

2026 Skills Forecast

Technical Report

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CHAPTER 1. Introduction

Cedefop's skill supply and demand projections provide comprehensive information about the current structure and future trends in the labour market. This technical report accompanies the release of the 2026 update of the projections.

The methodology uses a modular approach, with the following main elements:

- the demand side (skill needs), focusing on employment (jobs);
- the supply side, focusing on available skills in the labour market, such as the number of the economically active people and the qualifications they hold;
- imbalances, comparing the results from the demand and supply-side modules.

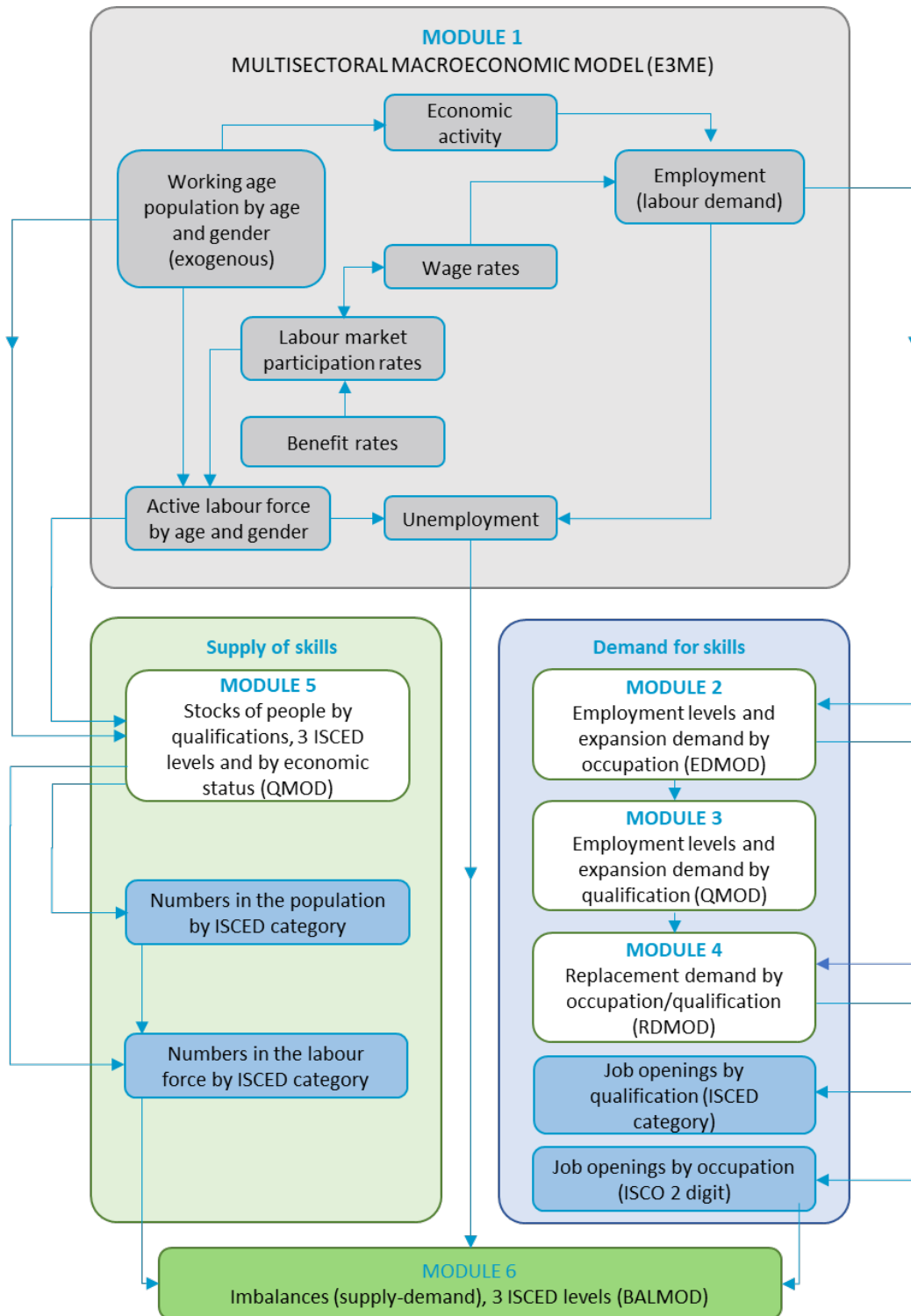
All modules adopt common data, methods and models for all countries (EU27, North Macedonia, Iceland, Norway, Switzerland and Türkiye) to produce a comprehensive and consistent set of skill projections. The database draws primarily on Eurostat sources, including demographic data (both historical and projected), national accounts (NA) and the labour force survey (LFS).

Individual country experts are involved in peer review and results validation. However, the use of common models and assumptions does not always allow for incorporation of local data and factors that may affect skills supply and demand. Therefore, other country-specific information might be needed to complement the results.

Figure 1.1 presents the Cedefop Skills Forecast methodological framework. Module 1 of the methodology contains the Cambridge Econometrics' E3ME (macroeconomic) model. This is used to form projections of labour demand (employment) at sectoral level and labour supply (the economically active labour force) by demographic group.

Modules 2 and 3 cover employment levels and expansion demand by occupations and qualifications. Module 4 covers replacement demand. Module 5 focuses on the supply of skills as measured by the highest qualification held, analysing stocks and flows. Module 6 reconciles skill demand and supply.

Figure 1.1 Cedefop Skills Forecast modelling framework.



CHAPTER 2. Data update for the modelling framework

2.1. Overview of update

This chapter summarises the historical data used to update all modules of the framework, where data was available. The first section of this chapter describes the update of the E3ME model used in generating projections for labour demand by sector and labour supply by gender, age group and qualification. The second section summarises the data preparation for EDMOD, QMOD and RDMOD modules of the Cedefop Skills Forecast framework, which are used to generate projections for replacement demand (RDMOD), labour demand by occupation (EDMOD) and qualification (QMOD).

2.2. E3ME data update

The historical and forecast database of the E3ME model underpinning the sectoral employment and labour force projections was updated with the latest data available in November 2024. Table 1 shows in detail the updated model variables. Aside from these key E3ME variables that feature heavily in the generation of the labour market projections, E3ME also includes economic data on supply chains (e.g. Input-Output tables and bilateral trade flows), as well as energy and environment data and, for the technology diffusion sub-models looking at very specific topics, information on technology characteristics, learning rates and starting stocks. The cross-sectional economic data (Input-Output tables and bilateral trade flows) are updated less frequently than the time series data, generally reflecting the frequency of data releases from the main sources used by the model. The energy and environment data cover information on demand for energy in physical units (e.g. tonnes of oil equivalent) for different sectors and energy carriers, the energy prices and taxes associated with such use, as well as the emissions generated by it. These are updated on a regular basis, linked to the different release dates of the key data sources used. The technology diffusion sub-models in E3ME allow for a more detailed exploration of technology uptake in the power sector (e.g. gas generation, wind turbines etc.), household heating (e.g. gas boilers, heat pumps), road transport (e.g. electric vehicles, hybrids) and steel

manufacture (e.g. blast furnace, electric arc furnace) and contain detailed information on different technology costs, adoption rates, learning rates and stocks. As this information is very detailed and has been sourced via comprehensive literature reviews, full updates on the datasets are generally undertaken every 3-4 years¹.

Table 1 : Description of updated variables

Variable	Source and variable code	Breakdown	Period	Original source update date
Employment (000s)	Eurostat, National Accounts (nama_10_a64_e)	Sector (2-digit NACE)	2010-23	30/11/2024
Output (million EUR)	Eurostat, National Accounts (nama_10_a64)	Sector (2-digit NACE)	2010-23	30/11/2024
Employees (000s)	Eurostat, National Accounts (nama_10_a64_e)	Sector (2-digit NACE)	2010-23	30/11/2024
Compensation of employees (million EUR)	Eurostat, National Accounts (nama_10_a64)	Sector (2-digit NACE)	2010-23	30/11/2024
Consumption (million EUR)	Eurostat, National Accounts (nama_10_co3_p3)	Consumption categories (COICOP)	2010-23	29/11/2024
Investment (million EUR)	Eurostat, National Accounts (nama_10_a64_p5)	Sector (2-digit NACE)	2010-23	29/11/2024
Exports and imports (million EUR)	Eurostat, National Accounts (nama_10_gdp)	Sector (2-digit NACE)	2010-23	28/11/2024
Labour force (000s)	Eurostat, LFS (ifsa_agan)	Age groups (5-year bands)	2010-23	27/04/2024
Labour force by qualification (000s)	Eurostat, LFS (ifsa_pgaed)	ISCED levels (4 groups)	2010-23	12/12/2024
Population (000s)	Eurostat (demo_pjangroup)	Age groups (5-year bands)	2010-23	28/09/2024
Population projections (000s)	Eurostat (proj_23np)	Age groups (5-year bands)	2010-23	28/06/2024

¹ Additional details can be consulted in the document that presents [Cedefop's Skills Forecast methodological framework](#).

Employment projections (short-term)	AMECO (Autumn Forecast 2023)	Total	2024-26	15/11/2024
Compensation of employees projections (short-term)	AMECO (Autumn Forecast 2023)	Total	2024-26	15/11/2024
Consumption (short-term)	AMECO (Autumn Forecast 2023)	Total	2024-26	15/11/2024
Investment (short-term)	AMECO (Autumn Forecast 2023)	Total	2024-26	15/11/2024
Exports and imports (short-term)	AMECO (Autumn Forecast 2023)	Total	2024-26	15/11/2024
Unemployment rate (% historical and short-term projections)	AMECO (Autumn Forecast 2023)	Total	2024-26	15/11/2024
Real GDP (million EUR 2010 prices, historical and short-term projections)	AMECO (Autumn Forecast 2023)	Total	2024-26	15/11/2024
Real GDP (million EUR 2010 prices, long-term projections)	Ageing Report 2024	Total	2027-35	10/11/2023
Commodity prices (indices)	World Bank Commodity Prices Forecast	Commodities	2024-26	10/2024
ECB inflation	ECB staff macroeconomic projections for the euro area,	Commodities	2025-35	12/2024

Source: Cambridge Econometrics.

As shown in Table 1, historical data for employment, output, investment, and consumption by Member State (MS) and sectors comes from the national accounts database on Eurostat. However, the coverage of data varies between countries and at the level of sectoral disaggregation. In the cases where 2-digit NACE data was missing for the latest year(s), 1-digit NACE values were used to disaggregate into constituent sectors based on the shares of missing sectors in the last available historical year. In cases where required Eurostat data was unavailable, other databases were used to obtain an estimate for the missing series.

Specifically, the following data sources were used to impute values for the missing sectors and obtain complete historical data series at the 2-digit NACE level:

- **Structural business statistics (SBS)**²: SBS datasets describe the detailed structure, economic activity, and performance of businesses in the EU over time. They are part of the European business statistics (EBS). Data for the mining and energy sectors are available only at the 1-

² <https://ec.europa.eu/eurostat/web/structural-business-statistics/database>

digit NACE level on Eurostat (sector B and D respectively). As a result, shares derived from the SBS data were used to disaggregate those two sectors into the relative 2-digit NACE sectors. Furthermore, in cases where data on certain 2-digit sectors were missing for all years on Eurostat, shares obtained from the SBS database were used to disaggregate corresponding 1-digit aggregate sectors³.

- **Structural Analysis Database (STAN)**⁴: Published by the OECD, STAN database contains annual measures of output, value added and its components, labour input, investment and capital stock from 1970 onwards. In cases where data on certain 2-digit sectors were missing for all years on Eurostat, shares obtained from the OECD STAN database were used to disaggregate corresponding 1-digit aggregate sectors⁵.
- **Turkish Statistical Institute (TURKSTAT)**⁶: As output data for Türkiye was missing even at the 1-digit level, sectoral GDP growth obtained from TURKSTAT was used to extend the output data obtained from the OECD STAN database. Moreover, as Eurostat was missing National Accounts employment data for Türkiye, Turkish employment figures were obtained from the Turkish Labour Force Survey (LFS) in Eurostat.
- **Italian National Institute of Statistics (ISTAT)**⁷: Real output data for the air transport sector in Italy obtained from the ISTAT portal was used to fill corresponding missing values in the Eurostat series.
- **International Energy Agency (IEA)**⁸: Energy demand data by major fuel types are obtained by splitting expenditure on fuel by relevant shares for consumption expenditure of households on various fuels. These shares are obtained from the latest vintage of the IEA (International energy

³ The cases concern Ireland (sectors: '13 Chemicals nes'), Malta (sectors: '4-5-6 Mining', '26-27 Electricity, gas, steam', '28 Water supply') and Norway (sectors: '12 Manufactured fuels', '13 Chemicals nes', '14 Pharmaceuticals').

⁴ <https://www.oecd.org/en/data/datasets/structural-analysis-database.html>

⁵ The cases concern: Switzerland (sectors: '12 Manufactured fuels', '13 Chemicals nes'), Lithuania (sectors: '12 Manufactured fuels', '14 Pharmaceuticals'), Luxembourg (sectors: nearly all), Norway (sectors: '12 Manufactured fuels', '13 Chemicals nes', '14 Pharmaceuticals'), Poland (sectors: '35 Water transport', '36 Air transport', '37 Warehousing', '38 Postal & courier act.'), Sweden (sectors: '13 Chemicals nes', '14 Pharmaceuticals', '37 Warehousing', '38 Postal & courier act.', '50 Architect & engineer', '51 R&D activities'), Turkey (sectors: nearly all).

⁶ <https://www.tuik.gov.tr/Home/Index>

⁷ <https://www.istat.it/en/>

⁸ <https://www.iea.org/data-and-statistics/data-product/world-energy-statistics-and-balances>

association) Energy balances data⁹. This database contains detailed energy system data by region and fuel type.

- **Structure of consumption expenditure**¹⁰: Eurostat data on consumption expenditure by consumption purpose (hbs_str_t211) was used to disaggregate consumption expenditure on transport into transport expenditure by mode of transport.

There were occasions where countries were missing any employment data required to split shares and fill gaps for certain sectors. In these cases, similar countries were used as proxies. These included:

- Shares from Belgium used for Luxembourg
- Shares from Cyprus used for Malta
- Shares from Austria used for Switzerland
- Share from Denmark used for Iceland

Eurostat **data for labour force and population** were available until 2023 for all MSs, with the exception of a few gaps in the historical data that were linearly interpolated.

The **population projections** were released by Eurostat in 2023 (i.e. EUROPOP2023). Historical values were used until 2023 and growth rates from the population projections were applied from 2024 to 2035. Historical data are given precedence over the overlapping years as they are of a more recent vintage compared to the forecast.

The European Commission Autumn Economic Forecast (AMECO)¹¹ **provides short-term projections for GDP and components** until 2026. We applied the growth rates from the AMECO forecast to total employment, compensation of employees, consumption, investment, and trade in each of the MSs. AMECO **unemployment rate** and real GDP were used to update both the short-term projections and historical values for these two variables. As AMECO's main historical data source is Eurostat and thus is consistent over the historical period, the update of the short-term forecast is generally a straightforward extension of the historical trends using growth rates. After 2026, we applied the annual percentage growth rates implied by the long-term GDP projections shown in DG Ecfm Ageing Report 2024 (European Commission, 2024) (which provides

⁹ <https://www.iea.org/data-and-statistics/data-product/world-energy-balances>

¹⁰ https://ec.europa.eu/eurostat/databrowser/view/HBS_STR_T211/default/table?lang=en

¹¹ https://economy-finance.ec.europa.eu/economic-research-and-databases/economic-databases/ameco-database_en

annual projected GDP growth rates in each decade until 2070) to GDP and kept the distribution of components in GDP (consumption, investment, government spending, and net exports) as in 2026.

For labour force by qualifications, the data were processed to increase the detail in qualification levels (ISCED). For some countries, data for general and vocational categories were not available, either entirely missing or missing for specific gender/age groups. In these cases, proxy countries were used to obtain shares for the split of ISCED 3-4. The choice of proxy countries was based on the sum of absolute differences in shares of ISCED 3-4 in total labour supply by gender-age group, which was to be minimised between the country for which data were missing and the proxy country. The following countries were used as proxies:

Country	Proxy used
MK	EL
LU	NL
NO	FI
SK	CZ

2.3. EDMOD, QMOD and RDMOD

Additional modules further disaggregate the projections into expansion demand by occupation (EDMOD) and qualifications (QMOD), as well as allow for the inclusion of projections for replacement demand. For detailed information on these modules please refer to *2023 Skills Forecast Technical Report* (Cedefop, 2023) Chapter 2.3.

2.3.1. LFS data update

The LFS data have been updated to cover the period 2011-2023. The series include the dimensions country, industry according to NACE Rev. 2 1-digit (letter codes A-U), occupational categories according to ISCO08 2-digit (42 occupations), and educational categories according to ISCED11 (detailed categories). The latter has been aggregated to four categories, i.e. low (ISCED 0-2), medium-general (ISCED 3-4: 344, 393, 394, 490) and medium-vocational (ISCED 3-4: 353, 354, 450), and high (ISCED 5-8)¹². However, before 2021

¹² From here on we refer to these four categories as ISCED.

general and vocational training cannot be properly distinguished. Table 2 illustrates an example of this data availability issue.

Table 2: Active population educational attainment level in Spain, age group 45-49, Male, thousands

	2015	2016	2017	2018	2019	2020	2021	2022	2023
ED0-2	745	714	694	695	692	657	673	670	669
ED3_4	410	396	406	401	390	407	428	433	440
ED3_4GEN	:	:	:	:	:	:	252	260	265
ED3_4VOC	:	:	:	:	:	:	176	173	175
ED5-8	556	612	627	659	702	723	744	774	776

Sources: Eurostat, lfsa_agaed, accessed 15/04/2025

As the number of observations is extremely limited for the vocational and general categories, projections are performed at the level of three ISCED categories (high, medium, and low). The medium category is then split by applying constant shares of the general and vocational categories by country, gender and age (average of years 2021-2023) for the future years. These data are available from the Eurostat microdata for all countries except North Macedonia and Türkiye. The projected shares are then combined with the E3ME model results for the labour force by age group and gender, thus generating overall results of labour supply by qualification levels (thousand persons) for each of the four qualification categories. As such, overall supply by qualification is dependent on both the evolution of its weight (share) within the age group and gender combination, as well as the evolution of the size of the age group and gender combination within total labour supply. This applies to the main qualification levels: low, medium and high. For the disaggregation between vocational and general within the medium qualification, constant shares within the medium total are assumed due to lack of time series data.

Using these data, we calculated trend changes in shares at sectoral level at various levels of aggregation (ISCED, ISCO 1-digit, ISCO 2-digit, ISCED x ISCO 1-digit, ISCED x ISCO 2-digit) including various outlier detections and consistency checks. For outliers, projected shares were replaced by the average shares from the historical period. Combining these shares with the E3ME employment forecasts results in employment forecasts by these various categories. These scenarios at the various levels of detail are cross-checked to avoid superficial trends at higher levels of disaggregation (due to fluctuations resulting from the small samples) and assure consistency.

Further, data have been compiled at the level of ISCO 2- digit x ISCED and ISCO 2- digit x age cohorts x sex to be used in RDMOD discussed in the next section.

2.3.2. RDMOD

The replacement module (RDMOD) has been re-developed based on the methodology as described in previous rounds (Kriechel and Sauermann, 2009; Künn-Nelen, 2015). Replacement demand in the Cedefop Skills Forecast framework is based on the cohort-component model and was initially inspired by the national replacement demand model of the Netherlands, which had been adapted for a more aggregated data structure (Kriechel and Vogler-Ludwig, 2013). The estimate of the outflows is based on a cohort-component approach by comparing employment series across adjacent age groups. Net outflows are then used to determine the outflow coefficients, which are used in a second step to calculate the replacement needs for each group and sex at the occupation level¹³.

Replacement demand focuses on what might be called “permanent or semi-permanent” withdrawals from the employed workforce. These include retirement, family formation, emigration, or other reasons for temporarily or permanently leaving the workforce. Replacement demand has proven to be the most important factor determining labour demand in terms of share.

In more detail, the projections of replacement demand require three main data inputs:

- a) a forecast of demographic development within a country. In this case, the forecast is taken from E3ME, which is aligned with Eurostat’s Europop 2023 population projections;
- b) a forecast of (changes in) participation, preferably by gender and age group (as available from E3ME); and
- c) an estimate of the outflow by occupation/education category, gender and age group based on the cohort-component method, combined with the age-sex distribution of occupation at the end of the time-series. This estimate is done at the country level.

The cohort component method is used to estimate the outflow coefficient at the occupation level. The outflow coefficient can be loosely interpreted as the probability by age-group and gender that a person leaves employment within a year. The method indirectly measures the net flows out of an occupation in a

¹³ Additional details about the calculation of net out-flows can be consulted in Cedefop’s Skills Forecast [Methodological Framework](#).

country. Thus, while we would like to know the share of workers leaving the labour force, we would need to observe the same persons over a longer period for this to be practicable, i.e. as longitudinal data. While such panels exist, they are usually not large enough to provide reliable estimates at the 2-digit occupation level. The methodology of replacement demand, thus, uses an idea from demography, the cohort-component method, that compares subsequent waves of, in our case, labour force surveys. These surveys provide a sufficient level of detail and sample size to allow for adequate estimation of the outflow coefficient for occupations by age group and sex. This differentiation is important as outflows in an occupation tend to differ by age and sex.

The current estimate of the outflow is based on a set of LFS employment data at the two-digit occupation level, with 5-year age groups differentiated by gender, covering the period from 2011 to 2023, pre-processed as described in Section 1.3.1. As the age structure of an occupation in a country in the final observation, 2023, strongly influences the replacement demand outcome, we also pool the last three years of employment outcomes to determine the relevant size of an age-gender cohort in the replacement demand estimate. Thus, instead of using a single base year, the average of the last three years (up to the base year) is used¹⁴.

The estimated outflow coefficients are combined with the participation rates and the retirement age. The institutional retirement ages are used to identify the period during which the majority of retirements occur. This is then enforced on the final age cohort in which retirement takes place.

For some countries (Malta, similarly North Macedonia and Türkiye) data are only available at a more aggregate level (ISCO 1-digit), and replacement demand for these countries is calculated based solely on the outflow of retirees and the elderly, which typically accounts for the largest share of replacement demand. The current EU-LFS data report the age structure by occupation for five-year age groups. The approach used combines data over longer periods, allowing for completely overlapping age groups (in this case, five years or longer). The outflow coefficient is then estimated over this derived dataset.

To apply the outflow coefficient to the five-year cohorts, the projection period is divided in periods of five years over the projection period (aligning with the labour supply data which are represented in 5-year age cohorts) and replacement needs are calculated for each period separately. In a second step, the separately

¹⁴ For each group of persons employed in an occupation in the specific age-sex cohort, the base year level of employment L is replaced by the average over the base year in the previous two years, so the relevant $L = \sum_{t-2}^t L_i / 3$ (with t identifying the years, t being the base year)

calculated replacement needs by five-year periods are combined (summed up) into one for the entire period.

In the past, replacement demand results had been estimated by occupation and qualification. Since this round, replacement demand by sector and qualifications is determined using the methodology developed by Kriechel and Kofol (2020). In essence, they assume the sector or qualification distribution within occupations in the base year as fixed and apply the replacement rates, calculated through the occupation to this distribution. Aggregating by qualification or sector allows for a sector specific or qualification specific replacement rate.

CHAPTER 3. Summary of development and refinement of the methodology

3.1. QMOD - Increasing the level of detail for labour supply and demand

The E3ME data update includes an enhancement to the level of labour supply by qualification level. Specifically, medium-level qualifications are now separated into medium-general and medium-vocational qualifications.

The data source used was Eurostat's 'Population by sex, age and educational attainment level (1 000)' [lfsa_pgaed]¹⁵. This dataset provides data up to 2023 with the following breakdowns: age groups with 5-year bands; ISCED qualification levels (ISCED 0-2, ISCED 3-4, ISCED 3-4 general, ISCED 3-4 vocational, ISCED 5-8).

As there was a change in the ISCED classification in 2014, the dataset was restricted to the period 2014-2023 for the data processing. Moreover, prior to 2021, the distinction between general and vocational education was only made for respondents under 35 years of age. This means that there were insufficient datapoints for projecting general and vocational qualification numbers.

Consequently, the process implemented was the following:

1. Using 2021-23 data, average shares of general and vocational qualifications within ISCED 3-4 were calculated by MS, age and gender.
2. Projection of labour supply by ISCED 0-2, ISCED 3-4, and ISCED 5-8 was implemented based on data for 2014-23.
3. Using the shares created in step 1, ISCED 3-4 was split into the general and vocational categories.

On the labour demand side, the data update included an extension to QMOD. This work consisted of processing LFS microdata to increase the level of detail of labour demand by qualifications. The steps involved are aligned with those outlined above for the labour supply side and the results provide employment demand projections by the same qualification categories.

¹⁵ https://ec.europa.eu/eurostat/databrowser/view/lfsa_pgaed/default/table?lang=en

CHAPTER 4. Summary of assumptions used in the macroeconomic model

This chapter summarises the overall macroeconomic assumptions for Europe used in creating the employment and labour force forecasts. The following **macroeconomic assumptions** were used in E3ME:

- **Population:** the EuroPOP2023 [proj_23np]¹⁶ was used, last update on 28/06/2023.
- **GDP:** Ameco Autumn 2024 forecast (released 15/11/2024)¹⁷ for the short term; and DG Ecfm Ageing Report 2024¹⁸ for the long term.
- **Inflation:** energy prices based on World Bank Commodity Prices Forecast October 2024; and ECB for the medium term as published in December 2024.
- **European Green Deal** (energy transition and circular economy) from the EC Impact assessment (Mix-55 policy scenario)¹⁹.

4.1. GDP forecast trends

The Cedefop methodology relies on key assumptions and external data to generate employment and labour market forecasts. These projections provide insights into economic and population trends across various MSs.

Long-term GDP growth assumptions are based on official forecasts from the European Commission. Consequently, demographic and macroeconomic assumptions are aligned with the 2024 Ageing Report, ensuring consistency with published projections.

Short-term GDP forecasts are obtained from the European Commission's Autumn 2024 economic forecast (AMECO). The assumptions underlying this forecast are highly uncertain due to ongoing and emerging geopolitical events at

¹⁶ https://ec.europa.eu/eurostat/databrowser/view/PROJ_23NP/default/table?lang=en

¹⁷ https://economy-finance.ec.europa.eu/economic-research-and-databases/economic-databases/ameco-database_en

¹⁸ https://economy-finance.ec.europa.eu/publications/2024-ageing-report-underlying-assumptions-and-projection-methodologies_en

¹⁹ https://energy.ec.europa.eu/data-and-analysis/energy-modelling/policy-scenarios-delivering-european-green-deal_en

the time of publication, such as the war in Ukraine and the conflict in the Middle East. Additional uncertainties affecting the overall economic outlook include repeated energy supply disruptions leading to market vulnerabilities, price and output volatility, economic developments with key trading partners like China, and the distributional effects of monetary policy tightening on the economic activities of firms, households, and governments. However, aside from the risks of energy price volatility on inflation, the impacts of other assumptions remain balanced.

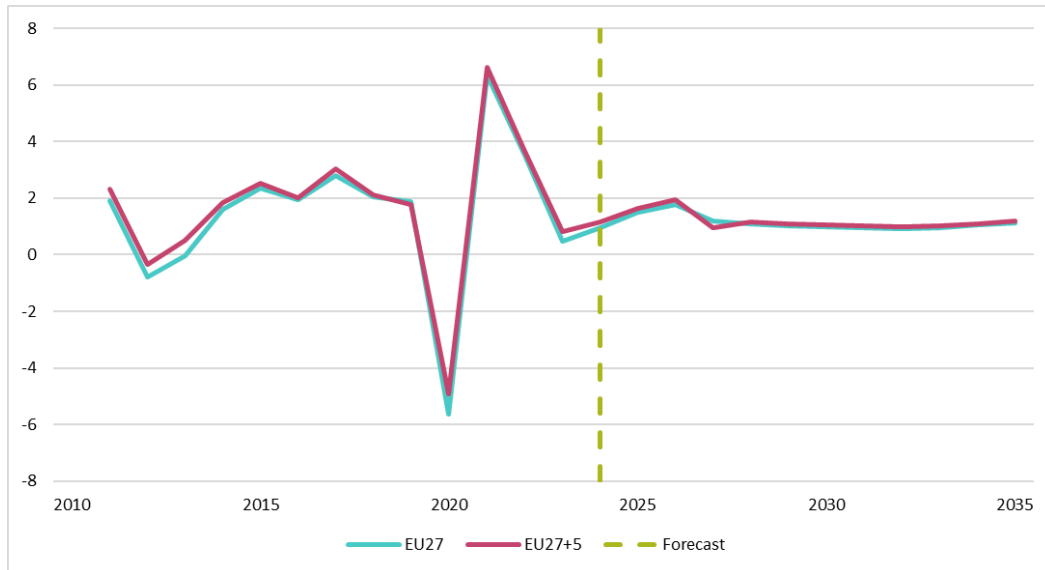
Figure 4.1 illustrates the trends in overall GDP growth rates over the projection period (2024-35).

From 2015 to 2019, the EU27 economy grew at an average rate of roughly 2%. However, the onset of the COVID-19 pandemic in 2020 caused a dramatic drop in GDP growth, falling to nearly -6%. This decline was mainly due to lockdowns aimed at controlling the spread of COVID-19.

The recovery post-pandemic was swift, with GDP growth rates hitting more than 6% in 2021 and 3.5% in 2022. Despite this, the momentum did not carry into 2023, with the growth rate at just 0.5%, while 2024 registered only slightly stronger growth of 1%. In 2025, the GDP growth rate for both the EU27 and EU27+5 is expected to climb to 1.5% and 1.6% respectively, with further respective acceleration to 1.8% and 2.0% anticipated in 2026. This slowdown is largely due to ongoing energy supply issues, price volatility, and geopolitical tensions.

Looking forward, the average annual growth rate for the decade from 2025 to 2035 is projected to be 1.1%, indicating a lacklustre rebound. While the short-term projections, leading up to 2026, are based on the AMECO forecast, the assumptions in the following decade's projections are based on the Ageing Report. Growth could be driven by increased consumer spending and real wage growth driven by an easing of inflationary pressures, along with strong investments and rising external demand. The EU27+5 is expected to follow a similar pattern over the forecast period. However, the economic outlook remains uncertain due to persistent energy price fluctuations and other risks mentioned earlier.

Figure 4.1: GDP annual growth rate (%), EU27 & EU27+5, 2010-35.



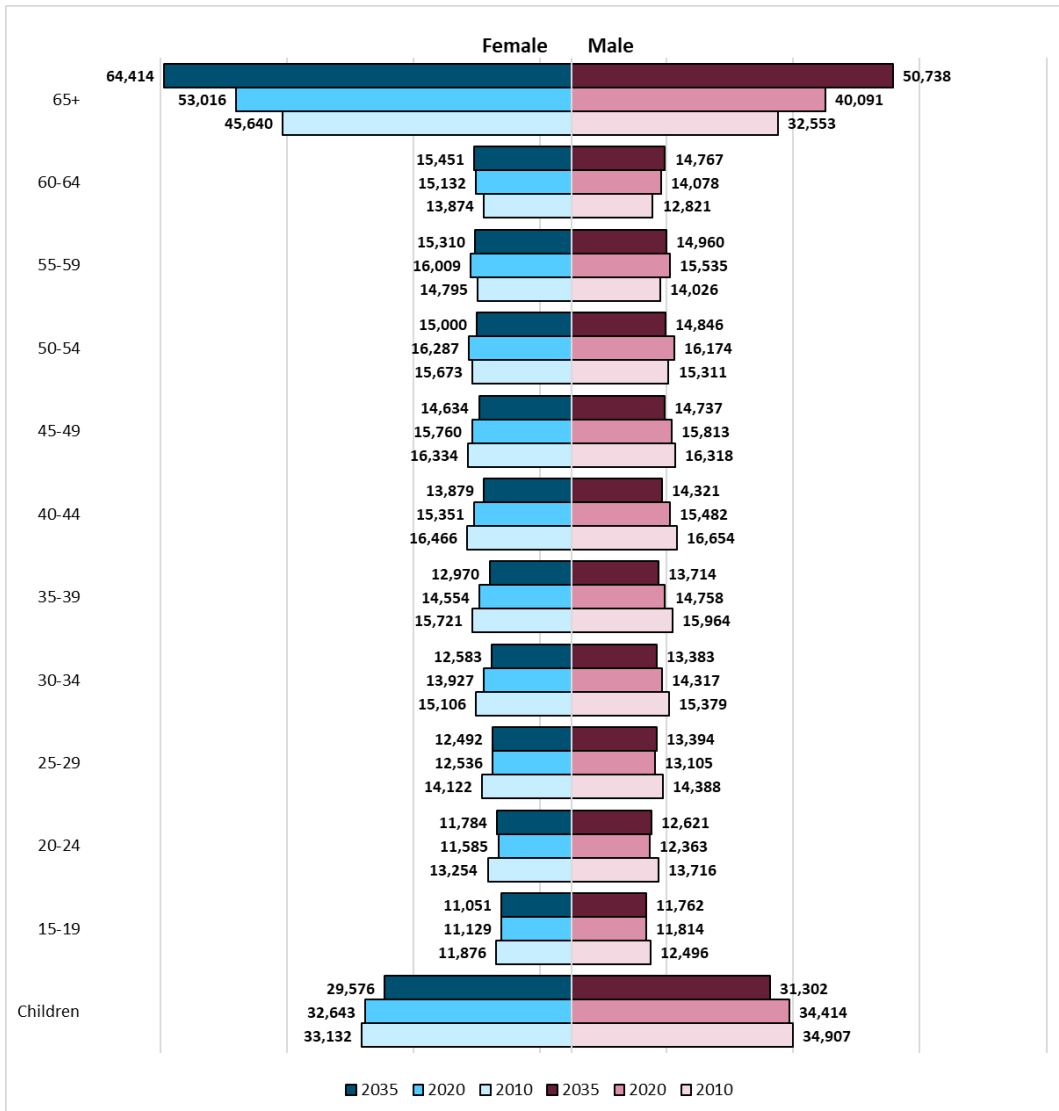
Source: Cedefop Skills forecast E3ME results.

4.2. Population projections

The population of the EU27 is projected to grow slowly over the long term, by 2035. Between 2010 and 2020, the region experienced an overall growth rate of around 1%, averaging an annual increase of 0.1%. This trend is expected to continue, with the forecast for the next 15 years, up to 2035, predicting a growth rate of 1%. Figure 2 depicts the population distribution (in thousands), broken down by gender and age groups. It highlights the trend of population ageing in the EU, with a rising proportion and number of older individuals (aged 65 and above) within the total population. The share of those aged 65+ is expected to rise from 18% in 2010 to 26% by 2035.

Conversely, there is an accelerating decline in the number and proportion of children (defined as those aged 0-14). The total number of children born decreased by 1% between 2010 and 2020, whereas a decline of 9% is projected between 2020 and 2035. The share of children in the population is expected to fall from 15% to 14% over this period. The working-age population (aged 15-64) is also expected to decrease, from 67% in 2010 to 64% in 2020, and further down to 61% by 2035. Thus, the only major age group anticipated to grow by 2035 is those over the age of 60.

Figure 4.2: Population (Thousands), EU27, 2010, 2020, 2035.



Source: Cedefop Skills forecast E3ME results.

4.3. The European Green Deal

This section details the assumptions used in integrating part of the European Commission's Green Deal policies into Cedefop Skills Forecast. The European Green Deal (EGD) covers a significant portfolio of policy areas, such as agriculture, energy and climate, environment, and research and innovation, to name a few.

What has been explicitly integrated in Cedefop Skills Forecast are the Fit-For-55 trends²⁰, for which detailed information exists in the Commission Staff Working Document Impact Assessment Accompanying the Document Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions: Stepping up Europe's 2030 climate ambition. Investing in a climate-neutral future for the benefit of our people²¹ (hereafter Impact Assessment). Explicit assumptions on circular economy (e.g. recycling rates) have also been included in the Cedefop Skills Forecast.

The E3ME model explicitly includes the information available in the Impact Assessment in terms of: EU-ETS pricing, energy efficiency policies and their impact on energy use by different sectors and households, renewable deployment and uptake of other green technologies (such as Electric Vehicles)²². These assumptions are allowed to feed through the E3ME framework and are expected to impact economic outcomes, such as, (but not limited to) activity (and employment) in the energy sectors; activity (and employment) in sectors manufacturing green technologies and their supply chain, trade of energy products (e.g. reduced imports of fossil fuels), prices, incomes and household expenditure.

²⁰ The various policy packages aimed at reducing EU GHG emissions in 2030 by 55% compared to 1990 levels, such as improving energy efficiency, lowering emissions in the transport sectors, increase the use of renewable energy and others.

²¹ https://eur-lex.europa.eu/resource.html?uri=cellar:749e04bb-f8c5-11ea-991b-01aa75ed71a1.0001.02/DOC_2&format=PDF

²² Additional information can be consulted in the [E3ME Model Manual](#).

Abbreviations

AMECO	The annual macro-economic database of the European Commission's Directorate General for Economic and Financial Affairs
DG Ecfm	European Commission's Directorate General for Economic and Financial Affairs
EBS	European business statistics
EC	European Commission
ECB	European Central Bank
EDMOD	Module for expansion demand by occupation
EGD	European Green Deal
EU	European Union
EU27	Comprises the 27 EU Member States
EU27+5	Comprises EU27 countries + Iceland, Norway, Switzerland, North Macedonia and Turkey
GDP	Gross Domestic Product
ICE	Individual Country Expert
IEA	International Energy Agency
ISCED	International Standard Classification of Education
ISCO	International standard classification of occupations
LFS	Labour Force Survey
MS	Member State
NACE	Statistical classification of economic activities
OECD	Organisation for Economic Co-operation and Development
QMOD	Module for qualifications
RDMOD	Module for replacement demand
SBS	Structural business statistics
STAN	Structural Analysis Database
STAS	Short-term anticipation of skills trends and VET demand
VET	Vocational education and training

References

European Commission (2024) *The 2024 Ageing Report. Economic and Budgetary Projections for the EU Member States (2022-2070)*. European Commission. Available at: https://economy-finance.ec.europa.eu/document/download/971dd209-41c2-425d-94f8-e3c3c3459af9_en?filename=ip279_en.pdf.

Cedefop (2023). 2023 Skills Forecast Technical Report. Available at: [2023_skills_forecast_technical_report.pdf](#)

Kriechel, B. and Kofol, C. (2020) *Replacement demand by sector and occupation in the EU-27*.

Kriechel, B. and Sauermann, J. (2009) *Replacement demand – methods and results*. Maastricht: Research Centre for Education and the Labour Market, p. 29.

Kriechel, B. and Vogler-Ludwig, K. (2013) *Arbeitsmarkt 2030 - Methodenbericht*. Available at: <https://doi.org/10.3278/6004385w>.

Künn-Nelen, A. (2015) *Further thoughts on replacement demand in Europe. With a focus on ageing of the workforce*. Technical Reports 001. Maastricht: Research Centre for Education and the Labour Market.