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THE ECONOMIC SIZE OF AGRICULTURAL HOLDINGS IN ROMANIA. COMPARED TO THE EUROPEAN UNION MEMBER STATES

ABSTRACT

At the date of Romania's accession to the European Union, our country's agriculture had a much lower development level compared to most EU Member States and the EU average. In the present paper we try to investigate the economic size of the Romanian farms in comparison with the economic farm size in the European Union. The goal is not to copy the pattern followed by the other countries, but rather to know the level and trend of the existing gap and to draw certain conclusions with regard to the possibility of narrowing this gap under the conditions of the global economic crisis.

Key words: economic size, European economic size unit, subsistence and semi-subsistence farm.

JEL Classification: Q12.

1. ECONOMIC SIZE OF FARMS AND THEIR DISTRIBUTION BY SIZE CLASSES

The economic size reveals the extent to which the natural, material, human and technological resources of agricultural holdings are put into value at a given moment, as well as their development and progress possibilities.

The economic size is expressed into conventional units. A European Economic Size Unit (ESU), according to the present regulations, is equivalent to 1,200 Euro[1].

The economic size of farms in Romania averaged 1.1 ESU in the year 2005, which placed our country on the last position in EU–27. In the respective year, in EU–27, the average economic size of farms was 9.5 times higher, and in EU–15 20.5 times higher than in Romania's agriculture. Netherlands lay at the opposite pole, with 102.6 ESU per farm, followed by Denmark (72.9), Belgium (65.6) and France (50.4) (Table 1 and Figure 1).

[1] The European Size Unit (ESU) is calculated starting from the Standard Gross Margin (SGM) by which we mean the gross margin value corresponding to an average situation, on a 3-year period, in a given region, for each agricultural activity. The gross margin value is the monetary value of the gross output from which certain specific costs for the crop production are reduced: seeds and planting stock, purchased fertilizers, crop protection products, specific expenses including irrigation water, heating, drying, selection, packaging, transformation; for livestock production: animal replacement costs, feed costs, veterinary costs, mount and artificial insemination costs, marketing and transformation costs, etc.). SGM values per size unit (per hectare, animal head) are calculated at regional level by the FADN regional statistical offices, on the basis of a statistical mean and historical results.

Table1
The average economic size of farms in the European Union in the years 2005 and 2007

	Average economic size of farms – ESU			**Average economic size of farms – ESU**	
	2005	2007		2005	2007
Belgium	65.6	70.3	Hungary	2.7	5.2
Bulgaria	1.7	2.2	Malta	4.7	4.9
Czech Rep.	36.3	41.2	Netherlands	102.6	111.3
Denmark	72.9	80.2	Austria	14.3	16.7
Germany	49.7	49.6	Poland	3.3	3.6
Estonia	4.9	7.6	Portugal	6.9	6.6
Ireland	19.2	19.4	Romania	1.1	1.0
Greece	6.6	7.2	Slovenia	4.6	5.9
Spain	18.5	20.6	Slovakia	7.6	7.2
France	50.4	53.6	Finland	25.1	24.2
Italy	12.8	14.9	Sweden	21.5	24.7
Cyprus	6.6	8.6	United Kingdom	36.9	31.4
Latvia	2.1	3.1	EU-27	10.5	11.3
Lithuania	2.2	2.5	EU-15	22.6	23.8
Luxembourg	46.5	51.7			

Source: Eurostat.

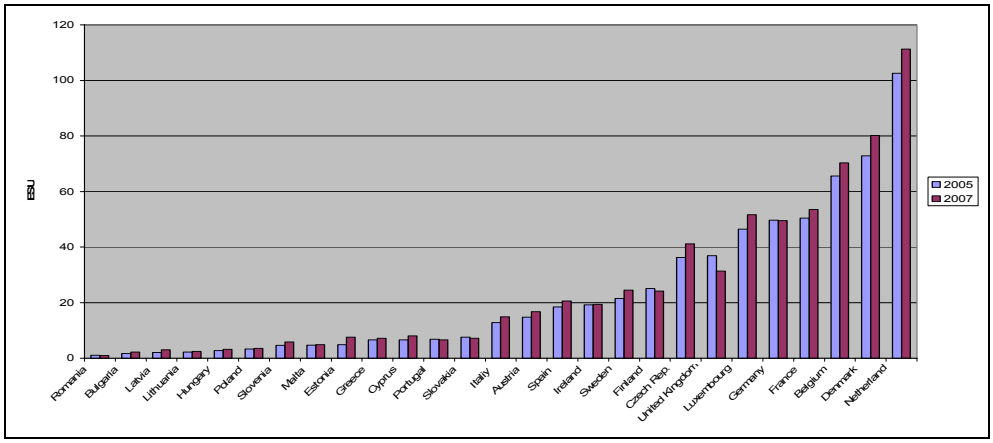

Figure 1. Hierarchy of the EU–27 countries by the average economic size of farms in the years 2005 and 2007.

In 2007, the economic size of farms in Romania was down to 1.0 ESU, while the average size in EU increased; thus the gap between Romania and EU–27 grew larger, from 9.5 to 1 in 2005 to 11.3 to 1 in 2007; the gap between Romania and most EU countries also increased. Romania's position on the last place in the EU with regard to the average size of farms is the result of the application of a deficient agricultural policy, the effects of which will impact agricultural activity for a long time.

The agricultural holdings represent the basic units of agricultural production. The fact that their economic size is equivalent to only 1,200 Euros (1 ESU) reveals that farms in Romania have a very precarious economic foundation. Those 1200 euro that are obtained per farm in one year on the average represent 100 Euro per month, *i.e.* less than two-thirds of the minimum wages in economy. Under such conditions, the opinions according to which Romania could become the second agricultural power in Europe next to France, where the agricultural holdings have an average economic size 54 times higher than those in Romania or Romania could produce the necessary agricultural products for a population of over 80 million people, when Romania is not able to ensure the basic foodstuffs even for its own population, do not take into consideration the critical poverty condition of the farms in our country. The fact that after 1990, the deficit of Romania's foreign trade with agri-food products increased each year, so that only in the period 2001–2008, for example, it exceeded 10 times the non-refundable funds provided to Romania under SAPARD (in the years 200–2006), reveals that our country's agriculture still cannot be performant and competitive on a competition market such as that of the EU.

The very low economic size of the Romanian farms represents one of the main reasons for the farmers' low investments in production modernization. It is not accidentally that the absolute and relative poverty rates place the peasants – self-employed in agriculture – on the "highest position", and the rural area where they belong at a great distance from the urban areas. Illustrative in this respect are the data provided by the Research Institute for the Quality of Life under the Romanian Academy. Thus, in 2006, the absolute poverty rate was 6.8% in the urban area and 22% in the rural area, while by occupational status the situation was the following: 3.5% employees, 9.85 pensioners and 32.4% self-employed (agricultural) workers. In 2006, the relative poverty rate (expressed as share of people with incomes lower than 60% of the average income at national level) represented 9.6% in the urban and 29.6% in the rural area; by occupational status, the situation was the following: 3.9% in employees, 15.1% in pensioners and 32.8% in self-employed, the self-employed agricultural workers included[2]. We could say that the village (rural area) represents the poverty pole, and the self-employed in agriculture, *i.e.* the peasants, are the social category with the highest absolute and relative poverty rates in Romania.

The average economic size of agricultural holdings does not take into consideration the great farm variety. It is the analysis of this variety that makes it possible to reveal other characteristics of Romania's agriculture.

We first have in view the distribution of agricultural holdings into farms of economic size up to 1 ESU and farms larger than 1 ESU. The first are considered semi-subsistence farms, and the others are farms with prevailing or full commercial character. The high share of semi-subsistence farms is a characteristic of Romania's

[2] RIQL Social Report: After 20 years – options for Romania, Economistul, 21 June 2010.

agriculture (Annex 1). These farms accounted for 71.0% of total farms in 2005, while in 2007 they accounted for 78.0% and they operated 25.7% of the utilized agricultural area in 2005 and 30.9% in 2007 (Table 2 and Figure 2).

In the year 2007, they accounted for 48% of total semi-subsistence farms in EU–27. By comparison with other EU countries, Romania is the country with the highest share of farms under 1 ESU, i.e. 78%. In EU–27, the share of these farms was 46.6%. Shares close to Romania's case were found in Hungary (77.5%, Slovakia (77.0%) and Bulgaria (76.1).

Table 2
Subsistence farms in EU and in Member States

	Number of farms < 1 ESU		**% of farms< 1 ESU**	
Country	**2005**	**2007**	**2005**	**2007**
Belgium	1910	1870	3.7	3.9
Bulgaria	416550	375340	77.9	76.1
Czech Rep.	15500	13470	36.7	34.2
Denmark	n.a.	n.a.	0.3	0.6
Germany	18810	21960	4.8	5.9
Estonia	14360	10590	51.7	45.4
Ireland	7200	10350	5.4	8.1
Greece	155450	149080	18.6	17.3
Spain	120440	104400	11.2	10.0
France	39760	36270	7.0	6.9
Italy	348250	296150	20.1	17.6
Cyprus	15260	12010	33.8	29.9
Latvia	83790	63380	65.1	58.8
Lithuania	124330	145020	49.2	63.0
Luxembourg	90	70	3.5	3.2
Hungary	557620	485490	78.0	77.5
Malta	3860	3400	34.8	30.8
Netherlands	0	0	0.0	0.0
Austria	33640	34530	19.7	20.9
Poland	1393760	1262820	56.3	52.8
Portugal	104580	93480	32.3	34.0
Romania	3020180	3064670	71.0	78.0
Slovenia	16290	13830	21.1	18.4
Slovakia	55620	53150	81.2	77.0
Finland	590	1660	0.8	2.4
Sweden	9490	15080	12.5	20.8
United Kingdom	103380	121320	36.1	40.5
EU-27	6660710	6389390	46.0	46.6
EU-15	943590	886220	16.1	15.7

Source: Eurostat.

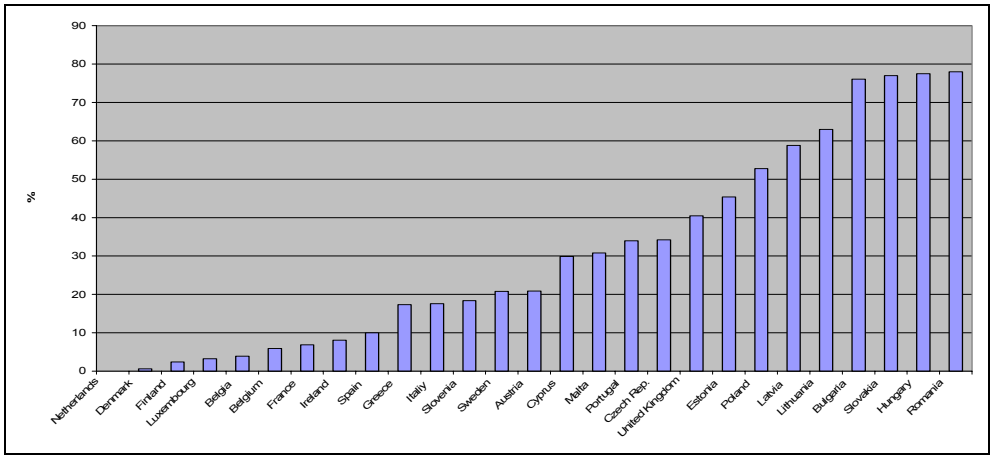

Figure 2. Hierarchy of the EU–27 countries by the share of farms under 1 ESU (semi-subsistence farms) – 2007.

The large share of (semi-subsistence) farms under 1 ESU makes Romania be considered a particular case in the European Union; this aspect should be taken into consideration in CAP application, if the diminution of the current gap between Romania and the developed countries is desired. From the presented data, it results that this gap has increased so far, the less favourable natural conditions for agriculture in the year 2007 also contributing to this situation.

Romania is the EU country with the lowest share of farms that reached the threshold limit of 1ESU, *i.e.* 22.0%, which reveals the relatively low level of agriculture integration into the market economy. The highest shares, above 90%, are found in Netherlands, Czech Republic, Belgium, Germany, France and Spain.

The distribution of farms by economic size classes (Table 3) shows that Romania had the highest percentage of agricultural holdings under 2 ESU – 94.0% in 2007. It is followed by Bulgaria (89.1), Slovenia (88.7) and Hungary (86.0). The average in EU–27 is 60.8%, while in EU–15 the average is 28.4%. In this size class, 11 countries have over 50% of farms; these are the 10 former socialist countries plus Portugal; the situation is different in Netherlands, which does not have this type of farms, while in Denmark they represent 3.4%, in Belgium 7.8% and in Finland 8.8%. In France and Germany these farms represent 13.0% and 14.4% respectively.

In the size class that includes farms from 2 to 100 ESU, Romania has only 6% of farms. This share is the lowest. Slovakia (9.9%), Bulgaria (10.6%) and Hungary (13.7) are close to Romania. The countries with highest shares are the following: Finland (88.2), Ireland (81.7), Luxembourg (79.1), Spain (75.6), Denmark (73.8), Germany (72.6), France (71.2). In 14 countries from EU–27, the farms in this size class represent over 50% of total farms. These are the countries from EU–15, except for Portugal. In the size class of 100 and over 100 ESU, Romania is the only

country that does not provide any information, as the share of the holdings it has in this category is too small (*i.e.* 0.004%) to be taken into consideration. The countries with the highest shares in this category are the following: Netherlands (35.2%), Denmark (22.9), France (15.8), Luxembourg (13.9) and Germany (12.0). It results that most agricultural holdings in Romania have low economic possibilities for market-oriented production, their main destination being subsistence, self-consumption. The classification of agricultural holdings by their economic size into small, medium, large and very large-sized farms reveals the place they hold in Romania's agriculture.

Table 3
Distribution of agricultural farms by different economic size classes in the years 2005 and 2007, % of total farms

	< 2 ESU		**≥ 2 – < 100 ESU**		**≥ = 100 ESU**	
Country	**2005**	**2007**	**2005**	**2007**	**2005**	**2007**
Belgium	7.9	7.8	69.0	66.4	23.1	25.8
Bulgaria	91.8	89.1	7.9	10.6	0.3	0.3
Czech Rep.	53.7	50.5	40.6	43.0	5.7	6.5
Denmark	54.3	3.4	23.3	73.8	22.4	22.9
Germany	12.6	14.4	75.7	73.6	11.7	12.0
Estonia	75.8	68.7	23.4	29.9	0.9	1.4
Ireland	12.8	16.2	85.5	81.7	1.8	2.1
Greece	35.9	34.0	63.9	65.8	0.1	0.2
Spain	23.3	21.1	73.8	75.6	2.8	3.3
France	13.6	13.0	72.3	71.2	14.1	15.8
Italy	37.4	33.8	60.9	63.8	1.7	2.4
Cyprus	54.3	49.9	44.9	49.0	0.8	1.1
Latvia	85.1	78.8	14.7	20.9	0.2	0.3
Lithuania	79.3	82.8	20.6	17.0	0.2	0.2
Luxembourg	8.5	7.0	90.5	79.1	11.0	13.9
Hungary	86.6	86.0	13.1	13.7	0.3	0.4
Malta	60.7	56.4	39.0	43.3	0.3	0.2
Netherlands	0.0	0.0	67.4	64.8	32.6	35.2
Austria	28.7	29.4	70.2	68.7	1.0	1.9
Poland	69.4	67.9	30.4	31.9	0.2	0.2
Portugal	56.0	54.5	43.1	41.7	0.9	0.8
Romania	91.0	94.0	9.0	6.0	0.0	0.0
Slovenia	48.3	43.0	51.5	56.7	0.1	0.3
Slovakia	90.2	88.7	8.3	9.9	1.5	1.4
Finland	6.6	8.8	90.6	88.2	2.9	3.0
Sweden	26.0	33.6	70.0	61.3	4.0	4.7
United Kingdom	42.5	47.6	47.8	43.9	9.8	8.5
EU-27	61.5	60.8	38.5	36.9	2.0	2.2
EU-15	29.5	28.4	70.5	66.4	4.7	5.2

Source: Eurostat.

The farms of small economic size (< 8 ESU) represent over 99% of the total number of farms and they use 61–62% of total of agricultural area. In this size class an important place is held by the subsistence and semi-subsistence farms, most of them individual agricultural holdings. The agricultural holdings with less than 1 ESU are mainly individual agricultural holdings. According to the data of the National Institute for Statistics, in the year 2007 only 846 340 (21.6%) out of the 3 913 651 individual agricultural holdings had reached the threshold limit of one European Size Unit (1 ESU), compared to 81.6% in Slovakia, 65.8% in Czech Republic, 54.6% in Estonia, 47.2% in Poland and 37.0% in Lithuania[3]. 78.4% of the individual holdings, which have an economic size up to 1 ESU, consist of the majority of the agricultural holdings with up to 5 ha, whose utilized agricultural area represents over 50% of the agricultural area of individual holdings or almost 35% of the total agricultural area of the country (NIS, Farm Structure Survey in 2007).

The farms of medium, small and large economic size, or lower or higher (8–40 ESU) represent 0.5–0.6% in the total number of farms and utilize 11% of the agricultural area. The farms with large and very large economic size (> 40 ESU) account for 0.1% of farms and utilize 27–28% of the agricultural area (Table 4).

Table 4

The distribution of the Romanian agricultural holdings by different economic size classes

Economic size of farms in ESU	**Number of farms**		**Utilized Agricultural Area**		**Farms % of total**		**Area % of total**		**Average UAA**	
	2005	**2007**	**2005**	**2007**	**2005**	**2007**	**2005**	**2007**	**2005**	**2007**
Small (< 8 ESU)	4225540	3907350	8529350	8 564 302	99.3	99.4	61.4	62.2	2.0	2.2
Medium small (8–16 ESU)	17930	12950	547430	551430	0.4	0.3	3.9	4.0	30.5	42.6
Medium large (16–40 ESU)	7610	6390	994530	981710	0.2	0.2	7.2	7.1	130.7	153.6
Large (40–100 ESU)	3080	2910	1394880	1329180	0.06	0.02	10.0	9.7	452.9	456.8
Very large (> 100 ESU)	1970	1750	2440510	2326410	0.04	0.08	17.5	17.0	1238.8	1329.4
Total	4256150	3931350	13907000	13753030	100.0	100.0	100.0	100.0	3.27	3.50

Source: Calculations on the basis of Eurostat data.

Romania's agriculture is dominated by farms with low economic size; the farms with large and very large economic size, although representing only 1% of total farms, are on the second place as regards the utilized agricultural area; the medium-sized farms are on a minor place as regards their share both in total farms and in total utilized agricultural area. By this structure, Romania's agriculture is

[3] Vergil Voineagu, *Trăsăturile actuale ale agriculturii româneşti*, Economistul, 7 mai 2009.

different from most EU member countries, in which the main share is held by farms with medium and large economic size. Romania remains the country with the highest share of farms with low economic size.

The causes of this abnormal situation are many; among them, the following can be listed: absence of a clear vision in the design and implementation of the policy for the agrarian system change in the period of transition to the market economy; the destructive character of the adopted measures that deeply affected not only the organization forms of the agricultural production, but also the technical endowment, technology, the human factor, the intra and extra agricultural relations, the scientific research, the large-scale theft practiced under different forms and often favoured by the legislation and by the non-intervention of the political and administrative power factors; the under-appreciation and marginalization of this important branch of the national economy.

2. THE ECONOMIC SIZE INCREASE IN THE CONDITIONS OF THE GLOBAL ECONOMIC CRISIS

The increase in the economic size of agricultural holdings is an essential condition for the development and modernization of Romania's agriculture, for narrowing the gap between this country and the EU and Member States. It is an extremely complex process that develops under special conditions. In the first place because at present agriculture is in a critical condition: after 20 years, farm production does not exceed the level of the period 1985–1989; significant disproportions are maintained between the branches of agriculture, the excessive land fragmentation and parceling, the high self-consumption level and the low integration into the market economy of farms, the deterioration and incomplete utilization of the production factors, the high dependence on natural conditions, the non-stimulating sale of the production on domestic and foreign markets, the incapacity to ensure the necessary agri-food products for population' consumption, the increased deficit of the foreign agri-food trade balance. Secondly, the beginning of the global economic crisis at the end of 2008 has deeply affected agriculture and overall economy. This crisis, comparable to that of the period 1929–1933, represents at the same time the final point of an economic cycle and the initial point of a new cycle. It generates great difficulties and at the same time it creates new opportunities for the social economic development. For surmounting the crisis, it is necessary to discover and remove the constraints to the economic and social development and to find out the directions and ways for relaunching the economic growth and development. A decisive role in surmounting the global economic crisis, its endogenous component included, is held by the design of an anti crisis program, corresponding to the realities in our country.

Such a program, as it results from the experience of other countries, mainly implies two directions of action. One of them has in view the reconsideration of the expenses so as to reduce them, adopting an austerity policy; the other one refers to the adoption of an investment policy to limit production contraction, create jobs, and create premises for relaunching the economic growth and development Both directions of action must be the result of a rational approach, based on a serious analysis and they should develop at the same time. The tendency towards austerity, by the extremely significant diminution of wages and of the number of employees, the diminution of pensions, increase of taxes and fees, the drastic diminution of expenditures for education, health and research – vital sectors for the progress of society, may exceed the population's capacity to bear this situation and turn certain measures that are considered anti-crisis measures into pro-crisis measures; it can also generate conflict situations and lead to labour force migration to foreign countries, mainly in the case of young and skilled persons. In conclusion, the austerity policy must not exceed certain limits and be accompanied by an investment policy leading to the promotion of factors for production relaunching, to the increase of incomes and of the population's standard of living. In the investment policy as well, certain situations may emerge with effects that do not contribute to crisis surmounting, such as the waste of funds for objectives that are not a priority at present, which do not materialize into production increase and increase of incomes implicitly, the distribution of investment funds by political criteria. Such measures also target agriculture. Furthermore, as agriculture is a buffer, it directly or indirectly takes over part of the austerity policy effects targeting the city dwellers.

What has to be done now is to establish a balance between the two above-mentioned directions of action, to build up a common front of the political forces, of the civil society, of the academic environment, having the national interest at its core, so that the crisis should be surmounted in the shortest time possible, with lowest social costs.

The present crisis has re-opened the debate on the role of the state in the economy, on the free market limits, on the type of economic growth in the post-crisis period, on the main role of the scientific research, innovation and education.

The economic size increase envisages all the types and forms of farms. It depends on a complex set of factors; in the present material we shall refer only to a limited number of these factors.

- **Increase in the physical size of farms and the improvement of their distribution by size classes.** The economic size of farms depends on the physical size and their distribution by size classes. What is characteristic for Romania's agriculture is the very high share of farms under 5 ha – 90% of total of farms as against 70% in EU-27, the very low share of farms of 50 and over 50ha – 0.3% as against 5.1% in EU, in both cases Romania being on the penultimate place; another characteristic is the relatively low share of farms between 5 and 50 ha – 9.9%, as against 24.5% in EU. The physical size trend of the agricultural farms increased in

recent years, yet at a slower rate compared to the EU average, which led to the increase of the current gap between Romania and EU. As a result, the present structure should change in the sense of diminution of the share of small-sized farms and increase in the share of medium and large-sized farms, priority being held by the creation of medium-sized farms, mainly commercial family farms and cooperative units. The stimulation of individual farms establishment could also contribute to the change of the agricultural holding structure as mentioned above, by granting certain amounts from the non-refundable funds under Measure112, for setting up young farmers, encouraging agricultural producers' association and land lease, by providing certain facilities for the establishment of modern, competitive farms.

- **Efficiency increase in the utilization of production factors.** Romania is the country with the largest number of the population employed in agriculture, *i.e.* about 22.7% of the employed population in EU–27 (in 2007) and with the greatest share of population employed in agriculture in the civil employed population – 28.8% as against 5.4 in EU. As regards the utilization level, Romania is on the penultimate place, an employed person on the farms in Romania achieving only 0.32% of an annual work unit (AWU) as compared to 0.40 % averagely achieved by a person in EU. Labour productivity in Romania's agriculture increased faster in comparison with labour productivity in EU; although it has diminished, the productivity gap is still very large. In 2008, farm production per employed person in Romania's agriculture represented only 21% of the EU–27 average, while the value added was 24.2%. In the next period, labour productivity will continue to increase, and the main factors will be the diminution in the number of people employed in agriculture and the increase of the utilization level (this being one of the provisions of EUROPE 2020 strategy developed by EU)), the improvement of the technical endowment of labour, etc. As regards the human factor, as the main player and beneficiary of the labour productivity increase, certain aspects should be mentioned that will negatively influence its evolution: the migration of a significant number of young persons to foreign countries, out of which only few will return, the diminution of the number of pupils in the rural area and of those enrolled in the medium and upper education system, the closing down of a great number of schools in the rural area. The villages without schools and without young people are villages with no future.

Romania has a significant utilized agricultural area (UAA), being on the 6th place in EU in the year 2008 (after France, Germany, Spain, Poland and the United Kingdom). The UAA share in Romania represents 7.67% of the UAA in EU 27. As regards farm industry production (FIP), Romania is on the 8th place in EU (after France, Germany, Spain, Italy, Netherlands, Poland, United Kingdom). FIP share in Romania represented 4.78% of FIP in EU–27. As regards the gross value added (GVA), Romania was on the 5th place (after France, Spain, Italy and Germany) and its share in GVA in EU was 5.48%. While at the global indicators Romania is among the first countries in EU, in the efficiency indicators it is on the 21st place in FIP/ha and on the 13th place in GVA/ha.

The yield per UAA ha fluctuated from one year to another, but the trend was increasing both in FIP and in GVA. The share FIP/ha increased from 31.2% of FIP EU in 2001 to 62.3% in 2008, and the share of GVA in EU GVA increased from 32.6% in 2001 to 71.6% in 2008. As a result, the absolute gap also diminished: compared to the EU average in FIP from 1512 Euro in 2001 to 804 Euros in 2008, while in GVA from 795 euro in 2001 to 242 euro in 2008. The diminution of FIP absolute gap was largely determined by the diminution of the yield gap expressed in physical units. In both situations, the gap is still large. The continuation of its diminution is possible by cultivating the entire land area (at present there are over 3 million uncultivated hectares), by the use of irrigations, of superior biological material, of chemical and organic fertilizers, by orienting the production structure towards animal and crop production with increased value added, greater attention being paid to ecological products and products obtained on the basis of traditional technologies.

The capital use efficiency – fixed assets and circulating assets – falls under the same coordinates – the efficiency increases, the gap compared to the EU average is narrowed, yet this gap remains considerably large. In Romania's agriculture, the gross fixed capital formation (GFCF) has a relatively low share in GVA. In 2007, this share represented 16.2%, as opposed to 37.4% in France. If we take into consideration the GVA level in the two countries (1,015 million euro in Romania and 56,185 million euro in France), it results that in Romania GFCF represented only 0.2% of that of France. This difference is reflected in the relatively low endowment level of the Romanian agriculture in fixed assets. In this regard, we also mention the very low share – under 1% – of the tangible assets in agriculture, hunting and forestry in total national economy.

As regards the intermediary consumptions, Romania's agriculture is characterized by their low level per hectare. The efficiency of intermediary consumptions utilization (FIP and GVA per unit of intermediary consumptions) is higher than the EU average and most EU member countries. But the countries with higher intermediary consumptions per hectare than Romania also obtain higher yields and value added than Romania. Hence, Romania has to choose between obtaining higher efficiency per unit of intermediary consumptions or high yields and value added per unit of area. Under the present conditions, the latter variant should be chosen. The "Economy" made at intermediary consumptions leads to low yields and finally to large imports. The increase of intermediary consumptions per ha obviously has technical and economic limits, which should be taken into consideration so as not to obtain contrary results to those desired.

- **Although investments represent one of the driving engines of economic development**, agriculture was and still is under-financed. The share of net investments in agriculture (hunting and forestry included) continuously diminished in total investments, namely: from 17.2% in 1990 to 7.9% in 2000 and to 3.4% in 2008. Such a diminution is under the contribution of agriculture to GDP formation

(6.7% in 2008) and represents one of the causes for the present situation of agriculture and for the large gaps between Romania and the EU average and most EU countries with regard to quality indicators (Table 5).

Table 5

Net investments in agriculture* in the period 2001–2008 – million RON current prices

	2001	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**
Investments in agriculture	1297.7	3167.9	2093.7	1196.3	1502.3	1954.9	2192.2	3345.5
% of total investments	6.4	11.7	5.9	2.9	3.1	2.8	2.0	3.4

Source: Romania's Statistical Yearbook, NIS, 2009.

* hunting and forestry included.

Note: For the period 2004–2007, recalculated data.

The increase of investments in the next period represents an essential condition for agriculture development and for narrowing the gaps with the European Union. After Romania's accession to the European Union, the funding of agricultural policy and rural development measures for Romania is stipulated in the Common Agricultural Policy Budget of the EU Member States. For the period 2007–2013, these funds amount to over 13.5 billion euro. Out of these funds, 40.7% are allocated for Pillar 1 and 59.3% for Pillar 2. Under the present conditions, the accession to the non-refundable funds from the European Union should be intensified, having in view agriculture and rural area development.

For agriculture, the direct support provided to farmers under the form of Single Area Payment Scheme (SAPS) is of particular importance, to which the Complementary National Direct Payments are added. The Single Area Payments represent 39.3% of the CAP Budget for Agriculture and Rural Development, *i.e.* 5501 thousand euro, while the national complementary direct payments may reach up to 30% of the Single Area Payments (SAPS). Compared to the EU Old Member States, the level of single area payments is significantly lower. In 2007, this represented only 25% of the level allocated to the Old Member States, and it has to gradually increase until it reaches the level in Old Member States after 10 years, in 2016. In the year 2007, the direct subsidies per UAA hectare were 91.0 euro in Romania, as against 376.2 euro in Denmark, 379.5 euro in Germany, 762.1 euro in Greece and 348.1 euro in France. The share of direct subsidies in the production value in Romania was only 5.6%, as against 10.3% in Denmark, 14.2% in Germany, 28% in Greece and 14.5% in France; the share of direct subsidies in the gross value added in Romania was 17.9%, as compared to 38.8% in Denmark, 42.9% in Germany, 47.4% in Greece and 33.1% in France (Letiția Zahiu, Elena Toma, Anca Dachin, Cecilia Alexandri – coord., 2010).

Under these conditions, the farms in Romania have a less favourable situation, as we cannot speak about a free EU single market, about fair competition, about equal

development opportunities for farms in different EU Member States; on the contrary, these conditions favour the enlargement of the gap between Romania's agriculture and the agriculture in the Old Member States and this has been the case not only for 10 years, but for a much longer period if we have in view the already very large gap at the moment of Romania's accession to the EU. Decoupling the direct payments from production also contributes to gap enlargement. The beneficiaries of these payments are not obliged to use them for production increase. They can no longer farm the land areas for which they receive subsidies, on the condition they keep them in good agricultural conditions. Such a measure is suitable for the countries that reached a high development level of their agriculture, and a high self-sufficiency level, but not for Romania, where agriculture has a much lower development level. This is an example indicating that it is very difficult for a PAC designed on the basis of achievements from agriculture in the developed countries to correspond to the conditions from the countries with a lower development level of agriculture.

- **Agriculture integration with the upstream and downstream branches**, as a worldwide trend, has an atypical evolution in Romania. Following the process of deindustrialization that took place in the transition years, the supplying industries of production means for agriculture – tractors, combines, cultivators, fertilizers, etc., had their production significantly diminished, certain representative units even closing down. On the other hand, the agro-processing industry also reduced its activity scale. A great part of production (in some cases, the greatest part) reaches the final consumer, if ever, without going through the stage of processing in specialized units, or sale under decent conditions. It is the case of the milk, meat, grape and fruit production, even cereals[4] to a certain extent. The organization of the agri-food products chains, the increase of the processing level and sale of agricultural products contributes to a higher primary production efficiency, as it is known that the value added is multiplied in the post harvest activities, and usually there is an improvement of products quality, of the presentation and sale modalities. The integration we refer to presupposes setting the relations between farmers, processors and sellers on contract basis, with the specification of the rights and obligations of the parts. It is a form of activity generating safety in the agri-food production process on the whole chain and mutual advantages, finally materialized into the increase of the economic size of the participating entities (IAE, 2010).

- **Combining the use of the free market mechanisms with intervention actions of the state through a rational agricultural policy.** Such a combination

[4] In comparison to the other EU Member States, Romania has an absolute record, namely 64.2% of the total milk quota negociated with the habilitated bodies of the EU is fulfilled by direct sales (as against 0.001% in Denmark, 0.03% in Germany, 0.1 in Greeece, 1.3% in Spain, 1.6% in France, 2.0% in Italy). A similar situation can be found in other products as well. In the case of beef, 27% is the family consumption, 39% is sold directly on the market and 34% goes to processing.

is a distinctive feature of the present economic development stage. It is even more necessary for agriculture, which at present is facing increasingly higher demands for the fight against hunger and malnutrition, increase in food prices etc. During the food crisis that preceded the financial and economic crisis, the French Minister of Agriculture, Michel Barnier, emphasized that "what happens in the world at present is the result of the radical liberalization of the markets. We cannot leave the people's food at the discretion of the markets' whims. An intervention agricultural policy is needed in order to stabilize the situation".

In our country, agriculture was also seriously affected by market liberalization – not only in the first transition years when the prices of the industrial products that agriculture needed were free, while the prices of the agricultural products were "administered" prices, but also in the next years – the agricultural producers being left alone in the face of their suppliers and clients. As a result, an important part of the value created in agriculture was transferred without equivalent to other branches of the economy and to the state budget. The situation was aggravated as far as liberalization proceeded, and there was a free circulation of products after the accession to the EU and removal of customs tariffs. There was no intervention of the State, through its institutions, to the extent CAP permitted it. The result? The domestic market is assaulted by foreign products, while the domestic producers do not find an outlet for their products. The supermarkets increasingly dominate the market and undermine national production through the prices they dictate, through the fees and conditions they impose, etc. A rational agricultural policy is needed which should enlarge the domestic production supply, raise the quality of products and lower the costs.

- **The agricultural services provided by specialized units** have an important role in agricultural production development and in the increase of the value added in this sector. In the countries with modern agriculture, the share of services is relatively high, featuring an increasing trend. The agricultural producers have at their disposal a great variety of supply services with different means of production, mechanization services, chemical inputs application, electrification, irrigation, advisory services, services for agricultural production overtake, transportation, storage and sale, etc. Such services potentiate farmers'work, increase the value added and the efficiency of the results in agriculture.

In Romania's agriculture, the agricultural services have a very low and decreasing share. In the period of transition to the market economy, they experienced a significant decline, by closing down certain units that had operated in the previous period, specialized in agriculture mechanization, application of fertilizers and other chemical inputs, by utilitarian aviation included, irrigation, sanitary-veterinary activities, collection, transportation, storage and sale of agricultural products.

Table 6
The evolution of agricultural services in the period 2000–2008

	2000	2001	2002	2003	2004	2005	2006	2007	2008
Share of agricultural services in total agricultural output	1.2	1.1	1.1	0.9	0.7	0.8	0.9	1.5	1.1
Agricultural services index – previous year = 100	73.6	114.0	91.1	84.7	86.4	86.0	107.0	132.5	90.9
Agricultural services index year 2000 = 100	100.0	114.0	103.9	88.0	76.0	65.4	69.9	92.7	…

Source: Romania's Statistical Yearbook, NIS, 2006, p. 498; 2008, p. 587 and 599; 2009, p. 669.

Their involution very clearly results from the statistical data, which indicate that in most years the services index was lower than in previous year; compared to the year 2000 it is still decreasing and is under the level of the respective year. Such a situation negatively impacts the production process in agriculture, does not contribute to value added increase in this sector, but on the contrary, it results in value added decrease, contributing to farmers' alienation from the market. The causes of this involution of agricultural services are mainly due to governors' concern to destroy everything that came from the previous regime, from their incapacity to understand the need to maintain and transform those institutions and mechanisms that could have been used for the progress of agriculture. The agricultural services had also included such institutions and mechanisms. A second cause is the exaggerated fragmentation of agricultural landed properties and the low size of most farms. Romania's agriculture modernization presupposes significant changes in the field of agricultural services, by creating specialized units for the supply of agricultural services that should facilitate the farmers' activity and multiply the value added in this sector, which will be also reflected in the economic efficiency, in the increase of the competitiveness of farm products. An important role in the development of agricultural services could be played by farmers' association into cooperative companies.

- **Scientific research development – an opportunity to surmount the crisis and resume agriculture development**. Scientific research represents one of the most important priorities for intelligent economic growth, based on knowledge and innovation. It creates knowledge materialized into technical means and technologies, into organization and management methods, on one hand; on the other hand, it gets incorporated into the labour force training and retraining, finally leading to the increase of the amount of created goods and services and to their quality increase. The importance of R&D activity clearly results from the share of R&D expenditures in GDP. These expenses are under 2% in EU, compared to 2.6% in USA and 3.4% in Japan. The lower share in EU explains half of the gap with USA (EUROPE 2020 Strategy). In Romania, the share of R&D expenditures is under 1%.

Agricultural research after 1989 followed a decreasing trend: the number of research units decreased from 128 to 58 research institutes and stations; the number of researchers was down to less than half, reaching almost 800; the research finance is deficient, it is based only by projects resulting from winning bids and tenders, which generates uncertainty and the impossibility to ensure agricultural research in the case of long cycles, such as those necessary for the creation of crop varieties, for which about 10–15 years are needed. This under the conditions in which the Western European countries, in parallel with the finance from projects based on winning bids, there is also a stable financing from the public budget, which ensures continuity and stability in the research activity. As a result, in Romania, the agricultural research is confronted with a chronic scarcity of funds. In addition, the agricultural area operated by the research units significantly decreased, as a result of the application of land restitution laws – in many cases those areas went into the ownership of persons who had never owned them. The decrease of these areas diminished the self-financing possibilities of the research units, be it only partial self-financing, and the possibility to produce certified seeds and planting stock for farmers. This led to a smaller public area in agriculture than in 1938. At that time, there were model farms and modern experimental units, which generated technical progress (Gheorghe Sin, 2010).

The decline of the agricultural research is one of the causes of Romania's agriculture lagging behind the agriculture of the countries from Western Europe and not only. It is not a product of the global crisis, but rather of the agricultural research under-appreciation policy.

Surmounting the difficulties that the agricultural research is facing represents an essential requirement for getting out of the global crisis and for Romania's participation to the "Europa 2020 Strategy", which has the following priorities: foresees as priorities the intelligent growth: the development of a knowledge and innovation-based economy; sustainable growth: promoting a more efficient economy from the point of view of resources utilization, more ecological and more competitive; growth favourable to inclusion: promoting an economy with a high labour employment rate, which should ensure social and territorial cohesion.

Romania still has a high research potential, which should be better put into value by: allocation of adequate funds, scientists' mobilization for the substantiation of the agriculture development strategy, their involvement in the creation of new crop varieties and improvement of existing breeds, development of new technologies for crop and livestock production, soil production capacity improvement, etc. This is an essential condition for counteracting the global economic crisis effects and agriculture recovery, as hence for narrowing the current gaps between Romania and the European Union. The future of agriculture largely depends on the contribution of science, agriculture, as well as overall economy being the science of choice from the multitude of variants the real economy provides of that variant that will better contribute to the creation of the desirable future.

There is an opinion according to which as the share of agriculture in national economy lowers, the role of agricultural research also diminishes. Yet the reality reveals the opposite: the tasks of agricultural research increase so that agricultural production meets increased demand from the quantitative point of view, with a diversified structure, with higher qualities for healthier food, with lower costs while respecting the environmental requirements. The climate changes that are currently taking place and that will be intensified in the future impose new requirements for the agricultural scientists. To this we can add the increasing pressure upon agriculture for taking out of the agricultural circuit of larger land areas for activities under full expansion: buildings, highways, motorways, rail roads, airports, supermarkets, etc. or for biomass production, simultaneously with the growth of the population on the planet and of the demand for foodstuffs.

The accession to the EU does not diminish either the role of endogenous agricultural science research, although a series of problems are solved up on the basis of certain principles, regulations, norms and methods established at EU level. The scientific research from all EU countries should contribute to the establishment of these norms and regulations, so as to get them compatible with the concrete historical conditions from the respective countries, and to follow up their implementtation. The agricultural activity is highly dependent on the soil, weather, relief, environmental conditions and traditions, etc., which differ by countries. The investigation of these conditions is compulsory so as to produce efficiently, and this objective cannot be reached in the absence of endogenous research.

3. CONCLUSIONS

The main conclusion is that Romania is on last position in the hierarchy of the EU countries as regards the economic size of the agricultural farms, which is an undesired place and at the same time in contradiction with our country's potential. At the same time, the distribution of farms by economic size classes is less favourable: Romania has the largest share of semi-subsistence farms and the lowest share of farms over 1ESU that are commercial farms. Such a distribution of farms reveals that the farm production has a low market economy level as compared to most EU countries. We also mention the low share, under the EU average, of the medium-sized farms. The low level of the economic size of farms and their distribution by economic size classes are reflected in the low investment capacity, in the modest output, in the high absolute and relative poverty level of most farmers

The increase in the economic size of farms is of great importance for narrowing the gap between Romania and EU and EU Member States. For this purpose, certain actions are imposed at several levels, related to the diminution of the effects of the global economic and financial crisis, increase in the physical, territorial size of holdings, increase in the economic efficiency of production facts utilization, increase of investments, by the full accession to the EU funds, develop-

ment of the agri-food production chains, development of agricultural services provided by specialized units and last but not least scientific research activity improvement.

In order to surmount the critical situation of agriculture, amplified by the global economic and financial crisis, it is necessary to design a long-term strategy, taking into consideration our country's realities, the trends manifested at EU and world level as well as the experience of other countries; this strategy should be adopted and applied by all governments that will follow in the respective period. Many strategies for agriculture development have been formulated so far, but each of them bore the imprint of the political parties in power and reflected the interests of the respective parties.

Starting from this reality and from the fact that the targeted objective is the development of knowledge and innovation-based economy, for the design of the future strategy, the most valuable specialists should be brought together from the field of scientific research and from education, from central institutions and profess-sional organizations, who would not be constrained by party interests. In the present conditions, "no rational national strategies and policies can exist any longer that are independent from science" (T. Postolache). Thus, we could avoid the abnormal situation synthesized by Gh. Sin, President of the Academy for Agricultural and Forestry Sciences "Gheorhe Ionescu Siseşti" in the statement that "we are not involved at the level of the requirements and of the possibilities". We consider that we would enter normality if a strategy for agriculture development were designed, with the consensus of all the political forces and institutions with attributions in the respective field.

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ANNEX 1

The economic size of farms (ESU) by size classes in 2005 and 2007

Size class	Number of farms		Utilized Agricultural Area (ha)		Farms % of total		Utilized Agricultural Area % of total	
	2005	**2007**	**2005**	**2007**	**2005**	**2007**	**2005**	**2007**
Up to ESU	3020180	3064670	3569630	4254930	71.0	78.0	25.7	30.9
From 1 to less than 2 ESU	851060	629800	2721900	2480220	20.0	16.0	19.6	18.0
From 2 to less than 4 ESU	289260	169560	1588790	1204530	6.8	4.3	11.4	8.8
From 4 to less than 8 ESU	65060	43320	649030	624620	1.5	1.1	4.7	4.5
From 8 to less than 16 ESU	17930	12950	547430	551430	0.4	0.3	3.9	4.0
From 16 to less than 40 ESU	7610	6390	994530	981710	0.2	0.2	7.2	7.1
From 40 to less than 100 ESU	3080	2910	1394880	1329180	0.1	0.1	10.0	9.7
From 100 to less than 250 ESU	1310	1270	1239330	1290270			8.9	9.4
250 ESU or more	660	480	1201180	1036140			8.6	7.6
Total	**4256150**	**3931350**	**13907000**	**13753030**	**100.0**	**100.0**	**100.0**	**100.0**

Source: EUROSTAT