

RURAL AREAS IN ROMANIA - DISCREPANCIES VERSUS URBAN AREAS AND EUROPEAN UNION

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Abstract

The paper analyzed rural areas in Romania from a territorial, demographic, economic, social and environment point of view in the year 2020 compared to 2011 in order to point out in what measure the gaps between rural and urban areas and EU rural areas have been reduced. The data from National Institute of Statistics and Eurostat were used in this comparison where fixed indices, structural indices, regression equations, determination coefficient helped to create an image on the changes. Rural areas keeps 89.6% of Romania's territory and 46.4% of its population, while at the EU level, the rural population accounts for only 29.1%. Rural population is aging, as 46% of people is aged of 50 and over. Depopulation caused by the negative natural movement and migration led to the decline in rural population. Rural poverty and social exclusion is higher, the EU average rate being 26%, while in Bulgaria, Malta and Romania is higher than 50%. Infrastructure regarding rural roads, water supply, sewerage and waste collection continue to be a big problem. Education level is lower, in 2020, only 17% graduates were from the rural areas, while in the EU 22% of the people aged 25-64 and 28.4% of the ones aged 30-34 have tertiary education. Rural digitalization is relatively weak as only 49% rural residents have digital skills compared to 62% in the cities. Of Romania's occupied population, 20% is in the rural areas and women accounts for 50%. About 83% of occupied population in agriculture are self employed. Salaried men in agriculture represent 3.5%, while women 1.1%, reflecting gender discrimination in total salaried population. Labor productivity in agriculture is small, just 20% of the national level. Per 1,000 AWU, labor productivity in Romania is the smallest in the EU. The rural average monthly income represents 64% of the income level in the urban areas and its growth rate is smaller. Agriculturists have the smallest income. Climate change diminished agricultural output and gross value added in Romania, and also the contribution to the EU. GDP/capita in rural Romania accounts for Euro 13,000, representing 65% of the EU average reflecting the gap in economic development and living standard. National Strategic Plan 2021-2027, whose implementation will involve the local authorities, is expected to transform rural areas in a resilient and diversified eco-system supplying agro-food products for ensuring food safety, in a consolidated economic and social sector using new knowledge, innovation and digitalization.

Key words: rural areas, territory, demography, economy, social aspects, environment aspects, Romania

INTRODUCTION

Urbanization has determined a high concentration of the population of about 80% in the urban areas in the developed countries, while 50% of the population lives in the rural areas of the developing countries [22]. Therefore, rural areas are of a high importance at the world level for a any continent, country and region.

Rural areas represent 83% of the EU surface and according to "European Charter of Rural areas", rural space is defined as being "a continental and seashore land where there are small towns and villages and land is mainly utilized for: agriculture, forestry aquaculture and fishing; economic and cultural activities of the inhabitants (handicraft, small industry, services etc); leisure and recreation in extra urban areas or to protect nature; and other purposes" [2, 36].

The definition highlights the complex and multifunctional importance of the rural areas regarding territoriality, geography, demography, economy, social aspects, culture and history, environment and biodiversity.

The territorial importance of the rural areas resides in the fact that they are a constitutive part of the integrity of a country territory, besides the urban zones [17].

Geographically, rural areas are spread in various relief forms including plains, hilly and mountain zones, whose specificity has a deep impact on land structure and utilizations: agricultural area, forest land, natural reservations, seashore areas and also on the territorial administration and life of the small communities and localities [26, 49].

Demographic importance resides in the fact that rural areas are home for many people living in small villages and towns whose number differs from a region to another. In the rural communities, people is aging as the old persons are accustomed to live there and have no intention to change their domicile, while young generation would like to move to cities to enlarge the knowledge horizon, to find a better paid job and to benefit of urban life advantages in terms of comfort and living standard [32, 48, 55]. Natural movement has also a considerable impact on the rural population dynamics compared to urban zones. Depopulation and migration are phenomena which contribute to the decline of the rural population [4, 24, 25, 35, 47].

The social importance of the rural areas is emphasized by the fact that rural population is a valuable resource of labor force in the local economy and not only [5, 37]. Also, in the small communities, the relationships and communication between people are closer, and the households are larger as the family members are more numerous. The rural living style has its peculiarities and the involvement of the people in the local community is much higher than in the urban zones [8]. Gender inequality, domestic violence, poverty, social exclusion are more accentuated aspects than in the cities [23]. Dwellings quality and living standard is not comparable with the urban areas [30].

Economic importance consists in the fact that in the rural areas there is a large resource of raw materials for food and other processing industries. Urban areas rely on rural ecosystems services to cover their requirements and that is why rural areas play an important role on ensuring food safety and security [19].

Local economy is developed mainly due to the activities carried out in agriculture, forestry, fishing, aquaculture, rural and agri-tourism and partially in trade, fields where rural population could find jobs, get an income or develop its own small business [6, 9]. But in the rural areas labor market is weak, employment rate is low and unemployment is very high [21, 29, 46].

Labor productivity is lower in the rural areas compared to the urban ones. In the EU, there are also discrepancies regarding labor productivity among the member states [40, 41, 42].

Services have a pale presence or are missing regarding educational and training units, endowment and teachers' number, health and care units, facilities and medical staff, transportation means, postal and delivery, credit services, emergency services, business advisory services, recreational services etc. [54].

Also, infrastructure is much lower developed regarding roads, access to utilities (water supply, electricity, sewerage management etc. Digitalization is still pale, just a few households have access to internet. Investments are rarely made in the rural areas [51].

However, even thou there are still many aspects which need to be improved, rural areas are the key place where agricultural products are achieved, and also they contribute to gross value added and gross domestic product. At the EU level, agricultural production value and gross value added has continued to increase during the last decades enabling the rural areas to grow their contribution to GDP [15, 39, 43, 44].

From a cultural and historical point of view, rural areas contribute to the preservation of the national heritage of traditions and customs in terms of local architecture, folk music,

dances, suits, handicrafts, religion, events with deep roots in the old history of each community, region and country [50].

More than this, rural space plays an important role in preserving the landscapes which are a treasure of the splendors of nature. Also, in the rural areas, the environmental factors: air, water, soil are much better conserved than in the cities.

The large range of plant species either belonging to the wild flora or to the cultivated crops, and also the great number of animal species from the wild fauna and farms which emphasize the key role of the rural areas in preserving biodiversity [32].

The Covid-19 pandemic has led to a new vision on the rural areas and induced changes in society behavior regarding home work and a higher appreciation of green spaces, and rural destinations become of more attraction for spending holidays. Therefore, the people and the authorities have become more conscious of the importance of rural areas in keeping our planet alive. Obviously, this affirmation reflects that rural and urban areas are closely linked from an economic, social and environment point of view [19].

Taking into account the vital importance of the rural areas, EU pays a special attention to this part of its territory and has established a new strategy of development for sustaining with specific measures and substantial funds the member states in the coming years [3, 10, 18, 20, 38].

For Romania, rural space is very important as about 46% of the population is living here and there are still many problems to solve for diminishing the discrepancies regarding demographic, economic, social and environment aspects compared to the urban areas [30, 33, 34, 52].

In this context, the purpose of the paper was to examine the changes in rural areas characterizing Romania in the year 2020 compared to the year 2011 in order to highlight in what measure the gaps between rural areas and urban areas were reduced. Also, the comparison with the EU rural areas was used to emphasize the directions in which Romania has to pay attention to benefit of the opportunities conferred by the recent EU

strategy regarding the new development of the rural areas in the member states.

MATERIALS AND METHODS

The paper is based on the data provided by National Institute of Statistics and Eurostat and also a comprehensive literature on the topic.

The following aspects have been approached: surface of rural areas and its components, rural population (age structure, natural movement, poverty, social exclusion, households, education, digital skills), labor force (occupied population, occupied women, salaried and non-salaried persons, employment), labor productivity, income in the rural areas, economic development (agricultural production value, gross value added, GDP per inhabitant) and budget for rural development.

The methodology used to process the data referred to:

-Fixed basis index, $I_{FB} = (X_n/X_1) \times 100$, used to quantify the increase/decrease in 2020 compared to 2011 level;

-Regression equations and coefficient of determination to emphasize the trend line regarding the population of Romania and rural population in the period 2007-2021;

- Comparison between the level of the indicators mentioned above in the rural areas and urban areas and also in the EU quantifying the difference in percentages and percentage points in 2020 versus 2011.

The results were graphically displayed and also tabled. At the end, the main ideas reflecting the identified similarities and disparities were highlighted.

RESULTS AND DISCUSSIONS

Surface of the rural areas

Romania has 23,839,071 ha surface, of which rural areas account for 21,360,075 ha, meaning 89.6%. Romania's rural areas have a share of 6.37% in the EU's rural space.

The territory of the rural areas in Romania consists of 14.6 million ha agricultural land (68.5%) and 6.75 million ha forests and natural vegetation (31.5%). The largest

proportion of agricultural land accounting for 64.3% is represented by arable land and the remaining includes 22.4% pastures, 10.6% meadows, 1.4% vineyards and 1.3% orchards [31].

At the EU level, in 2020, of 405.4 million ha total surface, rural areas represent 335.1 million ha, representing approximately 83%. The structure of the rural areas is divided into two parts of a relatively equal dimension: agricultural land 40% and forests and natural areas 43% [7, 10].

Rural space is under the pressure of the urbanization mainly in the proximity of the municipalities and cities which will affect in a way its surface, both at the EU level and in Romania.

Rural population

On January 1st, 2021, Romania had a population of 19,186,201 inhabitants. During the last decade, the population registered a decline of -9.3% compared to 21,130,503 inhabitants in 2007. Most of the people lives in the urban areas, but rural population has also an important share. In 2021, in the rural areas there were 8,900,241 inhabitants, but by -5.5% less than 9,413,931 in the year 2007. Therefore, rural population followed a similar decreasing trend influencing the tendency at the national level (Fig. 1).

Due to this dynamics, the share of rural population in the total population increased from 44.5% in 2007 to 46.4% in 2021.

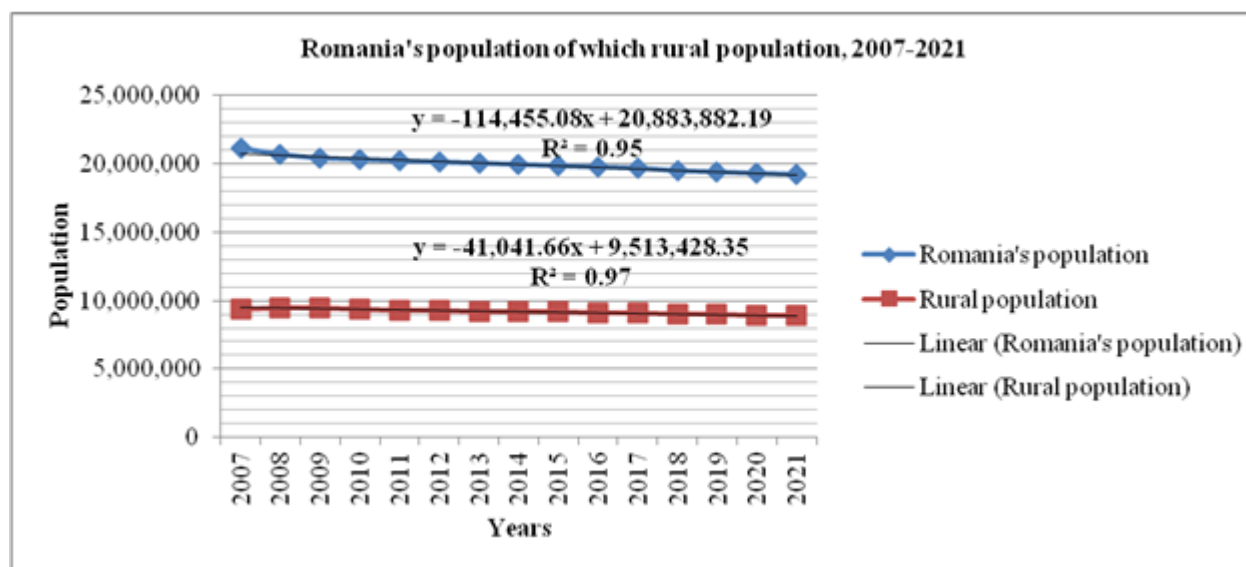


Fig. 1. Dynamics of Romania's population and rural population in the period 2007-2021
 Source: Own design and calculation based on the data from [31].

Taking into consideration the average annual change during the period 2007-2021 accounting for 60,532.4 inhabitants at the national level and for 63,028.8 inhabitants in

the rural areas, it is expecting that Romania's population to continue its decline and by 2030 to reach 18.64 million inhabitants of which 8.33 million in the rural areas (Table 1).

Table 1. Forecast of Romania's population and rural population by 2030

	Total population	Rural population	Share of the rural population in total (%)
2007	21,130,503	9,413,931	44.5
2021	19,186,201	8,900,241	46.4
Forecast			
2025	18,944,073	8,648,125.8	45.6
2030	18,641,413	8,32,981.8	44.7

Source: Own calculation based on the data from [31].

At the EU level, the share of the rural population is 29.1% and at the Europe level is about 20% [11]. But this proportion varies among the EU member states. The countries with the highest share of the rural population are: Romania (46%), Slovakia (46%), Slovenia (45%), Croatia (42%), Austria (41%), Poland (40%), Ireland (36%) [53].

One of the main features of Romania's population is aging. In 2021, the people of 50 and over 50 years old represented 38.8% compared to 36.1% in 2007. This age category is much higher in the rural areas, but it registered a slight decline from 47.4% in 2011 to 46% in 2021 in Romania's population [31].

However, in case of the EU, the population living in the rural areas and remote areas and being of 50 and over years old has the lowest share [10].

The actual age structure in Romania's rural population is caused by natural movement and migration.

Natural movement, characterized by the level of its main specific indicators: births and birth rate, deaths and death rate and natural growth (births-deaths) per 1,000 inhabitants, has favored the decline of the rural population as shown by the data presented in Table 2. While birth rate is a little higher, death rate has the highest level so that the natural growth has a negative sign and accounted for -6.9 per 1,000 inhabitants in the year 2020.

Table 2. Natural movement rates of Romania's population in the rural areas versus urban areas in 2020 compared to 2011

		2011	2020	2020-2011
Birth rate (births per 1,000 inhabitants)	Total	8.7	8.1	-0.6
	Urban	8.4	7.6	-0.8
	Rural	9.2	8.6	-0.6
Death rate (deaths per 1,000 inhabitants)	Total	11.2	13.4	+2.2
	Urban	9.0	11.8	+2.8
	Rural	14.1	15.5	+1.4
Natural growth (deaths-births per 1,000 inhabitants)	Total	-2.5	-5.3	-2.8
	Urban	-0.6	-4.2	-3.6
	Rural	-4.9	-6.9	-2.0

Source: Own calculation based on the data from [31].

Migration influenced population level in various ways: outflows from communes and villages to cities, inflows from cities to rural localities, emigration especially to the EU, and immigration of people from different countries.

During the last decades, an important number of people, especially from the regions with high risk of poverty went to cities looking for jobs and also in other EU member states mainly in Italy, Spain, United Kingdom and Germany.

Poverty and social exclusion

In the rural areas, poverty and social exclusion are higher than in the urban areas. These aspects are critical because in Romania there are isolated villages situated in the regions with a high risk of poverty. Here, there are no opportunities for jobs, labor market is weak and social exclusion is high.

However, during the last decade, due to the measures and efforts made by authorities, a slight diminishing trend was noticed both in the cities and in rural localities.

This feature is not specific only to Romania, but also to other EU countries, especially the ones which became members after 2004.

In 2019, at the EU level, poverty rate accounted for 21% while in the rural areas it was 22%, smaller than 26% in the year 2015. In that year, Bulgaria, Malta and Romania registered a much higher percentage than the EU average (26%) of the rural people at risk of poverty and social exclusion, accounting for 55%, 50% and respectively 51%. In 2020, poverty and social exclusion accounted for 23.7% in the urban areas and 19.9% in the rural space. But the difference could be higher or lower from a country to another,

from a region to another, and from cities to communes.

Rural/urban discrepancies are higher in certain Eastern and Southern European member states. Over 50% of rural poor people could be found in Lithuania, Romania, Hungary, Poland and Croatia, while the EU average is 33% [12].

However, rural areas situated in the proximity of the cities are deeply influenced by urbanization and adopt new forms of development.

Access to services and infrastructure

In the rural areas, infrastructure is not enough developed and services are rarely found in the communes and villages of Romania. The isolated areas are more exposed to the lack of infrastructure and services than the rural areas situated closer to cities. The local authorities are lacked of a corresponding budget to modernize the roads, ensure canalization, water supply, waste collection. However, many local authorities developed projects for modernizing infrastructure using funds coming from the EU. But at the national level, the rate of absorption of the EU funds was just about 44% of Euro 6.9 Billion allotted for the Regional Operational Program for the period 2014-2020.

In many rural localities there are no education units and health basic care units, the number

of teachers per pupil as well as the number of patients per a family doctor is 1.3 times higher than the EU average. Also, there are many localities without any public transportation means to connect them to cities.

In 2014, "just 50% of the EU rural households were covered by fast broadband internet access compared to 80% in the EU territory". But there are larger differences among the member states. In 14 states, less than 50% of households benefit of this service. Romania has 40% coming on the 20th position in the EU, similar to Italy, Lithuania and Poland [12].

In 2020, in Romania, there were 7,518.1 thousand households by 1.235 more than in 2011 (7,426.5 thousand) and their share accounted for 3.84% in the EU number of households accounting for 195,455 thousand. Many of these households have access to internet at home and in Romania, their share in the total number of households existing in the country, increased from 43.3% in 2011 to 78.2% in 2020 [31].

But, there are still discrepancies between the urban and rural areas, despite that during the last decade the weight of the households connected to internet at home increased both in the urban and rural areas (Table 3).

Table 3. Share of households connected to internet at home, Romania, 2020 versus 2011

	2011	2020	2020-2011
Number of households (1,000)	7,426.5	7,518.1	+91.6
Share of households with access to internet (%)	43.3	78.2	+34.9 pp
Urban area (%)	59.3	84.8	+25.5 pp
Rural area (%)	21.8	69.7	+47.9 pp

Source: Own calculation based on the data from [17].

Education level in the rural areas

Education is an open door to knowledge, to find a job, to develop a future career and o have an income corresponding to your knowledge and skills. In the EU rural areas, in 2019 22% of the population whose age was 25-64 had a tertiary education, by +4 pp higher than in 2012. However, in the cities, education level is much higher than in the rural areas, with a positive impact on employment and income level.

For example, in the year 2020, in the EU-27, the people aged 30-34 with tertiary education (college, university, and vocational courses) represented 50% in the urban areas and only 28.4% in the rural areas [13]. In Romania, education level is much lower both in the urban areas and the rural ones, as the number of graduates of various education levels is lower compared to other EU countries and in the rural areas it is a critical situation. In 2020, in Romania, only a number of 514,930

persons graduated a type of education and being by 4.1% less than in 2011. Of the total number of graduates in 2020, 83% were from urban areas and only 17% from the rural ones, which reflects the gap of education level

between rural and urban population. In the same year, 87,071 graduates were from rural areas, but their number was by 13% smaller than in 2011 reflecting a decreasing trend in education level (Table 4).

Table 4. Graduates of an education form in Romania, 2020 versus 2011

	2011	2020	2020/2011 (%)
Total number of graduates	536,747	514,930	95.9
-Urban areas	435,886	427,859	97.9
-Rural areas	99,861	87,071	87.1
Share of rural in total (%)	18.6	16.9	-1.7 pp

Source: Own calculation based on the data from [31].

The high school leavers have the highest share, but it declined from 9.03% in 2011 to 7.9% in 2020, meaning -1.13 pp. Vocational secondary education comes on the 2nd position and its share increased from 0.8% in 2011 to 4.23% in 2020, reflecting a growth of

+3.43 pp. The graduates of a post high school and master vocational education come on the 3rd position with a share of 0.61% in 2011 and 1.12% in 2020. In 2020, only 0.04% of the total graduates of an university were from the rural areas (Table 5).

Table 5. Structure of the graduates in the rural areas by education level and type (%)

	2011	2020	2020-2011 (pp)
Total number of graduates from the rural areas	99,861	87,071	-12,790
(a) Total High school level	9.03	7.9	-1.13
- Theoretical high school and college	2.9	3.5	+0.6
-Technical high school	4.9	3.0	-1.9
-Agricultural high school	0.7	0.8	+0.1
-Forestry high school	0.02	0.03	+0.001
-Agro-mountain high school	0.01	0.01	-
-Veterinarian high school	0.31	0.32	+0.01
-High school for physical education and sport	0.07	0.13	+0.06
-Theological seminaries	0.12	0.11	-0.01
(b) Vocational secondary education	0.80	4.23	+3.43
(c) Post high school and master education	0.61	1.12	+0.51
(d) University graduates with diploma	No data	0.04	

Source: Own calculation based on the data from [31].

Digital skills

Digital skills are very important in the contemporary society as IT penetrated in all the fields of activity and it is progress factor. During the Covid-19 pandemic, digital skills have become more important in finding a job, working from home and strengthening communication between the people. Digitalization has to be extended not only in the urban areas in "smart cities", but also in the rural areas where it is needed of new opportunities of development in the new so called "smart villages". It is a big gap between digital skills of the rural residents and the ones living in the cities.

At the EU level in 2019, 62% of the city residents had at least basic digital skills, while in the rural areas only 49% [12]. The situation regarding the number of people with basic and above basic digital skills is much better in Finland, Netherlands, Sweden, Denmark and Luxemburg compared to Italy, Romania and Bulgaria which are at the opposite pole. In Romania, the gap is much higher: 40% in the urban areas and 22% in the rural ones (Table 6). At the EU level, the people accessing internet daily represent 81% in the urban areas and 70% in the rural ones.

Employment in the rural areas

The opportunity of jobs is in general limited in the rural areas, the main occupation being

agriculture, forestry and fishing which absorbs most of the labor force. In a lower measure, it is also important rural tourism and

agro-tourism which has become an additional income source for the rural population during the last decades.

Table 6. Share of the people aged 16-74 with basic and above basic digital skills in certain representative EU countries in 2019 (%)

Countries with the highest share			Countries with the lowest share		
	Urban	Rural		Urban	Rural
EU Average	62	48	1. Italy	48	37
1. Finland	85	68	2. Romania	40	22
2. Netherlands	80	78	3. Bulgaria	40	18
3. Sweden	79	64			
4. Denmark	78	58			
5. Luxemburg	76	64			

Source: [13].

Occupied population in agriculture, forestry and fishing

In 2020, a number of 1,681.2 thousand persons were occupied with agriculture, representing 19.91% of the total civil

occupied population in Romania. Since 2011, when there were 2,442 thousand persons occupied in agriculture, this means a reduction by -31.2%. The main causes are migration and aging (Table 7).

Table 7. Occupied population in agriculture, forestry and fishing, Romania, in 2020 versus 2011

	2011	2020	2020/2011 %
Total occupied population (1,000)	8,365.5	8,440.8	100.9
Occupied population in agriculture etc (1,000)	2,442	1,681.2	68.8
Share in agriculture in total occupied population (%)	29.19	19.91	-9.28 pp

Source: Own calculation based on the data from [31].

Women occupied in agriculture, forestry and fishing

In 2020, 852.9 thousand persons occupied in agriculture etc were women and their share in the total population dealing with agriculture accounted for 50.73% being by -4.64 pp

smaller than 55.37% registered in the year 2011. Also, in 2020, women dealing with agriculture represented 22.2% in the total number of women occupied in the economy compared to 34% in the year 2011.

Table 8. Women occupied in agriculture, forestry and fishing, Romania, 2020 versus 2011

	2011	2020	2020/2011 %	2011	2020	2020-2011 pp
				Share of women in total occupied population (%)		
Women occupied in the economy (1,000)	3,977.3	3,833	96.3	47.5	45.4	-2.1 pp
				Share of women in total population occupied in agriculture etc (%)		
Women occupied in agriculture (1,000)	1,352.3	852.9	63.0	55.3	50.7	-4.6 pp
				Share of women occupied in agriculture in total occupied population in Romania (%)		
Share in agriculture etc (%)	34.0	22.2	-11.8 pp	16.1	10.1	-6.0 pp

Source: Own calculation based on the data from [31].

But, if we analyze the share of women dealing with agriculture in the total active population in the country, the percentage is much lower accounting for 16.1% in 2011 and 10.1% in 2020.

All these figures show that women are discriminated in finding a job (Table 8).

Occupied population in agriculture by professional status

The highest share of the population occupied in agriculture belongs to self-employed workers and in 2021 it accounted for 89.5%, while in 2020 it declined to 83.3%. The difference of 10.5% in 2011 and 16.7% in 2020 belonged to salaried persons. However, in 2020, the weight of the salaried persons increased by +6.6 pp (Table 9).

Table 9. Structure of occupied population in agriculture by professional status, Romania, 2020 versus 2011

	2011	2020	2020/2011 (%)
Occupied population in agriculture etc (1,000)	2,572.6	1,821	70.78%
-Salaried (1,000)	269	303	112.63
Share of salaried (%)	10.5	16.7	+6.2 pp
-Self employed workers (1,000)	2,303.6	1,518	65.89
Share of self-employed (%)	89.5	83.3	-6.2 pp

Source: Own calculation based on the data from [31].

The average number of salaried population dealing with agriculture in Romania increased from 97,630 persons in 2011 to 123,570 persons in 2020, meaning by +26.5%. As a result, the weight of the salaried persons working in agriculture in the average number of salaried population working in the economy increased from 2.25% in 2011 to

2.45% in 2020. However, this share is very small as agriculture, forestry and fishing has a low input of salaried labor force.

Men are on the first position among the salaried persons, their share accounting for 71.3% in 2011 and 77% in 2020, reflecting a high gender discrimination (Table 10).

Table 10. Average number of salaried persons in agriculture by gender, Romania, 2020 versus 2011

	2011	2020	2020/2011 (%)	Share of average number of salaried persons in agriculture in average number of salaried persons in Romania (%)		2020-2011 (pp)
				2011	2020	
No. of salaried persons in agriculture	97,630	123,570	+126.5	2.24	2.45	+0.21
-Men (%)	71.3	77	+5.7	3.28	3.59	+0.31
-Women (%)	22.7	23	+0.3	1.08	1.19	+0.11

Source: Own calculation based on the data from [31].

Regarding the discrimination in employment between men and women in the EU, the statistics showed that men have the highest employment rate accounting for 80% in the rural areas and 78% in the urban areas [12].

In Romania, employment rate in agriculture is much smaller than in other sectors of the economy.

In 2020, in the EU, total active population employed in agriculture accounted for 4%

(full time equivalent) and 20% for the whole agri-food industry.

In the EU rural areas, only 13% represents employment in the primary sector that is agriculture, forestry and fishing in total employment [12].

Therefore, unemployment is one of the big problems in the rural areas regarding especially the young people. In the period 2015-2017, at the EU level, the population of 15-64 years had only 8.7% unemployment

rate, while the people of 15-24 years had 18% and the people of 25-64 years had 5%.

In 2020, the unemployment rate in the EU accounted for 8.1% in the urban areas and 6.3% in the rural ones. However, there are people who leave agriculture and rural areas going to cities for better job opportunities [13].

The causes of this labor outflow is linked to the existence of numerous small family farms, of which about 40% are subsistence farms with less than Euro 8,000 standard output. And about over 90% of these small farms are especially in Romania, Latvia and Slovenia [12].

Volume of labor force in agriculture

Labor force input in Romania's agriculture in terms of annual work units (AWU) decreased from 1,532 thousand in 2011 to 1,331 thousand in 2020, meaning a loss of -13.2% [14].

Salaried labor input is very small in agriculture and it has continuously declined. From 206 thousand AWU in 2011, it reached 154 thousand AWU in 2020, while non-salaried labor input decreased from 1,326 thousand AWU to 1,177 thousand AWU in the same interval (Table 11).

Table 11. Labor input in Romania's agriculture (1,000 AWU), 2020 versus 2011

	2011	2020	2020/2011 (%)
Labor input in agriculture	1,532	1,331	86.8
- Non-salaried input	1,326	1,177	88.7
Share in total (%)	86.5	88.4	+1.9 pp
-Salaried input	206	154	74.7
Share in total (%)	13.5	11.6	-1.9 pp

Source: Own calculation based on the data from [14].

The figures showed that non-salaried labor input had the highest share accounting for 88.4% in 2020, being by +1.9 pp higher than in 2021.

Also, the data reflected the decline by -25.3% in salaried input in the same period of time.

In 2020, labor input in agriculture represented 15.6% of the EU total labor input, Romania coming on the 2nd position after Poland.

Labor productivity in agriculture

Labor productivity in agriculture is much lower than in other sectors of the economy.

Labor productivity per occupied person in agriculture

In Romania, in 2020, labor productivity per occupied person in agriculture accounted for Lei 23,078.8 being by 69.8% higher than in 2011, which is a positive aspect.

However, the share of labor productivity in agriculture declined from 23.5% in 2011 to 20.4% in 2020, as in other fields of activity it was recorded a higher growth rate (Table 12).

Table 12. Labor productivity per occupied person in agriculture, Romania, 2020 versus 2011 (Lei/person)

	2011	2020	2020/2011 (%)
Labor productivity at the national level	57,649.1	112,987.3	195.99
Labor productivity in agriculture	13,585.1	23,070.8	169.82
Share of agriculture in total productivity (%)	23.5	20.4	-3.1 pp

Source: Own calculation based on the data from [31].

Note: Average exchange rate according to National Bank of Romania: in 2011: 1 Euro= Lei 4.237; in 2020: 1 Euro = Lei 4.837.

Labor productivity per annual work unit (AWU)

This is the most important indicator which reflects labor productivity in agriculture allowing a more correct comparison with labor productivity in other sectors of the

economy in full time equivalent, avoiding the variations caused by seasonal labor in agriculture.

In this case, labor productivity is expressed by the following indicators: agricultural output value per AWU, gross value added per AWU

and Factor income per full-time labor equivalent AWU, being a measure of the net value added by the equivalent of each full-time worker in real terms (adjusted for inflation and expressed as an index) in the agricultural industry. Taking into account the decline of labor input in agriculture in terms of AWU and the increase of agricultural production value and of gross value added,

the level of labor productivity increased in Romania. In 2020, labor productivity in terms of agricultural output value accounted for Euro 13.06 million per 1,000 AWU, being by 10.86% higher than in 2011 and in terms of gross value added it reached Euro 5.95 million per 1,000 AWU, being by 12.47% higher. Factor income declined by -0.43 pp in the analyzed interval (Table 13)

Table 13. Labor productivity in agriculture, Romania, 2020 versus 2011

	MU	2011	2020	2020/2011 (%)
Agricultural production value				
-Romania	Euro Mil./1,000 AWU	11.78	13.06	110.86
-EU-27	Euro Mil./ 1,000 AWU	40.0	50.2	+125.50
-Share of Romania in the EU average	%	29.45	26.01	-3.44
Gross value added				
-Romania	Euro Mil./1,000 AWU	5.29	5.95	112.47
-EU-27	Euro Mil./per 1,000 AWU	16.63	20.83	125.25
-Share of Romania in the EU average	%	31.80	28.56	-3.24
Factor income				
-Romania	2010 = 100	129.06	128.63	-0.43 pp
-EU-27	2010 = 100	108.3	131.88	+23.58 pp

Source: Own calculation based on [15, 16].

The data from Table 13 showed that in Romania, the share of agricultural production value per 1,000 AWU in the EU-27 level declined in 2020 versus 2011 by -3.44 pp, while the share of gross value added per 1,000 AWU in the EU level also decreased by -3.24. At the EU-27 level, agricultural output value increased by 25.50% and gross value added by 25.25%

Income in the rural areas

In the rural areas income level is smaller compared to income got by the people working in the urban areas. And this could create an image on the differences existing regarding the living standard. In Romania, average monthly income per person in the

rural areas differs by social category: salaried, self-employed person, unemployed and pensioners. In 2020, the total average monthly income per person in the rural areas accounted for Lei 1,567.72, being by 121% higher than in 2011, which is a positive aspect, but it represented only 64.5% of the average monthly income per person in the urban areas. More than this, its share in 2020 was by -10.3 pp smaller than 74.8% recorded in the year 2011. This means that in the rural areas, the growth rate of the average monthly income was smaller than in the cities and towns. This aspect is available for all the social categories from the rural areas (Table 14).

Table 14. Share of average monthly income per person in the rural areas in the average monthly income per person in the urban areas by social category (%)

	2011	2020	2020-2011 pp
Salaried	74.9	71.9	-3.0
Self-employed	81.3	71.2	-10.1
Agriculturist	140.5	109.8	-30.7
Unemployed	88.3	65.0	-23.3
Pensioner	86.6	79.3	-7.3

Source: Own calculation based on the data from [31].

The data from Table 14 show that only the agriculturists registered a higher share of the average monthly income in the urban areas compared to the rural ones.

But, if in 2011, the agriculturists earned a higher average income by +40.5%, in 2020, their surplus was only 9.8%, meaning by -30.7 pp less.

Analyzing the level of average monthly income in the rural areas with the average monthly income per person in the economy, we may notice the gaps existing by each social category.

But, for all the categories of persons, we may also notice that average monthly income increased in various percentages ranging between +157.22% for salaried persons (the highest growth rate) and +61.8% for agriculturists (the lowest growth rate) in 2020 compared to 2011.

In the year 2011, in the rural areas, average monthly income per person is smaller than its average level in the economy for all the social categories. The gap existing between different social categories had the highest level for unemployed persons (-45.5%) and the lowest level for salaried persons (-2.8%).

In the year 2020, the share of average monthly income per person in the rural areas in the average income in the economy was much smaller for almost all the categories, except salaried persons, because the salaried persons registered an income by +3.3% higher than the average income in the economy. The other social categories recorded a reduced monthly income by -65.8% in case of unemployed persons, the highest discrepancy, and by -29.4% in case of rural pensioners (Table 15).

Table 15. Comparison between average monthly income per person in the rural areas and average monthly income per person in the economy, Romania, 2020 versus 2011

	MU	2011	2020	2020 vs. 2011 (%) and (pp)
Average monthly income per person in the economy (AMEE)	Lei/person	839.53	2,030.5	241.8 %
Average monthly income per person in the rural areas versus AMEE by social category				
-Rural areas	Lei/person	709.15	1,567.72	221.07%
	%	84.4	77.2	-7.2 pp
-Salaried	Lei/person	816.09	2,099.22	257.22%
	%	97.2	103.3	+6.1 pp
-Self-employed	Lei/person	545.4	1,046.45	181.1%
	%	59.2	45.3	-13.9 pp
-Agriculturists	Lei/person	618.2	1,000.88	161.8%
	%	73.6	49.2	-24.4 pp
-Unemployed	Lei/person	457.5	694.7	183.1%
	%	54.5	34.2	-20.3 pp
-Pensioners	Lei/person	766.38	1,434.12	187.1%
	%	91.2	70.6	-20.6 pp

Source: Own calculation based on the data from [31].

Note: Average exchange rate according to National Bank of Romania: in 2011: 1 Euro= Lei 4.237; in 2020: 1 Euro = Lei 4.837.

Agriculturists achieved Lei 1,000.88 per month in 2020 by 61.8% more than Lei 618.2 in 2011. But, their income represented 73.6% in the average income per person in the economy in 2011 and only 49.2% in 2020 (-24.4 pp).

Agriculturists come on the 3rd position after salaried persons and pensioners in the year 2011 and on the 4th position after salaried

persons, pensioners and self-employed persons in 2020. And this shows that agriculturists became a disadvantages category and have a lower living standard.

In the EU, the situation is completely different, the discrepancies being much smaller despite that they exist between average wage in the economy and average income got by farmers.

Analyzing the entrepreneurial income achieved in the EU's agriculture per family work unit, we may notice that in 2020 its level increased by 23.30%, reaching Euro 14,998.10 compared to Euro 12,159.77 in the

year 2011. Also, the share of its level in the EU average income in the economy increased from 42% in 2011 to 47% in 2020 meaning +5pp (Table 16).

Table 16. Farmers income compared to wages in the EU economy, 2020 versus 2011 (Euro/family work unit)

	2011	2020	2020/2011
Agricultural entrepreneurial income per family work unit	12,159.77	14,998.10	123.37
Share of average wage in the whole economy (%)	42	47	+5pp

Source: Own calculation based on the data from [12].

Economic development in the rural areas

Agricultural production value and gross value added

Agricultural production value declined in Romania from Euro 18.04 Billion in 2011 to Euro 16.84 Billion in 2020, meaning by -6.66% less. This happened due to the productions obtained in the vegetal and animal sector which were deeply influenced by climate conditions and also by price volatility. At the same time, gross value added in agriculture registered a decrease of -2.32%

from Euro 8.11 Billion in 2021 to Euro 7.92 Billion in 2020.

At the EU -27 level, agricultural production value increased by 1.89% and gross value added by 5.3% in the analyzed interval.

As a result, in 2020, the contribution of Romania to the EU agricultural output value was 4.09% by -0.37 pp smaller than in 2011 and the contribution to GVA accounted for 4.48 % being by -0.34 lower than in the first year of the analysis [45] (Table 17).

Table 17. Agricultural production value and gross value added, Romania, 2020 versus 2011 (Euro Million)

	2011	2020	2020/2011 (%)
Agricultural production value, Romania	18,048.3	16,847.02	93.34
Agricultural production value, EU-27	404,134.06	411,772.2	101.89
-Romania's contribution to the EU (%)	4.46	4.09	-0.37
Gross value added in agriculture, Romania	8,109.08	7,921.71	97.68
Gross value added in agriculture, EU-27	167,973.36	176,966.93	105.35
-Romania's contribution to the EU (%)	4.82	4.48	-0.34

Source: Own calculation based on the data from [15].

Gross domestic product/inhabitant in the rural areas

GDP per inhabitant reflects in the best way the level of development in the rural areas compared to the urban ones. The statistics shows that in the rural areas GDP/capita is smaller than in the urban areas.

According to National Institute of Statistics, in Romania, GDP/inhabitant reached Lei 54,800.4 in 2020, being by 97.5% higher than Lei 27,739.7 in 2011, reflecting an important economic growth with a positive impact on living standard of the population [31]. According to Eurostat, in 2018, Romania

registered Euro 13,000 GDP/capita in the rural areas. For this GDP level, the country came on the ante penultimate position among the EU member states compared to the EU-28 average which accounted for Euro 20,067 per capita. In the descending order, the EU countries situated below the EU mean for GDP/inhabitant were: Portugal, Greece, Estonia, Poland, Slovakia, Lithuania, Hungary, Romania, Latvia and Bulgaria. All the other EU member states registered a higher GDP/capita than the EU mean in the rural areas (Table 18).

Table 18. GDP/inhabitant in the EU-28 rural areas in 2018 (Euro/capita)

GDP/capita < the EU average		GDP/capita > the EU average	
EU-28 average = Euro 20,067 per inhabitant in the rural areas			
1.Netherlands	36,000	1.Greece	16,300
2.Austria	32,500	2.Estonia	16,000
3.Denmark	31,500	3.Poland	15,500
4.Germany	30,300	4.Slovakia	15,500
5.Sweden	30,100	5. Portugal	14,200
6.Finland	28,600	6.Lithuania	14,200
7.Italy	26,700	7.Romania	13,900
8.Spain	24,100	8.Latvia	12,700
9.France	23,300	9.Bulgaria	10,600
10.Czechia	23,000		
11.Slovenia	21.900		

Source: [12].

Note: No data for other EU countries.

In the EU rural areas, GDP/capita represents 66% of the EU average compared to 82% and 118% in the intermediate and, respectively, predominantly urban regions. The gap between rural and urban areas is much higher in the N-13 countries joining the EU after 2004, where GDP per capita is 48% of the EU average while in the N-15 is 87% [12].

Budget for rural development

Rural development is one the important priorities in the EU policy as mentioned in the program 2014-2020 and the new reformed policy regarding the future by 2030 and 2050. For the period 2014-2020, according to the European agricultural fund for rural development (EAFRD) for rural development it was allotted a budget of Euro 95.5 Billion for the period 2021-2027 and in addition a surplus of Euro 8.1 Billion for recovers due to the challenges caused by Covid-19 pandemic. Each EU country has also developed its own budget for a similar purpose.

The main objectives of EAFRD are:

- to strengthen the transfer of knowledge and innovation in agriculture, forestry and rural areas;
- to support the growth of competitiveness and viability of the agricultural systems promoting new technologies and new types of farming (organic agriculture, conservation agriculture, circular economy, bio-economy, agro-ecology);
- to better organize the whole food chain enhancing short supply food chains, animal

welfare and reducing risk management in agriculture;

- environment protection and biodiversity conservation;
- digitalization to be a tool for strengthening the new forms development both in the urban and rural areas.

The new vision in EU CAP reform aims to create a historical change "for rural regions by bridging the digital gap and transforming rural areas in partners to the green transition" [1, 18].

The future of the development of rural areas depends on how the funds provided by the EU are used by each member state and also on the national programs created for attaining this purpose.

In Romania, it was implemented the National Program for Rural Development in the period 2014-2020 and it was established the National Strategic Plan 2021-2027, which has "the following objectives:

- (a) *Promoting an intelligent, resilient and diversified agro-food sector destined to ensure food safety*, whose expected results will be: stable incomes for farmers, high productivity and competitiveness of the agri-food sector, a higher adaptation of farming to climate changes, an increased food safety, a higher gross value added in agriculture, additional income for farmers, digitalization of agro-food system, and improving the links between research, innovation and practice.
- (b) *Strengthening the actions for environment protection and adapting to climate change*, whose expected results will be: reduction of

greenhouses gas emissions, a more efficient management of natural resources and reducing the pressure of agriculture on soil, water and air, ensuring health agro-food products, biodiversity conservation, and preservation of rural space features and natural landscapes.

(c) *Consolidation of the socio-economic structure of the rural areas*, whose expected results will be: increased income and life quality for the rural population, reduction of poverty and social exclusion, involving young people both in agricultural and non-agricultural activities, development of the mountain areas, new technologies for improving rural space.

(d) *Promoting knowledge, innovation and digitalization in agriculture and the rural areas*, whose expected results will be: improvement of farmers' knowledge, skills, by a sustained agricultural extension, innovation, and implementation of digitalization, improvement of public/private partnership" [27, 28].

CONCLUSIONS

Rural areas are very important in Romania due to their high share of 89.6% in the territory and of 46.4% of the rural people in total population, despite that the rural population is in a continuous decline due to aging and migration. At the EU level, the rural population accounts for 29.1% in total population of the EU.

In Romania, about 46% of the rural population consists of people whose age is 50 and over years, while at the national level is just 38.8%. In the EU, the people older than 50 has a lower weight.

Depopulation of the rural Romania is caused by the negative natural movement and migration.

Poverty and social exclusion is more accentuated in the rural space, and especially in the isolated villages. While the EU rural areas poverty and social exclusion rate is 26%, in Bulgaria, Malta and Romania the rate is much higher: 55%, 50% and 51%.

Rural infrastructure is still a non corresponding one regarding roads, water

supply, sewerage and waste collection as the EU funds were used just in a small proportion accounting for 44% of the total budget allotted for the period 2014-2020.

Education level is lower in the rural Romania, as long as in 2020, only 17% of the graduates were from the rural areas. At the EU level, about 22% of the people aged 25-64 and 28.4% of the ones aged 30-34 have tertiary education.

In Romania, 69.7% rural households compared to 84.8% in the urban areas are connected to internet at home. Among the rural residents, 49% have digital skills compared to 62% in the cities.

Of Romania's occupied population, 20% works in the rural areas and its number continue to decline. Women represent 50% of the rural occupied population in agriculture and 10% in the national active population.

About 83% of occupied population in agriculture are self employed, and the salaried persons have the lowest share (17%). In total salaried persons at the country level, men salaried in agriculture represent 3.5%, while women just 1.1%, reflecting gender discrimination.

The volume of labor force in agriculture in terms of AWU is dominated by non salaried persons (88%), compared to 12% salaried.

In 2020, labor productivity in Romania's agriculture is small, just 20% of its national level. Per 1,000 AWU, labor productivity accounted for Euro13 million agricultural output value and Euro 5.95 million gross value added.

In the rural areas, average monthly income represents 64% of the income level in the urban areas and its growth rate is smaller. Agriculturists have the smallest income compared to other social categories in the rural areas.

In 2020, agricultural production value declined by -6.6% and GVA by -2.3% compared to the levels in the previous years due to the impact of the climate change, while in the EU it was registered an increase of +1.89%, and respectively +5.3%. In consequence, Romania's contribution to the EU agriculture output value is 4% and to GVA is 4.5%.

GDP/capita in the rural Romania accounts for Euro 13,000, representing 65% of the EU average of Euro 20,067/capita which reflects the gap regarding the economic development and living standard in the rural areas.

Rural areas could mitigate the effects of climate change passing to more green economy including organic, conservation and environment friendly agricultural practices, preserving biodiversity and the beauty of landscapes, therefore, they could be a crucial part of the transition to a green and sustainable Europe.

National Strategic Plan 2021-2027 is destined to transform rural areas in a resilient and diversified eco-system supplying agro-food products for ensuring food safety, in a more adapted zone to climate change and protector of environment. This requires the consolidation of economic and social structure in the rural areas using new knowledge, innovation and digitalization.

To attain the objectives of the EU policy regarding the new rural areas development, the national programs have to be adapted to local conditions, based on the identification of strengths and weaknesses of the community. Therefore, local authorities plays the key role in the process of sustainable development of the rural areas.

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