

**Marin POPESCU<sup>1</sup>**

*Institute of Agricultural Economics, Romanian Academy, Bucharest*

## LABOUR EMPLOYMENT IN ROMANIA'S AGRICULTURE AND LABOUR PRODUCTIVITY INCREASE. GAPS BETWEEN ROMANIA AND THE EUROPEAN UNION

### ABSTRACT

The present study intends to investigate the labour employment and productivity problems in Romania's agricultural sector compared to the average level in the European Union and Member States, to reveal the gaps and the envisaged trends. For Romania, narrowing these gaps is a great challenge in order to reach a real convergence and for an efficient integration into the EU structures. Mainly the EUROSTAT and European Commission data are used in the analysis of gaps level and trends, which are based upon the official data of the EU Member States and a unitary calculation methodology; the data published by the statistical institutions from Romania, the economic research institutes of the Romanian Academy and of the Academy for Agricultural and Forestry Sciences are also used for this analysis.

**Keywords:** employment, labour force utilization, annual work unit, productivity.

**JEL Classification:** J08, J21, J24.

### 1. EMPLOYMENT IN AGRICULTURE

One of the main characteristics of Romanian agriculture is the great number of persons employed in this sector. Romania is the country with the largest number of people employed in agriculture in EU 27 (2762 thousand in 2007), followed at great distance by Poland (2247 thousand), Italy (924 thousand), France (880 thousand), Spain (926 thousand) and Germany (859 thousand).

The persons employed in the Romanian agricultural sector (including the above-mentioned sectors) represented 22.61% of the persons employed in EU-27 in the year 2007 (Table 1). This value was higher than the total employed persons in France, Spain and Germany, which are the countries with the largest utilized agricultural area and with the highest agricultural production.

In total employed civil population, the population employed in the Romanian agriculture has a relative high share, i.e. 29.5% (Table 2).

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<sup>1</sup> Ph.D. Professor, senior researcher, Institute of Agricultural Economics, Romanian Academy.

Table 1

Persons employed in agriculture, hunting, forestry and fisheries 2001–2007

	Thousand people						
	2001	2002	2003	2004	2005	2006	2007
EU-27	15662	14461	14013	12987	12869	12564	12218
EU-15	6724	6539	6557	6208	6180	6244	6091
Romania	4801	3683	3530	3024	3048	2843	2762
Romania % of EU-27	30.65	25.47	25.19	23.28	23.68	22.63	22.61

Source: European Commission (2007 and 2008), Agriculture in the European Union – Statistical and Economic Information.

Note: The employed persons include all the remunerated persons or self-employed plus the unpaid family workers. The persons employed in more than one economic sector are taken into account only in the sector where their work is priority.

Table 2

The population employed in agriculture in total civil employed population 2001–2007

	%						
	2001	2002	2003	2004	2005	2006	2007
EU-27	7.7	7.1	6.8	6.3	6.1	5.9	5.6
EU-15	4.2	4.1	4.0	3.8	3.7	3.7	3.5
Romania	44.4	37.7	37.7	32.6	32.3	30.6	29.5

Source: European Commission (2007 and 2008), Agriculture in the European Union – Statistical and Economic Information.

Romania is on the first place in EU-27 as regards the share of the population employed in agriculture in the civil employed population. The share of this population was by 5.27 times higher compared to that in the EU-27. Shares closer to that of Romania, but over the 5.6% EU-27 average were found in Poland, Latvia, Lithuania, Slovenia, Greece and Portugal.

The employment trend in agriculture is in line with the multi-millennium diminution trend. Agriculture, since its emergence, has supplied labour force to non-agricultural activities for the expansion of these activities. In the period 2001–2007, the number of persons employed in agriculture, forestry and fisheries was down by over 42%, and their share in the civil employed population diminished by almost 15%. This diminution is higher than that in the EU-27. This trend continuation will lead to a significant diminution of the existing gap compared to the EU.

The utilization of persons employed in agriculture is revealed by the volume of total work expressed in annual work units (AWU) (Table 3). In the year 2006 in Romania, the work volume in agriculture represented 20.4% of the average EU-27 and 43.5% of the average EU-15. In the same year, similarly to the case of the employed population, the work volume in Romanian agriculture exceeded that of France, Germany and Spain together (2459.1 thousand) – three of the largest

countries in EU. This means that labour productivity in Romanian agriculture is significantly lower compared to that in the EU.

Table 3

The total work volume in annual work units (AWU) 2001–2006

	2001	2002	2003	2004	2005	2006
EU-27	14282.5	13550.1	13292.3	12691.8	12627.8	12371.2
EU-15	6455.4	6282.9	6165.3	6076.3	5897.4	5796.7
Romania	3121.0	2765.0	2696.0	2336.0	2596.0	2527.0

Source: European Commission, Eurostat, 2008.

Note: The annual work unit (AWU) represents the full-time work input of one person (245 days × 8 hours/day) related to the activity carried out on the agricultural holding.

The number of AWU decreased each year both in the EU and in Romania. In the period 2001-2006, in EU-27, the number of AWU was down by 13.4%, in EU-15 by 9.0% and in Romania by 20.0%. Although the gap between Romania and EU in terms of the work volume in agriculture decreased, it still remains extremely big. It should be also mentioned that a person employed on the agricultural holdings in Romania achieves only 0.28% of an AWU as against 0.40% as one person averagely achieves in EU-27 and 0.45% in EU-15; with this value Romania is on the penultimate position in EU-27, before Malta. The countries with the highest average utilization of AWU/person are the Czech Republic (77), Belgium (70), Netherlands and Luxemburg (68), France (68) and Germany (67).

Table 4

The working volume per person who works on agricultural holdings

		Total number of persons working on farms thousand	Total number of AWU (equivalent workers) full time -thousand-	AWU/ person	The work input in agriculture -thousand-		Total (AWU)
					Family members	Non-family members <sup>1)</sup>	
EU-27	2003	30516	12391	0.41	10856.9	1536.6	13351.5
	2005	29706	11744	0.40	10258.0	1486.2	12713.6
EU-15	2003	12854	5656	0.44	4642.4	1014.1	6326.1
	2005	11957	5338	0.45	4322.3	1016.1	5982.9
Romania	2003	8884	2510	0.28	2417.5	92.4	1699.5
	2005	8515	2408	0.28	2353.0	54.6	2595.6

Source: European Commission, Eurostat, 2007.

1) Without non-family members employed on a non-regular basis.

The low AWU level/person reveals that in Romania's agriculture there is a great waste of labour force (Table 4). The causes of such a big waste are many.

Among these, we first mention the existence of a large population surplus mainly in the regions with a strong agrarian character. While in the developed countries in the EU, the number of people employed in agriculture has diminished for many decades, reaching a level below the necessary limit, which determined them to use immigrants in certain periods, in Romania, in the last decade of the past century, an atypical process was noticed, as the labour force shifted from the non-agricultural sectors to agriculture (mainly by massive labour rationalization from the non-farm sectors and early retirement), under the conditions in which surplus labour already existed in agriculture. As a result, the marginal productivity of these persons was null or almost null.

In the second place, under the conditions of the atomization of the farms, most of these have neither the economic nor the physical size to ensure a full use of labour and the necessary incomes.

Thirdly, the policy of underestimation and marginalization of agriculture, materialized in the absence of a significant support, unlike the situation in the EU developed countries, the technological decline, the drastic diminution of the agricultural services, leaving the farmers to the discretion of the suppliers of production means and of the clients-processors, traders, etc., which favoured the massive transfer of value added from agriculture towards different economic operators outside agriculture, the focus on the imports of agri-food products to the detriment of the domestic production, resulted in the set-aside phenomenon, the total area of non-cultivated land reaching almost one million hectares, and the non-utilization of large areas under pastures and hayfields.

Thus a paradoxical situation emerged, which resides in the existence of a large labour surplus in the conditions of the non-cultivation and non-use of large agricultural land areas. As a result, the process of leaving agriculture and migration to the EU countries for work in agriculture and in any other activity sector gained ground. Those who left were mainly young persons, capable and willing to work. In a short time, Romania became one of the great exporters of labour force, out of which a significant part came from agriculture.

The effects started to come up, both positive and negative; the positive aspects: the people working abroad began sending money in the country to their relatives, which amounted up to 6–7 billion Euros per year; the negative aspects: unbalancing the labour market, scarcity of labour in constructions, industry, agriculture, services (health, education, etc.), deterioration of family relations, the main losers being the children of those who left. The fact that of the many people who are leaving, fewer are coming back also aggravates the demographic situation of the country, leading to the need to hire labour force from other countries (from Ukraine, Turkey, India, China, the Arab countries, etc.); this situation generates difficulties of adaptation, remuneration, etc. The beginning of the food crisis in 2007 and of the world financial and economic crisis in 2008 result in phenomena

whose effects on labour force emigration – immigration and agriculture implicitly are difficult to estimate.

Coming back to the work input in agriculture expressed in AWU, according to the statistical data, the greatest part comes from family members, which reveals the family character of most agricultural holdings, both from Romania and from the European Union. In 2006, the work input of the family members in Romania represented 90.7 % of total, 80.7 % in EU-27 and 72.2 % in EU-15. Only in two countries the work input mainly came from the non-family members (hired under payment conditions): the Czech Republic and Slovakia; in the first country, the family members accounted for only 24.8 % and in the latter 42.5 % of the total. In this countries family agriculture is not prevalent. Among the developed countries, France is almost in the situation in which family farming could give way to agriculture based on hired labour. In other EU-15 countries, out of the total work input, the family members represented 69.4% in Germany, 80.3% in Belgium, 62.3% in Denmark, 65.4% in Spain, 82.4% in Italy, 63.1% in Netherlands, 68.6% in the United Kingdom, 82.8% in Portugal, 81.9% in Greece.

These statistical data are important because they suggest the farm structure orientation towards the establishment of commercial family farms, towards their transformation into the core of the Romanian agriculture. This orientation does not mean the diminution in number of the large and very large-sized farms, of the cultivated area and livestock on these farms as it was the situation in the last years; it rather means the concentration of the production from the lower-sized classes and the establishment of farms of larger-size, both in economic and physical terms, mainly family but also non-family farms: - cooperative companies, commercial companies, individual agricultural holdings.

The large and very large agricultural holdings, which focus upon profit, can reach a higher economic efficiency, yet paying the price of a lower social efficiency, of enlarging the difference between the rich and the poor, of underestimating the ecological issue<sup>2</sup>. In the present conditions of our country, with a large agricultural population and farms that mostly have lower economic and physical size, on short and medium term it is preferable to have as main target the development of family farms, the size of which could increase with the technological progress, information proliferation, increase of the farmers' educational level, the integration into the modern market economy.

The large and very large-sized agricultural holdings, of thousands and dozen thousands of hectares should represent an exception, at least in the present period. The concentration in agriculture has limits that cannot be met in the other branches of the economy, which cannot be overlooked. Furthermore, sustainable agriculture means the combination between the economic efficiency and the social and ecological efficiency, which is hardly possible on the large-sized profit-oriented farms.

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<sup>2</sup> An example in this respect is that although Romania lacks agricultural products for population's consumption, the large agricultural units from the southern part of Romania are increasingly oriented to the cultivation of rapeseed, which yields big profits.

## 2. LABOUR PRODUCTIVITY. CURRENT SITUATION AND GAPS COMPARED TO THE EU COUNTRIES

The growth of labour productivity is an important component of the agricultural production efficiency increase and an essential condition for narrowing the gaps between the Romanian agriculture and the agriculture of the more developed countries in the EU and not only. In the present paper we estimate labour productivity by relating agricultural industry production (AIP) and the gross value added (GVA) to the annual work input volume (AWU) (Table 5).

Table 5

Labour productivity in agriculture, in the year 2006

	Agricultural industry production mil. Euros	Gross value added	AWU thousand	Agricultural industry production/AWU Euros	Gross value added/AWU Euros	GVA/AWU EU 27=100
EU-27	326725	143445	12371.2	26410	11595	100
Belgium	6827	2335	71.9	94951	32476	280.1
Bulgaria	3471	1548	625.0	5554	2477	21.4
Czech Repub.	3567	866	147.9	24118	5855	50.5
Denmark	8133	2413	60.4	134652	39950	345.5
Germany	40070	12847	568.0	70545	22618	195.1
Estonia	542	221	37.4	14492	5909	51.0
Ireland	5498	1599	152.5	36052	10485	90.4
Greece	10470	6536	603.6	17346	10828	93.4
Spain	37327	22159	972.9	38367	22776	196.4
France	60645	25620	918.2	66048	27902	240.6
Italy	43076	24986	1213.0	35512	20599	177.7
Cyprus	618	322	20.6	30000	15631	134.8
Latvia	851	308	136.5	6234	2256	19.5
Lithuania	1612	555	136.3	11827	4072	35.1
Luxemburg	244	93	3.9	62564	23846	205.7
Hungary	6001	2263	523.8	11455	4320	37.3
Malta	127	60	4.1	30976	14634	126.2
Netherlands	22110	9049	192.0	115156	47130	406.5
Austria	5699	2457	159.9	35578	15366	132.5
Poland	16173	6520	2235.9	7233	2916	25.1
Portugal	6767	2726	414.7	16318	6573	56.7
Romania	14365	7010	2527.0	5685	2774	23.9
Slovenia	1064	455	88.7	11995	5130	44.2
Slovakia	1770	509	91.3	19387	5575	48.1
Finland	3756	794	93.1	40344	8528	73.5
Sweden	4382	1184	74.6	58740	15871	136.9
United Kingdom	21558	8001	298.1	72318	26840	231.5
EU 15	276562	122799	5796.7	47710	21184	182.7

Source: European Commission 2008, Agriculture in European Union – Statistical and Economic Information; own calculations.

Note: The agricultural industry production consists of the agricultural production and the production of non-agricultural secondary activities that cannot be separated from the main agricultural activities. In the materials produced by Eurostat and the European Commission the category Agricultural industry production replaces the category Agricultural production.

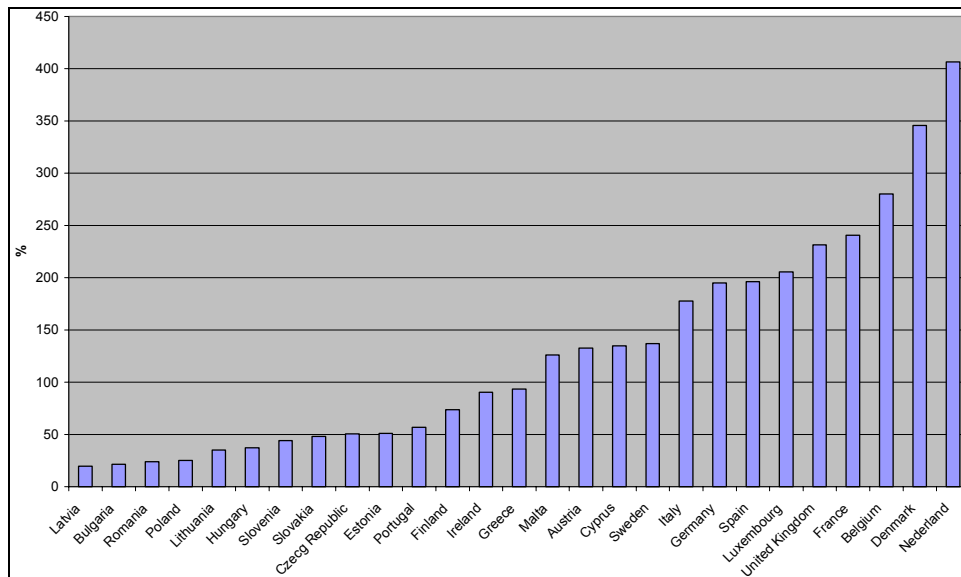


Figure 1. The hierarchy of the EU countries by GVA/AWU (EU-27=100).

The labour productivity gap is significant: in the year 2006, the gross labour productivity (AIP/AWU) was by 4.64 times lower in Romania compared to the EU-27 average, and the net productivity (GVA/AWU) by 4.18 times lower (Figure 1). Compared to the EU-15 average, the gap was even larger – by 8.39 times in the case of gross productivity and by 7.64 times in the case of net productivity. Romania outstripped only Bulgaria in both cases and Latvia in the case of net productivity. The largest gap is with Denmark, in the case of gross labour productivity (23.69 times) and with Netherlands in the net labour productivity (16.99 times). Out of net labour productivity in EU-27, the net productivity in Romania's agriculture represented only 23.9 %, Romania being place on the antepenultimate position. In fact, all the 10 former socialist Member States are on the last positions on the list.

The large productivity gap influences the cost and profitability of the agricultural products. The advantage of the cheap labour force in Romania is partially or totally annihilated by the low labour productivity level. The big productivity gap is reflected in the low competitiveness of the Romanian products on the domestic and foreign markets.

The farmers' incomes are also influenced by the low level of labour productivity, as they depend on the gross value added, from which the primary factors of the agricultural production are recompensated, i.e. the labour force, the land and the capital. A lower value added per work unit compared to other countries means lower incomes for farmers.

Labour productivity in agriculture largely influences the national labour productivity. The statistical data on the share of agricultural labour productivity in the national labour productivity reveal quite different situations from one country

to another. As a rule, the more the population in agriculture has a higher share in the employed civil population, the greater is the influence of its productivity upon the national labour productivity. Romania is the most obvious example. As it has the highest share of the employed population in agriculture in EU-27 (30.6 %), the low labour productivity contributes to the decrease of the national labour productivity more than any country.

Table 6

The share of labour productivity from agriculture in the national labour productivity 2006

	Share of population employed in agriculture in total civil <sup>1)</sup> employed population	Share of agriculture in GDP	Share of labour productivity from agriculture in national labour productivity
EU 27	5.9	1.2	20.34
Belgium	2.0	0.7	35.00
Bulgaria	8.1	6.2	76.54
Czech Republic	3.8	0.8	21.05
Denmark	3.1	1.1	35.48
Germany	2.3	0.6	26.09
Estonia	5.0	1.7	34.00
Ireland	5.7	0.9	15.79
Greece	12.0	3.1	25.83
Spain	4.8	2.3	47.91
France	3.9	1.4	35.89
Italy	4.3	1.7	35.50
Cyprus	4.3	2.3	53.48
Latvia	11.2	1.9	16.96
Lithuania	12.4	2.3	18.55
Luxemburg	1.8	0.3	16.67
Hungary	4.8	2.5	52.08
Malta	1.7	1.2	70.59
Netherlands	3.3	1.7	51.52
Austria	5.5	1.0	18.18
Poland	15.8	2.4	15.19
Portugal	11.7	1.8	15.38
Romania	30.6	7.2	23.53
Slovenia	9.6	1.5	15.63
Slovakia	4.4	1.1	25.00
Finland	4.7	0.5	10.64
Sweden	2.2	0.4	18.18
United Kingdom	1.4	0.4	28.57
EU-15	3.7	1.1	29.73

1) including forestry, hunting and fisheries 2) Romanian agriculture contributed by 5.68 % to the GDP formation in 2007 and by 6.46 % in 2008. In 2007, the share of labour productivity in national productivity was down to 17.29 %.

Source: European Commission 2008, Agriculture in European Union – Statistical and Economic Information; own calculations.



In all the EU Member States, the labour force productivity in agriculture is lower than the national labour force productivity. The gap between the two indicators depends not only on the level of labour productivity in agriculture but also on the labour productivity level in the non-agricultural activities (Table 6).

This results in the situation that countries with quite similar levels of labour productivity in agriculture may feature great differences with regard to the share of the productivity from agriculture in the national labour productivity. Bulgaria, which is on the antepenultimate position as regards labour productivity in the EU is on the first position by its share in the national labour productivity, at great distance from Romania, although they have close values of labour productivity in agriculture.

The statistical data refute the thesis according to which labour productivity in agriculture would have the tendency to get close to the productivity in the non-agricultural activities as far as the economy develops. In agriculture, the labour productivity increase is constrained by natural factors, i.e. soil, weather, as well as by social and economic factors that are not found in the non-agricultural branches or that have a lower influence upon labour productivity in agriculture.

Although labour productivity in agriculture has increased from one period to another, the gap between it and the labour productivity in the non-agricultural sectors is maintained and it even increased in some periods; this is reflected in the decrease of the share of agricultural labour productivity in the national labour productivity. Thus, while in 1998 this share was 31.91% in EU-15, in 2006 it was down to 29.73%. This is the main reason why even in the most developed countries the incomes in agriculture are relatively lower compared to those in other sectors of activity, and the population employed in agriculture has the tendency to diminish even under the strictly necessary level, shifting to non-agricultural branches; this results in the need to hire immigrant labour force from the less developed countries.

The unlimited expansion of the non-agricultural activities and the limited expansion of the agricultural activities is ultimately reflected by the transformation of agriculture in a secondary branch. The paradox is that the importance of agriculture for the society is growing, as the population grows, as the demand for agricultural products increases, as the population's demand switches to higher quality products and the food and agricultural prices increase.

As a result, the assessment criterion for the importance of agriculture is not its share in the economy, but rather the fact that it ensures the type of necessary energy for the people's life by growing crops and animals. From this reason all countries, regardless of their size and their development stage, are vitally interested in the promotion of a Community agricultural policy that should ensure optimum conditions for the national production growth. Agriculture, through its role in ensuring the necessary foodstuffs for the population, has been and still remains a strategic sector of greatest importance for each country.

From the data presented above, it results that there is a significant gap between the labour productivity in Romania's agriculture and the average labour productivity in the EU agriculture. In these conditions, it is necessary to see the tendency of this gap. For this purpose, we present below the labour productivity in

agriculture in EU-15 in different years, using the gross productivity and net productivity as indicators, calculated by relating the agricultural industry production and the gross value added to the population employed in agriculture (Table 7).

Table 7

Labour productivity in Romania's agriculture and in EU-15 agriculture

	UM	1999	2000	2006	2007
EU-15					
Employed population in agriculture <sup>x)</sup>	thousands	6896	6770	6244	6091
Agricultural industry production	mill. euro	273658	280090	276562	298948
Gross value added	mill. euro	143695	146426	122799	131000
Production/population	euro	39683	41372	44292	49080
Value added/population	euro	20837	21628	19667	21507
ROMANIA					
Employed population in agriculture	thousands	4851	3456	2843	2782
Agricultural industry production	mill. euro	8285	8157	14365	14312
Gross value added	mill. euro	4441	4283	7010	6285
Production/population	euro	1708	2360	5052	5144
Value added/population	euro	915	1239	2466	2259
ROMANIA = 1					
Gross productivity in EU		23.2	17.6	8.8	9.5
Net productivity in EU		22.8	17.5	8.0	9.5
EU-15 = 100					
Gross productivity in Romania		4.30	5.70	11.4	10.48
Net productivity in Romania		2.95	5.73	12.5	10.50

x) Forest operation, the economy of hunting and fisheries included.

Source: Calculations based upon European Commission data (Eurostat and Agriculture and Rural Development) FAO and UNSO.

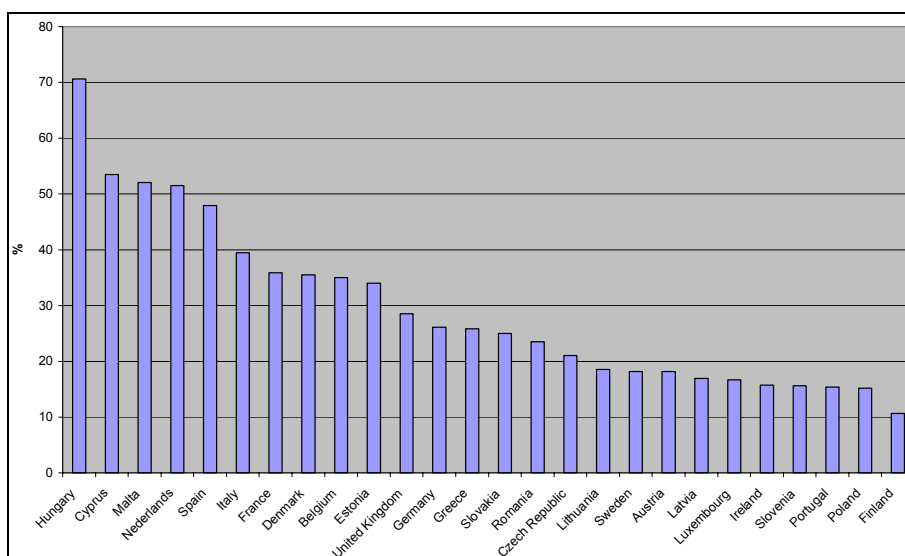


Figure 2. Hierarchy of EU countries by the share of labour productivity in agriculture in national labour productivity in 2006.

The statistical data reveal that both in EU-15 and in Romania, labour productivity in agriculture has had an increasing trend, with oscillations caused by the evolution of the employed population or of the gross production and value added. In Romania, the increasing trend was stronger both in gross productivity and in net productivity, which led to the productivity gap diminution by several percentage points. Yet, the productivity gap remains very big. In 2007, the gross productivity and the net productivity in the Romanian agriculture represented only 10.5% of the productivity in the agricultural sector of EU-15. In the case of comparing to the average labour productivity in EU-27 agriculture, the productivity gap would be smaller. In the year 2007, the gross productivity would be 17.79% and the net productivity 23.81% of the average productivity in EU-27. If AIP and GVA are related to AWU – the gross productivity in Romania's agriculture in the year 2007 would represent 21.5%, and the net productivity 23.9% of the average level in EU-27. Reaching the average EU productivity level will need actions on many plans for a relatively long period of time.

### **3. DIRECTIONS OF ACTION FOR INCREASING THE HUMAN FACTOR PRODUCTIVITY**

Having in view the active role of the human factor in the overall production factors in agriculture, labour productivity growth represents an essential condition for agriculture development and bridging up the gaps between Romania's and the EU agricultural sectors. At present, in the economy and in agriculture implicitly, there is a shift from the economy mainly based upon physical resources to the knowledge-based economy (that in some papers is named "the revolution of knowledge" (Ovidiu Nicolescu 2004). It is the period when knowledge becomes the essential element of high productivity and high competitiveness. Knowledge, which should characterize and provide nobility to the human factor in Romanian agriculture, is acting as multiplier of the national wealth and can be used in order to reduce the quantity of necessary resources for the accomplishment of any desirable purpose, including productivity increase and the diminution of the gaps between Romania and EU. "Knowledge is also the most democratic source of power, being accessible both to the powerful and wealthy and to the weak and poor. It is not exhaustible, it is infinite extensible" (Alvin Toffler, 1995).

In order to narrow the productivity gap, the educational level of the population employed in the Romanian agriculture has to get close to that existing in the developed countries of the EU in the next years, both under quantitative aspect – i.e. including the whole population in the educational processes, and under qualitative aspect – focusing upon the knowledge with applicative value. Together with the improvement of the general education in the rural area, the development of the high school education with agricultural profile is needed, as well as the university education, so that the human resources in agriculture should have medium and high education, should have the necessary knowledge and skills for a

modern agriculture practice, based on the use of the advanced technical means and technologies, of computers and internet.

The EU integration makes the agricultural producers face new challenges in relation to work and farm management, the obtaining of products at higher quality standards, the respect of the *acquis communautaire* rules, updated information on the market changes and on the agricultural policies. Under these conditions, the (professional, managerial and marketing) training of the agricultural producers is an essential condition for narrowing the productivity gap and for increasing agriculture competitiveness. Meeting this requirement means the development of a continuous training system for farmers under different forms. Special attention should be paid to the training of the farm heads, who are many in Romania, due to the small farm size.

The productivity gap diminution needs the rejuvenation of the population working in Romania's agriculture. While on the legal entity units the farm heads aged 65 and over represented only 3.2% and the whole population employed on these farms represented 1.6%, on the individual holdings the farm heads aged 65 and over represented 43.7% and the members of these farms 29.5% (The Farm Structure Survey, 2006). An important role in the rejuvenation of the population employed in agriculture could be played by the application of the provisions of the Rural Development National Plan, according to which the young farmers under 40 who wish to settle in the countryside will benefit of the non-refundable funds (for the measure 112) from EU, the received amount ranging from 10000 Euros to 25000 Euros per holding, on the condition that the beneficiary farmer owns an agricultural holding ranging from 6 to 40 ESU (one ESU = 1200 Euros). The same target could be reached by the application of the Life Annuity Scheme, as well as by the establishment of cooperative companies.

Besides the increase of the labour force training and education level, labour productivity is directly or indirectly influenced by a series of natural, technical, economic, social, psycho-social, organizational and structural factors. The following actions could have an important contribution to farmers' labour productivity growth in Romania and to bridging up the gaps between Romania and the EU:

- Finance improvement. Agriculture has been and still is an under-financed sector. In the period 2001–2007, the net investments index grew only by 20.4%, compared to the year 2000, and the share of the investments in agriculture, hunting and forestry in total investments was lower each year, to represent only 3.4% of total investments in the year 2007. As a result, the fixed capital share in total tangible fixed assets was maintained at a very low level throughout the years, ranging from 1.3% in 2003 to 1.7% in 2007. With such an evolution of investments and of capital, agriculture lacked a development engine. This is one of the main reasons for the situation of agriculture in our country, for the accelerated diminution of agriculture contribution to GDP formation (the share of gross value added in agriculture to GDP formation was down from 11.4% in 2002 to 5.7% in 2007) and for the negative contribution of agriculture to GDP increase in certain years (in 2007 and not only). The improvement of the agricultural finance is

possible through the change of vision of the decision-makers, of governors, with regard to agriculture, through the access to the EU non-refundable funds and their rational use, through determining the banks to provide mutually beneficial credits to farmers. As the banks with foreign capital (which dominate the banking system in Romania) are very cautious in providing credits to farmers, and the CEC-Bank is facing difficulties (from the EC) in increasing the capital, a bank with Romanian capital should be created, specialized in farm credits.

- Increase of farmers' capacity to counteract the destructive effects of some natural factors: global heating, drought, flooding, soil erosion, landslides, etc. by the creation of modern irrigation systems, the afforestation of non productive land, the development of the forest shelter belts, etc.

- Improvement of the technical endowment by the gradual replacement of the worn out and obsolete technical means by other new equipment, with higher technical and economic parameters. The application of the "Old Car" program in agriculture, too, could be beneficial on the short term. On the medium and long term, we consider it necessary to develop the national industry for the production of tractors and agricultural machinery. Romania, as a country where agriculture will continue to have an important role, should not become fully dependent of the imports of technical means.

- Agricultural production concentration through the increase of the economic and physical size of holdings. Romania is now on one of the last places in EU-27 in this respect. The fact that the largest part of farmers carry out their activity on holdings with less than one ESU (equivalent to 1200 Euros) and with a physical size of less than 3 ha represents a constraint to labour productivity growth and to the diminution of the productivity gap between Romania and the EU average.

- Agricultural production structure change having in view a better use of the agricultural potential, obtaining products with higher value added in demand on the domestic and foreign markets, the creation of conditions for Romania's turning from a net importer into a net exporting country of agri-food products. The importance and emergency of the agricultural production structure change results from the fact that in the period 2001–2007, the deficit of the trade balance of agri-food products amounted to over 8.7 billion Euros, which exceeds by 8.1 times the funds allocated to Romania by EU under SAPARD for seven years, beginning with the year 2000. In the last years, Romania's imports reached up to 70% of the consumption needs in certain products. In order to diminish the food dependence on imports, we consider it necessary to develop the livestock production sector, the production of industrial crops, of vegetables, including the vegetables obtained in hothouses, the fruit production, as well as the organic production, which has very favourable conditions in Romania. A special focus should be laid on the agro-processing industry, for meeting the domestic needs and for changing the foreign agri-food trade structure, which is characterized by extremely high shares of imported processed products. Romania sells live animals and raw agricultural products at very low prices and buys processed products at very high prices.

- For the increase of labour productivity in agriculture, the change of the conditions in which the products are obtained on the domestic market is of great importance. The agricultural and agri-food market is affected by the non-correlations between demand and supply, by the significant diminution of the exchange value of the agricultural products, with serious effects upon the farmers' incomes, by the loss of some important market segments in favour of the foreign products that are invading the domestic market.

The agricultural products market in Romania operates in such a manner that farmers are losers not only when they have a small production, but also when they obtain large production. They are the losers in the relation with the suppliers of non-farm products by the high prices these ask for their products, they are also losers in the relation with the banks that impose extremely high interest rates and collaterals difficult to accept, they are losers in the relation with their clients – processors, sellers, who buy their products at prices that most often do not cover even the production costs, they are losers in the relation with their intermediaries from the “free” markets, as well in the relation with the state, which imposes high taxes and fees for the different services they ask for. As a result, a large part of the value created in agriculture is transferred to other social categories and to the state.

The liberalization of products circulation favours the developed countries, the Romanian producers not being able to face the competition from the part of foreign products; this is not because these products are of higher quality, many times their quality is lower than the quality of the Romanian products. The cause is the commercial aspect, the presentation of products, and the production cost of foreign products, which is lower due to higher subsidies, lower interest rates to credits, export premia, etc. The market “creators”, the wholesalers also contribute to the conquest of the Romanian market by the foreign producers; these prefer the foreign products in exchange for certain commissions they receive, the supermarkets are interested in bringing products from the country of origin of the capital, the state organizations with responsibilities in the field, under the pretext of consumer defense, consider that the imports are advantageous. As a consequence, the large mass of Romanian producers is excluded from the market, which is mostly characterized by unfair competition. Not being able to sell their products at convenient prices, they give up producing them, and they size their production according to their own consumption needs, and part of them leave to foreign countries for work to get higher incomes than they can get in Romania. The reconquest of the market is based upon farmer's regaining their confidence in the change, the adoption of a policy favourable to domestic production support, the organization of producers for the best use of production conditions, products collection, sorting, packaging, storage and sale if appropriate, either to processors, sellers, or directly on the domestic or foreign market.

In this way, labour productivity in agriculture implies the results obtained and the efforts made by farmers from production design to the sale of products to consumers. Labour productivity growth means taking into consideration the multitude of factors that contribute to the increase of output and to effort

rationalization. In the Romanian agriculture, there is a huge waste of production factors along the production flow, with a great variety of forms: uncultivated land areas, unused working time, money funds (subsidies included) spent with great delay, old fixed assets with high consumption of fuels and lubricants, agricultural works carried out after the due time (irrigations included), unused production due to the absence of animals, lack of outlets for products, etc. The wastage can also take the form of non-application of crop rotation, non-use of the performant biological material, labour force migration, production deterioration or loss by the storage in inadequate spaces, sale of fruit and grapes under the form of alcoholic beverages and not by their direct sale on the market. Wastage diminution can be an important source for labour productivity and economic growth.

#### 4. CONCLUSIONS

The main employment characteristic is the significant diminution of the population working in agriculture and of its share in total civil employed population. In both situations, the diminution is higher to that in EU-27 and EU-15. The same trend can be noticed in the total work input expressed in AWU, which narrows the existing gaps compared to the EU average. In spite of this, the gaps still remain very large, with regard to the work input per person who is working on the agricultural holdings. In Romania's agriculture, there is still a serious labour force surplus that was fed in certain periods by the massive labour force rationalization from other sectors of the economy. Coming back "home", their marginal productivity was null or almost null. By their consumption of agricultural production they contribute to the diminution of the available production for the market and of household incomes.

Labour productivity in the Romanian agriculture is low, and the gap between Romania and the EU average is relatively high in this respect. Thus, the gross labour productivity (AIP/AWU) was 4.16 times lower and the net productivity 4.18 times lower than the EU average in 2006. It is also significant that Romania, which has the largest population employed in agriculture among the EU-27 countries is on the 25<sup>th</sup> position as regards labour productivity. It achieves only 23.9% of the average productivity level obtained in EU-27. The low productivity is reflected in the farmers' incomes, in their poverty level, in the fact that over 5000 villages are very poor villages, out of almost 13000 villages (D. Sandu, 2005); poverty is also the cause of people leaving to foreign countries for work.

Referring to the labour productivity trend in Romania's agriculture and the gap between Romania and EU, the statistical data for the period 2000–2007 reveal an increasing trend of production per employed person and the gap diminution trend compared to EU-15: labour productivity per person in EU-15 increased from 41372 euros in 2000 to 49080 euros in 2007 and in Romania from 2360 euros to 5144 euros. Labour productivity in Romania's agriculture represented 5.75% of the labour productivity in EU-15 in 2000 and 10.48% in 2007. A similar increase was also

noticed in net productivity. Although the productivity gap diminished (by 5 % and 3 % respectively in 7 years), it is still significantly large and its diminution rate is very low.

In the next years we consider (with the exception of the years of crisis) that labour productivity may increase in Romania's agriculture faster than in the previous period and consequently the productivity gap will decrease more obviously. We have in view the following:

- The lessons learnt from under estimating agriculture, the fact that any "savings" made in relation to the support to agriculture, any delay in providing the necessary subsidies for the prevention and counteracting of the destructive effects of some natural factors, any non intervention in the market mechanisms when some disturbances are noticed are materialized into production losses and inefficiency, in massive imports and in the trade balance deficit increase, with inestimable negative effects upon farmers and national economy.

- The existence in Romanian agriculture of some individual and legal entity farms that obtain production and gross value added level per employed person or per work input that are close or equal to those obtained in the developed countries. The number of such farms will increase in the next years.

- The global financial and economic crisis that also affects the Romanian agriculture is not only the final point of an economic cycle, but also the starting point for a new cycle. In the period of crisis, the governments are trying to remove the factors that led to crisis; new orientations appear in the theory and practice of the social and economic development, strategies are designed for surmounting the crisis, for the beginning of a new cycle, with adequate means and goals. In the period of crisis, new opportunities emerge for the development of agriculture, for productivity growth and efficiency increase. However, the problems that the Romanian agriculture is facing are not only those brought about by the global financial and economic crisis, but also those generated by the agrarian crisis in Romania, which remained unsolved and resulted in Romania's being at the periphery of EU and Europe, in Romania's transformation into a net exporter of labour force and a net importer of agri-food products.

- The numerous possible directions of action mentioned above – the increase of the labour force educational level, labour force rejuvenation, the improvement of the agricultural finance and crediting and, on this basis, the increase of farmers' technical endowment, the production concentration into viable units and the orientation towards products with a higher value added and with solvent demand on the domestic and foreign markets, the reversal of the exports/imports ratio so that Romania should become a net exporter of agri-food products in the shortest time possible, the improvement of the marketing conditions, of the market relations, the increase of the competitiveness level of the Romanian products and the unfair competition diminution, the diminution of wasting manifested under different forms. An important role in the actions mentioned above is played by Romania's integration into the European Union, both by the fulfillment of the obligations convened upon, and by the access to the funds allocated to Romania for agriculture and rural area development.



- The stimulation of the labour force shift from agriculture to other activities, mainly from the rural area, including agricultural services, production collection, storage, processing of farm products and their sale, infrastructure development, rural tourism development.

- Starting from the collocation “economy is the science of choice” (Joseph E. Stiglitz, 2003), we consider that in surmounting the critical situation in which agriculture is found at present (not only under the aspect of productivity and above-mentioned gaps) a more significant role should be played by the national scientific research in this field for the substantiation of decisions with regard to the directions of action and the establishment of measures in close relation to the realities in our country, to the accomplishments of national and international research. The integration into the EU structures does not mean the diminution of the role of agricultural research, although a series of problems may appear and are solved on the basis of certain principles, regulations, norms and methods established at the European Union level. The scientific research from all countries should have contributed to their establishment, so as to make them compatible with the concrete historical conditions in the respective countries, to follow up the effects of their implementation. Agriculture is the sector where the activity is taking place according to the soil, weather, relief, environment conditions and traditions etc., which differ from one country to another and from one zone to another. The thorough investigation of these conditions is absolutely necessary in order to produce efficiently and this objective cannot be reached in the absence of endogenous research. The climate changes that are taking place at present and that will become more intense in the years to come place new requirements in front of the researchers in the field of agricultural sciences. At the above-mentioned facts, we could also add the increasingly great pressure exercised on agriculture for the subtraction of large land areas for activities under full development – constructions, highways, railroads, airports, supermarkets etc, or for the production of biomass, while the population of the planet and the food demand are growing. It is the mission of the research to provide solutions to governments for agriculture development in the desired direction. The economy is the science of choosing from different solutions provided by specialists of those desirable for ensuring the economic and social progress.

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