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UNDER PRESSURE: ROMANIA`S LABOUR MARKET REVIEW.

THE LABOUR SUPPLY AND DEMAND

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UNDER PRESSURE: ROMANIA`S LABOUR MARKET REVIEW. THE LABOUR SUPPLY AND DEMAND*

LUMINIȚA CHIVU**, GEORGE GEORGESCU**

Abstract: *The labour market in Romania is under the pressure of divergent factors, at the intersection of the labour demand and supply determinants. This paper is focusing on quantitative and qualitative analysis of the labour market in Romania, trying to identify its imbalances and to find ways for their mitigation considering the main trends, including the European labour market developments. From the perspective of the labour supply, despite massive emigration, is found that Romania still has an important human potential including an unused workforce reserve, but the performances of the education and training should improve for increasing the quality of competences and skills needed on the labour market. Looking at the demand for labour force, although under the circumstances of the lack of information for an accurate assessment, starting with 2012, as a general trend, the number of jobs created exceeded the number of job vacancies, the new created companies, with a higher degree of technology and more competitive, having significantly contributed to the increase in the employment rate. However, imbalances between the labour demand and supply have emerged and are growing, likely to become a severe obstacle hindering the development of Romania in the medium and long term.*

Keywords: *demographic trends, population aging, emigration, demographic and economic dependency ratio, labour market demand and supply, labour market tensions, internal mobility, labour shortages*

JEL: *E60, F22, F66, I20, J08, J10, J21, J23, J61*

1. Introduction

The paper focuses on one of the most acute problems that faces Romania, both currently and in perspective, which is part of the multidisciplinary generic issue of human resource management. The exacerbation of the problem in Romania have been caused not so much by the deterioration of the demographic indicators, which is a common issue at the level of the European Union, but especially by the phenomenon of emigration, whose size reached the values of a true exodus of the population, the number of people who left the country in the last 30 years amounting to 3-4 million, most in the workforce.

In many cases, the Western countries have attracted people from the Eastern countries, including from Romania, both with high and low qualifications, on the liberalized EU labour market and the intra-EU labour mobility benefitting, under non-competitive conditions and significant productivity differential, from higher wages and better living conditions.

Under these circumstances, the labour market in Romania has become under a growing pressure in the last years, the academic and business environment sending warnings, more and more sound, as concerns the emergence and deepening the labour shortages and the increasing difficulties for employers to find the personnel according to their needs.

* Acknowledgment: This study is the first part of a text revised by the authors and structured in three parts, based on the volume in Romanian: *Piața muncii în România. Repere cantitative și calitative privind deficitele de forță de muncă* ("The Labour Market in Romania. Quantitative and qualitative benchmarks regarding the labour shortages") prepared by KPMG (authors: M. Racovițan-coordinator, C. Stan, E. Vizireanu) and NIER (authors: L. Chivu-coordinator, G. Georgescu, S. Dinu, S. Cace, I. Băncescu), at the request of "Concordia" Employers' Confederation and published by the Economic Information and Documentation Centre, Bucharest, 2019. The Part II and the Part III of the study that presents the labour shortages landmarks and the demographic and labour market projections for Romania based on econometric models, together with policy recommendations for mitigating the quantitative and qualitative labour shortages are to be published soon in the NIER Working Papers.

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In this paper the labour market configuration in Romania is analysed, trying to identify its imbalances and to find ways for their mitigation under the consideration of the local and European main trends and developments. The study approaches the issues of labour supply and demand, presenting an outlook on the short, medium and long term perspective of the labour market in Romania, on the supply side analysing the possible trends, the impact of demographic indicators, including of emigration, trying to find out if there are some labour force unused reserves, examining also the performances of the educational and training system and, on the demand side, the available information for its correct and complete assessment, including the breakdown on occupational and territorial structures, in order to identify the labour market current and future imbalances.

2. The Structure of the Romanian labour market at National and regional levels

Our analysis of the labour market of Romania has been conducted based on several basic criteria, summarised below:

- The human resources of a country are a strategic resource for that country's economic growth and development. Therefore, forecasting about sustainable development is futile if demographic research fails to confirm the stability of the country's population trends.
- The multifaceted nature of the labour market requires the active contribution of all significant players – authorities, employer's organisations, trade unions, educational and vocational establishments – not only when consulted as sources of ideas for public policies initiatives, but also as promoters of their own initiatives, or as members of partnerships addressing specific issues.
- A complex x-ray diagnosis in terms of quantity and quality of the human resources, depends on access to information as recent and as detailed as possible, because labour market demands often call for a different speed of response than other markets.
- Sometimes statistic averages are deceivingly reliable with regard to the magnitude of certain all-nation aspects; not once, they may hide wide discrepancies between regions, age groups, and other segment categorisations.
- Before proceeding to the configuration of a development strategy, short, medium, or long term, the first questions that must find accurate answers are as follows:

- Who is going to carry out the strategy, respectively what human resources will be there to be mobilised, what will be their professional competences; and
- Who will the strategy target, what will be the configuration of the human resources at the time the strategy will have to be translated into practice, ad who will be there to benefit from it after it becomes fact.

With these references in mind, we have tried a diagnosis of the current configuration of the labour market in Romania, viewed from the two opposite angles: labour supply and employment opportunities, at national and regional levels. We have also endeavoured to identify the future trends of the labour market, on short and medium term.

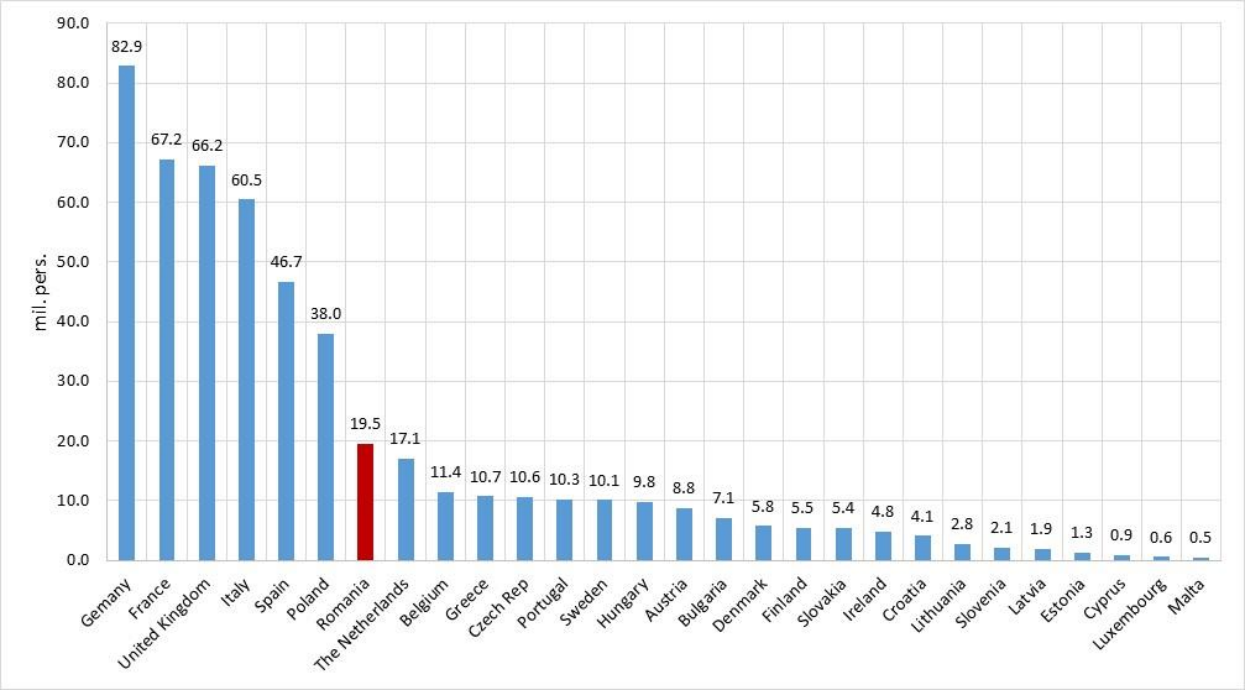
2.1 The labour supply

The labour supply depends on a multitude of factors, the key ones being related to the demographic indicators, including emigration, the demo-economic structures on age groups, the internal and external labour mobility, barriers to labour market entry, the socio-professional status of employment, the non-monetary characteristics of specific jobs, the performance of the educational system and the extent to which it is able to provide the needed competences required on the labour market.

2.1.1 Total population evolution; demographic and economic dependence ratios at national and local levels

According to Eurostat data, at 1 January 2018, the size of Romania's population placed it 7th among the 28 member states of the European Union. With a total of 19.5 mil. inhabitants, Romania's population was equal to the sum of the inhabitants of the last 9 states in the EU 28 demographic classification (Ireland, Croatia, Lithuania, Slovenia, Latvia, Estonia, Cyprus, Luxembourg, Malta) or to the sum of the populations of Bulgaria, Denmark and Finland (**Graph 1**). Population-wise, the free circulation of persons in the EU space has had, for Romania, consequences hard to compare, including the negotiations for the country's accession to the Schengen Area.

Graph 1: Population of EU 28 in 2018 (mil. pers.)



Source: Eurostat Data

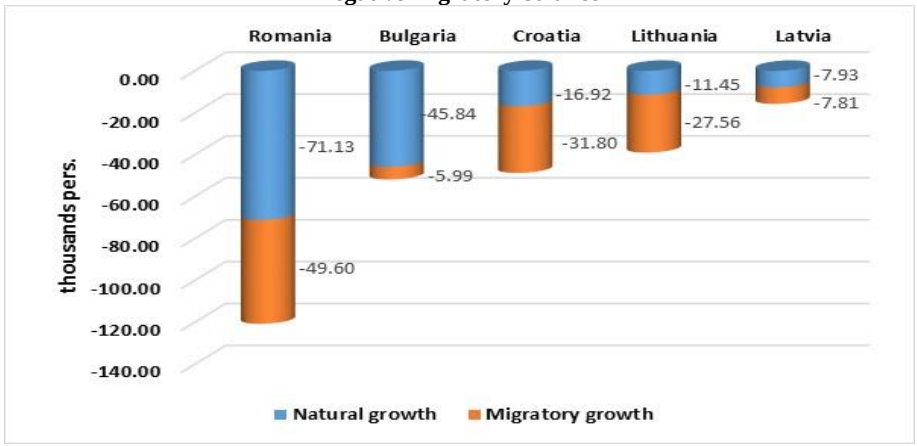
An analysis of the natural movement vs. the migratory movement of population reveals negative tendencies for Romania, unlike the evolutions in most of the other member countries. In 2017, Romania was one of the five member states (Bulgaria, Croatia, Lithuania, and Latvia being the other four) of the EU 28, which, in parallel, had both a natural demographic growth, and a negative migratory balance (**Chart 1**). In all the other member states, the migratory balance was positive, and, in 18 of them, this counteracted the loss of population caused by declining birth rates.

It is important to note that, in Romania's case, the migratory balance was determined taking into account only the definitive emigrants, i. e. Romanians who have obtained permanent residence abroad, without considering the temporary emigrants, i. e. persons living or planning to live abroad for at least 12 continuous months.

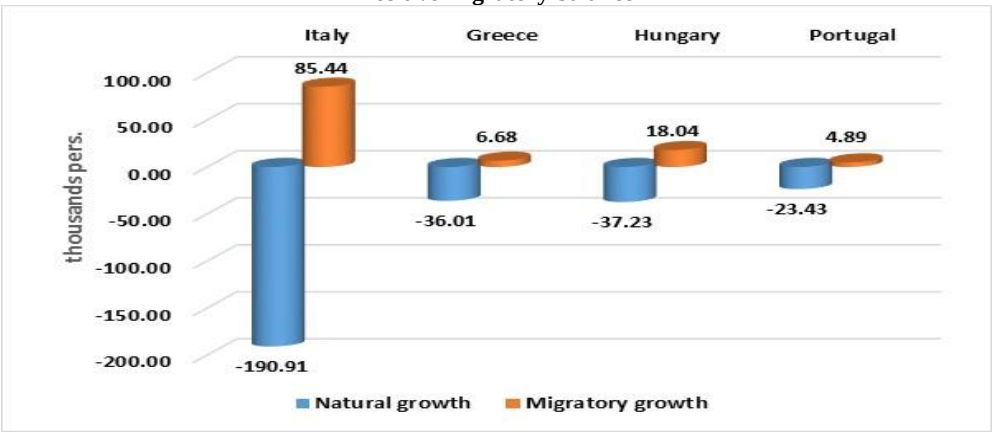
According to INS data, the number of temporary emigrants from Romania has been growing from 172,871 persons in 2014, to 194,718 in 2015, 207,578 in 2016, and 219,327 in 2017. The probability of turning from temporary to permanent emigrant is quite high, particularly among young persons. The dropping curve of Romania's demographic evolution in the past three decades and the estimates for the following 40 years are contrary and in sharp contrast to the general population growth tendency of the EU 28.

Chart 1: Demographic models in EU 28 - 2017

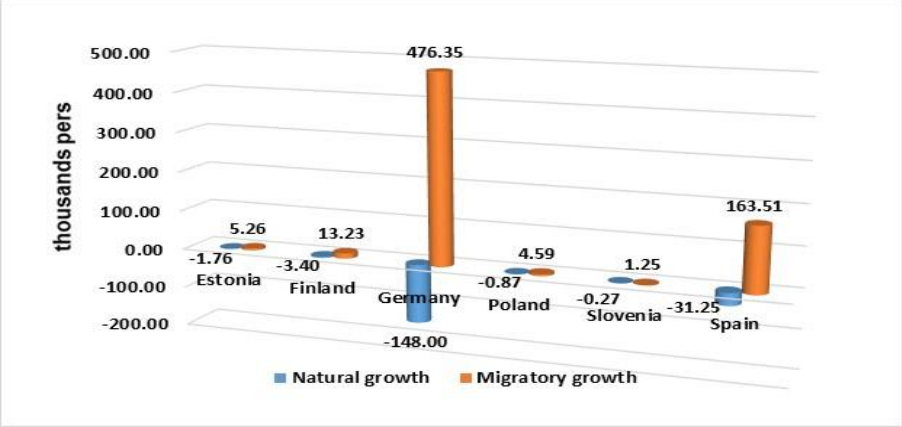
Negative growth. total
Negative natural growth
Negative migratory balance



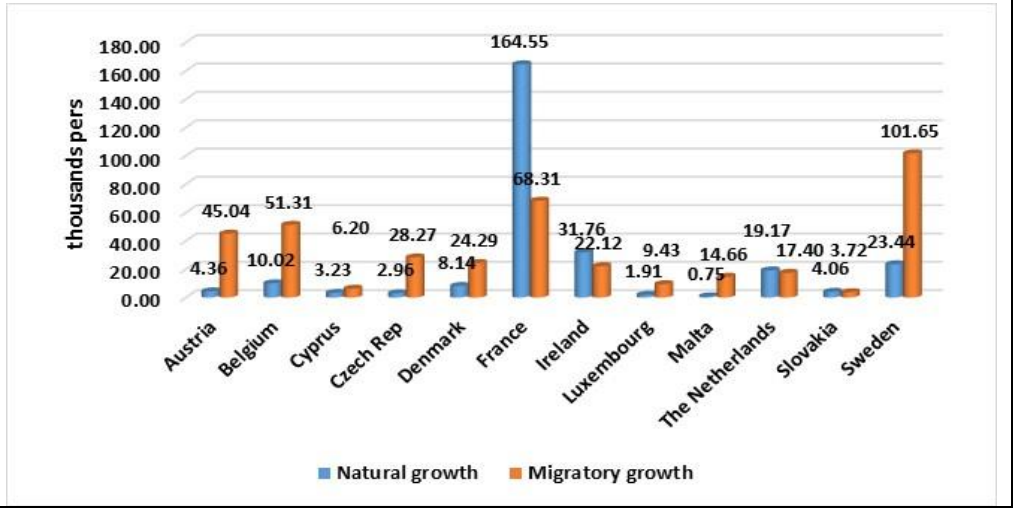
Negative growth, total
Negative natural growth
Positive migratory balance



Positive growth, total
Negative natural growth
Positive migratory balance



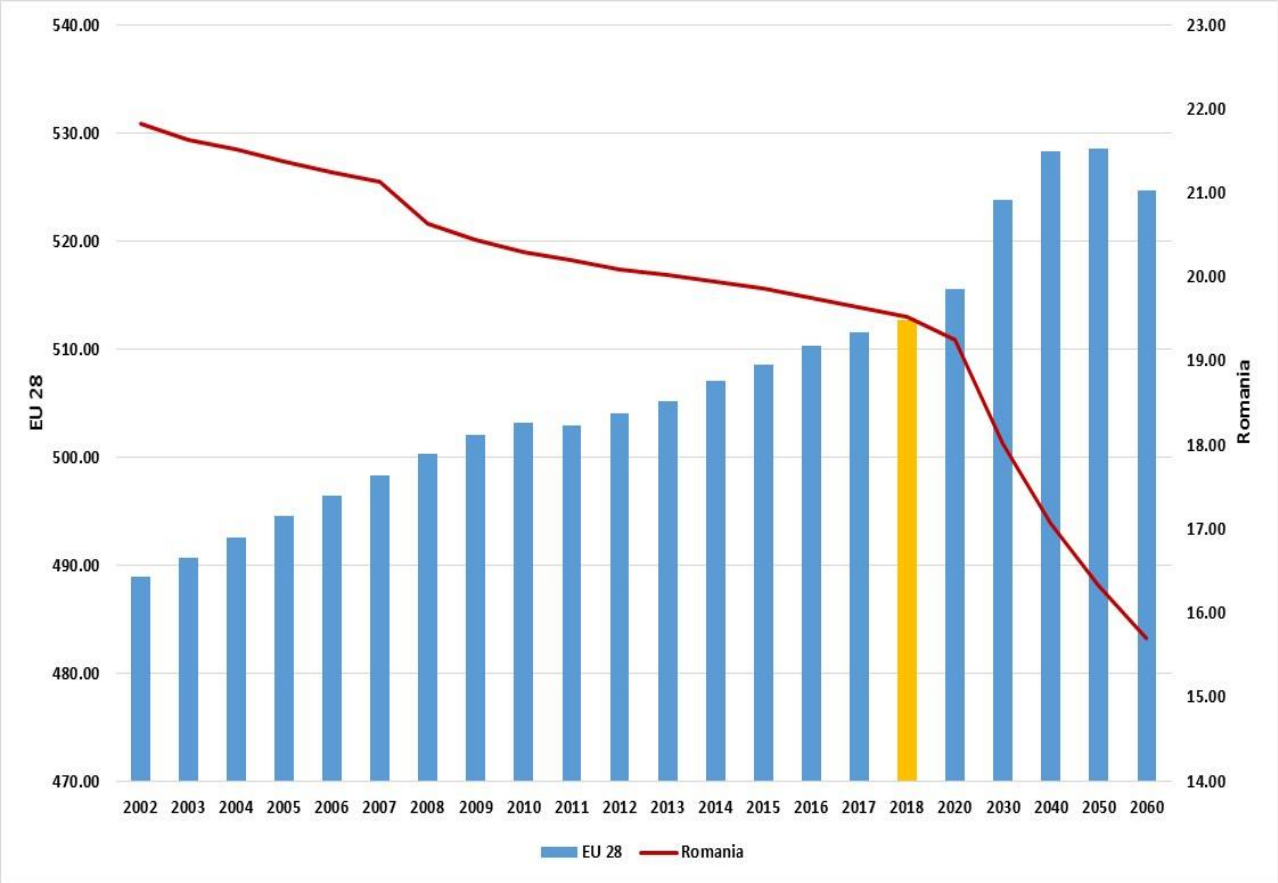
Positive growth, total
Positive natural growth
Positive migratory balance



Source: Authors' compilation based on Eurostat data.

The descending trend of the demographic evolution of Romania's population, and the forecasts for the following 40 years are contrary to the general demographic tendencies in the EU 28 (**Graph 2**).

Graph 2: Evolution of populations in EU 28 and Romania, in 2002-2018, and forecasts up to 2060 (mil. pers.)

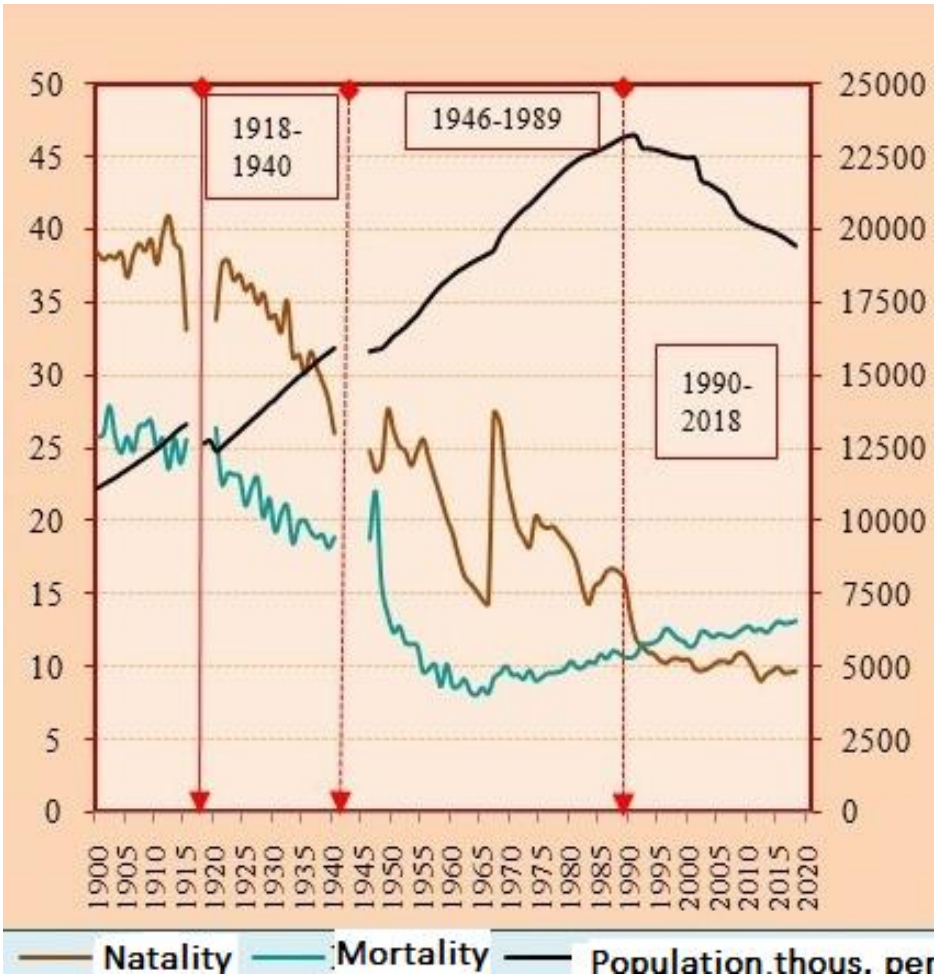


Source: Eurostat Data.

The reversal of the demographics of Romania since 1990 is seen by Professor Vasile Gheţău as having a double cause: a certain degree of stabilisation of the size of annual emigration flows, and the sharpening of the decline of natural birth rates. The natural decline of population growth exceeded the number of 1000000 inhabitants, in the period 1990-2018. The natural decline derives from a much wider array of factors than emigration (**Graph 3**). Contributing to the natural demographic decline are a complexity of economic, social, cultural, health, and other, factors that work upon a nation in various ways, with effects that appear after a while. Such factors often have in common features like stability, inertia, rigidity. In the past years, the number of new-borns has been fluctuating around 190 thou', and the number of deaths around 260 thou'. The difference between these figures is the natural loss of population of -70 de thou' inhabitants[1].

[1] HotNews. "Interview of Prof. Vasile Gheţău: We are at the beginning of the 30th year of degradation of Romania's demographic status. This is the Graph that should lie on the desks of all Romanian decision-makers". 9 December 2018.

Graph 3: Birth and death rates (per 1,000 people), and the number of population (thousand persons), during the period 1900-2018



Source: Vasile Gheţău, 2018.

Young people form a family at a later age. Young women have the first child at a later age. Women give birth to much fewer children during their lifetime. Here are only some of the causes of the decline of the natural population growth.

INS data include among the effects of young people's emigration the birth of a significant number of new-borns abroad, children that have their usual residence in Romania, and that, in 2015, totalled some 26 thou', while in Romania the number of new-borns the same year was 175 thou'.

An opinion poll conducted in 2015, on intentions and causes of emigration, as part of the Youth Mobility project, revealed that 47% of the youths aged 16-35 years in Romania were planning to emigrate sometime within the following 5 years (**Table 1**).

One other information that derived from the poll was the widely spread nature of this trend in other member countries except Romania, with various intensities between one country and another.

It is worth noting the significant shares of youths with a primary level of education (57%), and with a secondary level of education (47%) who contemplate emigration.

Table 1

Share of youth aged 16-35 years who affirmed their intention to emigrate within the next 5 years, by country and level of education (%)

	Level of education					
	Primary	**Secondary**	**Post-secondary**	**Tertiary - licence**	**Tertiary - master**	**Total**
Romania	57	47	44	47	43	47
Italy	45	38	44	51	45	45
Ireland	26	41	33	46	43	39
Spain	30	34	35	41	45	39
Germany	30	33	35	38	40	35
Slovakia	46	31	26	35	26	32
Sweden	32	37	27	36	37	32
Latvia	31	30	30	26	22	29
United Kingdom	34	23	24	30	33	27

Source: Prof. Dumitru Sandu in: "From Patterns to Policies in the Romanian Migration Abroad", presentation at the Institute for Liberal Studies. 7 December 2018. Authors' compilation via YMOBIILITY.

The poll above revealed that the decision of Romanian youths aged 16-35 to emigrate has behind it a plurality of motives (**Table 2**).

Table 2

Motives for emigration of youths contemplating emigration within the next 5 years (% youths who stated their main motive of all motives)

Motives to emigrate/to stay	**Nordic model**				**South-East European model**				
	Germany	Sweden	United Kingdom	Ireland	Slovakia	Latvia	Romania	Italy	Spain
Salaries	67	64	68	73	75	75	71	68	69
Reuniting with family	53	56	57	53	59	58	46	32	52
Language barriers	33	26	43	32	39	36	29	33	45
Employment opportunities	73	73	71	73	67	69	70	70	72
Accommodation standards	64	71	56	49	59	60	54	51	47
Health care	60	58	56	52	44	51	52	45	38
Climate	49	53	46	44	27	39	28	37	31
Standard of living	63	65	73	67	60	65	66	65	59
Life style and culture	50	49	59	59	41	39	49	47	45
Closeness with friends	35	33	35	36	38	29	24	23	30
Acquiring new professional knowledge	49	48	47	59	66	53	63	63	58
Corruption	40	40	43	42	33	36	52	54	45
Education	31	41	33	39	48	35	50	50	56
Carrier advancement	58	55	57	64	57	64	62	61	69
Public services	41	33	45	46	36	48	44	52	41
Improving language skills	61	51	38	35	61	56	50	62	65
Corporate policies	26	33	23	28	39	36	41	37	28

Source: Prof. Dumitru Sandu in: "From Patterns to Policies in the Romanian Migration Abroad", presentation at the Institute for Liberal Studies. 7 December 2018. Authors' compilation via YMOBIILITY.

In addition to the main three motives to emigrate – better pay, employment opportunities, or standard of living – young people also pursue the **acquisition of more professional knowledge, career advancement, better accommodation, health care, a lower level of corruption, education, more client-oriented public services, corporate policies.**

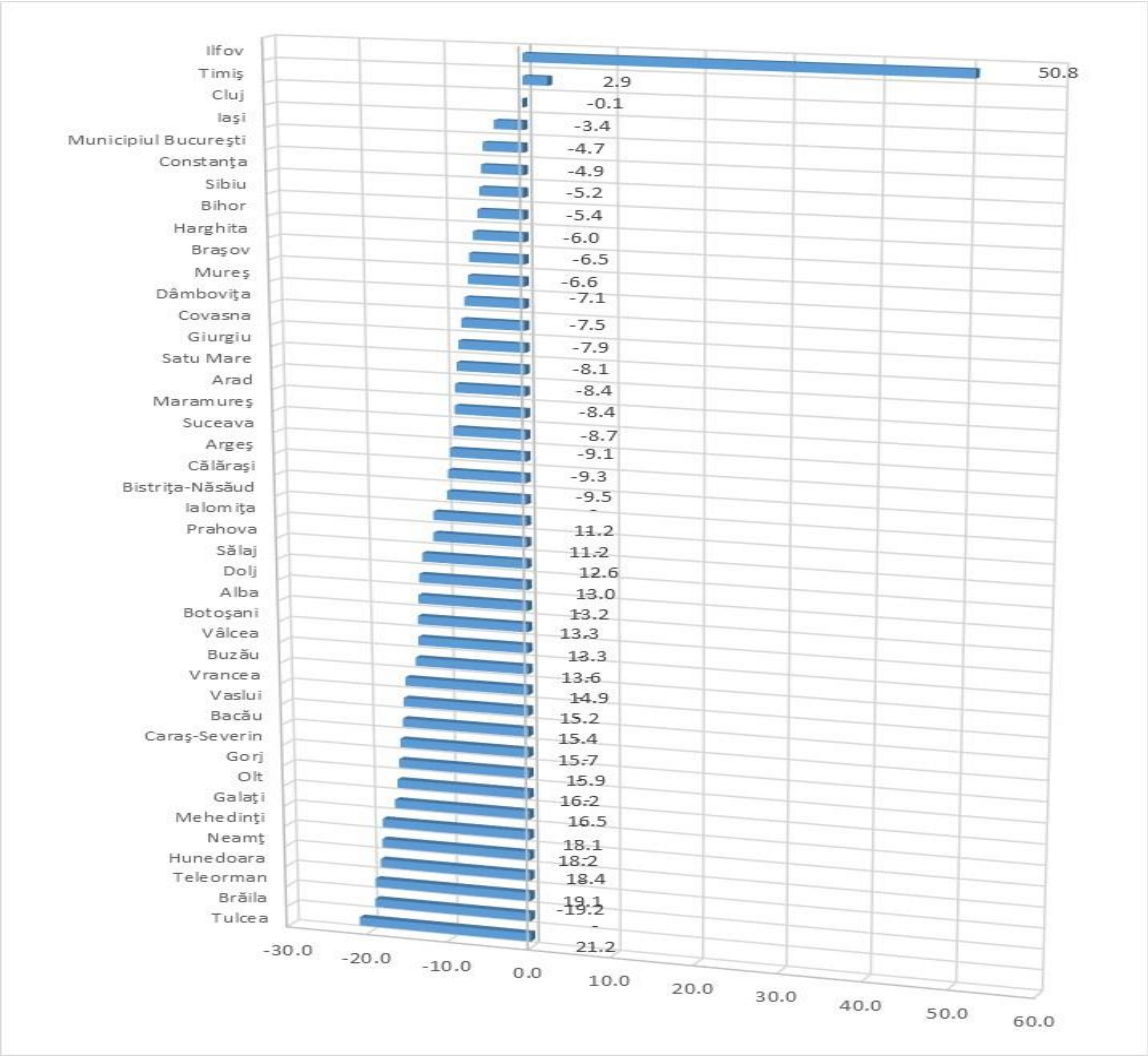
The complex nature of demographic tendencies and emigrational behaviour require in-depth studies enabling decision-makers to understand the causes, and figure out urgent measures and strategies designed to forestall the perpetuation of this negative tendency.

The decrease by some 13.6% of Romania's total population in the past 15 years alone (2002-2017) has distribution patterns that vary from one place to another in territory: from a highest 50.8% in the population of Ilfov County, to a lowest 2.9% in the Timiș County (these being the only two counties with a positive demographic growth), to shrinking demographics of 21.2% in Tulcea County, or 18-19% in the counties of Mehedinți, Neamț, Hunedoara, Teleorman, Brăila (**Graph 4**).

These trends are reflected in the rising curve of the total demographic dependency ratio, as an effect of a decreasing dependency ratio of the young population, and an increasing dependency ratio of the elderly, and they may destabilise macroeconomic balances.

While in 2002, for every 100 persons in the age group 15-64 years, the average of persons aged below 15 years was 25.8 persons, and 20.6 persons aged 65+, in 2018, every 100 active persons included 23.0 young persons, and 27.4 elderly persons.

Graph 4: Shifts in the demographic patterns of Romania, by county, 2002-2017 (%)

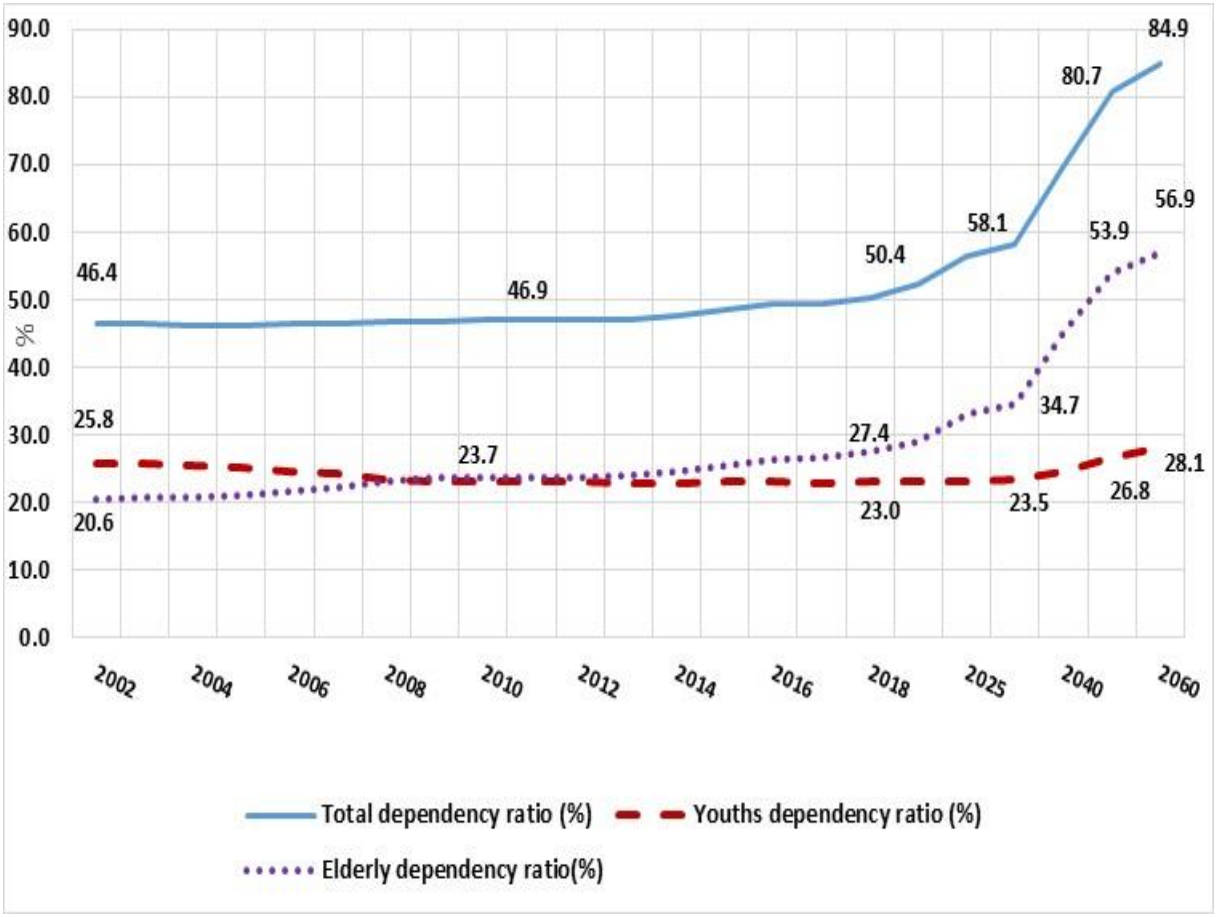


Source: Authors' compilation of INS data. Tempo online.

Assuming that the level of the current trends is constant, Eurostat forecasts that **the dependency ratio of the elderly is likely to grow to 34.7% by 2030, to 53.9% by 2040, and to 56.9% by 2060, in parallel with a rise of the young people's dependency ratio to 23.5%, 26.8% and 28.1% by the same reference years** (**Graph 5**).

On the average, in 2002, for every person aged below 15 years, there were 0.8 persons aged 65 and over, in 2008, the ratio between the populations of the two age groups was 1:1. while Eurostat estimates that the ratio will be 2 persons under 15 for every 3 elderlies by 2030, and 1 young person below 15 for two elderly persons aged 65 and over, by 2060.

Graph 5: Demographic dependency ratio in Romania during 2002-2018, and estimations until 2060 (%)



Source: Authors' compilation of INS data, and Eurostat forecasts.

N.B.: Demographic dependency ratio = (Population aged below 15 years + Population aged 65 years and over)/(Population aged 15-64 years) *100

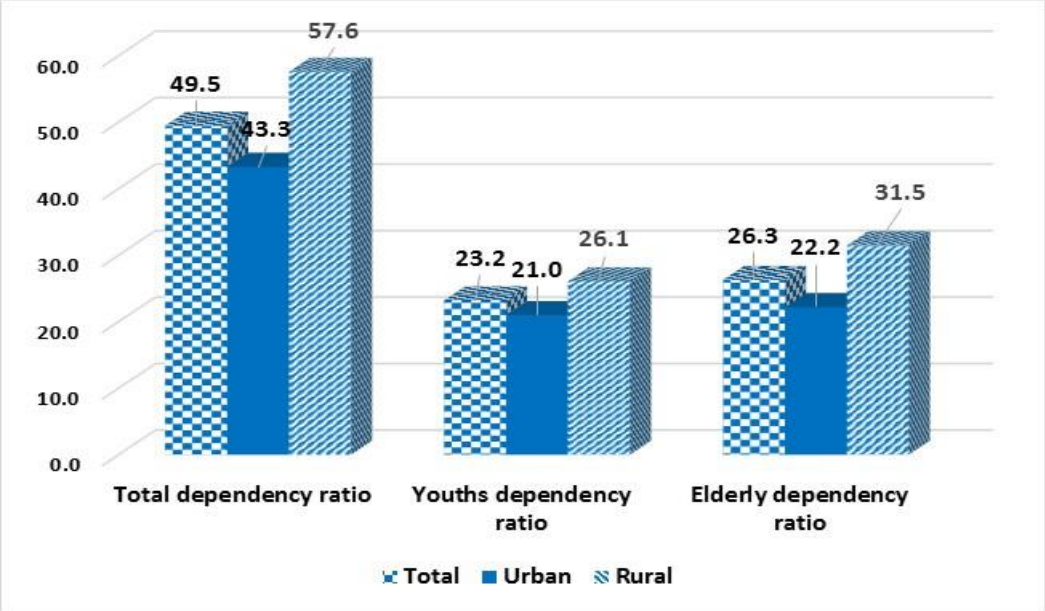
Youths dependency ratio = (Population aged below 15 years)/(Population aged 15-64 years) *100

Elderly dependency ratio = (Population aged 65 years and over)/(Population aged 15-64 years) *100

These estimates predict an **imbalance between inputs and outputs of active population**. The active population as a share of total population dropped to 66.5% in 2018, and, foreseeably, will further drop to 63.2% by 2030, and to 54.1% by 2060. In terms of numbers, the active population shrank to 12.96 mil. persons by 2018, and will further drop to 11.39 mil. pers. by 2030, to 10.05 mil. pers. by 2040, and to 8.49 mil. pers. by 2060.

The total demographic dependency ratio varies considerably with the residential environments. In 2017, both among the elderly and among the youths, the demographic dependency ratio was higher by 5 and, respectively, 9 percentage points in the rural areas, than in urban areas (**Graph 6**).

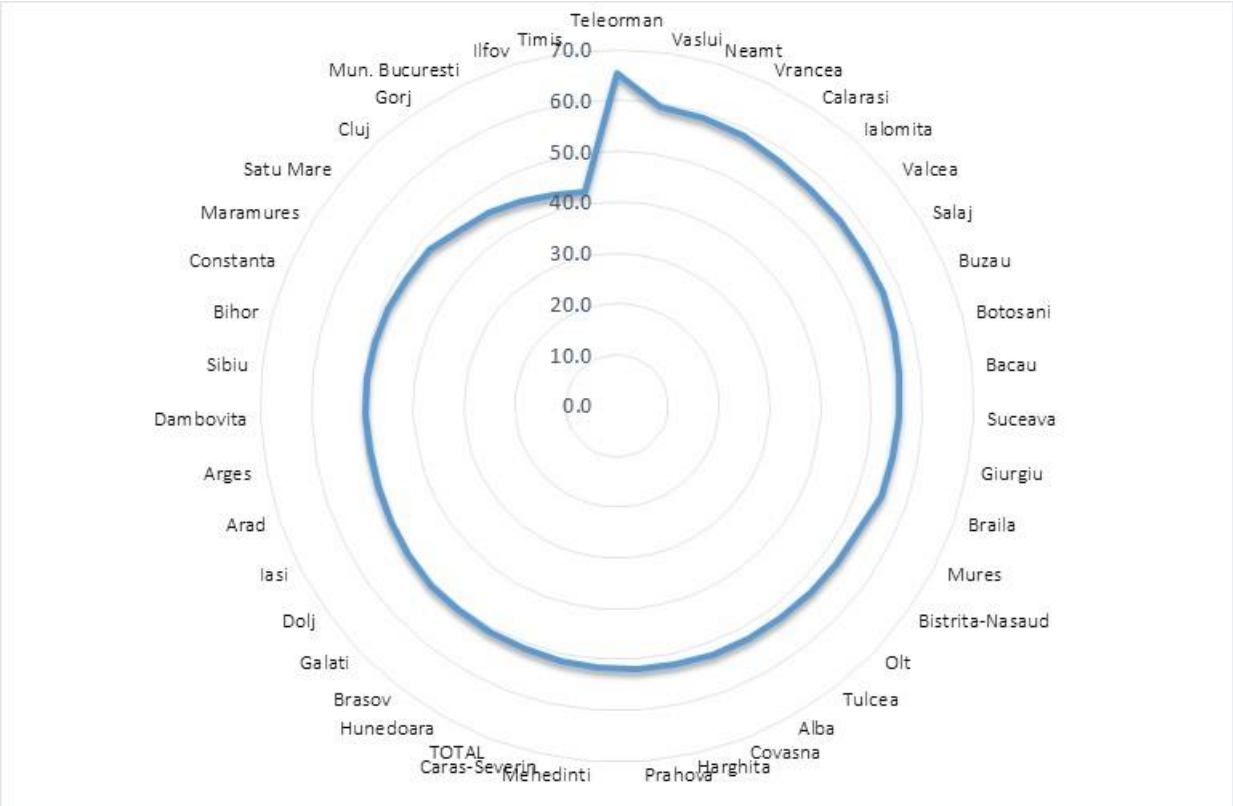
Graph 6: Demographic dependency ratio in Romania, as a total, and by residential environment, 2017 (%)



Source: Authors' compilation of INS data.

The demographic dependency ratio differs greatly from county to county. In 2018, for example, the highest demographic dependence rate was scored by the County of Teleorman: 65.3%, compared to only 43.2% in Ilfov County (**Graph 7**).

Graph 7: Romania's counties by their rates of demographic dependence, 2012-2018 (%)

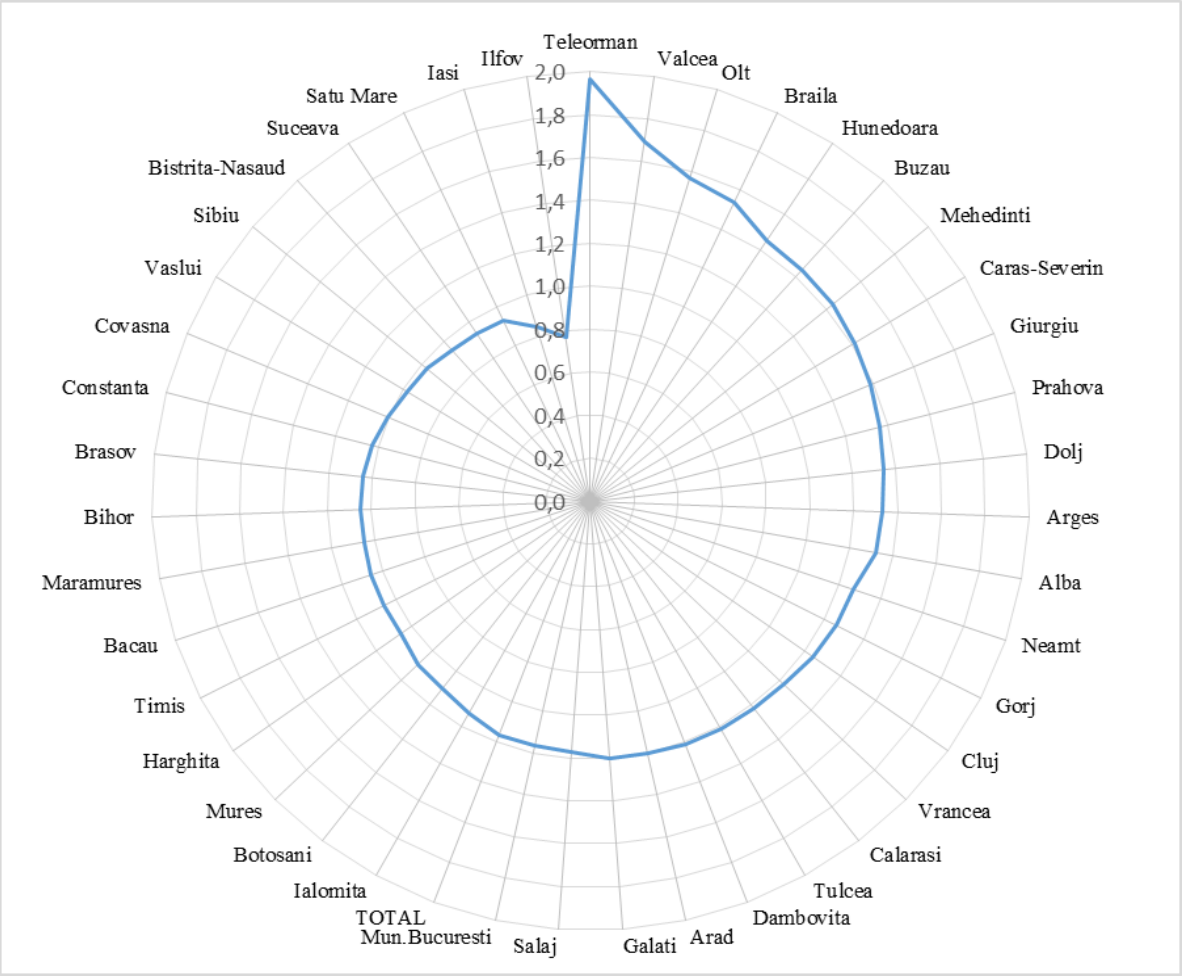


Source: Authors' compilation of INS data. Tempo online.

Similarly, great discrepancies can be noticed between the dependency ratios among the elderly and the youth in three counties.

INS data show that, in 2018, for every young person aged below 15, there were 2 persons on the average, in the age segment 65 and over in Teleorman County, 1.7 in Vâlcea County, while in other counties, Maramureș, Bihor, Brașov, Constanța, Covasna, Vaslui, Sibiu, the ratios between the populations in the two age segments was 1:1, with a ratio of 0.8 persons aged 65 and over for each young person aged below 15 (**Graph 8**).

Graph 8: Classification of counties by the average number of elderly persons (65 years and over) as a parity to each young person below 15 years of age), 2012-2018



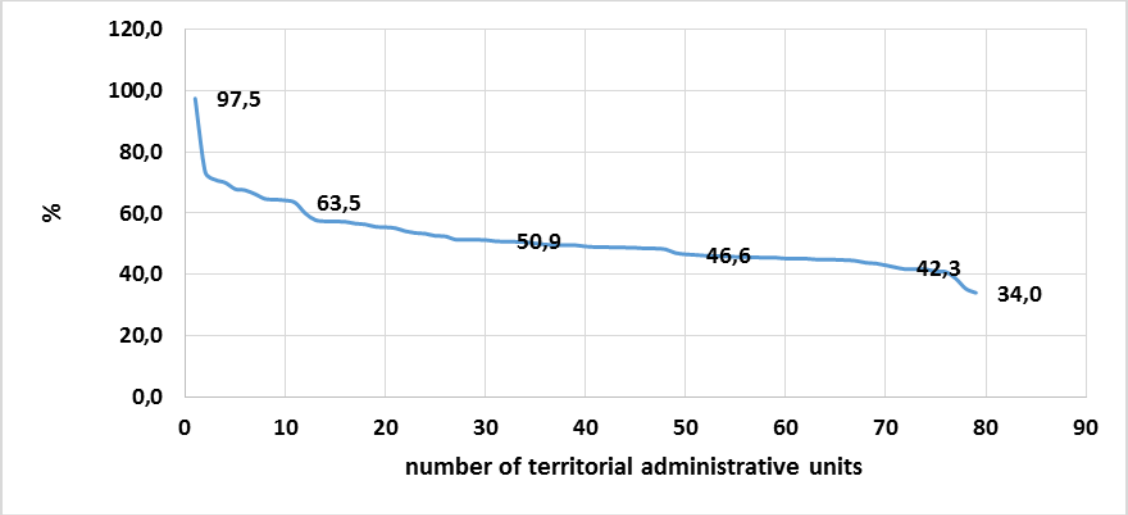
Source: Authors' compilation of INS data. Tempo online.

The improper ratio in 18 of the counties triggers the alarm **on the risk of depopulation in certain areas, and on the existence of serious demographic imbalances between settlements within the same county, which may jeopardise these territorial entities' sustainability.**

To illustrate, we have analysed the demographic dependency ratio in Alba County's 78 administrative divisions (AD).

The results of this analysis, based on INS data, revealed a dependency ratio ranging from 97.5% in Ohaba Commune, 73.5% in Mogoș Commune, 34.0% in the town of Abrud, and 35.3% in the town of Baia de Arieș (**Graph 9**).

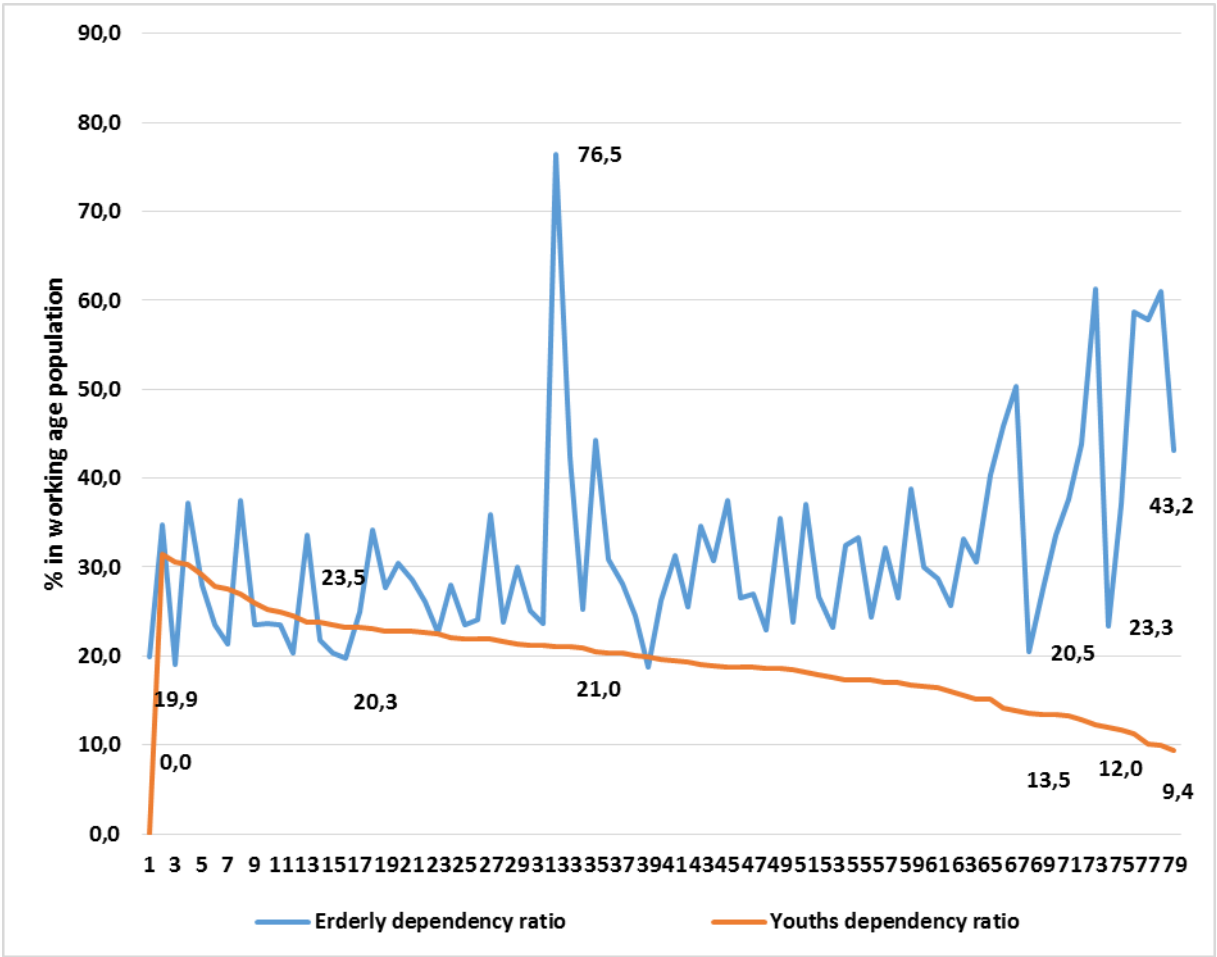
Graph 9: Total dependency ratio in the Alba County ADs, 2018 (%)



Source: Authors' compilation of INS data. Tempo online.

Big gaps can be also noticed in the dependency ratio of young people and elderly people, with distinct patterns between settlements, pro rata to the relation between the two types of dependence: among the youths and the elderly. These will require different strategic approaches, depending on the human resources available in each group (**Graph 10**).

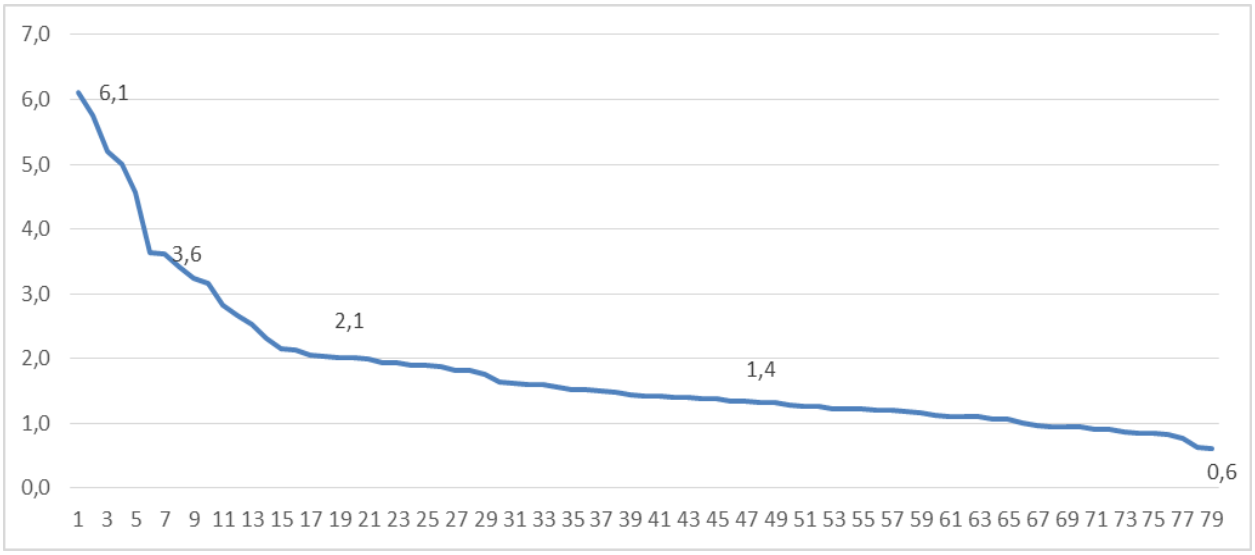
Graph 10: Dependency ratio of young people and elderly people in the Alba County ADs, 2018 (%)



Source: Authors' compilation of INS data. Tempo online.

The average number of elderly (65 years and over) for each young person aged below 15, in the 78 ADs of Alba County, ranged from 6.1:1 to 0.6:1 (**Graph 11**).

Graph 11: Average number of elderly for each young person 15 and below, in the Alba County ADs, 2018 (%)

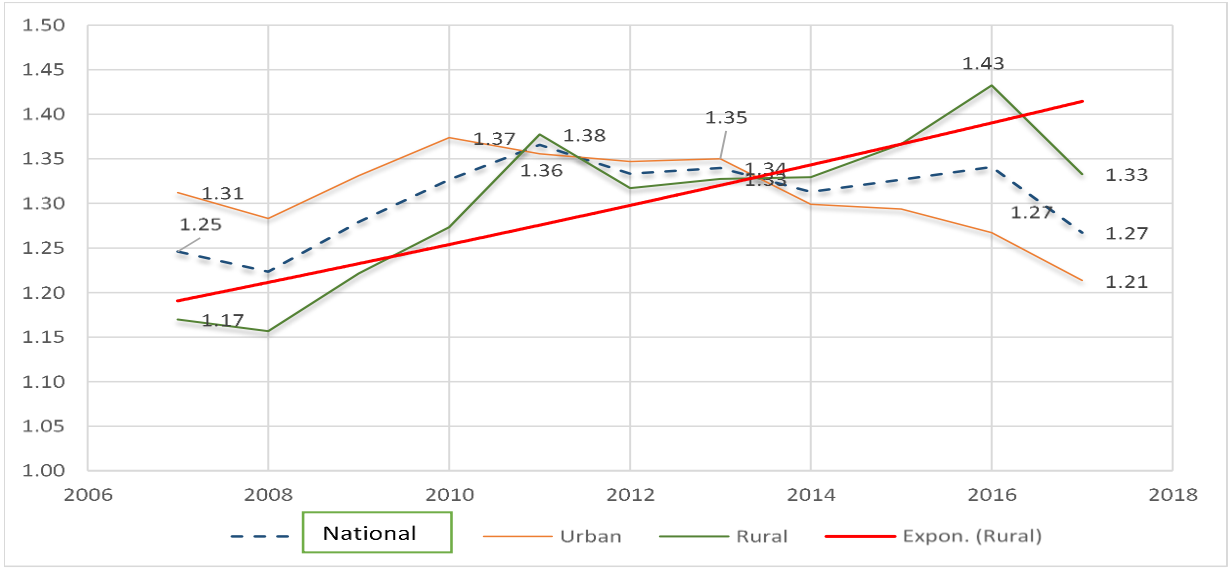


Source: Authors' compilation of INS data. Tempo online.

In more than 20 of the 79 ADs of Alba County, the number of elderly for one young person was higher than 2. These alarming averages question the very existence of some of these settlements, which are threatened, on medium and long term, with the disappearance from the map.

The high demographic dependency ratio is worsened by a high **economic dependency ratio**, calculated as the average number of inactive and unemployed persons for every one employed person. This indicator is fluctuating, but its overall multi-annual trend is on the rise (**Graph 12, Table 3**).

Graph 12: Economic dependency ratio in Romania, 2000-2017 (%)



Source: Authors' compilation of AMIGO, INS data. N.B.: Economic dependency ratio = (Inactive population +Unemployed)/Employed population

Table 3

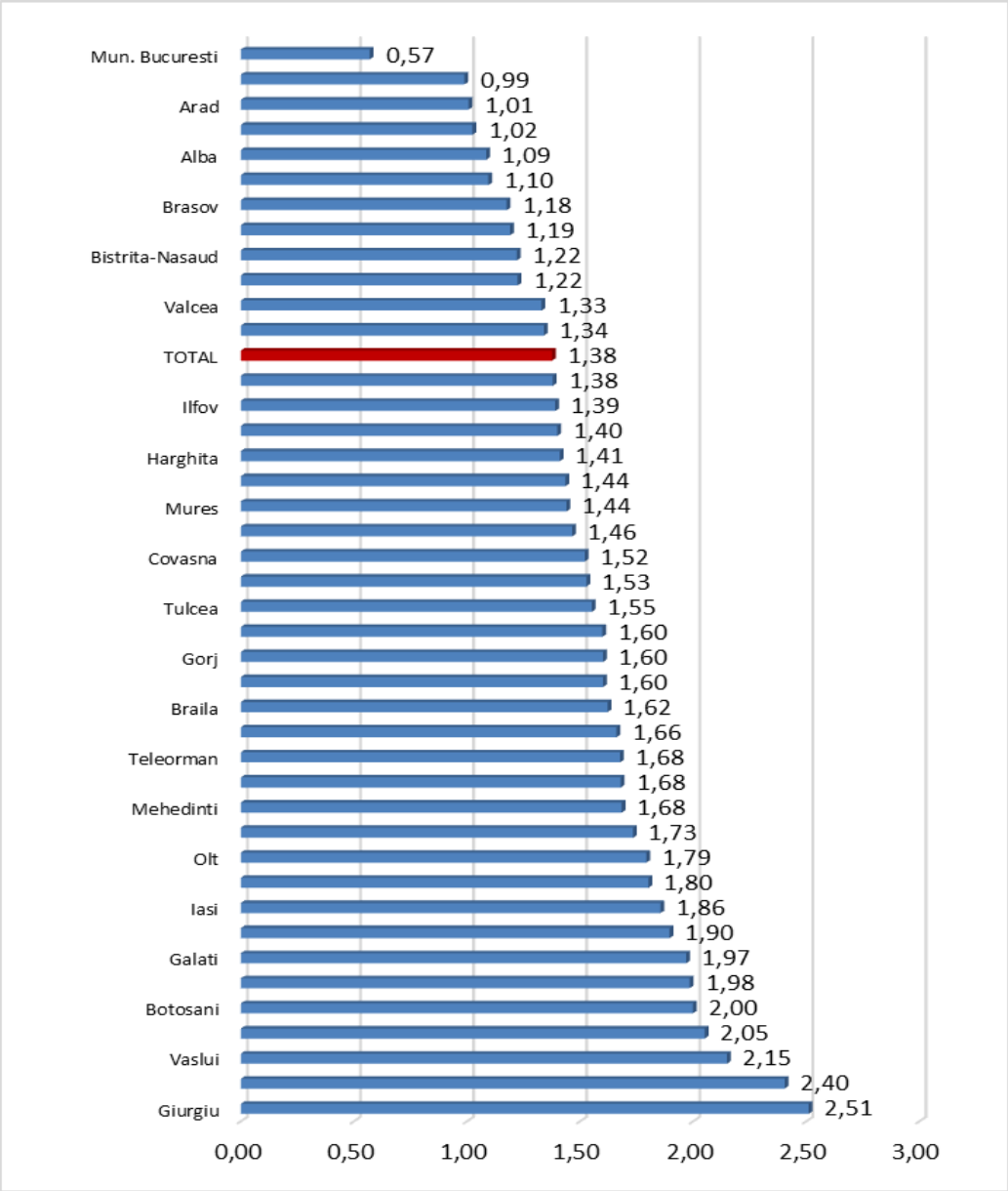
Economic dependency ratio as a total, and by residential environment, Romania, 2002-2017

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
All-nation	1.25	1.22	1.28	1.33	1.37	1.33	1.34	1.31	1.33	1.34	1.27
Urban	1.31	1.28	1.33	1.37	1.36	1.35	1.35	1.30	1.29	1.27	1.21
Rural	1.17	1.16	1.22	1.27	1.38	1.32	1.33	1.33	1.37	1.43	1.33

Source: Authors' compilation of INS data. AMIGO.

The economic dependency ratio varies considerably from county to county (**Graph 13)**. The average ratio of 1.38:1 derives from a minimum of 0.57:1 in Bucharest City's case, and maximums of 2.41 in Călărași County, and 2.51 in Giurgiu County.

Graph 13: Economic dependency ratio by county, 2016



Source: Authors' compilation of INS data.

The share of waged workers in the total employed population also shows large differentials, which reflect the dissimilarities between local economies, and the ability of the local authorities to create employment opportunities or to encourage investors that do this.

2.1.2. Demo-economic structures by age groups and local levels

The labour supply comes from the active population, some of them already employed, others, capable of work, but unemployed and looking for a job, and also from the segment of inactive population that can be tempted to switch to being active. In the case of employees and unemployed persons, the interested entities can provide such persons the opportunities of vocational readjustment / reskilling, and/or stimulate them to accept geographical mobility schemes within the administrative entity concerned, etc.

In some of the European Union member countries, one of the solutions found was to group enterprises of a similar industrial profile in clusters, for a more efficient vocational (re)training, and, in some cases, even to exchange personnel between employers, on a temporary basis, for a better use of the labour resources. Such employers jointly organise vocational readjustment/reskilling courses that help employees acquire better skills or a wider range of competences.

The segment of inactive persons includes: pre-academic and academic students, retirees, individuals dependent on government subsidies or on other persons, persons depending on other types of revenues (rentals, interest, etc.), and housemakers.

Students aged 16 years and over are deemed to be active persons when they leave the educational system. Therefore, for the purposes of our study, it is of interest to examine the number of graduates during the past years, by level of education and professional profile, and their degree of suitability to the real demand of the labour market, and, no less, the number of students that drop out before graduation.

An easy way to gain more labour force and compensate for temporary labour deficits would be to lift age barriers for the retirees that can and wish to continue working, by way of facilitating their employment for part-time or temporary jobs. Given their work experience, this category of employees could also play an important part in the training of younger personnel.

Similarly, the persons who are capable of work, but are dependent on other persons, or on government subsistence schemes, or who rely on other types of revenues, (rentals, interest, etc.), as well as homemakers, can be stimulated to switch from an inactive to an active life, through specific measures.

The authorities empowered to take action to this effect can design and put in place strategies to curb emigration, to encourage the homecoming of the Romanian émigrés, or to bring in capable workers from other labour markets.

In 2017, in a total population of approximately 19.7 mil. residing in Romania, only 46.3% of them were active persons (**Chart 2**).

Chart 2: Structure of the resident population of Romania by class of economic contribution, in 2017

Average total resident population – 19,659,033 persons				
Active population – 9,119,887		**Inactive population – 10,539,146**		
Employed population	**Unemployed**	**Retirees**	**Students**	**Individuals dependent on other persons, on government subsistence schemes, or on other income sources (rentals, interest, etc.), and homemakers**
8,670,557	449,331	5,054,090	3,578,561	1,906,495

Source: Authors' compilation of INS data. Tempo online.

Active persons totalled 8.7 mil. employed persons, and 449,331 unemployed persons.

The greatest share of the approximately 10.5 mil. inactive persons was that of the retirees (48.0%), followed by secondary and higher education students (34.0%).

The individuals depending on other persons, on government subsistence schemes, or on other types of income (rentals, interest, etc.), and homemakers, totalled, in 2017, a number of 1.91 mil., which accounted for some 18.1% of the entire inactive population of Romania.

The rather scanty information on this issue did not allow us to determine with accuracy the population segments forming the category above, but some features can be traced. In 2017, the records of the National Authority for the Disabled included some 750,000 disabled persons, who had no employment. The records of the National Agency for Social Payments and Inspection showed that approximately 250,000 were recipients of the indemnity granted by the state as a minimum guaranteed income.

Another, large, category, for which the most recent data go back to 2011 (based on the population census of that year) is that of homemakers: 1,185,676 persons.

Although housework, mostly done by women, is labelled as belonging to the so-called non-market production of goods and services, and is therefore excluded from the creation of GDP in Romania's National Accounts System, certain studies on this issue demonstrated the importance of household work both in respect of its contribution to the social and economic life, and as a contribution to people's revenues and consumption. In the United States, for example, the worth of housework was estimated as accounting for 31% to 47% of household revenues in 2003[2]. In the OECD countries, the total number of hours of unpaid work in the non-market household activities, even during the decreasing tendencies of the 1990s, was almost equal to the number of hours worked and paid for in market activities. The experience of the developed countries shows that the reduction of women's housework and their integration in the labour market depends on the evolution of costs of services such as cleaning, child care, elderly nursing, etc., from opportunity to accessible costs for the potential earnings accruing from paid work. Depending on the specific conditions of each country, the government may intervene in various forms: providing such services, or subsidising them.

An inquiry in the Youths' Access to the Labour Market – 2016, identified a number of 969,230 young people with ages between 15-34 years, who were neither present on the labour market as employed or unemployed persons, nor recorded as students in the educational system.

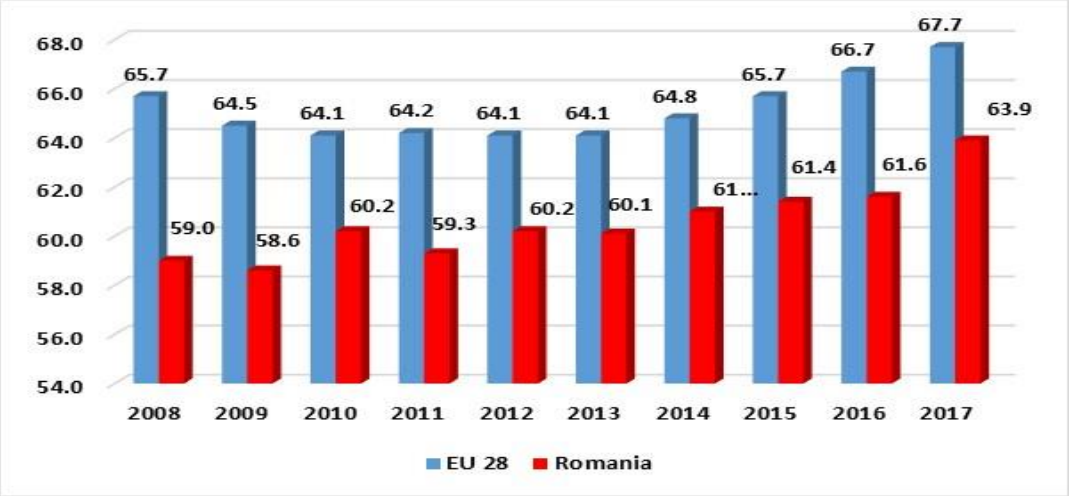
It is true that there are overlapping areas of the categories above: one and the same person may fall into two or more categories.

Although the employment rate of the persons aged 15-64 years has had an ascending trend in the past years, it still features some 4 percentage points under the EU 28 average (**Graph 14**).

With a constantly growing emigration trend, during the reference period 2008-2017, Romania has been under the EU 28 average (**Graph 15**), but is still high in the unemployment rate among persons under the age of 25 years (18.3% in Romania, in 2017).

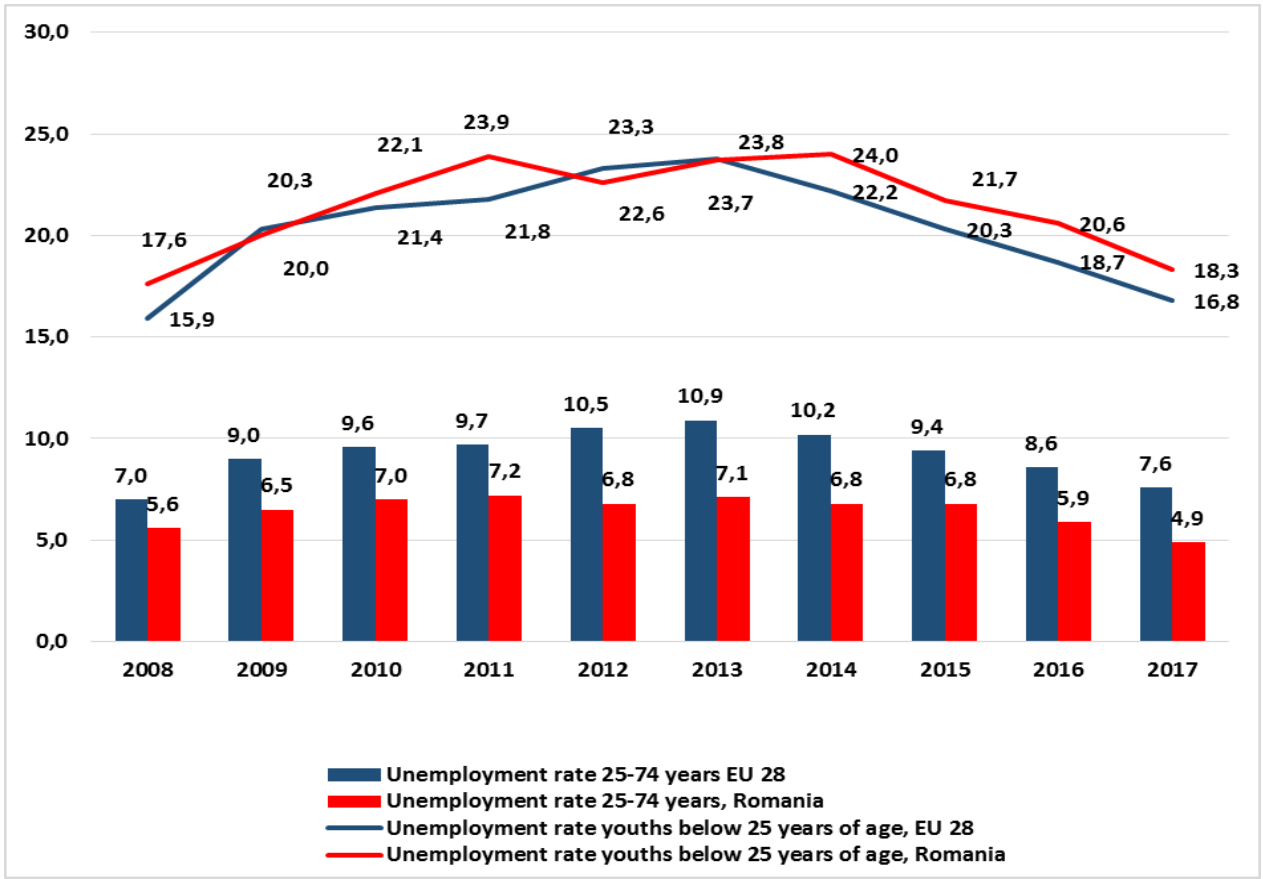
[2] Franzis, Henry, and Jay Stewart. 2011, "How Does Nonmarket Production Affect Measured Earnings Inequality." *Journal of Population Economics* 24(1), p. 11.

Graph 14: Employment rate of persons aged 15-64 years in EU 28 and Romania, 2008-2017 (%)



Source: INS and Eurostat data.

Graph 15: Unemployment rate among youths below 25 years of age, and persons in the age range 25-64 years, in EU 28 and Romania (%)



Source: INS and Eurostat data.

In 2017, in Romania's total employed population, 39% (3.4 mil. pers.) were graduates of a high school (forms 9 to 12/13), 21% were graduates of a higher education establishment (1.8 mil. pers.), and 18% were graduates of vocational, complementary or apprenticeship schools (1.5 mil. pers.) (**Table 4, Graph 16**).

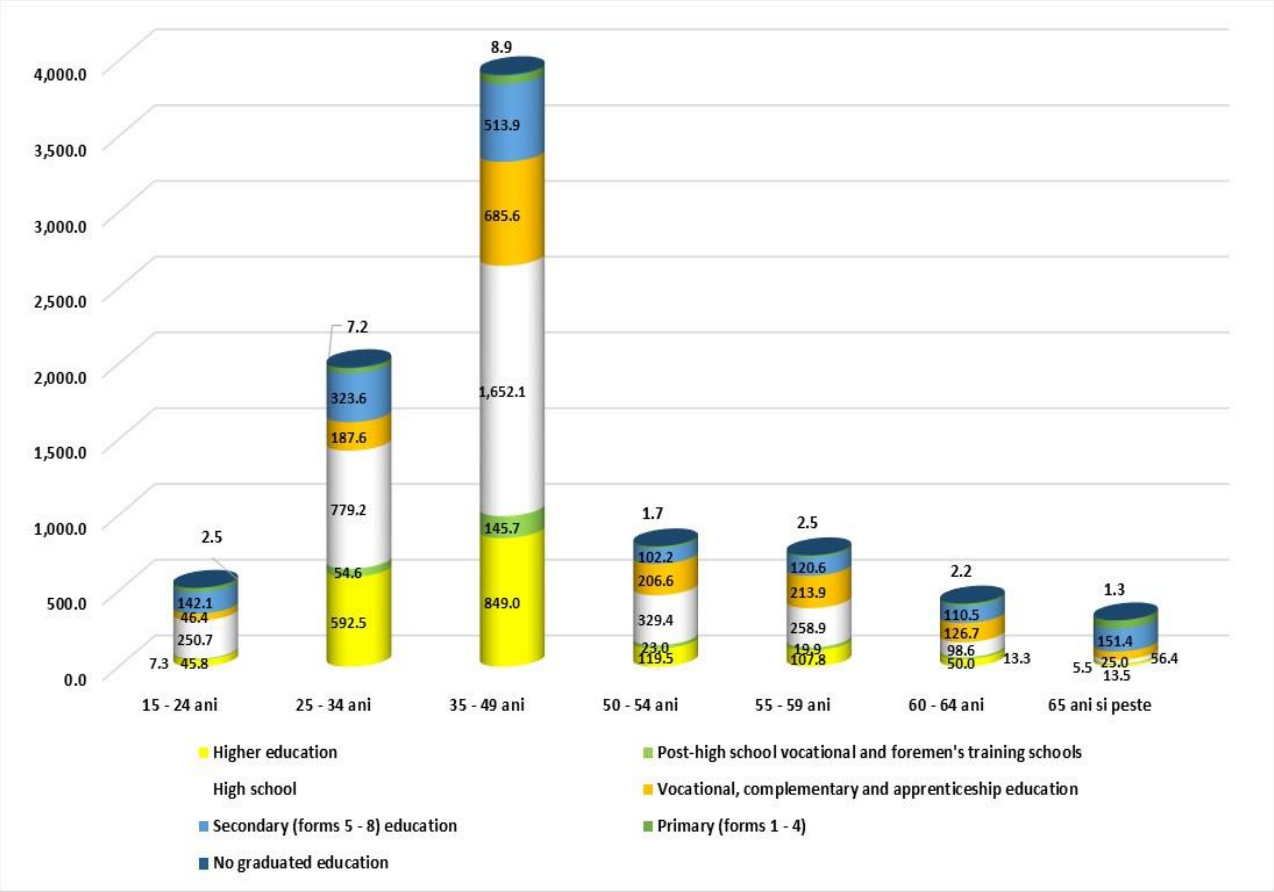
Table 4

Employed population by age group and level of education (thousand persons) in Romania, 2017

Age group	Total	Higher education	Post high school vocational or foremen's schools	High school	Vocational, complementary or apprenticeship schools	Secondary course (forms 5 – 8)	Primary course (forms 1 - 4)	No schooling graduated
Total	8,670.6	1,778.1	269.3	3,393.9	1,523.2	1,464.4	215.4	26.3
15 - 24 years	522.0	45.8	7.3	250.7	46.4	142.1	27.2	2.5
25 - 34 years	1,978.6	592.5	54.6	779.2	187.6	323.6	33.8	7.2
35 - 49 years	3,912.0	849.0	145.7	1,652.1	685.6	513.9	56.9	8.9
50 - 54 years	795.5	119.5	23.0	329.4	206.6	102.2	13.0	1.7
55 - 59 years	736.6	107.8	19.9	258.9	213.9	120.6	13.0	2.5
60 - 64 years	418.4	50.0	13.3	98.6	126.7	110.5	17.2	2.2
65 years and over	307.3	13.5	5.5	25.0	56.4	151.4	54.2	1.3

Source: Authors' compilation of INS data. Tempo online.

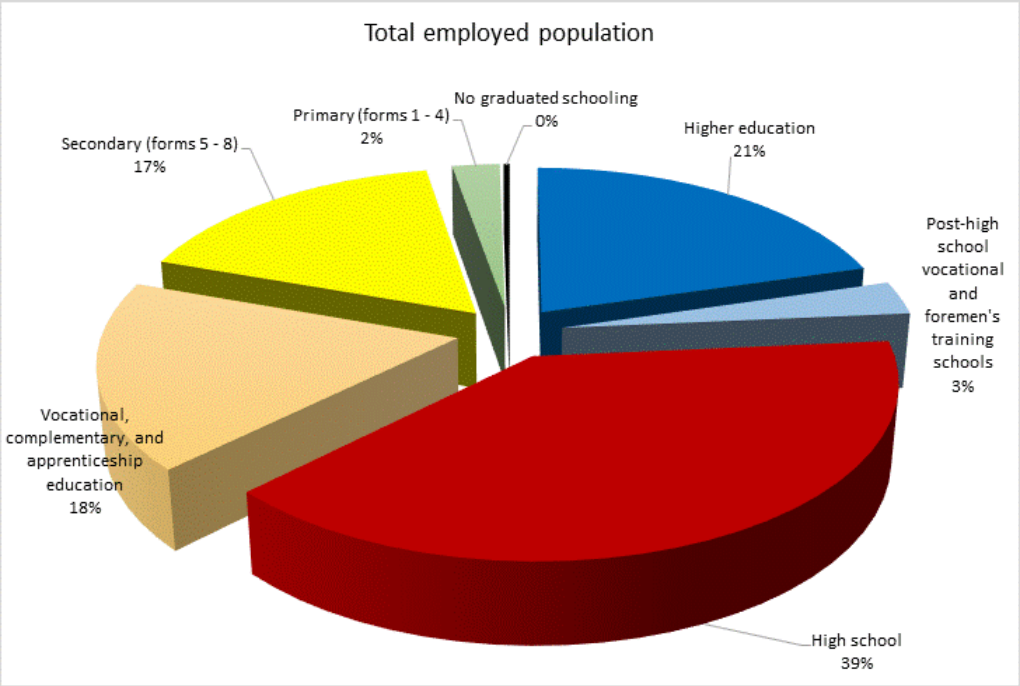
Graph 16: Employed population of Romania, by age group and level of education, 2017 (thou' persons)



Source: Authors' compilation of INS data. Tempo online.

The share of the secondary course, and primary course graduates, plus the persons who cannot produce any graduation certificate, is still high: 19% (1.7 mil. pers.) **(Graph 17).**

Graph 17: Structure of Romania's employed population by level of education, 2017 (% of total)



Source: Authors' compilation of INS data. Tempo online.

As the INS data shows, in the total number of 449.3 thousand unemployed persons on record in Romania, in 2017, the high school graduates accounted for the highest share (45%), followed by graduates of secondary courses (forms 5 to 8) (22%), and by graduates of vocational, complementary and apprenticeship schools (16%). These three categories form, in the aggregate, over 80% of the total number of the unemployed (**Table 5, Graph 18**).

Table 5

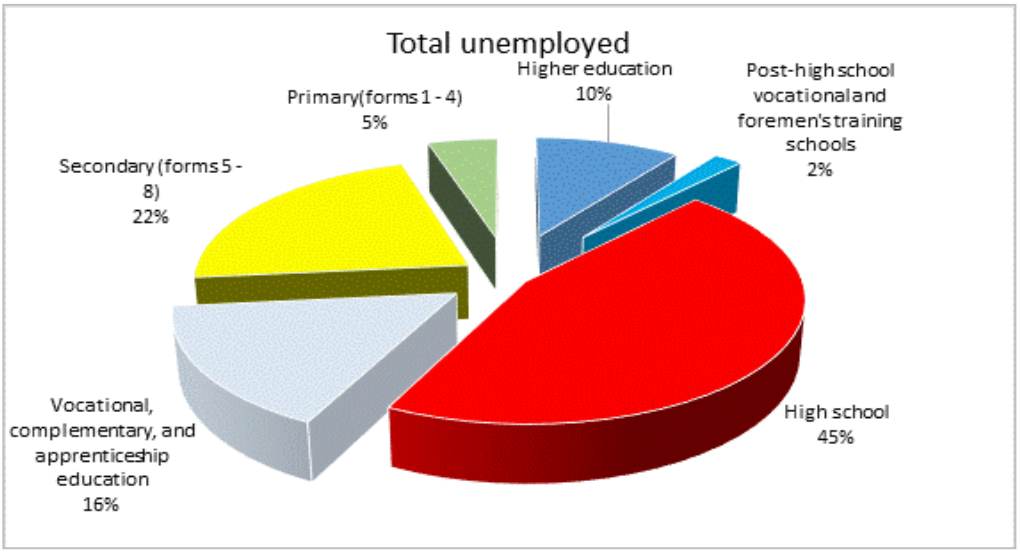
Structure of the unemployed by age group, and level of education, in Romania, 2017 (persons)

Age group	Total	Higher education	Post high school vocational and foremen's schools	High school	Vocational, complementary and apprenticeship schools	Secondary course (forms 5 – 8)	Primary course (forms 1 - 4)	No graduate schooling
Total	449,331	44,132	8,637	201,355	71,426	96,830	21,239	5,712
15 - 24 years	117,092	7,129	1,962	65,933	7,825	26,535	6,140	1,567
25 - 34 years	128,847	21,746	2,945	54,253	12,604	31,445	5,312	542
35 - 49 years	139,080	10,723	2,400	57,880	31,326	27,362	6,827	2,562
50 years and over	64,312	4,534	1,329	23,290	19,671	11,489	2,959	1,041

Source: Authors' compilation of INS data. Tempo online.

In the same reference year, higher education graduates accounted for 10% of all the unemployed.

Graph 18: Structure of the unemployed by level of education, in Romania, 2017 (% of total)

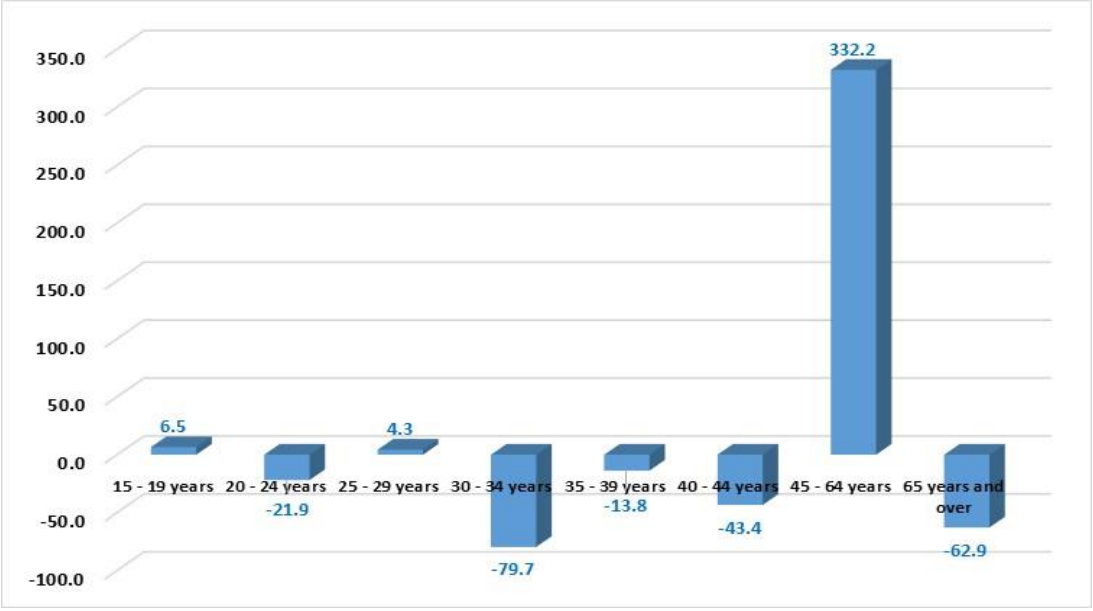


Source: Authors' compilation of INS data. Tempo online.

Additional information on the human resources of Romania can be obtained from an age-group-based analysis. A scan of the entire spectrum of the active population, with its employed and unemployed segments, of the inactive population, with its subdivisions – students, dependents on other persons or on government aid, or on other types of income – is of a nature to give a better picture of the various classes of human resources, and can serve as a starting point for decision-makers to understand the specific features of each generation of human resources, helping them to develop policies and strategies tailored to each of these categories and to the demand of the labour market.

An analysis of the **evolution of the resident population of Romania, by the main categories, by their contribution to active life, and by age group, during 2013-2017**, reveals that the highest growth rate of employment was recorded among the age group 45-64 years (approximately 332.2 thou' persons) (**Graph 19**).

Graph 19: The structure of the employed population, by age group, during 2013-2017 (thou' persons)



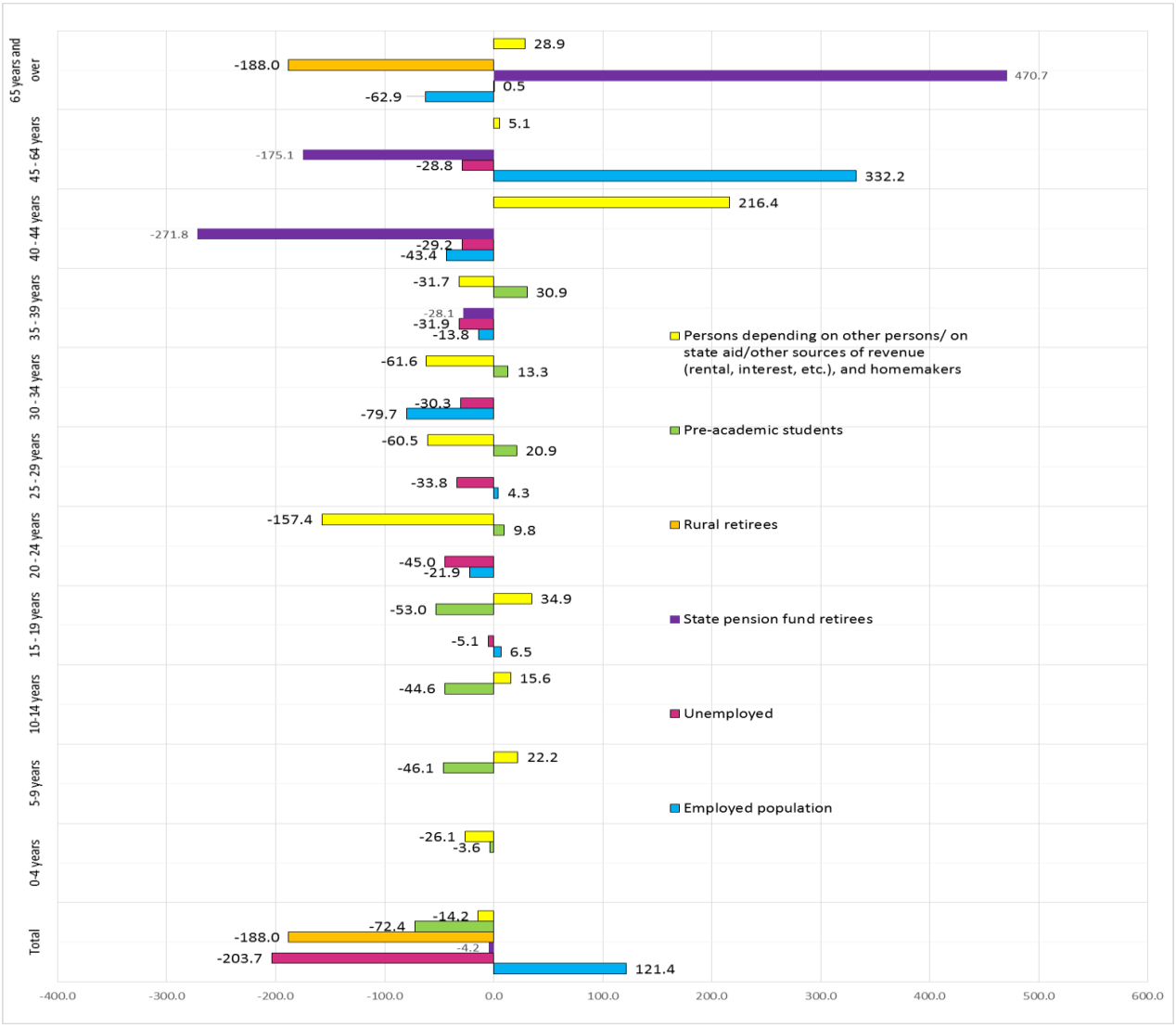
Source: Authors' compilation of Tempo online and INS data.

The increase in number of the employed population was the effect of the growing number of the resident population in this age group (by approximately 133.4 thou' persons), but also due to the decreasing number of the unemployed (by -28.8 thou' persons), and particularly as a result of the reduction of the number of early retirees in the age group 45 – 64, after the restrictive measures imposed on early retirement since the onset of the economic and financial crisis.

Besides, an analysis of the shifts that occurred during the time period 2013-2017 in the size of the other segments of resident population, with a focus on their contribution to the active life of the society, brought forth the following conclusions:

- Students in the age groups 5-9 years, 10-14 years, and 15-19 years had constantly diminished in number, in parallel with the growing numbers of individuals in the same age groups recorded as dependent on other persons or on government aid;
- Students in the age groups 20-24 years, 25-29 years, 30-34 years, and 35 years and over had been growing in number, in parallel with the diminishing number of the unemployed and of persons dependent on other persons or on government aid, in the same age groups;
- A significant rise in the number of persons in the age segment 40 – 44 years, who were dependent on other persons or on government aid;
- A decrease of the number of the unemployed in all age groups (**Graph 20).**

Graph 20: Shifts in all population segments during 2013-2017 (thou' persons)



Source: Authors' compilation of Tempo online and INS data.

The only age groups in which the employed segment was on the rise, but at much lower rates, in the time period 2013-2017, were those of individuals aged 15-19 years (+6.5 thou' persons), and 25-29 years (+4.3 thou' persons) (**Table 6)**.

Table 6

Shifts in the resident population and in the various population segments, pro rata to their contribution to active life, by age group, during 2013-2017 (thou' persons)

	Resident population	Active population	Employed population	Unemployed	Inactive population	State retirees	Rural retirees	Students	Persons dependent on other persons / on government aid / on other revenues / homemakers
Total	-361.0	-82.2	121.4	-203.7	-278.8	-4.2	-188.0	-72.4	-14.2
0-4 years	-29.7	0	0	0	-29.7	0	0	-3.6	-26.1
5-9 years	-23.9	0	0	0	-23.9	0	0	-46.1	22.2
10-14 years	-28.9	0	0	0	-28.9	0	0	-44.6	15.6
15 - 19 years	-16.6	1.4	6.5	-5.1	-18.1	0	0	-53.0	34.9
20 - 24 years	-214.5	-66.9	-21.9	-45.0	-147.6	0	0	9.8	-157.4
25 - 29 years	-69.1	-29.5	4.3	-33.8	-39.6	0	0	20.9	-60.5
30 - 34 years	-158.3	-110.1	-79.7	-30.3	-48.2	0	0	13.3	-61.6
35 - 39 years	-74.6	-45.6	-13.8	-31.9	-28.9	-28.1	0	30.9	-31.7
40 - 44 years	-128.0	-72.5	-43.4	-29.2	-55.5	-271.8	0	0	216.4
45 - 64 ani	133.4	303.4	332.2	-28.8	-169.9	-175.1	0	0	5.1
65 years and over	249.2	-62.4	-62.9	0.5	311.6	470.7	-188.0	0	28.9

Source: Authors' compilation of Tempo online and INS data.

All this classification by age group reflects both the demographic developments, and the changes in the size and structure of the educational system, including the vocational training, as well as the degree of compliance and suitability of education to the demand for professionals in the national economy. It also reflects the efficiency of the government's employment policies, etc.

The picture of the average figures at national level is complemented with the variations at local level.

The INS information shows that, in 2016, the highest share of pre-academic and academic students, of persons depending on other persons, on state aid, or on other types of revenues (rentals, interest, etc.), homemakers, etc. was in the counties of Giurgiu (45.2%), Călărași (43.7%), and Iași (41.6%) (**Table 7**).

Table 7

Human resources diagnose, by county, 2016 (thou' persons)

	Total population (thou' pers.)	Active population (thou' pers.)			Inactive population (thou' pers.)		
		Total	Of which:		Total	Of which:	
			Employed population	Unemployed		Retirees	Pre-academic and academic students, persons dependent on other persons/government aid/other revenues (rentals, interest, etc.), homemakers
TOTAL	19,760.6	8,735.8	8,317.6	418.2	11,024.8	5,096.3	5,928.5
Giurgiu	274.6	83.0	78.2	4.8	191.6	67.5	124.0
Călărași	295.5	94.2	86.8	7.4	201.3	72.2	129.1
Iași	788.7	289.2	276.1	13.1	499.5	171.5	328.0
Ilfov	444.2	187.8	185.8	2.0	256.4	75.9	180.5
Botoșani	394.6	139.6	131.6	8.0	255.0	100.4	154.7
Bacău	600.5	211.4	196.8	14.6	389.1	154.8	234.4
Suceava	629.7	231.9	217.4	14.5	397.8	154.6	243.3
Vaslui	387.5	139.8	123.0	16.8	247.7	99.0	148.8
Ialomița	264.7	96.2	88.7	7.5	168.5	67.4	101.1
Dâmbovița	505.2	193.9	180.3	13.6	311.3	121.7	189.7
Galați	520.1	194.0	175.1	18.9	326.1	141.2	184.9
Covasna	206.3	86.3	81.8	4.5	120.0	47.9	72.0
Constanța	681.1	296.6	286.2	10.4	384.5	150.5	234.0
Tulcea	203.2	84.1	79.6	4.5	119.1	49.1	70.0
Gorj	327.5	136.0	125.9	10.1	191.5	80.9	110.6
Caras-Severin	282.5	111.1	108.7	2.4	171.4	76.2	95.1
Vrancea	330.9	138.9	130.9	8.0	192.0	80.9	111.1
Olt	412.5	162.6	147.7	14.9	249.9	113.8	136.1
Maramureș	468.3	196.4	190.0	6.4	271.9	117.7	154.2
Mehedinți	252.6	104.1	94.1	10.0	148.5	65.7	82.8
Prahova	740.5	297.3	284.6	12.7	443.2	205.2	238.0
Satu Mare	338.2	147.0	140.9	6.1	191.2	83.8	107.3
Neamț	455.6	182.4	171.2	11.2	273.2	129.7	143.6
Dolj	641.0	265.1	239.2	25.9	375.9	176.7	199.2
Bistrița-Năsăud	282.5	132.1	127.2	4.9	150.4	63.0	87.4
Arges	595.8	256.7	244.6	12.1	339.1	155.1	184.0
Harghita	307.6	135.4	127.6	7.8	172.2	78.0	94.1
Mureș	543.7	233.7	222.8	10.9	310.0	146.7	163.3
Buzău	431.0	174.7	157.6	17.1	256.3	127.0	129.4
Brăila	303.6	124.4	115.8	8.6	179.2	89.5	89.7
Timiș	696.7	348.0	344.1	3.9	348.7	156.9	191.8

	Total population (thou' pers.)	Active population (thou' pers.)			Inactive population (thou' pers.)		
		Total	Of which:		Total	Of which:	
			Employed population	Unemployed		Retirees	Pre-academic and academic students, persons dependent on other persons/government aid/other revenues (rentals, interest, etc.), homemakers
Brașov	550.9	262.5	253.2	9.3	288.4	145.2	143.3
Sibiu	400.0	197.5	190.9	6.6	202.5	99.1	103.4
Bihor	569.0	267.8	259.6	8.2	301.2	154.4	146.8
Teleorman	355.3	148.7	132.7	16.0	206.6	115.3	91.3
Vâlcea	359.8	162.6	154.4	8.2	197.2	108.8	88.4
Sălaj	217.3	103.1	97.7	5.4	114.2	63.0	51.3
Arad	424.1	216.2	211.3	4.9	207.9	108.1	99.8
Cluj	701.3	360.6	352.6	8.0	340.7	178.5	162.1
Alba	333.5	168.5	159.9	8.6	165.0	89.7	75.3
Hunedoara	399.0	181.3	170.5	10.8	217.7	128.1	89.6
Bucharest City	1,844.0	1,193.1	1,174.5	18.6	650.9	485.7	165.2

Source: Authors' compilation of INS data. Tempo online.

In a classification of counties by the share of the active population in total population, coming first is Bucharest, with 64.7%, followed by Cluj with 51.4%, Arad – 51%, and Alba – 50.5%. The lowest shares of active population are in the counties of Giurgiu (30.2%), Călărași (31.9%), Bacău (35.2%), Botoșani (35.4%), and Vaslui (36.1%) (**Table 8**).

The highest shares of retirees in total population were in the counties of Teleorman (32.5%), Hunedoara (32.1%), and Vâlcea (30.2%), and the lowest shares of retirees were in the counties of Constanța (22.1%), Iași (21.7%), and Ilfov (17.1%).

Table 8

Structure of total population pro rata to contribution to the economic life, 2016 (% of total population)

	Total population (thou' pers.)	Active population (%)			Inactive population (%)		
		Total	Of which:		Total	Of which:	
			Employed population	Unemployed		Retirees	Pre-academic and academic students/ persons depending on other persons/ on state aid/on other types of revenues (rentals, interest, etc.), homemakers
TOTAL	19,760.6	44.2	42.1	2.1	55.8	25.8	30.0
Bucharest City	1,844.0	64.7	63.7	1.0	35.3	26.3	9.0
Cluj	701.3	51.4	50.3	1.1	48.6	25.5	23.1
Arad	424.1	51.0	49.8	1.2	49.0	25.5	23.5
Alba	333.5	50.5	47.9	2.6	49.5	26.9	22.6
Timiș	696.7	49.9	49.4	0.6	50.1	22.5	27.5

	Total population (thou' pers.)	Active population (%)			Inactive population (%)		
		Total	Of which:		Total	Of which:	
			Employed population	Unemployed		Retirees	Pre-academic and academic students/ persons depending on other persons/ on state aid/on other types of revenues (rentals, interest, etc.), homemakers
Sibiu	400.0	49.4	47.7	1.7	50.6	24.8	25.9
Brașov	550.9	47.6	46.0	1.7	52.4	26.4	26.0
Sălaj	217.3	47.4	45.0	2.5	52.6	29.0	23.6
Bihor	569.0	47.1	45.6	1.4	52.9	27.1	25.8
Bistrița-Năsăud	282.5	46.8	45.0	1.7	53.2	22.3	30.9
Hunedoara	399.0	45.4	42.7	2.7	54.6	32.1	22.5
Vâlcea	359.8	45.2	42.9	2.3	54.8	30.2	24.6
Harghita	307.6	44.0	41.5	2.5	56.0	25.4	30.6
Constanța	681.1	43.5	42.0	1.5	56.5	22.1	34.4
Satu Mare	338.2	43.5	41.7	1.8	56.5	24.8	31.7
Arges	595.8	43.1	41.1	2.0	56.9	26.0	30.9
Mureș	543.7	43.0	41.0	2.0	57.0	27.0	30.0
Ilfov	444.2	42.3	41.8	0.5	57.7	17.1	40.6
Vrancea	330.9	42.0	39.6	2.4	58.0	24.4	33.6
Maramureș	468.3	41.9	40.6	1.4	58.1	25.1	32.9
Teleorman	355.3	41.9	37.3	4.5	58.1	32.5	25.7
Covasna	206.3	41.8	39.7	2.2	58.2	23.2	34.9
Gorj	327.5	41.5	38.4	3.1	58.5	24.7	33.8
Tulcea	203.2	41.4	39.2	2.2	58.6	24.2	34.4
Dolj	641.0	41.4	37.3	4.0	58.6	27.6	31.1
Mehedinți	252.6	41.2	37.3	4.0	58.8	26.0	32.8
Brăila	303.6	41.0	38.1	2.8	59.0	29.5	29.5
Buzău	431.0	40.5	36.6	4.0	59.5	29.5	30.0
Prahova	740.5	40.1	38.4	1.7	59.9	27.7	32.1
Neamț	455.6	40.0	37.6	2.5	60.0	28.5	31.5
Olt	412.5	39.4	35.8	3.6	60.6	27.6	33.0
Caras-Severin	282.5	39.3	38.5	0.8	60.7	27.0	33.7
Dâmbovița	505.2	38.4	35.7	2.7	61.6	24.1	37.5
Galați	520.1	37.3	33.7	3.6	62.7	27.1	35.6
Suceava	629.7	36.8	34.5	2.3	63.2	24.6	38.6
Iași	788.7	36.7	35.0	1.7	63.3	21.7	41.6
Ialomița	264.7	36.3	33.5	2.8	63.7	25.5	38.2
Vaslui	387.5	36.1	31.7	4.3	63.9	25.5	38.4
Botoșani	394.6	35.4	33.4	2.0	64.6	25.4	39.2
Bacău	600.5	35.2	32.8	2.4	64.8	25.8	39.0
Călărași	295.5	31.9	29.4	2.5	68.1	24.4	43.7
Giurgiu	274.6	30.2	28.5	1.7	69.8	24.6	45.2

Source: Authors' compilation of Tempo online and INS data.

2.1.3 The employed population by socio-professional status

The social and professional spectrum of the employed population of Romania is significantly different from that of the other EU member states. Waged employees account for a lower share of the employed persons, therefore the large number of workers in subsistence farming (non-paid family workers, self-employed workers, seasonal workers, day workers) cause a different type of response to the labour market adjustment policies applied in other member states, where the employed segment holds a higher share in total population.

According to Eurostat 2017 data, of the 8.36 million employed persons in Romania, some 76.2% were employees, 1.1% were self-employed workers (sole proprietors) with waged workers on their payrolls, 15.3% were sole proprietors without waged workers, and 7.5% were non-paid family workers. (**Table 9)**.

Table 9

Structure of employed population, by social and professional status, in EU 28, in 2017

	Employed population (15-64 years (thou' persons)	Of which (%):			
		Employees	Sole proprietors with waged workers	Sole proprietors without waged workers	Non-paid family workers
Denmark	2,734.0	92.4	3.0	4.3	0.3
Sweden	4,833.9	91.3	3.5	5.1	0.1
Germany	40,481.6	90.7	4.1	5.0	0.3
Luxembourg	269.9	90.1	3.5	5.4	0.7
Hungary	4,373.4	90.1	4.5	5.2	0.3
Estonia	625.6	89.9	4.6	5.3	0.2
France	26,511.8	88.8	4.1	6.8	0.3
Austria	4,185.3	88.6	4.6	6.0	0.9
Bulgaria	3,073.4	88.5	3.5	7.2	0.7
Lithuania	1,305.6	88.4	2.4	8.4	0.8
Croatia	1,603.0	88.3	4.8	5.7	1.2
Finland	2,402.6	88.1	3.8	7.9	0.3
Cyprus	369.8	88.0	1.9	9.5	0.6
Latvia	861.9	87.4	4.6	7.2	0.7
Slovenia	943.5	86.4	3.8	7.6	2.2
Belgium	4,587.2	86.3	4.0	9.0	0.6
Ireland	2,124.9	86.2	4.2	9.1	0.5
Portugal	4,515.4	86.2	4.5	8.9	0.4
Malta	208.9	85.8	4.5	9.6	0.0
United Kingdom	30,783.1	85.6	2.2	11.8	0.2
Slovakia	2,502.1	84.9	3.1	11.9	0.0
The Netherlands	8,376.4	84.2	3.9	11.5	0.3
Spain	18,648.5	83.8	4.9	10.8	0.4
Czech Rep.	5,093.9	83.4	3.0	13.1	0.5
Poland	16,078.8	80.1	3.9	13.4	2.5
Italy	22,443.6	78.0	5.8	15.1	1.2
Romania	**8,363.2**	**76.2**	**1.1**	**15.3**	**7.5**
Greece	3,682.7	66.8	7.1	22.3	3.8

Source: Authors' compilation of INS and Eurostat data.

One can notice the co-existence of two, parallel, labour markets: an urban labour market, and a rural labour market, each with a different speed of response to the labour market policies undertaken by government (**Table 10**).

Table 10

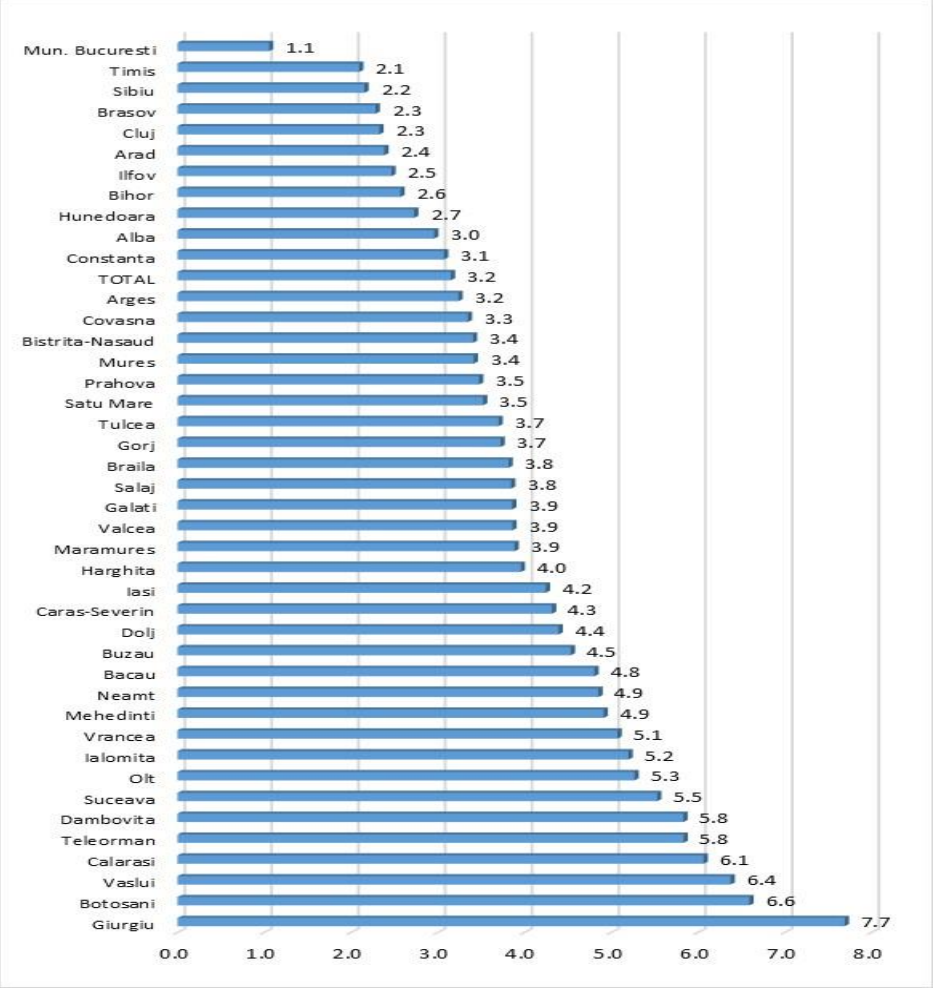
Structure of employed population in Romania, by social and professional status, by residential environment (%)

	Total	**Urban**	**Rural**
Total	100.0	100.0	100.0
Employees	73.7	92.0	51.4
Employers	1.0	1.3	0.7
Self-employed workers	17.1	5.7	31.0
Non-paid family workers	8.2	1.0	17.0

Source: Authors' compilation of AMIGO online and INS data.

The discrepancies between counties are also obvious in respect of the average number of persons falling into other categories, per employee. While in Bucharest this ratio was 1.1: 1, in Giurgiu County, the ratio was 7.7:1 (**Graph 21**).

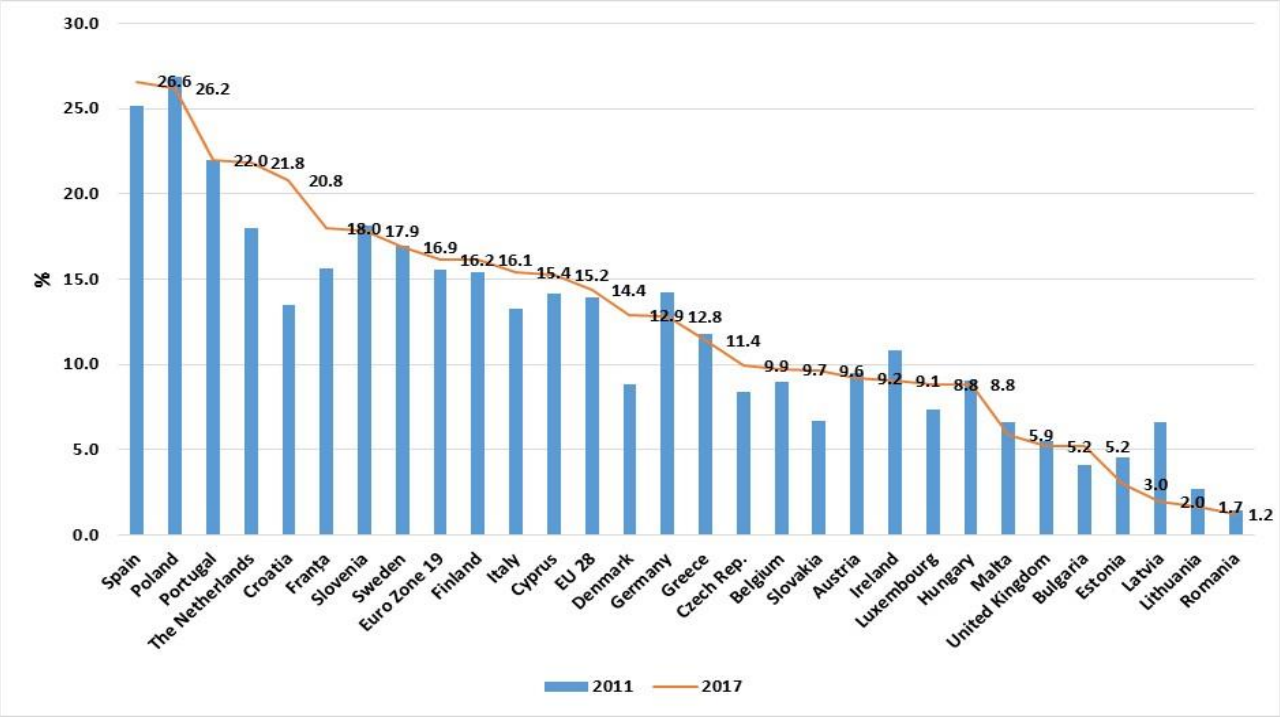
Graph 21: Number of persons in other population categories, per employee, by county, 2016



Source: Authors' compilation of INS data.

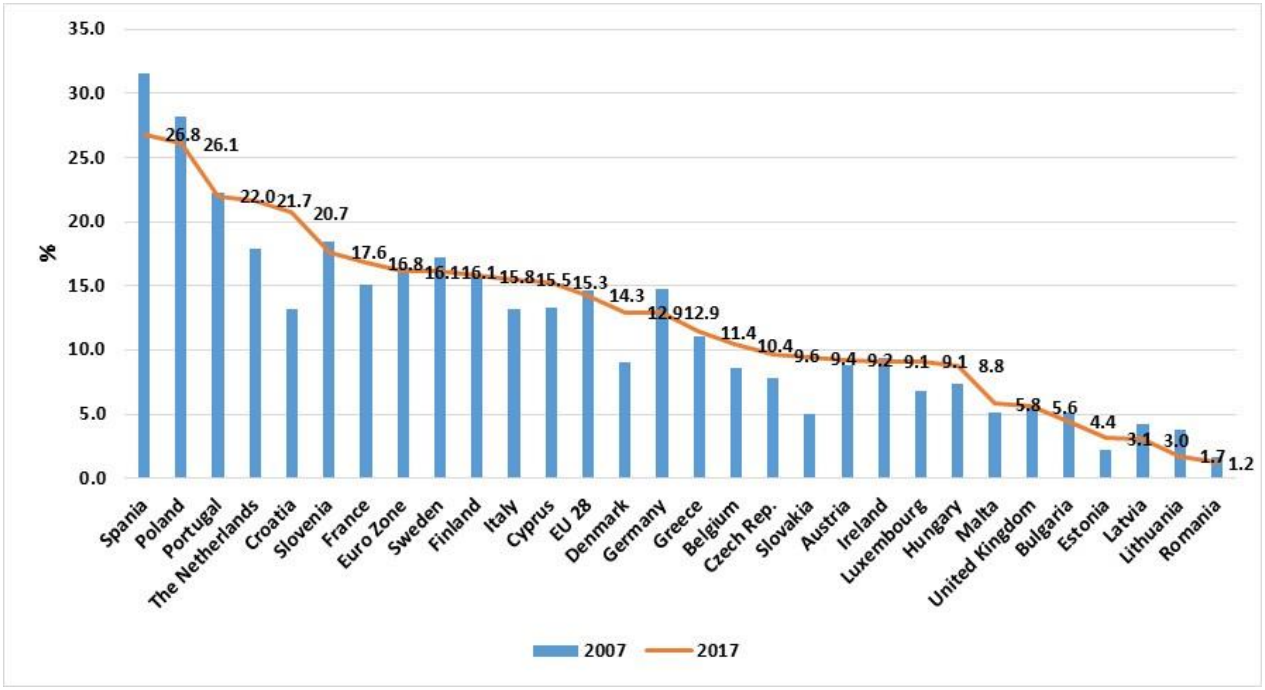
The INS and Eurostat data for the years 2011 and 2017 with regard to the types of individual employment contracts reveal a **low share of the fixed-term employment contracts, of temporary employment (Graph 23), and part-time employment agreements (Graph 24) in the total employment contracts in Romania (Graph 22), by comparison to the other EU 28 member states.**

Graph 22: Share of fixed-term employment workers in total employment (%)



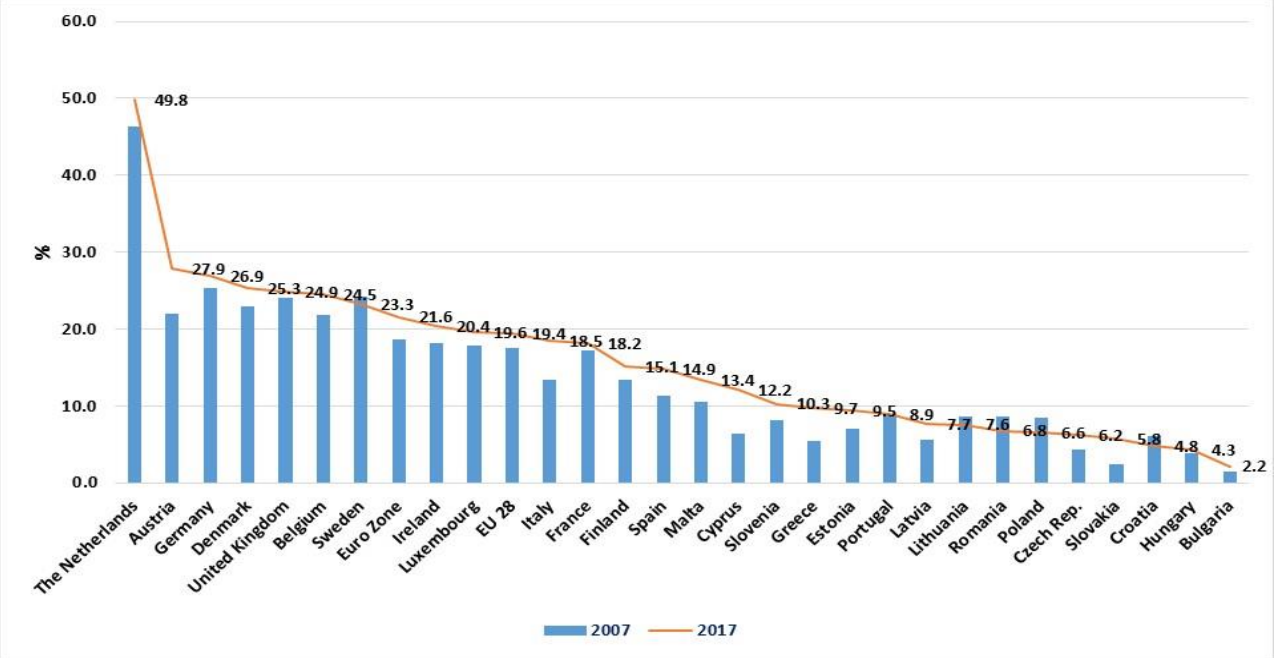
Source: INS and Eurostat data.

Graph 23: Share of temporary workers of total waged workers (%)



Source: INS and Eurostat data.

Graph 24: Share of part-time workers in total employment (%)



Source: INS and Eurostat data.

These low shares are also telling another story: workers do not trust these types of employment contracts.

2.1.4 Key performance indicators of the educational system in relation to the labour market real needs

Based on data published by Eurostat (LFS, 2016) and OECD (PISA, 2015), the Romanian education and training barometer for the year 2017 (”Monitorul educației și formării 2017-România”[3]) carries the key indicators of the educational and training system for adult learners, and compares them to the average values of same indicators for the EU 28.
The observation of the indicators for the year 2016 reveals:

- An early school drop-out rate among persons in the age range 18-24 years, higher by 7.8 % in Romania, than the EU 28 average (18.5%, compared to 10.7%);
- A much lower share of academic education graduates in the age group 30-34 years than the EU 28 average (25.6% compared to 39.1%);
- A high (almost double) share of youths with poor reading capabilities (text comprehension and interpretation), knowledge of mathematics (reckoning and interpretation), and poor general knowledge of sciences, compared to the average of EU 28. According to the data recorded for the year 2015, 38.5% of the students aged 15 years had failed to acquire the minimum level of knowledge in sciences (compared to the EU 28 average of 20.6%), 38.7% were poor in reading (EU 28: 19.7%), and 39.9% were deficient in maths (EU 28: 22.2%). And a total of 24% of all the students were poor in all the three subjects evaluated.
- The rate of employment among graduates in the age group 20-34 years, who graduated 1 to 3 years before the reference year 2016, was 9% lower than the EU 28 average (69.3% compared to 78.2%);
- Low rate of adult learners enrolled in the continuous training process (1.2% compared to the 10.8% EU 28 average);

[3] European Commission. General Directorate for Eduction and Culture, 2017.

- The GDP allocation of funds to education was much below the EU 28 average (3.1%, compared to 4.9%);
- The employment rate of graduates from educational establishments of level ISCDE 3-4, during the first 3 years from graduation, was much lower than the EU 28 average (59.6%, compared to 72.6%) (**Table 11**).
- 42% of the Romanian students aged 15 years are functional illiterates. In EU 28, the average is 20%, a study of the Center for Educational Evaluation and Analysis (Centrul de Evaluare şi Analize Educaţionale) has found;
- The lowest score of the DESI index (digital economy and society) in the EU 28, which monitors the level of the member states in respect of digital connectivity, digital competences, online activities, digitalization of corporations and public services.

Table 11

Key indicators and contextual indicators of the educational and training system in Romania, and average values thereof for EU 28, for the years 2013 and 2016

			Romania		EU 28 average	
			2013	2016	2013	2016
Reference criteria						
Early school/training drop-out (18-24 years)	Total		17.3	18.5	11.9	10.7
Share of academic graduates (30-34 years)	Total		22.9	25.6	37.1	39.1
Education and care of pre-school children (from age 4 to compulsory education starting age)			85.5	87.6	93.9	94.8
Share of 15 year-old youths with poor level of knowledge in:	Reading		37.3	38.7	17.8	19.7
	Mathematics		40.8	39.9	22.1	22.2
	Sciences		37.3	38.5	16.6	20.6
Rate of Employment among new graduates (aged 20-34 years), who graduated 1-3 years before the reference year	ISCED 3-8 (total)		67.2	69.3	75.4	78.2
Contribution of adults to continuous learning (25-64 years)	ISCED 0-8 (total)		2.0	1.2	10.7	10.8
Other contextual indicators						
Investment in education	Public spending for education, as % of GDP		2.8	3.1	5.0	4.9
	Spending in public and private institutions, per student, in EUR in PPS	ISCED 1-2	1700	1866		
		ISCED 3-4	4959	2328		
		ISCED 5-8	2979	4180		
Employment rates among new graduates, by level of education (aged 20-34 years, who graduated from the last reported level of education 1-3 years before the reference year)	ISCED 3-4		55.0	59.6	69.4	72.6
	ISCED 5-8		77.2	80.7	80.7	82.8
Mobility for educational purposes	Mobility of foreign graduates (bachelor degree)		1.6	2.5	5.5	6.0
	Mobility of foreign graduates (master's degree)		2.5	4.4	13.6	15.1

Source: "Monitorul educației și formării 2017-Romania" European Commission, General Directorate for Education and Culture, 2017.

Beyond the grounded reasons to challenge the measuring criteria for the indicators above, there is no denial that, on a comparative basis with the EU 28, **the Romanian educational system is a poor performer, both in respect of inclusiveness of children and youths under its wings, and in respect of arming its graduates with the knowledge they need to be successful on the labour market.**

2.2 The labour demand

For the purposes of our scrutiny into the demand for labour in Romania, in the attempt to determine its characteristics, we have conducted our study along three main lines of research, which provide a comprehensive picture, based on diverse sources of information and different perspectives:

- Records of jobs created and lost in Romania, during 1 January 2005 – 31 August 2018, according to the European Restructuring Monitor data base;
- Information from INS's inquiry into vacant jobs ("Ancheta locurilor de muncă vacante"), conducted every six months, for the period 2008 – second quarter 2018; and
- Information regarding vacant jobs reported by Romanian corporations and public institutions to the county employment agencies, during the period 25 April - 29 May 2018, merged into a central data base on a daily basis (week days only) by the National Employment Agency (Agenția Națională de Ocupare a Forței de Muncă, ANOFM).

2.2.1 Survey of the information available for the period 2005-2018 regarding the jobs created and lost in Romania compared to the EU, by economic sector, and motive

The European Restructuring Monitor (ERM) is an instrument of the European Monitor Centre of Change (EMCC) of the European Foundation for Improvement of Living and Working Conditions (Eurofound), a tripartite foundation of the European Union, created in 1975[4].

Since 2002, the ERM has been monitoring, daily, with the aid of a specific methodology, the cases of dissolution and creation of jobs. More specifically, the ERM data basis includes the situations conducing to creation or dissolution of at least 100 jobs, or to the dismissal of at least 10% of the employees in entities (companies / institutions) having 250 or more employees.

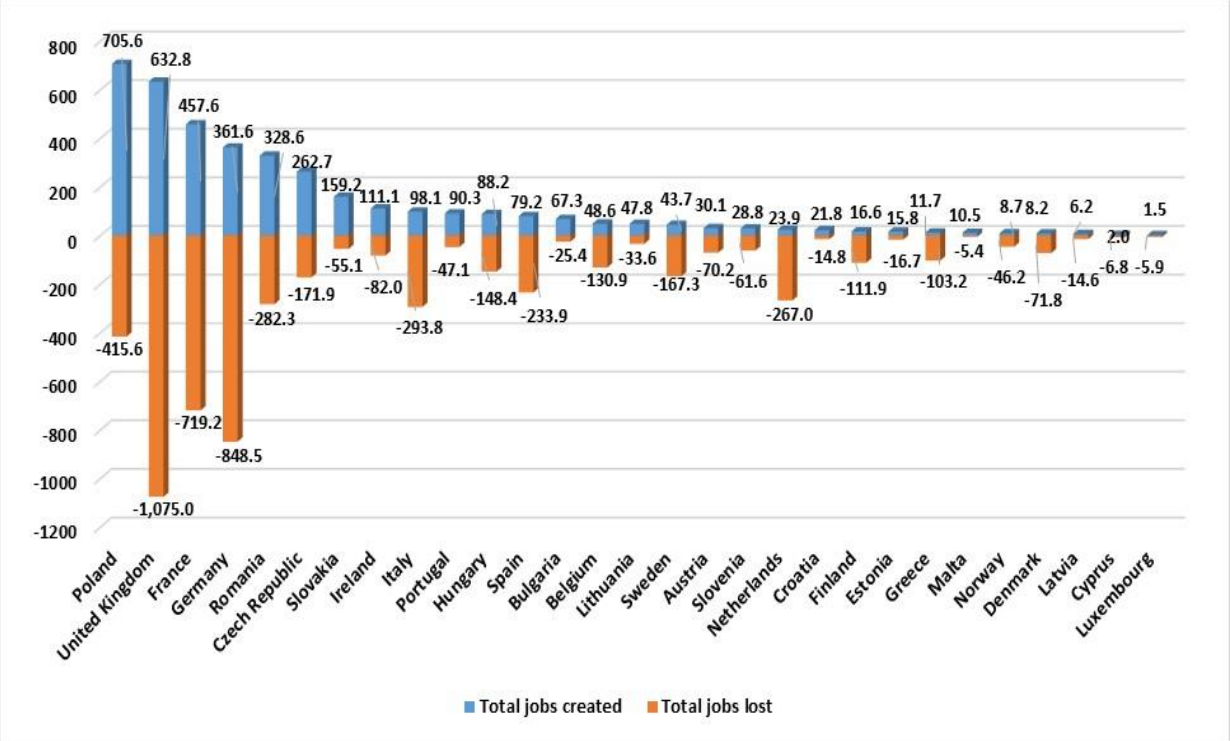
Information on Romania is available since 2005, when the National Economy Institute (Institutul de Economie Națională, IEN), a research unit under the aegis of the Romanian Academy, was selected, by competition, as the National Centre Romania for Eurofound. The IEN experts conducted their research until 2014, when the task was transferred to the European Institute, Romania (IER), which since then has been monitoring every job creation and/or dissolution to date.

The information contained in the data base of ERM are relevant for an analysis of the jobs created and lost in Romania, and of their characteristics, during the period 2005 – August 2018.

The data provided by the European Restructuring Monitor (ERM) indicate, for Romania, for the period 1 January 2005 - 1 August 2018, a positive balance of 46,284 jobs resulting from the creation of 328,574 jobs, and the dissolution of 282,290 jobs (Graph 25).

[4] The Foundation's board includes representatives of governments, trade unions, and employer's organisations from the 28 EU member states and Norway.

Graph 25: Total jobs created and lost, in Romania, during the period 1 January 2005 – 1 August 2018 (thou' jobs)



Source: Authors' compilation of info from the European Restructuring Monitor database.

The jobs created in Romania between 1 January 2005 – 1 August 2018 accounted for 8.7% of all jobs created in EU 28 and Norway, and the jobs of lost accounted for 5.1% of all jobs in EU 28 and Norway (**Table 12**).

Table 12

Jobs created and lost in Romania and the other EU member states during the period 1 January 2005 - 1 August 2018 (number)

	Jobs created (number)	Share of all jobs created in EU 28 and Norway (%)	Jobs lost (number)	Share of all jobs lost in EU 28 and Norway (%)	Balance (number)
Austria	30,092	0.8	70,219	1.3	-40,127
Belgium	48,627	1.3	130,906	2.4	-82,279
Bulgaria	67,269	1.8	25,376	0.5	41,893
Croatia	21,828	0.6	14,759	0.3	7,069
Cyprus	2,038	0.1	6,791	0.1	-4,753
Czech Rep,	262,711	7.0	171,926	3.1	90,785
Denmark	8,203	0.2	71,836	1.3	-63,633
Estonia	15,847	0.4	16,662	0.3	-815
Finland	16,570	0.4	111,888	2.0	-95,318
France	457,581	12.1	719,242	13.0	-261,661
Germany	361,644	9.6	848,549	15.4	-486,905
Greece	11,656	0.3	103,226	1.9	-91,570
Hungary	88,188	2.3	148,397	2.7	-60,209
Ireland	111,078	3.0	81,986	1.5	29,092
Italy	98,050	2.6	293,839	5.3	-195,789

	Jobs created (number)	Share of all jobs created in EU 28 and Norway (%)	Jobs lost (number)	Share of all jobs lost in EU 28 and Norway (%)	Balance (number)
Latvia	6,169	0.2	14,557	0.3	-8,388
Lithuania	47,758	1.3	33,613	0.6	14,145
Luxembourg	1,514	0.0	5,858	0.1	-4,344
Malta	10,486	0.3	5,397	0.1	5,089
The Netherlands	23,934	0.6	266,993	4.8	-243,059
Norway	8,672	0.2	46,157	0.8	-37,485
Poland	705,638	18.7	415,576	7.5	290,062
Portugal	90,281	2.4	47,135	0.9	43,146
Romania	**328,574**	**8.7**	**282,290**	**5.1**	**46,284**
Slovakia	159,232	4.2	55,084	1.0	104,148
Slovenia	28,757	0.8	61,566	1.1	-32,809
Spain	79,245	2.1	233,931	4.2	-154,686
Sweden	43,743	1.2	167,331	3.0	-123,588
United Kingdom	632,786	16.8	1,074,981	19.5	-442,195
Total	3,768,171	100.0	5,526,071	100.0	-1,757,900

Source: Authors' compilation of info from the European Restructuring Monitor database.

Most of the jobs that disappeared from the labour market of Romania during this period of reference were lost as an effect of internal restructuring (90.6% of total), bankruptcy/business shutdowns (6.8%), relocation/outsourcing (1.7%), mergers/acquisitions (0.5%) (**Graph 26**),

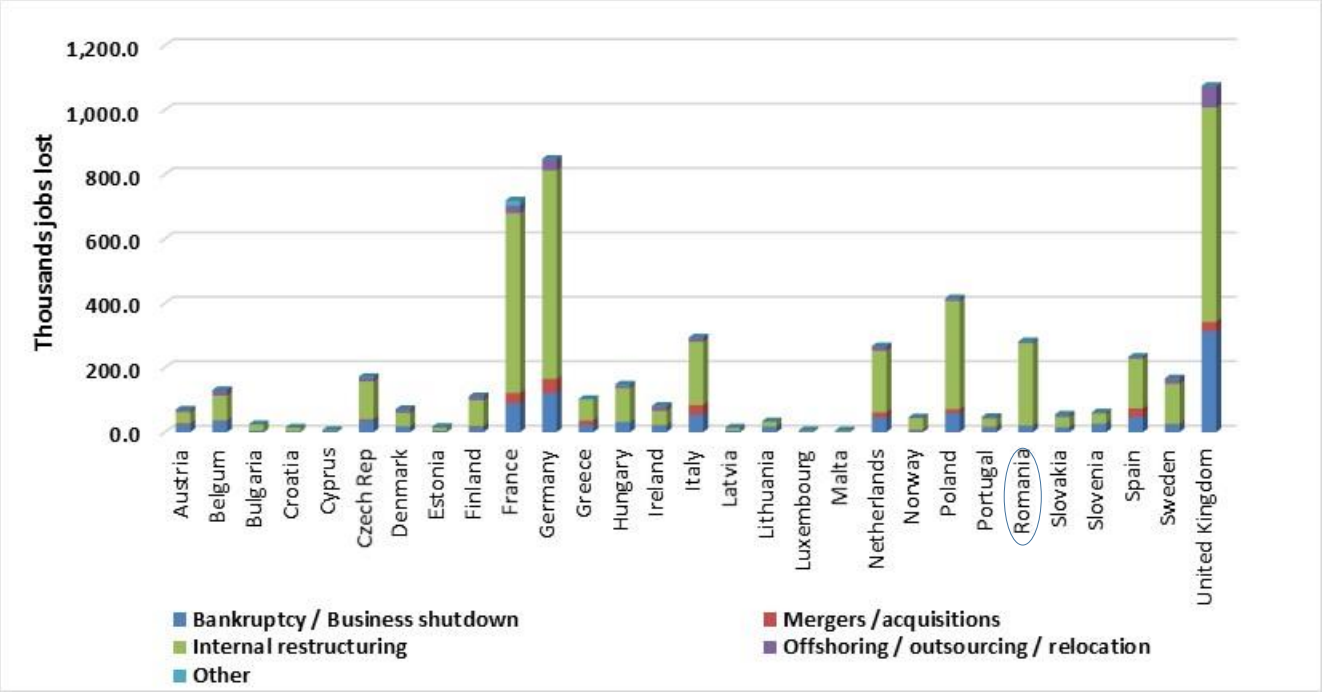
The total number of jobs created and lost during January 2005 - August 2018, which is an important indicator of the labour market flexibility, placed Romania on the fifth position in the classification of the countries analysed from the perspective of this indicator.

With 610.9 thousand jobs created and lost, Romania follows the United Kingdom with its 1.7 million jobs created and lost between 2005 and August 2018, Germany with 1.2 mil. jobs, France, with 1.17 mil. jobs, and Poland, with 1.12 mil. jobs created and lost (**Graph 27**)

Romania is in the echelon of 10 countries out of the EU 28 member states, with a positive balance, with its 46.3 thousand jobs plus, in contrast with the negative balances of 486.9 thousand jobs in Germany, 442.2 thousand in the United Kingdom, 261.7 thousand in France, and 243.1 thousand in The Netherlands.

However, these statistics rely only on large-scale job creation and dissolution cases (at least 100 jobs, or more than 10% of the jobs in companies with 250 employees and over).

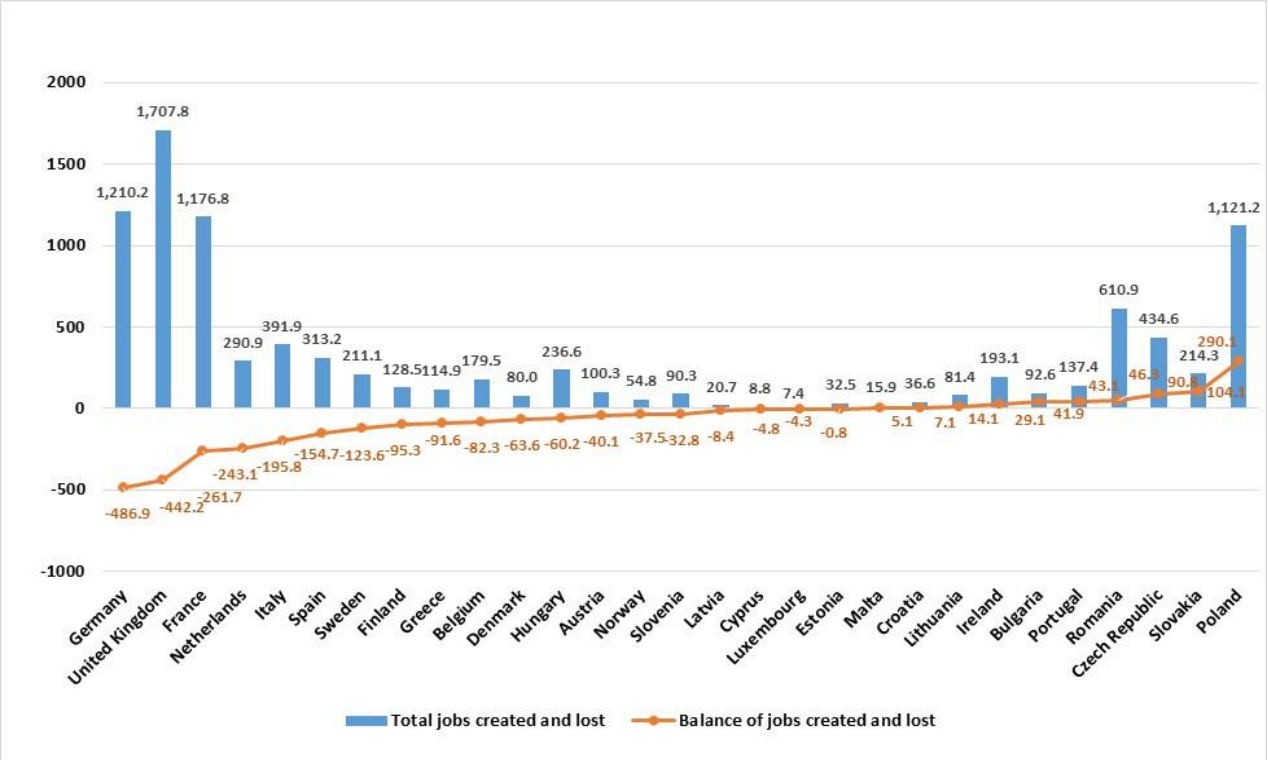
Graph 26: Structure of lost jobs by reason of dissolution



Source: Authors' compilation of info from the European Restructuring Monitor database.

In strong economies, a large number of the jobs created arise from the expansion of corporate businesses that have a small number of employees, but a higher employment turnover. This explains why, during the scrutinised period, the number of employees in these member states appear to be on the rise.

Graph 27: Total jobs created and lost in Romania, during the period January 2005 - August 2018 (thou' jobs)

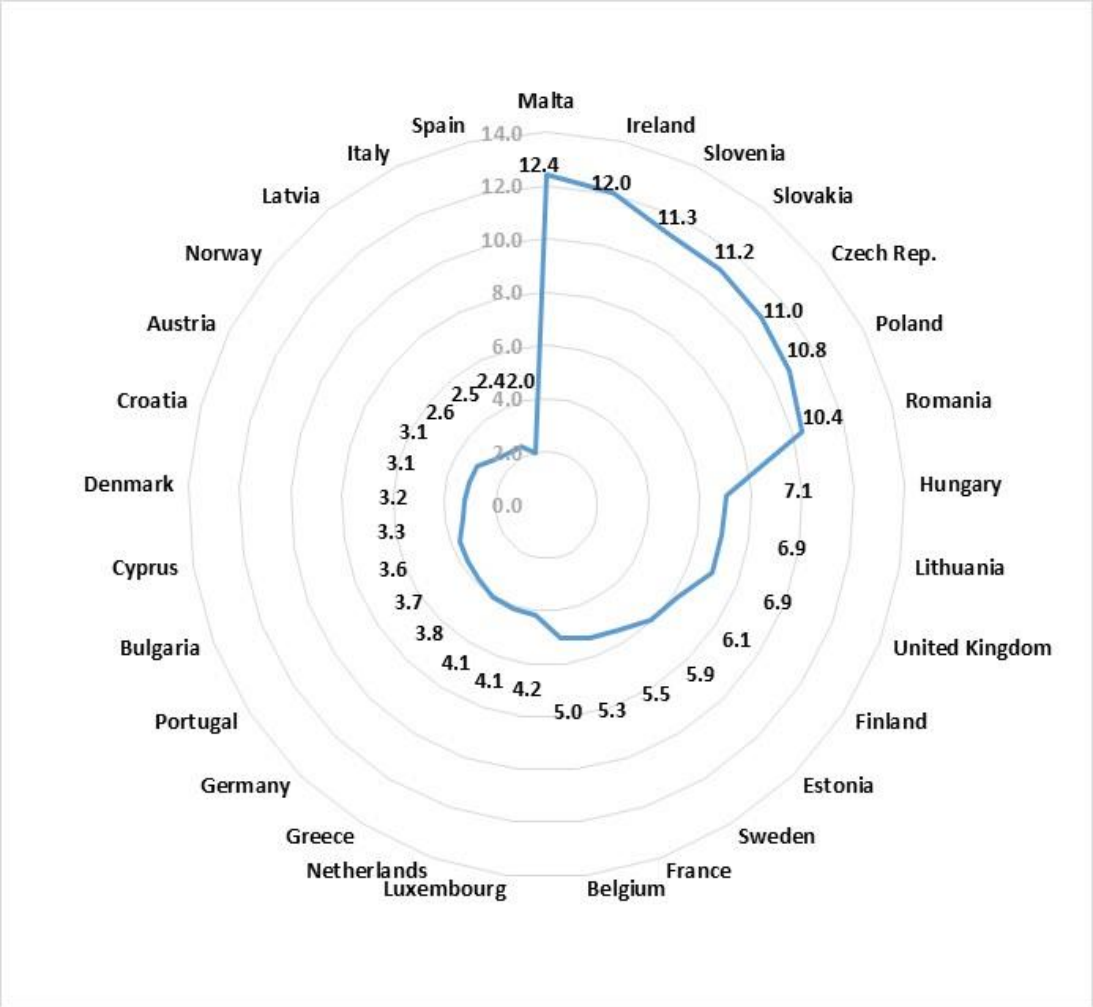


Source: Authors' compilation of info from the European Restructuring Monitor database,

The calculation of the total number of jobs created and lost, pro-rata to the total number of employees in each member state, in 2005, the year at the start of the reference period, revealed that this indicator ranged from 2.0% in Spain, to 12.4% in Malta. In Romania, the same indicator, for the entire period, was 10.4% (**Graph 28**).

The balance of jobs created/lost during the time between January 2005 and August 2018, related to the total number employees, oscillated between -4.6% in Finland, and 5.4% in Slovenia. In Romania, the value of this indicator was 0.8% (**Graph 29**).

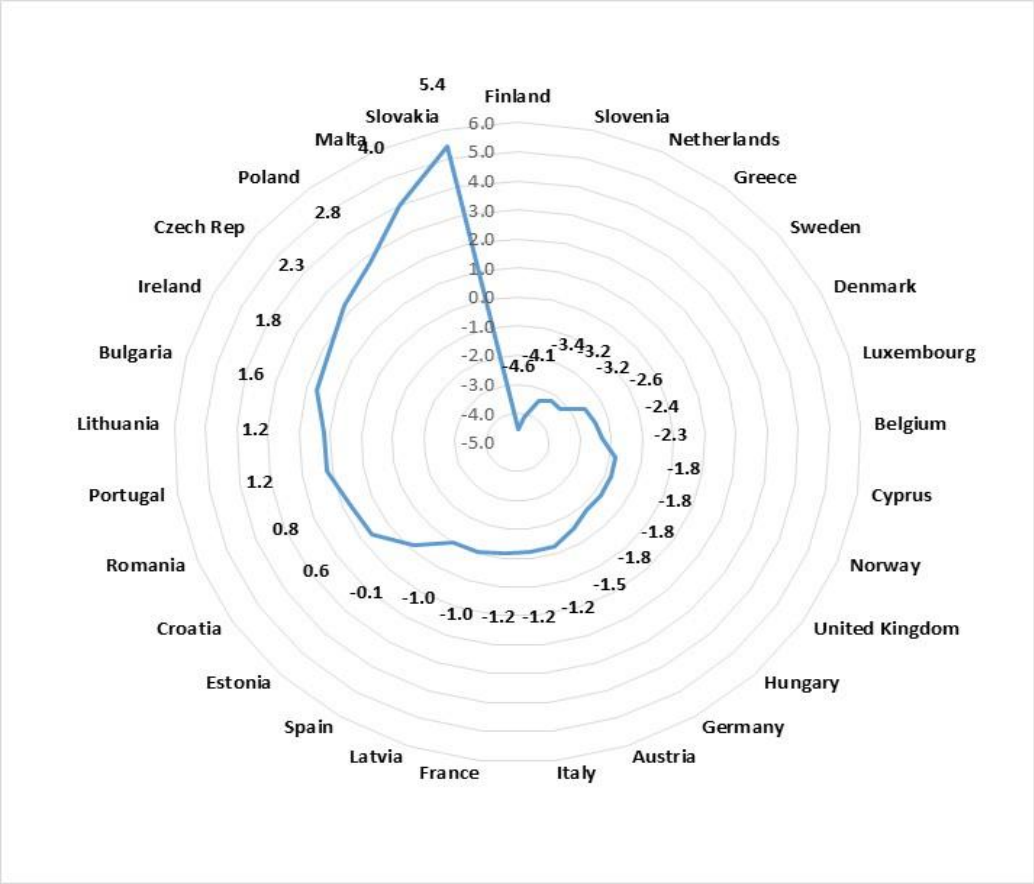
Graph 28: Share of jobs created and lost between January 2005 and August 2018, pro-rata to the total number of employees, in the EU 28 and Norway (%)



Source: Authors' compilation of info from the European Restructuring Monitor database.

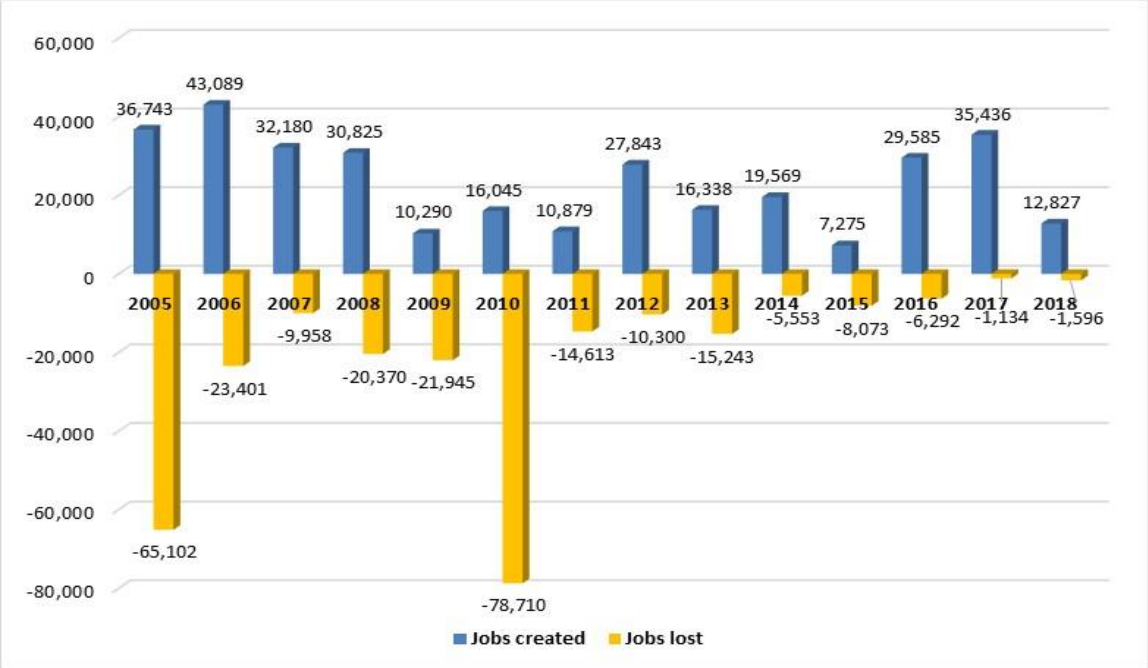
A year-by-year examination of the dynamics of the jobs created/lost between January 2005 and August 2018 reveals a switch from job creations and eliminations of magnitude, conducive, in 2005, to a negative balance as a whole, to job reductions of less amplitude, counterbalanced by creation of jobs, which generated an overall positive balance, during the period 2006-2008, when economies were growing (**Graph 30**).

Graph 29: Share of the balance of jobs created/lost between January 2005 and August 2018, in the number of employees, in the EU 28 and Norway (%)



Source: Authors' compilation of info from the European Restructuring Monitor database.

Graph 30: Jobs created and lost in Romania, during the period January 2005 - August 2018 (number)

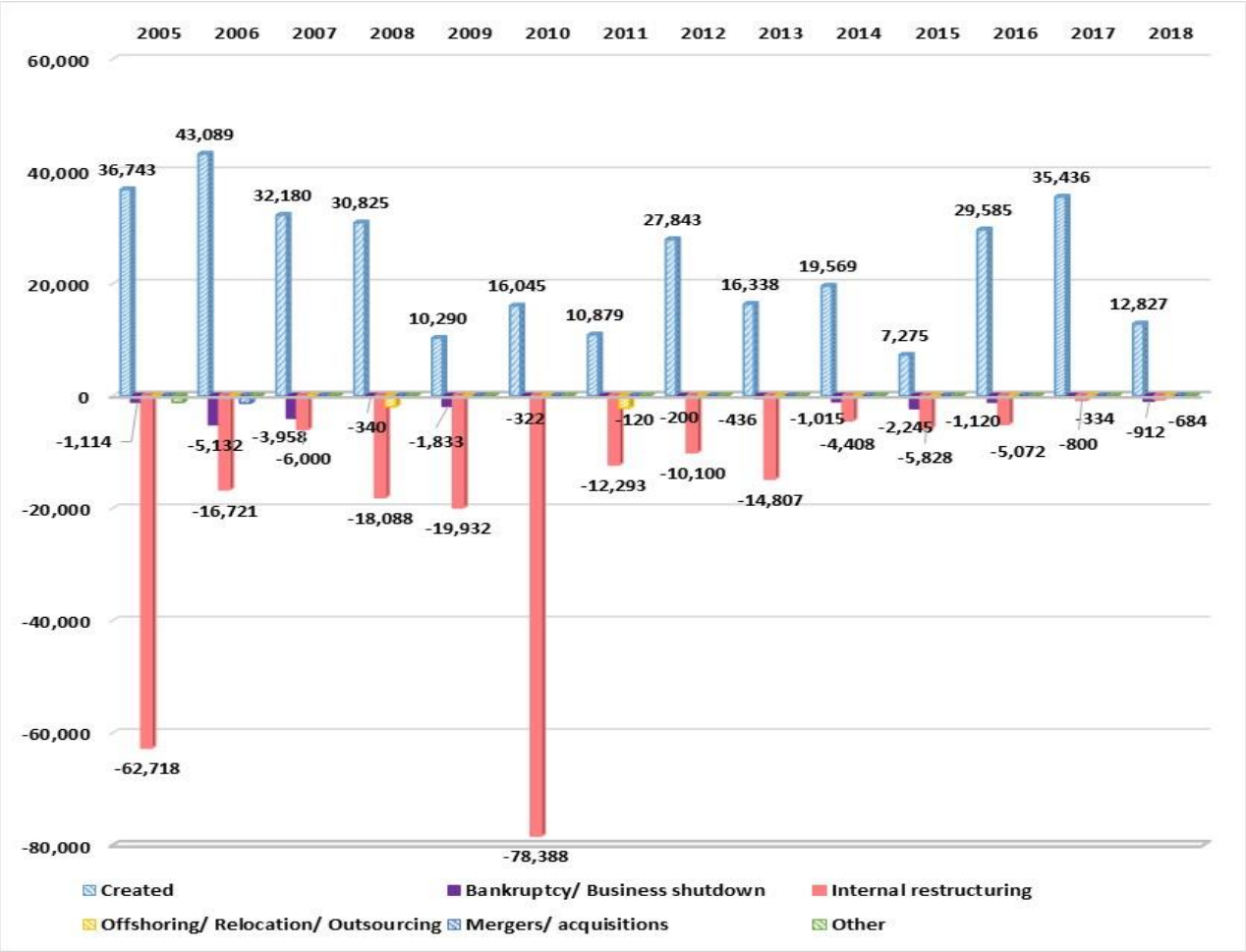


Source: Authors' compilation of info from the European Restructuring Monitor (ERM) database.

One of the effects of the global economic and financial crisis was a peak, in 2010, of the number of jobs disbanded (-78.7 thou'). But, starting from 2012, the jobs created tended to outnumber the jobs disbanded. The only exception was the year 2015, when, although the extent of job creation and dissolution was much smaller than in previous years, the overall balance of jobs was negative.

Unlike the other member states that were analysed, Romania was faced with the dissolution of more than 90% of jobs as a consequence of internal restructuring, and of only 6.8% of job dissolutions due to bankruptcies/shutdowns of businesses, 1.7% due to relocation / outsourcing, 0.5% due to mergers / acquisitions, and 0.4% due to other causes (**Graph 31**).

Graph 31: Jobs created and lost in Romania, by type, between January 2005 – August 2018 (number)

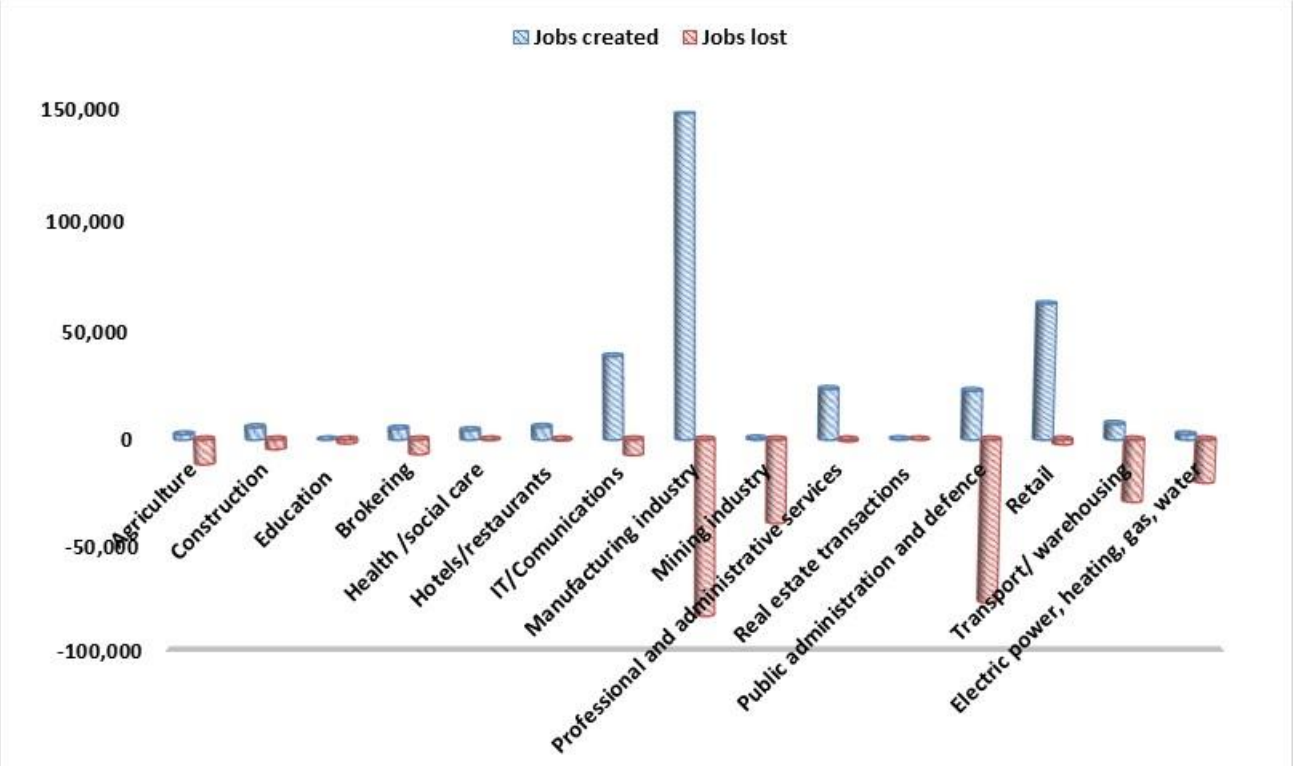


Source: Authors' compilation of info from the European Restructuring Monitor (ERM) database.

The large-scale restructuring gradually lost in frequency and intensity towards the final years of the reference period.

The demographics of employment followed different tracks in the sectors of the national economy. For example, although the battlefield of the widest job creation (+147.96 thou' jobs) and job dissolution (-82.99 thou' jobs) was the manufacturing industry, this sector ended the period January 2005 – August 2018 with a positive balance of 64.97 thou' jobs (**Graph 32**).

Graph 32: Jobs created and lost in Romania, during January 2005 - August 2018, by type of activities in the national economy (number)



Source: Authors' compilation of info from the European Restructuring Monitor (ERM) database**.**

Coming second in the classification of economic activities by the balance of jobs was the retail trade sector, with a positive balance of 60.45 thou' jobs, followed by IT/communications, with a positive balance of 31.52 thou' jobs, and professional and administrative services, with 22.74 thou' jobs.

The greatest job losses due to large redundancies (over 100 jobs) occurred during January 2005 – August 2018 reference period, in public administration and defence (-53.92 thou' jobs), mining industry (-38.55 thou' jobs), transport / warehousing (-21.71 thou' jobs) and electric power, heating, gas, water (-17.66 thou 'jobs).

When it comes to the creation of new jobs, the newly-founded corporate businesses that rely on advanced technologies and are therefore more competitive, play a decisive role in the absorption of more labour force, illustrating the principle of 'creative destruction'[5]. Public policy makers should take into consideration these two parameters of corporate economic entities, i.e. size (reflected in the number of employees), and length of their existence, when drawing up strategies addressing this segment of corporate business.

A recent analysis regarding the measurement and decomposition of the flow of jobs created and lost in companies operating in Romania, by the size and age of companies with a majority private shareholding, based on the accounting reports submitted by them, showed that, **during the period 2000-2016, the private sector generated a net number of some 50 thou' jobs created per annum, on the average, with a major contribution by the newly-established micro-businesses (with 10 and less employees), whose net balance of 28 thou' jobs per year accounted for more than half of the total jobs created in the private sector[6].**

[5]The pivot concept of Joseph Schumpeter's theory, by which the long-term economic development and cycles are driven by the technological advancement fostered by newly created companies, which bring about mutations and major transformations, paralleled by losses, which include the restructuring or the dissolution of the existing companies that are unable to adapt to the new technological drives.

[6] BNR, *Report on Inflation*, November 2018. pp. 23 - 25.

The same analysis indicated that, with effect from the fourth year of operation since the start of business, the net average job flow tends to become negative, with incongruous fluctuations, varying with the company size. We have found that micro businesses are more dynamic, and after three years of existence, they enter a course of negative job flow (with the number of jobs created being smaller than the number of lost jobs). Small companies (10-49 employees) and middle-sized companies (50-249 employees) start displaying this syndrome after four years of existence, while the large companies show this tendency after six years, on the average.

To summarise, the above-quoted analysis revealed the importance of small and young businesses, whose contribution to job creation/dissolution, as a proportion of their number of personnel, is higher in the overall economy, form both perspectives: creation and dissolution.

2.2.2 Analysis of vacancies, as reported by institutions and companies using National Statistics Institute information

The National Statistics Institute (Institutul Național de Statistică, INS) supplies quarterly information bulletins about vacant jobs, and vacant job rates, by development region.

According to the INS bulletins, the data are collected by way of inquiries into the status of vacant jobs (*Ancheta locurilor de muncă vacante*, a selective quarterly statistic research), which takes as reference the middle month of every quarter.

The statistic research is run on the same sample used for the monthly statistic on wages, and waged workers. The sample includes 23,500 economic and social entities. The research goes in depth with regard to businesses of more than 50 employees and more, and state-budgeted entities (public administration, education, health, and social care).

The data regarding the state-budgeted entities must be used with caution, because such data refer to statistics of economic activities listed under CAEN Rev.2 (NACE Rev.2), to public administration, education, health, and social care (including the private educational establishments – circa 3%, and private health and social care entities - circa 10%), but excludes the armed forces, and the personnel assimilated therewith (Ministry of National Defence, Romanian Intelligence Service, Ministry of Internal Affairs, etc.). These statistics do not specify the source of funding, because their purpose is to supply information on the economic activities listed under NACE Rev.2.

According to the INS methodology, the vacant job rate is calculated as the ratio between the number of vacant jobs and the total number of jobs (occupied + vacant, excluding the frozen ones, and the jobs reserved for in-house advancement), expressed in percentage points.

The number of vacant jobs includes the number of paid jobs, newly created jobs, unoccupied jobs, or jobs to turn vacant, for which:

- Employer takes concrete action to find a suitable candidate for the position offered (examples of concrete actions undertaken by employer: reporting the vacancy to employment offices, advertising the vacancy in the written, audio, or online media, direct contacting of potential candidates, etc.);
- Employer seeks immediate hiring, or hiring within a specified time frame, as determined by employer. The specific time refers to the maximum length of time until the position should be filled.

Deemed as vacancies are the positions available to persons from outside the company/institution (for which, however, are accepted to compete persons already working in the company/institution), irrespective of whether the positions are offered for a fixed term or for an indefinite term, for a normal working schedule, or for part-time work.

Deemed as non-vacancies are the unfilled positions:

- Reserved for the advancement of in-house personnel;
- In public administration entities, that have been frozen by decree.

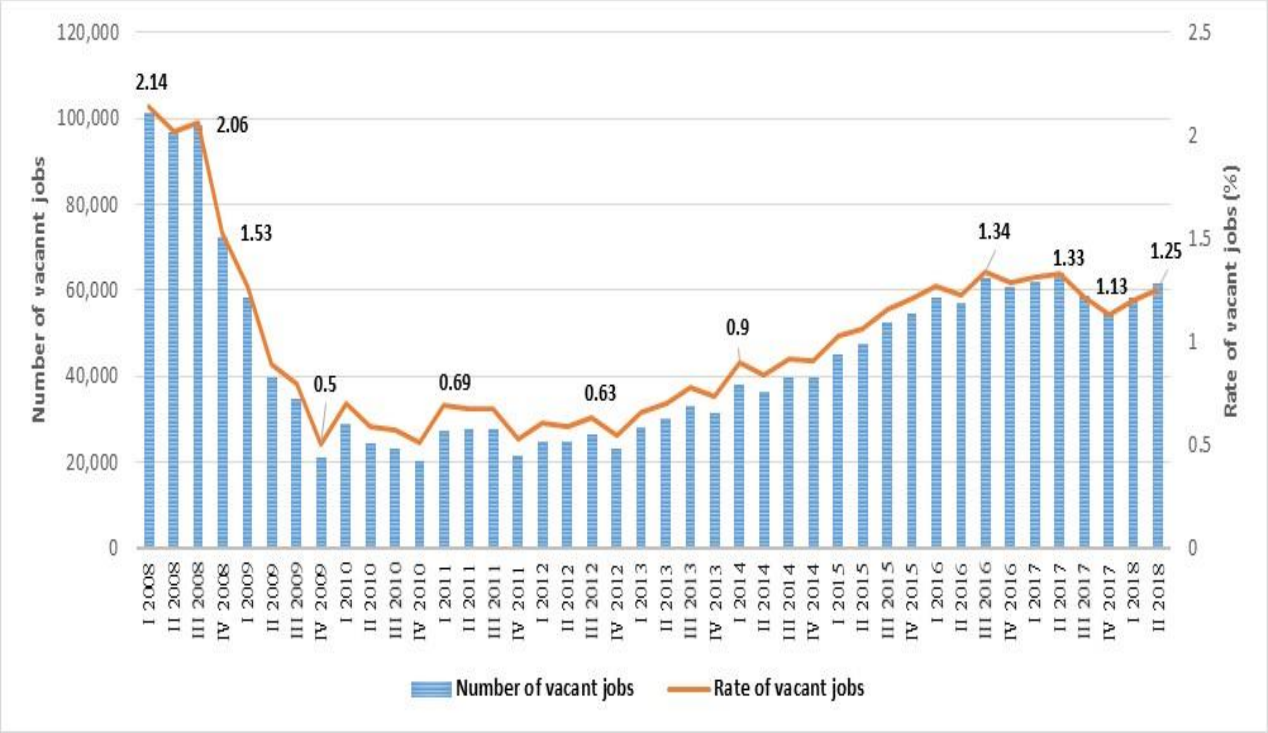
The positions held by persons who are absent from duty for various reasons (maternity leaves, child raising and care, health leaves, non-paid holidays, and other types of absence), may be

deemed vacant, if the employer wishes a substitute for the absent person(s), and if the employer takes action towards finding a replacement.

The average annual number of vacancies is calculated as the simple arithmetical mean of the four quarters of a year.

Based on INS data, in Romania, the number of vacancies plunged from a maximum of 101,185 jobs in Quarter I 2008 (which meant a vacancy rate of 2.14%), to a minimum of 21,199 (0.5%) in Quarter IV 2009, due to the economic and financial crisis. After that, both the number and the rate of vacant jobs followed an ascending curve, up to 62,938 (1.34%) in Quarter III 2016, and then a descending trend, down to 54,663 (1.13%) in Quarter IV 2017, to then start rising from Quarter I 2018, so that in Quarter II 2018 the vacant jobs reported had reached a number of 61,443 (1.25%) (**Graph 33**).

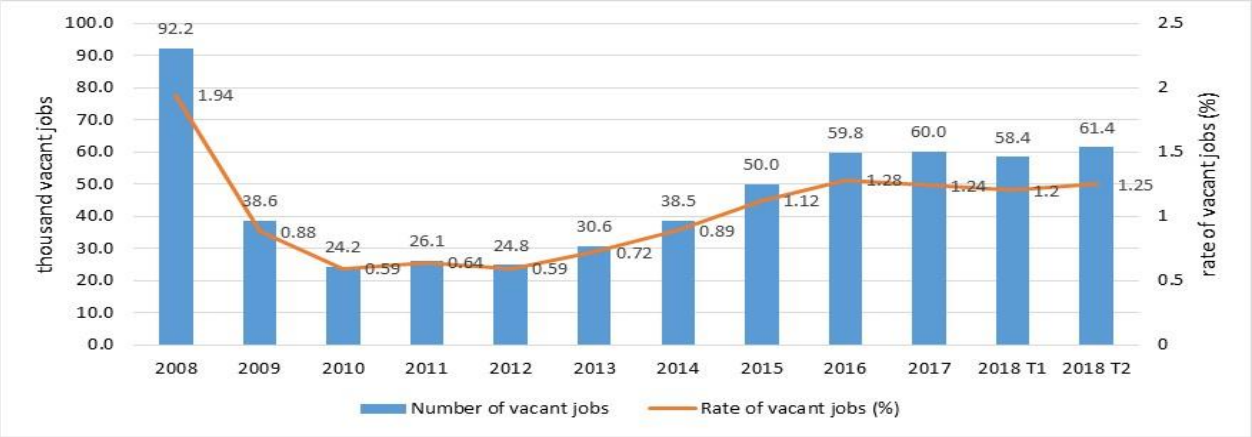
Graph 33: Number and rate of vacant jobs, in Romania, by quarter, during Quarter I 2008 – Quarter II 2018



Source: Date INS; Tempo online,

The average annual figures provided by INS indicate a decline in the number of vacant jobs in Romania, from 92.2 thou' in 2008, to 24.2 thou' in 2010, followed by a constant low due to the effects of the economic crisis in the time window 2010-2012. Then from 2013 onwards, the number of vacant jobs followed the general ascending trend, and even doubled until Quarter II 2018, when 61.4 thou' vacant jobs were reported (**Graph 34**).

Graph 34: Number and rate of vacant jobs, in Romania, by year, during the period 2008 – Quarter II 2018

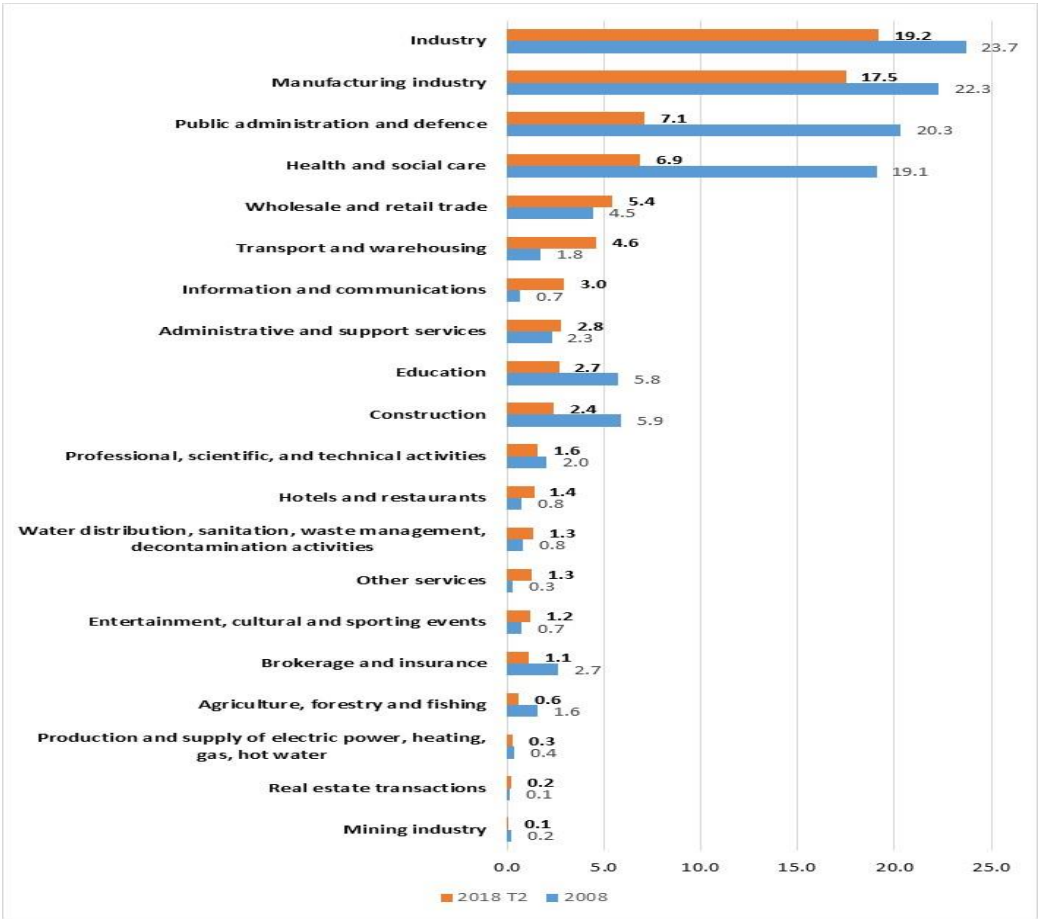


Source: INS data; Tempo online.

The rate of vacant jobs followed similar patterns: it dropped from 1.94% in 2008 to 0.59% in 2010, and started rising, in 2013, up to a vacant jobs rate of 1.25% in Quarter II 2018. Similar to the evolution in number, the rate of vacancies, although on the rise, never moved up to the levels reached in the years prior to the world economic crisis.

A classification of the economic activities by the vacant jobs in Quarter II 2018, brings the industrial sector to the top (with 19.2 thou' jobs), within which manufacturing held the major share of contribution (17.5 thou' jobs), followed by public administration and defence (7.1 thou' jobs), health and social care (6.9 thou' jobs), wholesale and retail trade (5.4 thou' jobs), transport and warehousing (4.6 thou' jobs), and IT and communications (3.0 thou' jobs) (**Graph 35**).

Graph 35: Number of vacant jobs, in Romania, by activity in the national economy, in 2008 and Quarter II 2018 (thou' jobs)

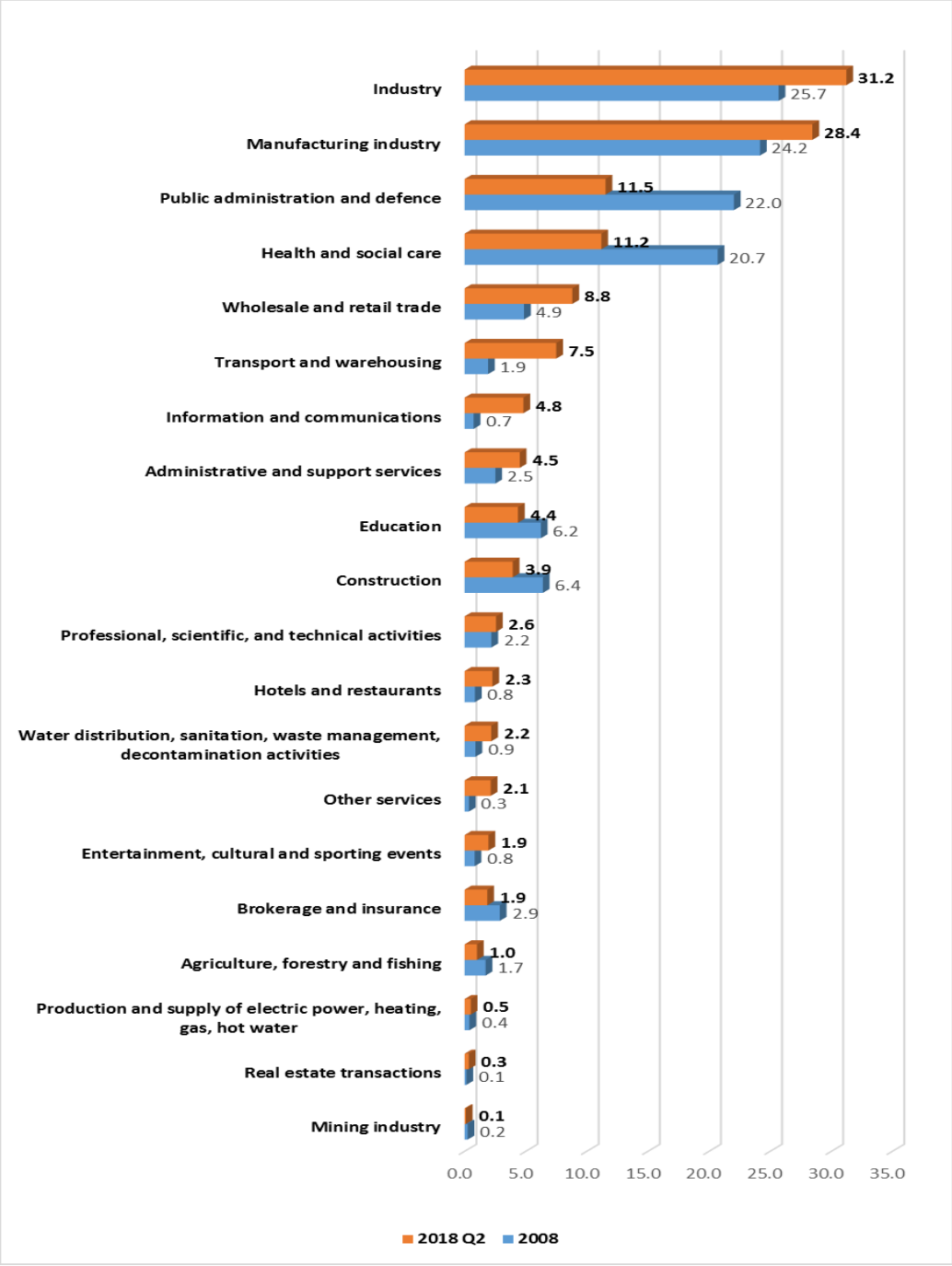


Source: INS data; Tempo online.

Coming last in this classification, are the mining industry (0.1 thou' jobs), real estate transactions (0.2 thou' jobs), and the production and distribution of electric power, heating, and gas (0.3 thou' jobs),

In Quarter II 2018, the largest share in total vacant jobs, 31.2%, was held by the industrial sector, with manufacturing accounting for 28.4%, followed by public administration and defence, and by health and social care, which contributed in almost equal proportions: 11.5%, and, respectively, 11.2%) (**Graph 36**).

Graph 36: Share of activities in the national economy, by number of vacant jobs, in Romania, in 2008 and Quarter II 2018 (%)



Source: INS data; Tempo online.

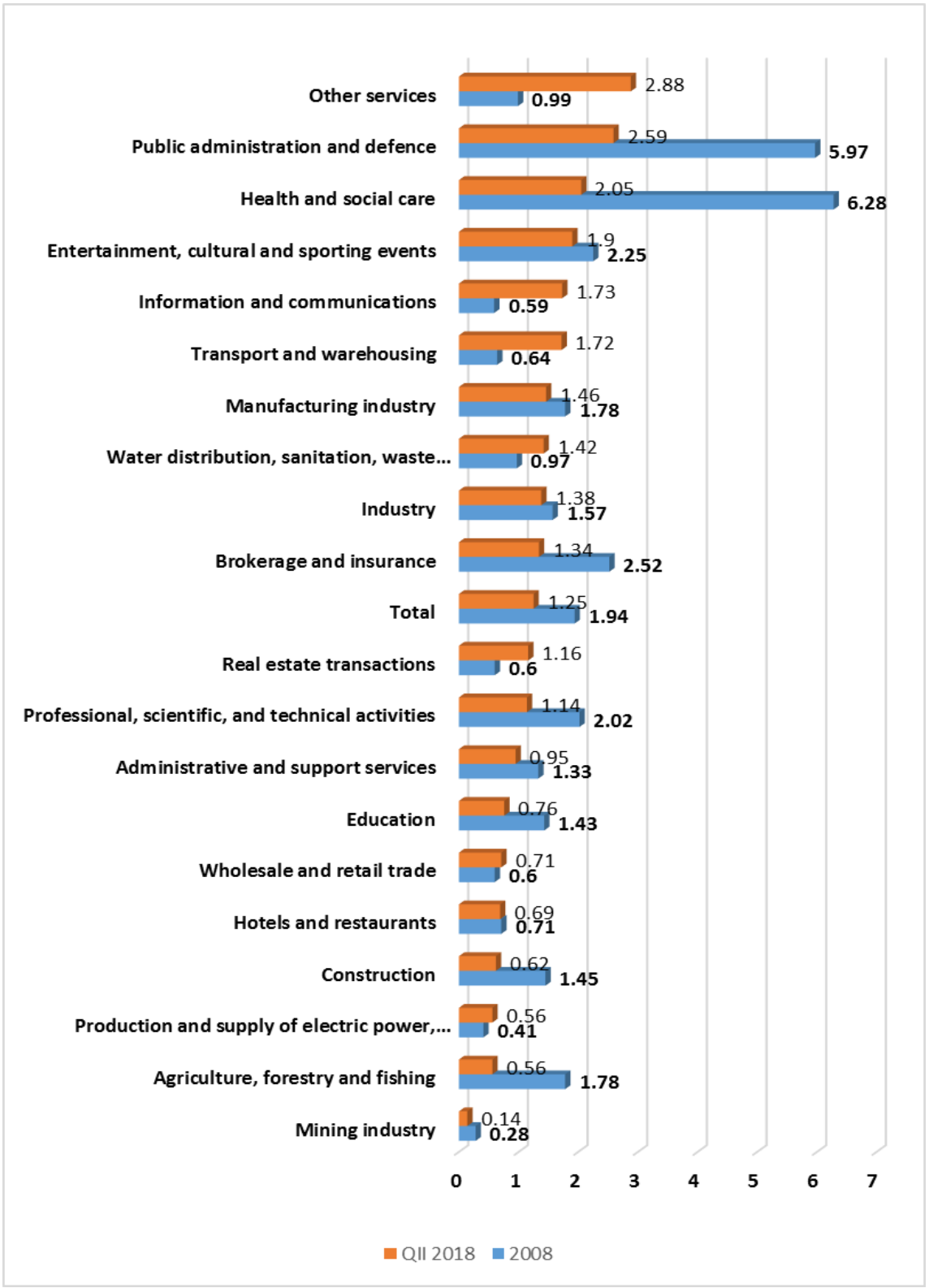
Wholesale and retail trade accounted for 8.8% of the vacant jobs, transport and warehousing – for 5%, and IT and communications – for 4.8%.

In Quarter I 2018, the highest rate of vacant jobs, 2.88%, was in Other Activities and Services, after which came administration and defence, with 2.59%, health and social care, with

2.05%. The last two groups of activities experienced a reduction by more than a half of the rates of vacant jobs, compared to the year 2008 (**Graph 37**).

The only economic activities where the rate of vacant jobs grew significantly from their level in 2008 were IT and communications (with 1.73% in Quarter I 2018, from the 0.59% in 2008), transport and warehousing (1.72%, from 0.64%), and water distribution (1.42%, from 0.97%).

Graph 37: Rate of vacant jobs, by activity in the national economy, in Romania, in 2008 and Quarter II 2018 (%)



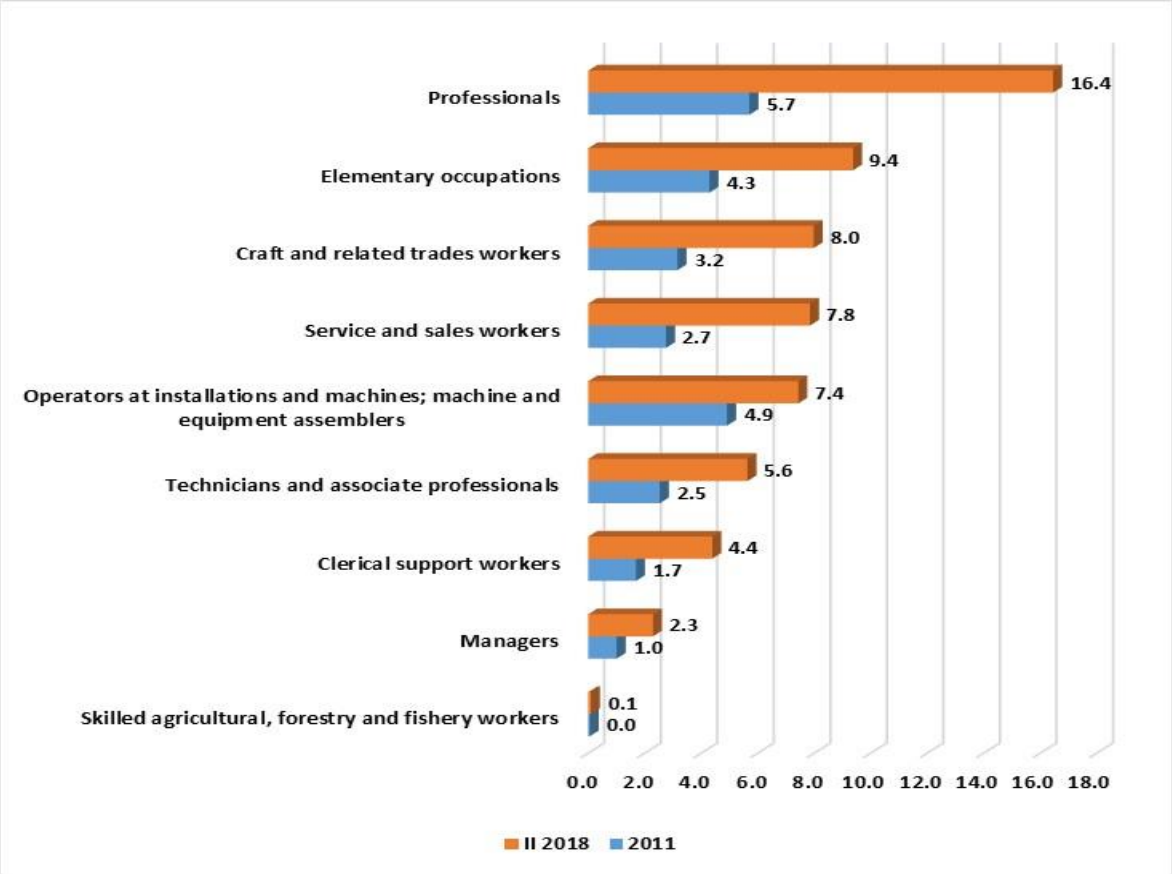
Source: INS data; Tempo online,

This time, again, in Quarter I 2018, ascending trends can be noticed, but of lower magnitude, from the 2008 levels, of the rates of vacant jobs in the sectors of wholesale and retail sale, and in the production and distribution of electric power, heating, gas and water.

The bi-annual inquiry made by INS has been a source of information, since 2011, with regard to vacant jobs, broken down into major occupational groups.

In Quarter II 2018, the most numerous vacant jobs were reported for the major group of expert jobs in various fields of activity (16.4 thou' jobs, from 5.7 thou' jobs in 2011). Second in the hierarchy of vacant jobs are positions for unskilled labourers (9.4 thou' jobs, from 4.3 thou' jobs in 2011). Holding the third place are the category of jobs for skilled workers and workers assimilated therewith (8.0 thou' jobs, from 3.2 thou' jobs in 2011) (**Graph 38**).

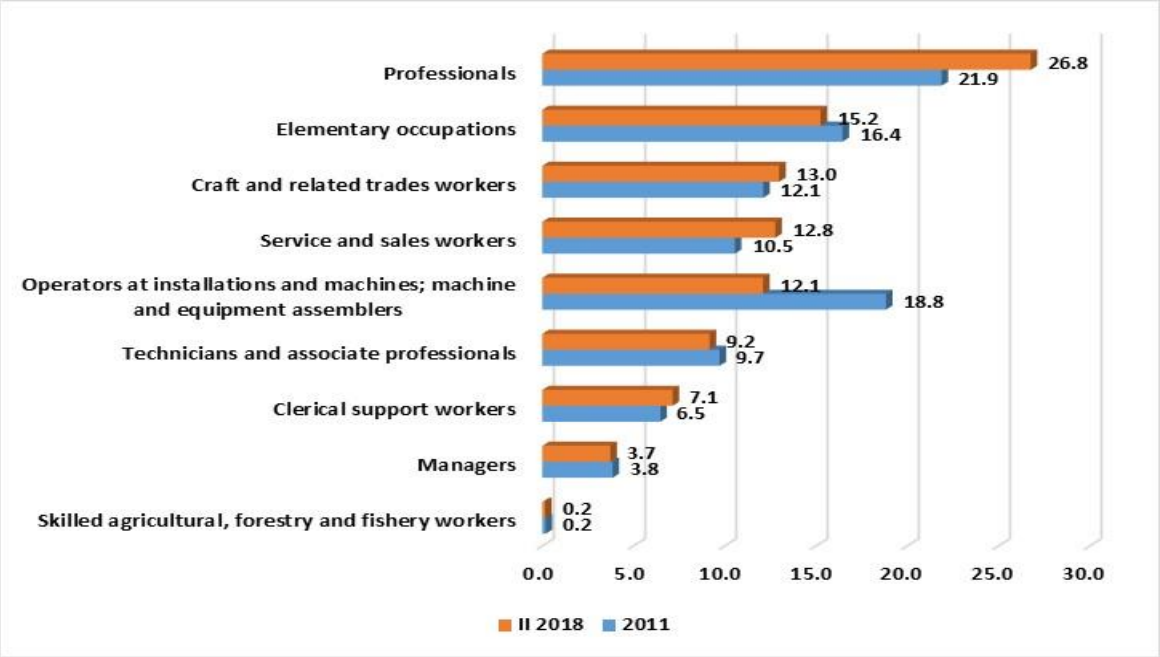
Graph 38: Number of vacant jobs, in Romania, by major occupation group, in 2011 and Quarter II 2018 (thou' jobs)



Source: INS data; Tempo online.

Positions for expert jobs in various fields of activity accounted, in Quarter II 2018, for some 26.8% of all vacant jobs reported (up from 21.9% in 2011), and the jobs for skilled and non-skilled workers represented 28.2% (**Graph 39**).

Graph 39: Share of major occupational groups in the number of vacant jobs, in Romania, in 2011 and Quarter II 2018 (%)

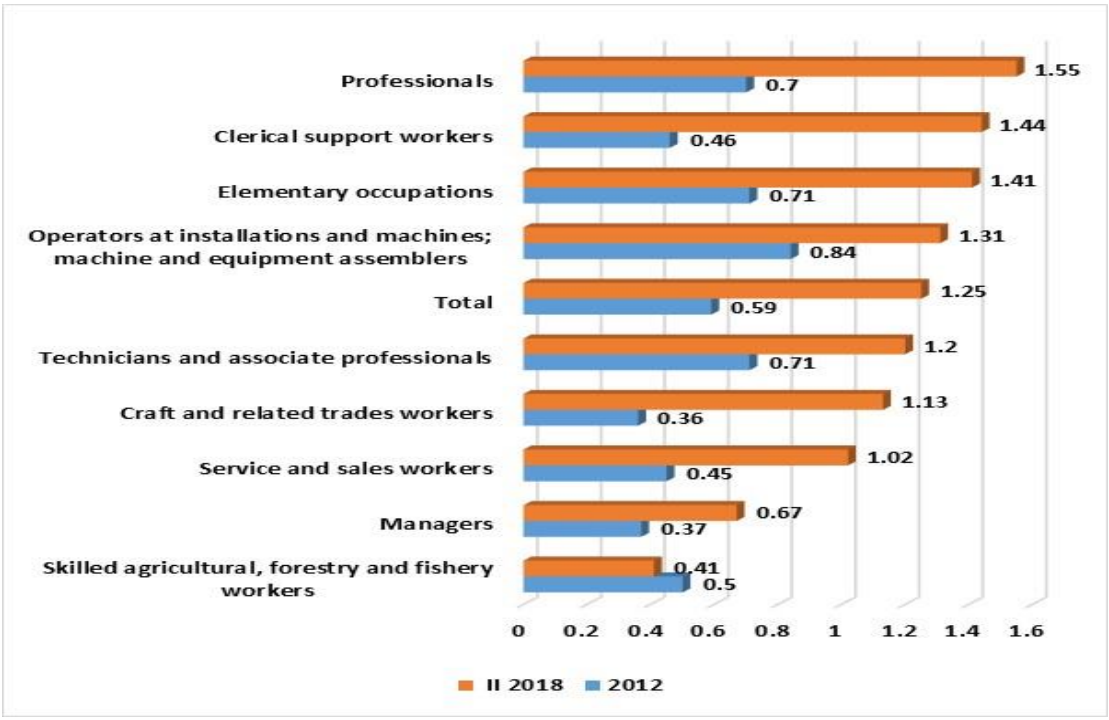


Source: INS data; Tempo online.

Relatively high shares in the number of vacant jobs were also held by positions in the services sector (12.8%), and by jobs for operators of machinery and equipment, and for equipment assembly workers (12.8% and, respectively, 12.1%).

As for the rate of vacant jobs, in the classification of the major occupational groups, in Quarter II 2018, the experts in various fields of activity hold the first place, with a rate of 1.55% (twice as high as the rate for the year 2011). They are followed by public servants in administrative entities, with a rate of 1.44%, and by unskilled labourers, with a rate of 1.41% (Graph 40).

Graph 40: Rate of vacant jobs, by major occupational groups, in Romania, in 2012 and Quarter II 2018 (%)



Source: INS data; Tempo online.

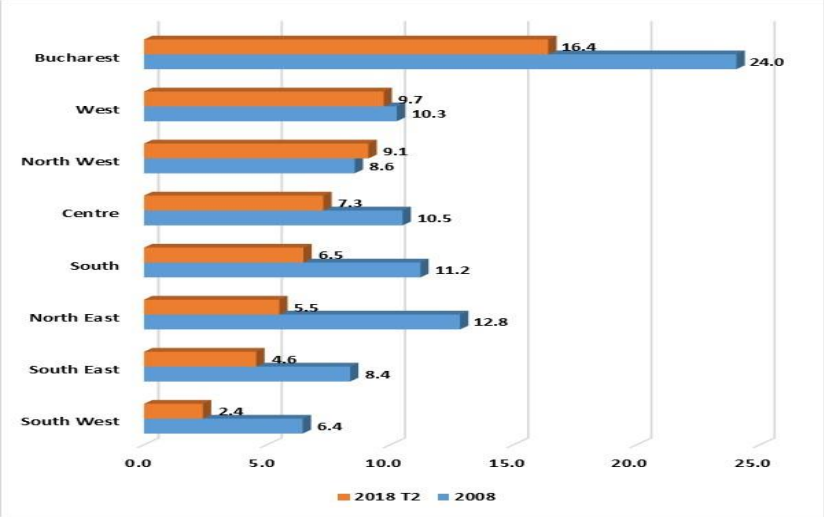
Coming last are the jobs for skilled farm, forestry, and fishing workers, with a rate of vacancies of 0.41%, down from 0.5% in 2011.

The local patterns of vacant jobs have an unequal distribution. The data furnished by the INS inquiry allow us to perform an analysis by development region.

In Quarter I 2018, of the total 61.4 thou' vacant jobs, 16.4 thou' jobs were on record in the Bucharest – Ilfov Region, and only 2.4 thou' jobs were available in the South – West Region (**Graph 41**).

Among the regions that report a large number of vacant jobs are the West Region (with 9.7 thou' jobs), the North-West Region (9.1 thou' jobs), and the Central Region (7.3 thou' jobs).

Graph 41: Classification of regions by the number of vacant jobs, in 2008 and Quarter I 2018 (thou' jobs)

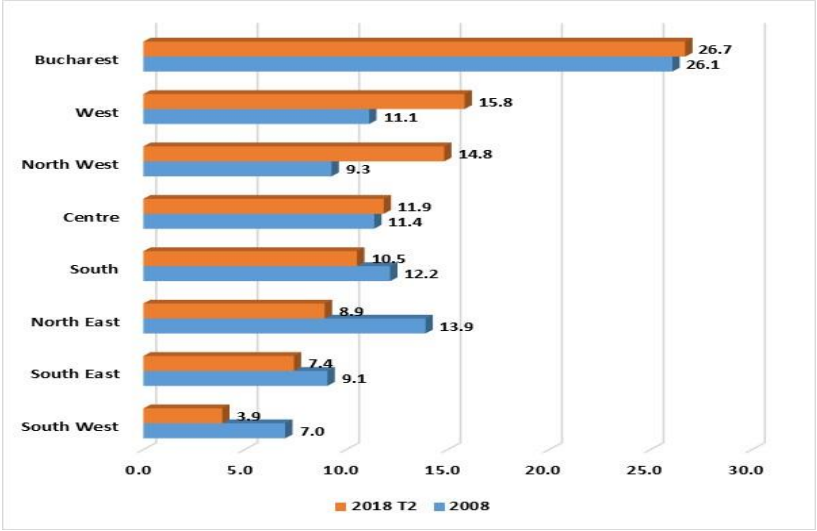


Source: INS data; Tempo online.

It is worth to notice the tendency of regional concentration of vacant jobs in the regions with a higher level of development.

The regions holding the first three places in the classification by the number of vacant jobs (Bucharest-Ilfov, West, and North-West), reported, in Quarter II 2018, approximately 60% of the total all-country vacant jobs, compared to 46.5% in 2008 (Graph 42).

Graph 42: Share of regions in total all-country number of vacant jobs, in Romania, in 2008 and Quarter II 2018 (%)



Source: INS data; Tempo online.

At the opposite extreme, the last three regions in the classification (North-East, South-East, and South-West) totalled 20.2% of all vacant jobs, down from 30% in 2008.
This evolution shows a widening gap between regions in respect of this indicator, during the reference time span under consideration in the study. It is worth mentioning that this gap reflects, in the case of Romania, the existence of significant territorial imbalances due to the different level of development of various areas and regions. These growing gaps have been generated not only by the different degree of local endowment with production factors, but also by the consequences of deindustrialization, because the restructuring of the economy and the reindustrialization during the transition period have been supported by foreign direct investments, which were attracted mainly by the more developed areas, with a friendly business environment, which had better road and rail infrastructure and more functional public services.

3. Conclusions

The downward trend of the last three decades of the population of Romania and the forecasted developments for the next 40 years are contrary to the general trends of population growth throughout the European Union. In the case of Romania, under the current trends, the replacement rate of exits from the working age population by new entries shows a trend of significant decrease in the medium and long term.

One of the main causes of population decrease remain emigration, the probability of transforming the temporary emigration decision into a definitive one being very high, especially in the case of young people, as shown by a survey conducted under the Youth Mobility project.

The analysis of the main demographic indicators highlighted significant differences by residence (urban-rural), by counties and at the level of administrative units, which impose differentiated approaches in the territorial profile of the human resources management. Similar trends are also observed in the context of the analysis of the economic dependency ratio, respectively the average number of inactive and unemployed persons per an employed person.

Although the employment rate has grown in recent years, it remains below the EU28 average. Conversely, under the circumstances of external migration, the unemployment rate in Romania is much lower than in other EU Member States.

The performances of education and vocational training system in Romania are relatively low compared to the EU average on certain components, respectively: the early leavers from education and training system by young people aged 18-24, the employment rate of graduates from the age group 20-34 years from the first until the third year after graduation, the employment rate of the graduates of an ISCED level 3-4, in the first 3 years after graduation, the percentage of adults involved in lifelong learning.

The analysis of the main categories of population according to the participation in the active life, by age groups, led to the finding that the most important growth of the employed population between 2013-2017 is recorded for the age group 45-64 years, due to the increase of the resident population of this age group, the decline in the number of unemployed and retirees, the latter on the account of restrictions imposed for early retirement introduced after the financial crisis in 2009.

The available statistical information allowed to identify important segments of the population that are not found neither in the labour market nor are they included in the system of education and vocational training, thus outlining an unused human potential, that needs an in-depth analysis allowing to understand the causes of this situation and further, the setting of measures that lead to their insertion in the labour market.

Despite all the causes affecting the demographic indicators, it can be concluded that, in terms of labour supply, Romania still has an important human potential.

In terms of the demand for labour force, the main problem in Romania consists in the lack of information that allows its accurate evaluation. For example, the information available regarding the jobs created and lost from the European databases (European Restructuring Monitor), although updated daily, allows their breakdown only at economic branches level. The information provided

by the national statistics on vacancies, with half-yearly frequency, allows analysis only at the level of economic activities, at regional level and on large groups of occupations.

The information available regarding the vacancies in the ANOFM communiqués, although daily (in the working days of the week), allows analysis only on counties and separately for the most frequent occupations. Due to the fact that, in general, companies resort to local employment agencies only for low- and medium-skilled jobs, they do not reflect the actual number and structure of vacancies.

At regional level, starting with 2012, as a general trend, with the exception of only one year (2015), in Romania, the number of jobs created exceeds the number of lost jobs. On regions, significant discrepancies are observed, mainly due to significant differences as regards the local development level and the business environment attractiveness, including the availability and quality of infrastructures and public services. Thus it is explained that the first 3 regions in the hierarchy in terms of vacancies number (Bucharest-Ilfov, West and North-West, with have a higher GDP per capita), registered, in Q2 2018, almost 2/3 of the total vacancies at national level. The North-West region concentrated most vacancies in the sector of electricity, heat, gas and water and the Bucharest-Ilfov region in the sectors of information and communications and also retail.

The study revealed the existence of a negative correlation between the proportion of the beneficiaries of minimum guaranteed income and the vacancy rate at county level in Romania. In the counties where there are relatively many families receiving the minimum guaranteed income, the jobs offer is relatively low, while in the counties where there are relatively few families benefiting from this aid, the jobs offer is larger. This conclusion does not support the hypothesis that most beneficiaries of such a type of social protection refuse employment opportunities. On the contrary, it is more plausible that the limited offer of jobs leads to an increase in the frequency of situations that make necessary the state assistance of households through the minimum guaranteed income.

Although it has recorded the largest creation and loss of jobs, the manufacturing industry ends the period 2005-August 2018 with a positive balance and remains in the first place in terms of the number of vacancies. The economic sectors registering a downward trend and a negative balance of jobs between 2005 and 2018 are the extractive industry, electricity, heat, gas and water, while the sectors with an upward trend and a positive balance of jobs are: IT&C, hotels and restaurants, retail. In the process of creating jobs, the newly created companies, which have a higher level of technology and are more competitive, represent the driver of the employment rate increase, according to the concept of "creative destruction". The evaluation of these two characteristics of the companies, respectively size (according to the number of employees) and age is essential for the elaboration and implementation of public policies targeting this segment.

The study highlighted the importance of small and young companies in Romania, which contributes to a significantly greater extent, compared to the share of employees in the total economy, both in creating jobs and destroying them. Between years 2000 and 2016, the private sector created a net increase of about 50 thousand jobs, as annual average, with a major contribution of the newly created micro enterprises (with fewer than 10 employees), with a net positive balance of 28 thousand jobs annually, respectively more than half of the total private sector.

In conclusion, on the supply side, the short, medium and long term perspective of the labour market in Romania is shaded by unfavourable trends, under the impact of demographic indicators deterioration, including on the account of emigration, which could be partially offset by the unused reserve of the labour force, which depends on educational and training system improvements. On the demand side, the lack of information makes a correct and complete assessment difficult, especially from the point of view of the occupational and territorial structures, the more so as growing development imbalances encroaches also the labour market.

If, in this Part I of the study, we carried out an analysis of the configuration of the labour market in Romania, signalling its current and potential imbalances between the demand and supply, our analysis will continue in Part II with the presentation of the main landmarks of the labour shortages, investigating also their typology, the academic and business environment warnings as

concerns the emergence and deepening the labour force deficits, the increasingly acute problems of the employers in completing the personnel schemes according to their needs, both quantitative and qualitative, respectively in the Part III, with the elaboration of scenarios of the labour market developments and the associate imbalances, recommending new policies and measures to mitigate the labour shortages. The Part II and the Part III of the study are to be published soon also in the NIER *Working Papers*.

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