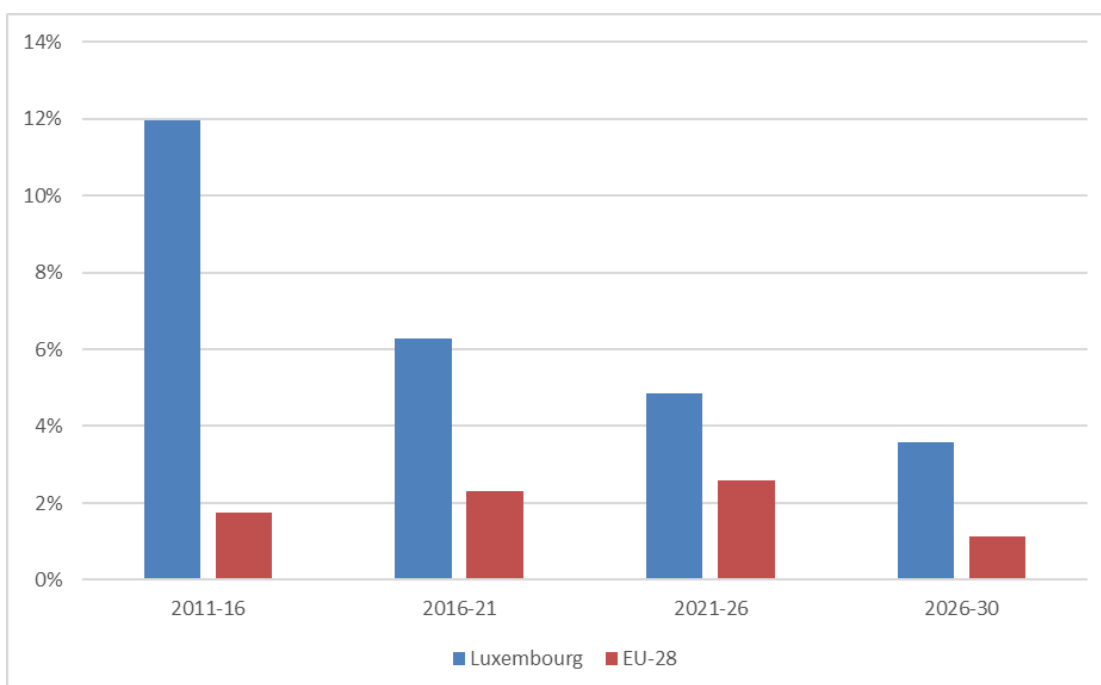


1. Employment outlook

After a strong increase in the period 2011-16, employment growth up to 2030 is expected to increase, as shown in Figure 1. Although at a decreasing rate, employment growth is expected to be three times above the EU-28 average growth rate in 2011-16, two times in 2021-26 and again three times in 2026-30. A total employment growth of 15% is expected over the period 2016-30, a rate similar to Spain.

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



Source: Cedefop (2018 Skills Forecast)

2. Labour force overview

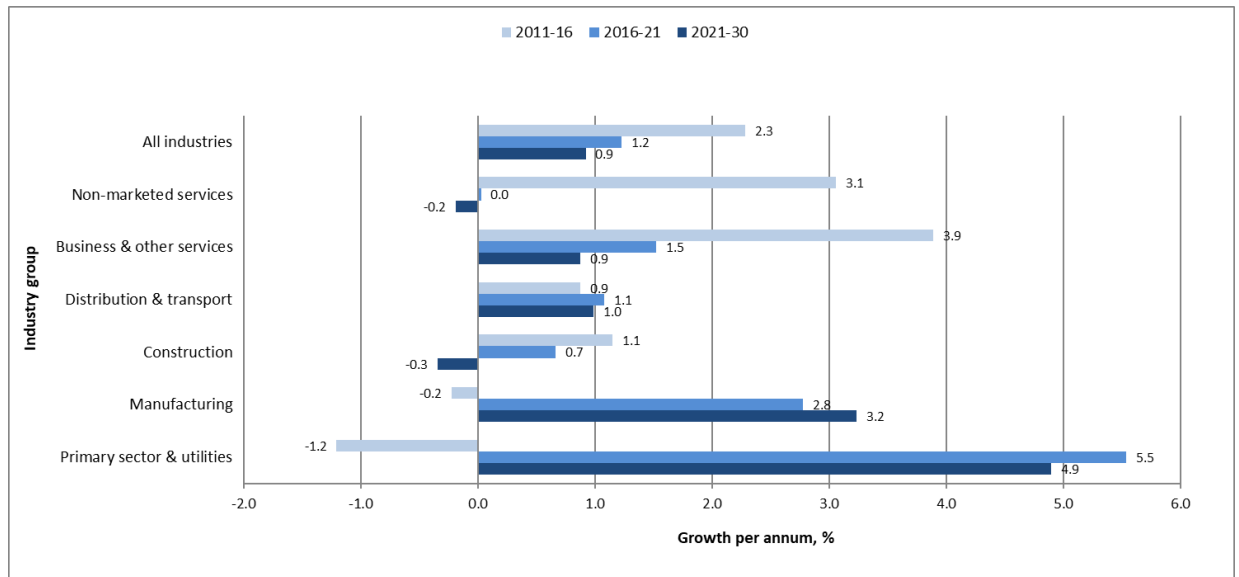
Luxembourg's labour force is expected to increase by 26% over the period up to 2030, the sharpest increase among the EU-28 Member States, driven by a significant increase in the working age population. The working age population is expected to increase by 31%, with all age cohorts with high participation rates showing significant increase. The age cohorts with low participation rates such as

those aged 60+ are expected to increase the most, but with little impact on the increase of the labour force.

3. Sectoral employment trends

Employment is expected to grow in almost all sectors up to 2030, as shown in Figure 2. *Primary sector and utilities* is expected to be the fastest growing sector in both 2016-21 and 2021-30, followed by *manufacturing*. *Business and other services* and *distribution and transport* are also expected to have a steady growth in all periods up to 2030. After a modest increase in 2016-21, *construction* is expected to shrink over 2021-30. Following a sizeable increase in 2011-16, *non-marketed services* is the only sector expected to decline or stagnate up to 2030. In terms of subsectors, *agriculture* and *food, drink and tobacco* are expected to have the highest increase in employment over 2016-30, driving the increase in their respective broad sectors (*primary sector and utilities* and *manufacturing*). The subsector that is expected to shrink the most by 2030 is *public administration and defence*.

Figure 2 Employment growth by broad sector of economic activity, 2011-30



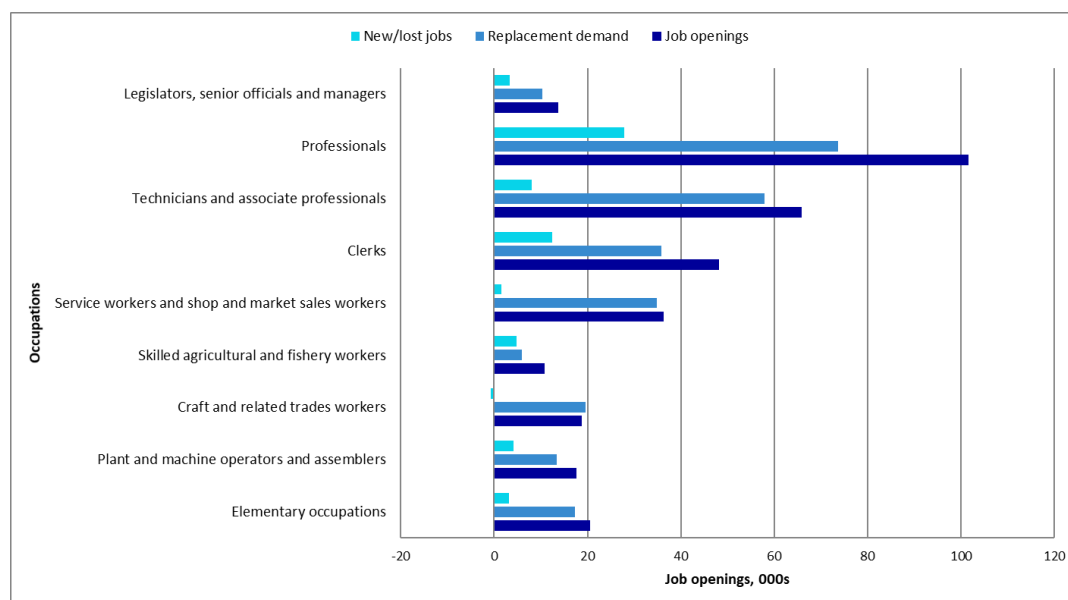
Source: Cedefop (2018 Skills Forecast)

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 created following the retirement of old workers. Most jobs will come from the need to replace workers retiring or changing occupations. The occupation expected to have the highest number of job openings, 27% of which are due to new jobs, is *professionals*, which accounts for 30% of total job openings in Luxembourg, followed by *technicians and associate professionals*. All occupations are expected to create new jobs, except for *craft and related trades workers* which is expected to shrink.

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



Source: Cedefop (2018 Skills Forecast)

The more detailed analysis of occupational groups shows that most of the **new jobs** are expected within *business and administration professionals, legal, social*

and *cultural professionals* and *science and engineering professionals*. The highest number of **total job openings** among detailed occupational groups is expected for *business and administration professionals*; *associate professionals* as well as *legal, social and cultural professionals*.

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).

Increase in employment within the *primary sector and utilities* and *manufacturing* creates additional demand for occupations such as *market-oriented skilled agricultural workers*, *stationary plant and machine operators* and *food processing, wood working, garment and related trades workers*. On the other hand, the decline in *construction* and *non-marketed services* is expected to reduce employment in occupations such as *teaching professionals*, *building and related trade workers* and *health professionals*.

Developments in technology are expected to shrink employment in occupations such as *stationary plant and machine operators* and *handicraft and printing workers* because of the routine content of their work.

Taking into accounts both the occupation and sector effects, the occupations which are expected to show the highest increase in employment are *production and specialised service managers* and *customer service clerks*. On the other hand, among *stationary plant and machine operators* there will be both positive (sectoral change) and negative effects (within occupation shifts); in the case of this occupation, the positive effects are expected to outweigh negative effects over the period up to 2030.

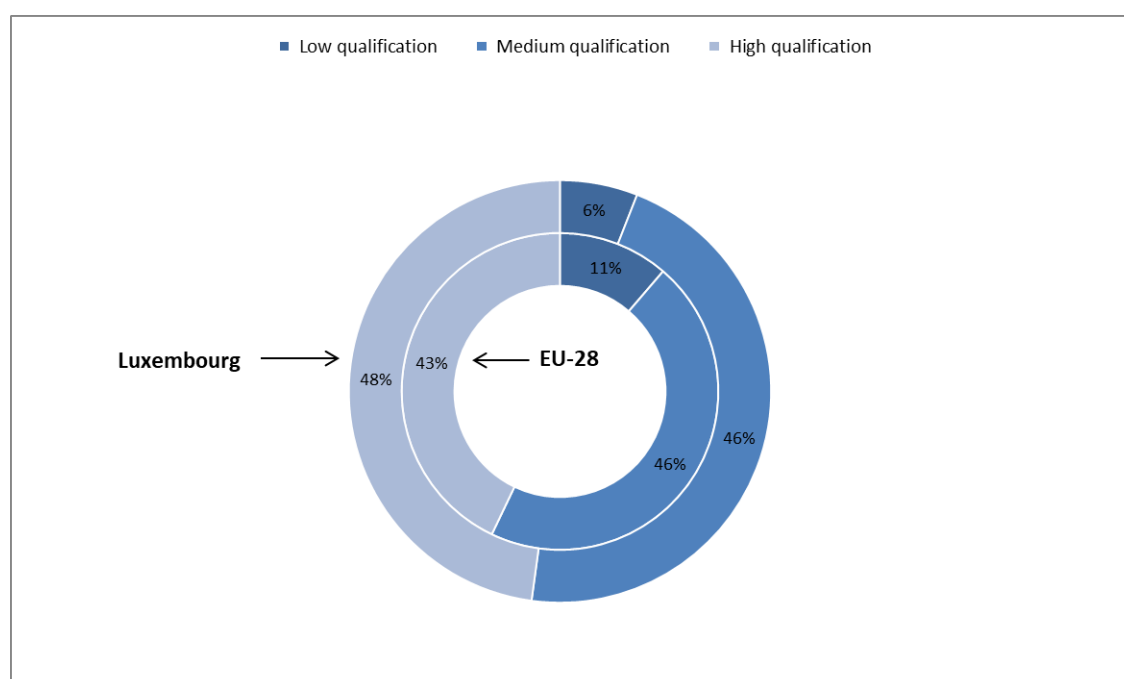
6. Demand for and supply of skills

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 share of **total job openings** by qualification needs. The share of job openings requiring high-level qualifications is expected to be 48%, 5 pp above the EU-28 average, while 46% of job openings are expected to require medium-level qualifications, the same as the EU-28 average. Only 6% of job openings are expected to require low-level qualifications, 5 pp below the EU-28 average.

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



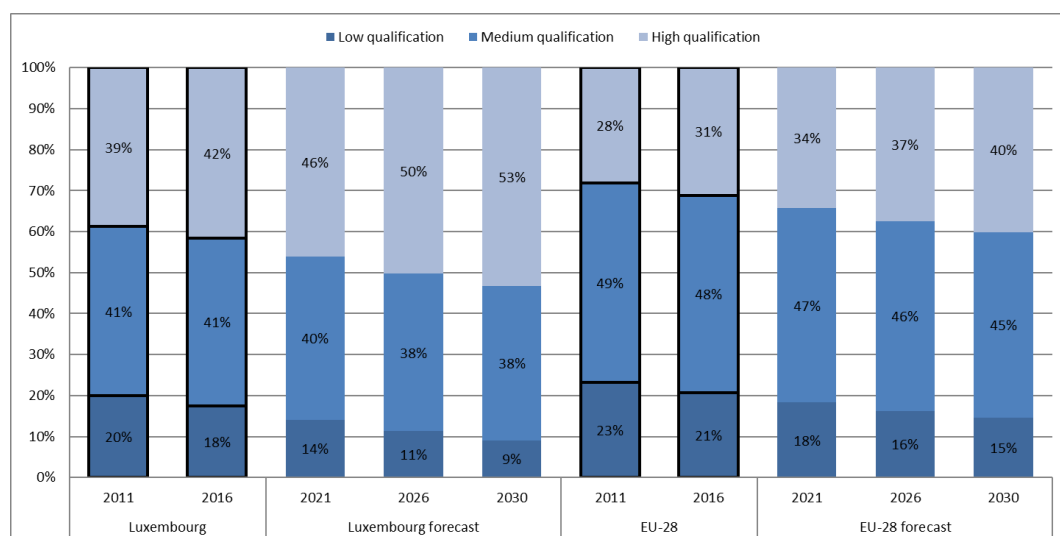
Source: Cedefop (2018 Skills Forecast)

The number of job openings requiring high-level qualifications is expected to increase within occupations such as *business and administration professionals* and *associate professionals, legal, social and cultural 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 seen in Figure 5, the share of workers with high-level qualifications is expected to increase to 53% in 2030, 13 pp above the EU-28 average. The share of medium-qualified workers is expected to decrease to 38%, 7 pp below the EU-28 average. The share of low-qualified workers is expected to decrease to 9%, 6 pp below the EU-28 average.

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



Source: Cedefop (2018 Skills Forecast)

The demand for highly- and medium-qualified workers is expected to exceed the supply in Luxembourg. Relative to the current situation, the imbalance between supply of and demand for labour, usually solved through cross-border commuting in Luxembourg, will actually decline slightly. It will, however, remain an open question whether the neighbouring countries will be able to accommodate the shortages given the ageing of their population in the same period.

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