

Long-Term Labor Force Projections in Romania: An Analysis Based on Data on the Economic Impact of Population Aging

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Abstract. *In the last 30 years, Romania has faced one of the most significant migration phenomena globally, losing over two million inhabitants according to official statistics. However, these figures are reported based on the registered domicile of the population, with many immigrants avoiding changing their residence in Romania, even though they live and work in other countries for decades. This migration has primarily affected the active population, leading to an increasing deficit in Romania's labor market in recent years. Current estimates already indicate a shortage of personnel in sectors such as technology, healthcare, education, or construction. For the year 2024, Romania has approved a new quota of 100,000 foreign workers to address this issue. This decision was made due to the high number of work permit requests in the last 12 months and the significant number of job vacancies reported by employers. This study aims to use methodologies employed by the OECD and the European Commission to project long-term labor force trends in Romania (until 2070) in comparison with other EU member states, anticipating the economic impact of population aging.*

Keywords: Labor market, long-term labor force, Romania's economy, active population, migration, Cohort-Simulation Model (CSM)

Introduction

Population migration (Pripoaie et al., 2022) has decisively influenced Romania's development in the last 30 years, and if, in the first decade, it generated material benefits for both those who left the country and national economic indicators, currently, the effects have changed in a negative direction. The labor force deficit in essential economic sectors necessitates a reconsideration of national policies so that, looking towards 2030-2070, the import of labor force can be reduced. Analysis of the labor market in Romania until 2070 can be influenced by several factors, and estimates may vary depending on economic developments, demographic changes, technological innovations, and other elements (Mindrican, I.M et Matei, E.F, 2023). Demography and migration are essential aspects for understanding the evolution of a country's society and economy.

In the case of Romania, analyzing these aspects until 2030 provides insight into the changes that may occur in the population and workforce structure. Currently, Romania faces significant demographic challenges, such as an aging population and declining birth rates (INS). The country's population is continuously decreasing, and this trend could have long-term implications for various sectors of society.

Migration plays a significant role in shaping Romania's demographics (Pripoaie et al., 2022). In recent decades, Romania has witnessed massive emigration of the workforce, especially of skilled young individuals. Projections indicate a continuation of this phenomenon, with the potential to impact the country's demographic and economic balance (Pripoaie et al., 2022). The return of emigrants and attracting new immigrants can play an essential role in counterbalancing these trends. The development of these forecasts will involve the use of both quantitative and qualitative methods. They will systematically organize and integrate data and analyses related to

education and professional training, as well as sectoral and occupational needs. Moreover, attracting foreign investments and developing infrastructure projects can impact the demand for labor in various fields. It is important to emphasize that these estimates may vary depending on the evolution of events and government policies. Since 2012, Romania's economy has grown by approximately two times, advancing from the 16th position in 2010 to the 12th position among member states by 2022. This growth is reflected in the comparison of the GDP between 2012 and 2022 (Eurostat).

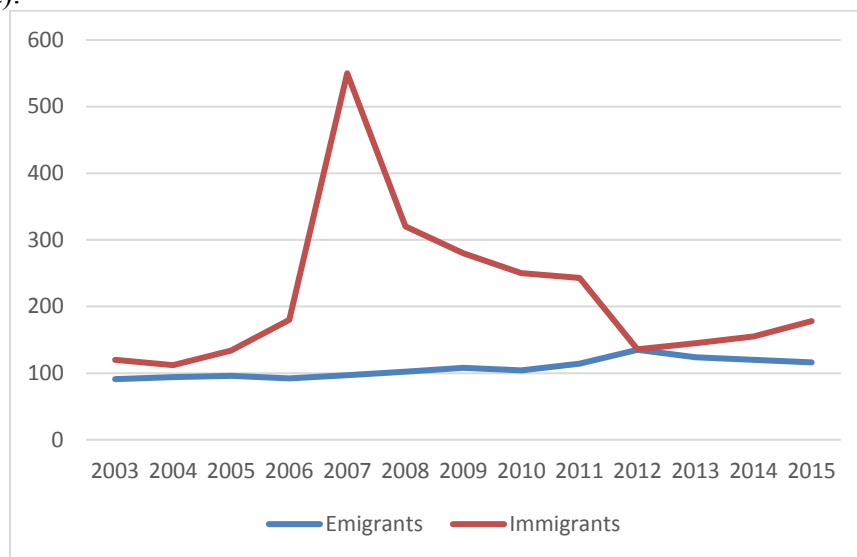


Figure 1. Emigration and immigration flow with the change of usual residence, 2003-2015

Source INS, EUROSTAT.

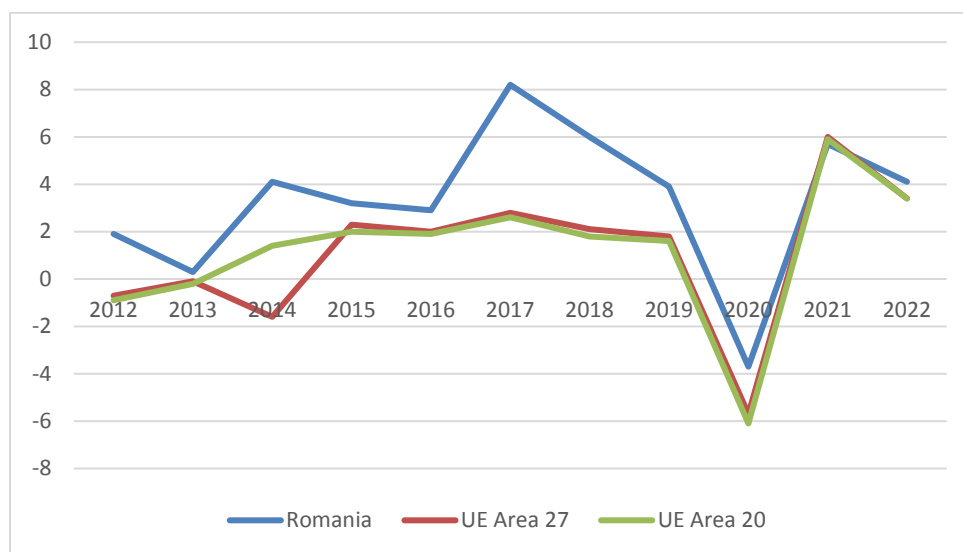


Figure 2. Evolution of the Romanian GDP vs EU 27 and EU 20

Source: Eurostat.

Against the backdrop of the consistent growth in the Gross Domestic Product (GDP) over the past 10 years, which has also led to diversification in investment sectors, Romania has not adjusted its educational curriculum and has not invested in national programs to combat school dropout rates.

In the Sectoral Operational Program for the Development of Human Resources 2007-2013(MINISTRY OF LABOR, FAMILY AND & EQUAL OPPORTUNITIES, 2007) it is stipulated that “early school leaving is a phenomenon that detrimental impacts the quality and competitiveness of the human capital”. The rate of early school leaving showed an increase from 22.4% in 1999 to 23.4% in 2004, with a slight reduction to 20.8% in 2005, as indicated in Table 1. Notably, there exists a substantial disparity between Romanian statistics and European benchmarks, as early school leaving significantly surpasses the EU's 10% target set for 2010.

Table 1. The rate of early school quitting, between 1999 and 2005

	1999	2000	2001	2002	2003	2004	2005		
	RO						RO	EU-25	EU-15
Early school leavers (18-24 years age group), by gender	22.4	23.1	21.8	22.9	22.7	23.4	20.8	15.2	17.2
Male	24.2	24.1	22.2	23.7	23.9	24.9	21.6	17.3	19.5
Female	20.4	22.0	21.4	22.1	21.5	21.8	19.9	13.1	14.9

Sources for RO: NIS, LFS annual average data; data for 2002÷2005 were weighted based on the results of the March 2002 Population and Housing Census;

Source for EU-25 and EU-15: EUROSTAT, New Cronos, annual average data 2005.

As indicated in Table a gender disparity becomes evident: the rate of early school dropout is more pronounced among males, as a significant portion of them opt to discontinue their education in order to join the workforce and provide financial support for their families. Key factors contributing to the rise in early school leaving include poverty, limited educational background among parents, and the risk of social exclusion.

Literature review

The European Union and its member states have explored various methods(Boswell, C et al., 2014) of forecasting employment to identify future labor force needs, considering sectoral, occupational, educational, and training factors that influence the demand and supply of jobs. Certain countries in Eastern Europe express interest in developing such models to provide the labor market with adequately trained employees.

Considering the requirements of the Single Market for Labor and the increasing international mobility, states are obliged to create models comparable to the forecasting methods for training and qualifications existing in EU member states. This objective involves regular medium-term forecasts extending into the future, assisting decision-makers in applying them to the entire national economy(Boswell, C et al., 2014). These forecasts must take into account factors such as future investments in the economy, income projections, labor productivity, and technological exchanges(Donovan et al., 2023).

The labor market shortage can also be influenced by trends resulting from changing consumer preferences and the overall economic climate, which will also impact the balance between supply and demand for labor(Tudose, G et al., 2013). While the trend will remain steady for goods and services, other sectors will be marked by significant fluctuations. Changes in the international division of labor will also affect the demand for skills within European companies. It is essential to remember that economic growth in these EU sectors can be achieved through

research investments in the respective fields, thereby contributing to the expansion of the number of skilled workers(Tudose, G et al., 2013).

Furthermore, the pronounced aging of the European population and structural changes within the economy will lead to a reorganization of the workforce in the coming decades, resulting in a decrease in employment in sectors such as agriculture and an increase in demand for the services sector.(Neugart et al., 2002). To substantiate these perspectives with concrete figures, long-term labor force projections are necessary, and since 2003, the OECD and European Commission have developed a methodology to calculate them.

Methodology

In this study, I will present workforce projections for Romania and EU countries until 2070 using the Cohort-Simulation Model (CSM), a method developed for analyzing and projecting labor market trends, especially in the context of demographic changes. This model has been extensively used by the Directorate-General for Economic and Financial Affairs of the European Commission (DG ECFIN) for the Ageing Report since 2006 (European Commission, 2023). The Ageing Report Underlying Assumptions & Projection Methodologies is a report that focuses on projecting participation rates in the labor force, considering various factors such as gender, age, and cohort effects.

One of the fundamental aspects of CSM is its ability to capture dynamic changes in labor market behavior among different cohorts and genders. It recognizes shifts in participation patterns, such as the significant increase in female labor force participation in recent decades, and allows for the analysis of trends and potential impacts on the workforce.

The methodology of CSM revolves around the concept of a 'synthetic' cohort, representing a group of individuals with similar characteristics. Due to the lack of longitudinal data at the individual level, the model assumes that individuals aged $x+1$ in year $t+1$ are representative of the same generation observed in the previous year (aged x at time t). While this may simplify the complexity of individual transitions, it provides a practical approach to studying labor market dynamics.

The central feature of CSM is the estimation of entry and exit rates from the labor market for this synthetic cohort. Entry rates into the labor market from inactivity and exit rates due to retirement or other factors are crucial components. These rates are calculated based on historical participation data, usually using a ten-year average to smooth out cyclical fluctuations or statistical errors.

The calculation of entry rates (European Commision, 2023) into the labour market from inactivity are calculated as follows. The calculation of the number of people that enter the labour market (coming from inactivity) considers the size of each gender/age group. It can be expressed as:

$$NLF_x^{t+1} = (WAP_{max} - LF_x^t) - (WAP_{max} - LF_{x+1}^{t+1})$$

$$\text{with } LF_x^t + NLF_{x+1}^{t+1} \leq WAP_{max}$$

where NLF is the number of people expected to become active between ages x and $x+1$; WAP_{max} is the maximum working age population that can potentially enter the labour force, which is usually slightly lower than the overall civilian population at working age, due for example to illness or inability; and LF is the number of active people (thus in the labour force) aged x in year t and aged $x+1$ in year $t+1$ (European Commision, 2023).

The exit rate from the labour market (the net reduction in the labour force relative to the number of people who were initially in the labour force in the same cohort the year before) can be calculated as follows. The number of persons that leave the labour market at time $t+1$ is equivalent to:

$$OP_x^{t+1} = LF_x^t - LF_{x+1}^{t+1}$$

where OP is the number of people expected to be outside the labour force between age x and x+1, and LF is the number of active people (thus in the labour force) aged x in year t and aged x+1 in year t+1.

The CSM mode (European Commision, 2023) allows for the inclusion of various policy scenarios, especially related to pension reforms. Changes in retirement age, conditions for early retirement, and other factors influencing retirement decisions can be simulated, providing valuable insights into the potential impact on the labor force. The CSM contributes to the development of long-term labor force projections, offering policymakers and researchers a comprehensive tool for understanding and anticipating trends in workforce participation. Its application in the Ageing Report and other studies enhances our ability to formulate informed policies that address the challenges posed by demographic shifts and changing economic landscapes.

The data analyzed further is derived from the Ageing Report Underlying Assumptions & Projection Methodologies and pertains to EU countries, including Romania, covering the following indicators: Projected total population, 2022-2070, Composition of the population by age group, 2022-2070, Participation rate projections by age group – total (%), Labour supply projections – total, 2022-2070, Change in the labour force (20-64y; %):

Table 2. Projected total population, 2022-2070

	Total population (annual average - millions)			% change		
	2022	2045	2070	2022- 2045	2045- 2070	2022- 2070
BE	11.7	12.5	12.7	7%	2%	9%
BG	6.9	6.0	5.3	-13%	-12%	-23%
CZ	10.7	10.7	10.6	0%	-2%	-2%
DK	5.9	6.1	6.2	4%	1%	5%
DE	83.9	85.0	84.2	1%	-1%	0%
EE	1.4	1.3	1.3	-1%	-2%	-3%
IE	5.1	5.9	6.1	15%	3%	19%
EL	10.4	9.2	7.8	-12%	-16%	-25%
ES	47.7	50.5	47.7	6%	-6%	0%
FR	68.0	70.7	69.7	4%	-1%	2%
HR	3.9	3.4	3.0	-12%	-11%	-22%
IT	59.0	58.1	53.3	-2%	-8%	-10%
CY	0.9	1.0	1.0	7%	2%	9%
LV	1.9	1.5	1.3	-19%	-17%	-33%
LT	2.8	2.4	2.0	-15%	-17%	-29%
LU	0.7	0.9	1.0	33%	12%	49%
HU	9.7	9.3	9.0	-4%	-3%	-7%
MT	0.5	0.7	0.8	37%	13%	54%
NL	17.7	18.8	18.7	6%	0%	6%
AT	9.0	9.5	9.5	5%	1%	6%
PL	38.1	35.2	31.8	-8%	-9%	-16%
PT	10.4	9.8	9.0	-5%	-9%	-14%
RO	19.0	16.8	15.0	-12%	-11%	-21%
SI	2.1	2.1	2.0	0%	-5%	-5%
SK	5.5	5.2	4.8	-4%	-8%	-12%
FI	5.6	5.5	5.2	-1%	-5%	-6%
SE	10.5	11.9	12.9	13%	8%	23%
NO	5.4	6.1	6.5	12%	7%	20%
EA	348.2	354.1	341.1	2%	-4%	-2%
EU	449.1	450.1	431.9	0%	-4%	-4%

Source: European Commission based on EUROPOP2023 (Eurostat).

Table 3. Composition of the population by age group, 2022-2070

	2022				2070				pps change 2022-2070			
	(0-19)	(20-64)	(65+)	(80+)	(0-19)	(20-64)	(65+)	(80+)	(0-19)	(20-64)	(65+)	(80+)
BE	22%	58%	20%	6%	19%	53%	28%	11%	-3.3	-5.1	8.5	5.8
BG	19%	59%	22%	5%	18%	51%	31%	14%	-1.4	-7.8	9.2	9.0
CZ	21%	58%	20%	4%	19%	53%	27%	12%	-1.7	-5.3	7.0	7.6
DK	22%	58%	20%	5%	20%	51%	29%	11%	-2.3	-6.3	8.6	5.8
DE	19%	59%	22%	7%	19%	52%	29%	12%	0.1	-6.8	6.7	4.4
EE	22%	58%	20%	6%	18%	52%	30%	13%	-3.3	-6.2	9.5	7.3
IE	26%	59%	15%	4%	18%	52%	29%	12%	-7.8	-6.2	14.0	8.7
EL	19%	58%	23%	7%	17%	50%	33%	16%	-1.8	-8.5	10.2	9.1
ES	19%	61%	20%	6%	16%	51%	33%	15%	-3.7	-9.3	12.9	8.8
FR	24%	55%	21%	6%	20%	51%	29%	13%	-3.7	-4.5	8.2	6.5
HR	19%	58%	23%	5%	16%	52%	32%	13%	-3.4	-6.3	9.7	7.6
IT	17%	59%	24%	8%	15%	51%	34%	15%	-2.6	-7.2	9.8	6.9
CY	21%	62%	17%	4%	18%	53%	29%	12%	-3.2	-9.4	12.6	7.8
LV	21%	58%	21%	6%	18%	51%	31%	15%	-3.5	-6.8	10.3	8.9
LT	20%	60%	20%	6%	15%	49%	36%	15%	-4.5	-11.1	15.7	9.6
LU	21%	64%	15%	4%	18%	53%	29%	11%	-3.0	-11.4	14.4	7.2
HU	20%	60%	21%	5%	19%	52%	28%	11%	-0.4	-7.4	7.8	6.8
MT	18%	63%	19%	4%	15%	51%	34%	12%	-2.6	-11.8	14.4	8.1
NL	21%	59%	20%	5%	19%	52%	29%	11%	-2.4	-6.7	9.1	6.1
AT	19%	61%	20%	6%	18%	52%	30%	12%	-1.6	-8.7	10.3	6.3
PL	21%	60%	19%	4%	17%	50%	32%	15%	-3.2	-9.8	13.0	10.7
PT	18%	58%	24%	7%	17%	50%	34%	15%	-1.0	-8.8	9.8	7.8
RO	22%	59%	20%	4%	19%	52%	29%	13%	-2.9	-6.5	9.5	8.6
SI	20%	59%	21%	6%	17%	52%	30%	14%	-2.2	-6.7	8.8	8.1
SK	21%	61%	18%	3%	19%	51%	30%	14%	-1.8	-10.9	12.7	10.5
FI	21%	56%	23%	6%	16%	51%	32%	13%	-4.4	-4.7	9.0	7.3
SE	23%	56%	20%	5%	20%	53%	27%	11%	-3.1	-3.4	6.4	5.3
NO	23%	59%	18%	4%	18%	53%	29%	11%	-4.8	-5.8	10.6	6.9
EA	20%	58%	22%	6%	18%	52%	31%	13%	-2.3	-6.9	9.2	6.5
EU	20%	59%	21%	6%	18%	52%	30%	13%	-2.3	-7.0	9.3	7.0

Source: European Commission based on EUROPOP2023 (Eurostat).

In all Member States, the share in the overall population of the age groups above 65 years is projected to rise by 2070 , from 21% in 2022 to 30% in 2070(European Commission, 2023).

Table 4. Participation rate projections by age group – total (%)

	total		young		prime-age		older		change 2022-2070 (pps)				
	20-64		20-24		25-54		55-64		total	young	prime-age	older	
	2022	2070	2022	2070	2022	2070	2022	2070	20-64	20-24	25-54	55-64	
BE	76.1	80.3	48.4	51.2	86.1	88.2	59.1	70.6	4.1	2.8	2.1	11.5	BE
BG	79.1	80.5	41.6	43.4	85.9	88.9	71.0	73.5	1.3	1.8	3.0	2.5	BG
CZ	83.1	81.5	50.7	52.7	89.1	88.3	74.7	75.0	-1.6	2.0	-0.8	0.3	CZ
DK	83.6	88.0	75.1	78.6	87.7	89.8	75.5	86.6	4.4	3.5	2.1	11.1	DK
DE	83.3	85.2	73.6	73.9	87.8	89.3	75.3	77.9	1.9	0.3	1.4	2.6	DE
EE	86.5	91.7	75.2	79.4	90.8	94.3	77.1	89.7	5.1	4.2	3.5	12.6	EE
IE	81.6	85.8	74.4	77.6	86.1	91.6	69.0	74.8	4.3	3.2	5.5	5.8	IE
EL	75.4	79.9	46.6	50.0	85.3	85.2	57.4	78.2	4.5	3.4	-0.1	20.8	EL
ES	79.6	81.6	55.3	56.5	87.4	86.9	65.4	77.5	2.0	1.2	-0.5	12.1	ES
FR	79.6	84.3	66.8	69.2	88.2	89.8	60.4	75.9	4.7	2.5	1.5	15.5	FR
HR	74.9	81.2	55.5	61.9	86.0	90.1	53.0	65.4	6.2	6.4	4.1	12.4	HR
IT	70.4	76.3	45.2	45.6	78.6	80.4	57.9	76.3	5.8	0.4	1.8	18.4	IT
CY	83.2	86.1	68.8	72.1	89.4	91.4	68.0	76.1	3.0	3.3	1.9	8.1	CY
LV	82.7	83.3	67.4	70.5	87.7	88.9	73.7	74.6	0.6	3.2	1.2	0.9	LV
LT	84.2	85.4	64.1	65.8	90.0	92.0	75.3	75.7	1.2	1.7	2.0	0.4	LT
LU	77.6	78.4	46.9	53.9	89.8	90.5	48.4	53.3	0.8	7.0	0.7	4.9	LU
HU	83.2	86.6	54.5	56.7	91.0	94.1	68.0	77.8	3.4	2.2	3.1	9.8	HU
MT	83.3	87.0	80.0	80.3	90.6	93.7	55.3	71.8	3.8	0.3	3.2	16.5	MT
NL	85.4	90.4	85.4	89.1	89.1	92.8	75.3	84.2	5.0	3.7	3.7	8.9	NL
AT	80.9	85.1	75.9	77.9	89.6	91.6	58.6	69.4	4.1	2.0	2.0	10.7	AT
PL	79.1	79.3	57.9	59.0	87.8	89.1	57.8	61.9	0.2	1.1	1.3	4.1	PL
PT	82.5	86.1	53.6	54.4	91.3	92.6	69.3	80.6	3.6	0.8	1.3	11.3	PT
RO	72.1	72.5	44.6	45.5	82.0	81.8	48.6	58.5	0.4	0.9	-0.2	9.9	RO
SI	81.4	85.4	56.6	59.2	92.9	92.8	57.3	76.6	4.0	2.7	-0.1	19.4	SI
SK	81.7	84.8	47.6	49.1	89.9	91.2	67.1	82.8	3.1	1.6	1.3	15.7	SK
FI	83.7	85.6	68.9	71.8	88.1	88.5	77.0	83.1	1.9	3.0	0.4	6.0	FI
SE	87.8	89.1	73.2	75.1	91.6	92.3	82.2	86.5	1.3	2.0	0.7	4.3	SE
NO	83.0	84.5	74.2	76.9	86.6	89.8	75.5	73.2	1.5	2.7	3.2	-2.3	NO
EA	79.3	83.1	63.0	65.1	86.4	88.1	65.9	77.0	3.8	2.0	1.6	11.0	EA
EU	79.4	82.7	61.6	63.7	86.7	88.2	65.4	75.5	3.3	2.1	1.5	10.1	EU

Source: European Commission, EPC.

Table 5. Labour supply projections – total, 2022-2070

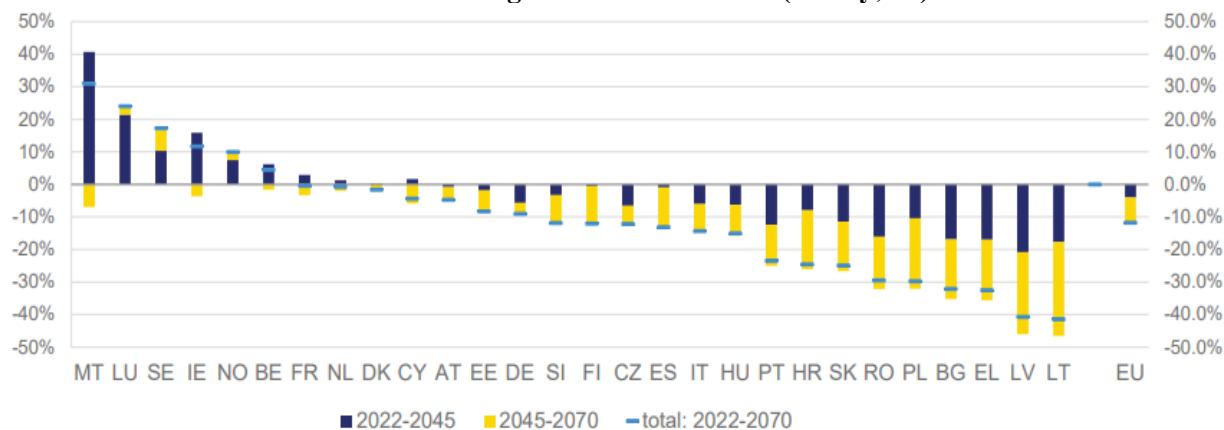
	Total labour force (20-64y, '000 persons)		Change (2070/2022)	Avg annual growth rate (2022-2070)	Impact on potential output growth ⁽¹⁾
	2022	2070			
BE	5.167	5.398	4%	0.1%	0.2%
BG	3.215	2.181	-32%	-0.8%	-0.4%
CZ	5.214	4.579	-12%	-0.3%	0.0%
DK	2.843	2.796	-2%	0.0%	0.1%
DE	41.343	37.601	-9%	-0.2%	0.0%
EE	680	623	-8%	-0.2%	0.1%
IE	2.452	2.737	12%	0.2%	0.3%
EL	4.606	3.111	-32%	-0.8%	-0.4%
ES	23.032	20.005	-13%	-0.3%	0.0%
FR	29.923	29.790	0%	0.0%	0.2%
HR	1.681	1.268	-25%	-0.6%	-0.2%
IT	24.377	20.890	-14%	-0.3%	0.0%
CY	473	452	-4%	-0.1%	0.1%
LV	905	536	-41%	-1.1%	-0.5%
LT	1.442	845	-41%	-1.1%	-0.6%
LU	325	403	24%	0.4%	0.5%
HU	4.817	4.089	-15%	-0.3%	-0.1%
MT	277	363	31%	0.6%	0.5%
NL	8.881	8.812	-1%	0.0%	0.2%
AT	4.463	4.253	-5%	-0.1%	0.1%
PL	18.156	12.755	-30%	-0.7%	-0.3%
PT	4.994	3.822	-23%	-0.6%	-0.2%
RO	8.044	5.670	-30%	-0.7%	-0.3%
SI	1.015	895	-12%	-0.3%	0.0%
SK	2.751	2.066	-25%	-0.6%	-0.2%
FI	2.619	2.304	-12%	-0.3%	0.0%
SE	5.205	6.103	17%	0.3%	0.4%
NO	2.663	2.929	10%	0.2%	0.3%
EA	161.408	146.173	-9%	-0.2%	0.0%
EU	208.903	184.347	-12%	-0.3%	0.0%

(1) Impact of labour force growth differential relative to the EU average.

Source: European Commission, EPC.

The total labour supply in the EU is expected to decrease by 12% over the projection period, with a decrease of at least 25% in several Member States(European Commission, 2023).

Table 6. Change in the labour force (20-64y; %)

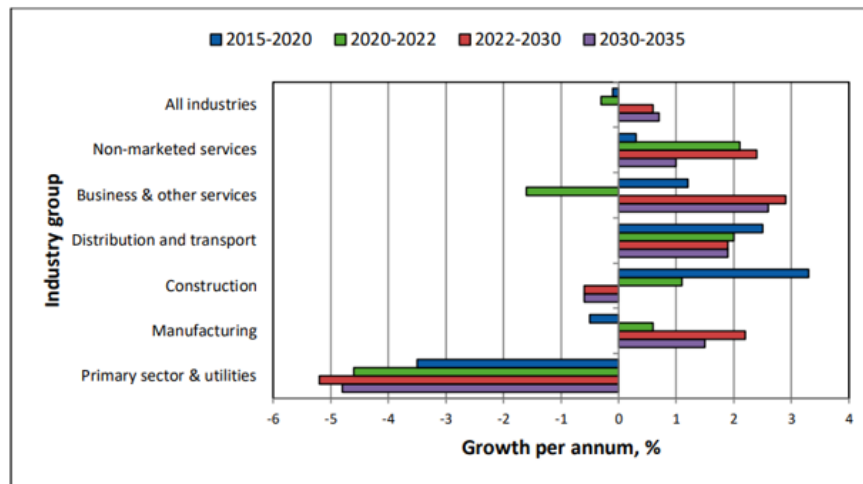


Source: European Commission, EPC.

Results and discussion

According to the analyzed data following the presented methodology, it appears that Romania's population will experience a dramatic decline from 2022 to 2070. Starting from 19 million people, it will decrease to 16.8 million in 2045 and further to 15 million in 2070. Additionally, the active population (20-64 years) as a percentage of the total population will decrease from 59% to 52% in 2070. In numerical terms, the decrease will go from 8 million people to 5.6 million people in 2070. Compared to the average decline in the active population across all EU countries, Romania's percentage is nearly double. This indicates that the projected decline in the working-age population is much higher than the demand from various sectors of the economy, with specific indicators being above the EU average.

For a more precise analysis, I will also use the results from the CEDEFOP study, SKILLS FORECAST 2023 (ROMANIA), which predicts the average annual employment growth in the main sectors of the Romanian economy until 2035.



Source: Cedefop (2022 Skills Forecast).

Figure 2. The average annual employment growth forecast

Thus, a rapid increase in employment is forecasted in broad service sectors such as Business & other services, non-marketed services, or Distribution & transport, all with an employment growth of 2% per year until 2035. Employment in the manufacturing sector is also expected to be relatively fast, with a growth of over 2% per year between 2022 and 2035. On the other hand, employment in the Primary sector & utilities, which accounts for about one-third of total employment in Romania, mainly through agriculture, is forecasted to decrease by 5% per year over the same period, anticipating the disappearance of 1,000,000 jobs in this sector. Another decrease, but much smaller, will be in the Business & other services sector, specifically in the sub-sector of Administrative & support services, where a decline in employment of 0.8% per year is forecasted between 2022 and 2035. Significant increases until 2035 are forecasted in sub-sectors such as wholesale and retail trade (15% of employment), land transport (5% of employment), and accommodation and food services (3% of employment).

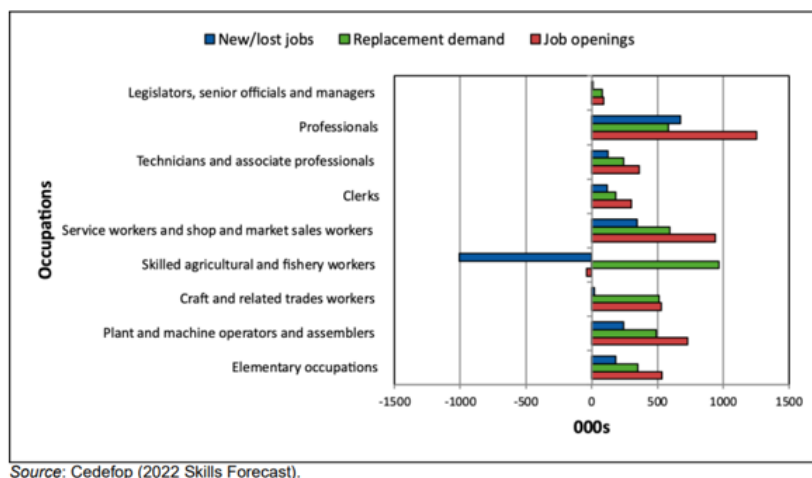


Figure 3. Job openings by occupational group, 2020-2035

CEDEFOP's analysis of total job openings by broad occupational groups for the period 2020-2035 reveals that the only sector where one million jobs will be lost is agriculture and fisheries; however, in all other sectors, there will be a demand for replacement or new job openings. Significantly, many job openings will require additional training and higher education. Thus, while in 2015, only 20% of jobs required higher education, by 2035, the percentage is expected to reach 46%, according to CEDEFOP's analysis.

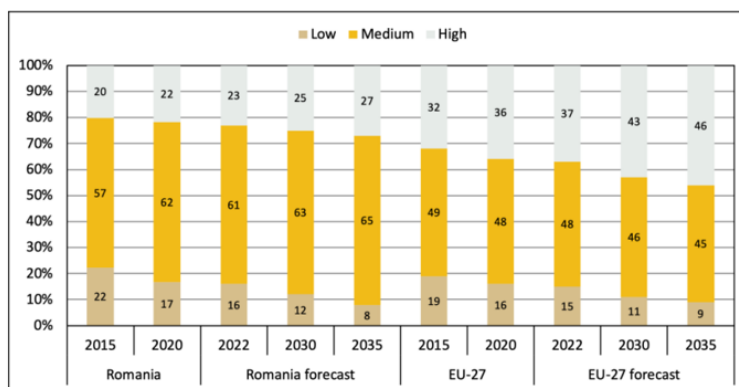


Figure 4. Labour force share by level of qualification, 2015-35

Professionals are expected to generate the largest number of job openings over the forecast period (over one million), accounting for 25% of total job openings. Nevertheless, the report estimates that there will be 706,000 additional jobs and a replacement demand of 4 million jobs in Romania, leading to a total of 4.7 million job openings over the period 2020-2035.

Conclusions

Addressing the personnel shortage in critical sectors of the Romanian economy will require sustained efforts from the government, educational institutions, and employers to develop effective strategies for attracting and preparing the workforce.

In conclusion, solutions include utilizing the workforce aged 60-75 in the active labor market (EIB Investment, 2022), adapting school programs to the labor market's needs, and the necessity of digitalization and interconnecting information related to economic indicators with significant implications for the labor market. Two of the solutions for solving the shortage of personnel other than the import of labor.

Employee Retention

Measures for retaining employees, such as competitive salaries, improved working conditions, and professional development opportunities, can retain a portion of the workforce that would otherwise choose to migrate. This requires significant investments but can have a positive long-term impact.

These employee retention measures are particularly crucial in an ever-changing work environment where the workforce is increasingly mobile and has more diverse options. Even in regions with an abundant labor force, it is essential for employers to actively engage in retaining and developing existing talents. Investments in professional training and career development can help create a sense of loyalty to the organization and enhance productivity and job satisfaction.

Another essential element of workforce retention strategy is creating a positive work environment and improving the quality of life at work. Companies can invest in creating comfortable workspaces, offering benefits such as health insurance, flexible time off, remote work options, and flexible scheduling. These measures can contribute to increased job satisfaction and the retention of valuable employees within the company.

Reallocating the Workforce

The relocation of personnel from Romania, moving workers from regions with labor surpluses to those experiencing a severe labor shortage, can be a viable solution. This involves creating appealing opportunities in deficit regions and implementing policies that encourage worker mobility.

Addressing this issue does not fall solely within the government's responsibility but also involves the private business sector. Companies play a crucial role in creating attractive job prospects in deficit regions and can significantly influence labor migration patterns. They can adopt strategies such as offering competitive salary packages, optimal working conditions, and opportunities for personal and professional development to attract and retain talent.

Moreover, collaboration between the private sector and the government can stimulate these efforts. An example would be public-private partnership initiatives where the government and companies work together to develop regional infrastructure, improve living conditions in deficit regions, and attract the workforce. These actions may include enhancing public transportation, improving public services, and establishing community facilities.

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