

## RESEARCH ON ROMANIA'S EMPLOYMENT IN AGRICULTURE AND ITS POSITION IN THE EUROPEAN UNION

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### Abstract

*The paper analyzed Romania's employment in agriculture, forestry and fishery in the period 2007-2012 using the empirical provided by the National Institute of Statistics and Eurostat and the specific methods for such a study: statistical parameters, fixed index method, and comparison method. In 2012, in Romania's agriculture were employed 2,682 thousand persons, representing 64.07 % of the employed rural population and 28.95 % of the employment in the economy, the highest level in the EU where the average accounted for 4.7 %. Of the employed persons in Romania's agriculture, 53.5 % were sole holders, 45 % family members and 1.5 % non family regular workers. Also, 53.1 % were men. Romania came on the last position in the EU-27 for the people employed full time in agriculture (0.9%) and on the penultimate position for 83 % employed persons in small holdings SO<Euro 4,000. Aging is another feature as of the total employed persons in agriculture, 38.8 % were between 15-30 years old, 47.2 % were between 40-64 years old and 13.9 % were of 65 and over. Romania's agriculture is dominated by family farms, the most people being part-time employed in farm work, agricultural works are achieved in small farms, the employed population is aging, the most of the young people is not attracted by agriculture looking for better paid jobs in the cities or abroad. To improve the situation, it is needed the diversification of the activities in the rural areas to create new jobs and increase income, to stimulate the young people and women to work in the rural areas by developing services and industry, preserving traditions, folklore, local gastronomy, handicrafts. The Horizon 2014-2020 Programme is destined to strengthen labour force and agriculture performance by offering funding for knowledge transfer, technical and managerial skills development for young, small farmers and women and for agri-business encouragement.*

**Key words:** agriculture, characteristics, employment, Romania, trends

### INTRODUCTION

Romania is an agricultural country where family small subsistence farms are predominant. Family members regularly use to provide labour in various moments of the year, giving a seasonal character of work in agriculture. Another major feature is the fact that many people dealing with agriculture is part-time employed in farms and have other jobs and income sources, as the income from agriculture is very small as mentioned by Dumitru et. al.(2004), [3], Popescu Agatha (2013a) [7] and Burja (2014). [1]

This situation is not so different with the one characterizing the EU agriculture as mentioned in "How many people work in agriculture in the European Union? An answer based on Eurostat data sources" (2013) issued by the European Commission

and by Popescu Agatha (2013b) [8]

Employment in agriculture is presented in different ways according to the purposes, information source, and used methodology. Sometimes the data could not be compared if they are collected from various information sources. Employment is expressed in terms of persons employed in agriculture in AWU (annual work unit) in the EU Farm Structure Survey. [4]

Migration of labour force in the developed EU countries is sometimes not included in the employment statistics as affirmed by Burja (2014) [1]

Employment varies between the EU countries and also in Romania according to macro and micro regions, depending on the conditions suitable for practicing agriculture, traditions, existence of vacant jobs, attractiveness and other factors as affirmed Condei et al.,

(2015). [2]

In Romania, labor force is overdimensioned compared to other EU countries, as in the rural areas are living about 45 % of the population and most of the people are dealing with agriculture. For this reason, employment in agriculture represent about 29 % in Romania in comparison with 4.7 % in the EU as mentioned in the MARD Study on "Socio-economic Analysis of the 2014-2020 Prospect of the Rural Development".[10]

Analyzing labor force in Romania, Tocco et al.(2014) affirmed that working in agriculture could be a decision determined by "tradition and cultural reasons, or because farmers enjoy the autonomy of self-employment rather than working in a company". Among the features characterizing the outflow and inflow in agriculture labour force are: population aging and retirement and young and higher educated people migration to cities or abroad as the main outflow channels, and unemployment and retirement of the people working in industry and services, as the main channels of inflow. [11]

In this context, the goal of the paper was to analyze the employment in agriculture, forestry and fishery in Romania's agriculture and identify the main trends, features and ways to be improved using the empirical data provided by various sources such as the National Institute of Statistics and the EU Commission Statistics on the topic for the period 2007-2012. Finally, it was aimed to establish Romania's position in the EU regarding employment in agriculture.

## MATERIALS AND METHODS

The paper is based on the empirical data collected from various information source such as: Romania's Yearbooks provided by the National Institute of Statistics for the reference period 2007-2012, the EU Eurostat Farm Structure Survey and Labour Force Survey. [4, 5, 9]

The fixed basis index,  $I_{FB} = (X_n/X_0)*100$ , where  $n=1,2,...,i$ , was used to determine the growth in the analyzed period 2007-2012, and also the Comparison Method was utilized to emphasize the differences between the main

indicators characterizing Romania's employment in agriculture and in other economic sectors and also with the EU-27 employment in agriculture.

The main indicators used to characterize Romania's employment in agriculture were the following ones: rural population and its share in the total population, active rural population and its share in total active population, rural employment and its share in the total employment, employment in agriculture and its share in the rural employment and total employment, employment structure in agriculture by professional status, age group and gender, position of Romania in the EI-27 for employment in agriculture (no. of persons and in AWU), employment structure (sole holders, family members, non-family regular workers), the share of employed men, average workers per holding, people full time employed in agriculture, persons working in holdings with  $SO < Euro 4,000$ .

Also, the statistical parameters: average, standard deviation and variation coefficients were calculated, according to the formulas:

*Average of the variable,  $\bar{X}$* , using the well known formula:

$$\bar{X} = \frac{X_1 + X_2 + \dots + X_n}{n} \quad (4)$$

*Standard Deviation, S*, based on the formula:

$$S = \sqrt{\frac{\sum_{i=1}^n (X_i - \bar{X})^2}{n-1}} \quad (5)$$

*Variation Coefficient, V%*, using the formula:

$$V\% = \frac{S}{\bar{X}} \times 100 \quad (6)$$

The results were displayed in tables.

## RESULTS AND DISCUSSIONS

**The rural population in Romania** accounted for 9,242 thousand persons in the year 2012, being by 1.97 % lower than in the year 2007. It followed the general slight decreasing trend as the total population in the

country. However, the total population declined by 3.77 % during the 2007-2012 period and as a result, the weight of the rural population in the total population increased from 45.14 % in 2007 to 45.99 % in 2012 (Table 1).

Table 1. The dynamics of the rural population and its share in Romania's total population, 2007-2012 (thousand persons)

Specification	2007	2008	2009	2010	2011	2012	2012/2007 %
Rural population	9,427	9,435	9,391	9,325	9,270	9,242	98.03
Total population	20,883	20,538	20,367	20,247	20,148	20,096	96.23
The share of the rural population in the total population (%)	45.14	45.93	46.10	46.05	46.00	45.99	-

Source: Romania's Statistical Yearbooks, 2008-2013, Chapter 2. [9]

**The active population** in the rural area also registered a slight decrease of 1.98 % from 4,500 thousand persons in 2007 to 4,411 thousand persons in 2012. The descending trend was similar to the general trend of the active population in Romania, but the decline

of the rural population was more evident so that, in 2012, the share of the active rural population in the total active population was 44.26 % a little lower compared to 45.02 % in 2007 (Table 2).

Table 2. The dynamics of the active rural population and its share in Romania's total active population, 2007-2012 (thousand persons)

Specification	2007	2008	2009	2010	2011	2012	2012/2007 %
Active Rural population	4,500	4,473	4,449	4,427	4,305	4,411	98.02
Total active population	9,994	9,944	9,924	9,965	9,968	9,964	99.70
The share of the active rural population in the total active population (%)	45.02	44.98	44.83	44.42	43.18	44.26	-

Source: Romania's Statistical Yearbooks, 2008-2013, Chapter 3. [9]

**The employed people in the rural area** followed a similar decreasing trend. In 2012, there were 4,186 employed persons in the rural space by 2.22 % less than in 2007.

As a consequence, in 2012, the share of employed persons in the rural area in the total employment at the national level registered a slight decrease from 45.77 % in 2007 to 45.19 % in 2012. (Table 3).

Table 3. The dynamics of employment in the rural areas and Romania's employment, 2007-2012 (thousand persons)

Specification	2007	2008	2009	2010	2011	2012	2012/2007 %
Employment in the rural areas	4,282	4,268	4,211	4,208	4,066	4,186	97.78
Total employment	9,353	9,369	9,243	9,240	9,138	9,263	99.04
The share of rural employment in the total employment (%)	45.77	45.55	45.55	45.54	44.50	45.19	-

Source: Romania's Statistical Yearbooks, 2008-2013, Chapter 3. [9]

**The employment in agriculture, forestry and fishery** also declined by 2.73 % from 2,757 thousand persons in 2007 to 2,682 thousand persons in 2012.

In 2012, agriculture, forestry and fishery absorbed 64.07 % of the rural employed people and 28.95 % of the people employed in the national economy.(Table 4).

As a consequence, in the analyzed period, the share of employment in agriculture, forestry and fishery decreased both in the total employment in the economy and in the rural employment.

Table 4. The dynamics of employment in agriculture, forestry and fishery in Romania, 2007-2012 (thousand persons)

Specification	2007	2008	2009	2010	2011	2012	2012/2007 %
Employment in agriculture, forestry and fishery	2,757	2,690	2,689	2,780	2,612	2,682	97.27
The share in the rural employment (%)	64.38	63.02	63.85	66.06	64.24	64.07	-
The share in the employment at the national level (%)	27.58	27.05	27.09	28.89	28.78	28.95	-

Source: Romania's Statistical Yearbooks, 2008-2013, Chapter 3. [9]

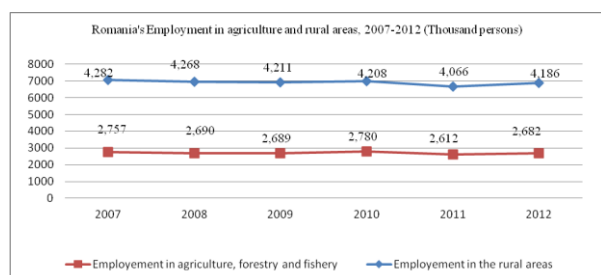


Fig. 1. Dynamics of Employment in agriculture and in the rural areas, Romania, 2007-2012 (Thousand persons)

Source: Romania's Statistical Yearbooks, 2008-2013. Own design.

**The statistical parameters of employment in agriculture, forestry and fishery and in the rural areas** are presented in Table 5.

**The employment in agriculture- the highest in the country** compared to the employment in other economic branches such as: industry

(19.06%), trade (13%), constructions (7.50%) and transportation and storage (4.67 %).(Table 6).

Table 5. Statistical parameters of the employment in agriculture, forestry and fishery and in the rural areas, Romania, 2007-2012

Statistical parameter	Employment in agriculture, forestry and fishery	employment in the rural areas
Average	4,203.5	2,701.6
Standard deviation	76.956	59.868
Variance	5,922.3	3,584.2
Standard error	31.417	24.441
Minimum	4,066	2,612
Maximum	4,282	2,780

Source: Own calculations.

Table 6. The employment structure by activity in Romania's economy, 2012 versus 2007

Specification	Employment in 2007		Employment in 2012		2012/2007 %
	Thousand persons	%	Thousand persons	%	
Total economy, of which:	9,353	100.00	9,263	100.00	98.93
Agriculture, forestry and fishery	2,757	29.48	2,682	28.95	97.27
Industry	2,259	24.15	1,766	19.06	78.17
Trade	1,151	12.30	1,205	13.00	104.69
Constructions	679	7.25	695	7.50	102.35
Transport	489	5.22	433	4.67	88.54

Source: Romania's Statistical Yearbooks, 2008-2013, Chapter 3. [9]

More than this, the decline of the employment was deeper in industry (-21.83 %) and transportation (-11.46 %), but in the field of trade it increased by 4.69 % and in the field of constructions by 2.35 %.

**The structure of the employed population in agriculture, forestry and fishery by professional status.** If at the national level in the year 2012, there were 67.3 % employees

and 18.9 % self-employed people and 12.6 % contributing family workers, in the agricultural sector there were 49.09 % self-employed persons and 42.7 % contributing family workers, just 0.2 % employers and 7.2 % employees. In the year 2012 it was not observed so much change compared to 2007.(Table 7).

Table 7. The employment in agriculture, forestry and fishery by professional status compared to the employment in the national economy in 2012 versus 2007

Specification	Total employment (Thousand persons)	Of which, by professional status (%)			
		Employees	Employers	Self-employed persons	Contributing family workers
<b>In 2012</b>					
Employment in the economy	9,263	67.3	1.2	18.9	12.6
Employment in agriculture, forestry and fishery	2,682	7.2	0.2	49.9	42.7
<b>In 2007</b>					
Employment in the economy	9,353	66.2	1.5	19.7	12.6
Employment in agriculture, forestry and fishery	2,757	5.2	0.2	53.4	41.2
<b>Differences 2012-2007</b>					
Employment in the economy	-90	+1.1	-0.3	-0.8	0
Employment in agriculture, forestry and fishery	-75	+2	0	-3.5	+1.5

Source: Romania's Statistical Yearbooks, 2008-2013, Chapter 3.4. [9]

**The employment in the agricultural sector by age group.** In 2012, in the agricultural field of activity, 86.5 % of the employed people was between 15-64 years old compared to 95.9 % in the economy. In agriculture, 13.6 % employed people is over 65 years old compared to 4.1 % in the national economy.

Table 8. The employment in agriculture, forestry and fishery by age group compared to the employment in the national economy in 2012 versus 2007

Specification	Total employment (Thousand persons)	Total 15-64 years (%)	By age group (years) %					
			15-24	25-34	35-44	45-54	55-64	Over 65
<b>In 2012</b>								
Employment in the economy	9,263	95.9	7.0	26.2	30.6	19.9	12.2	4.1
Employment in agriculture, forestry and fishery	2,682	86.4	9.8	18.1	23.2	16.2	19.1	13.6
<b>In 2007</b>								
Employment in the economy	9,353	94.5	8.3	27.1	26.4	22.4	10.3	5.5
Employment in agriculture, forestry and fishery	2,757	82.5	9.3	23.3	20.5	28.3	19.2	17.5
<b>Differences 2012-2007</b>								
Employment in the economy	-90	+1.4	-1.3	-0.4	+4.2	-2.5	+1.9	-1.4
Employment in agriculture, forestry and fishery	-75	+3.9	+0.5	-5.2	+2.7	-12.1	-0.1	-3.9

Source: Romania's Statistical Yearbooks, 2008-2013, Chapter 3.3. [9]

About 35.3 % employed persons in agriculture were between 45-64 years compared to 32.1 % in the economy. Only 23.2 % employees in agriculture belong to the 35-44 year group compared to 30.6 % at the national level. In agriculture, only 18 % are young employees between 25-34 years old while in the economy there were 26.2 % (Table 8).

**The structure of the employment in agriculture, forestry and fishery by gender.**

In 2012, in the agricultural sector there were employed 46.4 % women compared to 65.2 % in 2007, meaning that men are more preferred by employers. Just 1.2 % women were employed in agriculture in 2012 compared to 18.7 % in 2007 and this means that the differences lost their jobs or retired.

If in 2007, 0.1 % of the employed people in agriculture were represented by women, but in 2012 there was none.

Also, the percentage of the self-employed

women declined from 16.7 5 in 2007 to 15.5 % in 2012. The contributing family workers of female gender remained with the same share, 29.7 % ( Table 9).

Table 9. The structure of the employment population by gender compared to the employment in the national economy in 2012 versus 2007

Specification	Total employment (Thousand persons)	Women (%)	Of which, by professional status			
			Employee	Employer	Self-employed persons	Contributing family workers
<b>In 2012</b>						
Employment in the economy	9,263	44.7	30.1	0.4	5.5	8.7
Employment in agriculture, forestry and fishery	2,764	46.4	1.2	0	15.5	29.7
<b>In 2007</b>						
Employment in the economy	9,353	45.3	30.2	0.3	5.6	9.0
Employment in agriculture, forestry and fishery	2,757	65.2	18.7	0.1	16.7	29.7
<b>Differences 2012-2007</b>						
Employment in the economy	-90	-0.6	-0.1	+0.1	-0.1	-0.3
Employment in agriculture, forestry and fishery	-75	-18.8	-17.5	-0.1	-1.2	0

Source: Romania's Statistical Yearbooks, 2008-2013, Chapter 3.4. [9]

### Romania's position in the EU regarding labor force and employment in agriculture.

In 2010, according to the EU Farm Structure Survey, Romania had 7,156.9 thousand persons directly employed in agriculture, representing 28.67 % of the EU-27 employment in agriculture. From this point of view, Romania comes on the 1st position in the EU-27. It is followed by Poland (15.23 %), Italy (13.59%), Spain (8.92%), Greece (4.85 %), Hungary (4.58%), France (4.06 %), all these 7 countries together assuring 80 % of the EU employment in agriculture.

Of the total number of persons employed in agriculture, 7,156.9 thousand persons, recorded by Romania, 53.5 % were sole holders, 45 % family members and 1.5 % non-family regular workers.

The percentage of sole holders, 53%, recorded by Romania, was by +6.9 % higher than the EU-27 average. Higher percentages were recorded by Malta ( 65.5 %), Greece (59.6%), Lithuania (53.7%) and the lowest percentage belonged to the Czech Rep. (14.9%).

The percentage of family members recorded by Romania, 45 %, was by -0.6 % less than the EU average. From this point of view Romania came on the 6th position in the EU-27. The highest percentages were registered by Slovenia (64.3 %), Portugal (50.9%), Poland (58.7%), Spain (48.9%), Cyprus (48%) and Italy (47.9%) and the lowest figure was recorded by France (16.4 %).

Regarding the non-family regular workers, Romania recorded 1.5 %, by -6.3 % less than the EU-27 average. This figure placed Romania on the last position in the EU-27.

Men working in Romania's agriculture accounted for 53.1 % of the EU employment in agriculture, this figure being by -4.6 % lower than the EU average. From this point of view, Romania is followed by Lithuania (49.6%), all the other EU countries having higher percentages regarding men employed in agriculture.

Concerning the average number of persons per holding, Romania recorded 1.9 persons, by -0.9 less than the EU-27 average.

With 0.9 % people working full-time in

agriculture, Romania came on the last position in the EU-27 and recorded by -13.4 % less than the average of the Community. In Romania 83 % of people is working in

small holdings with SO < Euro 4,000, a situation which placed the country on the penultimate position in the EU-27 (Table 10).

Table 10. Farm labour force (regular) in Romania compared to the EU-27 average in 2010

Specification	Total 1,000 persons	Of which			By sex Men (% of total)	Average workers per holding	Working in holdings with SO < Euro 4,000 (% of total)	Working full time (% of total)
		Sole holders (% of total)	Family members (% of total)	Non family regular workers (% of total)				
EU-27	24,960.4	46.6	45.6	7.8	57.7	2.1	73.1	14.3
Romania	7,156.9	53.5	45.0	1.5	53.1	1.9	83	0.9
Difference Romania- EU-27 average	-17,803.5	+6.9	-0.6	-6.3	-4.6	-0.2	-9.9	-13.4

Source: EU Farm Structure Survey. [4]

In 2012, according to the EU Labour Force Survey, Romania had 2,619.1 thousand persons employed in agriculture, being situated on the 1st position in the EU-27. The

lowest number of employed people in agriculture had only Malta (1.4 thousand persons).

Table 11. Romania's employment in agriculture compared to the EU-27 in 2012

Specification	Employment 1,000 persons	Men (% of total)	Persons aged 15-39 years (% of total)	Persons aged 40-64 years (% of total)	Persons aged 65 and over (% of total)
EU-27	9,947.9	61.5	33	57	9.9
Romania	2,619.1	52.7	38.8	47.2	13.9
Difference Romania- EU- 27 average	-7,328.8	-8.8	+5.8	-9.8	+4.0
Position occupied by Romania in the EU-27	1	27	4	25	7

Source: EU Labour Force Survey. [5]

Romania had the lowest percentage of men working in agriculture, 52.7 %, therefore it is situated on the 27th position in the EU-27. The 1st position is occupied by Ireland with 87.7 % men employed in agriculture.

With 38.8 % persons aged between 15-39 years of the total number employed in the EU-27 agriculture, Romania came on the 4th position, the 1st position being occupied by Denmark (43 %).

Romania registered 47.2 % employees belonging to the 40-64 years age group, percentage which placed it on the 25th

position in the EU-27. The 1st position is occupied by Denmark (46%), the lowest figures and the last position is occupied by Slovakia (73.1 %).

Regarding the percentage of persons aged 65 and over, employed in agriculture, Romania recorded 13.9 %, which positioned it on the 7th place. The 1st position, with the least number was occupied by Slovakia (0.4 %) and the last position for the oldest people employed in agriculture was occupied by Portugal (42.7%)(Table 11).

In 2010, according to the EU Farm Structure

Survey, Romania had 1,610.3 thousand persons labour force in terms of AWU, representing 16.49 % of the total labour force in the EU-27. From this point of view, Romania was followed only by Poland which registered 1,897.2 thousand AWU, all the other EU countries having less labour force in

agriculture.

Regarding the labour force working in holdings with SO< Euro 4,000, Romania recorded 64.7 %, being situated on the penultimate position in the EU-27, being followed only by Bulgaria (66.3%).(Table 12).

Table 12. Romania's Labour force in AWU compared to the EU-27 average in 2010.

Specification	Total labour force in AWU (1,000 AWU)	Of which (%)				By sex Men (% of total)	Average workers per holding (AWU per holding)	Working in holdings with SO< Euro 4,000 (% of total)
		Sole holders (% of total)	Family members (% of total)	Non family regular workers (% of total)	Non family non-regular workers (% of total)			
EU-27	9,761.2	45.1	32.5	14.7	7.8	60	0.8	30.6
Romania	1,610.3	49.3	39.4	4.5	6.8	54.3	0.4	64.7
Difference Romania-EU-27 average	-8,150.9	+4.2	+6.9	-10.2	-1	-5.7	-0.4	+34.1

Source: EU Farm Structure Survey. [4]

## CONCLUSIONS

The share of the rural population in Romania is 46 %, the highest in the EU-28.

The employment in the rural areas accounted for 4,186 thousand persons in 2012, representing 45.19 % of the employment in the national economy.

In 2012, in the agricultural sector there were 2,682 thousand persons employed, representing 64.07 % of the employed rural population and 28.95 % of the employment in the economy. It is higher than in the EU-28 where it is only 4.7 %. Also, it is the highest percentage compared to other economic sectors such as: industry, constructions, trade and transportation.

In agriculture, there are more employees and self employed people than in the national economy.

The population employed in agriculture is characterized by aging as a higher percentage is over 65 years old and also over 35 years, and just 18 % young people belonging to the 25-34 years group were employed in this sector compared to 26.2 % of the total employed persons in agriculture compared to 65.2 % in 2007, meaning that they lost their

jobs.

So, there was noticed a gender discrimination related to the occupancy degree of the job vacancies.

According to EU Farms Structure Survey, Romania's position in the EU-27 regarding labour force working in agriculture could be characterized as follows:

- Romania comes on the 1st position in the EU-27 regarding the number of persons directly employed in agriculture;

- Of the total number of employed persons in agriculture in Romania 53.5 % are sole holders, 45 % family members and 1.5 % non family regular workers.

- Also, of the total number of employed people in agriculture in Romania, 53.1 % are men, and from this point of view Romania is situated on the penultimate position in the EU-27.

- Romania is on the last position in the EU-27 for the people employed full time in agriculture (0.9%) and on the penultimate position for 83 % employed persons in small holdings SO<Euro 4,000.

According to the EU Labour Force Survey, of the total employed persons in agriculture, 38.8 % are persons between 15-30 years old, 47.2



% are between 40-64 years old and 13.9 % are of 65 and over.

In terms of AWU, Romania is placed on the top position for 1,610.3 thousand AWU and on the penultimate position for 64.7 % AWU working as employed in small farms SO<Euro 4,000.

As a final conclusion, Romania's agriculture is dominated by family farms, the most employed people being part-time in farm work having other jobs and income sources, agricultural works are achieved in small farms, the employed population is aging, the young people is not attracted by agriculture looking for better paid jobs in the cities or abroad.

The solutions to improve the employment in agriculture are the following ones:

- to diversity the activities in the rural areas and create new jobs with a positive impact on the local population income ( agro-tourism, other services);
- to stimulate the young people to work in the rural areas;
- to support women to develop specific activities and involve them much more in the preservation of the traditions, folklore, local gastronomy, handicrafts etc;
- to offer funding for developing new activities, investments for the young farmers to develop their business, training and managerial skills.

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