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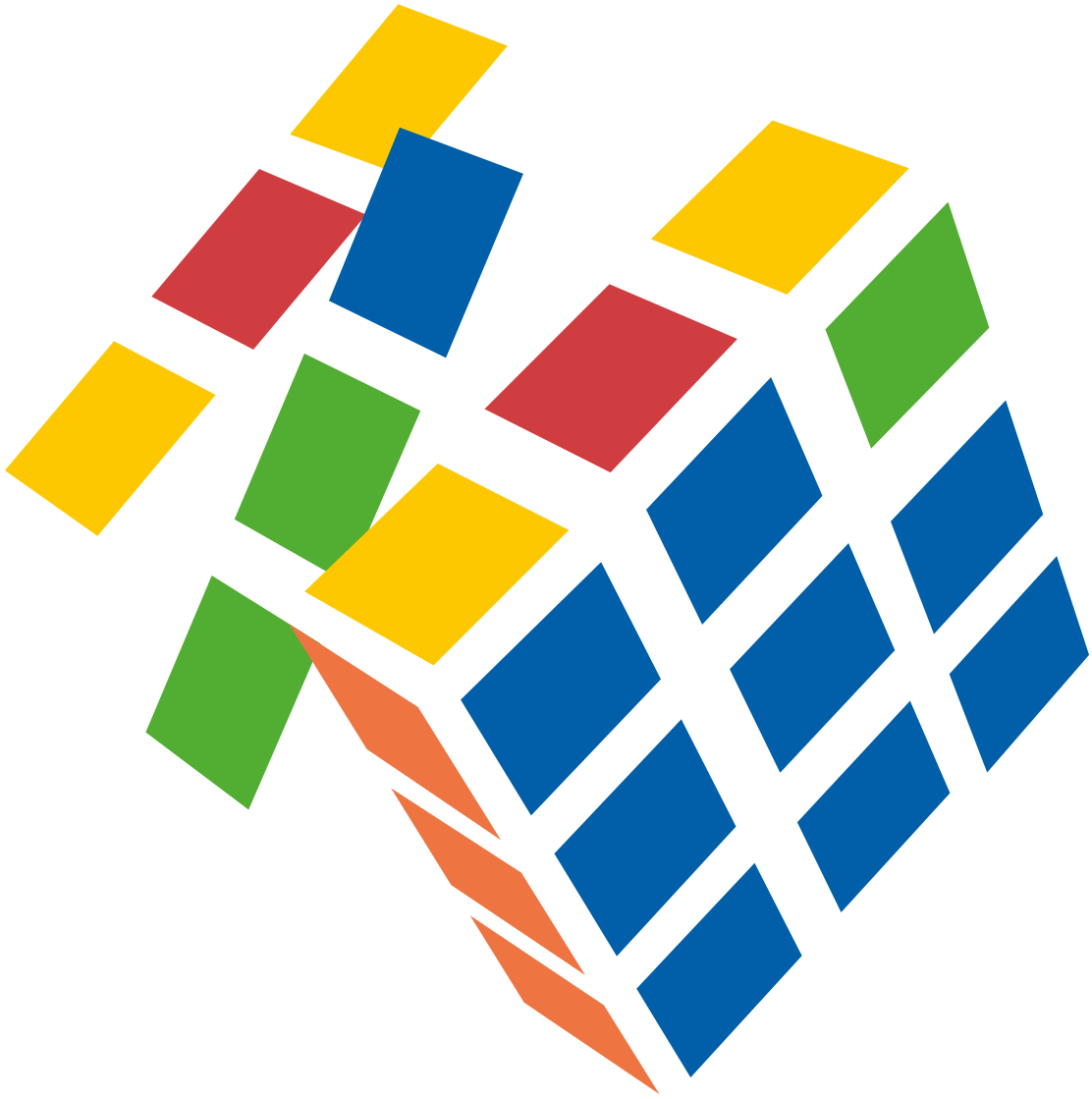


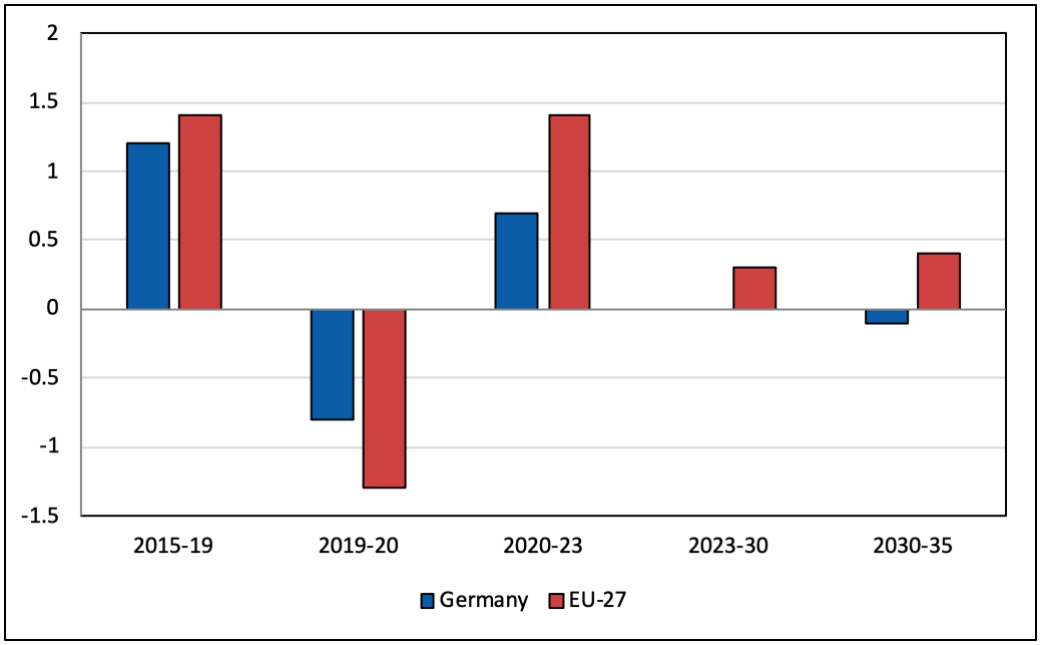
2025 skills forecast

Germany

1. Employment outlook

Employment in Germany is forecast to see no growth over 2023-35, compared with an increase, albeit relatively small, forecast for the EU-27 as a whole. Figure **1** shows that employment in Germany grew by just over 1% pa over 2015-19, slightly slower than the EU-27 average, but fell slightly less sharply than the EU-27 in 2020 as the Covid-19 pandemic hit. Employment in Germany is estimated to have bounced back less strongly than the EU-27 over 2020-23. Employment in Germany is forecast to remain static over 2023-30, and to see a slight decline over 2030-35, compared with growth of around 0.3-0.4% pa over the whole forecast period for the EU-27.

Figure 1. **Annual percentage employment growth in Germany and the EU-27, 2015-35**



Source: Cedefop (2025 Skills Forecast).

2. Labour force overview

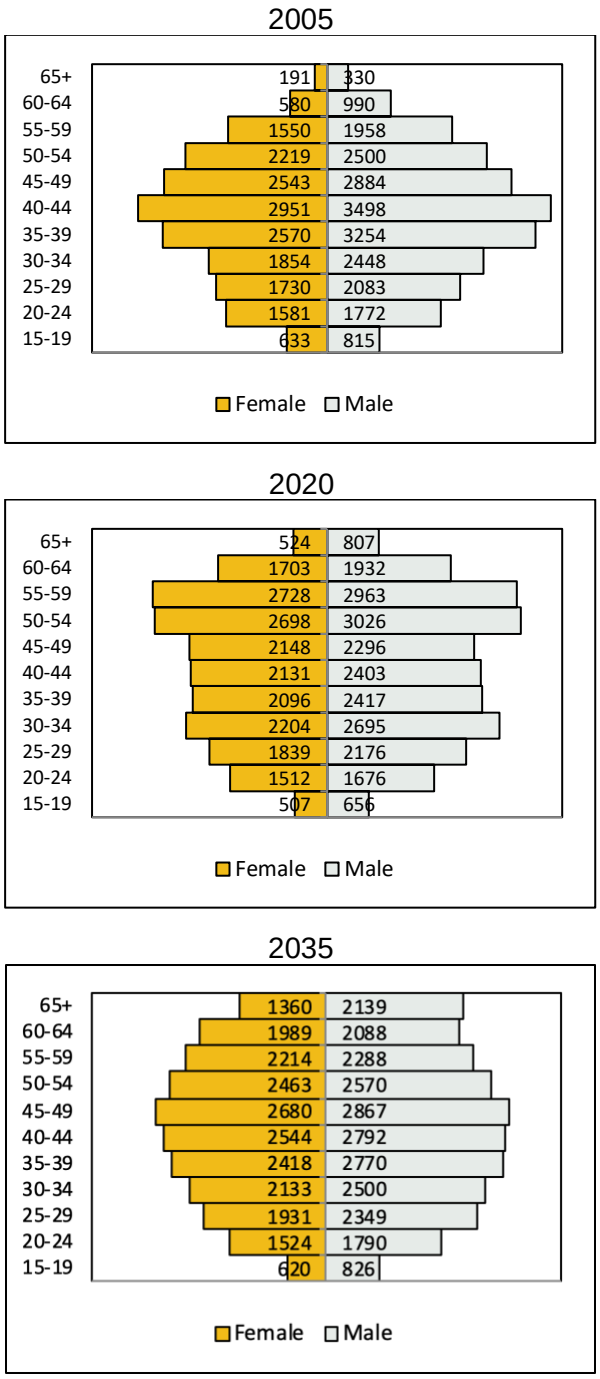
Figure **2** shows the labour force by age group in Germany in 2005, 2020 and 2035. Changes in the labour force in Germany over the forecast period will continue to be driven by the ageing population and increasing participation rates in almost all age groups. The total labour force in Germany is projected to grow by just around 8.6% over 2020-35, compared with an increase of around 5.4% seen over the previous 15 years. This compares with an expected increase in the labour force of just under 10% over 2020-35 for the EU-27 as a whole. The total participation rate in Germany is forecast to increase by 4 pp over 2020-35, the same as the forecast increase in the total rate for the EU-27 as a whole. The total population is forecast to grow by 1.8% over 2020-35, similar to the increase seen over 2005-20.

Although the overall population in Germany is forecast to increase over 2020-35, the population aged 20-34 and 50-64 is forecast to fall quite strongly, reflecting trends in the relevant younger cohorts in preceding periods. The population aged 65+ is forecast to see a large increase, of around 25%, reflecting the large number of baby-boomers.

The participation rates of almost all age groups in Germany are forecast to grow quite strongly over 2020-35, with the strongest increases projected for the 25-29 (13 pp), 35-39 (11 pp), 45-49 (12 pp) and 60-64 (17 pp) age groups. Although the participation rate of those aged 65+ is only expected to reach 16% by 2035, this still represents a doubling since 2020.

As in the EU-27 as a whole, female participation rates by age group in Germany are generally projected to increase more than male rates, although, overall, due to relative changes in different age groups, the *total* participation rates for both females and males are forecast to increase by 4 pp over 2020-35.

Figure 2. **Distribution of the labour force (thousands), 2005-35**

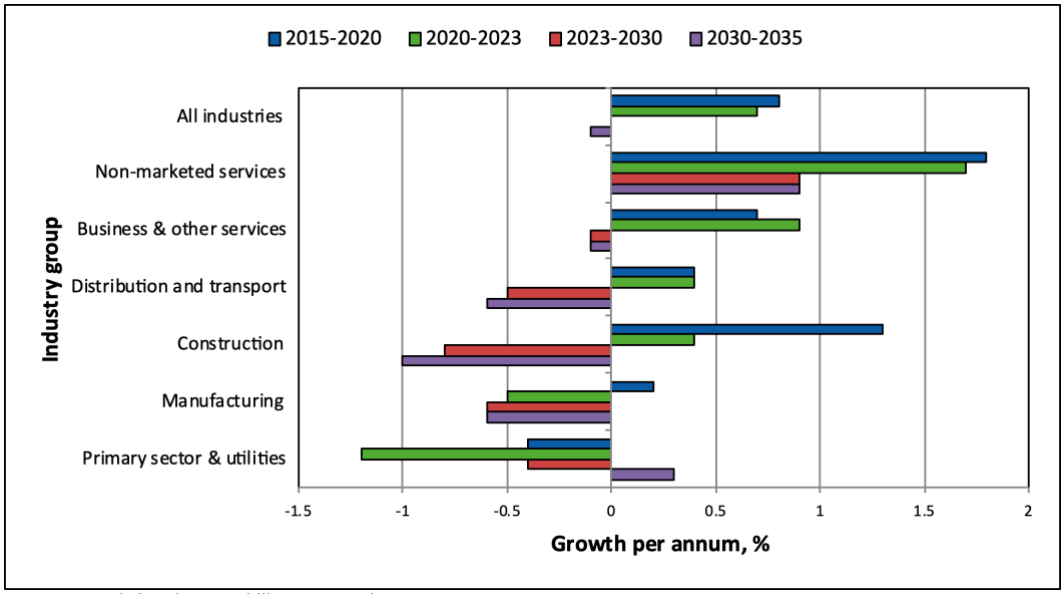


Source: Cedefop (2025 Skills Forecast).

3. Sectoral employment trends

Figure **3** shows the annual average employment growth by broad sector in Germany between 2015 and 2035. The only broad sector forecast to see positive employment growth over 2023-30 is *Non-marketed services*, with growth of 0.9% pa. Even *Business & other services*, the driving force of employment growth in many EU countries, is forecast to see a decline in employment, albeit only around 0.1% pa. *Manufacturing*, *Construction* and *Distribution & transport services* are all forecast to see a decline of 0.5% pa or more over the forecast period.

Figure 3**.** **Employment growth by broad sector of economic activity, 2015-35**



Source: Cedefop (2025 Skills Forecast).

In terms of sub-sectors (i.e. below the level of the six broad sectors discussed above), the pattern of growth is much more mixed. Within *Business & other services*, relatively strong growth in employment is expected in *research & development* and a*rchitectural & engineering services*. Within *Non-marketed services*, employment growth is forecast to be driven by *education* and *health*. In *Manufacturing*, the *pharmaceuticals* and e*lectrical equipment* sub-sectors are forecast to see positive growth. Still, all other *Manufacturing* sub-sectors are forecast to see a fall in employment over the whole forecast period. Within *Primary sector & utilities*, only *electricity* is forecast to see strong positive growth in employment over the whole of the forecast period, and *water supply* and *agriculture* and *gas, steam & air conditioning* are all forecast to see strong declines.

4. Job openings by occupational group

Cedefop skills forecasts estimate the total job openings by occupational group as the sum of net employment change and replacement needs. Net employment change refers to new jobs created or lost due to the expansion or contraction of employment in that sector or occupation. Replacement needs arise as the workforce leaves the occupation due to retirement or career changes. Replacement needs, generally, provide more job opportunities than new jobs, meaning that significant job opportunities arise even in occupations declining in size (i.e. agricultural workers are a typical example, as ageing workers employed in the sector will need to be replaced).

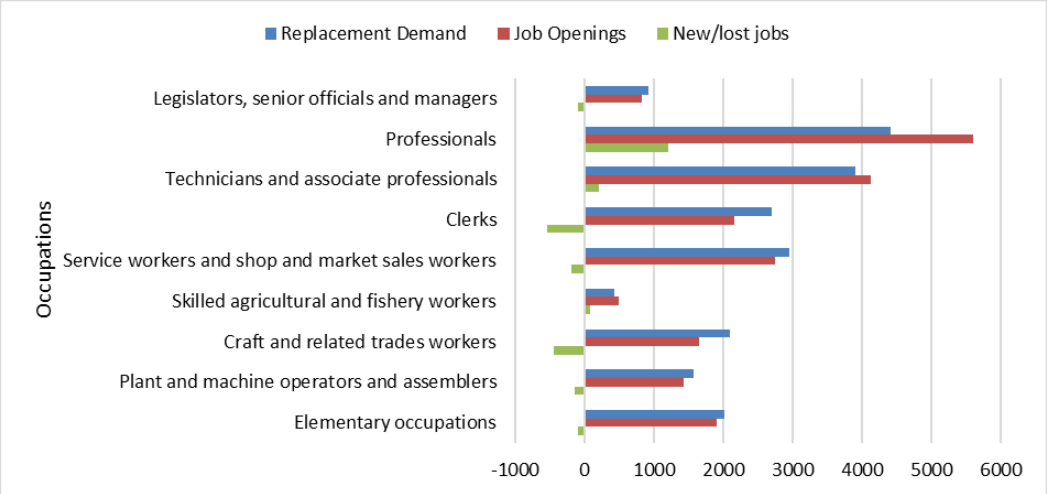
Figure 4 shows the total job openings by broad occupational group over 2022-35. The number of job openings indicates the number of jobs required to be filled due to lost/newly created jobs and those that need replacement workers.

The number of jobs in all broad occupations, except for *Professionals*, *Technicians and associate professionals* and *Skilled agricultural workers*, are expected to decrease over the forecast period, reflecting the employment forecast by sector. There will still be many job openings due to replacement demand.

Professionals and *Technicians & associate professionals* are the two broad occupations expected to generate the largest number of job openings over the forecast period, accounting for 27% and 20% of total job openings respectively. *Service workers and shop and market sales workers* contribute 13% of the job openings, all of which are forecast to be based on replacement needs. Clerks, who are strongly declining as an occupational group, still contribute 10% of the job openings, only through replacement requirements.

At the more detailed level, most job openings (taking both new/lost jobs and replacement needs together) as a share of all job openings are expected to be in *Teaching professionals*, with 6.7% of all job openings, and, important for Germany, *Science and engineering professionals,* with 5.1% of the job openings. At the intermediate level of occupations, *Legal, social, cultural and related associate professionals* are expected to contribute 6.9% of the job openings, while the shrinking group of Clerks, which includes *general and keyboard clerks,* is still expected to contribute 6.3% of the job openings, through replacement needs. Even among elementary occupations, 9% of total job openings are expected to be provided, with *Cleaners and helpers* the largest group.

Figure 4. **Total job openings, 2022-35**



Source: Cedefop (2025 Skills Forecast).

5. Drivers of occupational change

Within the Cedefop skills forecast, future employment growth (or decline) of occupations is further broken down by separating national economic components from regional industrial and economic effects, helping to interpret what is driving the change. From this perspective, employment growth can be explained by three possible drivers: (a) overall economic trends (i.e., growth or decline), (b) shifts of employment between sectors, and (c) changes in the occupational structure within sectors (i.e., factors making some occupations more important than others).

An increasing specialisation in many sectors influences the occupational composition of employment in Germany. This is reflected in stronger occupation-specific effects, leading to increasing shares of professionals and technicians and associate professionals in the economy. These changes reflect changes in job organisation in many sectors and, in many cases, an increasing specialisation.

Along with these specialisations, there is also a move towards managing these new work forms. High-skilled occupations that can benefit from this trend are, for example, *Legal, social, cultural, and related associate professionals,* as well as *Administrative and commercial managers,* both of whom exhibit strong occupation effects.

Health professionals and *Associate health professionals* both benefit from the increase in the underlying health sector. Yet, not all of the increases in employment

translate into higher employment in these important health occupations. A shift towards the associate level and the use of ICT and other support occupations will also lead to a larger share of other occupations in that sector.

Therefore, the overall effect of occupational change depends on several factors that need to be considered together. Increasing digitalisation and moving towards a more service-oriented economy, including within manufacturing, will lead to a greater use of higher-level occupations. At the other end of the spectrum, lower-level occupations supporting production and the service sector sometimes seem to be increasing at the cost of intermediate occupations.

As the production sector loses slightly in importance while service related sectors remain stronger, occupations like *Teaching professionals, Health associate professionals,* and *Personal care workers* benefit from strong positive sector effects while *Building and related trades workers, excluding electricians, Metal, machinery and related trades workers, Handicraft and printing workers, Food processing, wood working, garment and other craft and related trades,* and *Stationary plant and machine operators* have negative sector effects. A special case is *Hospitality, retail and other services managers*, also with negative sector effects, possibly due to Covid-19-related closures and lay-offs in the past year. How far a recovery will take place, despite the negative forecast, remains to be seen.

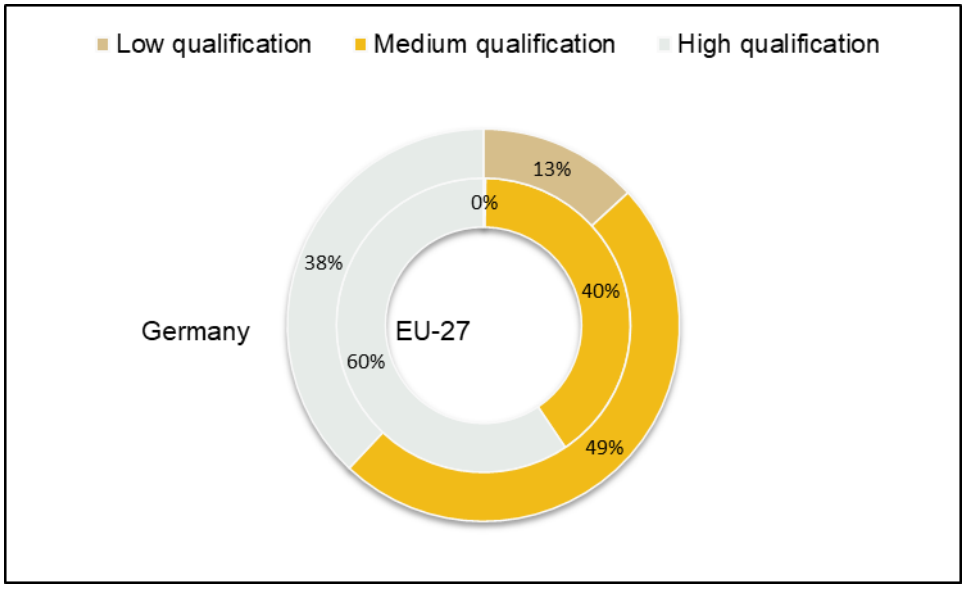
The strength of intermediate occupations, with a strong intermediate qualification level in Germany, limits the overall effect on medium-qualified occupations. Whereas *Building and related trade workers* remain somewhat stronger, the number of industry-based *metal, machinery, and related trade workers* is decreasing, most likely due to increases in automation within the sectors. Clerical work is expected to see a decrease in its employment share in all but *customer service clerks*.

6. Demand for and supply of skills

Within the Cedefop skills forecast, skills are proxied by the highest level of qualification held by individuals in the labour force and employment. Three levels are distinguished: high, medium, and low, corresponding to the official ISCED classification. The occupational group also indicates the skill level required, as some occupations (e.g. professionals) typically require high-level skills, while others (e.g. elementary) typically require only basic ones. Therefore, occupational groups are also linked to a skill level.

Almost half (49%) of the total job openings expected to be created in Germany up to 2035 will require medium-level qualifications, about 9 pp more than the EU-27 average (see Figure 5). More than one-third (38%) of total job openings will require high-level qualifications, and more than one in ten (13%) will require low-level qualifications.

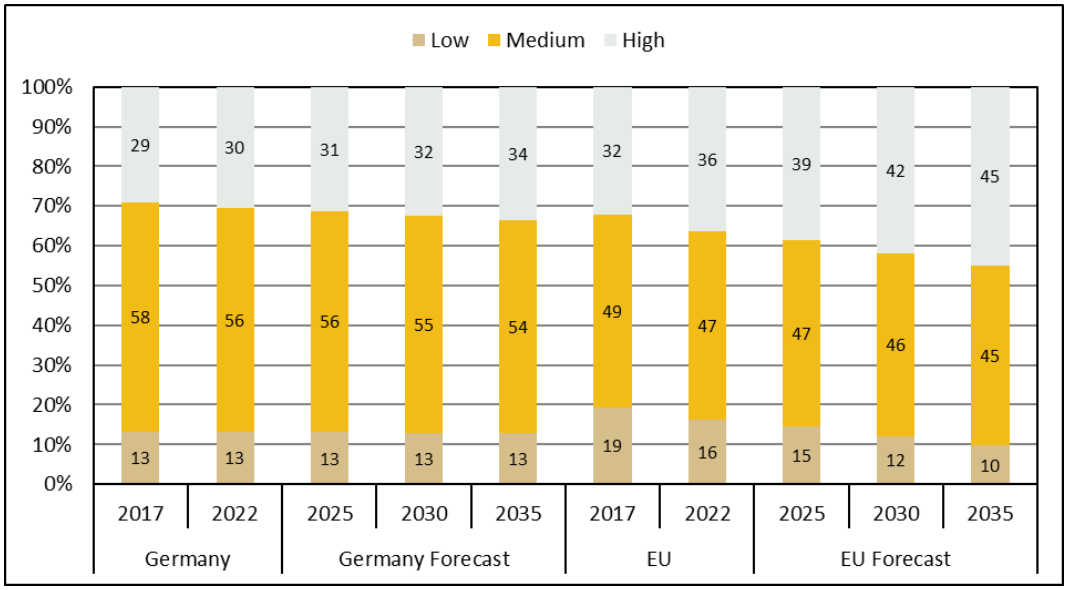
Figure 5. **Shares of total job openings by level of qualification, 2022-35**



Source: Cedefop (2025 Skills Forecast).

Future labour supply trends depend on the size of the working-age population (defined as those aged 15 or older), labour market participation rates, and the extent to which people acquire formal qualifications.

Figure 6. **Labour force by qualification level**



Source: Cedefop (2025 Skills Forecast).

Germany is expected to experience little change over 2022-35 in the shares of qualifications in the labour force, as seen in Figure 6. The share of people with high-level qualifications in Germany is expected to increase to 34% by 2035. The share of medium qualified labour force is expected to fall slightly, but to remain the largest qualification group in Germany (54% in 2035). The share of those with low levels of qualification is expected to remain stable, at 13%. In Germany, the proportion of the labour force with medium level qualifications remains significantly higher than the EU-27 average.

The **labour shortage index** is a method to summarise three elements of potential labour shortage: (1) employment growth, (2) replacement demand, and (3) Supply/Demand imbalance (IFIOD). The outcomes at the occupation level are grouped into four quartiles: those with a low indication of shortage get the value 1, and those with the highest indication of shortage will get the value 4. The total outcome of the individual elements is a simple average of the elements. In Figure 6, the length of the bar gives the overall outcome, where higher levels indicate more shortage. The outcomes of the three elements are also given to quickly evaluate the influence of employment growth - replacement demand, and - supply-demand imbalances.

At the aggregate level in Germany, the supply of low- and medium-skill workers is expected to be below what is required by demand by 2035, while the

supply of high-skill workers is expected to meet the demand for those qualifications.

Germany faces strong labour market tightness, and this is expected to remain throughout the forecast period and also inhibit growth prospects, which is taken into account in the macroeconomic forecast. Hiring difficulties arise mainly among low- and medium-qualified workers.

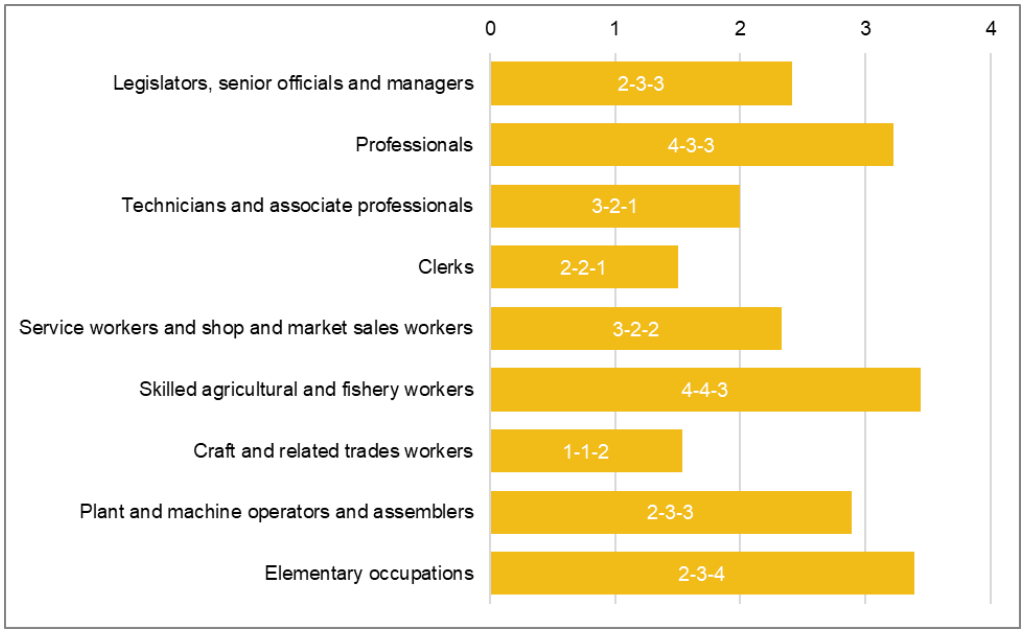
The labour shortage index is calculated at the ISCO 2-digit level and then aggregated to the ISCO 1-digit level. At the ISCO 1-digit level (Figure 7), the highest value of the labour shortage index in Spain can be found among *Skilled agricultural and fishery workers* (2-3-4), predominantly due to supply-demand imbalances. For *Technicians and associate professionals* (4-3-1), the shortage is expected to be primarily caused by employment growth. In contrast, the labour shortage for *Service workers and shop and market sales workers* (3-3-3) is expected to be equally caused by employment growth, replacement demand, and supply-demand imbalances.

At the detailed level and within the higher skilled non-manual occupations, among the highest shortages according to the index are with *Legal, social and cultural professionals (4-4-4),* who indicate shortages along all three indicators (growth, replacement, and imbalances). Other occupations in this group with high shortages are *Teaching professionals* (4-3-3) and *Health professionals* (3-4-2).

Among the skilled manual occupations, the highest shortages are expected among *Assembles (4-3-4),* who have among the highest employment growth and imbalances.

Among the skilled non-manual occupations, the highest shortage is expected among *Personal service workers* (3-3-3). This is driven by being among the highest group for replacement demand, and second highest in employment growth and imbalances.

Figure 7. **Labour Shortage Index, 2022-35**



Source: Cedefop (2025 Skills Forecast).

Cedefop methodology

The Cedefop Skills Forecast offers quantitative projections of future trends in employment, by sector of economic activity and occupational group. Future trends in the level of education of the population and the labour force are also estimated. Cedefop's forecast uses harmonised international data and a common methodological approach allowing cross-country comparisons between employment trends in sectors, occupations and qualifications. The forecast and methodology is validated by a group of national experts. The forecast does not substitute national forecasts, which often use more detailed methodologies and data, while they also incorporate in-depth knowledge of a country's labour market.

The latest round of the forecast covers the period up to 2035. The forecast takes account of global economic developments up to November 2023. The European Economy is expected to grow despite monetary tightening on phasing out of fiscal support.

The key assumptions of the baseline scenario incorporate the Eurostat population forecast available in June 2023 (Europop 2023) ([1]), and the short-term macroeconomic forecast produced by DG ECFIN in November 2023 ([2]). The source of historical labour force data is the European Labour Force Survey, which in 2022 underwent important methodological changes, causing a break in the time series for several variables, including the labour force. Consequently, in many Member States, the participation rates in 2021 are noticeably above/below historical trends. Moreover, some Member States experienced significant revisions in the historical data series for sectoral employment from the National Accounts.

The Cedefop Skills forecast 2025 is consistent with the objectives set by the European Green Deal by incorporating suitable assumptions about additional investment, power sector technologies, energy balances, and carbon pricing.

Energy and commodity price forecasts from the World Bank and the IEA are used as inputs to the Cedefop Skills Forecast.

([1]) https://ec.europa.eu/eurostat/web/population-demography/population-projections/database

([2]) https://economy-finance.ec.europa.eu/economic-forecast-and-surveys/economic-forecasts/autumn-2023-economic-forecast-modest-recovery-ahead-after-challenging-year_en

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