundry machine operators

Shortage: BE
Surplus: BE; DK

Lawyers

Shortage: CH; LU; NO; SI
Surplus: RO

Legal and related associate professionals

Shortage: LU; NL
Surplus: BE; DK; LV

Librarians and related information professionals

Shortage: LU
Surplus: DK

Life science technicians (excluding medical)

Shortage: CH; NL
Surplus: RO; SE

Lifting truck operators

Shortage: BE; NL; NO; RO; SK
Surplus: BE; DK; SK

Livestock farm labourers

Shortage: CY; EE; LT; NO
Surplus: DE; DK; LV; RO

Mail carriers and sorting clerks

Shortage: BE; NO; RO; SI
Surplus: DK; SE

Management and organization analysts

Shortage: CH; LU; NL; NO; RO; SI
Surplus: DK; PT; SE

Managing directors and chief executives

Shortage: MT
Surplus: LV; RO

Manufacturing labourers not elsewhere classified

Shortage: FR; IT; MT; NO; SK
Surplus: BE; CZ; PT; RO; SE; SK

Manufacturing managers

Shortage: BE; FR; NL; NO; RO
Surplus: DK

Manufacturing supervisors

Shortage: BE; EE; FR; LT; NL
Surplus: DK

Mathematicians, actuaries and statisticians

Shortage: LU; NO
Surplus: DK

Mechanical engineering technicians

Shortage: AT; BE; EE; FR; LT; LU; NO; SE; SI
Surplus: RO

Mechanical engineers

Shortage: IE; NL; NO; SI
Surplus: RO

Mechanical machinery assemblers

Shortage: BE; EE; EL; FI; FR; IT; NL; NO; RO; SK
Surplus: SE; SK

Medical and dental prosthetic technicians

Shortage: BE; DE; NL
Surplus: DK

Medical assistants

Shortage: DE; NL; NO
Surplus: BE

Medical secretaries

Shortage: DK; NL; RO; SE
Surplus: BE; LU

Messengers, package deliverers and luggage porters

Shortage: HU; IT; MT; RO
Surplus: CY; ES; PT; SE; SI

Metal moulders and coremakers

Shortage: SI
Surplus: DK

Metal polishers, wheel grinders and tool sharpeners

Shortage: EE; LT; SI
Surplus: LV; RO

Metal processing plant operators

Shortage: DE; DK; FR; NO; SI
Surplus: RO

Meter readers and vending-machine collectors

Shortage: RO
Surplus: DK

Mining and quarrying labourers

Shortage: LV
Surplus: RO

Mixed crop and animal producers

Shortage: HU; NL
Surplus: BE; HU; SE

Mixed crop and livestock farm labourers

Shortage: ES
Surplus: BE; RO

Motor vehicle mechanics and repairers

Shortage: AT; BE; CY; DE; DK; EE; EL; FR; HR; IT; LU; NL; NO; PL; PT; SE; SI
Surplus: RO; SK

Motorcycle drivers

Shortage: RO
Surplus: BE; LU; SE

Musicians, singers and composers

Shortage: NO
Surplus: DK; FI; LT; LV; SE; SI

Nursing professionals

Shortage: BE; BG; CH; DK; EE; EL; ES; FI; IE; LT; LU; NL; NO; PL; PT; SE; SI
Surplus: RO

Odd job persons

Shortage: RO
Surplus: LT; SE; SI

Other artistic and cultural associate professionals

Shortage: BE; HU; IT; NO
Surplus: DK; FI; FR

Other cleaning workers

Shortage: BE; HU; IT; NL
Surplus: SE

Other language teachers

Shortage: CH; EE; NO
Surplus: DE; EL; HU

Other music teachers

Shortage: NO
Surplus: DK; FR

Painters and related workers

Shortage: BE; DK; EE; FR; HR; LV; NL; NO; RO; SI; SK
Surplus: AT; ES; HU; PT

Payroll clerks

Shortage: NL; NO; RO
Surplus: SE

Personal care workers in health services not elsewhere classified

Shortage: NL; NO
Surplus: AT; BE

Personnel and careers professionals

Shortage: LU; NL; NO; RO; SE
Surplus: DK; ES

Personnel clerks

Shortage: BE; DE; NL; NO
Surplus: DK; SE

Pet groomers and animal care workers

Shortage: HU
Surplus: DK; HU; NL

Pharmacists

Shortage: BE; CH; EE; LT; NL; RO; SI
Surplus: LV

Photographic products machine operators

Shortage: RO
Surplus: DK; HU

Physical and engineering science technicians not elsewhere classified

Shortage: AT; FR; IT; NO
Surplus: DK; RO; SE

Physicists and astronomers

Shortage: LU; LV
Surplus: DK

Physiotherapists

Shortage: BE; CH; DE; ES; FR; LU; NL; PL; SE; SI
Surplus: DK

Physiotherapy technicians and assistants

Shortage: HU
Surplus: DK

Plasterers

Shortage: BE; HU; LT; LU; LV; NL; NO; PL; RO; SI; SK
Surplus: DK; HU

Policy administration professionals

Shortage: CH; DE; NL; NO; RO
Surplus: DK; ES; SE

Policy and planning managers

Shortage: NO; RO
Surplus: DK

Potters and related workers

Shortage: RO
Surplus: DK

Primary school teachers

Shortage: BE; DE; DK; EE; LT; NL; NO; PL; SE; SI
Surplus: CY; SK

Print finishing and binding workers

Shortage: BE; FR; RO
Surplus: FI

Printers

Shortage: BE; FR
Surplus: FI; SE

Process control technicians not elsewhere classified

Shortage: BE; LT; LU; RO
Surplus: ES

Product and garment designers

Shortage: LU; NL
Surplus: DK; EE; FI; HR; HU; LT; LV

Production clerks

Shortage: BE; NL; NO; RO
Surplus: SE

Professional services managers not elsewhere classified

Shortage: NL; NO
Surplus: DK

Protective services workers not elsewhere classified

Shortage: DE; EL; NL; RO
Surplus: DK

Psychologists

Shortage: EE; LT; LU; LV; NL; NO; PL; SE; SI
Surplus: BG; DK; EL; PT

Public relations professionals

Shortage: NL; RO
Surplus: DK; SE

Railway brake, signal and switch operators

Shortage: DE; NL
Surplus: DK; LV

Real estate agents and property managers

Shortage: BE; FR; NL; NO
Surplus: SE; SI

Receptionists (general)

Shortage: RO
Surplus: BE; DK; EL; ES; LV; NO; PT; SE; SI

Research and development managers

Shortage: BE; CH; EE; NL; NO; RO
Surplus: DK

Restaurant managers

Shortage: BE; DK; NL; NO
Surplus: BE

Retail and wholesale trade managers

Shortage: BE; NO; RO
Surplus: DK; LV

Sales and marketing managers

Shortage: BE; LU; NO
Surplus: DK

Secondary education teachers

Shortage: BE; BG; DK; EE; LT; NL; NO; PL; SI
Surplus: RO

Secretaries (general)

Shortage: IT; RO
Surplus: BE; CY; DK; FI; HR; LU; SE; SI

Security guards

Shortage: BE; DK; EE; FR; IT; MT; NL; NO; RO; SE; SI
Surplus: CZ; LU; PT; SK

Service station attendants

Shortage: EE; LT; NL; NO
Surplus: SE

Services managers not elsewhere classified

Shortage: NO
Surplus: DK

Sewing machine operators

Shortage: BE; BG; EE; FR; HU; PT; RO
Surplus: DE

Sewing, embroidery and related workers

Shortage: HU; LT; PT
Surplus: HU; LV

Sheet metal workers

Shortage: AT; BE; DE; DK; EE; FI; FR; LT; LU; NL; NO; SI
Surplus: RO

Shelf fillers

Shortage: DK
Surplus: DE; ES; LU; SE

Ships' deck crews and related workers

Shortage: NL; NO
Surplus: DK

Ships' engineers

Shortage: BE; NL
Surplus: DK

Shop sales assistants

Shortage: BE; DK; MT; NL; NO; RO
Surplus: BG; CY; CZ; EL; LU; PT; SE; SK

Shop supervisors

Shortage: BE; LU; NL; NO
Surplus: FR; LV

Shopkeepers

Shortage: NL; NO
Surplus: RO

Sign writers, decorative painters, engravers and etchers

Shortage: HU
Surplus: DK; HU

Social welfare managers

Shortage: LV
Surplus: DK

Social work and counselling professionals

Shortage: BE; DE; DK; EE; FI; LU; NL; NO; SI
Surplus: PT

Social work associate professionals

Shortage: BE; DE; EE; FR; LU; NL; PL
Surplus: AT; BG; SE; SI

Sociologists, anthropologists and related professionals

Shortage: NO
Surplus: BE; DK; EL; SI

Software and applications developers and analysts not elsewhere classified

Shortage: BE; CH; CY; EE; FR; IT; LU; NL; NO; PT; RO; SI
Surplus: DK

Software developers

Shortage: BE; CH; CZ; DE; EE; FI; IE; LU; NL; NO; PT; RO; SI
Surplus: DK

Special needs teachers

Shortage: BE; CH; EE; FI; LT; LU; NL; NO; PL; SE; SI
Surplus: DK; ES

Sports coaches, instructors and officials

Shortage: BE; NO
Surplus: DE; DK; LV; RO

Sports, recreation and cultural centre managers

Shortage: RO
Surplus: DK; LV

Stall and market salespersons

Shortage: HU
Surplus: LT

Stationary plant and machine operators not elsewhere classified

Shortage: EE; FR; NO; RO; SK
Surplus: DK; SE; SK

Statistical, finance and insurance clerks

Shortage: BE; NO
Surplus: DK; SE; SI

Statistical, mathematical and related associate professionals

Shortage: NL
Surplus: LV; SE

Steam engine and boiler operators

Shortage: SE
Surplus: LV

Stock clerks

Shortage: BE; NL; PL; RO; SI; SK
Surplus: NO; PT; SK

Stonemasons, stone cutters, splitters and carvers

Shortage: BE; FR; HR; LU; LV; RO
Surplus: HU

Street food salespersons

Shortage: HU
Surplus: HU

Structural metal preparers and erectors

Shortage: BE; DE; EE; FR; HR; LT; LU; LV; NL; NO; SI
Surplus: RO

Supply, distribution and related managers

Shortage: BE; EL; FR; IT; NL; NO; RO
Surplus: DK; LV

Tailors, dressmakers, furriers and hatters

Shortage: FR; LT; NO
Surplus: CY; DE; ES; FI; HU; RO; SK

Teachers' aides

Shortage: DE; NO; RO
Surplus: BE; CY; CZ; DK; SE

Teaching professionals not elsewhere classified

Shortage: BE; DK; NO; PL
Surplus: BE; SK

Technical and medical sales professionals (excluding ICT)

Shortage: BE; FR; NL; NO; RO
Surplus: ES; SE

Telecommunications engineering technicians

Shortage: BE; EE; LU
Surplus: RO; SI

Telephone switchboard operators

Shortage: NO
Surplus: SI

Toolmakers and related workers

Shortage: BE; EE; LT; NL; PL; PT; SI
Surplus: RO; SK

Town and traffic planners

Shortage: BE; DE; DK; LV; NL; NO; RO
Surplus: SE

Trade brokers

Shortage: BE; IT; LU; RO
Surplus: DK; SE

Training and staff development professionals

Shortage: BE; NO; RO
Surplus: DK

Translators, interpreters and other linguists

Shortage: SE
Surplus: BE; DE; DK; ES; RO; SI

Transport clerks

Shortage: BE; DE; FR; NL; RO
Surplus: DK

Transport conductors

Shortage: NL; RO
Surplus: DK; SE

Travel attendants and travel stewards

Shortage: LV
Surplus: DK

Travel consultants and clerks

Shortage: BE; LV; NO
Surplus: DK; FI; LT; RO; SI

Tree and shrub crop growers

Shortage: BE; NL
Surplus: HU; SE

Undertakers and embalmers

Shortage: BE
Surplus: DK

University and higher education teachers

Shortage: CH; EE; NL; NO; SI
Surplus: BE; DK

Upholsterers and related workers

Shortage: LT; NL; RO
Surplus: DK

Valuers and loss assessors

Shortage: NL
Surplus: BE

Vehicle cleaners

Shortage: NL; NO; RO
Surplus: NO; SE

Veterinary technicians and assistants

Shortage: NO
Surplus: DK; LU; LV

Waiters

Shortage: BE; BG; CY; DE; DK; EL; FI; FR; HR; LU; MT; NL; NO; PT; RO; SI; SK
Surplus: BE; PT; SK

Weaving and knitting machine operators

Shortage: BE; RO
Surplus: PT

Web and multimedia developers

Shortage: CY; EE; FI; HR; LU; LV; NL
Surplus: DK

Well drillers and borers and related workers

Shortage: NL
Surplus: DK

Window cleaners

Shortage: BE; NL; RO
Surplus: SE

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