



CEDEFOP

European Centre for the Development
of Vocational Training

EN



2020 skills forecast Sweden





CEDEFOP SKILLS FORECAST 2020

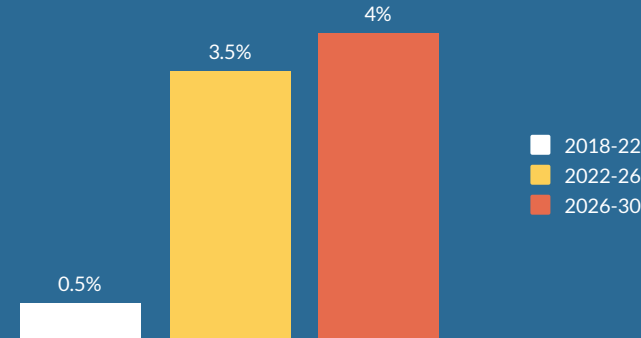
Key facts: Sweden

5 398 000

Employment in 2030

8%
Increase
2018-30

% Employment growth 2018-30



3 058 000

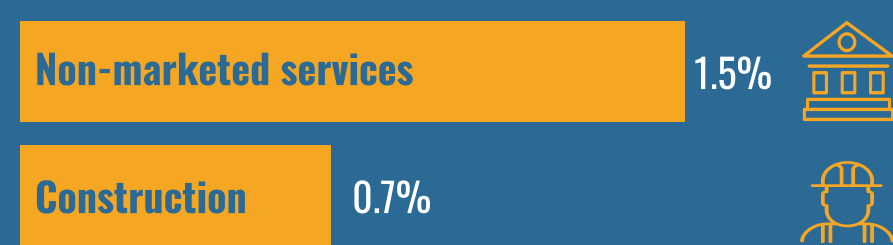
Total job openings, 2018-30



■ Replacement needs (90%)
■ New job openings (10%)

FASTEST-GROWING SECTORS

Growth per year 2018-30

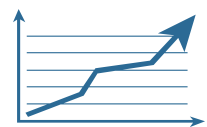


HIGHEST-DEMAND OCCUPATIONS

Total job openings 2018-30



Total job openings by qualification level 2030:



4.4%
Increase
in employment
in 2018-30



Fastest-growing sector
Non-marketed services



Highest-demand occupation
Business & administration associate professionals

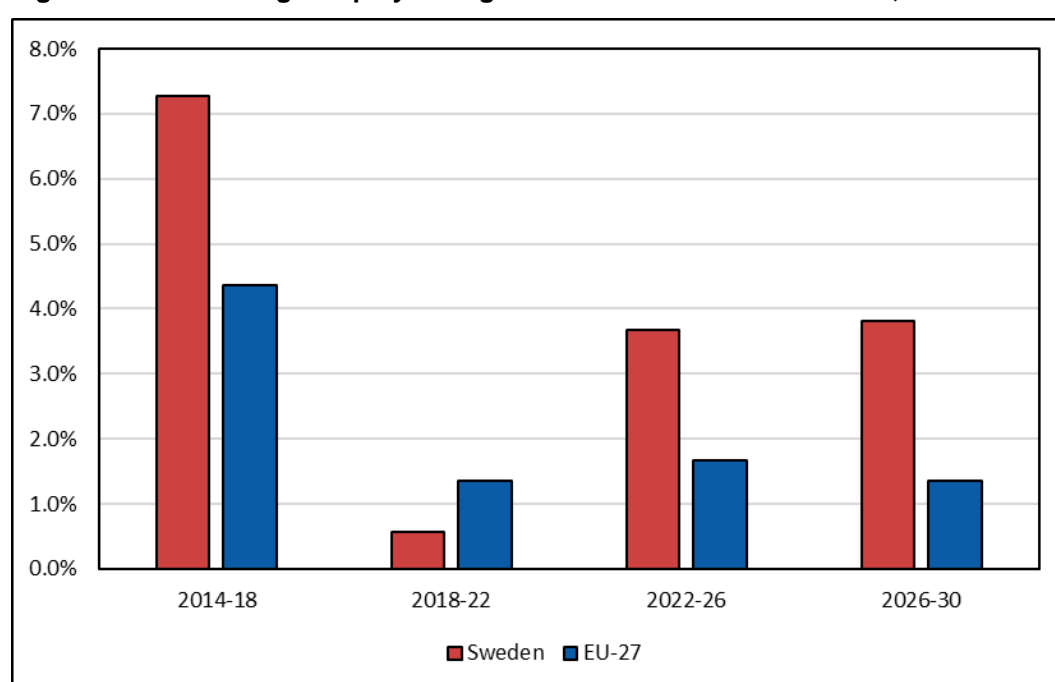
43% Increase in high-skilled labour supply 2018-30



1. Employment outlook

As shown in Figure 1, employment growth in Sweden is forecast to slow from the rates seen over 2014-18. Only very modest growth, of close to 0.5%, is expected over 2018-22, well below the EU-27 average for that period. Nevertheless, employment growth in Sweden is expected to pick up after 2022, reaching 3.7% over 2022-26, and 3.8% over 2026-30. In the period 2022-30, employment in Sweden is forecast to grow more than twice as fast as the EU-27 average.

Figure 1. Percentage employment growth in Sweden and the EU-27, 2014-30



Source: Cedefop (2020 Skills Forecast).

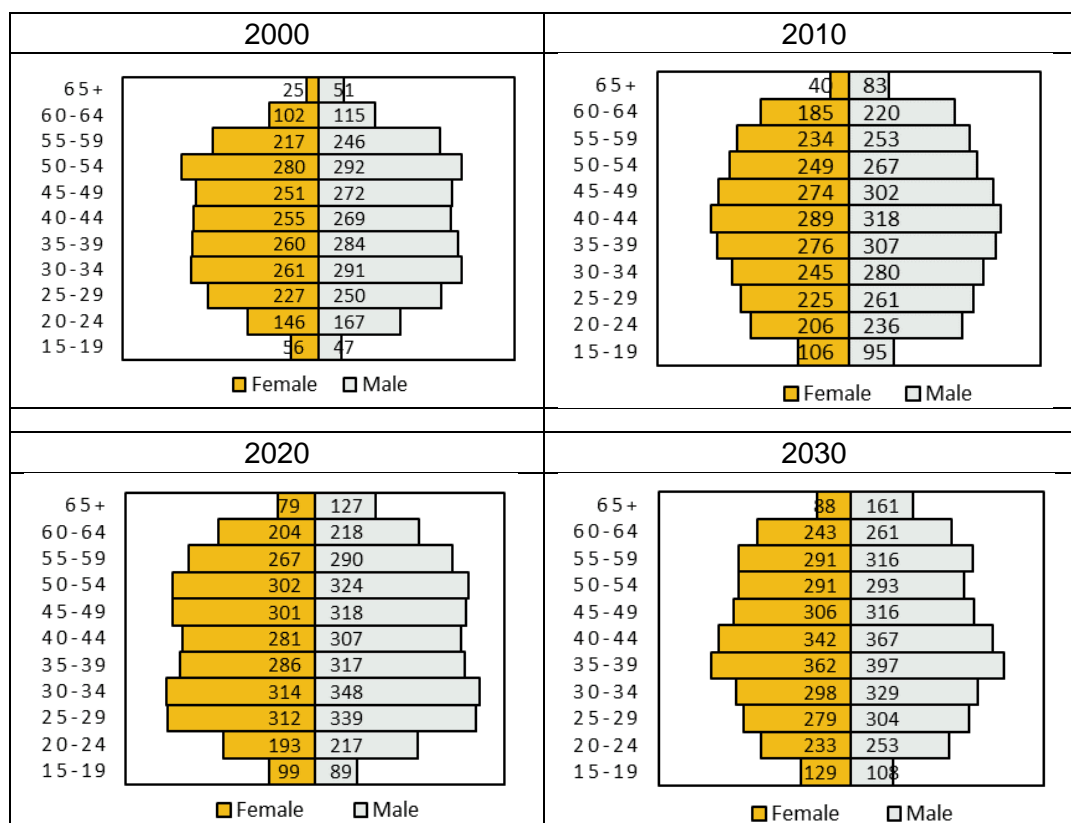
2. Labour force overview

Figure 2 presents the evolution of the distribution of labour force in Sweden by age and gender between 2000 and 2030. Changes in the distribution of the labour force over that period can be linked in particular to the large increases in labour force participation rates among all age and gender groups between 2000 and 2010, and the effect of an ageing population in years after 2010.

In the years after 2010, for most age groups, labour force participation rates are expected to remain similar to their 2010 level. However, participation rates for 55+ year-olds are expected to continue to grow up to 2030. Growth is expected

to be particularly high for the 65+ age group, where the female participation rate is forecast to increase from 4% in 2010 to 7% in 2030, and the male participation rate is forecast to increase from 11% in 2010 to 14% in 2030. Changes in retirement age combined with the changing demographic structure of the Swedish population will result in a growing number of 65+ year-olds in the labour force, which is forecast to double in the period 2010-30 (see Figure 2).

Figure 2. Distribution of the labour force (thousands), 2000-30



Source: Cedefop (2020 Skills Forecast).

3. Sectoral employment trends

Figure 3 presents the average annual employment growth rates across broad economic sectors in three sub-periods between 2014 and 2030.

As discussed in the context of Figure 1, growth in employment is expected to slow over 2018-22, before picking up again over 2022-30. However, employment growth will not be distributed evenly across all sectors.

Growth in employment is expected to be strongest in the *non-marketed services* sector (which includes activities such as education, healthcare and public administration), averaging 1.3% pa over 2018-22 and 1.7% pa over 2022-

30. Also, despite a slowdown from its 2014-18 pace, the growth in employment in *construction* will remain above the all-sector average, at 0.9% pa over 2018-22, and 0.6% pa over 2022-30.

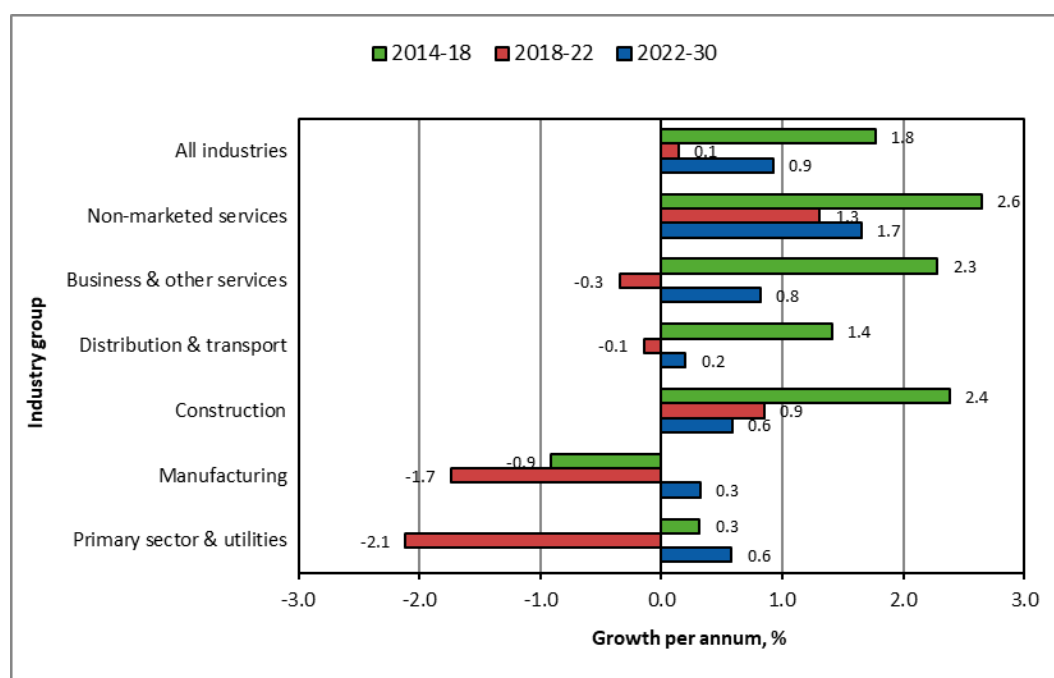
Employment in the *manufacturing* sector will continue its declining trend, shrinking by 1.7% pa over 2018-22. This trend is expected to reverse over 2022-30, although the average growth of 0.3% pa in that sector will be lower than the all-sector average (0.5%).

The largest declines in manufacturing employment over 2018-22 are forecast in sub-sectors such as *rubber/non-metallic mineral products* (4% pa) and *other machinery & equipment* (3.4% pa). However, employment in the *electrical equipment* sector is expected to increase by 2.3% pa over the same period, and by 2.6% pa over 2022-30. This signifies a transition from heavy industries to high-tech manufacturing jobs in the next decade.

A similar trend is forecast for the *primary and utilities* sectors, which include activities such as agriculture, forestry, mining and quarrying and utilities. Employment in that sector is forecast to decline rapidly, by 2.1% pa over 2018-22, with the trend primarily being driven by a decline in agriculture (3.9% pa). However, employment in the *electricity* sub-sector is expected to increase at a moderate pace of 0.8% pa over 2018-22.

Employment in the *business & other services* sector is expected to experience a slight decline (-0.3% pa) over 2018-22. The individual sub-sectors contributing to this decline include *warehousing and postal services*, *telecommunications* and *real estate activities*. However, certain other sub-sectors within the broad *business & other services* sector will see their employment increase over the same period, as in the case of *computer programming & information services*, *research & development*, and *legal, accounting & consulting*.

Figure 3. Employment growth by broad sector of economic activity, 2014-30



Source: Cedefop (2020 Skills Forecast).

4. Job openings by occupational group

The Cedefop skills forecast estimates 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 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).

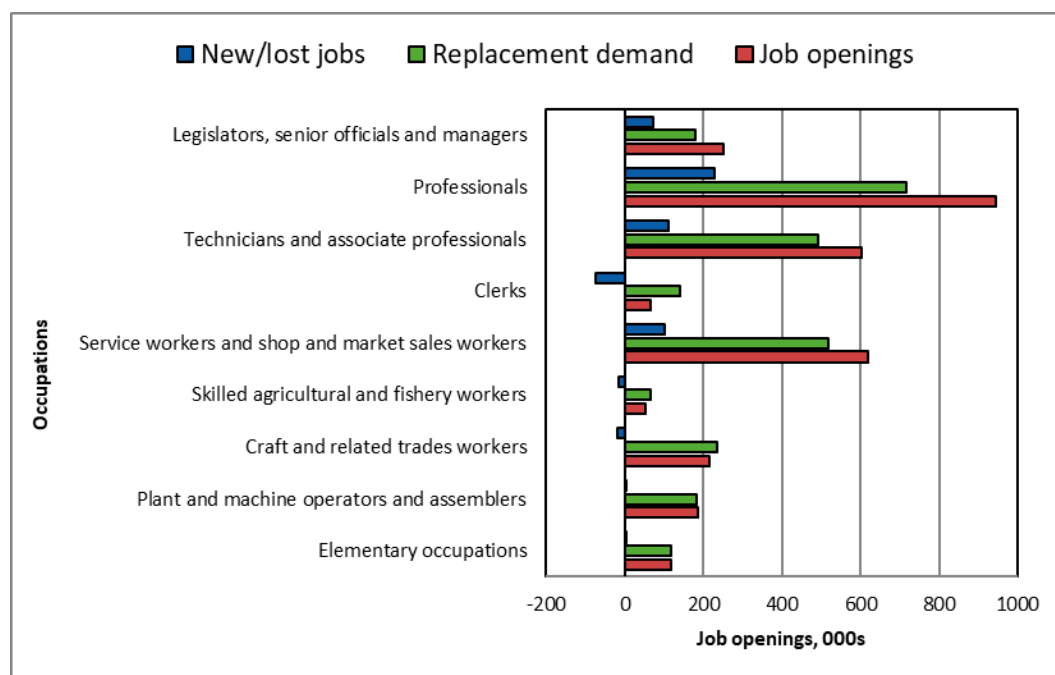
Figure 4 presents the total job openings by broad occupational group over 2018-30. New jobs in all occupations (411 000) will account for 13% of all job openings (3.1 million) over the period 2018-30, with the remaining 2.6 million openings being due to replacement demand. The share of new jobs in Sweden against all job openings is therefore projected to be higher than in most other EU-27 countries, in part owing to the fast-growing population.

The Swedish economy is expected to add new jobs primarily in highly-skilled occupations, such as *legislators, senior officials and managers, professionals,*

technicians and associate professionals, as well as certain medium-skilled jobs in *services and sales*. This is in particular driven by new jobs for *health professionals and health associate professionals*, with close to 160 000 new jobs projected to be added between 2018 and 2030, and positions for *science and engineering professionals* (66 000). However, the effects of digitisation and automation in the healthcare sector may lead to job growth being slightly slower than projected here.

On the other hand, very few new jobs will be created in low-skilled positions, such as *elementary occupations* and *plant and machinery operators and assemblers*. Some occupations in *agriculture and fishing* and *craft and related trades* will shrink, with medium-skilled *clerks* seeing the largest decline of all groups, at 74 000 jobs.

Figure 4. Job openings by broad occupational group, 2018-30



Source: Cedefop (2020 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 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 than others).

An increasing specialisation in many sectors will influence the occupational composition of employment in Sweden. This is reflected in stronger positive occupation-specific effects, leading, overall, to more an increase in the share of *professionals, technicians and associate professionals* and *health and associate professionals*. These changes reflect changes in job organisation in many sectors and, in many cases, an increasing specialisation. Along with these specialisations there are also increasing returns to qualifications which offset negative occupation effects among highly qualified workers. The share of those highly qualified is expected to increase within all the occupations, apart from *teaching professionals*, as well as *general and keyboard clerks*, at the expense of both medium and low-skilled occupations. *Health professionals* as well as *associate health professionals* will both benefit from the increase in the underlying health sector, as well as some occupational categories within the broader *plant and machine operators and assemblers*.

The overall effect of occupational change therefore depends on a number of factors that need to be considered together. Increasing digitisation and the move towards a service-oriented economy, including within manufacturing, will lead to a greater use of higher-level occupations. At the other end of the spectrum, all lower-level occupations with the exception of *labourers in mining, construction, manufacturing and transport* are expected to decrease.

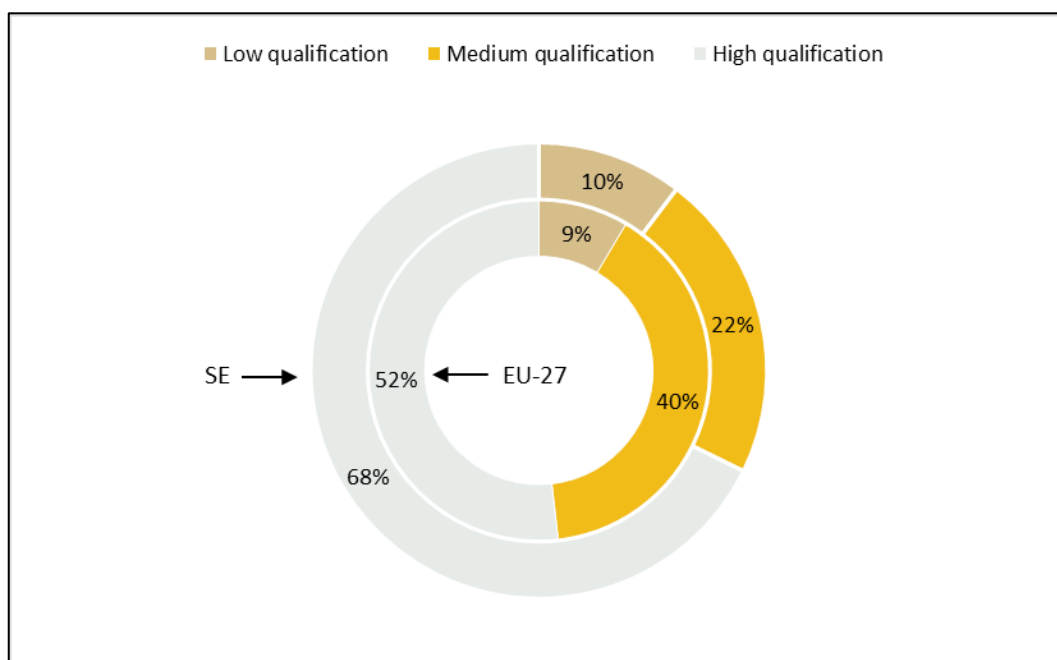
The strength of occupations, with a strong intermediate qualification level in Sweden, will limit the overall effect on the latter. Only the share of *administrative and commercial managers, health associate professionals* and *legal, social cultural and related associates* with a medium level of qualification is expected to increase in the forecast period, while the other occupational categories, especially in the industry-based metal, machinery and related trade workers are decreasing in number, most likely through increases in automation within the sectors, and in clerical work.

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 in 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.

Well over two-thirds (68%) of the total job openings that are expected to be created in Sweden over the period to 2030 will require high level qualifications, about 16 pp more than the EU-27 average. About one fourth of total job openings will require medium level qualifications and one in ten will require low level of qualifications.

Figure 5. Shares of total job openings by level of qualification, 2018-30



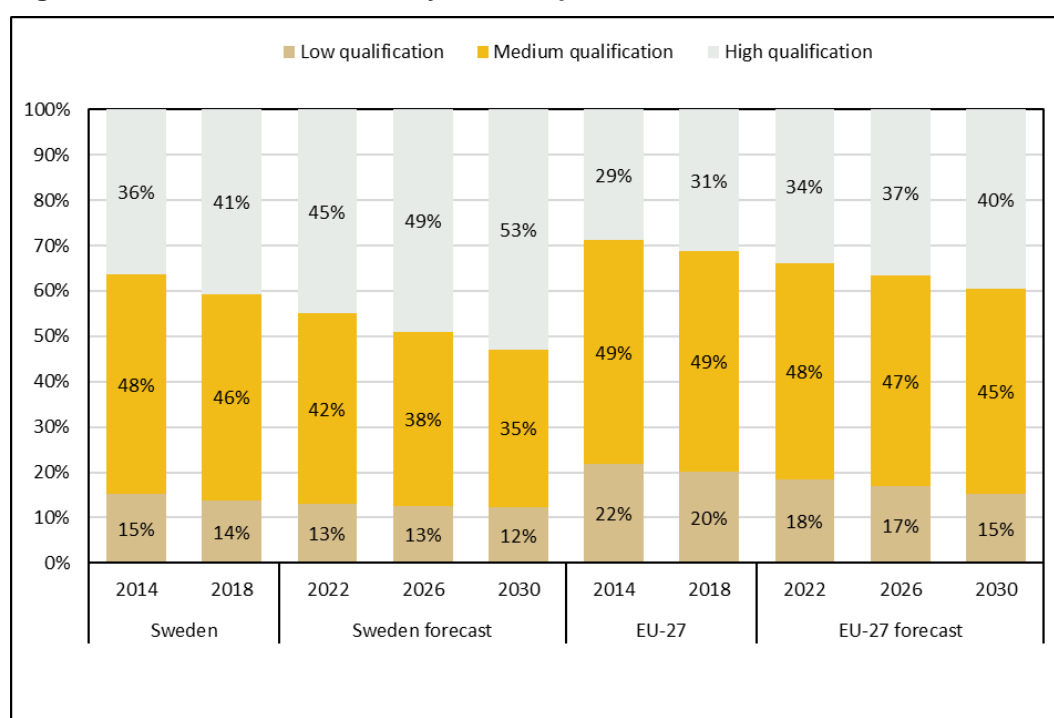
Source: Cedefop (2020 Skills Forecast).

Total job openings are highest among *legislators, senior officials and managers*, followed by *professionals* and *technicians and associate professionals*, and *market-oriented skilled agricultural workers*, in particular *health associate professionals, administrative and commercial managers* and

health professionals. Among the higher qualified occupations, *labourers in mining, construction, manufacturing and transport* along with *drivers and mobile plant operators* are expected to see the highest total job openings.

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

Figure 6. Labour force share by level of qualification, 2014-30



Source: Cedefop (2020 Skills Forecast).

In general, Sweden is expected to experience substantial changes over 2018-30 in the shares of qualifications in the labour force, as can be seen from Figure 6. The share of people with high level qualifications in Sweden is expected to increase over the period to 2030, to 53%, becoming the largest qualification group. The share of medium qualified labour force is projected to decrease slightly, towards 35% in 2030. However, Sweden's education policy has emphasised vocational training in recent years and this policy is expected to continue, so the proportion of medium-qualified in the labour force may remain stable or even grow slightly from today's levels. Those with low levels of

qualification are expected to slightly decrease. In Sweden, the share of the labour force with a high level of qualifications is forecast to remain at a higher level than the EU-27 average, while the share of the labour force with lower level of qualifications will remain at a lower level.

In Sweden, the supply of high qualified workers is expected to be enough to meet the demand for that level of qualification, while shortages of low and medium qualified workers are expected to materialise.

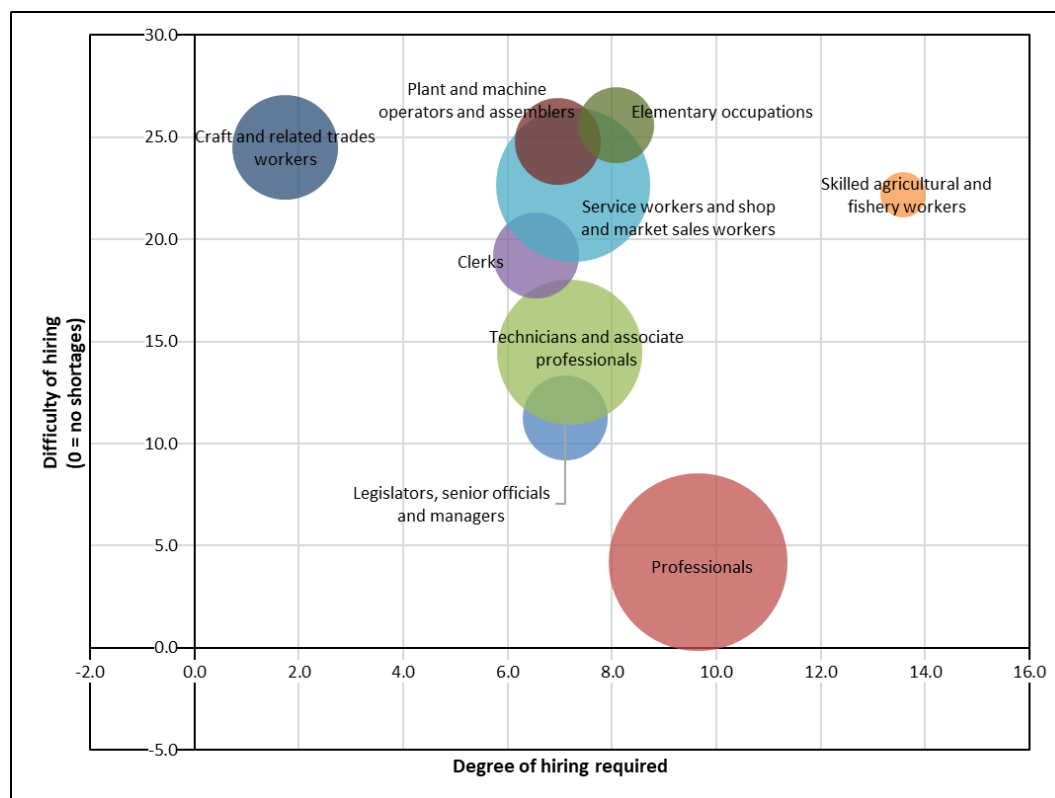
Figure 7 shows an indicator, *difficulty of hiring*, whose aim is to approximate shortages of supply by qualifications and its impact on occupations. This measure, shown along the vertical axis, indicates increasing difficulties to fulfil demand given the available supply of qualifications used in the occupation. Along the horizontal axis, the *degree of hiring required* in the occupation is depicted. Higher values indicate that to reach the forecast result that occupation will need to adjust more (in terms of workers with particular qualifications) relative to the base year (2018) levels. These changes (degree of hiring required) can be due to a change in the qualifications required or increases in the number employed. The size of the bubble indicates the *overall employment level*, bigger bubbles indicate more employment while smaller bubbles less employment.

Occupations with both a high *degree of hiring required* and a high *difficulty of hiring* (i.e. towards the top right of the figure) are likely to have the most difficulties in achieving a suitable workforce.

Figure 7 shows that occupations within *skilled agricultural and fishery workers* and *professionals* are forecast to experience a lot of changes, which will require the hiring of new workers. It is not expected that there will be many hiring difficulties for the latter group, as it requires high qualified job-seekers who are not projected to be in shortage. However, the degree of hiring difficulty is high among *skilled agricultural and fishery workers*. Both *elementary occupations* and *plant and machine operators and assemblers* are expected to be hit by the shortage of low qualified workers. Whether this will result in the projected hiring difficulties will depend on the willingness of higher qualified workers to be employed for the typical work conditions and salaries of these occupations.

Hiring difficulties among professionals are low across the underlying occupations, ranging from 3 for *teaching professionals* to 7 for *business and administration professionals* as well as *information and communications technology professionals*. The degree of hiring required differs widely, however, with *health professionals* (46) and *science and engineering professionals* (39) being well above the average for *professionals* as a whole, while the degree of hiring required among *teaching professionals* is well below the average.

Figure 7. Indicators of future hiring difficulties (Sweden), 2018-30



N.B: Indicators were calculated at the level of the underlying two-digit occupation groups. Aggregation was based on the employment weights within each one-digit occupation group.

Source: Cedefop (2020 Skills Forecast).

Cedefop methodology and scenarios

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 2030. The forecast takes account of global economic developments up to May 2019. The European economy is continued to expand for the seventh year in a row in 2019, with real GDP growing in all EU Member States. As global uncertainties continue to weigh, domestic dynamics are set to support the European economy. The key assumptions of the baseline scenario incorporate the Eurostat population forecast available in May 2019 (Europop 2015) ⁽²⁾ and the short-term macroeconomic forecast produced by DG ECFIN in May 2019 ⁽³⁾.

The Cedefop Skills forecast was developed before the global Covid-19 pandemic had begun. The short-term economic impacts of the pandemic and subsequent lockdowns in many countries are very uncertain, and therefore the current short-term forecast is likely to be over-optimistic. However, the key long-term factors (such as the ageing population, increasing use of automation/artificial intelligence, globalisation, resource scarcity and moves towards a carbon neutral economy) will still hold as the EU Member States put plans in place to deal with the virus and their economies move forwards. The trends in the longer-term forecast are therefore still likely to hold.

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>



⁽²⁾ <https://ec.europa.eu/eurostat/web/population-demography-migration-projections/population-projections-data>

⁽³⁾ https://ec.europa.eu/info/business-economy-euro/economic-performance-and-forecasts/economic-forecasts/spring-2019-economic-forecast-growth-continues-more-moderate-pace_en



For more details, please contact Cedefop's Skills Forecast team at: Skills-Forecast@cedefop.europa.eu

The country fiche for Sweden has been developed in collaboration with Russell Schmieder, analyst at the Statistics Sweden, Forecast Institute.

Please cite this publication as:

Cedefop (2020). *Skills forecast 2020: Sweden*. Cedefop skills forecast.

<https://www.cedefop.europa.eu/en/publications-and-resources/country-reports/sweden-2020-skills-forecast>

© European Centre for the Development of Vocational Training (Cedefop), 2020.
Creative Commons Attribution 4.0 International.