



Labor force shortage analysis in Romania - size, impact and measures

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Abstract. *Under the impact of unfavourable demographic developments, some existing imbalances on the Romanian labor market have worsened. Thus, in 2019 the labor force shortage was estimated to 300000 persons, while in the last ten years the number of vacancies has exceeded 60,000 places, more than double the level at the beginning of the period (2010). This phenomenon may have negative social and economic effects. In this context, the present paper aims at analysing the labor shortages in Romania, at identifying its main determinants and the most important social and economic consequences and recommends a series of measures to mitigate the negative effects of this phenomenon.*

Keywords: labor force shortage, driver, vacancy, emigration

Introduction

Labor markets are under the pressure of globalization, ageing population increase, automation and digitization of production processes and decreased fertility rates which force a necessary and demanding structural change of the labor markets. Furthermore, in this context, various economic sectors increasingly reported lack of labor force and moreover lack of skilled labor force.

Romania is no stranger to labor market changes due to its high labor force migration rates of the last decades (Horváth & Anghel, 2009). After 1989, Romania went through several phases of labor migration starting from the emerging of labor migration in the 1994-

1997 period (Anghel et al., 2016). The first signs of labor shortages appeared in 2004 from the construction and textile industries (Anghel et al., 2016). A key factor in external mobility of labor force was the 2002 granted right of movement within the European Union of Romanians which lead to a mass migration towards Western Europe. Since 2009, new patterns appeared in forms of seasonal or temporary work.

The purpose of this study is to analyze the labor shortage in Romania in quantitative and qualitative terms, to identify its main determinants and the most important social and economic consequences of labor shortage and to propose a series of measures to mitigate the negative effects of this phenomenon. Thus, the introduction analyses the results of studies on the nature and causes of labor shortages, with reference to the situation in Romania. The second section presents the main activity sectors, occupation groups and development regions in Romania that are affected by a high level of labor shortage. In the third and fourth part are presented the main drivers of quantitative and qualitative labor shortages, as well as their most important economic and social consequences. The conclusions part contains some recommended measures to correct these gaps, in short, medium and long run.

Literature review

A recent national study estimated a 300000 persons labor shortage in 2019 and an estimated forecast of 549,000 individuals in 2023 (Chivu et al., 2020). According to Randstad HR Trends (Randstad HR Trends Study, 2018), the country has a workforce deficit of one million people. Among the professionals that migrated from Romania to other EU countries are healthcare workers (Apostu&Vasile, 2020), temporary labor migration, IT specialists and students (Anghel et al., 2016; Suciú et al., 2017). According to the estimations made by Cedefop, the European Centre for the Development of Vocational Training (2019), the future employment growth mean in Romania over the period 2018-2030 is estimated at 9%. The minimum is -27.4 for Construction, while the maximum is 79.9 for Professional services.

Factors influencing the decision to migrate for work are inadequate working conditions, low salaries, economic conditions of a region, lack of opportunities for highly skilled individuals, unemployment rate, tax rate and corruption [Suciú et al., 2017; Davidescu et al., 2019; Crisan et al., 2019]. Various studies in the specialized literature are related to migration, return migration, social-economic effects of labor migration within a country or a region [Bartram, 2013; Piperno, 2007; Matichescu et al., 2017]. Horváth and Anghel (2009) suggested that emigration of healthcare workers had as consequence a larger inequality of rural-urban medical coverage. Furthermore, they concluded that the migration of Romanians was a consequence of the economic shrink of the country along an increasing demand of labor in several EU member states. In a more recent study (Andren & Roman, 2016), from 2016, which analyzed the characteristics of migrants, mentioned that “a relatively high proportion (52%) of all Romanian working migrants have an occupation that requires specialized skills (which might be gained through vocation training), while only 39% have occupations that require very little or no education at all”.

However, others factors effecting labor shortage are studied in the literature, for example, ageing population (Vasile & Dobre, 2015; Harper, 2014). It is assumed that an aging population affects labor productivity suggesting that older people are less productive and less innovative (Harper, 2014). However, these arguments are challenged by a future highly skilled population that will maintain high productivity rates as long as government policies are adapted to the economic context of an aging population (Harper, 2014). Europe has an

'active aging' policy which addresses prolonging work life of individuals (Foster & Walker, 2015).

Methodology

A quantitative and qualitative analysis was carried out, from a territorial and temporal perspective of the labor force deficit in Romania, considering the indicators "Vacancies" and "Vacancies rate" at total economy level, but also by activity sectors, development regions and occupation groups. These indicators have been correlated with contextual indicators, which characterize the economic landscape in the national economy and in each development region, in order to obtain a profile of the development regions, occupation groups and sectors of activity most affected in terms of labor force shortage. The data were collected from the TEMPO ONLINE database, provided by the National Institute of Statistics, and refer to the last 10 years-time period. The paper identifies the main determinants of the labor shortage in Romania, the causes that led to its emergence and deepening, but also establishes the main economic and social consequences of this phenomenon. A series of solutions and measures are proposed to stop or reduce the size of the labor shortage in Romania, in the short, medium and long term.

Results and discussions

Top five sectors, occupations and regions with the largest scale of labor shortages

In Romania, in the last 10 years, the number of vacancies has experienced an increasing trend, at the national economy level, doubling its absolute value. In 2018, the number of vacancies reached the maximum level in the analyzed period, exceeding 60,000 places (Figure 1). During the global financial crisis in 2008-2009, the restriction of the activity of many companies or the dissolution of others led to a decrease in the number of existing vacancies. In the following period, with the revival of the business environment, the number of jobs increased not only in Romania but also in other European countries, the unemployment rate decreased, the emigration phenomenon was expanded and there was also a growth in the number of vacancies.

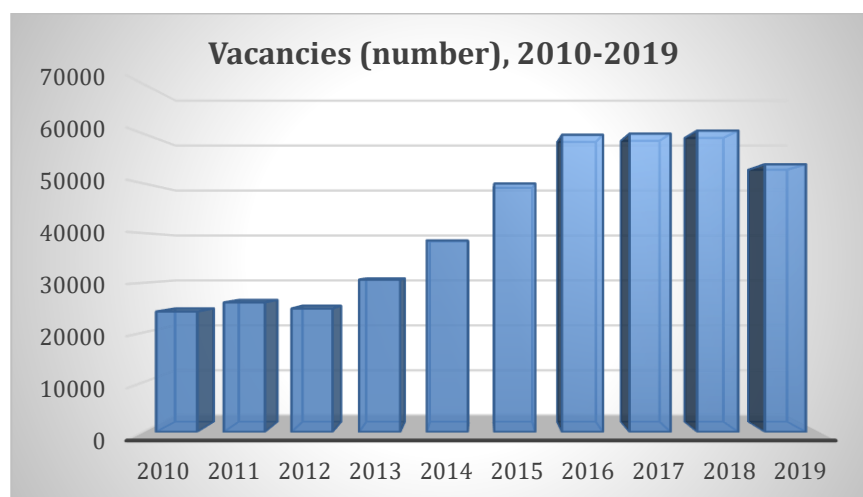


Figure no. 1. Number of vacancies, Romania, 2010-2019.

Data source: authors' own contribution, based on data provided by the National Institute of Statistics, www.statistici.insse.ro

The vacancy rate in Romania for the national economy as a whole started from a minimum of 0.59% in 2010, registering a maximum level of 1.28% in 2016. In the last 3 years the rate decreased, reaching 1.09% in 2019 (Figure 1). Looking at things from a double temporal and territorial perspective, there is a more pronounced increase in the vacancy rate in the Western region, where the ratio between the maximum and minimum level is almost 3/1. In 2019, the highest vacancy rate was in the Bucharest-Ilfov region (1.43%), followed by the Western region (1.37%) and the North-West region (1.22%). At the opposite pole is the South-West Oltenia region with the lowest rate (0.44%), preceded by the South-East region (0.89%) (Figure 2).

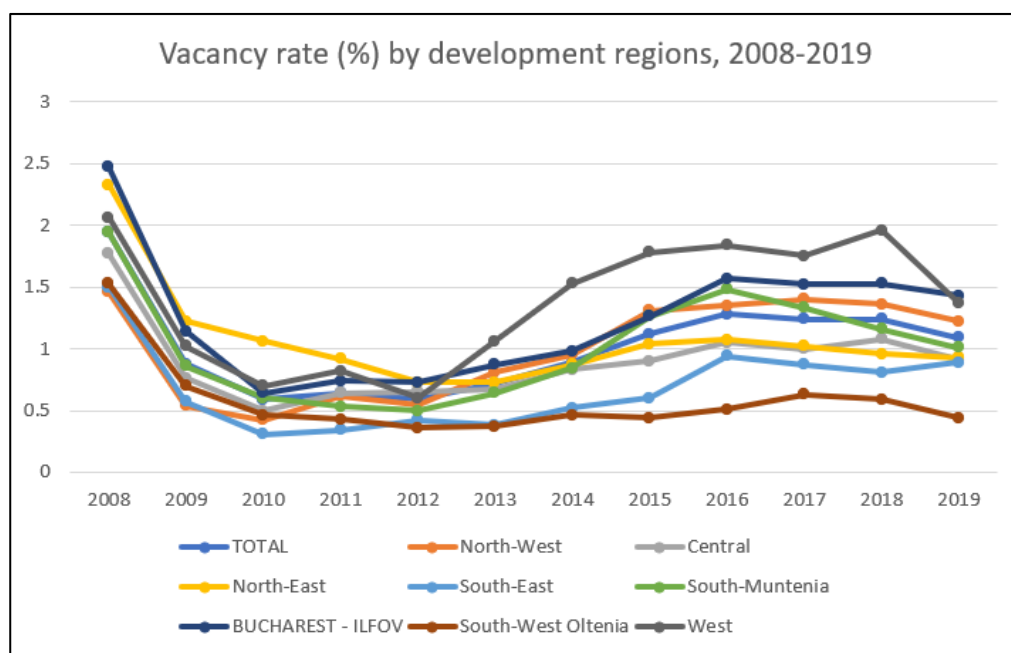


Figure no. 2. Vacancy rate (%) by development regions, 2008-2019

Data source: authors' own contribution, based on data provided by the National Institute of Statistics, www.statistici.insse.ro

In the Public Administration and Defence sector, the vacancy rate experienced a more accentuated dynamics, reaching a maximum of 3.73% in 2016, and, although in the last 3 years the level of the indicator decreased, the sector remained in 2019 with the highest rate of vacancies, compared to other activity sectors of the national economy (2.24%). As an absolute number of vacancies, this sector is on the 4th place, after Manufacturing, Human Health and Social Work and Wholesale and retail trade. Another sector of activity with strong dynamics is Human Health and Social Work, which started from a minimum rate of 1.05% in 2011 and reached a maximum of 2.79% in 2017 (an increase of 2.65 times). In 2019 the vacancy rate in this sector decreased to 1.89%, which places it in second place among the sectors of activity (Figures 3 and 4).

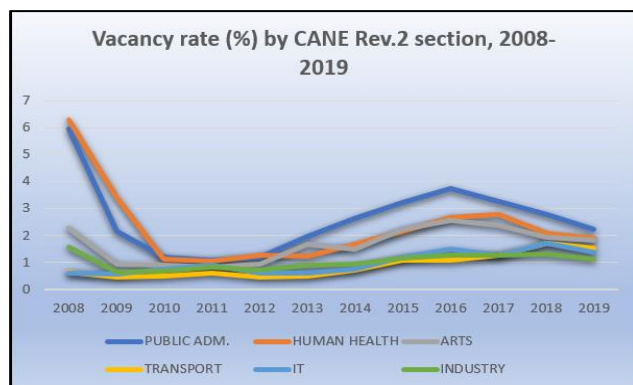


Figure no.3. Vacancy rate (%) by CANE rev.2 sections, 2008-2019

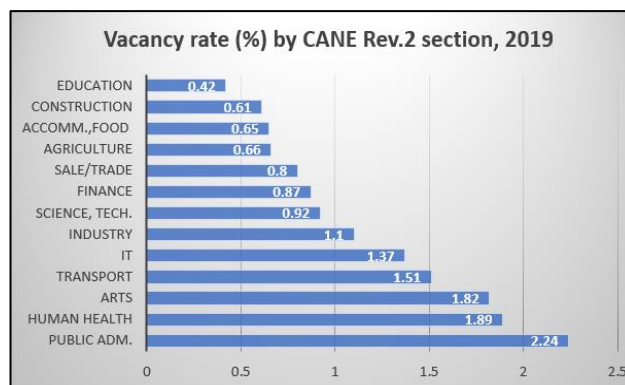


Figure no.4. Vacancy rate (%) by CANE rev.2 sections, 2019

Data source: authors' own contribution, based on data provided by the National Institute of Statistics, www.statistici.insse.ro

The top five shortage sectors account for 67.4% of total vacancies at national level. There are also some specificities at regional level. For example, about 40% of all vacancies in sectors G, H and O are in Bucharest, 60% of all vacancies in Manufacturing are in Western, North Western and Central region and 55% of vacancies in Q sector are in South East, South Muntenia and Bucharest Regions.

The construction sector (41 and 42 NACE codes) is affected also by the shortages. At national level, according to the official data are a number of 1,833 vacancies (2019 data). The shortages are particular in the North Eastern region (911 vacancies) and Bucharest-Ilfov (347 vacancies). The official data shows that low wages, migration of professionals to other countries (where salaries are much higher) and a lack of vocational schools for training new generations of construction workers/professionals in construction sector, are the main causes of the difficult situation facing the construction labor market.

First signals of labor shortages were sent many years ago by trade unions in the public sector and the health sector, which was facing massive out-flows, among doctors and later among average skilled health workers. By the end of 2019, there is a shortage of 2,165 general and family doctors (22 - Health professionals), according to the data provided by the Federation of Family Workers. Family doctors are not receiving state subsidies, the National Health Insurance House pays out their services, and they are paying out of this money for salaries, utilities, equipment, and other services. For the entire health sector, the deficit is much higher.

Table no. 1. The top five sectors, occupations and regions with the largest scale of labor shortages

Ranking	1	2	3	4	5
Shortage sector	Manufacturing	Human Health and Social Work	Wholesale and retail trade; repair of motor vehicles and motorcycles	Public Administration and defence	Transporting and storage
Employed in the sector	1.676.178	414.617	1.242.217	408.111	510.893

Ranking	1	2	3	4	5
Vacancies in the sector	13.304	6.452	6.269	4.638	3.484

Shortage occupation group	Professionals	Service and Sales Workers	Elementary Occupations	Craft and related trade workers	Plant and machine operators and assemblers
Employed population	164.145	1.311.458	823.933	1.454.887	1.311.458
Vacancies	13.216	8.736	7.580	6.547	5.966

Shortage region	Bucharest-Ilfov	North-West	West	Center	South Muntenia
Employed population in the region	1.425.000	1.193.100	826.600	1.055.900	1.109.000
Vacancies in the region	15.886	8.272	6.708	5.784	5.689

Data source: authors' own contribution, based on data provided by the National Institute of Statistics, www.statistici.insse.ro

The top 3 regions in the hierarchy in terms of vacancies are Bucharest-Ilfov, West and North-West, with highest level of GDP/inhabitant, registered in 2018, approximately 60% of the total number of vacancies at national level (KPMG, INCE, 2019). The North-West region concentrates the most vacancies in electricity, heat, gas, water (69%), the Bucharest-Ilfov region in information and communications (58%) and retail trade (30%) and the Center region in hotels and restaurants (24%) (KPMG, INCE, 2019).

In terms of NUTS level, the Bucharest-Ilfov region has the larger number of vacancies, respectively 15.886. The region has the highest active population and the GDP per capita in Bucharest-Ilfov is about four times higher than in the North East region and about two-three times higher than in other regions. The most affected occupations by shortages are Professionals (5,353 vacancies) and Service and sales workers (2,660 vacancies). In Western region, the most affected occupation by the shortages is Plant and machine operators and assemblers (1335 vacancies). (Table 1)

Nearly a quarter of electricity production relies on fossil fuels and significant investments will be needed to support mono-industrial and coal zones (e.g. Centre Region and South-East Region), which will be affected by the shift to a clean economy. The two regions will be among the most affected areas of the EU. According to national data, by the end of February 2020, the total number of employees working in the field of mining of coal and lignite was 11,700 employees (the number of all employees in Mining and quarrying sector was 48,800 employees). It also includes the number of jobs in power and thermal power plants using coal as a raw material. In order to assess the extent of social consequences, other factors need to be considered, such as the unemployment rate or the possibility of professional reconversion. (Business 24, 2020).

The main general drivers of labor shortages

Taken as a whole, the Romanian labor market was marked by numerous tensions that determined a deepening of the already existing imbalances. Of these, the labor force deficit,

in terms of quantity and structure, has worsened, under the impact of unfavorable developments in terms of demographics, education or labor mobility.

The most important driver of labor shortage in Romania is related to **skills and qualifications**. Romania has a deficit of adapting the initial education system that produces skills mismatch through education.

The inertia to change the education system is much higher than the rate of technological change. The continuous training system is not efficient, the training offer being poorly adapted to the real demand of employers, the re-employment rate after training being very low (25-30%). Moreover, the analysis of labor market demand is inexistent especially due to ignorance of economic development. Romania has an economy of conjunctural and marginal changes induced by the dynamics of economic reforms in more developed countries.

Qualified workers should accompany the rapid changes due to the new technology. The demand for new skills that are not immediately available on the labor market, leads to a shortage of skills until the school system is able to meet the new skills and qualifications requirements.

The second most important driver of labor shortage is **the mobility of workforce**. In Romania we assist to an exodus of all categories of workers. General trend of migration has as main motivations the higher salaries and the lack of demand for the fields of training offered by the initial education system. Most migrants work abroad in low-skilled and medium jobs, as overqualified or in another field than the training profile. But during the last ten years we assist also to a massive migration of specialists in health, IT, some industrial fields, both graduates and experienced employed – the main motivation being salaries and working conditions. Analyzing the evolution of the vacancy rate and the emigration rate in Romania, in the period 2008-2019 a strong direct correlation is found (Figure 5 and 6), with a correlation coefficient of 0.813, statistically significant for Sig = 0.001 (Table 2)

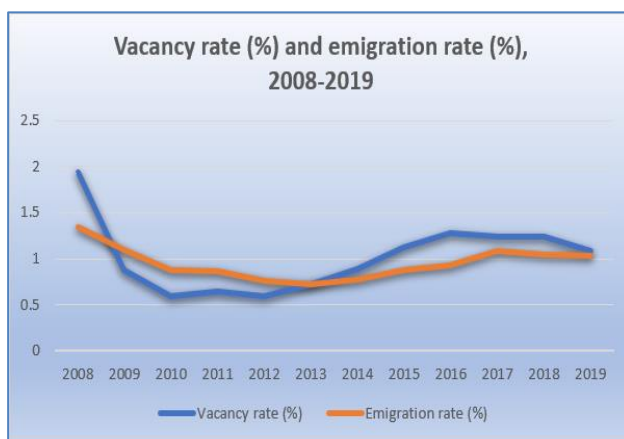


Figure no.5. Vacancy rate (%) and emigration rate (%), 2008-2019

Data source: authors' own contribution, based on data provided by the National Institute of Statistics, www.statistici.insse.ro

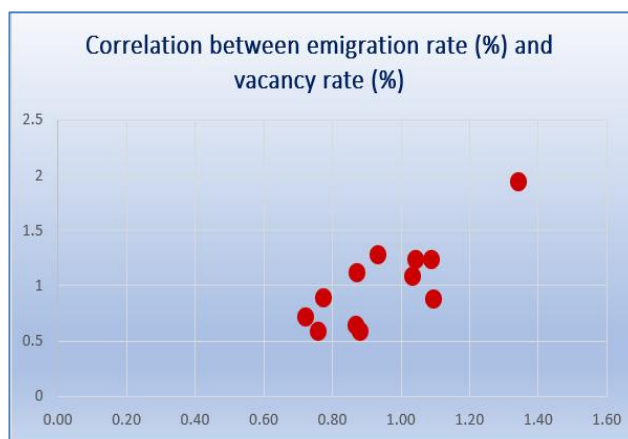


Figure no.6. Correlation between Vacancy rate (%) and emigration rate (%)

Table no. 2. Correlations

		Emigration_rate	Vacancy_rate
Emigration_rate	Pearson Correlation	1	.813**
	Sig. (2-tailed)		.001
	N	12	12
Vacancy_rate	Pearson Correlation	.813**	1
	Sig. (2-tailed)	.001	
	N	12	12

** . Correlation is significant at the 0.01 level (2-tailed).

Data source: authors' own contribution, based on data provided by the National Institute of Statistics, www.statistici.insse.ro

In Romania, there is also a reduced domestic geographic mobility of the workforce due to information obstacles, the relocation costs and housing deficit and reluctance to change residence. In general workers are attracted by biggest cities where the payment is higher. Even if in other regions is an important employer (for example Renault in South) the tendency is to find better-paid jobs in university cities such as Bucharest, Cluj or Timisoara.

Another important driver of labor shortage in Romania is **the demographic trend**. Reduction of the average birth rate, with large differences by ethnic groups give a structure of child training asymmetric to the present and future labor force requirements. Vulnerable groups and some ethnic groups traditionally have more children and usually they do not have access to quality jobs. Moreover, another reason for the decreasing birth rate is the migration – many Romanian children are born abroad and not everyone applies for Romanian citizenship.

Moreover, in Romania we assist to a demographic ageing and an extremely low rate of professional retraining of the elderly, associated with the high risk of unemployment for those aged 50 and over who have reached unemployment through the technologizing of activities - technological progress to replace manual labor.

Impact of labor shortages

According to a study conducted by PwC 2019 – European Private Business Survey, the shortage of skilled labor generates losses of over EUR 7 billion to Romanian entrepreneurial companies (approximately 3.7% of GDP). More than half of the Romanian entrepreneurs who participated in the survey stated that the difficulty of finding employees with the skills and qualification necessary to occupy certain positions limits their growth potential. Thus, 36% of them show that the shortage of skilled labor generates losses of up to 5% of turnover, 10% indicate losses between 5-10% of turnover and 6% say that losses exceed 10% of turnover value.

Lack of skilled labor negatively affects labor productivity and decreases the quality of work performed, which can jeopardize the sustainability and competitiveness of the business.

The measures that Romanian entrepreneurs take to attract specialists or to develop employees' digital skills are internal and external training, the recruitment of specialists in the field, respectively graduates, and the qualification of the workforce by collaborating with

start-ups in the technology field. In addition to this, filling vacancy is a time-consuming process, a statistic showing that companies lose 10% of their productive time with it, which is a very high cost especially for industrial employers. (Simion I., 2019; Oancea, D., 2019)

The difficulty of Romanian entrepreneurs to find a properly qualified workforce favours the disappearance of businesses and the increase of unemployment. Given the fast pace of changing the jobs typologies, under the impact of technical progress and the use of modern technology new jobs will appear that will replace those in some other sectors such as agriculture or manufacturing, and the labor shortage will be felt even more strongly. Under these conditions, the persistence of long-term unemployment will deepen social polarization, if retraining and vocational training measures are not adopted.

Theoretically there are internal human resources to cover this deficit, as Romania has a low unemployment rate at the moment, but also one of the highest shares of NEETS (Young people neither in employment nor in education and training, 15-24 years) in the EU (14.7%, after Italy with 18.1%, in 2019). At the same time, Romania has a high level of inactive population, one of the highest in the EU, and over 257 thousand unemployed are registered at the National Agency for Employment.

The deficit of specialists in different fields is felt dramatically on the Romanian labor market. Human Health and Social Work Activities and IT are two of the most affected sectors by labor shortage, under the impact of massive migration of specialists abroad. Some studies reveal that over 15,000 Romanian doctors work abroad, Romania being among the last European countries in terms of the number of doctors per 100,000 inhabitants. Thus, the Government was forced to take a series of measures to stop this phenomenon, such as salary increases for physicians, employment facilities for IT specialists in the diaspora or granting tax facilities to IT employees. (Melenciuc, 2018)

The territorial inequalities of the labor shortage are fueled by the development level of the region, the sectoral economic structure, the investments size, as well as by the average salary at regional level. If the top four regions with the largest labor shortage are characterized by a high development level, the last one (South-Muntenia) is in the lower part of the ranking, with a modest level of the main economic and social indicators, with a high risk of poverty or social exclusion rate (more than 36% in 2018) and a high temporary emigration rate. In these areas, the labor shortage could be covered by capitalizing on existing human potential at local level, by conducting education or training programs by interested companies, or by encouraging interregional labor mobility - which, in Romania, is limited.

Conclusion

More than half of Romanian entrepreneurs (52%) say that the lack of qualified staff generates financial losses, which, estimated for the entire economy, reach 7.1 billion euros. Companies lose also 10% of their productive time by filling vacancies, again a huge cost, especially for industrial employers. Most entrepreneurs face a lack of candidates especially when they want to recruit technicians, administrative staff or sales experts.

There is a demand for over 500 thousand jobs for qualified execution, technical and administrative staff in construction, hospitality, trade, manufacturing, IT - which cannot be covered although according to national statistics 500 thousand young NEET people and another 400,000 people are on the records of employment agencies, many of them working illegally.

Employers steal their employees from each other, giving them higher salaries, raising the bar of expectations (inversely proportional, however, to the level of qualification), manoeuvring in a slowly unsustainable direction. The state is equally affected. The main reason why progress on infrastructure projects is slow and why many investments are delayed is the labor shortage.

The massive migration of Romanian workers to the states of Western Europe, the aging population and the inadequate educational program are the main reasons that led to the current situation on the labor market.

The measures to reduce the gaps could be divided in measures on short term and measures on medium and long term. Importing labor may be a temporary solution for some sectors. Immigrants on the labor market are small and employment is done through recruitment and employment for a small number of companies in the processing industry, especially from Asian countries. "Romania is in the middle of a transition to the destination country of immigrants. The proportion of immigrants living in Romania increased 4 times between 2005 and 2017, from about 0.5 to 2% of the population (about 380,000 people) (Oancea, D. 2019). Approximately two thirds of the immigrants have (re) acquired Romanian citizenship and approximately one third (120,399) are foreign citizens legally residing in Romania (they only hold the citizenship of a state other than Romania) (Cosciug et al., 2019). In the medium and long term, however, companies should focus on adopting and implementing employee education and skills development programs, especially digital ones, given that in the next decade automation and the introduction of artificial intelligence will largely replace jobs that involve repetitive activities.

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