ACKNOWLEDGEMENTS

The authors of this paper would like to acknowledge to George Onofrei, professor in Operations and Supply Chain Management, at the School of Business, Letterkenny Institute of Technology, Ireland, for guidance and academic support.

The work of Dragoș Cristea, Mihaela Neculiță, Ira-Adeline Simionov, Ștefan-Mihai Petrea, Alina Mogodan was supported by the project "ANTREPRENORDOC", Contract no. 36355/23.05.2019, financed by The Human Capital Operational Programme 2014-2020 (POCU), Romania.

REFERENCES

[1]Abraham, K., Haltiwanger, J., Sandusky, K., Spletzer, J., 2018, Measuring the Gig Economy: Current Knowledge and Open Issues. https://doi.org/10.3386/w24950, Accessed on March 5, 2021

[2]Ashworth, J., Thomas, B., 1999, Patterns of seasonality in employment in tourism in the UK. Applied Economics Letters, 6(11), 735–739. https://doi.org/10.1080/135048599352312, Accessed on March 5, 2021

[3]Bellit, S., 2014, The career paths of agricultural workers: What is the impact of temporary contracts? Agricultural Economics (Czech Republic), 60(12), 553–569. https://doi.org/10.17221/78/2014-agricecon, Accessed on March 7, 2021

[4]Cartmel, F., Furlong, A., 2000, Youth unemployment in rural areas Work and Opportunity Series No. 18 Cover design by Adkins Design.

[5]Commins, P., 2004, Poverty and Social Exclusion in Rural Areas: Characteristics, Processes and Research Issues. Sociologia Ruralis, 44(1), 60–75. https://doi.org/10.1111/j.1467-9523.2004.00262.x, Accessed on March 9, 2021.

[6]Holmlund, B., Storrie, D., 2002, Temporary work in turbulent times: The Swedish experience. Economic Journal, 112(480), F245–F269. https://doi.org/10.1111/1468-0297.00042, Accessed on March 16, 2021

[7]Koustas, D. K., 2019, What Do Big Data Tell Us about Why People Take Gig Economy Jobs? AEA Papers and Proceedings, 109, 367–371. https://doi.org/10.1257/pandp.20191041, Accessed on March 16, 2021.

[8] National Institute of Statistics, 2021, Tempo online data base, www.insse.ro, Accessed on March 17, 2021.

[9]Rosenzweig, M. R., 1988, Chapter 15 Labor markets in low-income countries. In Handbook of Development Economics, Vol. 1, pp. 713–762. Elsevier. https://doi.org/10.1016/S1573-4471(88)01018-6, Accessed on March 16, 2021.

[9]www.researchgate.net/profile/George-Onofrei, Accessed on April 26, 2021.

[10]Zangelidis, A., 2015, Labour Market Insecurity and Second Job-Holding in Europe. SSRN Electronic Journal. https://doi.org/10.2139/ssrn.2615268,

Scientific Papers Series Management, Economic Engineering in Agriculture and Rural Development
Vol. 21, Issue 2, 2021
PRINT ISSN 2284-7995, E-ISSN 2285-3952

WORK IN RURAL AREAS, AN ANALYSIS OF THE UNEMPLOYMENT RATE AND ITS EVOLUTION OVER THE LAST DECADE

Sarina ROSENBERG[*], Dragos CRISTEA[*], Mihaela NECULIȚĂ[*], Ira-Adeline SIMIONOV[**], Ștefan-Mihai PETREA[***], Alina MOGODAN[***]

„Dunărea de Jos" University of Galați, 800008 Romania, *Faculty of Economics and Business Administration, sarina17.rosenberg@gmail.com, dragoscristea@yahoo.com, niculitam@yahoo.fr, , **MoRAS Research Center, ira.simionov@gmail.com, ***Food Science and Engineering Faculty, Department of Food Science, Food Engineering, Biotechnology and Aquaculture, Romania, stefan.petrea@ugal.ro, alina.antache@ugal.ro

Corresponding author: sarina17.rosenberg@gmail.com

Abstract

The economic reality of the Romanian rural space describes a different unemployment rate than those registered in the urban areas or at national level. At the same time, the dynamics of the economic sectors belonging to the rural areas is different from its evolution in the urban environment. Forms of employment in rural areas tend to be predominantly of a permanent nature, to the detriment of temporary work or seasonal ones. Elements of influence on the individual, which affect the decision to work or the option to choose a satisfactory job are the financial and social conditions. Influencing factors such as the level of education and qualification, the level of income per person or household, the work seasonality phenomenon in different economic sectors, constantly change the employment work level, also the contractual form in which the work is performed. This article describes the interaction of some economic and social indicators on the unemployment rate in the Romanian rural areas and highlights its evolution in the economic and social context of the last decade. The analysis method used in this paper is the quantitative one. An important share of the total number of unemployed in rural areas, is represented by people who have never worked, who have never had a work experience, regardless of age or level of education. The highest values are registered for people aged between 15-24 years and for those who graduated high school and the lowest weight values are for people aged 55-64 years and those with university degrees. For the last decade, the highest number of rural unemployed are people who have finished or graduate the high school, and the unemployed with secondary school. The highest increasing value of unemployed people is recorded in 2015. The highest decreasing values of unemployed people are recorded between 2016 and 2019.

***Key words*:** *unemployment, rural areas, rural statistics*

INTRODUCTION

The phenomenon of unemployment, generally speaking, in urban or rural areas, is one of the topics intensely and constantly analyzed. The unemployment rate, together with the employment rate and the number of able-bodied populations, regardless of the analyzed environment, are all reference indicators in defining the labour market, the balance between labour demand and supply [5]. In this sense, the effect of the migration phenomenon of the labour force from the rural to the urban environment or outside Romania, must be also emphasized. Also, Romania in the last decade has been generally characterized by economic stability, except for the very first years after the global economic crisis in 2007 and for 2020, the year in which the global health crisis broke out. Its effects on the labour market were immediate: the demographic dynamics of enterprises changed significantly compared to 2019, with implicit impact in decreasing the volume of employed labour force, increasing the number of unemployed and obviously the unemployment rate.

There are distinct types of rural areas and their delimitation makes it easier to understand the

predominant factors that influence the unemployment phenomenon, for each area. Thus, there are (a) classical rural areas, geographically isolated from the urban ones, with economic activity based mainly on agriculture, (b) rural areas derived from former areas of extraction or production activity in which unemployment registers high values, (c) areas in the vicinity of cities, characterized by population mobility to urban areas and a higher population density than in the other areas described and (d) seasonal areas whose activity is based on tourism or agriculture [2].

Unemployment among young people is a particularly important phenomenon in rural areas, and the reasons for its persistent nature are due to lack of job alternatives or in building a career, poor access to vocational training in the proximity of the living area, the dynamics of architecture forms of work, respectively the transition to GIG types of work, partial or temporary models, in different rural economic sectors [2].

In the following we will refer to the characteristics of the unemployment phenomenon in the Romanian rural areas [1] and we will analyze the interdependence of some of the factors that influence the evolution of this indicator, in the last 10 years. As benchmarks of the analysis, we considered it necessary to lean towards the description of the unemployment rate dynamics in general, the way in which unemployment is affected depending on the level of education, the age categories of the population or the way in which the unemployment period affects the analyzed indicator.

Another factor that we considered necessary to follow is the category of unemployed who have never worked, as well, depending on the level of education or population age category, in order to highlight one of the important characteristics of the rural unemployment phenomenon, namely, that the category of people who have never worked, regardless of age or level of education, represents almost 50% of the total number of unemployed in rural areas. And last but not least, we have created a general framework for describing the income situation in rural areas, both for employees and the unemployed, in order to better understand the impact of this indicator on the rural unemployment dynamics.

The purpose of this paper is to highlight the characteristics of the rural unemployment phenomenon in 2010-2020 period, the way in which this indicator has evolved in this decade and to underline the key points of its dynamics.

MATERIALS AND METHODS

The reference period considered in this paper is 2010 - 2020. All statistical data used in this analysis belong to the National Institute of Statistics. Some data are available until 2019, but from the integrated analysis of the evolution of rural unemployment, we can say that this issue does not significantly influence the results obtained. Also, the statistical data for 2020 represent an arithmetic average of the first, second and the third quarterly values currently available. The analysis method used in this paper is the quantitative one. Calculations of dynamics and weight of indicators are used, in order to highlight the integrated evolution of the rural unemployment phenomenon in the analyzed period.

RESULTS AND DISCUSSIONS

The rural unemployment rate

The unemployment rate in rural areas, representing the total number of people looking for a job in the total active labour force, calculated as a percentage, registers during the last decade increasing values until the middle of the reference period, then a decreasing trend, starting with 2016 until in 2020. Compared to the indicator values in urban and national level, as it results from the statistical data included in Table 1 it can be seen that, at rural level, the values were lower than the other two comparison areas, up to 2015, the highest value being registered by the unemployment rate in the urban environment (7.00%). From 2015 till 2020, there is a change in the indicators dynamics on the 3 comparison areas, the unemployment rate in rural areas having a higher value than

the national average or the urban areas. Thus, the dynamics of the indicator in rural areas registers a relatively constant trend for the first half of the decade, with values close to 5% (4.80% in 2010 and 5.30% in 2015), then rising to 6.60 for 2015. For the rest of the period, there is a slightly decreasing trend, so that in 2020 the value is 5.63%. If we refer to the share of rural unemployed number in the national total, during the reference period we can see an absolutely upward trend in the parameter evolution, with values of 32.01% for 2010 and 51.33% in 2020, of the total national indicator. As a comparison between the areas described in the analysis, in Figure 1, it can be seen the differences in the evolution of the unemployment rate indicator, namely: the minimum values recorded in the analyzed period are those of 2019, with 4.50% in rural areas, 3.90% nationally and 3.40% in urban areas and the maximum are those registered in 2010 (4.80% in rural areas, 7.00% nationally and 8.80% in urban areas).

Table 1. Unemployment rate in rural areas

		period										
	residence	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**
unemployment rate in rural area (unit: percentage)	**Total national**	7.00	7.20	6.80	7.10	6.80	6.80	5.90	4.90	4.20	3.90	4.97
	Urban	8.80	8.60	8.30	8.70	8.10	7.00	5.60	4.50	3.80	3.40	4.43
	Rural	4.80	5.50	5.00	5.20	5.30	6.60	6.30	5.40	4.70	4.50	5.63
unemployed in rural area (unit: no. of people)	**Total national**	651,695	659,426	627,209	652,984	628,682	623,910	529,869	449,331	379,678	353,370	445,672
	Rural	208,601	225,555	208,182	217,999	219,832	273,477	251,719	224,271	193,650	185,316	228,775
	% of national	32.01%	34.20%	33.19%	33.39%	34.97%	43.83%	47.51%	49.91%	51.00%	52.44%	51.33%

Source: author`s calculation based on NIS data [10].

Thus, the dynamics of the indicator in rural areas registers a relatively constant trend for the first half of the decade, with values close to 5% (4.80% in 2010 and 5.30% in 2015), then rising to 6.60 for 2015. For the rest of the period, there is a slightly decreasing trend, so that in 2020 the value is 5.63%. If we refer to the share of rural unemployed number in the national total, during the reference period we can see an absolutely upward trend in the parameter evolution, with values of 32.01% for 2010 and 51.33% in 2020, of the total national indicator.
As a comparison between the areas described in the analysis, in Figure 1., it can be seen the differences in the evolution of the unemployment rate indicator, namely: the minimum values recorded in the analyzed period are those of 2019, with 4.50% in rural areas, 3.90% nationally and 3.40% in urban areas and the maximum are those registered in 2010 (4.80% in rural areas, 7.00% nationally and 8.80% in urban areas).

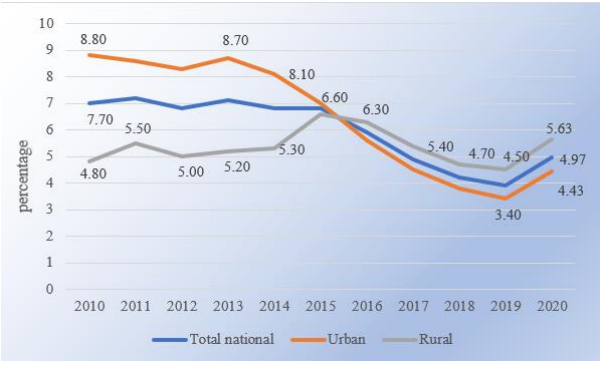

Fig. 1. Evolution of unemployment rates in rural areas compared to the national and urban levels (%)
Source: author`s calculation based on NIS data [10].

There is also an increase in the values of the unemployment rate on all 3 comparison averages, in 2020, the main motivation being the effects of the pandemic crisis on the labour market.
One of the present economic sectors in rural areas is agriculture [5], a sector for which statistical data show that unemployment is multidimensional and the predominant forms of work are seasonal and temporary. There is

also an increased mobility of people, given the seasonal or temporary movement in different rural areas, along with finding a job [4]. Precisely these characteristics of the labour dynamics in the agricultural sector, make employment and unemployment indicators not exactly easy to be quantified [7].

The rural unemployment by educational level

The level of education influences in finding a job, along with other factors such as: the specialty of studies, the level of national economic stability, the income level, the level and the wage differences between the rural and the urban environment, the balance between supply and demand on the labour market, etc [11].

If we refer to a higher education, for example, holding an academic diploma does not certify in finding a job, the basic conditions being rather defined by the level of labour demand at a given time and the level of economic stability. If the labour demand is high, in a stable economic environment, the occupancy rate is higher and vice versa [12].

Table 2. Rural unemployment by educational level

Unemployed in rural area (unit: no. of people) / period												
Level of education	**Residence**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**
Total	**national**	651,695	659,426	627,209	652,984	628,682	623,910	529,869	449,331	379,678	353,370	445,672
		208,601	225,555	208,182	217,999	219,832	273,477	251,719	224,271	193,650	185,316	228,775
% from national	**Rural**	32,01%	34,20%	33,19%	33,39%	34,97%	43,83%	47,51%	49,91%	51,00%	52,44%	51,33%
dynamics		:	8,13%	-7,70%	4,72%	0,84%	24,40%	-7,96%	-10,90%	-13,65%	-4,30%	23,45%
University	**national**	:	73,387	82,065	89,221	98,340	73,952	56,021	44,132	38,950	29,348	39,057
		:	11,056	9,609	11,941	13,565	13,525	9,038	7,932	8,768	7,334	11,279
% from total rural	**Rural**	:	4.90%	4.62%	5.48%	6.17%	4.95%	3.59%	3.54%	4.53%	3.96%	4.93%
dynamics		:	:	-13.09%	24.27%	13.60%	-0.29%	-33.18%	-12.24%	10.54%	-16.35%	53.79%
Postgraduate specialized or technical foreman	**national**	22,323	14,024	13,787	17,277	15,169	13,157	12,266	8,637	5,549	5,115	6,485
		3,338	2,032	2,513	3,291	2,958	3,314	2,155	1,325	796	895	923
% from total rural	**Rural**	1.60%	0.90%	1.21%	1.51%	1.35%	1.21%	0.86%	0.59%	0.41%	0.48%	0.40%
dynamics		:	-39.13%	23.67%	30.96%	-10.12%	12.04%	-34.97%	-38.52%	-39.92%	12.44%	3.13%
High school	**national**	215,370	225,431	220,280	237,585	257,228	265,985	232,534	201,355	178,781	162,482	204,130
		53,628	60,847	63,330	66,633	82,909	109,602	107,720	98,777	88,489	80,286	94,878
% from total rural	**Rural**	25.71%	26.98%	30.42%	30.57%	37.71%	40.08%	42.79%	44.04%	45.70%	43.32%	41.47%
dynamics		:	13.46%	4.08%	5.22%	24.43%	32.20%	-1.72%	-8.30%	-10.42%	-9.27%	18.18%
Professional, complementary or apprentice	**national**	185,132	167,129	149,019	149,398	102,100	102,018	85,894	71,426	54,149	49,922	72,376
		64,375	57,246	49,815	56,253	40,676	47,959	45,661	42,597	30,404	29,833	40,352
% from total rural	**Rural**	30.86%	25.38%	23.93%	25.80%	18.50%	17.54%	18.14%	18.99%	15.70%	16.10%	17.64%
dynamics		:	-11.07%	-12.98%	12.92%	-27.69%	17.90%	-4.79%	-6.71%	-28.62%	-1.88%	35.26%
Secondary	**national**	115,091	126,337	116,700	116,040	124,317	132,817	116,004	96,830	75,091	75,084	95,413
		58,364	66,003	60,892	59,517	64,025	80,295	72,193	57,590	48,187	47,948	60,961
% from total rural	**Rural**	27.98%	29.26%	29.25%	27.30%	29.12%	29.36%	28.68%	25.68%	24.88%	25.87%	26.65%
dynamics		:	13.09%	-7.74%	-2.26%	7.57%	25.41%	-10.09%	-20.23%	-16.33%	-0.50%	27.14%
Primary (1 - 4 classes)	**national**	18,050	24,805	22,900	20,693	25,060	29,213	20,818	21,239	20,310	22,278	18,711
		10,146	16,093	11,186	9,613	11,545	15,224	12,208	13,272	13,791	13,540	13,587
% from total rural	**Rural**	4.86%	7.13%	5.37%	4.41%	5.25%	5.57%	4.85%	5.92%	7.12%	7.31%	5.94%
dynamics		:	58.61%	-30.49%	-14.06%	20.10%	31.87%	-19.81%	8.72%	3.91%	-1.82%	0.35%
No graduate school	**national**	5,320	5,299	4,156	5,412	6,468	6,768	6,333	5,712	6,848	9,140	9,500
		3,089	2,913	2,758	3,162	4,153	3,558	2,744	2,778	3,216	5,479	6,794
% from total rural	**Rural**	1.48%	1.29%	1.32%	1.45%	1.89%	1.30%	1.09%	1.24%	1.66%	2.96%	2.97%
dynamics		:	-5.70%	-5.32%	14.65%	31.34%	-14.33%	-22.88%	1.24%	15.77%	70.37%	24.00%

Source: author`s calculation based on NIS data [10].

Regarding the share of different groups of people who do not have a job and their level of education, in the unemployed total number, the following observations can result, according with statistical data in Table 2: the highest shares of total unemployed is held by high school graduates (37.16%) and by the persons with primary school, gymnasium or without any education class (35.13%).

The category of persons with higher education has a diluted contribution in the total indicator (4.67%), the lowest value of the weight being registered for the persons qualified in professionals / apprentices (0.89% of the total number of rural unemployed and 0.21% of the national total value). Comparison of the above categories described in the rural unemployed

total value is represented graphically in Figure 2.

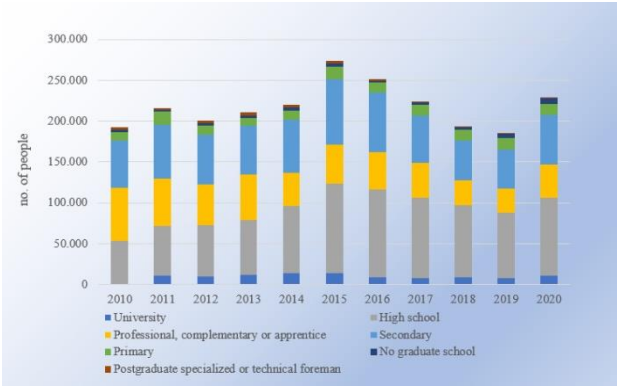

Fig. 2. Comparison of rural unemployed categories, by educational level, in total value indicator
Source: author`s calculation based on NIS data [10].

Analyzing the value differences of 2020 with those of 2010, we can see consistent increases or decreases on different analyzed groups. Thus, the number of unemployed people who did not graduate any class increased by 119% (and with 78.57% at national level), as well as the number of unemployed people who graduated high school, 76.92% in 2020 compared to 2010. In the other direction, there are significant decreases of the number of unemployed qualified professional/technical classes (-72.35%) and those with professional, complementary or apprentice qualification (-60.91%).

The effects of the current. pandemic crisis on the employment indicator led to the increase of all their values in 2020, compared to 2019. It can be seen increases of rural unemployed, for all analyzed groups, the average dynamics being 23.45%. Thus, the largest increase in the number of unemployed in rural areas is the category of people with university degrees (53.79%) and those with professional schools or apprentices (35.26%). Other registered values are: 27.14% for people with secondary school, 18.18% for people who finished or graduated high school, 24.00% for people without education and 0.35% for those with primary school.

The rural unemployed who never work by age and educational level

Another aspect of rural unemployment that needs to be analyzed is the differentiation of the categories of unemployed who have never worked, by age categories and according to the level of education. The first observation that emerges from the data contained in Table 3 is the significant share of people who have never had a job in the total number of unemployed in rural areas, with values between 1.04% in 2010 and 61.00% in 2019, the values throughout the analysis period being represented graphically in Figure 4. It can also be seen that young people aged 20-24 are the category most exposed to unemployment, with about 35,835 people in 2019, increasing throughout the analysis period (40,027 people in 2010). Other important registered values for the entire reference period is that of persons aged between 15-19 years, with 21.408 persons in 2019. The 25-29 years category register 15,989 persons registered in 2019, the 30-34 years group 11,366 persons. It can be seen that, once with the advancing age of the persons, the number of unemployed who have never worked decreases. The evolution of rural unemployed who never work before can be seen in Figure 3.

Also, in Figure 4 we can see the share of the categories of unemployed who have never worked and those who worked before the unemployment period, in the total number of unemployed in rural areas, during the analyzed period. The weights of the unemployed who have never worked are important, starting around 40% in 2010 and increasing to about 60% in 2020. Another interpretation of the values of these weights is made according to the level of education of the unemployed who never work, as can be seen from the statistical data included in Table 4 and represented graphically in Figure 5.

If we consider the differentiation of the rural population that has never had a job, depending on the level of education acquired, according to the statistical data included in Table 3, we can see that people who finished the high school are the highest category in the total number of unemployed who have never worked. The registered values are 47.33% in 2020 and 31.89% in 2010, the evolution trend being an absolutely increasing one for the analyzed period. In the other way, we observe

the category of qualified persons in professional schools or apprenticeships with decreasing values of approximately 50% in 2020 compared to 2010 (19,799 persons in 2010 compared to 10,692 in 2020).

Generally, the highest values of dynamics can be seen in 2015, when the total number of people in rural areas who never worked increased by 56.81% compared to the previous year, as seen in Figure 4.

The lowest values in the weight of the indicator are registered by the persons who have not graduated any class, by those who have finished primary school and by the category of persons with university studies. The evolution dynamics of the categories subject to attention indicate relatively constant trajectories for groups with primary education, university studies or vocational schools, while the dynamics trends for groups with high school and gymnasiums describe oscillating trajectories, increasing in 2010-2015 and decreasing for the other half of the reference period, as can be seen in Figure 5.

Table 3. Rural unemployed people who never worked, by age category

unemployed in rural area, who never worked (unit: no. of people)	Period									
	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Total	85,613	89,058	88,497	89,266	96,355	151,097	139,102	132,555	123,202	113,051
dynamics	:	4.02%	-0.63%	0.87%	7.94%	56.81%	-7.94%	-4.71%	-7.06%	-8.24%
% from total rural	41.04%	39.48%	42.51%	40.95%	43.83%	55.25%	55.26%	59.10%	63.62%	61.00%
15 – 19 years	17,094	14,894	19,768	21,322	21,119	26,851	25,242	19,632	18,479	21,408
20 - 24 years	40,027	41,888	36,487	37,820	42,057	45,620	41,530	46,481	37,039	35,835
25 - 29 years	14,591	13,884	13,340	13,391	15,927	29,209	28,753	21,391	20,290	15,989
30 - 34 years	4,174	6,384	6,293	5,850	4,859	12,509	13,799	13,468	13,376	11,366
35 - 39 years	4,204	4,787	4,287	3,403	4,407	13,469	9,359	8,486	11,483	7,211
40 - 44 years	2,405	3,595	4,345	4,527	3,601	10,216	9,853	8,318	7,357	7,248
45 - 49 years	1,668	1,802	1,808	1,394	2,870	7,197	4,996	8,141	10,141	7,097
50 - 54 years	860	879	1,157	1,025	1,113	3,723	3,495	3,602	2,575	3,639
55 - 59 years	482	465	242	324	313	1,593	1,527	1,910	1,773	1,632
60 - 64 years	107	392	680	144	:	432	549	823	566	1,625

Source: author`s calculation based on NIS data [10].

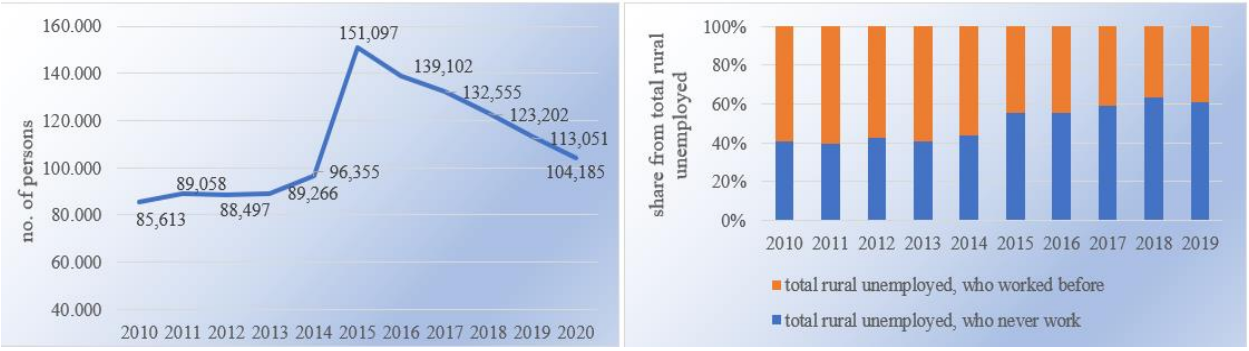

Fig. 3 and Fig. 4. Evolution of the unemployed who have never worked (rural araeas) (a) and their share in total number of enemployed (rural areas)(b)

Source: author`s calculation based on NIS data [10].

Table 4. Rural unemployed who never worked by educational level

Rural unemployed, who never worked, by educational level (unit: no. of people)	Period										
	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Total rural	85,613	89,058	88,497	89,266	96,355	151,097	139,102	132,555	123,202	113,051	104,185
Universitary	:	7,180	5,749	6,872	7,605	10,735	6,386	5,166	5,977	4,792	5,668
% from total rural	:	8.06%	6.50%	7.70%	7.89%	7.10%	4.59%	3.90%	4.85%	4.24%	5.44%
Postgraduate specialized or technical foreman	1,470	1,419	980	838	1,100	1,835	1,553	1,246	692	422	405
% from total rural	1.72%	1.59%	1.11%	0.94%	1.14%	1.21%	1.12%	0.94%	0.56%	0.37%	0.39%
High school	27,306	32,647	36,902	37,733	42,672	66,415	67,116	68,304	63,572	55,603	49,312
% from total rural	31.89%	36.66%	41.70%	42.27%	44.29%	43.96%	48.25%	51.53%	51.60%	49.18%	47.33%
Professional, complementary or apprentice	19,799	14,483	11,725	11,467	11,025	15,514	13,944	15,676	12,277	10,839	10,692
% from total rural	23.13%	16.26%	13.25%	12.85%	11.44%	10.27%	10.02%	11.83%	9.96%	9.59%	10.26%
Secondary	22,630	24,667	25,791	24,615	26,731	44,644	41,482	32,652	28,993	28,702	28,202
% from total rural	26.43%	27.70%	29.14%	27.57%	27.74%	29.55%	29.82%	24.63%	23.53%	25.39%	27.07%
Primary (1 4 classes)	5,515	6,552	5,021	4,130	5,203	9,239	7,063	8,487	9,205	8,774	6,308
% from total rural	6.44%	7.36%	5.67%	4.63%	5.40%	6.11%	5.08%	6.40%	7.47%	7.76%	6.05%
No graduate school	2,780	1,358	2,100	2,424	2,018	2,715	1,557	1,025	2,487	3,919	3,598
% from total rural	3.25%	1.52%	2.37%	2.72%	2.09%	1.80%	1.12%	0.77%	2.02%	3.47%	3.45%

Source: author`s calculation based on NIS data [10].

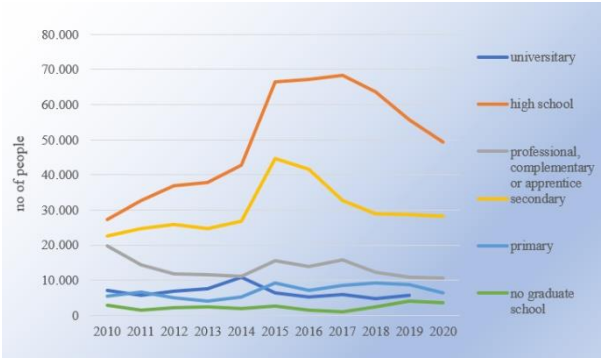

Fig. 5. Rural unemployed who never work, by educational level

Source: author`s calculation based on NIS data [10].

The rural unemployment by duration

Approximately 30% of the total unemployed in rural areas are people who do not have a job for more than 12 months according with statistical data shown in table no. Long-term unemployment has as possible influencing factors technological changes and automation, with the initial decrease of the workforce, lack of qualifications or an insufficient education, in accordance with the requirements of the labour market, the migration from rural to urban or foreign of qualified people or able-bodied population in general, the rural income level, age, individual demotivation, etc [8].

When we refer to the influencing factors on the two types of unemployment, short-term or long-term, we can also mention the dynamics of existing companies in the rural market, from the point of view of economic sectors of their activity and their life cycle.

An infusion of new companies appearing on the market, in the same economic sector, for example, causes an increase in labour demand and increase the employment rate, while, in the other direction, when companies start to end their activity, jobs start to disappear and the number of unemployed increases [6].

In another train of thoughts, there may be jobs in sectors for which the able-bodied population is not sufficiently educated or qualified, which can lead to a higher unemployment.

The most significant values recorded are those related to 2015, when the number of unemployed people for more than 12 months increased by 24.40% compared to the previous year, by 49.72% for unemployed for a period between 12 and 17 months, 27.45% for the unemployment period of 18-23 months and 41.18% for a period longer than 24 months. In the other way, the one of diminishing the number of unemployed in the rural area, the year 2017 registers values in this sense, on all the categories of the unemployment period. Thus, for the unemployment period between 12 and 17 months, the indicator takes the value of -33.02%, the one of 18-23 months is -20.89% and for the period 24+, -16.09% is registered compared to the previous year. Figure 6 graphically represents the comparison of rural unemployed categories, by duration, in total value indicator, for the analyzed period.

For 2020, the highest share of the number of unemployed people on the rural indicator it can been observed for an unemployment duration less than 1 month (21.74%), then for a period of 1-2 months (18.53%), the unemployment for 3 – 5 month (15.62%) and for a 12-17 months period (15.12%), the lowest proportions referring to the unemployment for periods between 6-8 months (8.37%), 9-11 months (5.70%) or for 18–23-month period (4.84%) (Table 5 and Fig. 6).

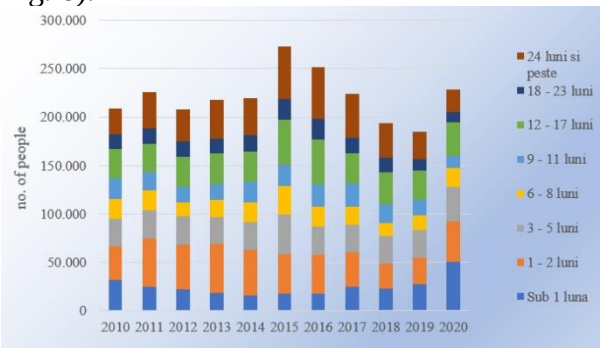

Fig. 6. Comparison of rural unemployed categories, by duration, in total value indicator

Source: author`s calculation based on NIS data [10].

Table 5. Rural unemployment by duration

Rural unemployment (unit: no, of people)	Period										
	2010	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**
Total rural	208,601	225,555	208,182	217,999	219,832	273,477	251,719	224,271	193,650	185,316	228,775
under 1 month	31,650	24,485	21,433	18,188	15,585	17,502	17,122	24,072	22,455	27,418	49,727
% from total	15.17%	10.86%	10.30%	8.34%	7.09%	6.40%	6.80%	10.73%	11.60%	14.80%	21.74%
1 - 2 month	34,387	49,876	46,488	50,608	47,103	40,309	40,415	35,882	25,764	26,984	42,394
% from total	16.48%	22.11%	22.33%	23.21%	21.43%	14.74%	16.06%	16.00%	13.30%	14.56%	18.53%
3 - 5 month	28,577	29,736	29,177	27,375	28,820	41,577	28,953	28,239	28,780	28,695	35,732
% from total	13.70%	13.18%	14.02%	12.56%	13.11%	15.20%	11.50%	12.59%	14.86%	15.48%	15.62%
6 - 8 month	20,772	20,506	14,677	18,012	20,111	29,507	20,982	19,417	13,272	15,093	19,149
% from total	9.96%	9.09%	7.05%	8.26%	9.15%	10.79%	8.34%	8.66%	6.85%	8.14%	8.37%
9 - 11 month	21,608	18,072	15,663	16,351	21,934	22,486	23,207	23,916	19,642	16,572	13,044
% from total	10.36%	8.01%	7.52%	7.50%	9.98%	8.22%	9.22%	10.66%	10.14%	8.94%	5.70%
12 - 17 month	29,734	29,575	31,608	32,285	30,524	45,701	46,146	30,907	32,705	29,678	34,597
% from total	14.25%	13.11%	15.18%	14.81%	13.89%	16.71%	18.33%	13.78%	16.89%	16.01%	15.12%
18 - 23 month	15,035	16,038	16,222	14,819	16,930	21,578	20,990	16,606	15,603	12,276	11,072
% from total	7.21%	7.11%	7.79%	6.80%	7.70%	7.89%	8.34%	7.40%	8.06%	6.62%	4.84%
24 month and over	26,838	37,267	32,913	40,360	38,825	54,815	53,903	45,231	35,430	28,600	23,061
% from total	12.87%	16.52%	15.81%	18.51%	17.66%	20.04%	21.41%	20.17%	18.30%	15.43%	10.08%

Source: author`s calculation based on NIS data [10].

The average monthly income, as an impact factor on rural unemployment

The income level in rural areas is an influencing factor on the employment rate in the labour market. Romanian revenues in rural areas are lower than those in urban areas, as can be seen in Table 6, in which are included data regarding the level of income, for employees and unemployed, in urban and rural areas, as average monthly income. It can be seen that the parameter value in terms of employees is about 70.29% compared to urban, and for the unemployed the difference is about 63.33%. Another important aspect that comes to show the balance between incomes and expenses at rural level and that must be mentioned is the value of the minimum shopping cart in rural areas was set at the end of 2018 as 644 lei for an adult (National Agency for Consumer Protection, ANPC, Central Insolvency Commission, 2018, Decision 7/2018 Regarding the Approval of the General Criteria for Establishing a Reasonable Standard of Living [9].

Regardless of the relatively upward trend over the entire analyzed period of all categories subject to analysis, as seen in Figure 7, the differences between the value of the rural indicator compared to the urban one, makes the phenomenon of the working population migration from rural to urban or outside of the country to be accentuated. Another result of the total average income, as an impact factor in the employment rate is the decision to accept or not a form of work commitment under the given conditions.

The current rural reality is also characterized by a trend of rejection of job offers paid at legal minimum level and rather acceptance of forms of social assistance and unemployment benefits.

With the current health crisis, the number of jobs has decreased in rural areas and implicitly the number of unemployed has increased. A persistent and high level of unemployment is a significant negative impact on subsequent economic growth [3].

Table 6. Average monthly income in rural and urban areas

Average monthly income (unit: lei)	Residence	Period									
		2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
employees	Total	981,58	1,016,00	1,056,30	1,115,55	1,173,68	1,255,09	1,410,30	1,607,07	2,152,20	2,436,49
	Urban	1,070,66	1,089,35	1,131,61	1,215,13	1,267,29	1,380,01	1,550,05	1,795,27	2,395,65	2,708,40
	Rural	743,17	816,09	860,76	848,19	937,41	988,30	1,114,81	1,250,39	1,689,35	1,903,73
unemployed	Total	471,17	497,71	488,01	499,06	527,87	476,37	584,05	653,62	656,20	828,47
	Urban	493,77	517,96	537,54	535,57	576,16	523,15	682,46	726,18	822,18	944,47
	Rural	426,58	457,73	400,56	425,97	436,86	412,92	454,72	567,41	509,19	696,73

Source: author`s calculation based on NIS data [10].

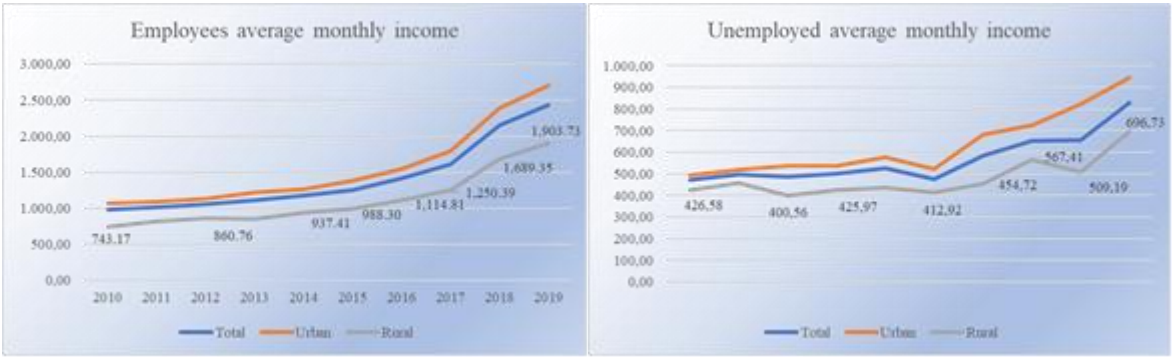

Fig. 7. The average monthly income (lei) for employees and unemployed
Source: author`s calculation based on NIS data [10].

And last, but not the least, drawing a parallel between European developing countries and those with developed economies, we can say that in developed countries, the income level in rural areas is almost similar to that in urban ones, given the heterogeneous level of economic development.
In developing countries, the indicator level in rural areas is lower than in urban ones, which is due to the factors mentioned above [13].

CONCLUSIONS

The unemployment rate in the Romanian rural area had the lowest values compared to those in the urban area or to the national average, between 2010 and 2015, and then to register higher values compared to the indicators on the other two mentioned areas (for 2016-2020 period). Unemployment rate in rural areas increases on the first half of decade, then falls in a downward trend until 2019. In 2020, the value of the unemployment rate starts to increase again, due to the effects of the global health crisis on the economy and implicitly of the labour market.
In 2020, the highest number of rural unemployed are people who have finished or graduate the high school, then the unemployed with secondary school, those with university studies, the, post graduated specialized persons or technical foreman having the lowest share in the total number of unemployed in rural areas. The highest increasing values of unemployed people are recorded in 2015, for all categories mentioned, except for people with university degrees. The highest decreasing values of unemployed people are recorded between 2016 and 2019.
An important share of the total number of unemployed in rural areas, there are people who have never worked, who have never had a work experience, regardless of age or level of education (from 41.4% in 2010 to 63.62% in 2018 and 61% in 2019). The highest values are registered for people aged between 15-24 years and for those who graduated high school and the lowest weight values are for people aged 55-64 years and those with university degrees.
In 2020, about 37.36% of the total number of unemployed in rural areas and the most important share is represented by people who cannot find a job for a period between 1-5 months. Unemployed persons for periods between 12 – 24 and over month represent 30.04% of the total of rural unemployed value. The share of weight, as an importance, remains the same throughout the analyzed period.
The rural level incomes are lower than the one registered in urban areas, for whole period 2010-2020. In 2019, the highest values of the average monthly income are registered, both for the unemployed and for the employees, in the rural area, respectively 693.73 lei (approx. 145 euro) and 1,903.73 lei (approx. 398 euro).

ACKNOWLEDGEMENTS

The authors of this paper would like to acknowledge to George Onofrei [14], professor in Operations and Supply Chain Management, at the School of Business, Letterkenny Institute of Technology, Ireland, for guidance and academic support.
The work of Dragoș Cristea, Mihaela Neculiță, Ira-Adeline Simionov, Ștefan-Mihai Petrea, Alina Mogodan was supported by the project "ANTREPRENORDOC", Contract no. 36355/23.05.2019, financed by The Human Capital Operational Programme 2014-2020 (POCU), Romania.
This work was supported by a grant of the Romanian National Authority for Scientific Research and Innovation, CNCS/CCCDI – UEFISCDI, project PN-III-P2-2.1-PTE-2019-0697, within PNCDI III.

REFERENCES

[1]Balan, M., 2019, Particularities of the youth labour market in Romanian rural areas, Scientific Papers Series Management, Economic Engineering in Agriculture and Rural Development Vol. 19(1):63-70.
[2]Cartmel, F., Furlong, A., 2000, Youth unemployment in rural areas Work and Opportunity Series No. 18 Cover design by Adkins Design.
[3]Castells-Quintana, E., Castells-Quintana, D., Royuela, V. (n.d.), 2021, Investigaciones Regionales Asociación Española de Ciencia Regional Unemployment and long-run economic growth: The role of income inequality and urbanisation.

http://www.redalyc.org/articulo.oa?id=28924660007, Accessed on March 29, 2021.
[4]Iorga, A. M., 2017, Characteristics of the Romanian agriculture workforce, Scientific Papers Series Management, Economic Engineering in Agriculture and Rural Development Vol. 17(2):183-186.
[5]Iorga, A., Toma, E., Dobre, C., Muscanescu, A., 2014, Rural labour force size and structure analysis, Scientific Papers Series Management, Economic Engineering in Agriculture and Rural Development Vol. 14(2):169-172.
[6]Iorga, A.M., Stoicea, P., Dobre, C., 2020, Statistics of the rural population from the regional perspective, Scientific Papers Series Management, Economic Engineering in Agriculture and Rural Development Vol. 20(4):287-294.
[7]International Labour Office, Department of Statistics, Lawrence. (n.d.). ILO Initiative to address rural labour statistics in the context of national development for decent work, http://ilo.org/wcmsp5/groups/public/---dgreports/---stat/documents/projectdocumentation/wcms_153119.pdf., Accessed on April 4, 2021.
[8]Lipton, M., 1980, Migration from rural areas of poor countries: The impact on rural productivity and income distribution. World Development, 8(1), 1–24. https://doi.org/10.1016/0305-750X(80)90047-9, Accessed on March 15, 2021.
[9]National Agency for Consumer Protection, ANPC, Central Insolvency Commission, 2018, Decision 7/2018 Regarding the Approval of the General Criteria for Establishing a Reasonable Standard of Living（Comisia de Insolvență la Nivel Central, 2018, Decizia 7/2018 Privind Abrobarea Criteriilor Generale Pentru Stabilirea Nivelului de Trai Rezonabil）, https://anpc.ro/galerie/file/insolventa/2019/Criterii_de_trai__2018.pdf, Accessed on March 16, 2021.
[10]National Institute of Statistics, 2021, Tempo online data base, www.insse.ro, Accessed on March 16, 2021
[11]Nickell, S., 1979, Education and lifetime patterns of unemployment. Journal of Political Economy, 87(5), S117–S131. https://doi.org/10.1086/260825, Accessed on March 21, 2021
[12]Núñez, I., Livanos, I., 2010, Higher education and unemployment in Europe: An analysis of the academic subject and national effects. Higher Education, 59(4), 475–487. https://doi.org/10.1007/s10734-009-9260-7, Accessed on March 21, 2021.
[13]Shucksmith, M., Cameron, S., Merridew, T., Pichler, F., 2009, Urban-rural differences in quality of life across the European union. Regional Studies, *43*(10), 1275–1289. https://doi.org/10.1080/00343400802378750, Accessed on: March 23, 2021
[14]www.researchgate.net/profile/George-Onofrei, Accessed on April 26, 2021.