European Centre for the Development
of Vocational Training

CEDEFOP

2023 skills forecast
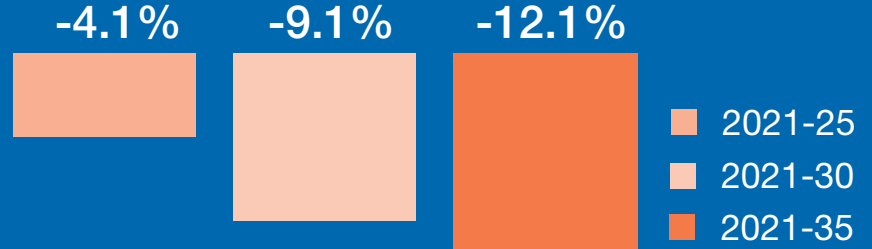# Bulgaria

CEDEFOP
SKILLS FORECAST 2023 BULGARIA

Employment in 2035
3 053 000

-12.08%
increase 2021-35

% Employment growth 2021-35

-4.1%
-9.1%
-12.1%

- 2021-25
- 2021-30
- 2021-35

Fastest-growing sectors
2021-35% growth

20%
Accommodation & food service activities

18%
Information & communication

Total job openings, 2021-35
1 737 000

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- Replacement needs (100%)
- New job openings (0%)

Highest-demand occupations
Largest creation of new jobs, 2021-35

18 000
Customer services clerks

17 000
Information & communications technology professionals

16 000
Business & administration associate professionals

increase in high-skilled labour demand 2021-35
3%

Total job openings by skill level 2021-35

- High-skilled non-manual occupations (38%)
- Skilled non-manual occupations (24%)
- Skilled manual occupations (23%)
- Elementary occupations (15%)

EU overview 2035

3.4%
employment increase in 2021-35

Fastest growing occupation
Legal, social and cultural professionals

Fastest growing sector
Information and communication

Cedefop skills forecast: Bulgaria

1. Employment outlook

Employment in Bulgaria, which fell sharply in 2020 as the Covid-19 pandemic hit, is forecast to fall over the whole forecast period. Figure **1** shows that employment in Bulgaria grew only weakly over 2015-19 and fell much more sharply than the EU-27 as a whole in 2020. Across the forecast period, employment in Bulgaria is forecast to shrink, compared with fairly weak growth in the EU-27 as a whole.

Figure 1. **Annual percentage employment growth in Bulgaria and the EU-27, 2015-35**
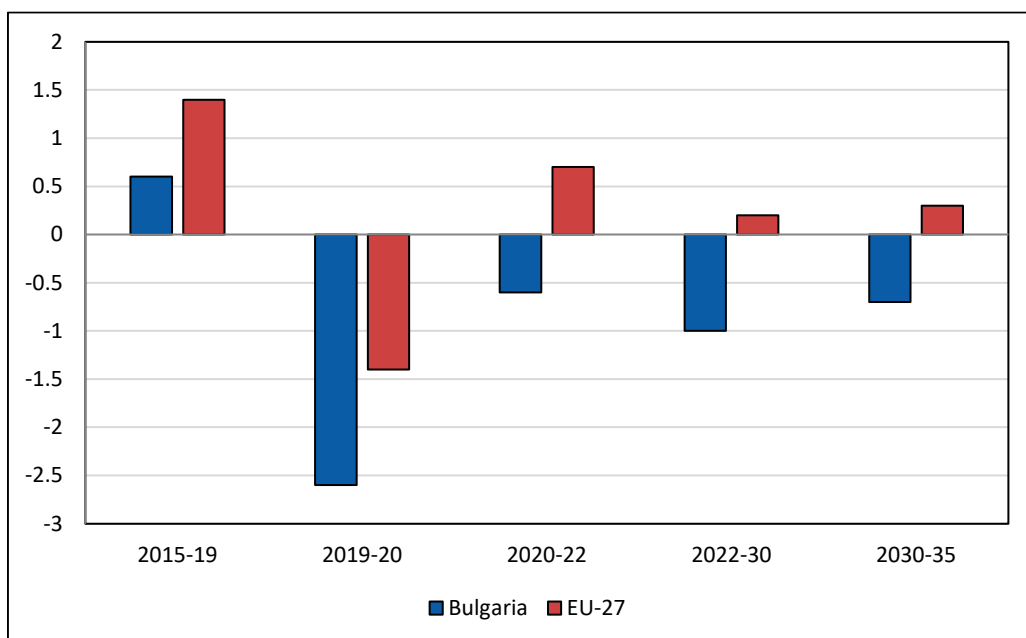
Source: Cedefop (2022 Skills Forecast).
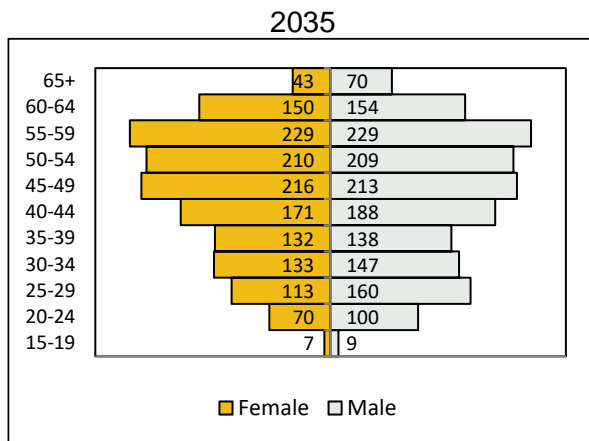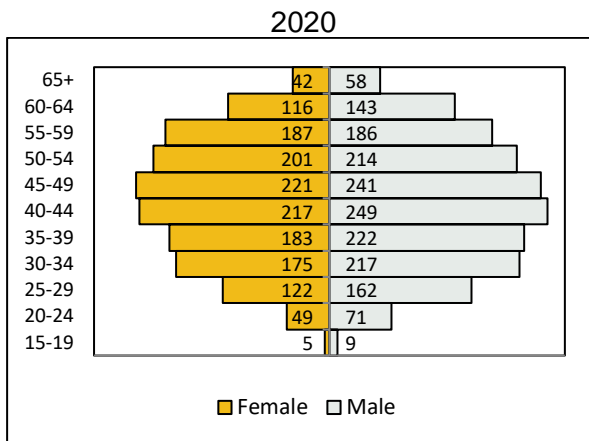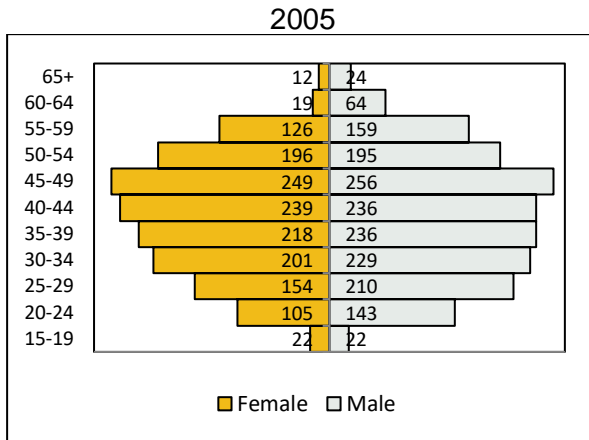
2. Labour force overview

Figure **2** shows Bulgaria's labour force by age group in 2005, 2020 and 2035. Changes in the labour force in Bulgaria over the forecast period will continue to be driven by the ageing population, as is the case in much of the EU, and increasing participation rates in most age groups. The total labour force is projected to decline by around 6% over 2020-35, compared with a fall of just under 1% over the previous 15 years. This compares with an expected increase in the labour force of just under 3% over 2020-35 for the EU-27. The total participation rate in Bulgaria is forecast to increase by 2 pp over 2020-35. Total population is forecast to fall by around 9% over 2020-35, compared with a fall of just over 10% over 2005-20

Apart from 55-59 years, the population for all age groups between 25 and 64 is forecast to decline in Bulgaria over 2020-35, reflecting trends in the relevant younger cohorts in preceding periods. Generally, the population in Bulgaria is ageing more strongly than the average for the EU-27 as a whole.

The participation rates of all age groups between 20 and 64 are forecast to grow strongly over 2020-35 (by between 5 and 14 pp), albeit those below the age of 34 (which are expected to see double-digit growth) are starting from fairly low levels compared to the EU-27 as a whole.

As elsewhere, female participation rates are generally forecast to increase more than male rates, with an increase of 3 pp. The declining and ageing male population counters strong increases in participation in most age groups to such an extent that the overall male participation rate is not expected to change between 2020 and 2035.

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

2005

Age	Female	Male
65+	12	24
60-64	19	64
55-59	126	159
50-54	196	195
45-49	249	256
40-44	239	236
35-39	218	236
30-34	201	229
25-29	154	210
20-24	105	143
15-19	22	22

□ Female □ Male

2020

Age	Female	Male
65+	42	58
60-64	116	143
55-59	187	186
50-54	201	214
45-49	221	241
40-44	217	249
35-39	183	222
30-34	175	217
25-29	122	162
20-24	49	71
15-19	5	9

□ Female □ Male

2035

Age	Female	Male
65+	43	70
60-64	150	154
55-59	229	229
50-54	210	209
45-49	216	213
40-44	171	188
35-39	132	138
30-34	133	147
25-29	113	160
20-24	70	100
15-19	7	9

□ Female □ Male

Source: Cedefop (2022 Skills Forecast).

3. Sectoral employment trends

Figure **3** shows annual average employment growth by broad sector in Bulgaria between 2015 and 2035. Although total employment is expected to fall in Bulgaria over the forecast period, the broad sectors of *Manufacturing* (over 2022-30), *Business & other services* and *Non-marketed services* are expected to see positive growth. The strongest growth is expected in *Business & other services* with growth of 0.4-0.8% pa over 2022-35, with growth in *Non-marketed services* not far behind (0.4-0.5% pa). Employment in *Primary sector & utilities*, which accounts for a far greater share of employment in Bulgaria (20% in 2020) than is the case for the EU-27 as a whole (6%), is forecast to decline by around 5-6% pa over 2022-30. Employment in *Construction* in Bulgaria is forecast to fall by around 0.5% over the same period.

Figure 3. **Employment growth by broad sector of economic activity, 2015-35**
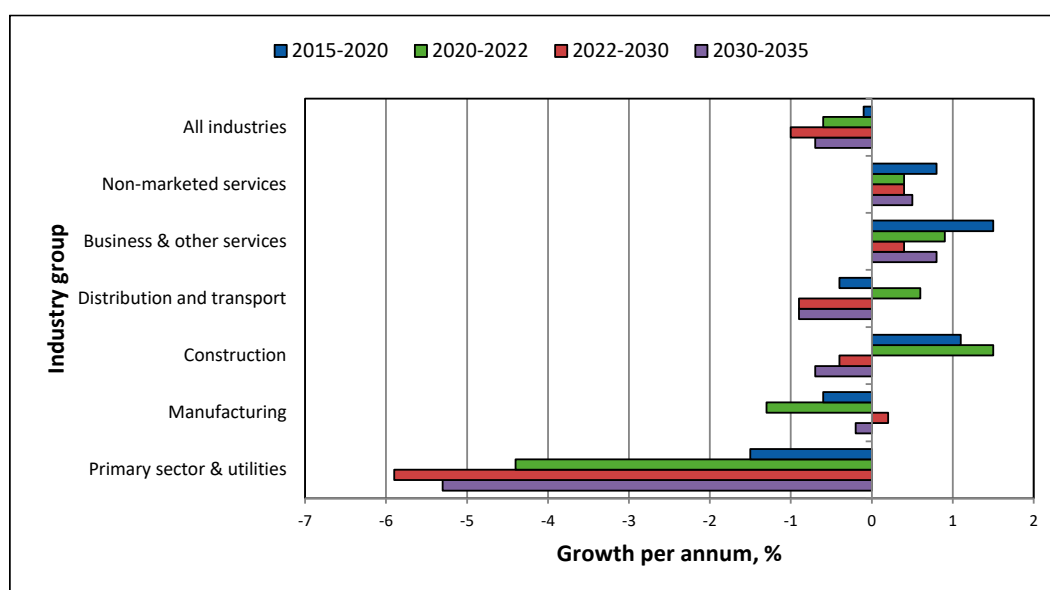
Source: Cedefop (2022 Skills Forecast).

In terms of sub-sectors (i.e. below the level of the six broad sectors discussed above), services such as *media* and *research & development*, *market research & other professional services, computer programming & information services*, *real estate activities*, and *architectural & engineering services* are expected to be among the fastest growing sectors, thus driving the increase in *Business & other services* as a whole. Non-market services are increasing through the ageing of the population, which is also increased by return (retirement) migration and migration of retired people from other EU countries.

Within the broad sector of *Distribution & transport*, the relatively large sub-sector (accounting for 3.5% of total employment, or 122,000 jobs, in 2020) of *accommodation & catering services* is forecast to grow relatively strongly. The forecast decline in employment in *Primary sector & utilities* is due to a strong forecast decline in employment in *agriculture* over the whole forecast period. Agriculture accounted for 17% of total employment in Bulgaria in 2020. Within the same broad sector, employment in *electricity* is forecast to grow over the whole forecast period. Although total *Manufacturing* employment is forecast to see little growth over 2022-30 and to decline over 2030-35, some sub-sectors are forecast to see relatively strong growth over these periods, including electrical equipment, textiles & leather, rubber & non-metallic mineral products and motor vehicles.

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 jobs 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 2020-35. The number of job openings indicates the number of jobs that are required to be filled due to lost/newly created jobs and those that are in need of replacement workers. Nearly all job openings in Bulgaria will come from the need to replace workers retiring or changing occupations. This compares negatively with most EU-27 countries where a portion of job openings will generally be due to new jobs. However, the employment outlook by occupation in Bulgaria is similar to the rest of the EU in that in the next decade high-skilled occupations will account for a growing share of all job openings.

In total, there are expected to be 1.9 million job openings over 2020-35, with, at the broad level, new jobs (albeit only a few) created only among *Professionals* and *Technicians & associate professionals*. Also, at the broad level, all low-skilled occupations will see some jobs lost, including *Elementary occupations, Craft & related trades workers*, Plant *& machine operators and assemblers*.

At the more detailed level, the greatest number of job openings (taking both new/lost jobs and replacement needs together) is projected for the skilled manual occupation of *drivers & mobile plant operators*, due entirely to replacement demand, as there is expected to be a large contraction in the total number of jobs for that occupation. Similarly, among skilled non-manual workers, *sales workers*, *protective services workers* and *personal service workers* are projected to see a large number of job openings despite a declining number of total jobs. On the other hand, the skilled manual occupation of *labourers* is projected to see an expansion in jobs as well as a large replacement demand.

Among high-skilled non-manual occupations, *business & administration associate professionals* are projected to see a fairly large number of new jobs and strong replacement demand, as, to a lesser extent, are *information & communications technology professionals*. Even among high-skilled non manual occupations, many sub-occupations are projected to see a contraction in total jobs, compensated (only just, in some cases) by replacement demand requirements.

Within the context of the projected decline in employment in the *agricultural* sector discussed in Section 3, jobs will be lost among relevant occupations, with the largest decline in job openings (among all detailed occupations) projected for *market-oriented skilled agricultural workers*, due to a very large contraction in total jobs for this occupation. *Agricultural, forestry & fishery labourers* and *market-oriented skilled forestry, fishery & hunting workers* also expected to see few overall job openings (or in fact a decline) over this period.

Figure 4. **Job openings by broad occupational group, 2020-35**
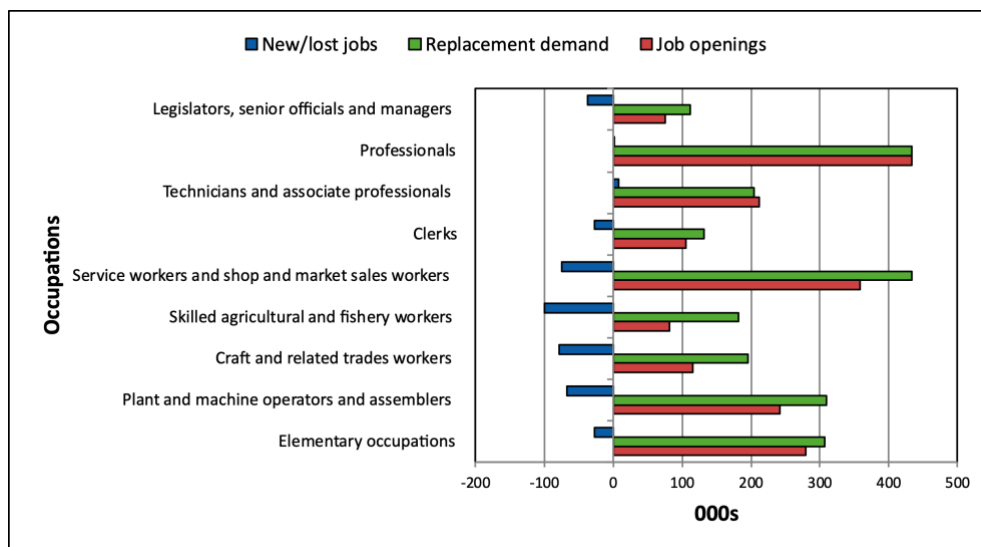
Source: Cedefop (2022 Skills Forecast).

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).

The occupational composition of employment in Bulgaria is characterized both by changes in the level of specialization within occupations and changes in industry size. Stronger occupation-specific and industry effects will lead to increases in the share of *associate professionals and some types of professionals (i.e., business professionals, etc.), administrative and commercial managers, customer services clerks* and *building and related trades workers construct.* Despite the fact that the increase in industry size has a high and positive impact in professional occupations, such as *health professionals* and *teaching professionals,* more is needed to establish positive growth in these occupations. High and medium-skilled occupations that could benefit from these trends are, for example, *health associate professionals*, *legal, social, cultural and related associate professionals* and customer services clerks. Employment in the group of *assemblers* is expected to increase because the positive impact of the occupation effect overcomes the negative effects due to the decrease in the industry size.

Therefore, the overall effect of occupational change depends on a number of factors that need to be considered together. Increasing digitisation and moving toward a service-oriented economy, including within manufacturing, are some factors leading to the changes in the demand for different occupation levels.

The overall occupations are expected to decrease. The high-skilled occupations that will suffer more from this decline are *senior officials and legislators*, *managers in services, professionals and associate professionals in science and engineering*. Intermediate occupations that will be weaker at the end of the period under examination are *agricultural workers, workers in metal, machinery and electrical trades*. Lower-level occupations are expected to increase, with the exception of the drastic decline in the group of *agricultural, forestry and fishing workers*.

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.

Figure 5 shows the shares of total job openings by qualification level for Bulgaria and the EU-27 over 2022-35. About half (49%) of the job openings in Belgium are expected to require a high qualification which is somewhat below the EU average (56%). A lower share of job openings is expected to require a medium qualification (46%), while only 5% require a low qualification.

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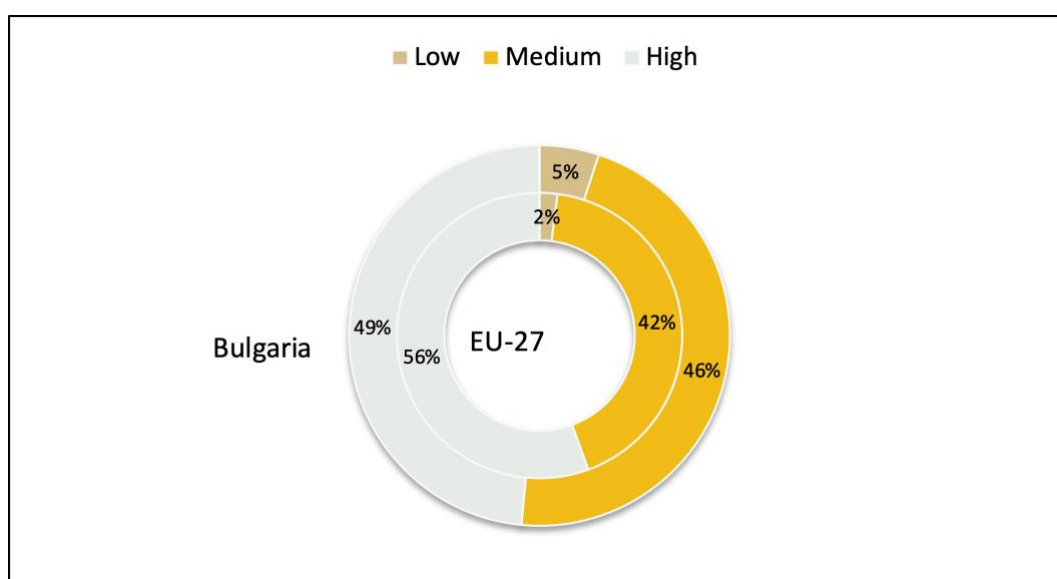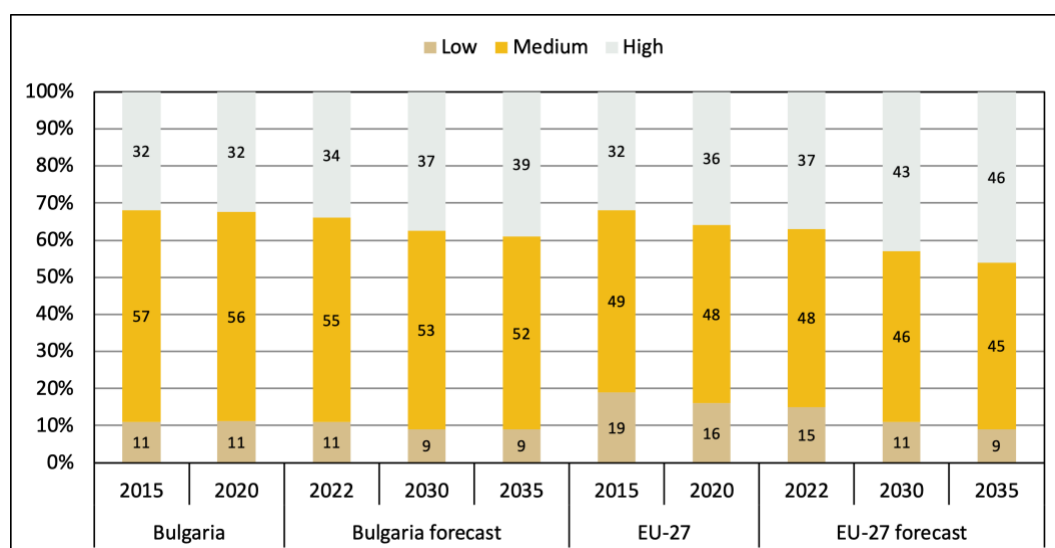

Source: Cedefop (2022 Skills Forecast).

Figure **6** depicts the development of the qualification share of the labour force in Bulgaria and the EU-27. Bulgaria is increasing the share of the higher qualified in the labour market. While the share was 34% in 2022, it is expected to increase to 39% by 2035.

Figure 6. **Labour force share by level of qualification, 2015-35**
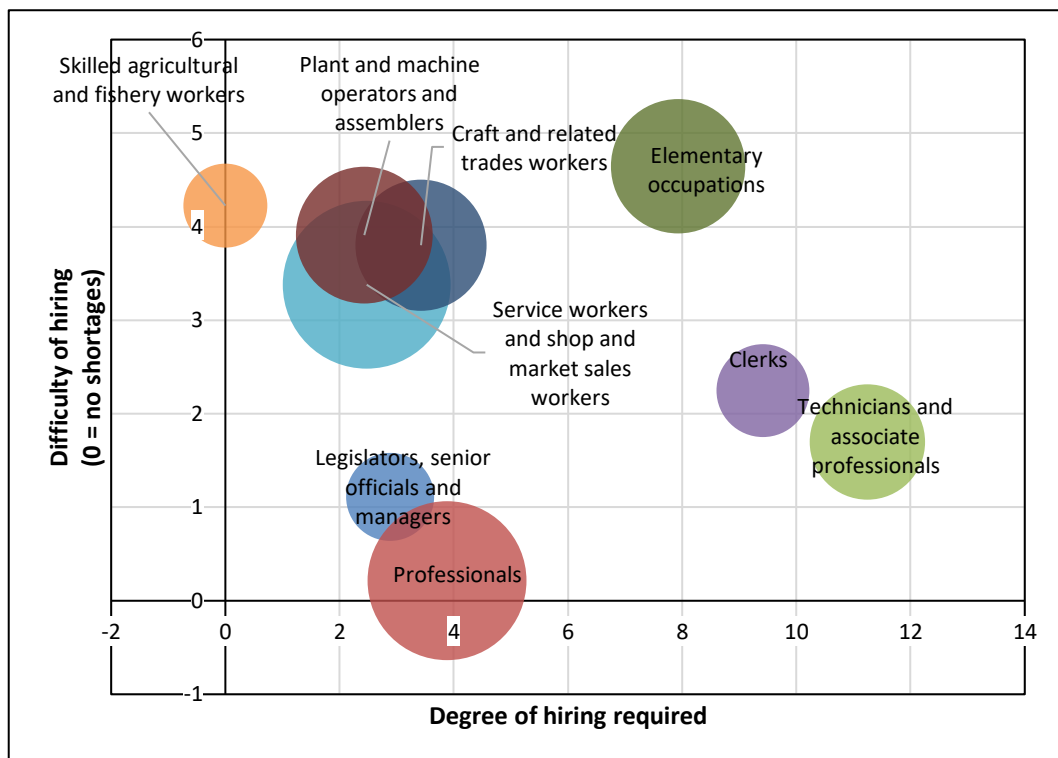

Source: Cedefop (2022 Skills Forecast).

The increase of share has been predominantly at the cost of older low and medium qualified workers. The share of medium qualified workers is expected to decrease from 55% in 2022 to 52% in 2035, while the share of low qualified workers is expected to decrease from 11% to 9%. The trend is similar to that of the EU-27, yet the shift to higher qualification especially in 2030-35 is slower than the EU-27 average. Relative to the EU-27 average qualification mix, Bulgaria is expected to continue to have a higher share of medium qualified.

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. **Indicators of future hiring difficulties, 2022-35**

Note: Indicators were calculated at the level of the underlying 2-digit occupation groups. Aggregation was based on the employment weights within each 1-digit occupation group.

The increasing supply of higher educated workers suggests there could be shortages, especially among the medium but also of the lower qualified. Overall, the hiring difficulties are small. Medium and low level occupations such as *elementary*, as well as the *skilled agricultural and fishery workers*, are expected to experience higher levels of hiring difficulties in the forecast (**Error! Reference**

source not found.). These go alongside, respectively, with low levels of change by qualification, and so a low degree of hiring required, within these occupations. While *professionals, technicians and associate professionals* and *clerks* are implied to have less hiring difficulties, as they usually hire from the supply of higher qualified, they also show a relatively low expected degree of hiring required in the forecast period. The highest degree of hiring required, along with modest hiring difficulties, is expected to be found among *clerks.* Hiring difficulties among *professionals* are very low across the underlying occupations.

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 May 2022. The European Economy experienced a sharp downturn in 2020 due to the global pandemic, and partially bounced back in 2021. However, the strength of the recovery in the short term is threatened by global factors such as supply chain disruptions, the consequences of the war in Ukraine and high inflation.

The key assumptions of the baseline scenario incorporate the Eurostat population forecast available in May 2022 (Europop 2019) ([1]), and the short-term macroeconomic forecast produced by DG ECFIN in May 2022 ([2]). Several revisions to the data affect the Cedefop Skills forecast 2022, when compared to the 2019 update. For example, the population projections used in the 2022 update are generally more pessimistic than those used in the 2019 update (i.e. Europop 2015), with a corresponding impact on labour force figures. The source of historical labour force data is the European Labour Force Survey, which in 2021 underwent important methodological changes causing a break in the time series for several variables, including labour force. As a consequence, in many Member States the participation rates in 2021 are noticeably above/below historical trends, which causes the Cedefop Skills forecast 2022 to be revised in the same direction, compared to the 2019 update. Moreover, some Member States experienced significant revisions in the historical data series for sectoral employment from the National Accounts.

The Cedefop Skills forecast 2022 is made consistent with the objectives set by the European Green Deal by incorporating suitable assumptions in terms of 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, which therefore incorporate the recent surge in prices.

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

[2]   https://ec.europa.eu/info/business-economy-euro/economic-performance-and-forecasts/economic-forecasts/spring-2022-economic-forecast_en

For the latest update and access to more detailed Cedefop skills forecast data visit our Skills forecast project page.

The country fiche for Bulgaria has been developed in collaboration with Elka Dimitrova, director at the Ministry of Labour and Social Policy, Bulgaria.

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