

1. Employment outlook

After strong employment growth in the past period, overall employment levels in Germany are estimated to experience growth at a slower pace in 2016-21 and beyond, as shown in Figure 1. Within the forecast period, employment is expected to decline in the final forecast period 2026-30 (-1.6%). This decline is in line with the average of the EU-28. The total employment change for 2016-30, considering the changes in its period of the forecast, will be a decline of -0.6% in employment, compared to an increase in EU-28 average (6%).

Figure 1 Percentage employment growth in Germany and the EU-28, 2011-30



Source: Cedefop (2018 Skills Forecast)

2. Labour force overview

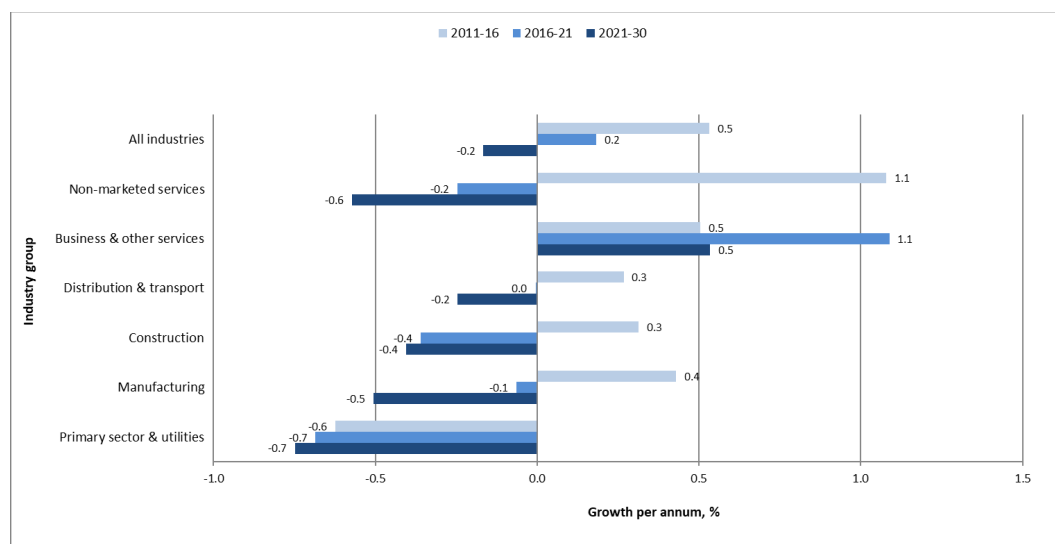
Germany's working age population is expected to increase by 2% over the period up to 2030, at the same time the labour force is expected to somewhat decrease (-0.5%). Germany's labour supply growth will be reverting towards the EU-28 average. The participation rate will experience an overall decline (-1.5%), which

can be explained by the changing composition of the labour force. While younger cohorts are estimated to participate more (aged 35-44, by about 1%), leading to very high participation rates for both sexes (close to 90% in average) in this age group. Overall, the number of older workers (aged 60+) with low participation rates (less than 35% in average), is expected to rise rapidly (2%-5% per annum). This increasing share of older workers has a negative impact on the overall participation rate of the whole labour force.

3. Sectoral employment trends

While for the period 2011-16 employment was increasing in most sectors, in most broad sectors of economic activity the reverse is expected over the forecast period, as shown in Figure 2. The only exception being the *business and other services* sector where the trend is estimated to continue. Despite being the sector with the highest overall annual growth rate, in the period 2021-30 the *business and other services* sector is expected to decline. *Primary sector, mining and quarrying, and utilities* are expected to have the highest decrease in the forecast period.

Figure 2 Employment growth by broad sector of economic activity, 2016-30



Source: Cedefop (2018 Skills Forecast)

In terms of sub-sectors, *banking and insurance, other business services (i.e. telecommunications, real estate activities, advertising and market research) and miscellaneous services (i.e. libraries, archives, museums and other cultural*

activities, gambling and betting activities) are those where the highest expected increase over 2016-30 period.

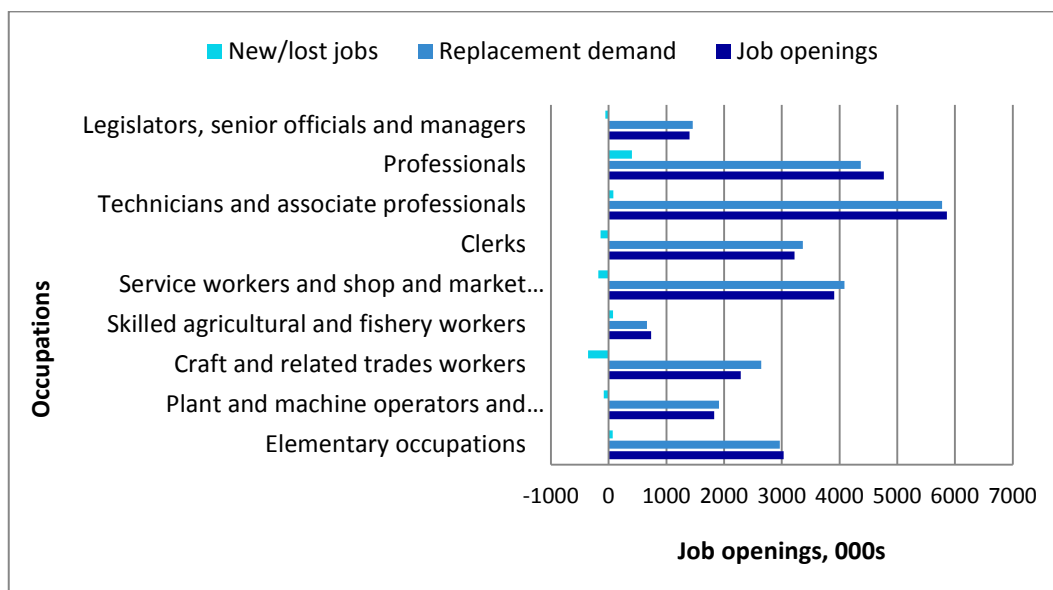
4. Job openings by occupational group

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 due to the expansion of the 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 3 shows the **total job openings** by broad occupational group over the period 2016-30. The number of job openings is determined by the amount of jobs lost/newly created and by the amount of jobs that are in need of replacement workers following e.g. the retirement of older workers.

Most of the jobs expected to be created in Germany will be due to the need to replace workers leaving particular occupations. Most of the job openings based on replacement demand will be found for *technicians and associate professionals*, contributing almost 22% of the total openings which is more than these occupations' share in the EU-28 (18%). Overall, there will be 5.8 million job openings (99% of them due to replacement demand) in these occupations. *Craft and related trades workers* will experience a decline, i.e. some jobs will disappear within this occupation (as shown by the negative number of jobs created/lost); however, the need to replace existing workers will still create a significant number of job openings in this occupation.

Figure 3 Job openings by broad occupational group, 2016-30



Source: Cedefop (2018 Skills Forecast)

Germany is expected to have a decrease in job openings during the period 2016-30, especially among medium- and low-skilled occupations (like *sales workers, numerical and material recording clerks or metal, machinery and related trades workers*). At a more detailed occupational level, and with regards to **jobs created/lost**, most new jobs will be created for *business and administration professionals* and among *legal, social and cultural associate professionals*. Still, many of new jobs will also be created among occupations that are traditionally considered as medium-skilled, such as *customer services clerks*.

The highest number of **total job openings** (openings due to both jobs created/lost and replacement needs) over the period up to 2030 will be among the *business and administration professionals, personal service workers and sales workers*.

5. Drivers of occupational change

Within the Cedefop skills forecasts, 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 trends of the economy (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/ others).

The growth of *business and other services sector*, as a result of the overall tendencies from towards increasing numbers of service jobs is also forecast to affect Germany's economy in the coming years. It will create new demand also among a number of typically low- and medium- skilled occupations such as *customer services clerks, refuse workers and other elementary workers* and *other clerical support workers*. High-skilled occupations that can benefit from this trend are, e.g., *legal and business professionals*.

On the other hand, within sectors, occupations are changing, the advances of technology and especially of ICT are changing the skills profile and shift the importance of occupations. Among the affected occupations, both high- and medium- skilled occupations can be found, including *information and communications technicians, other clerical support workers* and *general and keyboard clerks*.

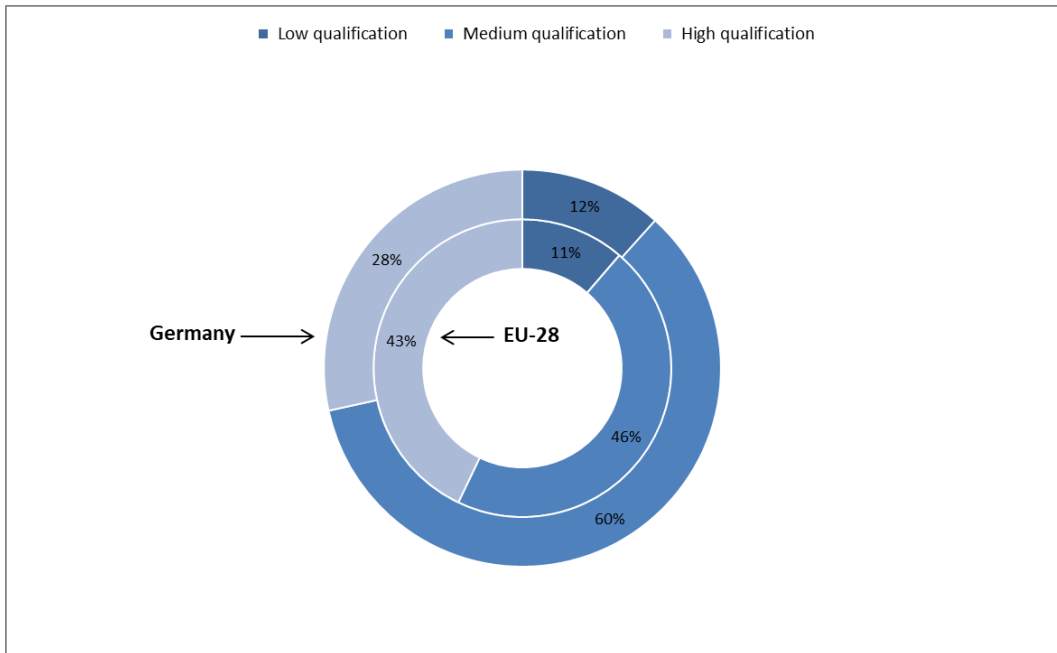
The overall effect of occupational change depends thus on a number of factors that all need to be considered together. For instance, the *other clerical support workers* will experience both positive (shift to services) and negative effects (from technological change). In Germany, the positive effects are expected to outweigh the negative effects, which results in the predicted increasing demand over the period up to 2030.

6. Demand for and supply of skills

Within the Cedefop skills forecasts, 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, which correspond to the official ISCED classification. The occupational group also offers an indication of the skill level required, as some occupations (e.g. professionals) typically require high-level skills, while some others (e.g. elementary) typically require only basic ones. Therefore, occupational groups are also linked to a skill level.

Figure 4 shows the shares of total job openings for qualifications needs. More than half of total job openings, to be created over the period up to 2030, will require medium level of qualification, about 15 pp more than the EU-28 average. This reflects the strong standing of the Germany dual system of education. Only 28% of jobs will require high level of qualifications and close to 12% will require low level of qualifications.

Figure 4 Share of total job openings by level of qualification, 2016-30



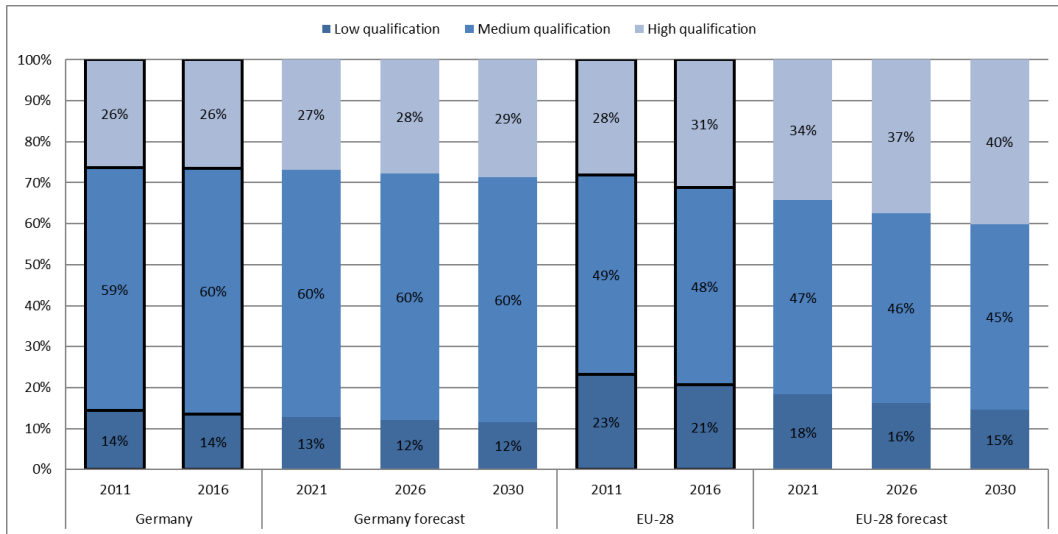
Source: Cedefop (2018 Skills Forecast)

Looking into future employment opportunities (total job openings) for high qualifications, the largest demand is expected for *legal, social and cultural professionals, business and administration professionals and associate professionals, and science and engineering professionals.*

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

As can be seen from Figure 5, the share of people with high level qualifications is expected to increase over the period up to 2030. The levels of medium qualified labour force will remain stable from 2016 onwards at 60%, a much higher level than the average EU-28 which is at 15% in 2026-30. Those with low levels of qualifications are expected to decrease. In general, Germany is not expected to experience substantial changes through 2016-30 in shares of qualification in the labour force.

Figure 5 Labour force share by level of qualification, 2011-30



Source: *Cedefop (2018 Skills Forecast)*

Looking together at supply of and demand for labour force by level of qualification, supply and demand are expected to be more in balance in the future than currently.

Cedefop methodology and scenarios

Cedefop skills forecasts offer quantitative projections of future trends in employment by sector of economic activity and occupational group. Future trends on the level of education of the population and the labour force are also estimated. Cedefop's forecasts use harmonised international data and a common methodological approach allowing cross-country comparisons about employment trends in sectors, occupations and qualifications. The forecasts and methodologies applied are validated by a group of national experts. These forecasts do 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 forecasts covers the period up to 2030. The forecasts take account of global economic developments up to May 2017. Despite cross-country differences, the EU economy as a whole is expected to show modest growth, after a better-than-expected performance in 2017. Over 2018 and 2019, the EU economy as a whole is expected to grow, albeit at a slower pace compared to 2017, supported by increased household expenditure and falling unemployment, although wage growth remains muted. Investment is also expected to pick up given favourable financing conditions and an improved economic outlook. The key assumptions of the baseline scenario incorporate the Eurostat population forecast available in 2017 (Europop 2015) ⁽¹⁾ and the short-term macroeconomic forecast produced by DG ECFIN in May 2017 ⁽²⁾.

For the latest update and access to more detailed Cedefop skills forecast data please visit:

<http://www.cedefop.europa.eu/el/events-and-projects/projects/forecasting-skill-demand-and-supply>



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⁽¹⁾ <https://ec.europa.eu/eurostat/web/population-demography-migration-projections/population-projections-data>

⁽²⁾ https://ec.europa.eu/info/business-economy-euro/economic-performance-and-forecasts/economic-forecasts/spring-2017-economic-forecast_it