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AGRICULTURE AND RURAL AREAS IN THE NEW MEMBER STATES – ROMANIA AND BULGARIA AFTER 10 YEARS OF EU MEMBERSHIP

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PREFACE

The aim of this book is to present the evaluation of the agri-food economies in Romania and Bulgaria, after ten years of European Union (EU) membership. For both countries, the accession into EU was at the same time, 1st of January 2007. It was the second wave of accession of Central and Eastern European (CEE) countries after 1st of May 2004, when was the first group of ten countries.

From many reasons, both countries had similar evolutions before the EU accession, and this is one of the reasons the Old Member States (OMS) of EU decided to separate the two groups of countries from CEE in two different EU accession processes. After EU accession, the situation was different than before and the status of EU member gave other opportunities, constrains and challenges, as well. From some points of view the countries have had similar evolution but from other points of view they evolved different. From these reasons, we considered useful to elaborate this study. We analysed the evolution of the agri-food sector in the first ten years of EU membership in Romania and Bulgaria, a comparative analysis that highlights the similarities and the differences between countries, what advantages and disadvantages did they have considering the status of EU member, what determined this evolution and what are the perspectives.

The chapters elaborated analyse the agriculture and farms' developments, the effects of Common Agricultural Policy (CAP) on agriculture in both countries, issues related to risk management, the characteristics of the food chains and the processing sector, the characteristics of the rural development, human and labour capital evolutions.

In the first chapter there were analysed the evolution of farms, the land market, investments and their impact on farms, agricultural inputs and food prices. The second chapter shows the characteristics of the agricultural markets, what kind the effects the public financial support and the accession to the EU single market had on the agri-food trade. The third chapter presents the risk management in agriculture in both countries, and the financial instruments used for agriculture and rural development. In frame of the fourth chapter, an important place has the organic agriculture and the EU quality schemes. Also, the food processing sector was analysed, with special attention on the main transformations that resulting from the ongoing process of EU integration. At the end of the book, we considered useful to study the

characteristics of the rural development and the evolution of the human and labour capital, two indicators that have had a dynamic evolution in both countries and influenced the performances in the agri-food sector.

On this occasion, the research team of the Institute of Agricultural Economics of the Romanian Academy thanks the research team of the Institute of Agricultural Economics from Sofia for the fruitful collaboration and efforts of the director of the institute Mr. Assoc. Prof. Dr. Bozhidar Ivanov for publishing this book.

We hope that, the book written by the researchers from the Institute of Agricultural Economics-Romanian Academy from Romania (Bucharest) and the Institute of Agricultural Economics-Agricultural Academy from Bulgaria (Sofia) gives the answers, even if partial, to the questions we had in view at the beginning of the work and expected by readers.

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CHAPTER 1. DEVELOPMENT OF AGRICULTURE AND FARMING

1.1. EVOLUTION OF FARM STUDIES IN BULGARIA AND ROMANIA Cecilia Alexandri, Nina Koteva

FARM DYNAMICS IN ROMANIA
Number and physical size

Following the application of successive legislative regulations for the agricultural land restitution to former owners and their heirs, Romania became the European Union country with the largest number of farms. In the year 2016 there were about 3.4 million farms in Romania that owned agricultural land, accounting for 33% of the total number of farms in the EU. Most of these are subsistence and semi-subsistence farms, having an important role in the food security of peasant households, but a minor role in the formation of food supply crossing the chains to processors and final consumers. At the same time, in the last 10 years, the number of farms followed a downward path and land was concentrated on medium and large-sized farms, in various ways, mainly by land lease but also by land sale/purchase. Land consolidation led to the increase of the number of large and very large-sized farms and partially of the number of medium-sized farms (Table 1.1).

Table 1.1 Number of farms and utilized agricultural area

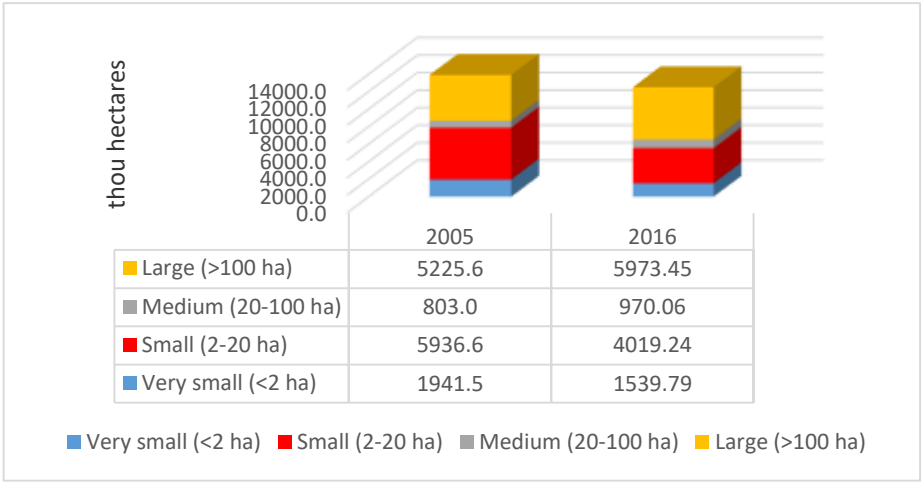
	Number of farms (thousand)			Utilized agricultural area (thou. hectares)		
	2005	2016	(2016)-(2005)	2005	2016	(2016)-(2005)
Total	4256.2	3422.0	-834.1	13906.7	12502.5	-1404.2
Zero ha	134.9	79.8	-55.1	0.0	0.0	0.0
Under 2 ha	2721.7	2400.9	-320.8	1941.5	1539.8	-401.7
2.0-4.9 ha	1014.1	660.0	-354.1	3160.6	2048.6	-1112.0
5.0-9.9 ha	289.6	194.2	-95.4	1926.4	1304.4	-622.0
10.0-19.9 ha	65.9	50.2	-15.7	849.6	666.3	-183.4
20.0-29.9 ha	10.1	11.0	+0.9	243.2	263.0	+19.7
30.0-49.9 ha	6.0	7.5	+1.5	227.1	288.6	+61.5
50.0-99.9 ha	4.9	6.0	+1.1	332.7	418.5	+85.8
Over 100 ha	8.9	12.3	+3.4	5225.6	5973.5	+747.9

Source: author's processing based on Eurostat data

At the same time, the areas utilized by the large and medium-sized farms increased, while the land areas utilized by small farms decreased (Figure 1.1). In the period 2005 – 2016, the total number of farms was down by 20%, while the average farm size increased from 3.3 ha in the year 2005 to 3.6 ha in 2016; very great differences continued to exist between the size of farms without legal status (2 ha/farm on the average) and those with legal status with an average size of 175 ha/farm.

At the same time, the subsistence economy continued to be very present on the Romanian farms. Although the subsistence phenomenon has decreased in recent years, it has remained a significant phenomenon, as the number of farms that utilize more than 50% of their final output for their own needs stood at quite a constant level in the mentioned period, i.e. at 80-87%.

Figure 1.1. Utilized agricultural area by very small, small, medium and large-sized farms



Source: EUROSTAT

Livestock herds

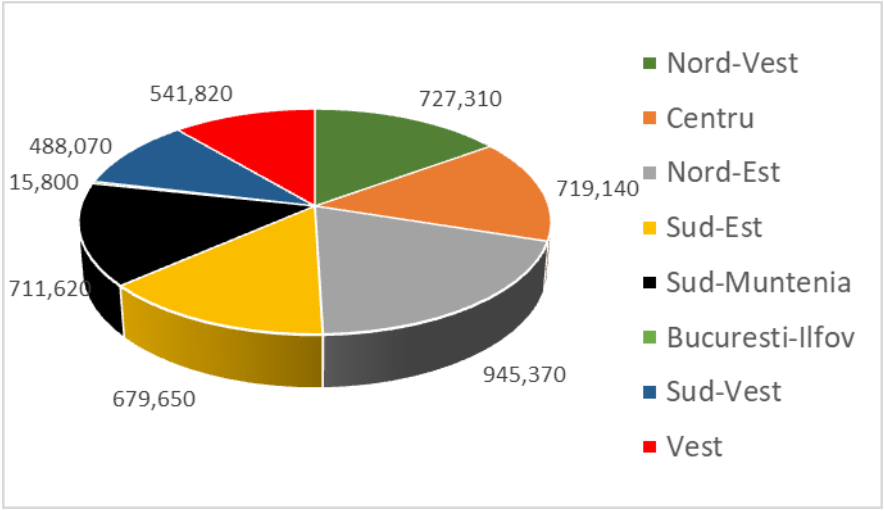
The number of animals, expressed in livestock standard units (LSU), decreased by 24% in the investigated period, 2005-2016. The evolution of livestock herds by species indicate that the number of animals decreased in the year 2016 as against 2005, by 33% in cattle, by 16% in pigs and 6% in poultry. At the same time, the number of sheep herds increased by 20% and the number of goats by 76%. The animals are mainly raised on small farms, without legal status, the average number of animals per farm being under 2 LSU, and the consolidation of

livestock herds has been a slow process in all the regions of the country. However, in the investigated period, the livestock herds on the farms with legal status increased by 41% in 2016 compared to 2005.

At national level, the animal herds are concentrated on the small farms, in the economic size classes under 2000 euro, from 2000 to 3999 euro and from 4000 to 7999 euro. These three size categories had more than 40% of the livestock herds from Romania, in the year 2016. However, in the period 2005 – 2016, a concentration process of livestock herds took place towards the medium and large farms, and thus the share of herds on the farms in the size category under 8000 euro decreased. The livestock herds on the very large-sized farms, with a production of 500000 euro and over increased by 60% in the period 2005 – 2016. In the year 2016, they had 17% of total herds, as compared to only 7% in 2005.

In quantitative terms, the largest number of animals in LSU was noticed in the region Nord-Est in the year 2016 (19% of total country), with a mountain area with extensive pastures and hayfields, the animals being concentrated on small farms, under 8000 euro. At the same time, in certain regions the animals are mainly raised on the large and very large farms, and in this context the region Vest stands out, where 35% of the livestock herds are raised on farms with an annual production of more than 500000 euro, mainly due to the presence of the pig raising complex Smithfield.

Figure 1.2. Distribution of livestock herds (LSU) in Romania by regions in the year 2016

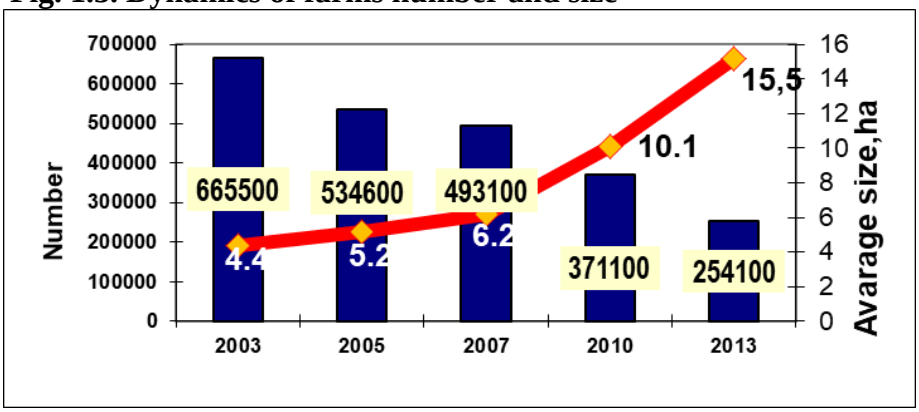


Source: Eurostat

FARM DYNAMICS IN BULGARIA

The period 2003-2013 is characterized by dynamic structural changes related to the farms. Durable trend has been outlined to diminution of farms' number, almost 3 times - from 665,5 thousand in 2003 to 254,1 thousand for 2013. The process of farms number reduction is more intensive after the EU accession and CAP implementation.

Fig. 1.3. Dynamics of farms number and size



Source: Ministry of Agriculture, Food and Forestry, "Agro-statistics"

It is interesting to make a comparison with the other 11 new EU member-states. Data show a clear trend of diminution of farms' number in all countries, excepting Malta. The average drop in farms' number in observed countries is 19%, while Bulgaria surpasses the average value for EU, which is due to several factors impact and to the level of sector development. Bulgaria has started deep changes in the land ownership and in agricultural policy, which influenced the dynamics of ongoing restructuring processes. The country has registered one of the highest decreases of farms number, after Czech Republic and Estonia, with 44 % of decrease.

The reduction processes are most dynamic for small farms with UAA up to 10 decares, where the diminution is of 70%. With a smaller degree of change are farms with size 10 - 20 decares, which diminished with a half. Farms of the next group – UAA 20-100 decars are reduced by ¼.

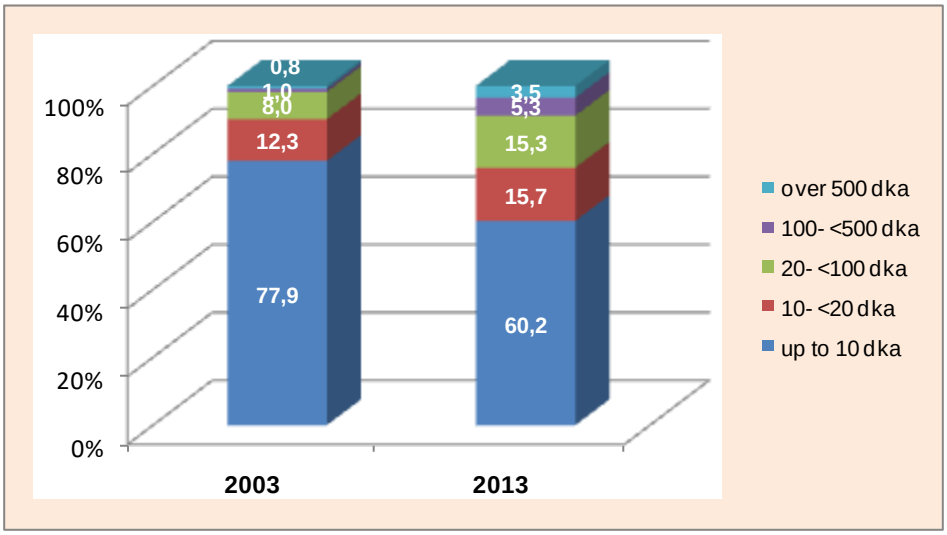
Positive trend is the increase of the number of large farms - these with UAA 100-500 decares have increased twice and the farms over 500 decares - over 74 %.

Data outline a sustainable increase trend of the UAA size after the EU accession, as a result of accumulation of less fertile lands and of stimuli for farms enlargement, aiming more subsidies absorption under SAPS (European and national) – from 3 050,7 thousand ha in 2007 to 3794,9 ha in 2013 (31%).

As a result of ongoing processes of farms reduction and UAA increase the average size of a farm has increased from 4,4 ha in 2003 to 10,1 ha for 2010 and 15,5 ha in 2013. (Fig.1.3.). The conclusion is that the ongoing structural changes lead to farms consolidation, accelerated under the direct payments.

The running restructuring processes lead to structural changes in agriculture (Fig. 1.4). The share of small farms decreases from almost 80 % in 2003 to 60 % at the end of analyzed period, despite their dominating share in the total structure. In the other farm groups there are occurring changes toward increase of their share, mostly for farms over 100 decars. The farm restructuring leads to changes of UAA structure, according the groups of farms and their size.

Fig. 1.4. Farms' structure, according UAA size

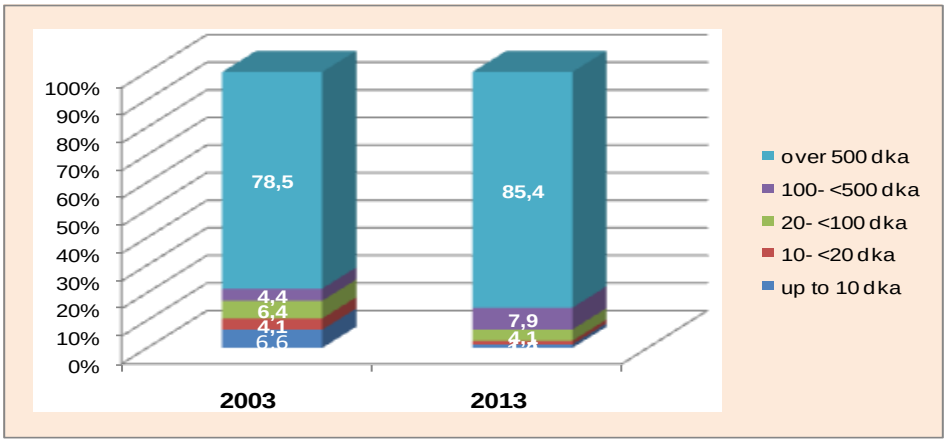


Source: MAFF, „Agro-statistics" and own calculations

The sensitive decrease of number of small farmers is related to their UAA share diminution from 6,6% in 2003 to 1,2% in 2013

(Fig.1.5). For the analyzed period is reported a diminution of UAA share for farms' groups less than 100 decars, while in farms over 100 decars there is an increase of their share. More significant is the increase of the share of the largest farms over 500 decares, which share in UAA structure from 78,5% in 2003 has increased to 85,4% in 2013.

Fig. 1.5. UAA structure per farm groups



Source: MAFF, „Agro-statistics" and own calculations

The comparative analysis shows sensitive difference between the average sizes, according the groups of farms and this difference is unchanged for all the analyzed period. Data show that the average size diminishes of farms up to 20 decares and of the largest farms, while the size of the medium-sized farms increased. At the end of the period the average size of small farms is 3,1 decares; for the large ones it is significantly bigger - 3628,4 decars.

Table 1.2. Dynamics of the average size per farm groups

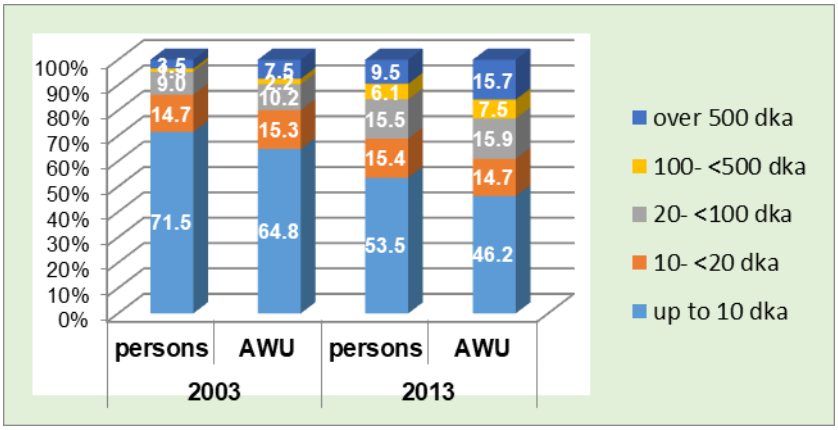
Farms' size	Average size of farms in the group, decares	
	2003	**2013**
0 - < 10 decares	3,8	3,1
10 - < 20 decares	15,0	13,2
20 - < 100 decares	36,0	40,4
100 - < 500 decares	198,2	223,6

>=500 decares	4468,4	3628,4
Average size	**44**	**155**

Source: MAFF, „Agro-statistics" and own calculations

The degree of impact of the ongoing restructuring on the distribution of the employed labour force and the input labour, according the farms groups provoke the interest (Fig. 1.6.).

Fig. 1.6. Labour force structure and input labour, per farms' groups



Source: MAFF, „Agro-statistics" and own calculations

The running restructuring in farms is related to a change of the share of employed in agriculture and of the input labour, per farms' groups. The most important changes are related to decreasing employment in the small farms less than 10 decares from 71,5% in 2003 to 53,5% in 2013. The share of the labour force in the other farms' groups is increasing.

The input labour structure follows the trend of change of the labour force. The share of the input labour, expressed in annual work units (AWU) in farms up to 10 decares is lower than the share of the labour force, due to the impossibility of the small production to insure full employment of the workers. There is a trend of increase of the input labour in all farms over 20 decares.

Despite the positive trends in the ongoing restructuring of farms, the dualistic organizational-economic structure in Bulgarian agriculture still remains. The dominant share have the small farms – over 60%,

which manage barely 1,4% of UAA in the country and concentrate almost 54% of the labour force in the sector and the input labour is 42%. On the other pole are the largest farms, which are hardly 3,5% of all farms, but manage over 85% of the total UAA in the country and concentrate 9,5% of the labour force and 15,7% of the input labour. The conservation of the irrational organizational and economic structure embarrasses the EU CAP implementation and the contracted funds absorption; create a serious misbalance of the received support from the farms:

- Due to the predominant small agriculture, eligible for the direct payments are just a part of the farms. The positive trends of the organizational and economic structure lead to increase of beneficiaries share, which meet the conditions for direct payments are from 25-28 % to about 40% at the end of the analyzed period;

- the accumulation of considerable funds only from the large farms, while the small ones are deprived from subsidies or their size is symbolic. For 2012 2,4% of beneficiaries have received 84 % of the total amount of direct payments (according data of State Fund "Agriculture", 2012).

- negative influence of direct payments on farms output structure – the unilateral production structure is deepening as the areas with extensive crops increase and there is an outflow from the intensive productions. In 2010 almost a half of the farms grow cereals which occupy 58,1 % of the arable land; 23,1 % of farms are with industrial crops (predominantly sunflower) on 34 % of the arable land, perennial crops are less than 3 % of the UAA and the permanent grasslands are 10,4 % of the UAA in the country.

The research is complemented by analysis of organizational and economic structure, according the juridical status of farms. Along with family farms have been approved also other forms of agricultural business – production cooperative, sole traders, trade associations.

For the analyzed period 2003 – 2013, structural changes are related to diminution of farms' number for all organizational forms, excluding the trade associations, occurring with different intensity (Table 1.3).

- the most dynamic are the processes in the group of farms of natural persons, oriented to their number reduction, due to the suspension of small farms' activity. For the analyzed period the decrease is of 63 %, but there is an increase of the managed land – by 39 %.

- in the cooperatives' group there is a trend of decrease of number. After the EU accession of Bulgaria, the introduction of direct payments has led to an increase of the prices of the land and the lease. Within a less effective production a part of cooperatives could not meet the expectations of land owners for rent increase. The reasons for suspending the activity of some cooperatives are due to intentions of owners to sell the land or to its offer to trade companies for a higher rent. The number of cooperatives has been reduced from 1973 in 2003 to 811 for 2013, which represents a decrease of 59%, related to the halved reduction of the managed land;

Table 1.3. Dynamics of farms number and UAA size, according their juridical status

Juridical status	Farms' number			UAA (ha)		
	2003	2010	2013	2003	2010	2013
Natural persons	648274	350041	237313	879678	1201280	1223284
Sole traders	2870	2134	1871	340861	544388	542947
Cooperatives	1973	941	811	1169309	643555	565373
Trade companies	1331	3639	4323	469197	1151451	1396945
Associations etc.	360	319	272	45434	76292	66362

Source: MAFF, „Agro-statistics"

- considerable increase of the number of trade companies, as in in 2013 their number is 4323 or the increase is almost 3 times, accompanied by UAA increase, also 3 times;

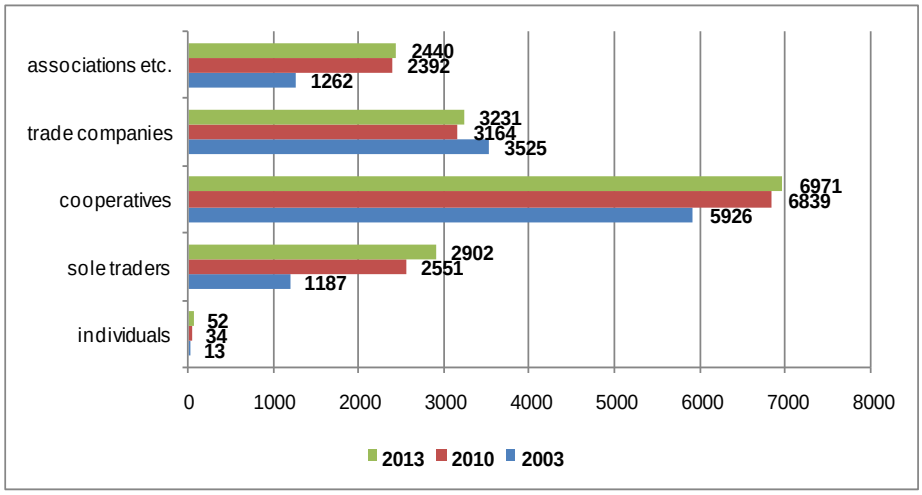
- in the background of running intensive changes in other organizational forms, in the group of sole traders the change is smaller and oriented to diminution of their number and increase of the managed UAA.

The ongoing structural changes are related to consolidation of farms' size for all organizational forms of agricultural business (Fig.1.7):

- the increase of the average size of farms owned by natural persons is insignificant, due to their low economic potential. For the period 2003-2013 their average size has increased from 1,3 ha to 5,0 ha;

- the farms of legal entities are large economic structures. They develop within economic boundaries, commensurable with European ones; they have potential for the absorption of European and national subsidies and opportunities for more considerable increase of farm sizes. Having the best land resource security in 2013 remain the cooperatives with average size of 697,1 ha, followed by trade companies – 323,1 ha and sole traders – 290,2 ha.

Fig. 1.7. Dynamics of farms average size, according their legal status



Source: MAFF, "Agro-statistics" and own calculations

The analysis of results shows that the differentiation between the farms' sizes, according their juridical status, remains the same.

The results show that the running processes do not bring important changes of organization-economic farms structure. The image of our agriculture is still defined by the farms of individuals with dominant relative part of 97 %, which manage 32% of the UAA. The share of farms owned by juridical persons is 3 % with UAA share - 68%.

We can conclude that the bipolar model of organizational-economic structure of farms is in process of sharpening and the differences between the farms, according their juridical status, deepen.

Economic farm size in Romania

The average farm size in Romania was 3537 euro standard output in the year 2016, up from 2500 euro in the year 2005, being the lowest farm size in the European Union. Out of this reason, although one-third of the total number of farms in the EU is found in Romania, the total agricultural output value obtained on the Romanian farms accounts for only 3.8% of the agricultural output value in the EU.

Table 1.4. Variation of the number of farms and utilized agricultural areas in the year 2016 compared to 2005, by economic size of farms

	Number of farms		Utilized agricultural area	
	Number (2016-2005)	**% (2016/2005*100-100)**	**Hectares (2016-2005)**	**% (2016/2005*100 - 100)**
Under 2000 euro	-484250	-17%	-892280	-32%
2000-3999 euro	-326640	-37%	-1076970	-44%
4000-7999 euro	-95240	-21%	-782860	-37%
8000-14999 euro	+32030	+39%	+50650	+7%
15000-24999 euro	+18080	+103%	+90960	+25%
25000-49999 euro	+10000	+105%	+43090	+8%
50000-99999 euro	+3550	+85%	-57880	-7%
100000-250000	+2280	+78%	-25910	-2%
250000-499999 euro	+1080	+98%	+221130	+20%
Over 500000 euro	+880	+120%	+955250	+67%

Source: author's processing based on Eurostat data

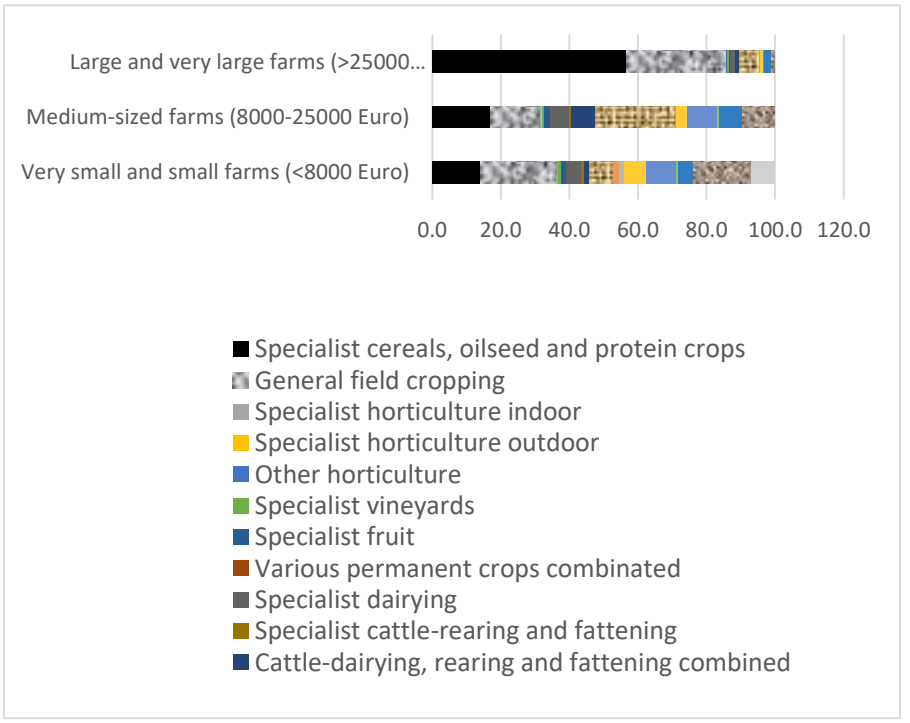
We can see from Table 1.4 how the utilized agricultural areas were transferred between farms in Romania. Overall, the number of farms in 2016 decreased by about 800 thousand as compared to 2005, while the utilized agricultural area decreased by about 1.4 million hectares. The number of small farms and the area operated by these decreased, while the number and areas of very large, large and medium-sized farms increased instead. But the most significant is the evolution of size categories at the extremes of farm distribution. The number of very small farms (under 2000 euro) was down from 2.7 million in 2005 to 2.3 million in 2016, while the utilized area decreased from 2.7 million hectares to 1.8 million hectares. The number of farms with an output of over 500000 euro increased instead from 740 in 2005 to 1610 in 2016, while the utilized area increased by almost 1 million hectares. Thus, a significant consolidation was produced in the segment of very large

farms, while in the segment of medium-sized farms between 8000 euro and 100000 euro the consolidation was quite modest. That is why we can state that in the recent years the bipolar character of the Romanian agrarian structure has been intensified, that is we have a very large number of small farms and a small number of very large farms, while the medium-sized segment has continued to remain insufficiently developed.

Farm productive orientation

The productive specialization of farms in relation to their economic size indicates that the small farms have a more diversified production mix compared to the large and very large farms. Small farms are mainly specialized in a mix of different crops combined with livestock raising activities, growing field vegetables and permanent crops, fruit trees included. The production of medium-sized farms is oriented to horticulture and raising herbivores, mainly sheep and goats (Figure 1.8).

Figure 1.8. Distribution of agricultural area on farms, by farm specialization and economic size



Source: EUROSTAT

The main specialization of large farms is the production of grains, oilseeds and protein crops, which cover 36% of the country's agricultural land area and 57% of the area operated by the large and very large-sized farms. The next specialization is other field crops, which cover 25% of the country's agricultural area and 29% of areas operated by the large and very large-sized farms.

The specialization of large and very large farms in cereals, oilseeds and protein crops has been accentuated after Romania's accession to the EU, due to the increase of prices in cereals, oilseeds and protein crops, due to price increases in grains and oilseeds on the foreign markets and last but not least due to receiving direct payments per hectare, which significantly contributed to production orientation towards crops that benefit from this type of subsidies.

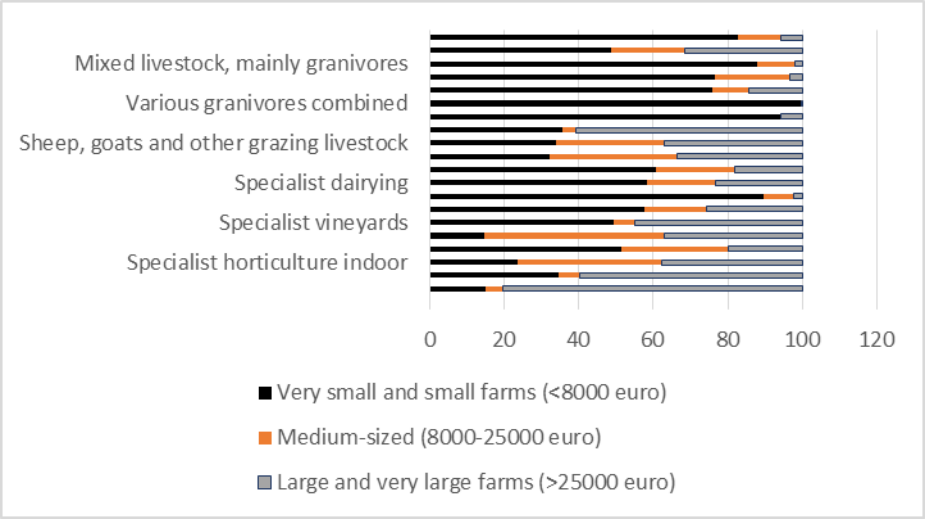
Figure 1.9 presents how the land is used on the small, medium and large farms, by different production specializations. The small farms, with an output under 8000 euro have a diversified specialization, which involves an increased manual labour input: viticulture, fruit farming, horticulture, raising bovines, poultry, dairy cows, combined activities. The large farms are specialized in growing cereals, oilseeds, protein crops and other field crops. In this context, we can notice that the share of crop production in total agricultural output value permanently increased in the investigated period, from 65% in the year 2007 to 72% in 2016. In the years with very good crop productions, this percentage exceeded 75% (in the year 2013, for instance). This aspect, corroborated with the corresponding decline of the livestock production sector and the excessive importance attached to cereal and oilseed production, implies the orientation towards a mix of products with low value added, which does not valorize the internal resources of the agricultural sector, nor does it provide a diversified and sufficient agricultural supply for the country's population. Unfortunately, the direct subsides received under the form of payments per hectare has mainly stimulated the crop production sector and the large field crops, mainly cereals and oilseeds, which in most cases are exported as raw agricultural products.

In order to measure the productive diversity on the land areas used by different types of farms, we calculated the Berry Index. The Berry Index is constructed by adding the square of the share of areas under different crops in total area utilized by the farms with different specializations:

$$BI = 1 - \sum_{i=1}^{n} \left(\frac{x_i}{X}\right)^2$$

where: x_i is the area utilized by farms on the i specialization and X is the total agricultural area utilized by the category of farms with a certain economic size. The BI can take values from 0 to 1. 0 corresponds to the situation when the farms with a certain economic size would have only one specialization, and 1 to the situation in which each specialization would have 1/n of the agricultural area utilized by the respective farm category. According to Eurostat, 22 possible specializations of farms are considered.

Figure 1.9. Situation of land used by farms with different economic sizes by production specialization



Source: EUROSTAT

The approach based on Berry Index calculation for the assessment of farm specialization diversity by different farm sizes reveals a decrease of productive diversity over time, more pronounced on the medium and large-sized farms. For instance, on the farms over 100 hectares, the diversity index decreased from 0.62 in the year of accession (2007) to 0.56 in the year 2016 (Table 1.5).

Table 1.5. Productive orientation diversity, measured by Berry Index, by different farm sizes

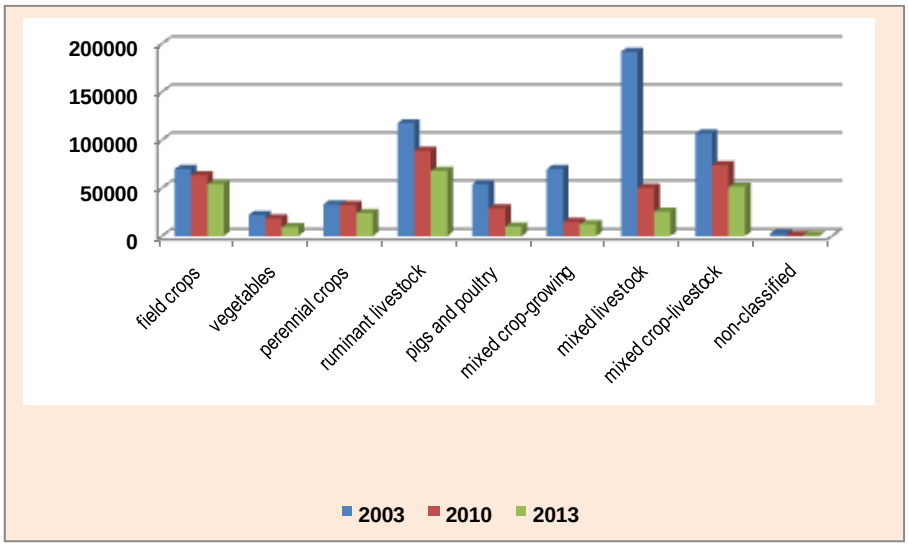
	2007	2016
Total farms	0.83	0.77
Less than 2 ha	0.87	0.85
From 2 to 4.9 ha	0.87	0.86
From 5 to 9.9 ha	0.87	0.87
From 10 to 19.9 ha	0.88	0.87
From 20 to 29.9 ha	0.87	0.83
From 30 to 49.9 ha	0.84	0.80
From 50 to 99.9 ha	0.79	0.76
100 ha or over	0.62	0.56

Source: author's own calculations based on Eurostat data

FARM ECONOMY IN BULGARIA

The analysis according the farm specialization shows clear trend to diminution of farms number in all groups, as a result of the general trend to reduction of farms number, but these processes occur with different intensity. (Fig. 1.9). The processes of diminution are more intensive for the farms with mixed production, in comparison to the specialized farms. The highest diminution (over 80%) is of the mixed livestock farms, mixed crop-growing and the farms with pigs and poultry. By a half is the diminution of the farms with vegetables and the mixed crop-livestock farms.

Fig. 1.9. Dynamics of farms number, according their specialization

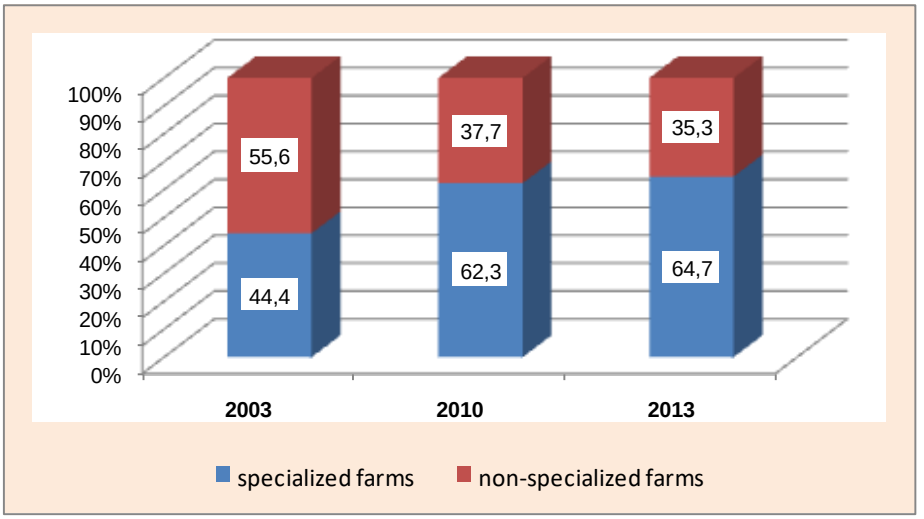


Source: MAFF, "Agro-statistics"

Among the specialized farms the decrease is lowest for the farms with field crops and perennial crops – less than 30%. The lower reduction of the number in the group of field crops farms is due to the higher level of support, compared to production costs, which stimulates farmers to orientate toward these crops. For the farms with perennial crops the reason is in the durable character of made investments and the slow process of specialization change.

At the end of analyzed period the farms with ruminant livestock are the biggest number – over 67 thousand, followed by field crops - over 54 thousand. Respectively, the lowest share is for the specialized farms with vegetables

Fig. 1.10. Farms' specialization



Source: MAFF, „Agro-statistics"

The analysis of production concentration is led according the main crops and livestock groups.

The comparative analysis shows that the average areas with extensive crops considerably surpass the areas with intensive production. The biggest average farm area is for the sunflower. The second place per production concentration is for the wheat. The average areas for the field crops, the tobacco and the perennial crops in the farms are the lowest because of the labour-intensive character of their productions.

The production concentration is characteristic for all cultivated crops, occurring with different intensity. The most dynamic processes run for the maize for grain. The lowest change rate shows the tobacco.

Data analysis for the average livestock number in farms in 2003

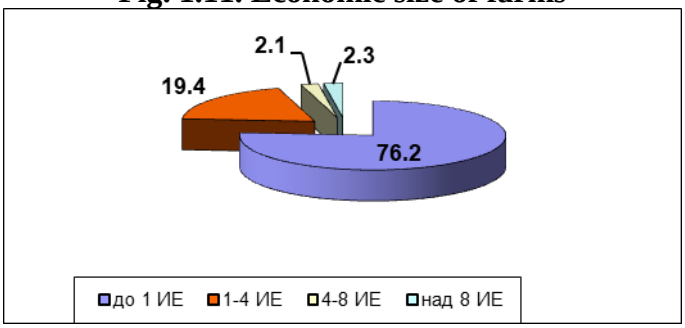
shows that for all groups is characteristic the small production. In 2003 the average number of cattle in a farm was 3, for the sheep – 7, pigs – 5 etc. For the analyzed period was reported an increase of the average livestock number, bred in the farms of all groups – the highest for the sheep, the lowest – for the goats. Data show that in 2013 the average number of the cattle has increased to 8, of sheep – to 25 and of the poultry - to 130.

Despite the outlined trend of production concentration, at the end of the analyzed period remained the relatively small number of animals in farms. For the period 2010-2013 the average number of livestock units per farm has increased from 4,2 to 5,8 LU.

The comparative analysis in both sub-sectors shows that the concentration processes in the crop-growing are more dynamic than in livestock breeding.

The analysis of the economic potential of farms in 2003 is led according economic units (European Standard Unit – ESU). Over 76 % is the share of small farms, predominantly natural farms with economic size up to 1 ESU. On the second place are the semi-subsistence farms with ESU of 1-4. The market-oriented farms over 8 ESU are 2,3% (Fig.1.10.).

Fig. 1.11. Economic size of farms



Source: MAFF, "Agro-statistics" 2003.

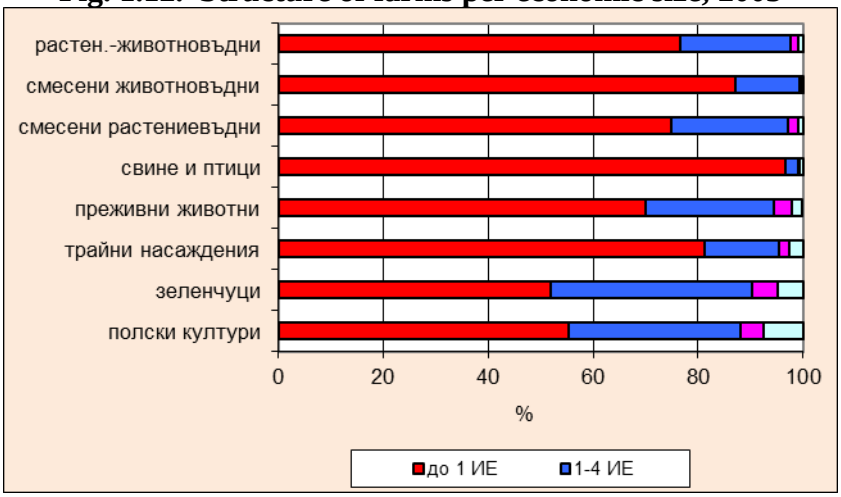
Results show that the image of our agriculture is defined by small farms and significant economic and social importances have small, predominantly natural farms up to 1 ESU.

The analysis of farms shows that for all productions predominant share have the small farms. This share is highest for pig and poultry farms - almost 97%, mixed livestock farms – over 87%, perennial crops farms - 81%. This is an indication for the fragmentation of the production in these sectors. The lowest share - up to 1 ESU have the farms growing field crops and vegetables.

Excepting the farms for pigs and poultry, the next place in importance is for semi-subsistence farms with a relative share in the limits 12-39%.

All farms' types are characterized by low share of holding over 8 ESU. Notably higher relative share have field crops farms – 7 %, followed by farms for vegetables – almost 5 % and with perennial crops - 3%. The share of livestock farms having economic potential over 8 ESU is under 2 %. Farms with mixed production have even more insignificant share (Fig. 1.11).

Fig. 1.12. Structure of farms per economic size, 2003



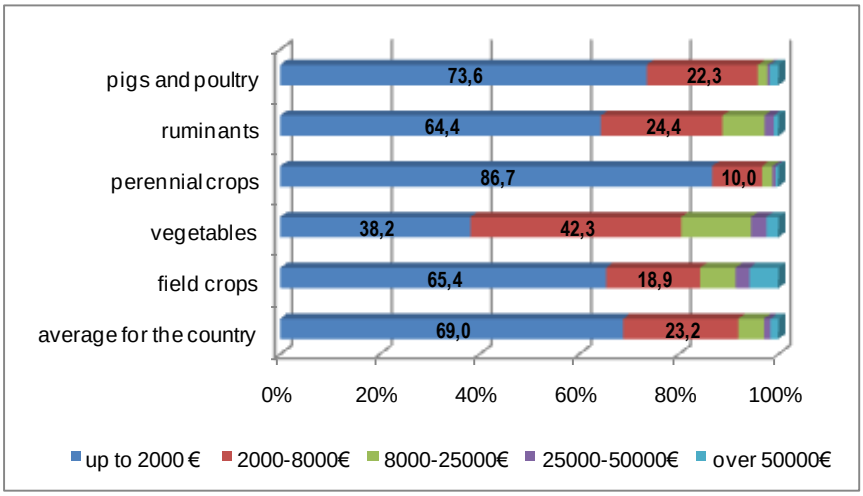
Source: MAFF, "Agro-statistics", 2003.

The predominant share of farms with low economic potential forms low average economic size of 1,7 ESU (II class of eight possible classes).

The field crops' farms have highest economic size – almost 6 ESU. Despite the small size of farms for vegetables, due to the intensive character of their production, they have relatively high economic potential – almost 4 ESU. The rest of farms have considerably lower economic potential.

The farms' analysis per economic size (2010) has been made on the base of the indicator "Standard production volume" (SPV), which is the standard value of the gross output. (EU Regulation 1242/2008) (Fig.1.12).

Fig. 1.13. Distribution of specialized farms, per economic size, 2010



Source: MAFF „Agro-statistics", 2010

The analysis of date shows that the predominant share of farms having extremely low economic potential remains - 69% of all farms have standard production volume up to 2000 Euro (I class). This share varies, depending on the farms specialization.

The smallest relative share in this class is for vegetables-growing farms - 38,2%. These farms grow highly profitable crops and despite their small sizes, they manage to realize higher standard production volume – from 2000 to 8000 Euros, therefore 42,3% of them fall into the next class, according the economic size.

The farms with perennial crops have the highest relative share for the Ist class – about 87%. At intensive production way, the low economic potential shows that the predominant number of farms have very small sizes and deteriorated state of plantations.

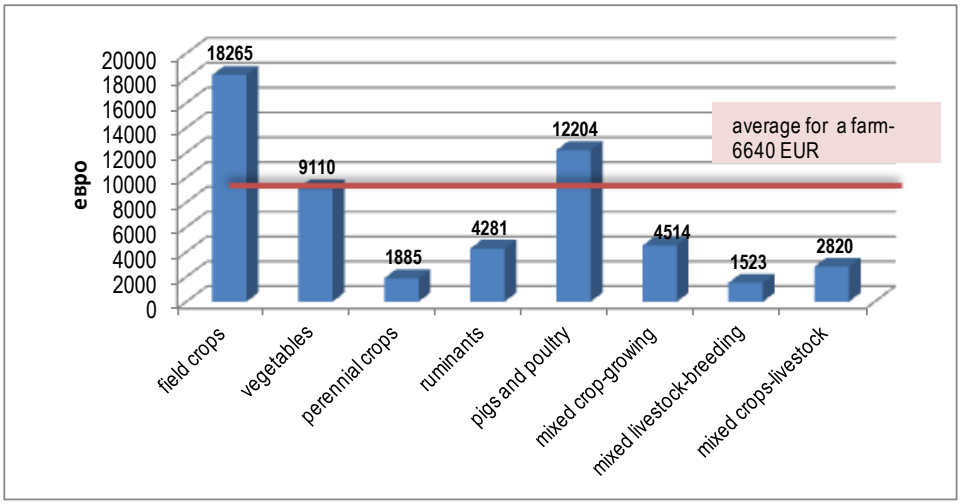
According the expectations, the biggest share of the farms with high economic potential over 50 thousands Euro are in sector "field crops" – about 6%, followed by the farms with vegetables – 2,4% and pigs and poultry – 1,7 %. In this group the other specialized farms are with relative share under 1%.

With relative share of small farms - 92,3% in the country, in the sectors of ruminants, vegetables and field crops there is a lower share of this group of farms.

The farms structure forms the economic size, per farms types, in dependence on their specialization. The average economic potential of

farms in Bulgaria for 2010 is 6640 EUR standard production volume. (III[rd] group of 15-degree scale).

Fig. 1.14. Average size per farms' type



Source: MAFF, „Agro-statistics", 2010 and own calculations

The following three groups of farms realize higher SPV than the average for the country – farms for field crops, for vegetables and for pigs and poultry (Fig. 1.13).

The highest economic potential have the field crops farms - 18265 EUR of standard production volume, due to the fact that the biggest farms, growing cereals and sunflower, are in this group.

The next place with average economic size of 12203 EUR occupy the farms breeding pigs and poultry, due to the big total size of the SPV, realized by small number of farms. This sector is characteristic by strong differentiation of farms by economic size – under 1% (0,7%) of farms have very high economic potential (with SPV over 250 thousands EUR), but they realize 75 % of the total standard production in the sector. On the other pole are the small farms with SPV up to 2000 EUR, which are 74%, but realize only 6% of the total SPV in the sector. Lower economic potential have farms with perennial crops, ruminants and mixed production.

From the specialized farms, the farms with perennial crops have the lowest economic potential – 1885 EUR of average SPV, which is due to the predominant number of small farms and to the little number of big

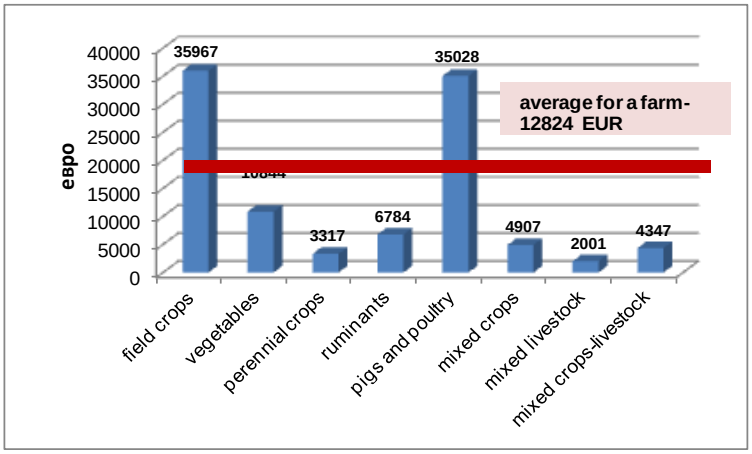
economic units – 11 with SPV over 250 thousands.

From the non-specialized farms, the mixed livestock farms have the lowest economic size - 1523 EUR of SPV, which is the lowest of all farms types in the country. The reason is the same – high share of farms of the lowest economic class (up to 2000 EUR) and symbolic number of the largest farms with over 250 000 EUR of SPV.

In the period 2010-2013 all farms report a growth of their economic potential, but in different degrees. The biggest increase is shown by the specialized farms for pigs and poultry – almost 3 times, as a result of the small farms number reduction; for the field crops farms – almost 2 times. More insignificant is the increase of mixed farms. As a result of this trend the economic farm size in the country has increased also – from 6640 EUR to 12824 EUR.

The specialized farms for vegetables in 2013 already have economic size under the average for the country. The farms with perennial crops are with the lowest economic potential. Both differences between farms with highest economic potential and the average economic size and with the rest of farms have deepened. (Fig. 1.14).

Fig. 1.15. Average economic size per farms types, 2013



Source: MAFF, "Agro-statistics" and proper evaluations

Unfortunately, the different methodological approaches and indicators, used for the definition of farms' economic potential in the analyzed period do not give the opportunity for more deep comparisons and outlining of trends.

The analysis of the diversification to other non-agricultural activities outlines the small number and the low relative share of farms

exercising other activities, bringing supplementary incomes within the economic year.

In 2003 about 29 thousand farms (Table 1.6) with a relative share of 4,4% of all farms in the country have complementary income sources from non-agricultural activity. Main sources of employment are processing of agricultural products, fish production and mechanized services.

In the analyzed period there is a clear trend to considerable diminution of farms number, occupied of non-agricultural activity. Only the farms occupied with renewable energy sources make exception and increase in the period 2010-2013.

The number of farms diversified their production is considerably lower in comparison to the beginning of the analyzed period – only 3610 in 2010 and 2878 in 2013, which is only 1% of all farms. The reasons should be searched not only in the total decrease of farms number, but also in the lack of stimuli, insufficient experience, ineffective organization and deficiency of complementary incomes. All these reasons lead to a refusal of farms to exercise these activities. In EU CAP conditions, the support under RDP measures (mainly under Axis 3 – M 311 "Diversification to non-agricultural activities", M 312 "Support for micro-enterprises creation and development", M 313 "Encouragement of tourist activities" etc.), oriented to the stimulation of the incorporation of non-agricultural activities in the farms, did not have the expected positive effect.

Table 1.6. Farms distribution, according the performed non-agricultural activities within the farm

Activities	**Farms' number**		
	2003	**2010**	**2013**
Mechanized services	9684	2645	2201
Agricultural products processing	13665	307	378
Wood processing	115	100	8
Rural tourism	338	145	106
Crafts	290	45	11
Fishery and aquaculture	1064	108	98
Renewable energy production	66	5	33
Other non-agricultural activities	3647	255	268
Total	**28869**	**3610**	**2878**
Relative share of all farms in the country	**4,4**	**1,0**	**1,0**

Source: MAF, "Agro-statistics"

The conclusion is that farms in Bulgaria are low diversified to other non-agricultural activities and the diversification level diminution continues, which creates a risk of incomes instability**.**

Analysis of farms' market orientation in 2005 shows that the semi-subsistence farms share is predominant – about 69 %. In this group the variety is big – there are small natural farms, little and larger farms, which use more than 50 % of their production for own consumption. Respectively, the share of farms realizing more than their half production on the market is 31 %; 11,4 % of them sale all their production.

The comparative analysis shows that for the period the market orientation of farms has improved (Table 1.7). The number of farms, realizing bigger part of their production on the market has increased. In 2010 about 190 thousand of farms or more than a half of all farms realize the predominant part of their production on the market. Along with the examined changes in organization economic structure of agriculture – diminution of small and little farms, increase of the specialization, production concentration, contribution for the market orientation has also the received support under several measures and mechanisms in EU CAP conditions (M 141 "Support of semi-subsistence farms in process of restructuring", M 121 "Farms modernization", direct payments, training, consulting services, national support etc.).

Table 1.7. Farms distribution, according agricultural production orientation

Year	Farms with more than 50 % of agricultural production for own consumption		Farms with less than 50 % of agricultural production for own consumption	
	Number	**Relative share, %**		**Number**
2005	367986	68,8	2005	367986
2010	177253	48,6	2010	177253

Source: MAF, "Agro-statistics"

In relation to the question for the market orientation is the problem with the production realization channels. At the prevailing small and fragmented production, the lack of producers' organizations, the problems of the producers with the access to the market remain, which makes the producers strongly dependent on the wholesalers, resellers and unfair competition. For the analyzed period the number of farms, which direct sales prevail the half of the total sales' amount, remains almost unchanged. For comparison, the data are the following: in 2005 these

farms' number is 26154, in 2010 – 26418.

For the improvement of food chains and the stimulation of the short food chains building are necessary: market structures development and creation of normal market relations in agriculture; completion of market structures (exchange places, marts, stocks and refrigeration bases) on regional principle; stimulation of quality production; elimination of the competition from the part of informal sector and illegal importation; association of farmers.

As a result of the made analysis of structural changes in farms could be made the following generalized conclusions:

- Acceleration of reduction processes for small farms predominantly. The occurring restructuring does not lead to essential positive changes in organizational-economic structure – the dominant share of small farms remains and the small number of large structural units;
- The bipolar model of farms structure deepens – the differentiation between thesmall family farms size and the big farms of legal entities increases;
- Serious misbalance of the support amount between farms – accumulation of considerable funds from a little number of large farms, while the dominant part of small farms are deprived by subsidies or they are insignificant;
- Consolidation of areas, increase of the specialization and concentration of the output, improvement of farms' market orientation;
- Deepening of the unilateral farms' production structure with predominant part of extensive crops;
- Conservation of the relatively low economic size of most of farms and increase of the difference, in relation to their ;
- The farms in Bulgaria are slightly diversified to other non-agricultural activities and the outlined trend to decreasing the level of diversification leads to restriction of possibilities for income increase and to a risk of incomes' instability.

The results of the analysis show that the implementation of the scheme for direct payments accelerates the ongoing structural changes, but despite some positive trends, they do not help the building of rational production and organizational-economic structure in agriculture.

FARM INCOMES AND IMPORTANCE OF SUBSIDIES

The value added per farm increased by 31% in the period 2007-2016 (from 1450 euro to 1911 euro), yet this does not represent a sustainable growth, as it significantly and consistently fluctuated from year to year. Labour productivity expressed by the net value added per annual work unit almost doubled in the period 2007-2016 (+80% in 2015 as against 2007), yet this is one of the lowest in the European Union. Thus, in the year 2016, labour productivity in Romania's agriculture represented only 23% of the EU average, yet its annual growth rate in the period 2007-2017 was 5.3%, as against 3.6% the EU average.

Farm incomes increased in the investigated period, yet the gaps compared to the EU average were maintained in terms of the gross value added, labour productivity and factor income (Table 1.8).

Table 1.8. Comparisons with the EU average for certain key indicators, year 2016

Indicator	UM	EU-28	Romania
Number of farms	Thousand	10467	3422
Utilized agricultural area	thousand ha	173338	12502
Average farm size	Ha	16.5	3.6
Livestock herds	LSU/farm	12.5	1.4
Standard economic size	euro/farm	34785	3537
Gross value added in producer prices	euro/farm	16055	1911
Labour productivity	euro/AWU	17597	4109

Source: author's processing of Eurostat data

Table 1.9. provides synthetic information on the evolution of agricultural sector indicators in the post-accession period. A first conclusion that can be drawn is that the animal output value systematically decreased, which has already been signaled out. The total agricultural output value featured high volatility, also due to the high share of crop production (variation coefficient for agricultural output value = 10%). The effect of Common Agricultural Policy implementation was mainly materialized into the increase of production subsidies, which practically increased five times in the investigated period. The effect of these subsidies on production was not very much materialized into the increase of production output value. At the same time, the very high volatility of agricultural yields seems to be controlled by the weather conditions rather than by the application of more performant production technologies.

Table 1.9. Agricultural output value, incomes and production subsidies, in the agricultural sector (million euro, basic prices)

	2007	2016	Average 2007-2016	Minimum 2007-2016	Maximum 2007-2016
Crop output	8612	9689	10429	8428	12781
Animal output	4375	3877	4016	3636	4375
Agricultural output	13192	13743	14616	12835	16877
Total intermediate consumption	8057	8838	9009	7742	10135
Gross Value Added	6244	6333	6946	6209	8362
Fixed Capital Consumption	2259	2266	2440	1927	3018
Taxes on production	57	21	27	21	57
Subsidies on production	491	2628	1260	398	2628
Factor Income	4418	6675	5739	4418	6705

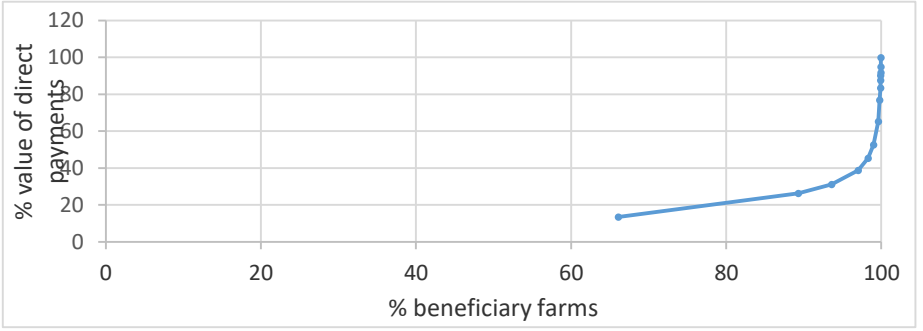
Source: author's processing of Eurostat data

The deterioration of the agricultural production structure, materialized into the decline of the livestock production sector, also lead to high volatility and insufficient growth of agricultural output value. Yet farm incomes constantly increased, but the growth of these incomes is almost exclusively the result of production subsidies received by farmers, in progressive amount from year to year. In fact, the direct payments per hectare, granted under the SAPS scheme of the Common Agricultural Policy targets the increase of farmers' incomes and decoupling the subsidies from production, and this objective seems to have been reached in Romania. The share of subsidies in incomes increased from 10% in the year 2007 to 40% by the year 2016. In this context, we can appreciate that numerous farms heavily depend on the direct payments received, due to the low productivity of agricultural activities. In fact, this situation where the share of subsidies reached up to 40% of agricultural income was noticed even from 2007-2009 in other European countries as well, such as Denmark, Germany, Ireland (EC, 2011).

Direct payments represented more than 94% of production subsidies in the year 2015. The way in which these were distributed reflects the strong polarization of the agrarian structure in Romania, i.e. the very large number of small-sized farms, on the one hand, and the

relatively small number of very large farms, which practically cover more than half of the utilized agricultural area, on the other hand.

Figure 1.16. Distribution of subsidies received as direct payments to beneficiary farms from Romania, year 2015

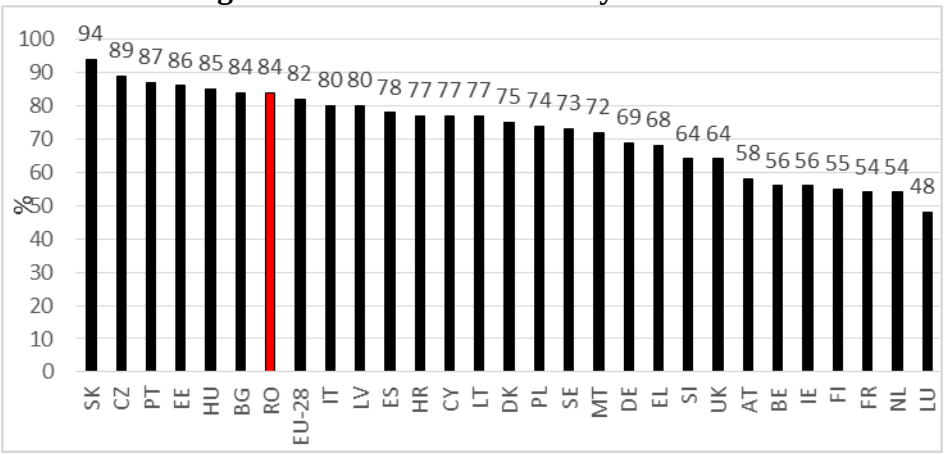


Source: EC-DG AGRI

. From Figure 1.15 we can notice, for instance, that 97% of farms receive only 40% of the total amount of direct payments, while the remaining 3% receive 60% of the amount. This phenomenon was intensified at the end of decade, as the number of large and very large-sized farms increased. The number of farms that received direct payments varied from year to year, between 1-1.05 million, while the area covered by these farms totalled 10-11 million hectares. The phenomenon of land concentration into large and very large-sized farms is also present in other ex-communist countries, like the Czech Republic, Slovakia and Bulgaria (Fig. 1.16).

There are significant gaps between the farms from Romania and the medium-sized European farm in terms of economic size, but also in terms of differences brought about by farm specialization. In the European Union, the farms with the highest productivity, expressed by net value added per number of AWU, are those specialized in raising granivores (pigs and poultry), followed by horticulture and viticulture. In Romania, the situation is slightly different: the farms specialized in granivores are also on the top position, while the farms specialized in field crops and viticulture come next. Yet there are very great differences with regard to the productivity level in Romania, which represents only one-third of the EU average.

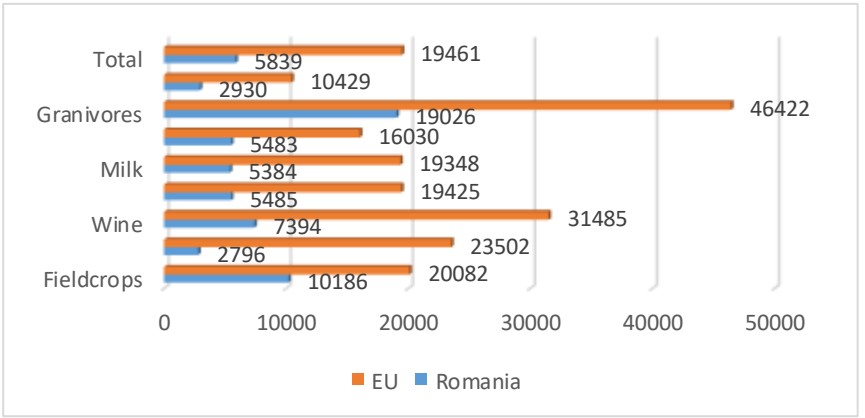
Figure 1.17. Share of direct payments received by the first 20% greatest beneficiaries in the year 2015



Source: EC-DG AGRI

According to the indications contained in the Farm Accountancy Data Network (FADN) database, it is not possible to distinguish a certain trend in the evolution of farm economic indicators for the period 2007-2016. The evolutions are rather fluctuating, yet this hierarchy is maintained in terms of the economic results by farm specialization, according to which the farms specialized in field crops and those specialized in raising granivores (pigs and poultry) rank first. The results on farm economy provided by FADN database are still quite volatile due to the gradual expansion of the sample of farms included in this research.

Figure 1.18. Net value added per farm, by farm specialization, in the year 2016



Source: FADN data

FARM INCOMES AND IMPORTANCE OF SUBSIDIES IN BULGARIA

General analysis of farms

For the analyzed period there is a trend of increase of average gross output (GO) of farms, even with certain fluctuations in the period 2007-2009 (Fig. 1.18).

Fig. 1.19. Average gross output size and intermediate consumption per farm

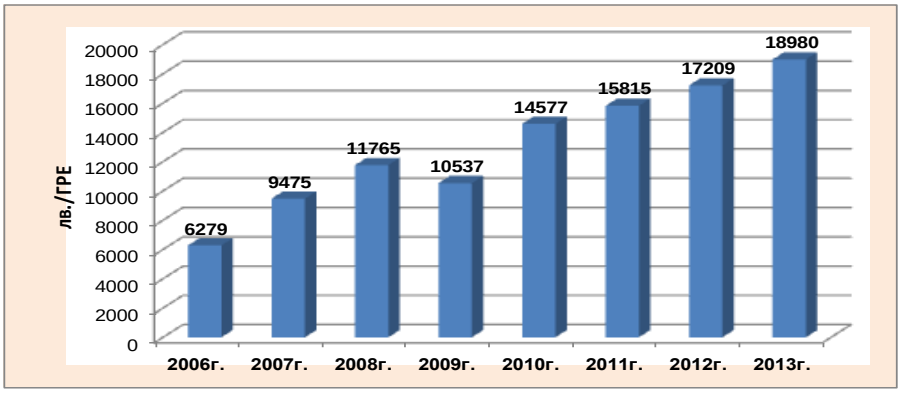
Source: MAFF, „Agro-statistics", FADN

After the important increase of the gross output for 2008, resulting from the received EU subsidies, there is a drop of this indicator level in 2009, but during the next years there is a durable trend to increase and in 2013 it reached the highest value.

The size of intermediate consumption (IM) is high and has trend to increase, which forms the high relative share in the GO structure. The results show that the relative share of the intermediate consumption in the GO in 2008 and 2009 is the highest, respectively 77% и 67%. In other years this share is within 55-62%.

The analysis of the achieved productivity, on average per farm, as one of the main indicators for the economic efficiency, has sustainable trend to increase. Exception makes 2009, due to low economic results (Fig. 1.19).

Fig. 1.20. Average productivity of farms

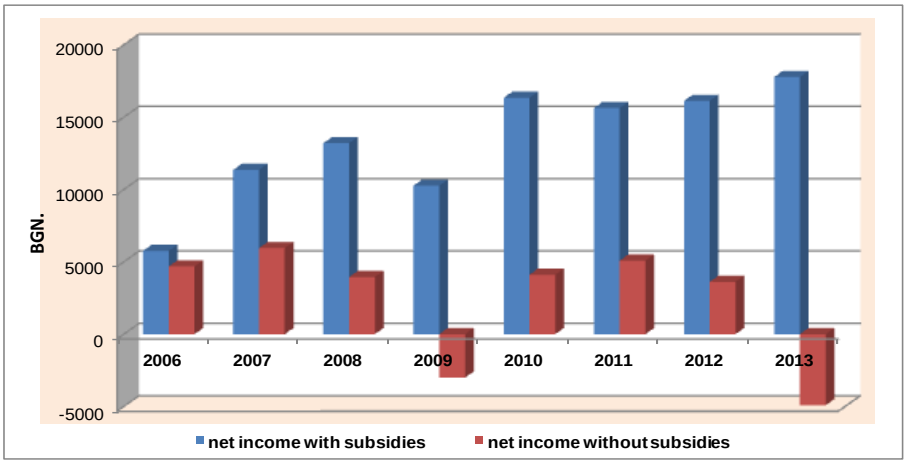


Source: MAFF, „Agro-statistics", FADN and own calculations

In 2006 the productivity is 6279 BGN/AWU and in 2013 the level of this indicator is 18980 BGN/AWU. The farms' productivity increase is due to the net added value increase, while the input labour amount is almost unchanged – about 2 AWU. The net value added respectively for the analyzed period has increased from 12,8 thousand BGN in 2006 to 19,7 thousand BGN in 2007 and has reached approximately 42 thousand BGN for 2013. The main factor for net added value increase is the subsidies' raise for the period. The productivity increase follows the growth of the net value added, as the raise of these indicators in 2013, compared to 2006 is 3 times and against 2007 – 2 times respectively.

There are serious changes of the average net income of farms in the country (Fig.1.20). Data show that for the all period after the EU accession of Bulgaria 2007-2013 the average net income per farm prevails considerably the reached amount in 2006, which is due to the obtained European subsidies. In the first year after the membership subsidies increase five times, compared to 2006 and they form a big part of the net farms income. While in 2006 the subsidies share is only 19 % of the net income, in the next years this share increases considerably: respectively for 2007 - 45%; 2008 – 70%; 2009 – 129%, because the net income without subsidies is a negative value; 2010 – 75%; 2011 – 68% и 2012 – 78 % and 2013 – 128%, because the subsidies amount is higher than the received net income. Data show convincingly that subsidies play significant role for the stabilization and the increase of agricultural producers' income.

Fig. 1.21. Farm net income



Source: MAFF, „Agro-statistics", FADN and own calculations

On the other hand, for the period 2007-2012 have been reported fluctuations of the average net income amount for the farms without clear trend. For this period the lowest income is reported in 2009 – 10,3 thousand BGN, the highest is in 2010 – 16,3 thousand BGN and in 2017 – 17,8 thousand BGN.

Despite the sustainable trend to increase of the gross output and the net value added, the considerable increase of the intermediary consumption hinders the net income increase in farms. As a result, there are fluctuations of the net income level as a resultant magnitude without clear trend to change.

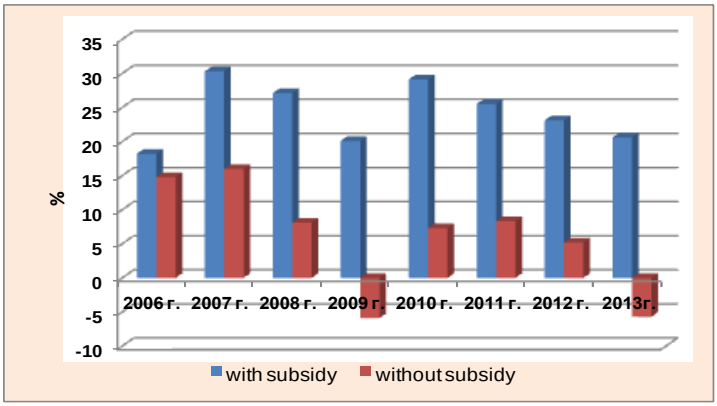
Interesting is the dynamics of average net income levels of farms without subsidies. In comparison to 2006, after the EU accession of Bulgaria, the received net income without subsidies is higher, but insignificantly, only in 2007 and 2011, in other years it if lower, in 2009 and 2013 it has even negative value. The results from the comparative analyses of the net income with and without subsidies show that subsidies compensate higher production costs.

The dynamics of the net income and the production costs reflects on the level of the profitability norm (Fig. 1.21). The comparative analysis shows that for all the period after 2007 the profitability norm with included subsidies is higher than the reached level of 2006, but has serious fluctuations. The highest profitability norm has been reached in 2007 - 30,3 % and despite the increasing amount of subsidies, this indicator's level has not been reached in the next years. Reasons should be searched in the fluctuations of the net income and the persisting trend

of increase of production costs in farms.

The considerably lower levels of the profitability norm without subsidies show that they play important role in the formation of the economic results of agricultural holdings. The results' analysis show that after the slight increase of the profitability norm in 2007, compared to the previous year, followed a decrease, even negative magnitudes in 2009 and 2013. Data show that there has not achieved increase of costs effectiveness.

Fig.1.22. Profitability norm in agricultural holdings



Source: MAFF, „Agro-statistics", FADN and own calculations

As a result of made analysis of the economic state of farms for the period 2006-2013 the following conclusions could be made:

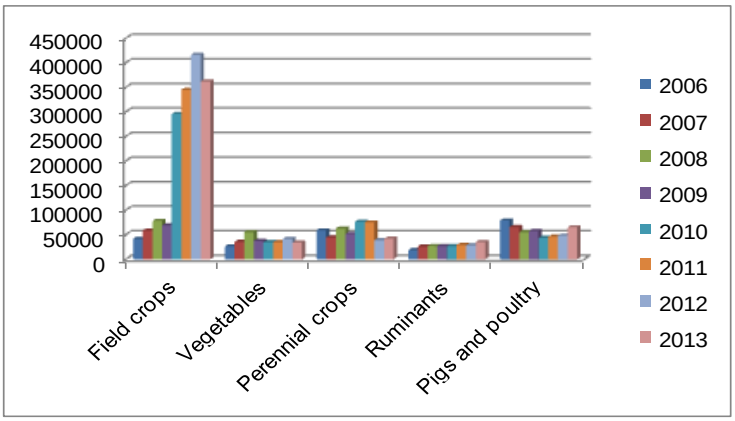
- The results of this research do not lead to unilateral ascertainment for the dynamics of farms' economic effectiveness. The main indicators – gross output, gross income, net added value, characterizing the profitability and the productivity of farms, have relatively stable trend t increase, as a result of received subsidies. The resultant economic indicators – profitability and incomes have serious fluctuations. The net income and the profitability norm without the subsidies have trend to decrease.
- The subsidies support farmers' incomes, but they do not stimulate the production efficiency increase.

Analysis per farm specialization

The gross output of farms specialized of field crops growing has clear trend of increase during the analyzed period (Fig. 1.22). After 2010 the gross output in these farms shows a sharp increase, in 2012 this jump is almost 10 times, compared to 2006. The reason for this big difference

of gross output levels is due to the fact that after 2010 in the sample found place farms with considerably bigger sized of UAA (over 2500 decares), while in the previous period the observed farms have sizes within 500-740 dka.

Fig. 1.23. Gross output per farms' specialization



Source: MAFF, „Agro-statistics", FADN and own calculations

For the vegetables the gross output amount per years is without essential fluctuations. For the analyzed period the highest value has been reached in 2008 – almost 55 thousand BGN. In 2010 and 2011 the size of the gross output dropped to 34 thousand, in 2012 has been reported a raise in comparison to the previous year, but in 2013 the decrease is under the levels of previous years.

For the perennial crops there are essential fluctuations of the gross output levels, per years. After the obtained higher values in 2010 and 2011, there is a decrease in the next years.

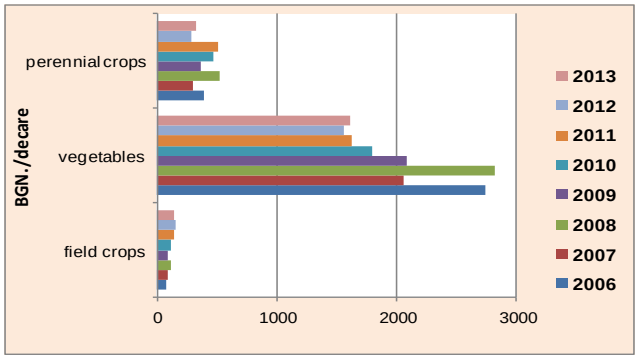
The lowest gross output amount has been realized by the farms for ruminant livestock, with a trend to insignificant increase. In farms for pigs and poultry there are fluctuations of the gross output amount, but there is a trend to decrease. After 2010 the levels of this indicator keep low values in comparison to the beginning of the analyzed period (2006).

The comparison between different farms, per their specialization, shows that the highest amount of gross output has been realized by the crop fields' farms and after 2010 this difference increased considerably. These farms realize gross output which is many times higher than the average for the country, while the other farms have much lower results than the average ones.

In order to compare the results and to eliminate the influence of the farms size the productivity of crop-growing farms was evaluated on

the base of area unit and of the livestock-breeding farms – on livestock unit (LU), Fig. 1.23.

Fig. 1.24. Crop-growing farms productivity



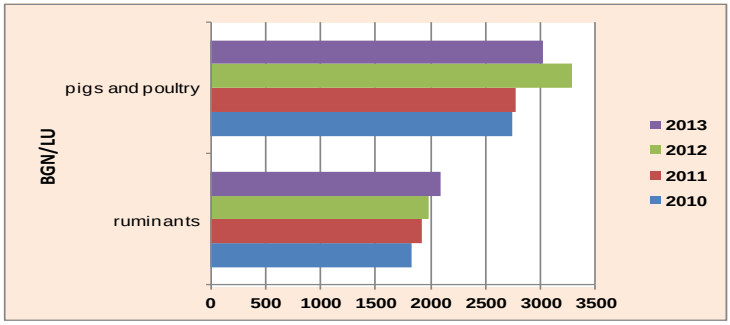
Source: MAFF, „Agro-statistics", FADN and own calculations

The comparative analysis shows that the highest productivity per area unit has reached by farms for vegetables. The productivity level is a dynamic magnitude with alternating drops and growths, but after 2008 the trend is to decrease

The perennial crops occupy the, but the second place per productivity, but the achieved results are relatively low for the intensive crops. There is not a clear trend.

The productivity of field crops is the lowest, but there is compensation by the bigger farms' sizes. The last ones show trend to increase.

Fig. 1.25. Livestock farms productivity



Source: MAFF, „Agro-statistics", FADN and own calculations

The data for the livestock farms productivity is for a shorter period (2010-2013), due to a lack of data for the average number of LU. Results show bigger productivity in farms for pigs and poultry. The

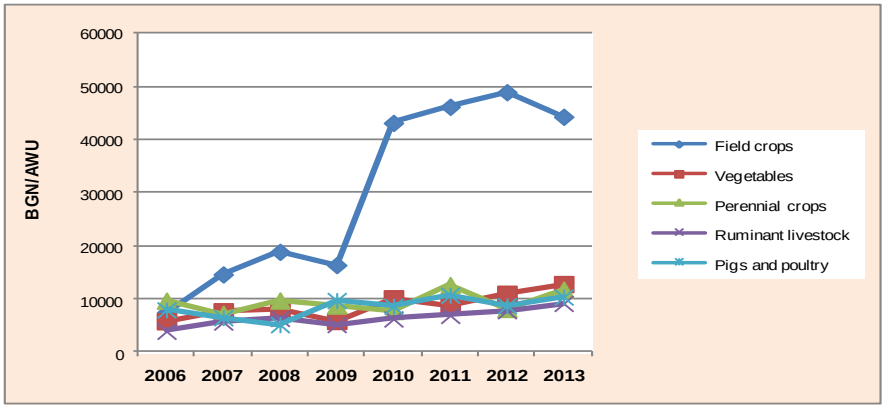
positive is that for the analyzed period for both farms groups there are trends to increasing the productivity (Fig. 1.24).

The dynamics of change of the gross output and the intermediary consumption forms the net value added levels of farms, which reflects on the reached productivity (Fig. 1.25).

Data show that in 2006 there are not big differences between the farms' productivity, per their specialization, and the values are around the average for the country. Farms for perennial crops and for pigs and poultry have reached higher productivity than farms for field crops. The lowest productivity is of farms with ruminant livestock.

In the next years occurred changes of the productivity levels, per farms' specialization. After 2007 the productivity of field crops farms has raised with faster pace and this difference increased several times after 2010, as a result of advantages of the large-scale production.

Fig. 1.26. Labour productivity according farms specialization



Source: MAFF, „Agrostatistics", FADN and own calculations

For the rest of farms the changes of the productivity are more insignificant, without essential differences between the farms, according their specialization. Despite the fluctuations, there is a trend to slight increase of productivity.

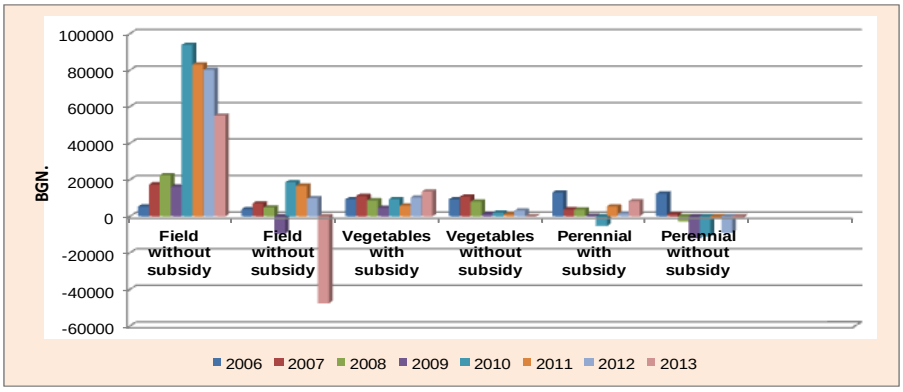
In result of indicated changes after 2007 only farms with field crops have higher productivity than the average for the country and the rest of farms – considerably lower. These results show that the trend to increase of the average productivity is due only to this indicator increase in field crops farms

None of the other groups (vegetables, perennial crops, pigs and poultry) shows a clear advantage, due to the fluctuations of productivity

levels. Nevertheless, the achieved results in the last three years for the vegetable-growing farms are relatively higher than the other two groups. The comparative analysis shows that farms with ruminant animals have the lowest productivity.

The net income as a resultant value is an important indicator for the farms effectiveness (Fig. 1.26).

Fig. 1.27. Net income of crop-growing farms



Source: MAFF, „Agrostatistics", FADN and own calculations

In 2006 the highest net income have received the farms for perennials - 13 thousand BGN and vegetables – over 9 thousand BGN, while the others have income less than the average for the country – 5,7 thousand BGN. After the EU accessing, the image changes completely – only the farms for field crops have incomes higher than the average for the country. The most dynamic are changes in the income of field crops farms, oriented to considerable increase. While in 2006 the net income of these farms is under the country average, after 2010 it exceeds a lot the received incomes in other types of farms. The total average income of farms in the country follows the net income of field crops farms, because it impacts the formation of the mentioned income.

The lowest profitability has farms with perennial crops, as in the period 2008-2010 the incomes have almost collapsed. Despite the reached in 2011 higher profitability, in the next year there is again a drop. The extremely low results show that the production is accompanied by lots of problems – bad state of crops (high share of abandoned or amortized crops areas), low share of new-created massifs. This leads to low productivity and profitability, non-corresponding with the production of intensive crops.

Farms with vegetables, pigs and poultry are characterized by

fluctuations in the level of profitability.

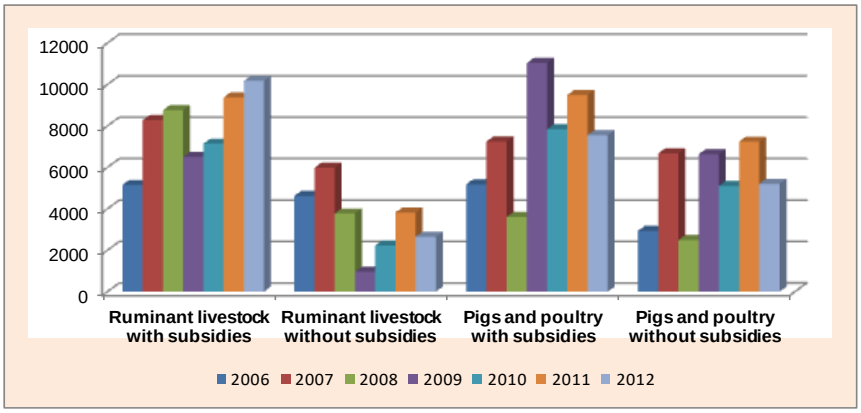
In farms with ruminant livestock there is a trend of slight increase of the net income.

For the more profound analysis, accounting the impact of the received support, the net income has been indicated with and without subsidies.

Data analysis shows that for all crop-growing farms the received subsidies support the formation of net incomes, especially after 2010, but with different intensity. Because of the better land provision, subsidies are the most significant contribution for the realization of high incomes for field crops farms. Even after 2009 the support is higher than the received net income, without the subsidies.

For farms with intensive crops, the received incomes without subsidies in the last four years are lower than in the beginning of the analyzed period. For the farms growing vegetables the subsidies lead to slight income increase. In farms with perennial crops subsidies cover the production losses.

Fig. 1.28. Net income of livestock farms



Source: MAFF, „Agrostatistics", FADN and own calculations

Due to the fluctuations of net income levels for the farms with subsidies could not be indicated which farms are more profitable – the farms, breeding ruminants or the ones with pigs and poultry. But it could be affirmed that in period 2006-2008, among the farms without subsidies, the ruminants animals farms have realized higher net income and in the next period – the farms breeding pigs and poultry. The comparative analysis of livestock farms shows that subsidies have bigger significance for the farms with ruminants (Fig. 1.27).

The dynamics of costs and net incomes in farms reflects on the output profitability.

Data show that the profitability norm is a strongly fluctuating value for all the farms, independently of their specialization. The comparative analysis shows that farms for pigs and poultry have the smallest fluctuations. It is hard to indicate the type of farm with realized lasting higher profitability norm in the analyzed period. In different years (in the period 2006-2008) relatively higher profitability norm have the farms with vegetables and ruminants. In the period after 2009 relatively better results have been achieved by the farms breeding pigs and poultry, despite the lowest support amount. In the period after 2009 relatively better results have been achieved by the farms breeding pigs and poultry, despite the lowest support amount (Fig.1.28).

Fig. 1.29. Profitability norm with subsidies, per farms specialization

Source: MAFF, „Agrostatistics", FADN and own calculations

On the other pole are the perennial crops farms, which have the lowest indicator values and in the period 2007-2012 have more increasing negative profitability norm.

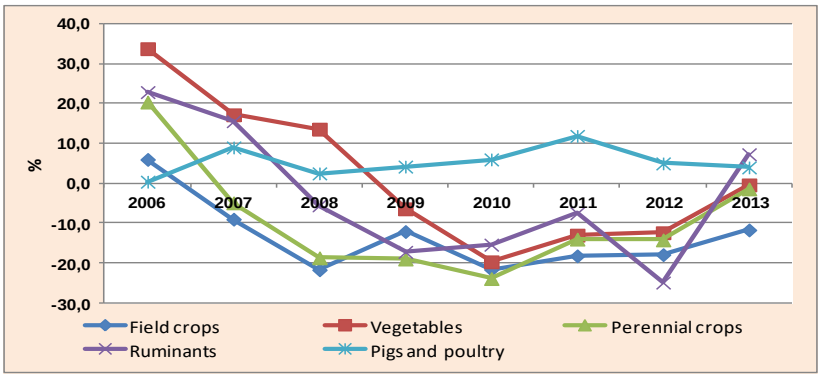
At the end of the analyzed period - 2013 for all farms there is an increase of the profitability norm and the trend to decrease of this indicator levels have been stopped.

Results show that the increasing size of the support has not been accompanied by increase of production profitability and efficiency of involved costs.

The profitability norm without subsidies provokes interest. (Fig.

1.29). The fluctuations of the indicator's level without subsidies are bigger than with subsidies. Excluding the pigs and poultry farms, in some years the profitability norm without subsidies is a negative value.

Fig. 1.30. Profitability norm without subsidies, per farms specialization



Source: MAFF, „Agrostatistics", FADN and own calculations

The smallest fluctuations show farms for pigs and poultry, which profitability norm at the end of analyzed period is higher than in the beginning. For all other farms the profitability norm is lower in 2013 than in 2006, with big differences. Due to the insufficient productivity and high level of costs, agricultural output has become less profitable.

On the base of the analysis could be made the following general conclusions:

- There is not a clear trend to farms effectiveness increase. The average size of the gross output and the labour productivity show an increasing trend, due to the considerable growth of these indicators levels in field crops farms. The indicators in other farms types are below the average for the country. Serious are the fluctuations in the resultant indicators – net income and norm of profitability;
- The realized gross output, labour productivity and net income of field crops farms exceed many times the achieved results in other farms, but the production is low profitable. This means that the reached results are due to the considerably bigger farm sizes and to the received support and not to the effective production;
- The received support leads to increase of farmers incomes, but does not help for the effectiveness growth and for the output profitability.

1.2. INVESTMENTS, INVESTMENT SUPPORT AND IMPACT ON FARM INCOMES Dan Marius Voicilaș, Dimitre Nikolov, Minka Chopeva

Investment support

The period of pre-accession to the European Union can be characterized, in terms of the support provided to farmers and to investments in particular, as a mix of contrary, hesitating, non-coherent, inconsequent and bureaucratic methods, measures and attitudes, which have determined a waste of resources from an insufficient budget for a real and sustainable development of the farming sector and rural area (Alexandri – coord., 2017). The performance of the Romanian farming sector decreased, and the allocated budgetary resources were rather wasted and used either for the social protection of subsistence household farms or to the benefit of large-sized agricultural enterprises, not being financially sustainable and implicitly not contributing to the creation of a middle class of family farms.

From the beginning, we want to mention that the investments in the Romanian agriculture were based on three main sources: national funds, structural funds and private funds, domestic or foreign.

The national funds come from the national budget and they are governed by the National Rural Development Program (NRDP). For 2007-2013, the NRDP established the rural development policies and actions, the main objectives and measures for the development of the agricultural sector. The restructuring of the sector needed significant direct investments for the endowment of farms coupled with environment protection and agricultural and forestry land management measures and measures for the development of the rural non-agricultural economic sector, meant to facilitate the employment of labour force exited from the agricultural sector, the increase of population's incomes and poverty alleviation in the rural area.

The NRDP 2014-2020 is a continuation of the previous program, to which several modifications were added. For a more detailed analysis of the implementation of NRDP 2007-2013 and of the program for the period 2014-2020, the measures and sub-measures are grouped by types of activities enabling the systematization of allocated amounts by destinations by direct economic sectors, namely:

I. Agricultural activities; II. Food industry; III. Non-agricultural activities; IV. Rural infrastructure; V. Other activities (Alexandri – coord., 2017). A finding concerning the implementation of NRDP 2007-

2013 is that, throughout the years, compared to the initial variant approved by the European bodies, several modifications were operated, to have the 16th version in October 2016. At the same time, a few modifications were also operated in NRDP 2014-2020 from the first version approved in the year 2014, and the financial exercise has not been completed yet.

For a better documentation of the rural development process, NRDP 2014–2020 financial structure is analyzed by comparison with the allocations and payments under NRDP 2007–2013. We consider that this approach modality enables a clearer identification of the rural development vision, of the priorities and implementation modality of this program.

Table 1.9. Allocation of public funds (million euro) by types of activities (NRDP 2007-2013 versus NRDP 2014-2020)

Activity	Initial allocation 2007-2013	2007-2013 allocation 16th version	Initial version-16th version difference	2014-2020* allocation	Initial version-NRDP 2014-2020 difference
I.Agricultural activities	5,814.7	5,721.1	-93.5	6,107.3	+292.6
II.Food industry	1,071.2	719.9	-351.3	546.1	-525.1
III.Non-agricultural activities	927.6	741.3	-186.3	291.1	-636.5
IV.Rural infrastructure	1,546.1	1,596.6	+50.5	1,281.4	-264.7
V.Other activities	611.2	517.6	-93.6	1,105.6	+494.4
Total general, out of which:	*9,970.8*	*9,296.5*	*-674.3*	*9,331.5*	*-639.3*
-EU budget	*8,02.5*	*8,097.2*	*+74.7*	*8,015.0*	*-7.5*
-National budget	*1,948.3*	*1,199.3*	*-749.0*	*1,316.5*	*-631.8*

*The sums broken down by types of activities from the period 2014-2020 correspond to the initial version of NRDP. For the version corrected with the COMMISSION DELEGATED REGULATION (EU) 2015/791 of April 27, 2015 (8,128 million euro), the appropriations recalculated under sub-measures are not published.

Source: Alexandri, C.-coord., 2017, Agricultura și spațiul rural – evaluări la 10 ani de la aderare [Agriculture and Rural Area – Evaluations after Ten Years of EU Membership], Ed. Academiei Române, București, România

The data from Table 1.9. highlight a series of unfavourable aspects resulting both from the diminution of total fund allocated to NRDP in the new programming period 2014-2020, i.e. only 9,331.5 million euro, as against 9,970.8 million euro in the previous programming period, mainly caused by the diminution of national contribution, from 1,948.3 million euro in the initial version of NRDP 2007-2013, to 1,316.5 in NRDP 2014-2020 provisions, i.e. by 631.8 million euro.

Both in the period 2007-2013 and in the period 2014-2020, up to the present moment, a series of problems emerged related to administration, governance, both bureaucratic, institutional and implementation problems. At the same time, a series of characteristics of the first NRDP implementation were identified, as against the current programming period. On this basis, we hope that decision makers will be able to operate the necessary corrections in due time, so the attraction of funds by Romania should not be blocked, delayed or to come to the situation of not covering all the funds available through eligible and funded projects.

In the next paragraphs we shall try to exemplify some inconsistencies found and to present certain characteristics, for both periods considered. For instance, in the period 2007-2013, if we refer to the measures targeting investments in which we are interested in this subchapter, we can notice that in the case of investments for agriculture modernization (Measure 121), the distribution of the total number of approved projects has an obvious regional bias (Alexandri-coord., 2017). The investments in new agricultural machinery and equipment have not been closely followed by investments made to add value to agricultural products. The regional distribution of the total number of projects approved under Measure 123 "Adding value to agricultural and forestry products" indicates that only a few regions from Romania benefited predominantly from structural funds, which has contributed to maintaining or deepening the regional gaps and hence to not reaching the objectives of cohesion and regional convergence policy. At the same time, one of the measures with high territorial relevance, with direct and long-term impact on agriculture and forestry development was Measure 125 "Improving and developing infrastructure related to the development and adaptation of agriculture and forestry". The distribution of approved projects by regions, closely followed by the public value allocated to these, reveals significant regional differences. The expression of the

difference between Nord-Vest and Vest regions, in terms of public allocation, for instance, reveals a double total public value allocated to projects from the region Vest, while the needs for the modernization and development of agricultural infrastructure are comparable. On the other hand, the comparison between Nord-Est and Nord-Vest regions reveals a difference from simple to double with no similar correspondence or synchronization in terms of needs for investments in agricultural and/or forestry infrastructure. The distribution of the use of public support for this measure can be explained exclusively in terms of training and mobilization for the use of specific investments in infrastructure (Alexandri-coord., 2017). Regarding the specific investment measures, the placement of Sud-Vest region on the third position as number of approved projects and on the second position as volume of public allocations for projects is totally inconsistent with the level of investments in modernization and in adding value to agricultural products.

A detailed analysis of financial instruments co-financed through the European Agricultural Fund for Rural Development highlights certain characteristics that may be useful in the future for the correlation of the actions of institutions, beneficiaries' information and implementation of investment projects. The instruments used are forms of development, modernization or implementation of new investment ideas. All these forms are ways of economic growth necessary for the recovery of the Romanian agri-food sector. Through them, a wide range of development objectives can be supported for an extended segment of beneficiaries, and the allocated funds have potential for re-utilization for other investments.

In conclusion, we can say that the support allocated through the Common Agricultural Policy (under Pillar I – direct payments and Pillar II - investments) and the financial instruments implemented to facilitate the beneficiaries' access to NRDP projects, as well as the experience acquired by farmers in the last years, in the collaboration with the credit institutions, contributed to the increase of funding in this area and to the increase of demand for different financial products (Alexandri-coord., 2017).

Domestic investments

A specific problem of the Romanian agricultural sector is the low capitalization in agriculture. Romania is on the penultimate place in the

European Union in terms of farm capitalization[1]. The analysis of net investment indices in agriculture, forestry/hunting and fisheries (Table 1.16) reveals a revigoration of investment activities in the last years, either under the impact of investments from own sources or under the impact of projects that used EU funds. This involved investments in construction works, or investments in the purchase of machinery and means of transport, or under the form of investments in the creation of new assets, or for the development, modernization or reconstruction of the existing ones.

Table 1.10. **Net investment indices (base year=previous year)**

Item	**2007[1]**	**2008[2]**	**2009**	**2010**	**2011[3]**	**2012**	**2013**	**2014**	**2015**
Agriculture, forestry/hunting, fisheries	20.4	-	8.5	7.1	17.5	8.5	26.27	03.14	21.46

Source: own processing based on Voicilaş, D.M., Gavrilescu, C., 2017, Un Deceniu de Transformări în Economia Agroalimentară a României sub Impactul Aderării la Uniunea Europeană, in "Economic growth in conditions of globalization", Ed. INCE, Academia de Ştiinţe a Moldovei, Chişinău, Rep.Moldova (based on NIS, Tempo on-line data)

Note: - = missing data; 1=agriculture, hunting; year 2000=base year; 2=agriculture, forestry, fisheries; year 2000=base year; 3=revised data

The positive evolution of net investments in agriculture is directly related to Romania's accession to the EU and it is the effect of the utilization of structural (and pre-accession funds) by the farmers who benefited from these. After many years when agriculture was denied access to financing sources, the EU membership and the access to EU funding have had beneficial effects that contributed to this sector development, compared to the 1990s.

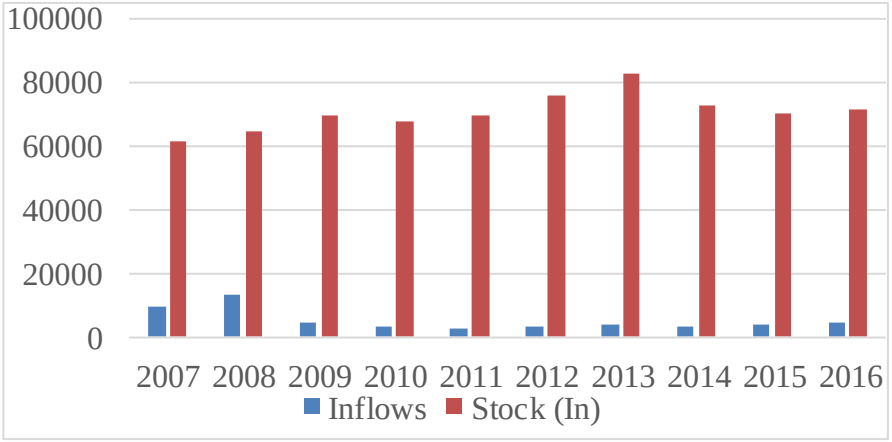
Foreign direct investments

In Romania, in the post-accession period, the pace of investments has fluctuated, mainly under the influence of external factors. Thus, in the first years of EU membership (2007-2008), the investments inflows in

[1] According to Price-Waterhouse Coopers Romania analyses, published in the year 2017, quoted by news.ro

Romania were high, reaching a historic maximum that had not been reached before (Figure 1.30); afterwards, with the onset of the international economic and financial crisis, the investment activity was reduced. This shows that Romania was no longer considered as attractive by foreign investors, among the factors of influence, besides those previously mentioned, being the internal political factors, the political, institutional and legislative instability. One particularity is that the investment activity in Romania has been affected since 2009, i.e. one year after the onset of the global crisis, which raises many questions about the real causes of this diminution of investment activity, i.e. whether these delayed effects are caused by the fact that national economy has not been fully connected to the international flows.

Figure 1.31. Evolution of FDI stock and inflows in Romania, in the post-accession period (billion USD)



Source: own processing based on Voicilaş, D.M., 2017, Potenţial şi performanţe investiţionale în regiunile economice de dezvoltare ale României, in "Economie Agroalimentară şi Dezvoltare Rurală într-o Perspectivă Regională", Ed. Academiei Române, Bucureşti, România (based on UNCTAD data)

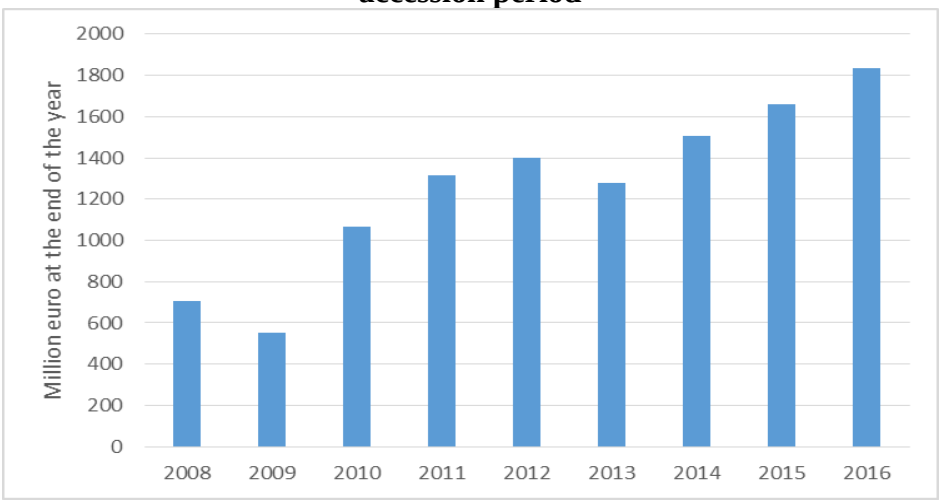
The revigoration of the investment activity at the level of the first two years of EU membership has not been produced yet. The latest UNCTAD data reveal that the year 2016 might be considered a relaunch year, yet not at the same level as ten years ago.

As regards agriculture, we must specify that a 2009 report of the Romanian Commercial Bank estimated that "Romania's agriculture could become a priority for foreign investors", its main assets being the low

farmland prices and the large arable areas with top quality soil (Alexandri-coord., 2017). The press reports on the agricultural land market have revealed the orientation of some real estate agencies towards the agricultural land business, as well as the purchase of agricultural land by the great agri-food companies and even by investment funds.

The official research on foreign direct investments (FDI), conducted each year by the National Institute of Statistics in collaboration with the National Bank of Romania, shows that FDI balance in "agriculture, forestry and fisheries" on December 31, 2008[2] was 707 million euro, i.e. 1.4% of total FDI in the Romanian economy. By the year 2014, the FDI balance was already double, to reach 1836 million euro by the end of 2016, which represented 2.6% of total FDI in Romania (Figure 1.30 and 1.31).

Figure 1.32. FDI stock in agriculture, in Romania, in the post-accession period



Source: Alexandri, C.-coord., 2017, Agricultura și spațiul rural – evaluări la 10 ani de la aderare, Ed. Academiei Române, București

[2] For the year 2007, the data published in *World Investment Report 2009* (UNCTAD) show that the share of agriculture in FDI stock in Romania in the year 2007 was under 1%, representing 412 million USD, a level close to that of Poland (446 million USD) and of Hungary (493 million USD).

The FDI stock is a result of the annual inflow of investments with foreign origin, also the withdraw of investments during the year.

We would like to specify that other countries from Central and South-Eastern Europe had a similar evolution to that of Romania in terms of attracting foreign direct investments in agriculture. This happened as a result of the non-attractiveness of agriculture in general. Investors, regardless of the country where they invest, want a quick recovery of their capital, while agriculture, by its nature, does not offer this opportunity, compared to other sectors of the economy.

The level of FDI in agriculture is lower than in other sectors of the economy. This situation, similar to that in other New Member States, can be explained by the specificity of this branch, with high risk of investments, dependency on weather conditions, the low rotation speed of capital and consequently, the very slow recovery of the investment. The only advantage for investors that we identified is the quality of land and this is the main reason why they invest in Romanian agriculture.

Conclusions

In addition to the conclusions outlined above in this subchapter, we can also draw a few conclusions that seemed to us of greater importance in relation to the subject under consideration.

At the time of joining the EU, Romania's agri-food sector was uncompetitive and had an unbalanced structure, in general. We can mention in this respect the agricultural output value, in favour of crop production, or the degree of processing of primary products, of vegetal or animal origin, resulting in exports of raw products and imports of processed products. When it comes to the international trade with agri-food products, it should be noted that the value of exports accounted for only 35% of the value of imports, resulting in a trade deficit of 2 billion euro (Alexandri-coord, 2017).

The pre- and post-accession development programs and the investments of Romanian and foreign capital enabled a significant increase in the volume, efficiency and quality of agricultural and food products, as well as the free access on the Single Market; as a result, in the ten years of EU membership, the value of exports increased 7.2 times. The much slower growth of imports (only 2.8 times) resulted in the significant diminution of the agri-food trade deficit and even in obtaining a surplus (2013-2014).

At the same time, investments in general, regardless of their source, have contributed to the increase of the quality of life, mainly in the predominantly urban regions and not only. Although overall

Romania's accession to the EU meant the increase of economic convergence (the share of GDP/capita in Romania reaching 55% of the EU average by the year 2014 compared to 39% in the year before the accession), increasing divergent evolutions were noticed by the three categories of regions (predominantly urban, intermediate, predominantly rural) after the accession to the EU (Alexandri-coord, 2017). Thus, the predominantly urban regions seem to be net beneficiaries of integration into the EU structures, attracting investments (in the tertiary sector, in particular) that entailed a significant economic growth, while the economies of the predominantly rural regions have the slowest recovery rates of economic gaps compared to the EU average. The recovery was slow even though investments in agriculture, mainly foreign investments, have increased in recent years. Which made the difference in terms of the economic trajectories of the categories of regions is the ability of regions to reconfigure their structures of local economies and to get them oriented towards the best performing economic sectors.

At the end of our analysis we can conclude that in the post-accession period, the main factors that had a negative effect on attracting investors in general and foreign investors in particular, both in Romania's economy and in agriculture, were again the political factors, the same as in the pre-accession period; the international conjuncture also added to these. At the same time, we cannot overlook the main factor with positive effect on attracting investors, both domestic and foreign investors, in Romania's economy and agricultural sector, namely the accession to the EU, permanent interaction existing between the two categories of factors, which also determined and defined the present profile of Romania, in terms of investments, i.e. a country that is not attractive for investments by comparison with other countries from the region, with poor potential and performance in general, even though there were years that contradicted this situation in reality. Unfortunately, the inter-country or inter-regional gaps, manifested even since the 1990s, have been maintained.

It is obvious that politics has always been closely and directly related to the economy. Like in the case of other countries from the region, the political decisions have had negative or positive effects on the economic climate and the quality of life, depending on the direction chosen. Romania's case, as well as the case of other countries like Croatia, Serbia, Moldova, Hungary in the recent years or Ukraine, are negative examples of the disastrous effects that inadequate policies of governments may have upon many generations. On the other hand, as

good practice examples, one can mention the policies promoted in countries like Poland or the Czech Republic, countries that were many times taken into consideration in our comparative analyses. These are only part of the reasons why the gaps created between the former socialist countries will be difficult to recover in the near future.

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INVESTMENTS, INVESTMENT POLICY AND THEIR IMPACT ON FARM INCOMES IN BULGARIA

Investment aid usually covers a part of the total costs needed to implement programs with different duration (one-time, short, medium or long-term), related to investment activity in an agricultural holding (Dwyer, 2005). Investment subsidies are often linked to the criteria that are subject to the requirements of environmental protection and sustainable development of agriculture. As a result of the investments made, productivity is expected to improve in agriculture as a whole and, in particular, in individual farmers. (Dwyer, 2005).

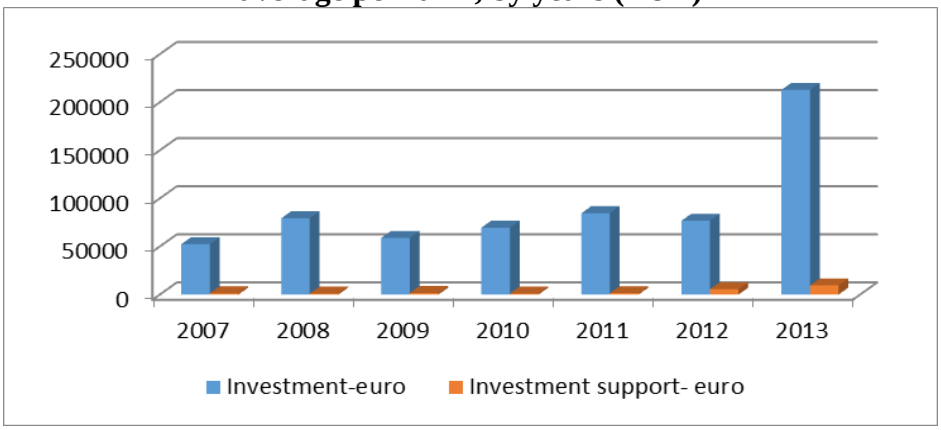
In Europe, support for investment in agricultural holdings has been a priority since the Treaty of Rome in 1957. One of the objectives of this contract is to increase the productivity of agricultural production by supporting technical progress and increasing labor productivity. In 1972, the Mansholt plan led to the elaboration of European directive on the modernization of agricultural holdings. Then, EU Directives 2328/91 and 950/97 have subsequently been introduced to improve the efficiency and competitiveness of agricultural production and to maintain European presence on the world market. Since 2000 the support for farms modernization is included in the second pillar of the Common Agricultural Policy. Member States may include investment support for

farms under Axis 1 of their rural development plans for the implementation of Regulations 1257/1999 and 1698/2005. The most direct expression of the investment support policy for farmers in the light of the CAP in the period 2007-2013. were the following measures: Measure 121 for the modernization of agricultural holdings; Measure 112 for the establishment of young farmers and support for investments related to the diversification of non-agricultural activities (Measure 311). The various types of supported investment can be categorized into five groups: structural investments (Measure 121), investments that improve the quality of the environment (or reduce negative external factors) (Measure 121), investments that improve the welfare of the animals (Measure 121), investments that stimulate diversification (Measure 121 or 311), investments related to the assumption of the cost of setting up farms by young farmers (measure 112). Diversified investments are all types of investments that lead to the formation of farm income from non-agricultural farming activities (measure 121) or non-agricultural activities (measure 311). Environmental investments consist of investments that reduce environmental risks, such as techniques for reducing emissions in livestock buildings and the spreading of manure, techniques for reducing energy consumption, fertilizing and using water. Investments in animal welfare imply the provision of alternative animal housing systems and residence conditions.

Analysis of investments and investment support of farms in the period 2007-2013

Over the different years of the past programming period, most of the farmers did not receive investment support. For Bulgaria this is the first stage of its membership in the EU and the lack of experience and traditions in this respect have negatively affected the process of investment subsidy under the CAP and RDP measures (2007-2013). The relative share of farms that did not have investment support in the first programming period amounted to an impressive figure of 97.1%. Even in 2013, which is experiencing some decline, this share remains extremely high - 94.9%. Obviously, a large part of the farms has not benefited from the possibilities of previous investment measures to provide financial support for their investment activity (Figure 1.32).

Fig. 1.33. Value of investments made and of investment support, on average per farm, by years (EUR)



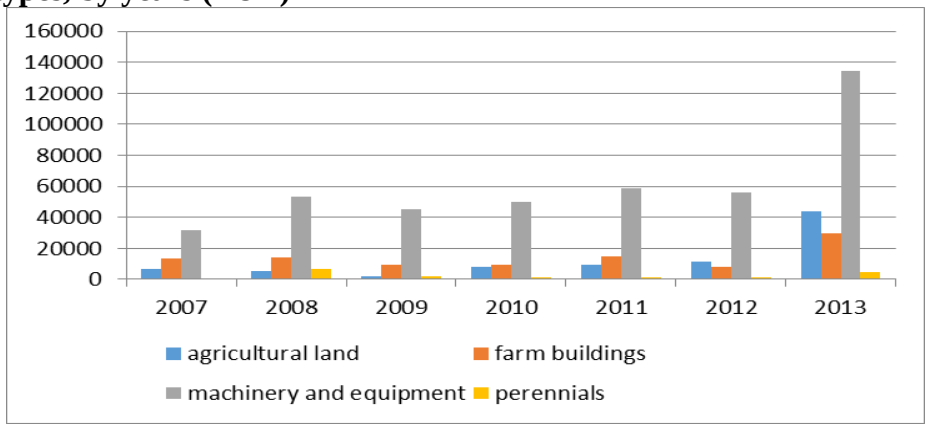
Source: Own calculations with data of FADN

The value of the total investments made in 2007-2013 on average, per farm, increased more than 4 times (4.1 times) (from EUR 52369 in 2007 to EUR 212791 in 2013) The average amount of investment support for an agricultural holding is considerably higher - 7.2 times. Despite the positive trend observed in the development of the investment activity and respectively the investment support received, a large number of farmers did not carry out any investment activity and those who have realized their investment intentions, have relied to a very small extent on the investment support measures during the period 2007-2013.

Farms that have hardly benefited from investment support are relatively small, with an economic size of between 2000 and 8000 EUR and medium-sized, respectively with an economic size of 8000 to 15000 EUR. For the whole period, on average an agricultural holding has made investments amounting to 33 250 BGN. The largest investment activity and investment support are the large agricultural holdings with an economic amount over 15000 EUR, the average value of their investments for the whole period amounts to BGN 981 377.

The importance of different types of investments for farmers can be seen in Figure 1.33 and Figure 1.34.

Fig.1.34. Dynamics of change of investments costs value, per farm, by types, by years (EUR)



Source: Own calculations with data of FADN

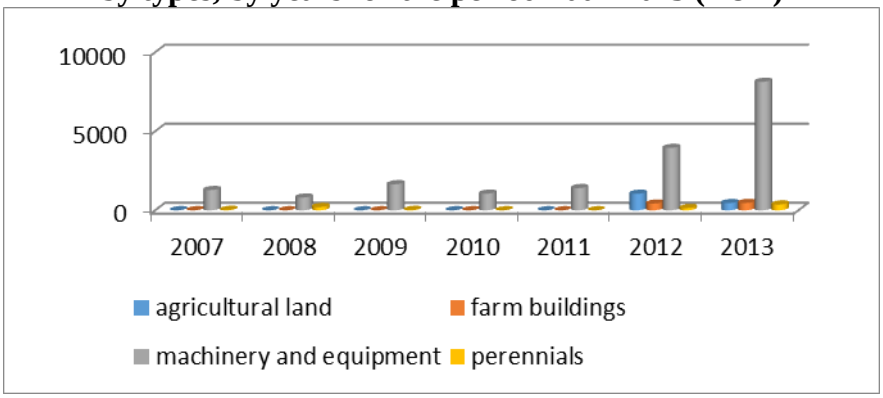
The analysis of the data shows that investments in machinery and equipment are with priority among the agricultural holdings. They occupy the highest relative share in each year of the surveyed period. In this respect, the dominance of this type of investment compared to other types of investments is growing. Obviously, the awareness from the farmers of the need of this type of investments is related to the direct positive impact on their production and economic performance, resulting from the introduction of new, high-productive agricultural machinery and equipment. The immediate and faster effect of innovation in the field of technical production infrastructure is crucial for farmers' preferences for this type of investment. During the current programming period, farmers' attitudes continue to be most closely related to investment in machinery and equipment - 65.6% of all planned investments in 2014-2020 are expected to be in machines. The data are from a survey conducted among 295 farmers across the country in 2016, during the development of a scientific project "Influence of investment support on the viability of agricultural holdings" by a team of IAE, led by Prof. D .Nikolov.

The growing importance of the main natural and indispensable resource in agriculture, namely the land resource, is impressive. Although there are some fluctuations in investments in agricultural land in the years, there is in generally a tendency to increase and this is the second most important type of investment by farmers. Investments in commercial buildings are quite variable.

There is a definite relationship between investment costs by types, and European and national support for them. (figure 3) The most

significant in this regard is the growth of investment subsidies in agricultural land, which in 2012 accounts for almost 1/5 in the structure of total investment support. This result is in line with the trend of increasing interest of farmers towards this production resource. Relatively, however, their share declines to 5% in 2013. This shows that farmers do not rely solely on investment support for the purchase of agricultural land.

Fig. 1.35. Dynamics of change of investment support value per farm, by types, by years for the period 2007-2013 (EUR)



Source: Own calculations with data of FADN

In practice, subsidies in machinery and equipment predominate over the whole of the survey period, which corresponds to the results for the investment costs showing the dominant role of these investments compared to the other types of investments. For some years (2010, 2011) the investment support is only in this type of investment and almost 100% in 2007 and 2009. These results are a projection of the high activity of the farmers in the past programming period to Measure 121 of the RDP for the farms modernization. The implementation of this measure was related to the preferences of the applicants to investments in agricultural machinery and equipment. Regarding the investment support in perennial crops, it can be said that except in 2008, it was quite symbolic during the other years (2% in the overall structure of investment subsidies).

From the made analysis of the investment support and the corresponding investment activity, on average per agricultural holding during the period 2007-2013, the following conclusions can be drawn:

- There are a large number of farmers who have not received investment subsidies during the years of the survey period;

- There is a positive trend of increase in absolute value of the investment support and of investment costs, on average per farm;
- The rate of increase of investment subsidies exceeds the rate of increase in investment costs;
- The relative share of investment support in the total value of the investments made is slightly increasing, but overall it remains very low;
- The economic size differentiates to a large extent the farms in terms of investment subsidies received and investment costs incurred. Small and medium-sized farms have not received any investment support at all. Investment aid is concentrated on the largest agricultural holdings with more than 15,000 EUR standard output;
- Investments and investment support in machinery and equipment is of priority importance over the entire period;
- Investments and investment subsidies in agricultural land are increasingly important for farmers, as opposed to investments in farm buildings.

The results obtained and the conclusions drawn serve as a starting point for the study of the effect of investment support on farm incomes.

Quantitative assessment of the impact of investment and investment support on farmers' incomes

In order to elaborate a quantitative assessment of the impact of investment support as one of the measures in the Rural Development Program 2007-2013 in the period 2007-2013, the econometric approach was applied to the incomes of the agricultural holdings. The econometric analysis is based on the following general appearance of the model (Buysse J., Verspecht A. and Van Huylenbroeck G. (2011):

(1) $Ynt = \alpha + \beta_1 inv_{(2007-2013)} + \beta_2 sn_{(2007-2013)} + \varepsilon nt$

where:

The dependent variable Ynt represents the following two economic indicators: "total output" and "net income of agricultural holdings". Accordingly, the two different dependent variables evaluate two different econometric models.

"n" is the farm index,

"t" is the index of the year,

$inv_{(2007-2013)}$ is the amount of investment in agricultural holdings during the period 2007-2013,

$sn_{(2007-2013)}$ is the amount of investment support for n-th farm in the period 2007-2013,

α - free member,
β_1 и β_2 are the calculated investment impact coefficients of investments and investment support on the dependent variable Уnt .

A particular feature of the model(s) is that it includes two independent variables, respectively the amount of investment made and the investment support received over the entire period. It should be noted that the independent variables in the original version of the econometric model refer to each year of the analyzed period. Due to the small number of farms that have received investment subsidies in different years, the impact of investment support on their income is insignificant from a statistical point of view. Therefore, the investment costs represent the total amount of investments made during the whole period 2007-2013, instead of dealing separately for each year. The same applies to the investment support factor.

For the construction of the econometric model (s), generated data from the FADN covering the 2007-2013 period were used. The database includes both the value of the investments made and the part of the investment subsidies received at farm level. The logic of the study requires primary baseline data to be transformed into so-called parallel data. This means that the survey sample includes those farms that were surveyed during each of the years 2007-2013. The sample thus obtained includes 572 farms.

In view of the existing disparities in relation to investment activity and support received from different groups of agricultural holdings, according to their economic size, the survey was conducted separately for the following two groups of holdings: with an economic size of 2000 to 8000 EUR (2nd and 3rd grade) and for farms over EUR 15000 (larger than 4th grade). In the 2nd and 3rd class farms, only the "value of investments" factor is included in the models, due to the fact that they have almost not received investment support.

Analysis of the effect of investments made and investment support in 2007-2013. (ex-post) on the income of all farms

This analysis is carried out in accordance with the methodology described above. The sequential procedure for constructing econometric models is as follows:

The dependent variable ($Y_{gross\ output}$) represents the value of the gross output in 2013.

- The following two indicators are used as independent variables influencing the gross output:
- I.V. (2007-2013) - investments value in the whole period 2007-2013 (EUR);
- I.S. (2007-2013) – value of investment support in the whole period 2007-2013 (EUR);

The obtained results of the regression analysis carried out are shown in Table 1.11 and Table 1.12.

Table 1.11. Model Summary with dependent variable "gross output"

Model	R	R2	Durbin-Watson	F- Fisher	Sig. (α)
1	0,709	0,503	1,999	287,730	0,000

Source: SPSS with FADN data

Table 1.12 Coefficients in the regression model with a dependent variable "gross output"

Model	Predictors	Coefficients	Std. Error	t	Sig. (α)	Confidence interval	
						Lower limit	Upper limit
1	Constant	266613	71137	3,748	0,000	126889	406337
	β1	0,742	0,035	21,098	0,000	0,673	0,811
	β2	1,190	0,672	1,771	0,037	-0,130	2,510

Source: SPSS with FADN data

The analysis of the data in the last two tables shows the existence of a statistically significant conditionality of the generated gross output in 2013, both from the investments made and the investment support received during the whole researched period. The built-in regression model is adequate (high F-value according to Fisher's criterion, level of significance equal to zero). It is clear from the calculated correlation coefficient (0.709) that this dependence is strong. According to the obtained regression coefficients, with an average increase of EUR 1,000 in investments during the period 2007-2013, the average increase in gross production in 2012 is 742 euros. Similarly, with an increase in investment support of 1,000 EUR over the same period, the value of gross output increased by 1190 EUR. Conclusions have a 95% probability of probability that corresponds to confidence intervals.

Dependent variable ($Y_{net\ income}$) is the net income generated in the farms in 2013.

Independent variables are the same as in the previous case. Therefore, they are not described again, but the results obtained are presented directly in Tables 1.13 and 1.14.

Table 1.13. Model Summary with dependent variable "net income"

Model	R	R2	Durbin-Watson	F- Fisher	Sig. (α)
2	0,414	0,168	2,053	58,855	0,000

Source: SPSS with FADN data

Table 1.14. Coefficients in the regression model with a dependent variable "net income"

Model	Predictors	Coefficients	Std. Error	t	Sig. (α)	Confidence interval	
						Lower limit	Upper limit
2	Constant	53842	16370	3,289	0,001	21688	85997
	β1	0,070	0,008	8,608	0,000	0,054	0,086
	β2	0,386	0,155	2,498	0,013	0,083	0,690

Source: SPSS with FADN data

The regression model, in this case also, is statistically significant for both investigated factors. The comparative analysis of both models (gross output and net income) shows some similarities and differences between them. Here again, there is a positive effect of investment and investment support on the generated net income. Unlike the strong correlation dependence on gross output, the relationship between the amount of net income in 2013 on the one hand, and on the other hand the investment and investment support throughout the whole period is moderate. The economic interpretation of the regression coefficients is that, on average, any increase in investment by EUR 1,000 was followed by a corresponding increase in net income of EUR 70. Also, the net income amount has an average growth of 386 EUR with an increase in investment support of 1,000 EUR.

From the analysis of the results obtained on the influence of the investment value and the investment support throughout the previous programming period on the economic performance of the agricultural holdings, the following conclusions can be drawn:

- The investments made and the investment support received during the whole period 2007-2013 have statistically significant impact on the generation of the two economic indicators in the farms in 2013: gross output and net income.
- Obviously, the desired impact of investment support can only be established on condition that the total amount of investment subsidies received is taken into account for the whole period rather than by separate years.
- The extent of the established statistical link is strong in the generation of gross output and moderate in the formation of net income.
- Despite the differences noted, the direction of influence of the investment amount and of the investment support is positive in the generation of both economic indicators.
- On the level of the economic outcomes impact more the investment subsidies received, compared to the investments made in the period 2007-2013.

Functional dependence of the incomes of farms with different economic size on the investments made and the investment support in 2007-2013.

This section quantifies the impact of the investments made and of the investment support received on the economic performance of agricultural holdings of different economic size. The specified two groups are in line with the typology of agricultural holdings adopted by Eurostat. As dependent variables, the same two economic indicators remain: gross output and net income. For short, the regression models in both two groups of farms are numbered as follows: Model 1 (GR.O.) - describes the relationship between gross output and investments made; Model 2 (N.I.) - describes the relationship between net income and investment.

Agricultural holdings of the 2nd and 3rd class

This group includes farms with an economic size between 2000 and 8000 EUR. Due to the fact that the small farms have received almost no investment subsidies in the last programming period, the independent variables are reduced to only one factor - the total value of the investments made during the whole period 2007-2013, marked with I.V. (2007-2013). As dependent variables, the same two economic indicators

remain: gross output and net income. The results obtained are shown in Tables 1.15 and 1.16.

Table 1.15. Model Summary for farms of the 2nd and 3rd economic class

Models	R	R2	Durbin-Watson	F- Fisher	Sig. (α)
1 (GR.O.**)**	0,148	0,022	2,157	2,004	0,160
2 (N.I.)	0,889	0,791	2,174	340,142	0,000

Source: SPSS with FADN data

Table 1.16. Coefficients in the regression models for farms of the 2nd and 3rd economic class

Models	Predictors	Coefficients	Std. Error	t	Sig. (α)	Confidence interval	
						Lower limit	Upper limit
1(GR.O)	Constant	15941	2466,004	6,464	0,000	11041	20840
	β1	0,026	0,018	1,415	0,160	0,010	0,062
2(N.I.)	Constant	1539	826,408	6,561	0,000	786	3780
	β1	0,019	0,006	-18,443	0,000	0,005	0,042

Source: SPSS with FADN data

The analysis of the data shows that only the second model is adequate, with statistically significant regression coefficients. There is a very close dependence on the level of the generated in 2013 net income from investments made throughout the period (correlation coefficient of 0.889). The power of this model is evidenced by the very high empirical value of the F-criterion. The conclusion is that with an average increase of investment costs in farms during the period 2007-2013 with EUR 1,000, the net income level has increased by EUR 19.

Farms larger than 3rd economy class

This group covers medium and large farms with an economic class above 8000 EUR standard production. The results obtained are contained in Tables 1.17 and 1.18.

Table 1.17. Model Summary for farms larger than 3rd economic class

Models	R	R2	Durbin-Watson	F- Fisher	Sig. (α)
1 (GR.O.**)**	0,700	0,490	2,002	229,550	0,000
2 (N.I.)	0,401	0,161	2,051	45,802	0,000

Source: SPSS with FADN data

Table 1.18. Coefficients in the regression models for farms larger than 3rd economic class

Models	Predictors	Coefficients	Std. Error	t	Sig. (α)	Confidence interval	
						Lower limit	Upper limit
1(GR.O)	Constant	329066	85814,5	3,835	0,000	160445	497687
	β1	0,733	0,039	18,943	0,000	0,657	0,809
	β2	1,150	0,732	1,571	0,039	-0,289	2,588
2(N.I.)	Constant	66213	19761,9	3,351	0,001	27382	105045
	β1	0,068	0,009	7,623	0,000	0,050	0,085
	β2	0,378	0,169	2,243	0,025	0,047	0,709

Source: SPSS with FADN data

The analysis of the data for the last group of farms shows that for them and for the three economic variables the regression models are statistically significant, involving both the variable "investment value" in 2007-2013 and the variable "investment support received" in 2007 -2013. The correlation between gross output and total costs and factors studied is strong (correlation coefficients equal to 0, 700 and 0.684 respectively) and moderate net income (correlation coefficient = 0.401).

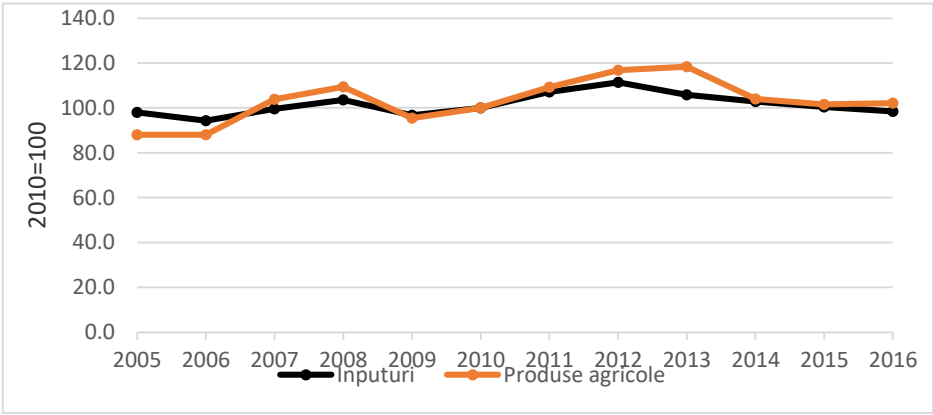
The economic interpretation of the regression coefficients gives grounds to conclude that, with an average increase of EUR 1,000 in the investments made during the previous programming period, the average increase of the gross output in 2013 per farm in this group is by 733 EUR and of the net income - by 68 EUR. At EUR 1,000 average increase of the investment subsidies received for the whole 2007-2013 period corresponds an average increase in gross production in 2013 amounting to 1150 EUR and of net income by 378 EUR. It is clear that both factors have had a positive impact on the economic situation of farms.

It can be concluded that only in the group of large agricultural holdings the impact of the investment support received on their economic outcomes is directly determined. The effect of investment support is greater than the degree of impact of the investments made. For small farms, the effect of investment support is elusive and only the impact of the investments made on their economic indicators has been established.

1.3. EVOLUTION OF THE AGRICULTURAL, INPUT AND FOOD PRICES IN ROMANIA Cecilia Alexandri

In Romania, the agricultural price indices surpassed, yet not significantly, the input price indices in most years from the period 2005-2016 (Figure 1.34). The highest increases of agricultural prices took place in 2008 and 2013, under the background of weather conditions that generated major disequilibria on the world and European markets.

Figure 1.36. Real price indices for agricultural products and agricultural inputs (2010=100)

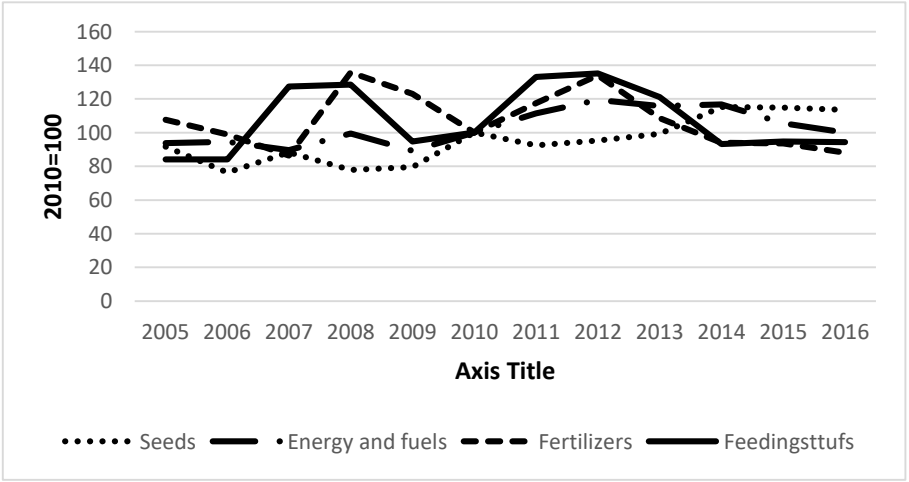


Source: author's processing of Eurostat data

The prices of specific inputs had a differentiated evolution, and it is worth mentioning that the highest price increases were in feedstuffs (+29% in 2008 and +35% in 2012, as against 2010) and chemical fertilizers (+35% in 2008 and +34% in 2012, as against 2010). Price indices for seeds and energy slowly but constantly increased in the investigated period (Figure 1.35). In the structure of intermediary consumptions of agriculture, feedstuffs have the highest share (28-30%), followed by energy (18-20%) and other products and services (20%).

Even though overall the agricultural price indices surpassed the price indices for the products and services consumed by agriculture, for certain specific activities, such as animal husbandry, the (feed) input prices increased very much, adversely impacting the competitiveness of final products.

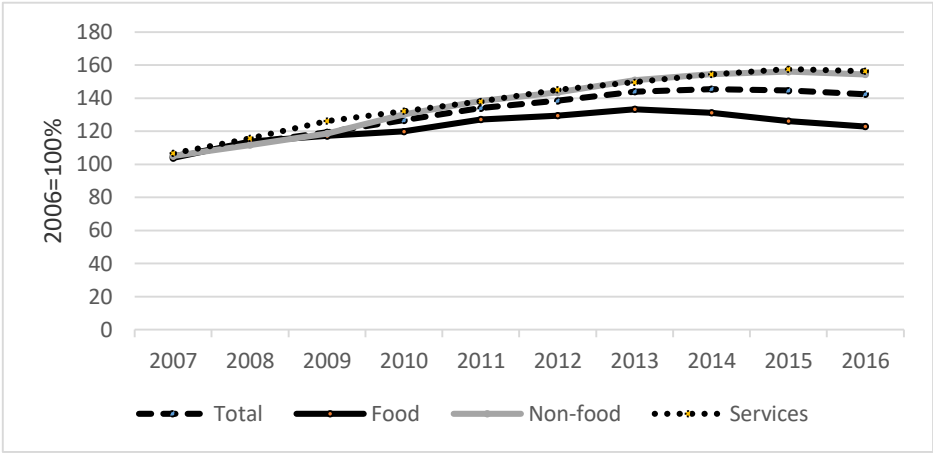
Figure 1.37. Real price indices for the main agricultural inputs



Source: author's processing of Eurostat data

While the agricultural prices increased in real terms in the investigated period, under the influence of evolutions on the foreign markets and due to drought effects, consumer prices steadily decreased in real terms, as the food price index was constantly under the general consumer price index (Figure 1.36). This trend has become more obvious since 2015, due to food VAT decrease from 24% to 9% (VAT cut on bakery products has been applied since 2014).

Figure 1.38. The consumer price index in food, non-food products and services, as compared to 2006



Source: author's processing of Eurostat data

A more detailed presentation of food price developments in the context of EU membership and entry into the Single Market is provided in Table 1.19, which contains the prices in Romania as compared to the EU average for the main groups of foodstuffs. Although experts' expectations were that food prices will increase in Romania and will get in line with the EU levels, we can notice that this happened only in certain groups of products, and since 2015 the gap between Romanian prices and the average EU prices has grown larger (e.g. in bread and cereals, fish and fruit). The groups of products were the price level is the closest to the EU average are *Milk, cheese, eggs* and *Oils and fats*.

Table 1.19. Relative food price indices in Romania (EU-27=100)

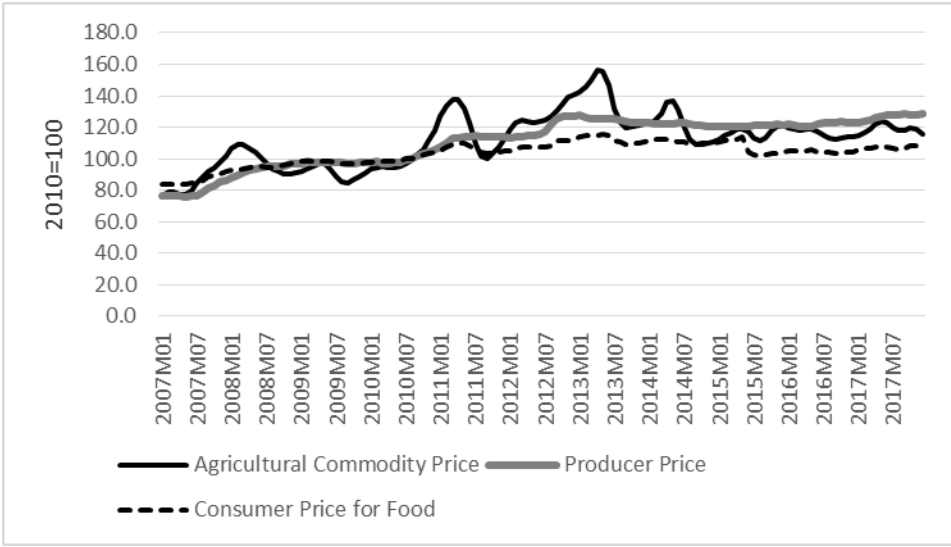
	2007	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**
Food total	74.1	71.2	65.5	66.3	71.8	67.1	68.4	65.8	63.0	61.7
Bread and cereals	61.1	68.6	62.2	61.2	65.8	62.0	61.4	54.3	52.9	52.8
Meat	62.4	63.6	58.7	60.1	61.9	58.2	59.5	63.8	60.3	58.8
Fish	90.8	82.2	74.9	74.4	70.0	66.2	68.2	76.2	71.5	67.8
Milk, cheese, eggs	101.1	93.0	90.6	92.2	94.8	92.0	92.9	95.5	92.3	90.5
Oils and fats	115.8	95.4	80.8	81.1	97.9	93.4	95.5	96.6	90.2	87.2
Vegetables and fruit	72.7	64.5	57.6	56.9	65.5	59.1	61.7	50.0	48.8	48.1
Other	90.3	83.5	76.5	78.5	92.6	85.9	87.8	80.9	75.5	74.7

Source: Eurostat

The diminution of relative food prices took place under the background of consumption increase in certain categories of products and of the increase in the share of imports in consumption. In this context, the relative prices for certain categories of products are very likely to decrease due to the substitution of domestic products with imported, cheaper products, but probably also of lower quality.

The evolution of prices on the agri-food chains in Romania reveals the high volatility of agricultural prices and by contrast, the relatively slow but continuous evolution of consumer prices. Throughout the period 2007-2017, on the average, the agricultural prices increased by 10%, the processor prices by 9%, while consumer prices increased by only 3%. In Figure 1.37 one can notice the consumer price diminution beginning with 2015 due to VAT cut on food from 24% to 9%.

Figure 1.39. Monthly evolution of prices on the agri-food chain: agricultural prices, producer prices and consumer prices



Source: Eurostat, prc_fsc_idx_xls

Conclusions

The implementation of the Common Agricultural Policy and of measures under Pillar 1 in particular has as first effect the increase of farm incomes, yet at the same time it produced changes in the farm structure and productive orientation. Under CAP Pillar 1, the farms received consistent finance, under the form of direct payments, coupled payments inclusively, and of market measures.

In the post-accession period, a land concentration process took place, which led to the increase in number of the large and very large-sized farms and to a lesser extent in the number of medium-sized farms. The areas operated by the small farms decreased, while those operated by the large and very large farms increased. At the same time, the subsistence economy remained very present on the Romanian farms. Although it has slightly decreased in recent years, it is still a significant phenomenon, as the number of farms that consume more than 50% of their final output diminished by only 8% in the period 2007-2016.

Farm value indicators experienced some improvements, but these do not seem to be irreversible. The value added increased by 31% in the period 2007-2016, yet this does not represent a sustainable growth, as it fluctuated significantly and consistently from year to year. Labour productivity, expressed by the net value added per annual work unit practically doubled in the period 2007-2016, yet it is one of the lowest in the European Union.

Farm production specialization by economic size reveals that the small farms have a more diversified production mix than the large and very large-sized farms. Small farms are mainly specialized in a mix of *different crops* and *livestock raising, field vegetables and permanent crops*, fruit included. The medium-sized farms are also specialized in *horticulture and raising herbivores,* mainly sheep and goats.

The main specialization of large-sized farms is *cereals, oilseeds and protein crops*, which cover 36% of the country's agricultural area and 57% of the area operated by the large and very large farms. The specialization of large and very large farms in *cereals, oilseeds and protein crops* grew stronger after Romania's accession to the European Union, due to the increase of cereal and oilseed prices on the foreign markets and last but not least to the direct payments provided under the area payment variant.

In this context, we consider that ***providing subsidies under the form of direct payments per hectare led to farm production orientation mainly to crop production,*** i.e. field crops and mainly oilseeds and protein crops. At the same time, it has amplified the "land grabbing" phenomenon, under various modalities, both by the Romanian and the foreign land owners. In this situation, a re-evaluation and reconsideration of the farm subsidizing modality under Pillar 1 would be useful, envisaging both a real capping of payments that can be received by the large farms and the shift from the direct payment per hectare to the payment per farm.

Livestock production has decreased from year to year, both as total production volume and as share in total agricultural production. This is an unfavourable evolution, as it contributes to agriculture orientation towards products with low value added and to the Romanian consumers' higher dependency on imports. The deterioration of agricultural production structure materialized into the decline of the livestock sector also led to high volatility and insufficient growth of agricultural output value.

The effect of Common Agricultural Policy implementation mas been mainly materialized into the increase of farmer subsidies, which practically increased their value five times in the investigated period. ***Farm incomes steadily increased***, yet the increase of the incomes is almost exclusively due to the increase of subsidies received by farmers, in a progressive amount from year to year. The share of subsidies in farm incomes increased from 10% in the year 2007 to 40% in 2016. In this context, we consider that many farms depend quite heavily on the direct payments received, due to the low productivity of agricultural activities.

The way in which the direct payments were distributed was determined by the strong polarization of the agrarian structure in Romania, i.e. the very large number of small farms, on the one hand, and the relatively low number of very large farms on the other hand, which are operating more than half of the utilized agricultural area. Thus, in the year 2015, ***97% of farms received only 40% of the total amount of direct payments, while the remaining 3% received 60% of total amount.*** This phenomenon was intensified towards the end of the decade, as far as the number of large and very large farms increased. The number of farms that received direct payments varied from one year to the next, around 1 million farms, and the area covered by these farms totaled 10 – 11 million hectares.

Agricultural prices increased the most in 2007/2008 and 2010/2013, surpassing to a certain extent the increase of agricultural input prices. Among the agricultural inputs, the most consistent price increases were noticed in feeds and chemical fertilizers.

The effects upon consumers were materialized in the increase of food prices in nominal terms, followed by a decrease, starting with 2014, when the VAT cut on food began to be applied. In real terms, food prices decreased, as throughout the entire period the general consumer price index exceeded the food price index. The relative price indices reveal a decrease in food prices in Romania as compared to the European level, from 74% in 2007 to 62% in 2016. This process took place under the

background of cheap food imports from the European market that came to meet the Romanian consumer's preferences for cheaper products and lower quality concerns.

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1.4. LAND MARKET IN ROMANIA Luca Lucian

Introduction

The Romanian land market evolution was the result of the gradual liberalization of the legislation on the legal circulation of agricultural land, starting with the very rigid provisions of Land Law 18/1991, relaxed through Law 54/1998 on the legal circulation of agricultural land and almost completely liberalized through the provisions of Title X of Law 247/2005 on the reform in the field of ownership and justice as well as some adjacent measures; upon the expiry of the transitional restrictions, Law 17/2014 on certain measures for regulating the sale-purchase of agricultural land outside the localities brought some corrections to the mechanism of farmland acquisition, without affecting the free operation of the land market.

The analysis of the situation in Romania can be organized into three distinct periods, namely 1996-2006 (before EU accession), 2007-2013 (the last years of the transitional restriction foreseen in the Treaty of Accession) and 2014-2017 (the period after restriction ending). The analysis of the land market in Romania is completed in the present paper by a comparison of the national and European legal provisions on the regulation of farmland sale-purchase.

Literature review

The efficient use of farmland from the economic point of view presupposes the existence of a functional land market. The efficiency of land markets is measured through their ability to transfer land from less productive to most productive users. The transactions costs, which

complicate or hinder these transfers, lead to efficiency decrease. Several studies have shown that the agricultural markets from the countries that had already passed through the transitional period were characterized by the existence of significant transaction costs, which represented a constraint for the farms that intended to increase their size, also in the case of Romanian farms. These constraints came from the costs related to the asymmetric information, co-ownership of land (as result of the land restitution process), the precarious situation of the registration of properties, the high level of commissions and fees in connection to property transfers.

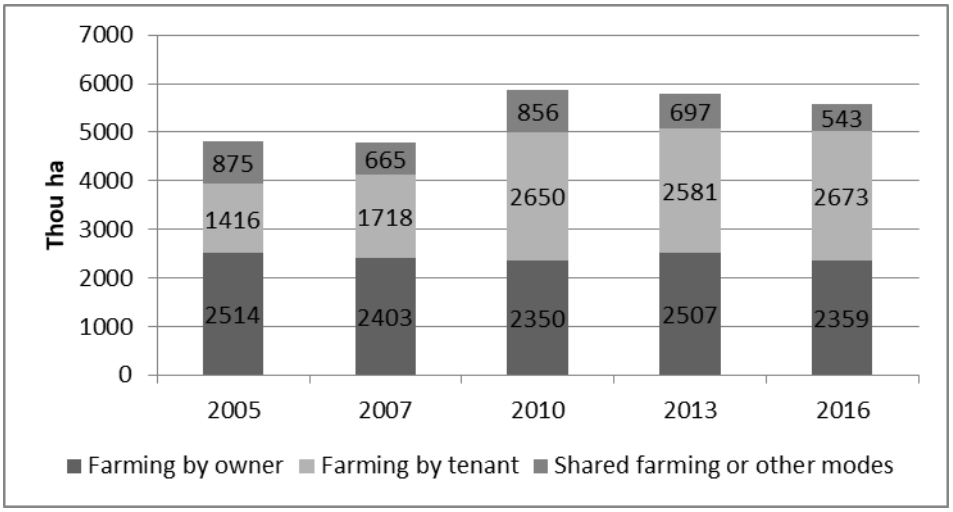
As EU membership implies the integration of all Member States into a single and free market (also as regards farmland), land transactions (land purchase by foreign people inclusively) contribute to productivity increase, improving the access to capital, knowledge and technologies, thus stimulating the economic development in the New Member States (Swinnen & Vranken, 2009).

The analysis of the European land market evolutions shows that there is a large variation in farmland prices and in the level of rent in the EU. Among the determinants of farmland value the following are worth mentioning: agricultural commodity prices, expansion of infrastructure, urban pressures, as well as land market regulation, period of leasing agreements, taxes on land into ownership and on land transactions and last but not least, CAP subsidies (Swinnen et al., 2013). As a trend, certain analysts consider that maintaining the present subsidizing system of agriculture in the EU has determined the significant increase of farmland prices, at least in the countries that joined the EU in 2004 and after. In this context, the role of the transitional restrictions these countries benefited from, usually for 7 years after the accession moment, was rather considered as non-determinative in the evolution of land price after the accession, more important being the specific land acquisition conditions by the local natural persons and legal entities (Swinnen and Vranken, 2010).

Land tenure and Romanian farm structure

Farmland leasing in was an important modality to establish large-sized farms in Romania. Land lease was regulated by Land Lease Law no. 16/1994, modified several times, and replaced since 2012 by the provisions of the New Civil Code (Particular rules for land lease).

Fig. 1.40. Land tenure by the Romanian legal entities farms



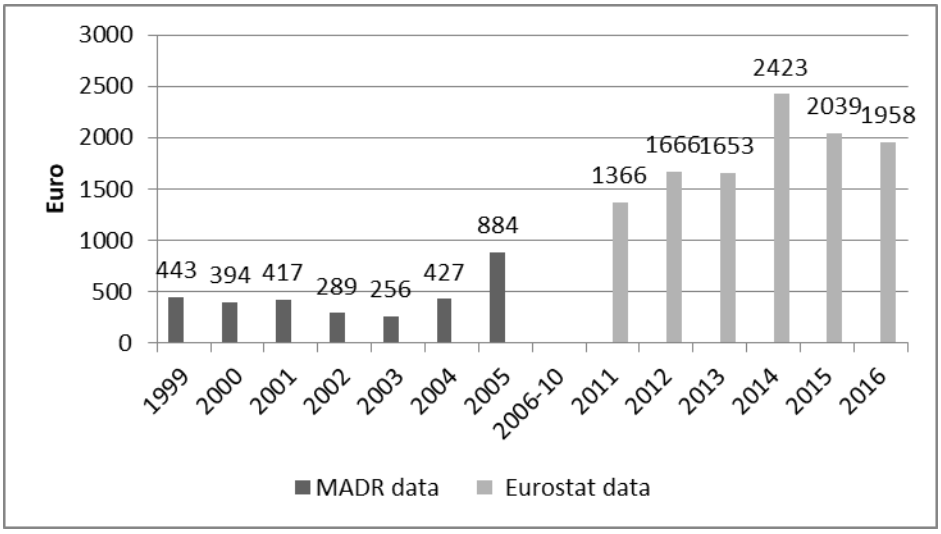
Source: authors' processing of Eurostat data

The evolution of the leased areas from 2005 to 2016, by farm juridical status, shows the continuous process of farmland transfer from the individual households to those with legal status, through land leasing. Thus, the land areas into the ownership of farms with legal status increased from 1.4 million ha in 2005 to around 2.7 million ha in 2016 (Figure 1.38). The most important change took place in the period 2007-2010.

Prices of farmland outside the localities

Prices of farmlands outside the localities (farmland with different utilizations – arable, pastures, hayfields, orchards, vineyards) doubled on the average in the year 2005: from 247 euro/ha in 2004 to 884 euro/ha in 2005. This increase was probably due to the moment of accession coming closer (the negotiations had ended in December 2004) and to the expectations referring to an increase in prices in the post-accession period; yet this could also be the result of the change of legislation in the year 2005, in the sense of simplifying the procedure for changing the category of a plot of land outside the locality into land inside the locality (in this way it becomes buildable land, after the necessary authorizations are obtained).

Fig. 1.41. Annual average prices of farmland outside the localities in Romania



Source: authors' processing of MADR and Eurostat data

After the spectacular arable land price increase in the year 2013, when the average arable land price was estimated at almost 3000 euro/ha in the counties with high agricultural potential, the increase continued year by year, so that in the year 2015 a detailed estimation (www.statista.com) showed that there were many situations when the farmland areas were sold at over 4000 euro/ha.

In 2018 Eurostat published a new set of statistics on agricultural land prices, covering the period 2011-2016, completing the picture of land price evolution in Romania (Figure 1.39).

In the absence of official data on farmland prices (previously to 2018), their level was estimated starting from the public offers on the MADR website (for areas over 30 ha in the period June 2014 –September 2017) and on the websites of Agricultural Directorates in three counties (for areas under 30 ha): Bacău (for the period June –September 2017), Olt (for the period August –September 2017) and Mureş (for September 2017).

In the case of large areas, for which the offers must be published on the MADR site, the average price of the 264 sale offers after the coming into effect of Law 17/2014 was 3997 euro/ha (corresponding to an area of 12017 ha put for sale). Some offers with overly high prices, in the proximity of urban areas, were excluded in the data consistency checking stage. We can notice quite high differences between the farmland prices (mainly arable land) in the different counties from Romania: the highest prices are in Ialomiţa, Călăraşi and Timiş. In certain

counties no large-sized transactions were registered in the last year (mainly the counties in the mountain and hilly areas).

By calendar years, the evolutions of areas and average prices reveal the transaction peak – as regards the transacted area – that was reached in 2015, under the background of the significant average price increase; after that price stagnation followed, with a diminution of areas put for sale in 2016 and 2017 (Table 1.20).

Table 1.20. The national average prices of consolidated areas (offers over 30 ha)

Year	Number of offers	Cumulated area (ha)	Price (euro/ha)
National average 2014	51	2227	3771
National average 2015	90	4242	4073
National average 2016	67	2856	4052
National average 2017	56	2686	4005

Source: authors' estimations based on data from MADR website

In the case of transactions with small-sized areas, the analysis of offers from the three selected counties (Bacău, Olt and Mureş) shows that most transactions involve areas under 1 ha. In the case of these offers, there are also great differences between the farmland in the proper rural area (used for agriculture) and those near the towns (rather destined to non-agricultural developments).

Table 1.21. The agricultural lands prices (euro/ha) in selected counties (offers for land areas under 30 ha in the period July–September 2017)

	Bacău	Olt	Mureş
An average of all offers	5559	2097	3561
Farmland in rural areas	2362	2098	1843
Farmland in peri-urban areas	36757	63110	16820

Source: authors' estimations based on data from Agricultural Directorates websites in Bacău, Olt and Mureş

The average farmland prices for the three counties (Table 1.29) are calculated separately for the two zones. In the case of Bacău county,

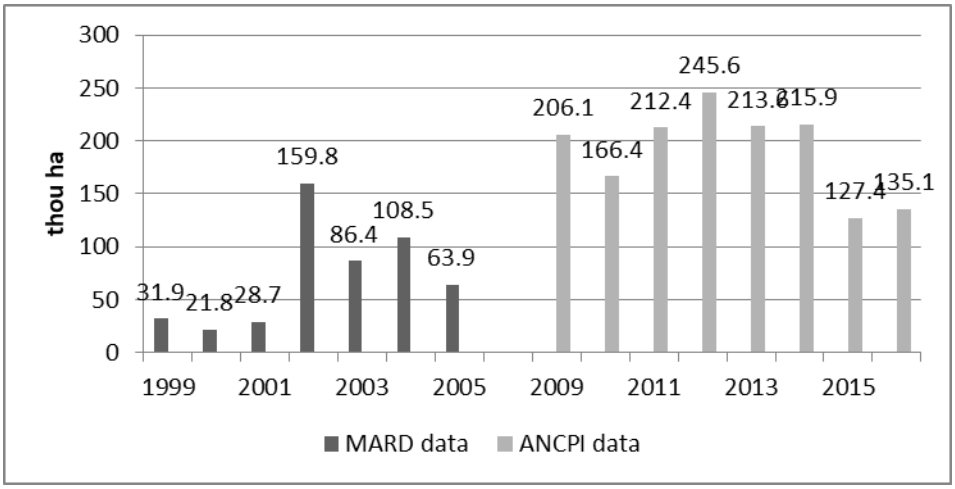
the 2362 euro/ha average results from 518 registrations with a total area of 267 ha; in the case of Olt county, the 2098 euro/ha average results from 734 registrations with a total area of 886 ha; in Mureş county, the 1843 euro/ha average results from 132 registrations with a total area of 73.7 ha.

Volume of transactions with farmland outside the localities

Farmland sale and purchase in Romania was possible after the adoption of Law 54/1998 on the legal circulation of land. The information referring to farmland transactions (areas and prices) centralized by the Ministry of Agriculture and Rural Development, on the basis of data from the period 1998-2005, represents the first official data on the land market in Romania. According to these data, throughout the period 1998-2005, 308 thousand of sale-purchase contracts of land outside the localities were registered. The total sold area was 513 thousand ha.

In the year 2005, before Romania's accession to the EU, a few corrections were made to the agricultural ownership regime. Thus, by Law no. 247/2005 on the reform in the field of property and justice, as well as a few adjacent measures, new provisions were introduced with regard to the legal circulation of land (in the sense of land market liberalization). These provisions on the legal circulation of land simplified the legislation in this field.

Fig. 1.42 . The volume of land transactions with farmland outside localities in Romania



Source: authors' processing of ANCPI data

After a period (2006-2008) when farmland transactions were not centralized any longer, starting with 2009 the information system of the

National Agency for Cadastre and Real Estate Advertising (ANCPI) was gradually set into operation, county by county, which became fully operational in 2010. Comparing the ANCPI data after 2009 to those centralized by MARD until 2005, we can see that the land market has been much more active after the accession: while in the year 2005, the number of total (sale-purchase) transactions was around 33 thousand, with an area of around 64 thousand ha, in the year 2009 the number of transactions was about 118 thousand, with a total area of about 206 thousand ha. The total transacted farmland area exceeded 200 thousand ha in the period 2009-2013 (Figure 1.40).

To sum up, the evolution of land transactions after Romania's accession to the EU puts into evidence an intensification of farmland sale-purchase in the period 2011-2014, followed by a relative diminution in the years 2015-2016.

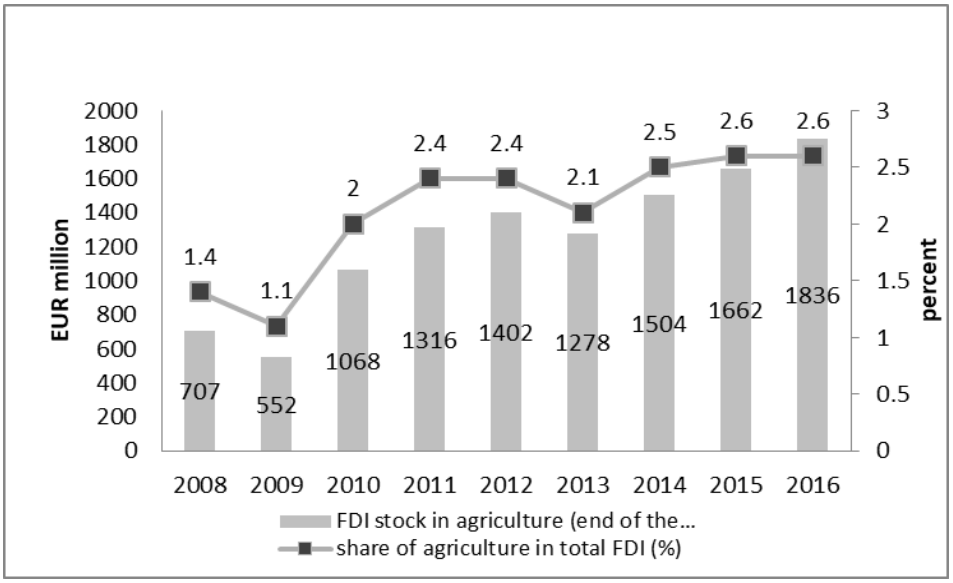
European and national debates on the land market

A debate on farmland utilization in the countries in the transitional period highlighted that the great differences between the values of farmland in the EU member states are due to agriculture restructuring in the last years, yet the problems noticed in the EU New Member States are mainly the result of differences in approaching the land reforms (Swinnen, Van Herck and Vranken, 2013).

In many countries, land purchase by foreign investors was severely restricted through the transitional regulations that were enforced in the New Member States, as derogation from the EU legislation on the internal market (Steriu and Otiman, 2013). Nevertheless, there were no restrictions on land use (through leasing) by the foreign investors. The percentage of leased land greatly varies and reflects the farm structures from the different countries (in Slovakia and the Czech Republic this represents more than 90%, while in Poland about 30%). The restrictions on farmland transactions have had a negative influence upon development, the laws on land ownership having an impact upon efficiency.

In reference to the direct foreign investments, it was considered (Swinnen, Van Herck and Vranken, 2013) that these would have mainly positive consequences for the countries receiving them, due to the capital flow and technology, and thus a complete liberalization of land markets in the EU New Member States was recommended.

Fig. 1.43 . Foreign direct investments in Romania's agriculture



Source: authors' processing of NBR data

The official research on Foreign Direct Investments (FDI), annually conducted by National Institute of Statistics in collaboration with by the National Bank of Romania (NBR), shows that the FDI balance in "agriculture, forestry and fisheries" on December 31, 2008 was 707 million euro, representing 1.4% of total FDI in Romania's economy. By the year 2014, this balance already doubled (Figure 1.41), to reach 1836 million euro in late 2016, which represented 2.6% of total FDI in Romania.

In Romania, one of the main concerns referring to the agricultural land market continues to be land purchase by foreigners (Ciutacu et al., 2017). Even Law 17/2014 was the result of a project initiated by MARD with the goal to limit the possibility of farmland purchase by foreigners. Although, in the end, a balanced Law was issued from the Parliament, the main novelty introduced by this, as suggested by certain studies (Luca, Cionga and Giurca, 2012), i.e. the possibility for the Agency of State Domains (ADS) to use the pre-emption right to purchase land put for sale, was not implemented.

After more official debates at the level of the European Parliament, on the basis of some studies inclusively (Transnational Institute, 2015), the position of the European institutions in the matter of agricultural land was systemized in the Commission Interpretative Communication on the Acquisition of Farmland and European Union Law (European Commission, 2017). In this document, certain case law findings are described, that could provide member states guidance on the

modalities to regulate the agricultural land markets, while complying with two essential principles, i.e. non-discrimination and proportionality. The 10 intervention elements analysed are the following: a) Prior authorization, b) Pre-emption rights, c) Price control, d) Direct farming obligation, e) Vocational training in agriculture, f) Residence requirements, g) Interdiction to sell, h) Ceilings imposed in administrative terms, i) Privileges granted to local acquirers, j) Condition for reciprocity. From the perspective of this comprehensive document, in my view, the project of a new law debated in 2018 by Romanian Parliament is not acceptable.

However, there are certain improvements that can be made to the present law, and one of these is the application of the legal transfer procedure for all transactions (including the transfer of shares of firms owning land, and also in the case of forced execution of the debts for which farmland was pledged).

Conclusions

The land policy should be correlated with the policy orienting the farm structure. If the structure orientation policy has a goal established (for instance, ensuring the equilibrium between small and large-sized farms), the operationalization of a land settlement agency may prove useful, which should correct the effects of the simple operation of the land market.

For an efficient intervention on the land market, it is necessary that the land settlement agency is granted pre-emption right when buying farmland put for sale by its owners. By using the pre-emption right, the agency could contribute to farmers setting up or maintaining, to increase farm size, to keep a balance between different types of farms and to discourage land speculations.

The analysis of the legislation and of data collected from official sources and from special surveys and case studies reveals a better operation of the land market in the post-accession period, as against the pre-accession period; this is due to the continuous liberalization of the legislation on the legal circulation of land, and also to the strong economic growth context in the period 2004-2008, which also generated certain speculative actions. After the economic crisis and the emergence of the new legislation in 2014, the land market preserved its functional character.

By comparison with the effectively registered average prices until 2005 (that had reached about 900 euro/ha), after accession farmland

prices have significantly increased, and in 2015 many large transactions (over 30 ha) were made at prices over 4000 euro/ha.

In the latest years, worries have existed in the Romanian society in relation to the land grabbing phenomenon, amplified by the mass media, as the prices of land transactions are much lower than the European prices, thus making the farmland very attractive for foreign capital.

A modality of rational management of the land market situation could be the ADS operationalization in the quality of intervention agency on the land market and strengthening its role in the implementation of a farm structure orientation policy.

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1.5. LAND MARKET IN BULGARIA Plamena Yovchevska

Introduction

The actual state of agricultural land market in Bulgaria has a complex structure. On the one hand the market of the basic production factor is influenced/ formed by the way of social model transformation since the 90-s of 20-th century (Kozhucharova, V. and Rangelova, R. 2001). Bulgarian government undertook politically motivated decisions. The land has been restituted to the former owners "in real boundaries ". This act has no legal justification due to the fact that Bulgaria is the only country from the former Central and Eastern European countries where the land had not been confiscated by law (Yovchevska 2016 :47). In the period of planned economy, the land has become public property. The act of restitution has been realized in conditions of generation vacuum. A whole generation has changed residence and exercises professions with a different professional profile than the needs of agriculture. The actual up to now Law for the Heritage embarrasses the land parcels consolidation.

After 1990 there are in Bulgaria over 1 million owners and over 4 million land properties. The land restitution process has started because of moral motives – to restore the justice. At the same time, this politically determined decision and the Law on the Ownership and Use of Agricultural Land[3] collaborate for the liquidation of economic structures in the primary sector of Bulgaria. The restored ownership of the land and other assets of the former socialist cooperatives (TKZS) marked the end of the land reform. The end of the transition period to the market economy has brought the necessary conditions for acceleration of the land relationship. Land owners have been identified. The notarial deeds for the owned land pieces identify the legal owner of those assets. This legal action gives to the land owners the economic guarantees for free possession, use and administration of the lend property. The motive in their further actions can only be the economic expediency. This leads to imbalance of agricultural production structure and to violation of agricultural systems in the branch. To support this statement comes the fact that this sector law needs many changes and amendments. After it admission it has suffered about sixty corrections; the last one is from July 3th 2018. All these "actualizations" aim the improvement of the economic environment for agricultural activity. The Law on the Ownership and Use of Agricultural Land has often a blocking effect and a part of its clauses enter in contradiction with other laws in the sectoral legislation. This fact requires the adoption of an entirely new law, which is at an advanced stage of preparation and discussion.

The second political act, brought changes in agricultural land market, is the full EU membership of the country in 2007 (Koteva, N. and Kaneva, K. 2006; Petkov, V. 2013). As a result of contradictory configuration of political, economic and social factors and of dynamically changing institutional environment, the land market in Bulgaria develops often within the influence of multidirectional impacts, with characteristics dominated by political and economic environmental changes.

Regional characteristics of agricultural land market

Methodological notes:

To present the actual specifics of agricultural land market on a regional level we have used empiric information, collected by the National Statistical Institute (NSI) in Bulgaria. During the observation of the land market has been collected information for the following *variables*:

[3] Updated in State Gazette, No. 17 of 1 March 1991

• Number of transactions with agricultural land;
• Area of sold / purchased agricultural land;
• Price per unit of area for sold / purchased agricultural land.

The provided information is collected through methodology which is elaborated in a project, contracted between NSI and Eurostat[4]. The aim is to elaborate comparable statistical data, according the Target EU Methodology for the agricultural land prices. This provides an improvement of the system for collecting national data, ensures the quality of the information through the application of new means of collecting and controlling data, securing the needs and the access to such information for the data users.

The classification of territorial units for statistical purposes in Bulgaria has been used (NUTS 2). There are six statistical regions in Bulgaria: South Central, South-West, South-East, North Central, North-East and North-West.

Reporting units are: Agricultural holdings buying agricultural land for the development of their economic activity; Special Investment Companies, established under the national legislation in order to conduct agricultural land operations; Real estate agencies selling / buying agricultural land. The unit of observation is the price per area unit (1 decare) for sold / purchased agricultural land in a national currency unit.

The statistical aggregation of agricultural holdings and real estate agencies is defined on the basis of the information on the acquisition of tangible fixed assets (the land is presented as a separate indicator), submitted by them in the Annual Activity Report. The statistical aggregation of companies operating with agricultural land is defined on the basis of the information they submit about the changes in the cost of acquisition of fixed assets during the calendar year in the Annual Activity Report of the Special Investment Companies.

The geographic scope of the survey covers the territory of the whole country. In *the time range* after 2010, the data meet the requirements of the General Methodology for agricultural land prices in agriculture. *The accuracy of the data* is achieved by ensuring a satisfactory range of the selection of respondents, the development of reliable statistical toolkit, including IT applications for collecting, controlling, editing data by eliminating extreme values, and methodological guidelines for conducting the monitoring.

The data are comparable over time for the 2010-2016 survey

[4] ttp://www.nsi.bg/bg/content/11264/. Accessed December 2018

period. The data validation and processing during the statistical processing is achieved by means of specially developed software.

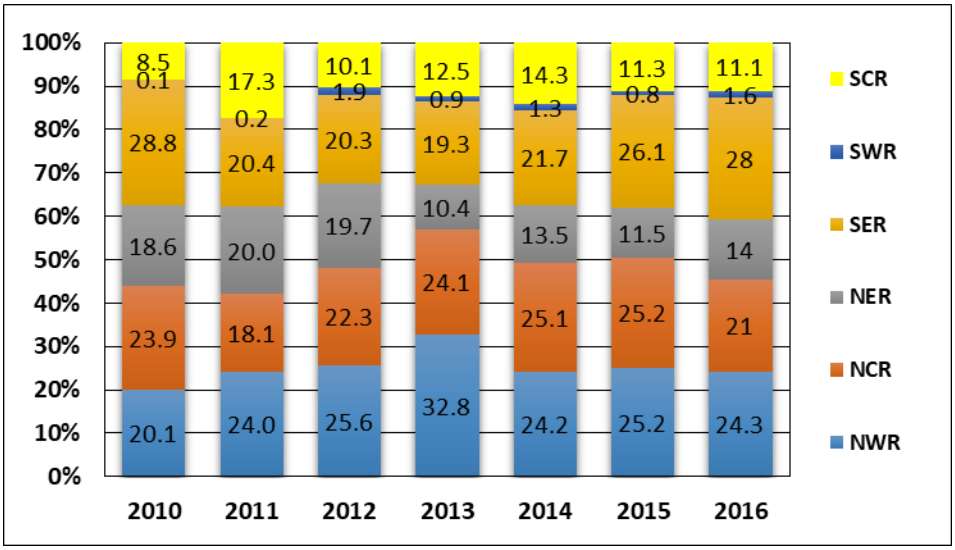
Characteristics of agricultural land market in Bulgaria

Realized transactions. Regional dynamics

The present study of agricultural land market in Bulgaria covers a period of seven years (2010-2016). Data for ongoing processes are presented through the graphical method and there are some regional trends outlined. The visualization of market dynamics in the indicated period highlights the "dominant" role of Northern Bulgaria (Fig. 1.42). More than a half of transactions with agricultural land are realized in North-East, North-West and North Central statistical regions. Sixth of ten transactions are in the North of Bulgaria. This fact could be explained by definite institutional influences on the economic environment of agriculture development in Bulgaria. The genesis of this impacts could be found in the results of the led natural restitution. The return of the land in "real boundaries" has broken the existing agricultural systems and organizational structures. Complex social-economic effects appeared, which simplified the structure of agricultural production. National statistics reports an increase of non-arable lands. The crop rotation is increasingly disturbed. Monocultural farming is more frequent phenomenon. Cultures with a fused surface are predominantly cultivated. The emerging new organizational and production structures organize their activity in the most rational from the point of view of the economic result way. This leads to enlargement of intensive production. For the North Bulgaria the cereals turned out as the most plastic for the agro-ecological environment specifics. The relatively low investment production costs and the fast the harvest are complementary conditions, influencing the choice of cereals as preferred crops in comparison to other grown crops.

Therefore, the appropriate natural and climatic conditions for cereal crops in northern Bulgaria, combined with technological solutions and economic advantages, provide a number of synergic opportunities. After 2007 these potential benefits are realized and repaid in the course of the production process. Farmers restore big part of made investments thanks to the funds received through the European income support funds.

Fig. 1.44. Regional distribution of land sales number, %



Source: authors' processing of NSI data

The implementation of EU CAP is a main engine and catalyst for the agricultural land in the country. The application of Single Area Payment Scheme explains the relatively more active turnover with the agricultural land in the three statistic regions of North Bulgaria. The indicator „number of realized transactions" and their regional distribution (Fig. 1.42.), expresses the impact of the institutional environment on the market dynamics and development.

In the spirit of scientific ethics, we would like to share that this research result is in contradiction with the potential of agri-environment resources for the development of agriculture in Dobroudja. The rich "chernozem" of Dobroudja allow the growing of over 130 crops in the North-Eastern region of Bulgaria[5]. The problem is complex. The genesis of this process dates from the time of the transformation of the socio-economic model in Bulgaria. The chosen political model of liberal democracy has recognized the free market as a panacea to overcome all the shortcomings of the planned economy. The absence of socio-economical analysis of the transition period has led to fetishisation of

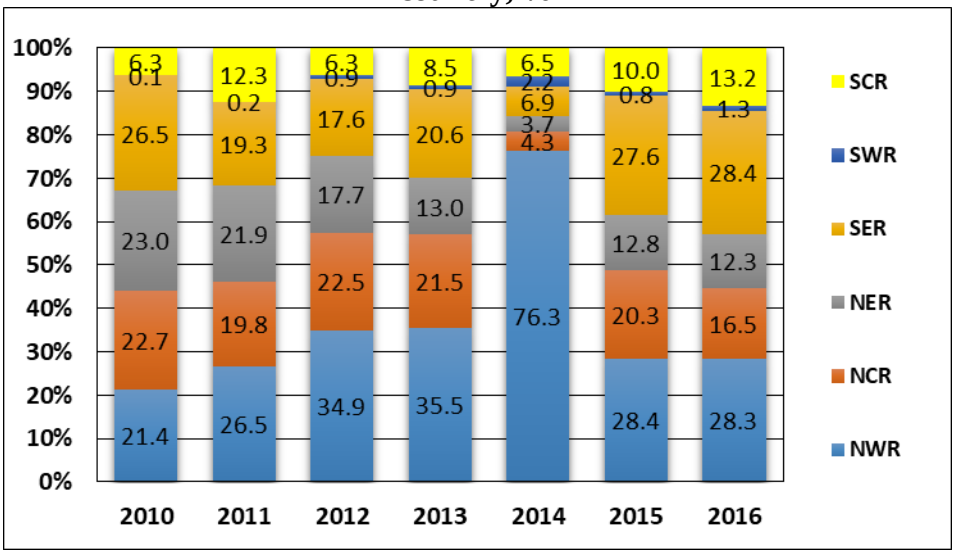
[5] In his book "The Agriculture in Dobrich region", the author Dimitar Nikolov says that only 4 crops such as wheat, barley, sunflower and maize are environmentally and economically inadequate. According to him, monoculture farming is one of the great problems in the region, because the crop rotation is disturbed. No value-added output is produced, there is no variation in the marketed production. https://agrozona.bg/chernozemat-v-dobrudzha-e-podhodyasht-za-otglezhdaneto-na-nad-130-zemedelski-kulturi/ Available on 11.12.2018.

„laissez faire“ and to complete ignoration of public regulative mechanisms, as well as the professional assessments and expertizes.

Sold agricultural land. Regional dynamics

The registered trend of more active sale of agricultural land in Northern Bulgaria influences also the area of sold land. During the research period (2010-2016) the regional characteristics of the land sale-purchase (Fig. 1.43) follows the regularities appeared at the number of realized transactions. In all three regions of the North of Bulgaria – North-West, North Central and North-East, the sold agricultural land exceeds strongly the same in South Bulgaria. The explanation for these processes is related to the favourable agro-ecological conditions for the production of cereals in North Bulgaria, but also to the impact of CAP and "the positive stimuli for the wheat producers from the implemented policy" (Todorova, S., P. Pochaleev 2013 :57).

Fig. 1.45. Regional distribution of the area of sold lands in the country, %



Source: authors' processing of NSI data

Using the graphical method, Fig. 1.33. presents the development of the agricultural land market in Bulgaria. The visualisation of the sale and purchase process highlights the dynamics of ownership over the seven-year survey period. Since 2011, the highest relative share in the sale of agricultural land has been registered in the Northwestern region of Bulgaria. Overall, in North Bulgaria, a substantially larger share of transactions in agricultural land is realized than in Southern Bulgaria. Between 60-70% of the land with changed ownership during the period 2010-2016 is in the three northern statistical regions of the country. The survey data highlighted an extremely active process of selling agricultural land in Northwestern Bulgaria. In this region, in 2014, 76.3% of the area of sold lands in the country transactions in our country were concluded.

This is a phenomenon, which is due to the operation in Bulgaria of joint-stock companies with a special investment purpose - Real Estate Investment Trusts (REITs), regulated by the Special Purpose Investment Companies Act (SPICA) (2003). From the countries of Central and Eastern Europe, only in our country REITs operate in land trade. Companies operate on the Stock Exchange and redeem significant profits from the purchase and sale of agricultural land, which accounts for over 80% of their portfolio. In 2014, one REIT buys the assets in agricultural land of another REIT. As a result, eight out of ten land deals in the country are realized in the Northwest region. This fact eloquently shows the state and nature of the agricultural land market in Bulgaria. It is a mark of his immaturity and shows a major problem in the socio-economic environment and in the country's agricultural system. The positive influence of REITs, which we have to take into account, is that, by virtue of the main business of the companies - the purchase and consolidation of split and small agricultural land by many owners, they actually realize the consolidation of the land. At the same time, the question of the ownership of companies and the size of their land is open. Questions of which Brussels increasingly seeks the answer[6]. Globally, the phenomenon of land grabbing is the subject of study by a number of research centers. In Europe, this question is a part of a "land question"[7]. An increasingly socializing European policy binds the excessive

[6] https://www.tni.org/en/publication/land-grabbing-and-land-concentration-in-europe. Available on 12.12.2018

[7] https://eur-lex.europa.eu/legal content/BG/TXT/PDF/?uri=CELEX:52014IE0926&from=BG

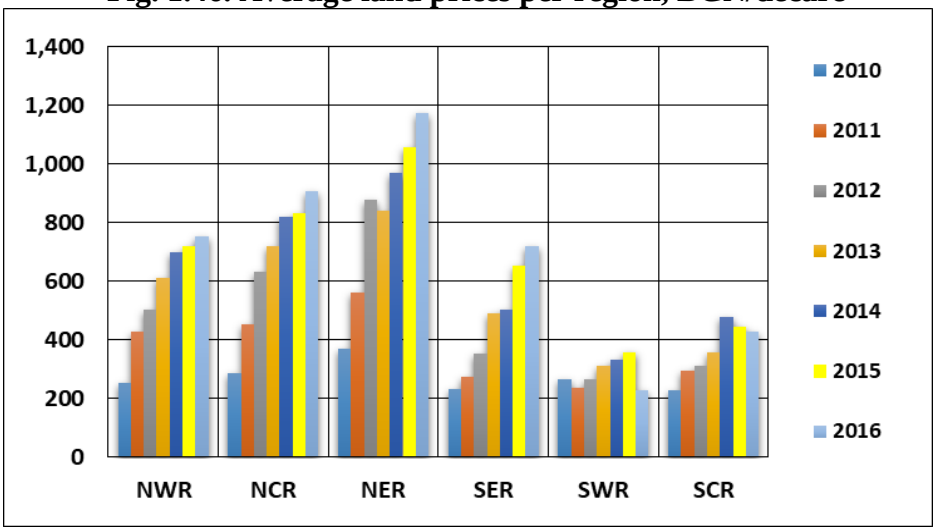
consolidation with the manifestation and expansion of processes such as speculation on farmland, with overflowing a large part of European funds to support farmers' incomes to economic units that are economically independent and do not need such substantial assistance. It shifts the focus of the CAP and violates the principles of its philosophy.

Agricultural land price

The processes related to sale and purchase of agricultural land have direct influence on the land resource price. In all survey period (2010-2016), in all statistic regions of Bulgaria, the realized prices of land transactions show big increase (Fig. 1.44.)

The graphical representation of this process outlines and confirms trends that we have already analyzed. Prices of agricultural resources in the country have significant regional differences. In the three statistical regions of Northern Bulgaria, much higher land prices are recorded, compared to the price at which the agricultural resource is sold in Southern Bulgaria. Price increase in the three northern regions and in the Southeastern statistical region of the country is in the order of three to four times over the survey period (2010-2016). Land prices in the South Central and the South-West region rise at the lowest rate.

Fig. 1.46. Average land prices per region, BGN/decare



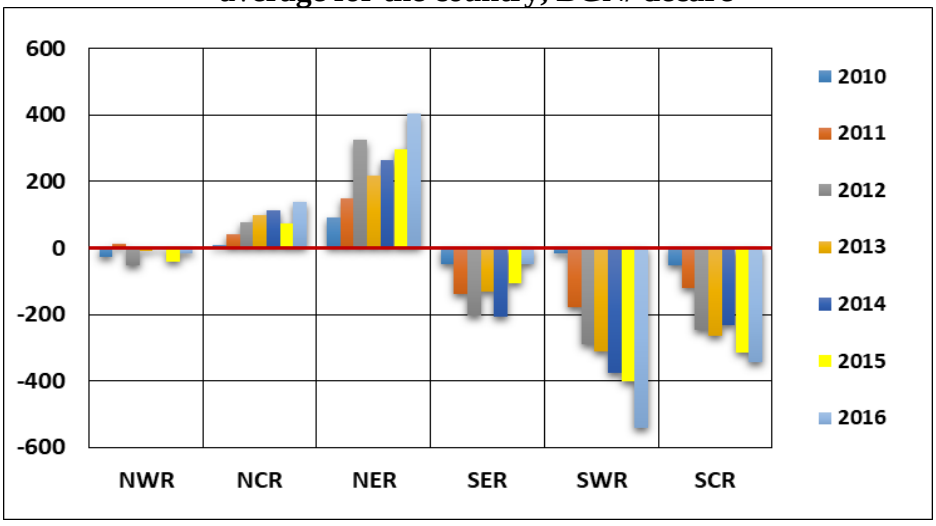
Source: authors' processing of NSI data

In the South-West region, which is typical for small-scale production, there is even a decrease of prices in the last year of the analyzed period.The trend is unfavourable. This is a signal for stagnation in regional agricultural development. It could be also red as a sign of problems, already met in small and medium-sized farms, especially in mountain regions of Bulgaria.

In the process of analysis, in order to more detailed research of questions connected to agricultural land market, we have compared land prices in the six statistical regions with the average price for the country (Fig. 1.44). This indicator gives image of the general state of the land market and shows the trends in different parts of the country.

The graphic presentation of survey results (Fig. 1.45) illustrates the process of active development of land market in Bulgaria. There is a strongly expressed dichotomy, sustainable growth in regions with strong farming and active market and a substantial downward trend in the price of the main production factor in agriculture in the three statistical regions of Bulgaria.

Fig. 1.47. Positioning of land prices per regions, in relation to the average for the country, BGN/ decare



Source: authors' processing of NSI data

Generalizations and conclusions

As a result of made analysis, we could conclude that the agricultural land market in Bulgaria is dynamic, with different characteristics for North and South Bulgaria. In the Northern part there is registered a high activity of land market and important price increase. The land resource, having in view the favourable economic environment, has acquired the features of investment asset. Moreover, the results of the research outline significantly less activity in the transactions in Southern Bulgaria. Land property prices decrease, which is a sign of problems in agricultural economic system in South regions of the country.

The registered processes and the highlighted trends are evidence for immature land market. Its development has been influenced by changes in the institutional environment which, up to the period of survey, favorize the accelerated development of intensive productions. The impaired balance leads to further social-economic problems having unfavourable consequences for the primary sector development.

The results of the analysis reaffirm the importance of national priorities and decisions which, under the new programming and financing framework of CAP + 2020 gain ever greater weight in the implementation of the Community's agricultural policy.

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1.6. EVOLUTION OF BULGARIAN AGRICULTURE IN EU MEMBERSHIP Bozhidar Ivanov

Agricultural production

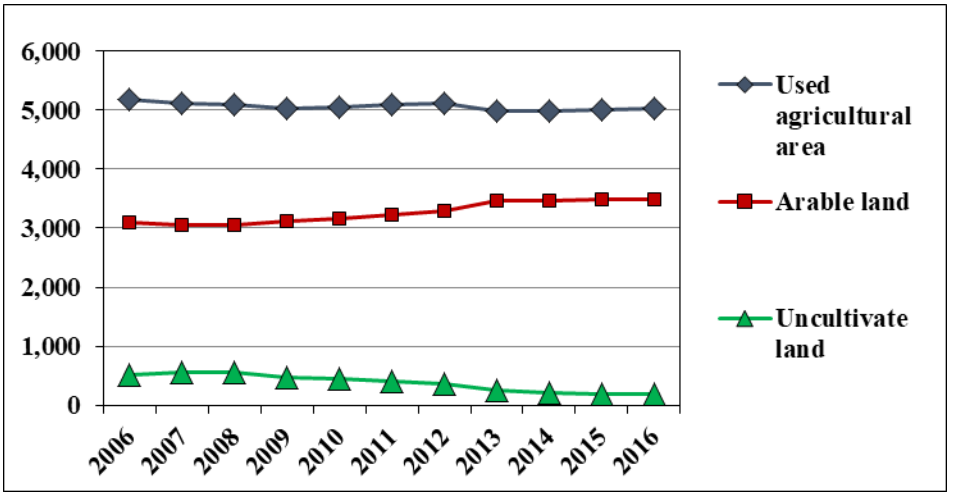
The used agricultural area (UAA) in the country shows dynamics in sustainable limits between 5–5,2 million ha. Despite the slight UAA diminution of about 4 % in the period 2007-2015 (due to the increased interest in agriculture agricultural lands management), we could not speak about a risk of disappearance of agricultural lands in result of urbanization or auto-afforestation. It should be accounted that there is a considerable improvement in relation to the UAA structure, namely the non-cultivated (abandoned) areas diminished considerably, more than 3 times in the period 2007-2015 and now they are under 150 thousand ha. This is one of the most important impacts of the EU membership of our country. If in the 90^{s} over 1 million ha od agricultural land was

abandoned and non-cultivated, nowadays this percentage has considerably decreased and such areas could be found predominantly in mountain and other less-favored areas.

The diminution of abandoned lands has led to a serious increase of arable land of almost 500 thousand ha between 2007-2015. This increase is the result of the diminution of abandoned lands and, in small degree, of areas with perennial crops, vegetables and permanent grasslands. Currently the arable lands form about 70% of the UAA, while the permanent grasslands are about 26%, which testifies for a good ecological balance. For a comparison the share of permanent grasslands of UAA in EU is approximately 33%. In Bulgaria this lagging has been compensated to a big degree by the high percentage of afforested territories, which exceed considerably the area of arable lands, together with the permanent grasslands.

Regarding the cereals and the oilseed crops, there is a clear growth of the output and the level remains low for the vegetables and the perennial crops. The output of cereals and oilseeds increases not only of area (almost 38 % from 2007 to 2016), but also the physical output increased from 7 million tons to 9 million tons in this period. The reason for the positive trends and the sustainable growth of the production of cereals and oilseeds is not only the good market structure, giving conditions for an increase of prices for all the period (after 2007), but also the implemented policy for single area payment (SAPS). The grain is a stock commodity, the demand is strong, the price is referred by world markets, the production costs per area unit are lower than in other sectors and the opportunities for waiting and storing give time for making better decisions. CAP of EU also contributes for risks diminution, as under First and Second pillars have been distributed public funds. The direct payments create better situation for the cereal producers, as the subsidies cover about 20-30% of the production costs and minimize the probable losses in unfavorable circumstances – low average incomes (production risk), low prices (price risk), difficulties of the realization (market risk).

Fig. 1.48. Dynamics of agricultural land, thousand ha

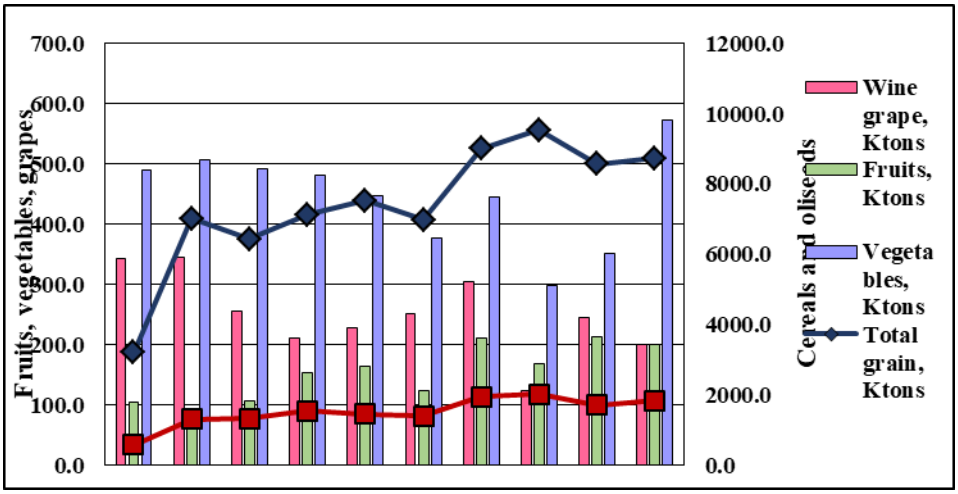


Source: „Agro-statistics", Ministry of Agriculture, Forestry and Food, Eurostat, (http://appsso.eurostat.ec.europe.eu).

The stagnation for the perennial crops and the vegetables continues, due to areas diminution and average yields fluctuation in relation to climatic conditions. Among the main problems of these producers are the small areas and respectively, the small outputs, which reflects on the market realization. This slightly concerns the production of wine grape where despite the strong concentration the output has decreased by 200 thousand tons.

The reasons are complex: areas diminution, destroyed hydro-ameliorative net, strong dependence of meteorological conditions, strong competitiveness from imported vegetables, low support from the State. Other factors for the low output levels and the lag of the vegetables' sector are: lack of sufficient number of qualified specialists, technologies lag in relation to competitors etc.

Fig. 1.49. Production development in the crop-growing



Source:„Agrostatistics",MAFF;Eurostat,(http://appsso.eurostat.ec.europe.eu).

The difficulties of the structural adaptation of Bulgarian agriculture are expressed mostly in the livestock breeding. The number of cattle after 2007 is relatively unchanged. The drop of pigs is drastic. The diminution is sustainable and exceeds 43 % for 10 years. The number of sheep and goats also has diminished - of 26%, but their number is stabilized and the pace of diminution has been delayed. The continued reduction of the livestock number after 2007 is due mainly to the low competitiveness of the livestock breeding, concerning predominantly the small and medium-sized family farms. The livestock-breeding in Bulgaria, as a whole, has a difficult adaptation to the new challenged and in some sub-sectors (milk production for example) the negative trends will probably continue.

For the period of 10 years' membership there is also an incontestable positive change. There is a farms consolidation, modern farms were built, the breed composition of animals has been ameliorated, there is a considerable advancement in relation to the quality of produced milk and meat. The change of farm structure also is significant. For instance, if in 2003 194,7 thousand farms bred 377,6 thousand cows and 237,7 thousand farms have had 1,635 million sheep, which is on average 1,9 cows and 6,9 sheep per farm, in 2015 the average number of milk cows in the farms is already 8,4 and the milk sheep are almost 30.

Table 1.22. Livestock production

Products	Measu	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016

	re										
Beef and veal meat, carcass weight	**thousand tons**	**21,8**	**20,0**	**21,9**	**19,6**	**20,9**	**20,4**	**19,1**	**17,2**	**18,5**	**6,9**
Pork meat, carcass weight	**thousand tons**	**76,3**	**73,8**	**73,7**	**70,5**	**72,5**	**73,2**	**72,9**	**67,4**	**69,3**	**68,3**
Sheep meat, carcass weight	**thousand tons**	**21,3**	**20,9**	**17,4**	**17,0**	**15,9**	**17,0**	**12,8**	**13,1**	**11,7**	
Poultry, carcass weight	**thousand tons**	**116,4**	**108,6**	**130,2**	**106,9**	**103,9**	**107,6**	**98,4**	**102,2**	**105,7**	**109,3**
Eggs	**million**	**1579,3**	**1508,0**	**1429,2**	**1437,5**	**1185,0**	**1174,4**	**1194,6**	**1218,7**	**1285,8**	**1331,3**
Cow milk	**million l.**	**1114,9**	**1109,9**	**1042,1**	**1091,6**	**1093,0**	**1061,2**	**1115,1**	**1070,6**	**998,1**	**988,9**
Sheep and goat milk	**million l.**	**167,1**	**160,9**	**146,9**	**141,2**	**146,4**	**136,3**	**154,1**	**115,7**	**111,4**	**116,7**

Source:„Agrostatistics",MAFF;Eurostat,(http://appsso.eurostat.ec.europe.eu).

In spite of livestock production diminution in this period, the last 1-2 years show signs of improvement mainly for the pigs and poultry. The relatively short production cycle and the capacity of fast reproduction in the poultry breeding allow faster reaction of the enterprises to the market signals. This is the only livestock sector capable to satisfy the domestic market and to realize an exportation. The relatively low prices of the poultry meat make it one of the most demanded on Bulgarian market, as the consumers' preferences are also related to the trend to healthy nutrition.

Until 2014 in Bulgaria is observed a sustainable trend to diminution of the number of raised pigs – mothers. This determines the

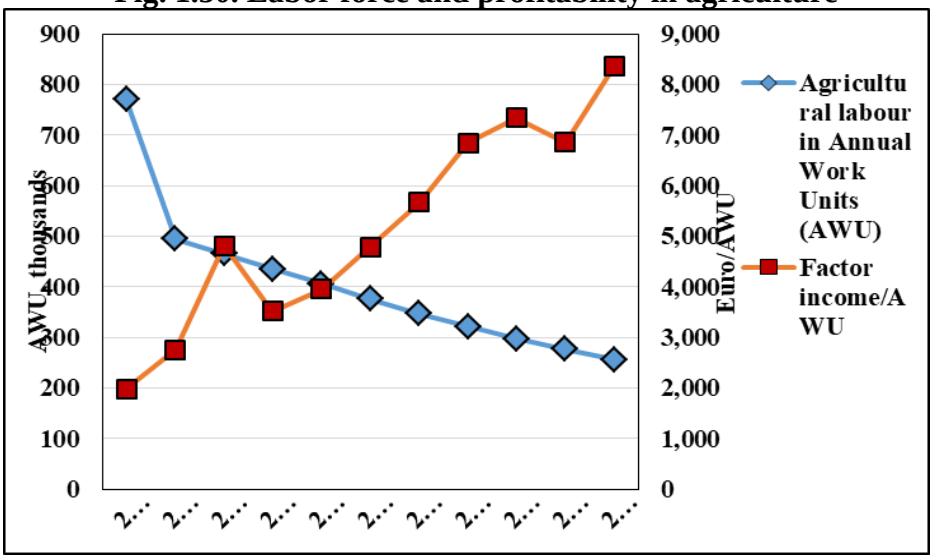
overall state and development of the sector and as a result of its restructuring have been formed relatively big (over 1 000 pigs – mothers) and smaller (under 1 000 pigs – mothers) pig farms. These processes have led to diminution of the farms number and the transformation of the sector toward better profitability. 2014 marks the beginning of gradual increase of the number of pigs – mothers. There is also an increase of the fertility and productivity. On the base of market development and the stable demand of pork meat in our country we could prognosticate an increase, which however would not be sufficient to satisfy the overall internal demand.

Incomes in agriculture

A distinctive mark and one of biggest performances in result of the EU accession and the CAP implementation is the increase of the profitability and the reduction of the employed, due to the modernization and the economic restructuring. The value of the factor income shows a permanent increase after 2007 and in 2016 has reached 7 thousand EUR per 1 AWU. The agriculture has a serious place regarding the employment in rural areas and about 1/3 of the employed are in this sector. In rural areas the created added value per 1 employed person in agriculture is equal to approximately 3,3 thousand EUR, while the general added value per employed person in these areas is 8,6 thousand EUR.

For comparison in 2007 the added value per employed person in agriculture is 2,6 thousand EUR, and for the rural areas the added value per employed is 6,2 thousand EUR. The labor productivity lags behind the average values for these regions, regarding the pace of change, respectively 27% against 39 % growth. The specificity of Bulgarian agriculture is that the number of employed persons in the sector, transformed in AWU, diminished constantly after 2007 and in 2016 is under 250 thousand or 50 % less than in 2007, but as a nominal number the employed have been reduced from 724 thousand (2007) to 667 thousand, or only of 8%. или само с 8%. This means that agriculture continues to accomplish not only economic role in the economy of households and of the country, but has also social and cultural impact. The predominant part of these employed persons execute in fact non-payed, family labor, they are involved in the family farms and their number, despite diminishing, does not change cardinally in relation to the employment.

Fig. 1.50. Labor force and profitability in agriculture



Source: National Statistical Institute and Eurostat, (http://appsso.eurostat.ec.europe.eu)

Despite the considerable increase of the profitability and the labor productivity after 2007, mainly due to the support in agriculture, according the indicator labor productivity there is still a lagging over 2,5 times behind the average EU indicators. The labor productivity from agriculture in EU is 17,2 thousand EUR per AWU, which show the existing lag of our country. The remaining low levels of labor productivity and profitability in comparison to the European scale are due to the slight grow of the added value in the sector and the slow modernization and technological progress in the intensive sectors along with the significant number of small farms with predominant manual work processes without mechanization.

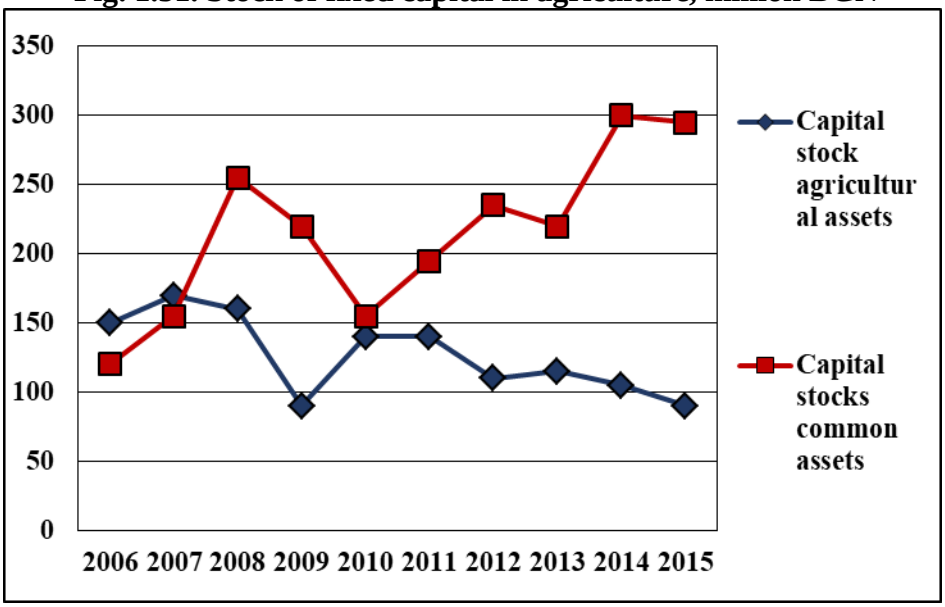
Investments in agriculture

The gross fixed capital formation in agriculture increases and this trend has been outlined non only after the EU membership but also in the pre-accession period. The probable reason for this is the financial support under different measures for modernization support in the period of SAPARD and RDP implementation and the increased interest in the sector. The augmented interest in agriculture and the big amount of funds for investment support in the period 2007-2015 have created fixed capital accounting over 3,2 milliard BGN. In all the period (between 2008-2015)

of implementation of Measure 121 for investments in farms have been payed public costs amounting over 1 milliard BGN, which shows that 1/3 of the investments in agriculture in this period are from public funds.

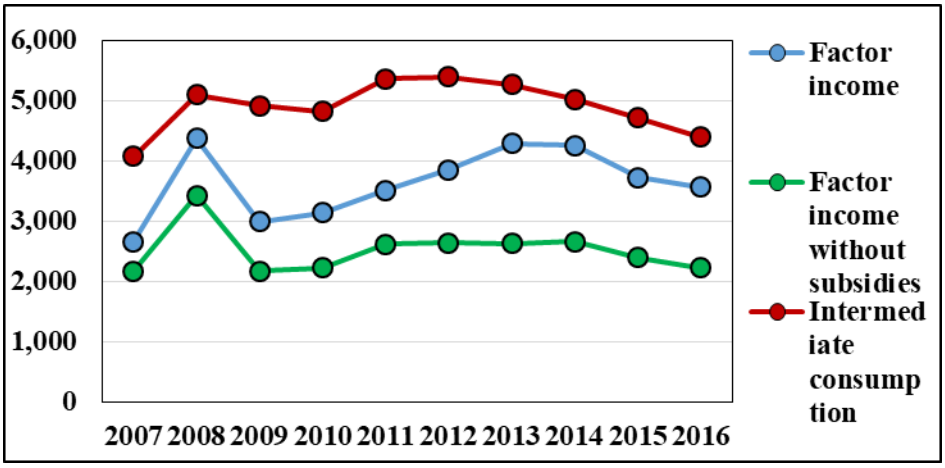
According the indicator factor income against fixed capital use in agriculture, Bulgarian agriculture is in better situation, related to the average level of this indicator in EU. In the last 3 years (2013-2015) the facto profitability against the fixed capital in Bulgaria is 4,9 %, whilst in EU it is 2,4%, which testifies for the higher efficiency of these assets use. The negative processes, observed in the examined period, for the fixed capital are related to the diminution of investments in direct production assets. The negative processes observed in the analyzed period for the fixed capital are related to diminution of investments in direct production assets (live animals and plants) and increase of investments in indirect production assets. This is unfavorable and probably one of reasons for the accounted improvement of efficiency in agriculture, but slowdown of the added value and the total return of the production.

Fig. 1.51. Stock of fixed capital in agriculture, million BGN



Source: National Statistical Institute

Fig. 1.52. Dynamics of intermediary consumption and factor income with and without subsidies, 2007-2016



Source: Eurostat and own calculations.

The trends are similar regarding the factor income of a farm and of AWU – increase until 2014 and subsequent drop. Clear role in this process has also the decrease of farms in Bulgaria, related to the processes of restructuring of Bulgarian agriculture. The transition to more extensive sectors has led to general decrease of the size and value of used in agriculture production factors. The vegetables and perennial crops productions received least subsidies and they need the input of lots of production factors, which reduces their development. This is a complementary reason for the orientation to productions allowing costs minimization.

CHAPTER 2. THE EFFECTS OF CAP ON THE AGRICULTURAL DEVELOPMENT

2.1. ANALYSIS / CHARACTERISTICS OF THE AGRICULTURAL MARKETS IN ROMANIA Iuliana

2.1.1 Cereal Market

Mihaela Kruzslicika

In Romania, more than 65% of the total arable area was cultivated with cereals in the last 25 years. In the period 2007-2016, Romania ranked 4th in the EU, by area cultivated with wheat and 1st by area cultivated with maize, and this rank was maintained throughout the period 2007-2016.

In terms of total grain production, Romania ranked 8th in the EU in the year 2007, while in the year 2016 it ranked 6th in the EU. This in the conditions when the area under cereals was maintained relatively constant in the period 2007-2016.

In Romania, the average wheat yield accounted for 50% of the EU average, in the period 2007-2016.

The average maize yield significantly increased, so that it represented 36% of the EU average in the period 2007-2009, to reach 51% of the EU-28 average in 2013-2016 (Table 2.1).

Although the average yields are still significantly under those of the great cereal producing countries in the EU, after 2007 a constant increasing trend was noticed due to easier access to the technological resources on the Community market, as well as to the land consolidation tendency, these technological resources being used more efficiently.

Farm structure by size classes reveals a decreasing trend in the case of small-sized farms, while the number of medium and large-sized farms increased significantly. Even in these conditions, cereal production is relatively strongly influenced by the weather conditions, mainly by drought, which leads to the conclusion that efficient modalities should be found to boost irrigations on larger land areas, also taking advantage of the increase in the number of large farms. Labour productivity, by economic farm size, increased in all the economic size classes, yet in different percentages. Although labour productivity increased for all age groups of farmers, it can be noticed that labour productivity decreased with the increase of farmer's age. The greatest increase of labour productivity was noticed in the case of large farms, due to their management, technologies used, utilization of superior genetic material, as well as to the access to EU funds for business development.

Table 2.1 Cereals – area, average yield and total production

	U.	2007-2009	2010-2012	2013-2016

	M	Average Romania	EU-28 average	Rank in EU-28	Average Romania	EU-28 average	Rank in	Average Romania	EU-28 average	Rank in
Total area under cereals	thou. ha	5208	59546	5	5236	57124	5	5456	56685	5
Area under wheat		2078	25850	4	2036	25936	5	2115	26094	5
Area under maize		2435	8765	1	2473	9156	1	2556	9301	1
Average yield cereals	kg/ha	2500	4900	26	3200	5100	24	3400	5100	22
Wheat average yield		2500	5000	25	2400	4900	24	2400	5000	24
Maize average yield		2700	7500	20*	3700	8000	22	4100	8100	21
Total cereal production	thou. tons	13171	291468	8	16793	286739	7	21005	314413	6
Total wheat production		5143	136099	8	6080	137113	7	7819	149415	5
Total maize production		6559	58675	4	8904	63487	2	9578	63583	2

*Without Denmark and Great Britain that did not report any maize yields for the period 2007 – 2009

Source: calculations based on Eurostat [apro_acs_a]

The areas under wheat on medium-sized farms increased by 38% in the year 2013 as compared to the cultivated areas in 2007, while on the large farms the areas increased by 44%, in the same period. In the case of maize, the cultivated areas increased by 83% on the medium-sized farms, while on the large farms the areas under maize were double in the year 2013 compared to 2007.

Nationwide, in the year 2016, there was a surplus of cereal storage facilities of 21% compared to the annual production. The total storage capacity is 23.4 mil.tons, in vertically and horizontally developed storage areas and it is owned by 4879 authorized economic operators.

The farmers who produce over 8-10 thousand tons of cereals prefer to store part of the obtained production in the storage facilities on the farm. The demand for installing metal silos on the farm increased with their financing from EU funds under the National Rural Development Program 2007-2013.

In the pre-accession period, the cereal sector benefitted from SAPARD funding for the technological revamping of farms through the

purchase of high-performance machinery and equipment. Thus, under the measure Field crops, 1,186 projects received funding (representing 19% of total projects funded under this measure), with a total value of 112.5 million euro.

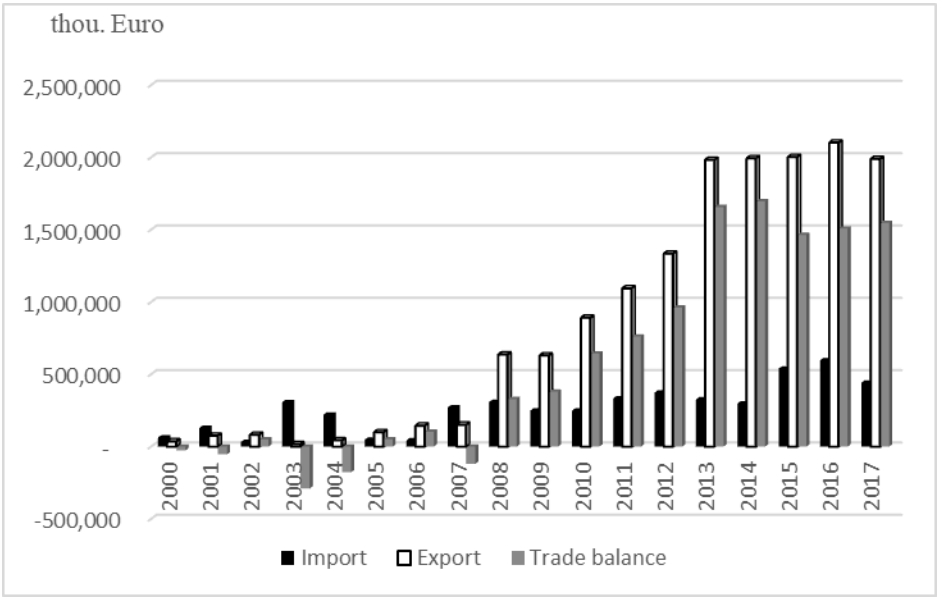
After the accession to the EU, through the National Rural Development Program 2007-2013, the cereal sector benefited from funding with a total value of 411.1 mil. euro as a result of accessing the following measures: (a) "Setting up of young farmers", with a total value of 83.7 mil. euro; (b) "Modernization of agricultural holdings" with 382 mil.euro; (c) "Adding value to agricultural and forestry products" with 206.7 thousand euro; (d) "Setting up producer groups", with 8.2 mil.euro.

Starting from the year 2007, the farmers who cultivated cereals benefited from the following support forms as a result of CAP implementation, nemaely: single area payment scheme (SAPS); redistributive payment; payment for agricultural practices beneficial for the climate and the environment; payment for young farmers; simplified small farmer scheme; transitional national aids 1 and state aid for diesel oil. All these forms of support obtained by the farmers who cultivated cereals enabled them to better manage their cash flow at farm level, to buy inputs without resorting to supplier credit and get a guarantee letter from APIA for bank loan.

While in the period 2000-2007 there were significant differences between the cereal prices from Romania and those from the EU, the accession to the EU together with the surplus of cereals for export resulted in the removal of these gaps. This can be noticed both in the case of wheat and of maize, in which the self-sufficiency level has exceeded 100% since 2008.

Foreign trade in cereals was reshaped in the period 2007-2016 compared to previous period, with trade intensifying; the trade balance was positive, following a growth trend beginning with the year 2008. Cereal imports mainly come from the Community market, while exports go mainly to countries outside the Community area.

Figure 2.1. Romania: trade balance in cereals in the period 2000-2017, thou. euro



Source: Eurostat, COMEXT database, Code 10: Cereals.

2.1.2 Oilseed Market

Iuliana Ionel

Romania ranked 7th in the EU in the year 2007 by the oilseed output value, with 3%, while in the year 2016 Romania climbed to the 3rd position in the EU, with a share of 10%, next to France (20%) and Germany (14%).

In the period 2007-2016, self-sufficiency in Romania ranged from 140 to 403% in rapeseed, from 110 to 165% in sunflower and only 26-40% in soybean. In the EU, self-sufficiency in the oilseed sector is quite low, mainly due to improper soil and climate, the highest deficit being in soybean, with only 5% self-sufficiency.

The area under oilseeds in Romania had a general increasing trend in the period 2007-2016. Romania cultivated 1.63 million hectares in the year 2016, accounting for 14% of the area under oilseeds in EU-28. Romania cultivated 16% of the EU's sunflower and soybean area, for each crop, as well as 11% of the area cultivated with rapeseed in the EU.

The average yields in the EU and Romania increased in all oil crops in the period 2007-2016. However, in Romania, the gap with the EU is maintained: 2% in sunflower, 25% in rapeseed and 27% in soybean, the main cause being the low input level applied (mainly in the case of chemical fertilizers) and rainfall variability during the vegetation period. The Romanian oil industry is competitive at EU level, with great

investments from the most prestigious foreign companies, absorbing almost 950 thousand tons of sunflower seeds and about 235 thousand tons of soy beans.

Table 2.2 Area, production and yields in oilseeds

		2007-2009 average	2010-2012 average	2013-2016 average
Soybean				
Area (thousand ha)	RO	77	72	92
	EU	344	447	650
Total production (thousand tons)	RO	104	132	191
	EU	863	1048	1848
Average yield (kg/ha)	RO	1341	1839	2086
	EU	2508	2346	2843
Sunflower				
Area (thousand ha)	RO	805	951	1029
	EU	3710	4124	4347
Total production (thousand tons)	RO	938	1483	2039
	EU	6382	7507	8780
Average yield (kg/ha)	RO	1165	1560	1982
	EU	1720	1820	2020
Rapeseed				
Area (thousand ha)	RO	383	345	350
	EU	6393	6673	6624
Total production (thousand tons)	RO	535	613	882
	EU	19680	19646	22216
Average yield (kg/ha)	RO	1395	1777	2516
	EU	3078	2944	3354

Source: National Institute of Statistics, Eurostat

Romania ranks 3rd in the EU in refined oil production. The market has developed very fast in recent years, concentration has increased a lot, so that the foreign processors produce two-thirds of the domestic oil production. The value of the Romanian oil production is estimated at over 300 million USD.

Due to the CAP financial support received, Romanian farmers have begun to use the supplier credit to a lower extent, for the

procureemnt of agricultural inputs, as the finance received under SAPS scheme enabled them to give up using credits. Also due to other CAP support forms, farmers could use the guarantee letter from the Agency of Payments and Interventions in Agriculture (APIA) as banking collateral. The increase of areas under rapeseed and the sale of production at haversting ensure the necessary liquidities to buy diesel oil for harvesting small grains cereals.

By accessing the NRDP projects, farmers could procure agricultural machinery and equipment, irrigation equipment, and to build production storage facilities/silos, as well as to replace their obsolete and energy-inefficient equipment. This resulted in performing high quality agricultural works, in due time, as well asin the storage of a good part of harvest on the farms, making it possible to sell the harvest at better prices.

Overall, Romania's trade balance in oilseeds, oils and oil meals continues to be positive, although the balance of trade continues to be deficient in the trade with soy beans and meals. It is well-known that Romania has exported sunflower and rape seeds in latest years to complete the processing needs of factories from western Europe. As we export more raw products and less finished products makes us get limited revenues from the trade with oilseeds.

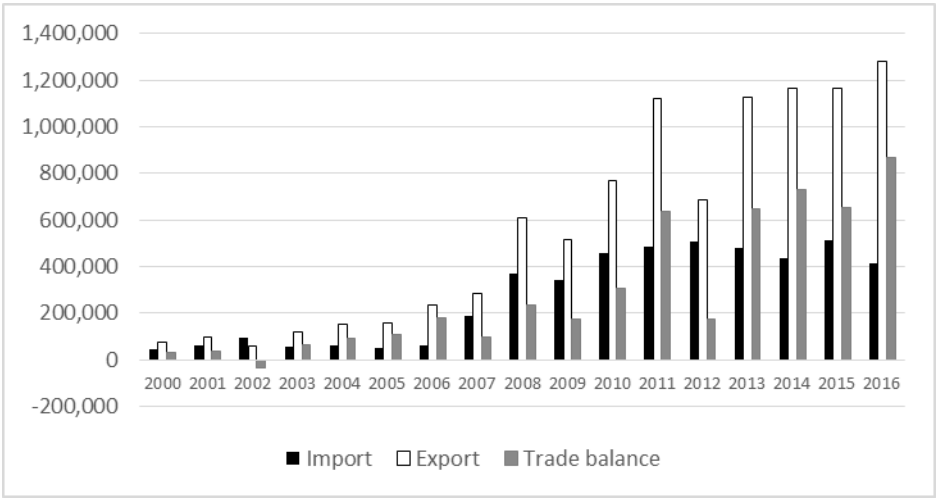
As regards the trade with soybean meal, as the main supplier of imported vegetable protein, the balance of trade is deficient, and this trend is increasing with the increase of demand on the domestic market.

Although an improvement of the soy beans export can be noticed, mainly as vegetable protein source to the European countries that develop organic animal production, the imports of genetically modified (GM) soy beans prevail, the balance of trade being negative in this case as well.

Thus, we can draw the following conclusion: in the sunflower trade and rapeseed the trade balance is positive, while in the trade with soy meals and beans Romania had a negative balance of trade, which has intensified lately due to the increase of vegetable protein demand for the livestock sector.

However, overall, Romania's balance of trade remained positive in the period 2007-2016, ranging from 123 to 850 million euro.

Figure 2.2 Romania: balance of trade in oil seeds, oils, meals and margarine, thousand euro



Source: Eurostat

2.1.3 Vegetable Market

Diana Drigă, Cornelia Alboiu

In the year 2016, the production of vegetables in Romania accounted for 3.6% of EU's vegetable produciton, Romania ranking 10th in EU-28, next to countries like Italy, Spain and France. If we refer to the year 2007, Romania ranked 9th in the production of fresh vegetables (melons included) in the European Union, with an output value of 1,908 million euro and 6th in the production of tomatoes in the EU.

Romania's 11-year EU membership has not brought about market stability, as an increased volatility of yields and prices could be noticed throughout this period, the market of vegetables being considered the most volatile agricultural market. Several factors contributed to this, namely: weather conditions, weak organization of the chain, as well as the steady decrease of areas under greenhouses, from 2400 ha in 1990 to 220 ha at present. The decreasing trend of areas cultivated under greenhouses was also maintained after 2007. This reflects the low interest for investments in greenhouses, both from private funds and from public funds under NRDP 2007-2013. The main cause is the increased risk presupposed by growing thermophilic crops in greenhouses, as well as the high financial volume required by this type of investment, including the low co-financing possiblity of farmers. On the other hand, the price of vegetables grown in greenhouses is not competitive with the price of imported vegetables.

Table 2.3. Distribution of cultivated areas and production in physical and value terms in EU-28 and Romania in the year 2016

	Cultivated area		Production		Production value at basic price	
	%	Ranking in the EU	%	Ranking in the EU	%	Ranking in the EU
EU-28	100		100		100	
Italy	20	1	19.5	2	18.5	2
Spain	17.3	2	23.2	1	20.2	1
France	11.5	3	8.4	4	9.4	3
Poland	10.1	4	8.7	3	6.3	6
Romania	6.5	5	3.5	10	5.8	7

Source: Eurostat 2018

Although in recent years the areas cultivated under greenhouses and plastic tunnels increased, in the year 2016 there were only 4,155 ha cultivated with vegetables under greenhouses and plastic tunnels, which accounts for only 1.8% of the total area cultivated with vegetables. The areas cultivated with field vegetables accounts for 57.5% of total area cultivated with vegetables, and the areas under fresh vegetables from kitchen gardens represents only 38% of the total area cultivated with vegetables.

Since 2007, the areas cultivated with vegetables under greenhouses and plastic tunnels have significantly increased. Thus, in the year 2016, the areas under vegetables grown under plastic tunnels increased by 1985 ha as against 2007 (from 2170 ha in 2007 to 4155 ha in 2016), i.e. by 91%. The investments in greenhouses and plastic tunnels mainly came from own funds, banking credits and partially by accessing the funds from NRDP 2007-2013. However, the vegetable sector's low access and absorption of the financial support from NRDP 2007-2013 is noticed, by comparison to the other agricultural sectors. At the same time, the accession and absorption of funds under Pillar I of CAP for setting up producer groups in the horticultural sector had the lowest level (23 mil. Euro – absorbed EU funds) compared to the other EU New Member States where the absorption was much higher (for instance, in Hungary, the level of absorption of funds from Pillar 1 was double compared to Romania); this situation contributed to maintaining a weak organization of the vegetable market.

Although the supply of vegetables is quite diversified, this has a quite low value, mainly due to the precarious organization of the chain

(about 1% organization level compared to the EU aveage of 45%). This situation leads to insufficient marketing activities meant to ensure attractiveness and food safety for consumers, and an insufficiently developed logistic and storage system. Although the horticultural potential is high, Romania ranking 10th in the EU in terms of vegetable production in 2016 (9th in the year 2007), the vegetable sector is still characterized by low productivity (3-4 times lower yields compared to the EU average in cabbages, for instance, or much higher productivity gaps in tomatoes). This situation is reflected by an insufficient domestic supply of vegetables both for fresh consumption but mainly for processing, the self-supply level in the period 2007 -2015 fluctuating from 78 to 87%, to reach a maximum of 93% in 2011.

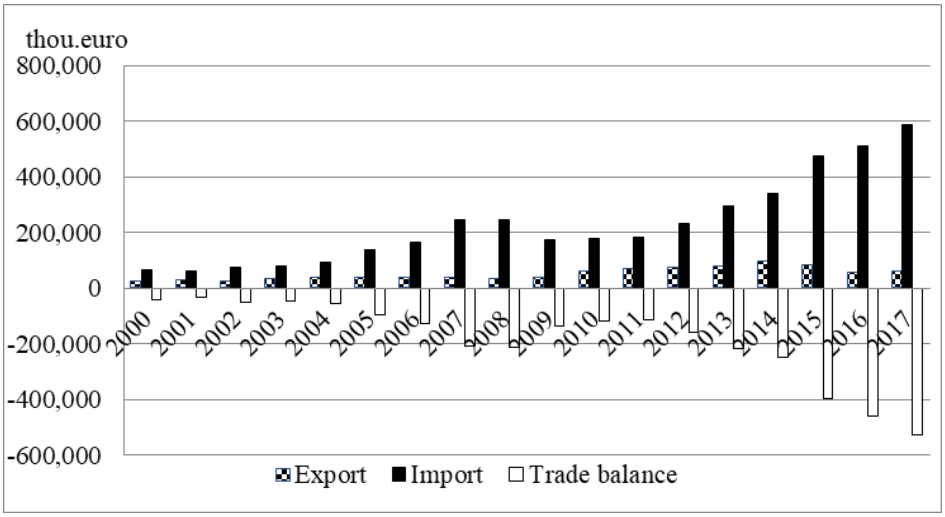
As for prices, due to high volatility of production in the three main types of vegetables, prices have had strong volatility, yet the accession to the European Union practically tempered their volatility, mainly in the winter period; the highest price volatility was noticed in tomatoes.

For the period 2007-2016, an increasing trend in vegetable consumption was noticed. Thus, the average vegetable consumption reached a maximum level in the year 2011, i.e. 163 kg/capita and a minimum level of 149 kg/capita in the year 2009.

In Romania's vegetable sector, the low yields and the weak organization of the chain are also reflected in the balance of trade.

In the period 2007-2016, the balance of trade was negative, reflecting an insufficient self-supply level. In Romania, the vegetable supply is most often seasonal, and the demand is continuous. At present, the exports of vegetables are low, with Romania being a great importer of fresh vegetables, from countries like: Turkey, Greece, Spain, Italy and the Netherlands. In the year 2016, Romania imported more than 525 thousand tons of vegetables, with a total value over 300 million euro. Romania exports mainly fresh vegetables, with increased exports of tomatoes and onions recently, the maximum value total exports reaching almost 100 million euro in 2015.

Figure 2.3. **Balance of trade in the group *Vegetables, roots and tuber crops***



Source: http://trade.ec.europa.eu/tradehelp/

The fluctuating self-supply trend after 2007 and the deficit in the balance of trade reveals that the CAP impact upon vegetable production and consumption has been relatively modest and this sector has not been able to capitalize on the financial opportunities provided under CAP, mainly those offered through Pillar I of chain organization through the producer groups and organizations.

2.1.4 Fruit Market

Viorica Gavrilă

In the period 2000-2017, the total area under fruit tree and shrub orchards in Romania was down by 56.79 thousand hectares, with a stronger decrease until 2007, i.e. by 68%. The decline of total area under orchards also continued after Romania's accession to the EU, yet by a lower rate (32%).

Orchards in Romania have a low productive potential, due to the advanced age of orchards and the prevalence of the classical growing system. This results in significant yield gaps between Romania and other EU member states involved in fruit farming.

At EU level, the value of fruit production amounted to over 26128 million euro in the year 2016, accounting for 12.7% of crop production value. Romania's fruit production, with a value of almost 891 million euro, accounted for 3.4% of the EU fruit production value.

In terms of physical produciton, the most important fruit grown in EU-28 are apples, with 12539.67 thousand tons in the year 2016. Apple

production is concentrated in six EU member states. Together, these have almost 75% of the area under apple orchards, with 75% of total apple production and almost 72% of total value of apple production in EU-28.

Table 2.4. Distribution of area under apple orchards, of physical and valoric production by main producing member states, 2016

	Production value – basic prices		Area		Production	
	(million euro)	%	(1000 ha)	%	(1000 t)	%
EU (present componency)	4112.33	100	523.70	100	12539.67	100
Germany	333.64	8	31.74	6	1032.91	8
France	914.9	22	49.65	9	1806.94	14
Italy	748.81	18	56.16	11	2455.62	20
Hungary	97.64	2	32.80	6	485.90	4
Poland	741.49	18	164.76	31	3604.27	29
Romania	275.86	7	55.53	11	456.90	4

Source: Eurostat [aact_eaa01]. [apro_acs_a]

While in the fruit producing member states positive structural changes can be noticed, both by increasing the area under orchards and mainly by their concentration, in the post-accession period in Romania, the areas under orchards were highly fragmented. Most farms from Romania involved in fruit production have orchard areas smaller than one hectare.

Post-accession financing in the fruit farming sector was mainly addressed to the marketing component, through producer groups. The measure has not addressed the concrete sectoral needs, characterized by great structural constraints.

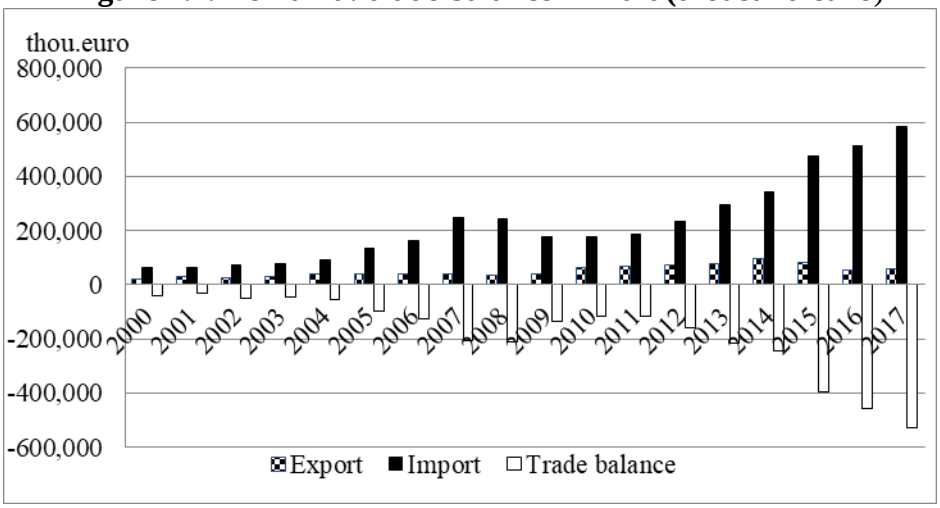
In the period 2007-2013, the funding attracted in the fruit sector was low (69.4 million euro) and did not have the capacity to stop the decline of areas, to attenuate the structural constraints (small areas under orchards, low share of high value added species) or to stop the fragmentation of areas. In these conditions, the sub-thematic program for fruit growing has been imposed as an absolutely necessary condition for sectoral recovery, yet the effects will be visible on the medium and long term.

There are significant gaps between Romania and the main member states producing fruit, in terms of labour productivity and farm revenues, the main factors responsible for this situation being the poor

technical endowment and vulnerability to weather conditions in the agricultural year, besides the structural factors.

Production competitiveness is low, by comparison with the main apple producers from the EU, Romania has the highest producer price, and the difference between the producer price and the consumer price is small. In the case of main European producers, the apple producer price is 4-5 times lower than the consumer price. As from the moment of obtaining the fruit until the moment of effective consumption there are a series of processes impying transport, handling, storage, procurement costs, the small difference between the producer price and the consumer price in our country reveals that this product is not attractive for traders. In order to satisfy consumer demand, traders prefer to import apples, at lower prices.

Figure 2.4. Romania: trade balance in fruit (thousand euro)



Source: Eurostat

On the medium and long term, producers can lose important market shares in favour of imports, especially if we also consider the consumption trends. A good organization of producers would also permit the increase of the market share of products from the fruit processing and preservation industry.

In the context of increasing the yearly average fruit consumption, the self-supply level has slightly oscillated, from year to year, yet it has been on a downward trend.

The impact of accession to the EU was materialized into the increase of trade flows but also into deepening the trade deficit. The fruit

import in the period 2000-2007 had an average value of over 115 million euro/year, with an average quantity of more than 330 thousand tons of fruit/year, while export value was over 33 million euro/year, with an average quantity of more than 31 thosuand tons of fruit/year.

After the accession, in the period 2008-2016, trade flows increased, namely: the average yearly value of imports was almost 294 million euro/year, with almost 496 thousand tons/year; the average yearly value of fruit exports was 65 million euro/year, with an average quantity of 47 thousand tons/year.

In the fruit group (08), the export price is generally higher than the import price. However, in the fruits under heading 0808 (apples, pears and quinces), since 2007 the access on foreign markets has been achieved through lower prices than those of imported products (by 57% lower in 2015 and by 50% in 2016). For the fruits under heading 0809 (apricots, cherrries, peaches, nectarines, plums and sloes, fresh) the export prices are higher than import prices, and the only years when they were lower were 2007 and 2008.

The trade balance is negative. In the period 2008-2017, the trade deficit for the fruit group increased more than three times compared to the 2000-2007 average. If we take the year 2000 as reference, the trade deficit grew almost thirteen times by the year 2017.

2.1.5 Grape and Wine Market

Viorica Gavrilă

The yearly wine production has been fluctuating in Romania.This is also the situation in the member states that produce wine grapes, as yields are strongly influenced by the weather conditions.

In the investigated period (2000-2016), the total area under vineyards (table grapes included) decreased by 67.37 thousand hectares, out of which the area under wine grapes represents more than 86%. In the period 2008-2016, the total area increased by 5.21 thousand hectares.

The area under wine vineyards decreased by 58.13 thousand hectares. A significant decrease was noticed until 2007 (-63.34 thousand hectares). This can be explained by the low financial capacity of farms to support investments in new vine plantations.

The positive evolution in the post-accession period is due to funding through the specific meaures under the National Support Program in the wine sector, mainly the restructuring/reconversion measure with a value of 210.5 million euro (42.1 million euro/year). In acccordance with the domestic vine growing sector specificity, Romania

chose financing four measures: promoting wines on third markets, restructuring and reconversion of vineyards, harvest insurance and use of concentrated grape must. The EAGF funds under this program were absorbed 100%. The absorption rate was 100% in 2014, and in 2015 and 2016 it was 41.7% and 24.4% respectively. The measure had an important structural impact on the medium and large-sized farms, through production focused on quality and improving the structure of plantations by age. The funding received also led to the increase in the workforce on farms specialized in viticulture.

Table 2.5. Area under wine vineyards, wine grape production and wine production value in the main producing EU member states, 2017

	Area		Production		Wine production value	
	Thou. ha	Rank	Thou. tons	Thou. ha	Mil. euro	Rank
Spain	921.65	1	5119.13	3	1171.29	4
France	746.54	2	5411.88	2	8940.88	1
Italy	634.12	3	6441.08	1	6915.48	2
Portugal	176.81	4	874.35	6	790.60	5
Romania	169.44	5	1021.46	4	287.72	7*
Germany	100.26	6	1014.24	5	1609.66	3

*rank 7 in the EU next to Austria – or rank 6 if we consider only producers by area and production

Source: Eurostat

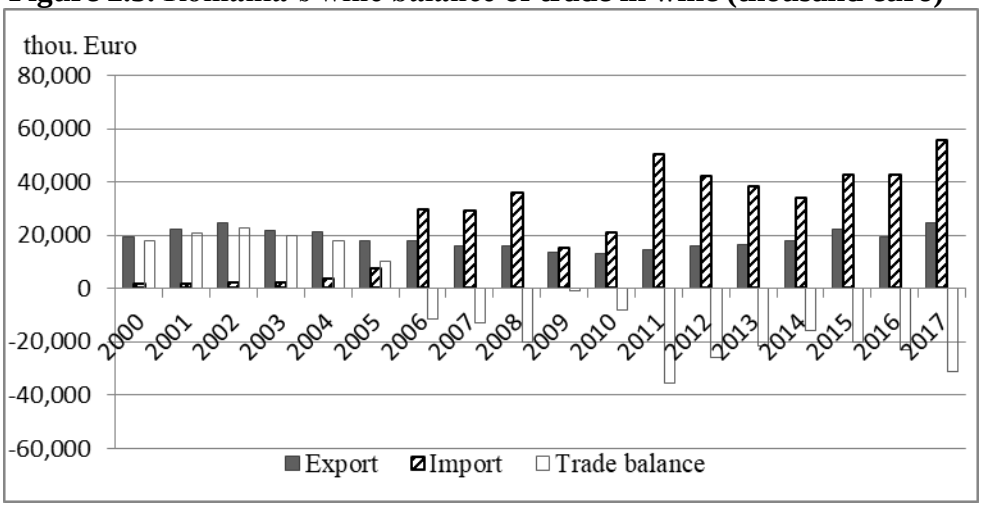
There are significant gaps between Romania and the main wine grape producers from the EU, in terms of labour productivity and farm revenues: the farms specializing in viticulture in Romania have the lowest labour productivity, while the farm revenues are extremely volatile in Romania.

Wine grape price in the year 2016 was 37.19 euro/100 kg, lower than in Portugal (38.13 euro/100 kg), yet it increased by 19% on the average compared to the average price in the period 2000-2007.

In the period 2008-2015, Romania's wine production decreased, on the average, by 1045.4 thousand hl comparred to the period 2000-2007. In the year 2016, wine production totalled 3627 thousand hl, out of which 24% quality wines (16% PDO; 8% PGI). An increase of the quality wine production can be noticed compared to 2010, by 55% in PDO wines and by 70% in PGI wines.

Although wine consumprion is slightly decreasing, self-supply in grapes has constantly decreased, as a possible effect of the sectoral restructuring process.

Figure 2.5. Romania's wine balance of trade in wine (thousand euro)



Source: Eurostat

The average value of wine imports in the period 2000-2007 reached almost 9.5 million euro/year, with an average quantity of almost 15 thousand tons of wine/year, while the value of exports was over 20 million euro/year, with an average exported quantity of over 31.7 thousand tons of wine/year. Bottled wines represent 11% of the imported quantity and about 1% of exports.

After the accession to the EU until 2017, the trade flows increased, namely: the average value of imports was over 37 million euro, with an average quantity of more than 43 thousand tons/year. The average value of wine exports was 17.3 million euro, with an average quantity of 12.2 thousand tons/year.

Wine trade balance was positive until 2005. Since 2006 it became negative, and the trade deficit increased. In the year 2016 the trade deficit doubled compared to 2006 and it continued to increase the following year.

The impact of EU membership has materialized in increasing trade flows, but also in deepening the trade deficit.

2.1.6 Beef Market

Mariana Grodea

Romania's slaughter meat production (in carcass) permanently decreased in the period 2007-2016, both in quantity and in value terms. In the year 2016, Romania ranked 15th and 16th respectively in EU-28 by the number of slaughtered bovines and beef production; this situation can be mainly explained by the low slaughtering weight (230 kg/carcass head as against 300 kg in France, 280 kg in Italy and 270 kg in Poland).

Table 2.6. Main beef producers in the European Union (slaughter meat)

	2007-2009 average		2010-2012 average		2013-2016 average	
	Share (%)	Rank	Share (%)	Rank	Share (%)	Rank
EU-28	100		100		100	
France	18.7	1	19.4	1	19.2	1
Germany	14.8	2	14.9	2	15.0	2
Italy	13.4	3	13.1	3	10.5	4
United Kingdom	10.7	4	11.7	4	11.7	3
Romania	1.8	11	0.4	20	0.5	19

Source: Eurostat

Although beef production (slaughtered animals for consumption) decreased from 163 thousand tons carcass weight in 2007, to 101 thousand tons carcass weight in 2016 (-38.1%), a positive fact can be mentioned, i.e. in the same period the meat production obtained in specialized units (slaughterhouses) followed an upward trend, and its share in total slaughter meat production increased from 26.6% in 2007 to 57.1% in 2016.

For the next years, having in view the legislative provision establishing the minumum operation conditions for low-capacity slaughterhosuess **(2017), a continuous increase of slaughter meat production is expected.**

Under the background of domestic production decrease, coupled with the fact that beef is not a traditional product in Romanian consumers' diet, the share of beef consumption also decreased in the structure of total meat consumption, from 17% in 2000 to 12.8% in 2007 and 9.3% in 2016.

Total production depends on animal weight and structure of categories at slaughtering. In Romania, the slaughtered bovines have a low weight (230 kg/carcass head), while as structure, 77.9% comes from slaughtering adult animals, out of which 49.5% cows. At the same time, the share of calves under 8 months that are slaughered in slaughtering units is high (20%), as against 5% the EU average, and the average

weight at slaughter in this category is only 45 kg/carcass head compared to 137 kg/head the EU average.

Table 2.6. Main beef meat indicators in Romania

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Bovines total, thousand heads	2819	2684	2512	2001	1989	2009	2022	2069	2092	2050
-out of which: on individual holdings, %	96.1	96.3	95.9	93.0	92.7	92.9	92.8	92.6	92.5	92.1
Total beef production, thou.tons live weight	333	306	264	205	212	199	192	184	200	206
-out of which: slaughter beef production, thou.tons carcass weight	43	40	25	28	29	29	29	29	44	58

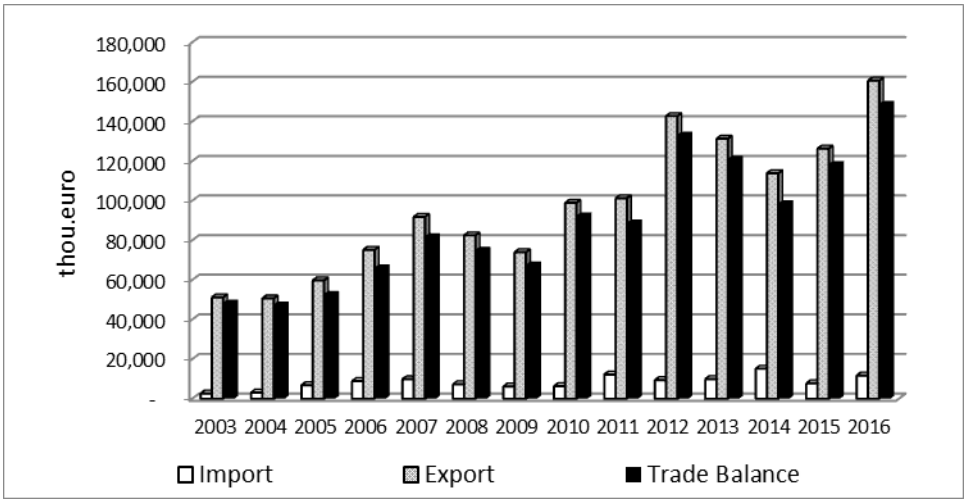
Source: NIS

The number of farms specialized in young cattle fattening was down by 35.4% in the investigated period; the number of farms raising 1-2 cattle heads decreased, simultaneously with the increase by 50-70% of farms with 16-35 heads, of those with over 100 heads/farm respectively.

The self-supply (indicator expressing the self-sufficiency rate) was down from 95.7% in 2007, to 79.6% in 2015.

In the period 2003-2016, the balance of trade in live bovines was positive, with the greatest trade balance in the year 2016 (148843 thousand euro), higher by 25% than in the previous year.

Figure 2.6. Romania's trade balance in bovines – live animals (thousand euro)



Source: Eurostat

According to the calculations based on Eurostat statistical data, at *Intra-Community* level, in the year 2016, Romania ranked 6th (2.67%) for the *export of live bovines* in value terms in the hierarchy of EU-28 countries and 15th (0.56%) for the *import of live bovines.*

The import of live bovines from the intra-Community area, in the year 2016, had as main suppliers Germany with 38.6% and Hungary with 16.6%, while the export had Croatia (55.7%), Italy (11.3%) and Hungary (10.6%) as main destination.

At *extra-Community* level, in the year 2016, the main destinations of Romania's exports were Israel (45.7%), Lebanon (16.9%), Turkey (13%) and Jordan (9.2%).

The sectors *"herbivorous animals (except for those from the dairy sector)"* and *"mixed (crops+animals)"* absorbed 88.9 million euro from public funds for the modernization of agricultural holdings, accounting for 9.8% of the total value of investments in the 245 projects contracted through NRDP 2007-2013; 16.3 million euro for setting up of 6840 young farmers (5% of the total value of investments under Measure 112) and 0.4 million euro for setting up producer groups.

2.1.7 Cow Milk Market

Mariana Grodea

Romania's milk production, with a total value of 1033.2 million euro in the year 2016, represented 2.1% of the EU milk production value. With a milk production of 4,586 thousand tons, Romania ranks 10th in the EU-28 member states, although it ranks 8th by the number of dairy cows

Table 2.7. Main milk producers in the European Union

	2007-2009 average		2010-2012 average		2013-2016 average	
	Share (%)	Rank	Share (%)	Rank	Share (%)	Rank
EU-28	100		100		100	
Germany	20.0	1	19.9	1	20.0	1
France	16.4	2	16.3	2	15.9	2
United Kingdom	9.6	3	9.2	3	9.2	3
Poland	8.6	4	8.2	4	8.1	5
The Netherlands	8.0	5	7.9	5	8.3	4
Romania	**3.4**	**9**	**2.7**	**10**	**2.6**	**10**
Average cow milk yield (kg/head/year)						
Germany	6909		7209		7563	
France	6250		6698		6956	
United Kingdom	7208		7715		7904	
Poland	4647		5110		5936	
EU-28	5950		6533		6855	
Romania	**3243**		**3546**		**3508**	

Source: EUROSTAT

EU membership has not contributed to the revigoration of the dairy sector (2007-2016), but rather to a strong decline of dairy cow herds (-24%) and of milk production (-23%), yet with a slight increase of the average yield (+2%), which still remains among the lowest in EU-28.

In these conditions, in the period 2007-2016, and mainly after the removal of milk quotas in April 2014, the raw milk quantity collected for processing from the Romanian farms decreased by 13.2% and the imported raw milk quantity increased by 196.8%.

The cause for this situation is that, with the mandatory introduction of quality standards for raw milk for processing (somatic cell count and total bacterial count), most milk producers with small farms, due to insufficient financial capital, did not have the possibility to invest in technology (mainly in milking equipment) to ensure the necessary milking hygiene.

Table 2.7. Main indicators for the cow and buffalo cow milk in Romania (thousand tons)

	200	200	200	201	201	201	201	201	201	201

	7	8	9	0	1	2	3	4	5	6
Total milk produciton	5652	5652	5652	5652	5652	5652	5652	5652	5652	5652
Total raw milk for processing *	1185	1107	1074	992	980	948	980	1075	1021	1083
-raw milk collected in Romania	1141	1055	993	905	898	889	884	998	920	953
-raw milk from import	44	52	81	87	82	59	96	77	101	130

*Source: NIS*raw cow and buffalo cow milk milk collected in the country + imported milk*

As a positive fact, we can mention that in the post-accession period, the total number of dairy farms decreased by almost half, from 1052028 in 2007, to 604473 in 2016 (-447555), mainly those with 1-2 dairy cow heads (-47.8%). In the same period, the number of commercial dairy farms with more than 31 heads increased, from 1099 to 2759 in the period 2007-2016.

As regards the economic farm size, we mention that 39% of the dairy cow farms have an economic size ranging from 4000 to 7999 euro, and 33% have an economic size in the interval 2000 – 3999 euro; for the farm to be eligible for EU funds, it must have a Standard Output of minimum 12000 euro, for Sub-measure 6.1. – "Setting up of young farmers", or minimum 8000 euro for Sub-measure 6.3. – "Support for the development of small farms**".**

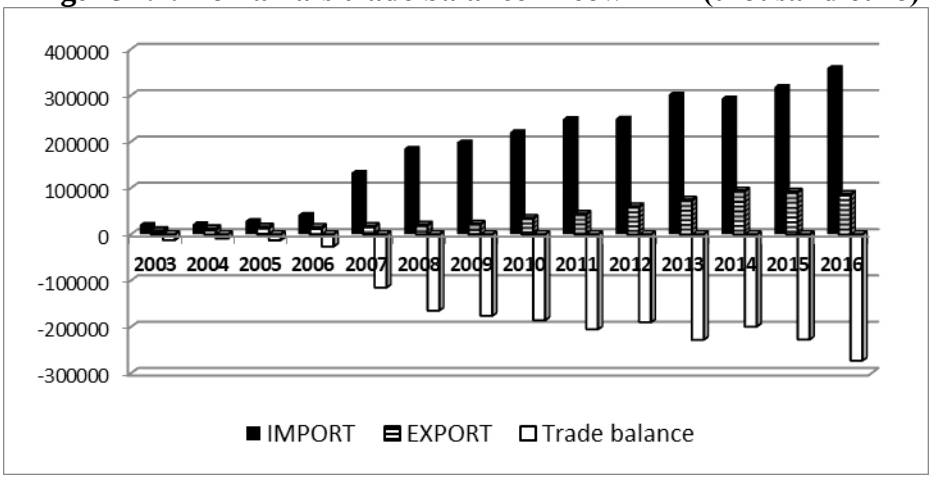
The sector "*Milk and dairy products"* absorbed through NRDP 2007-2013 the amount of 54.3 million euro for the modernization of dairy cow farms (6% of the public value of the measure) and 423 projects were contracted (3.3% of total projects under the measure) for setting up of young farmers.

Although self-sufficiency in milk is higher than that in meat, ranging from 99.7% (in 2004 and 2005) to 93.1% in 2015, like in the case of meat, self-sufficiency decreased in the post-accession period, due to production decline and growth of imports.

The imports of dairy products continued to increase in the period 2007-2016, with stronger growth after 2014. Thus, in the year 2016, for groups 0401 – non-concentrated milk and cream and 0402 – concentrated milk and cream, imports increased 3.2 times, the main partners being

Hungary (57%) for group 0401 and Poland (27%) for group 0402. In group 0403 – fermented milk and cream, the increase was 2.3 times, Germany taking the largest share (45%). Butter (group 0405) was mainly imported from Poland (43%) and Germany (19%). In cheese and curds (group 0406), the increase was 2.8 times, the main suppliers being Germany (44%) and Poland (14%).

Figure 2.7. Romania's trade balance in cow milk (thousand euro)



Source: Eurostat

In the investigated period, the balance of trade in milk and dairy products was negative, and the trade deficit grew stronger since 2007 in particular, to widen to a record of 272.4 million euro in the year 2016.

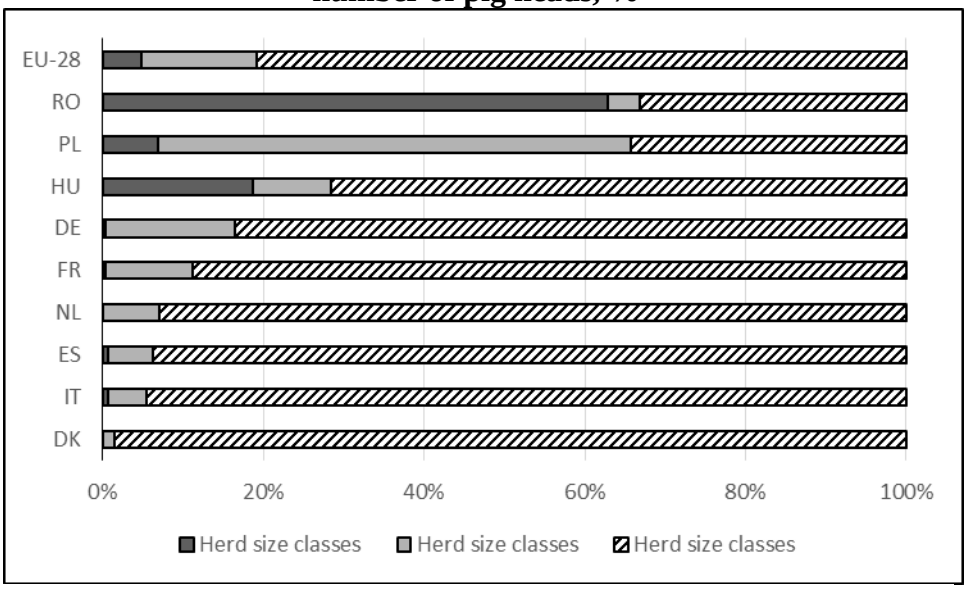
2.1.8 Pork Market

Iuliana Ionel

The decline of pig herds by 29% in Romania and by 9% at EU level in the period 2007-2016 was mainly due to low profitability, as a result of the new economic and regulation conditions, with impact upon the worst performing farms. Romania ranks 1st as share of farms (63%) with less than 10 pig heads/farm and on the last place with regard to the share of farms with over 400 animals/farm (33%). In Romania, the average number of pigs per farm is 3 pig heads. In the period 2005-2013, although the farm size at national level remained unchanged, the average size of farms with revenues between 250 and 500 thousand euro almost doubled, to reach 270 heads/farm, in the year 2013, and the same thing is noticed in the case of farms with incomes over 500 thousand euro (9378

pig heads/farm). Thus, we can see a similar process to that in Germany, where in the last 25 years about 95% of small farms disappeared.

Figure 2.8. Size structure of pig farms in EU in the year 2010, by number of pig heads, %



Source: Eurostat [apro_mt_ppighq]

The increase of feed costs in the EU made many farms become unprofitable in the period 2008-2010. Romania has a surplus of cereals available for pig raising, but like the EU, it depends on the imports of protein feeds. While in the EU there are firms specialized in pig feed production and marketing, in Romania, feeds are generally produced on the farm, and complying with feed recipe requirements depends on the financial resources available on the farm. The large vertically integrated farms, which are involved in pig feeding, breeding, fattening, slaughtering and pork processing activities are competitive in terms of prices.

In the investigated period, in Romania, pork production was drastically down by about 31%, to reach 337 thosuand tons. An analysis of the evolution of pig slaughtering in specialized slaughtering units in Romania reveals that these followed an increasing trend. In Romania, the carcass classification system was introduced in the year 2004 and with it farmers' interest in using highly performant genetics for pig fattening increased, which led to the increase of imports of live pigs.

Table 2.8. Main indicators of the pork sector in Romania

		2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Pig herds	million	6565	6174	5793	5428	5364	5234	5180	5042	4927	4708
	% indiv. farms	80	78	74	68	70	69	68	68	64	62
Pork production	thou. tons live weight	642	605	585	553	557	555	547	535	562	588
	% indiv. farms	73	69	61	56	49	52	51	50	49	46
Slaughter production	thou. tons carcass weight	491	455	222	234	263	282	308	325	330	337

Source: NIS and Eurostat data

The average yearly prices for E pork carcass in the period 2007-2016 had the same fluctuating trend both in Romania and in the EU. However, higher prices than in the EU were recorded in Romania (+13% the highest amplitude), and the gap between the two prices began to narrow in the year 2014, the two prices reaching the same level by the year 2016.

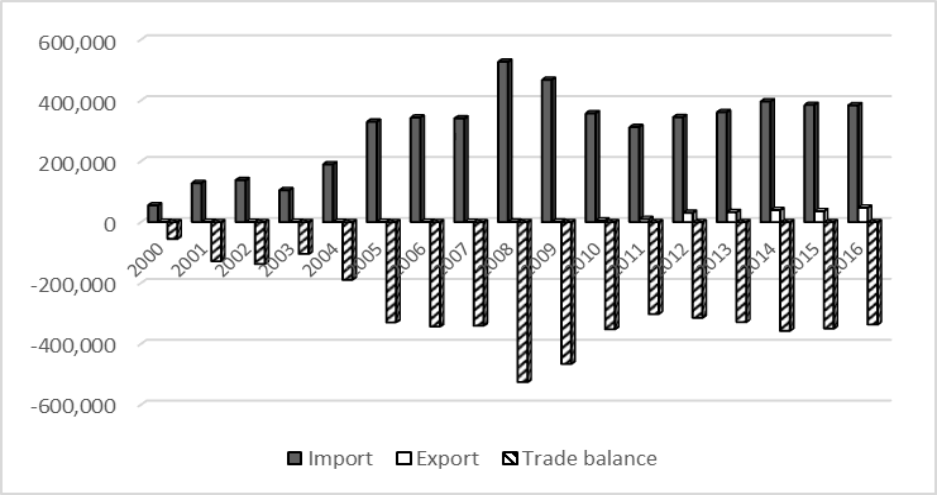
Pork consumption in EU-27 slightly decreased by 2%, to reach 40.9 kg/capita in 2015, while in Romania the decline was 10%, with pork consumption reaching 31.5 kg/capita.

In EU-27, self-sufficiency in pork ranged from 105 to 112%, in 2000-2015, while in Romania self-sufficiency in pork decreased from 91% in 2000 to 70% in 2015.

In Romania, the investments in the pork sector came mainly from own funds, as well as from funds attracted from the European Union. The investments from exclusively EU funds made in the period 2000-2014 amounted to approximately 314 million euro, which were accompanied by co-financing, which almost doubled the total value of investments. All these investments enabled the operation at European standards of a large part of farms and processing units, but the sector needs continuing restructuring and modernization to become performant.

Due to the high pork prices on the domestic market and to the very high fragmentation of domestic supply, Romania became dependent on the imports of live animals, pork meat and preparations.

Figure 2.8.1. Romania's trade balance in live pigs and pork (thousand euro)



Source: Eurostat

Romania had a ban on exports of live animals and pork in the intra-Community area until January 1, 2014, due to the outbreaks of swine fever detected in 2006 and the vaccination of animals against this disease.

The EU had a surplus in the balance of trade with pork in the period 2007-2016, while Romania had a trade deficit (510 - 300 thousand euro) and became a net importer of live pigs, pork and pork preparations. Russia restricted the EU imports of pork and pork products from January 1, 2014, which determined a surplus supply on the EU market with price cuts and placing larger quantities in the countries from Eastern Europe.

2.1.9 Poultry Meat Market

Lucian Luca

The post-accession developments of the poultry meat market from Romania describe a subsector under restructuring, with already noticeable results: growth of large-sized farms, most often integrated with slaughterhouses, which obtain quality products at competitive prices at EU level.

Although Romania cannot become a great European poultry meat producer on the medium term, the investments on poultry farms and slaughterhouses hint to the idea that Romania will consolidate its position as medium producer and will be able to cover the domestic poultry meat needs, decisively contributing to the country's food security.

In the period 2007-2013, the poultry flocks constantly stood at more than 80 million heads, although on a slightly declining trend. In the period 2014-2016, the flock declining trend continued, so that by the year 2016 the poultry flocks totalled 76 million heads.

By contrast with the European trend, in Romania, the individual household farms had 63% of poultry flocks in the year 2016, down by 7% from 2007. Generally, on the individual household farms, poultry are raised to meet the self-consumption needs.

The production of slaughter poultry meat for consumption increased by 33% in the period 2007-2016 (Table 2.9). The share of individual farms in total production was 20% in 2016, under drastic decline from 32% in 2007, which proves the modernization of the poultry raising sector, through the increase in share of the commercial farms with legal status.

The poultry meat production obtained in specialized units increased the most in the period 2012-2016.

Table 2.9. Main indicators of the poultry meat subsector in Romania

		2007	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**
Poultry flocks	million	82	84	84	81	80	80	79	75	79	76
	% indiv. farms	72	75	72	67	67	68	68	70	68	63
Poultry meat production	thou.tons live weight	416	410	489	446	478	471	457	488	558	555
	% indiv. farms	32	36	32	31	25	25	26	25	18	20
Slaughter production	thou.tons carcass weight	305	343	290	287	294	313	326	346	375	391

Source: DG Agri data

The performance of the Romanian poultry raising sector is comparable to that of the greatest poultry producers from the EU, yet is is

somehow disadvantaged by the characteristics of the domestic poultry meat market, i.e. by consumers' preference for cheap, lower quality products. These add to a series of other problems among whih we can mention: feed price volatility, poor access of small producers to performant genetic material, weak integration of small farms on the national and European markets, need to consolidate poultry meat exports in the EU and in the extra-Community area.

Although broiler prices in Romania are under the EU average, the Romanian farms are facing competition on the domestic market both by the countries with higher prices per product, which find here an outlet for secondary products (chicken legs) and by the performant regional competitors (Poland, which has even lower prices, or Ukraine, which benefits from the advantages of the EU association agreement).

The poultry raising subsector from Romania (500 commercial farms) received support through payments from the state aid category, to improve the quality of products of animal origin. National funds were allocated in two tranches: in the first period (2010-2011), 463 farms actually received payments for poultry welfare in the total amount of 331.5 million RON, and in the second period (November 2011-2012), 227 farms received 207.5 million RON.

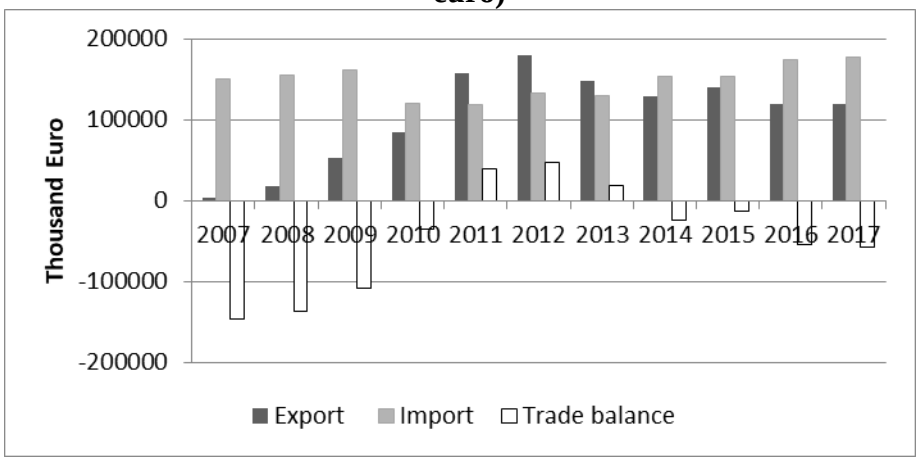
Until the end of 2005, the poultry sector was funded through NRDP under the following measures: "Modernization of agricultural holdings", 83 projects with a public support value of 87.7 million euro; "Setting up of young farmers", 59 projects with a total value of 1.76 million; "Setting up producer groups", 2 projects with a value of 780 thousand euro.

The Romanian poultry sector together with the pig raising sector benefitted from animal welfare payments funded through NRDP 2007-2013 with a total value of 526 million euro.

In the year 2007, self-supply in poultry was 71.6%, to increase to 97.5% in 2011, reflecting the improvement of domestic poultry industry performance. As at EU level self-sufficiency has been reached in poultry, poultry meat production increase in Romania continues to be a challenge for the poultry subsector.

The Romanian trade with live poultry has experienced a moderate and decreasing deficit, while in the trade with poultry meat the deficit was recovered and a surplus emerged beginning with 2011, yet this situation could not be maintained and the trade has been facing deficit again since 2014.

Figure 2.9. Romania's balance of trade in poultry meat (thousand euro)



Source: Eurostat

If the situation of trade with poultry meat preparations is also taken into consideration, the picture becomes more complex, revealing the contribution by almost 30% of imports (of low quality products, at low prices) to the domestic supply. In other words, the constant growth of poultry meat consumption is based on imports. The average import price for poultry meat in the period 2009-2016 represented 64% of the export price. The situation is also similarr in the case of poultry meat preparations, in which the average import price was 73% of the export price (Van, 2017).

2.1.10 Sheep And Goat Meat Market

Mariana Grodea

The meat production obtained in slaughterhouses was 8.4 thousand tons in carcass, in the year 2016, which places Romania on the 10th position among the 28 member states of the EU; however, Romania ranked 4th in the EU in terms of total sheep and goat herds, next to United Kingdom, Spain and Greece. Romania's being in the top four countries in the EU was due to programs that stimulated the organization of farms for raising and fattening young sheep into associations, for supplying meat on the domestic and foreign markets, as well as to the modification of the priority operating directions for meat – milk production. At the same time, the sheep herds for meat production were improved through artificial insemination and breeding rams for meat production, by improving the size structure of farms specialized in fattening young

sheep and introducing the carcass classification grid, according to EU standards.

The support of the sheep and mainly goat raising sector through EU funds and an increased demand for goat milk and dairy products (goat milk has a higher nutritive value than cow milk) from consumers, were the motivational factors for producers, materialized in doubling the quantity of ewe and goat milk, from 3112 thousand hl in the year 2000, to 6113 thousand hl in 2016.

In the period 2007-2016, farmers preferred to slaughter the animals in specialized slaughtering units, the proof being the increase of slaughter production from 3.7 thousand tons live weight in the year 2007, to 18.6 thousand tons in 2016.

Although the share of slaughter in specialized units increased from 3% in 2007 to 19% in 2015, it is still low compared to other EU member states; in terms of average weight at slaughter, Romania is among the countries with the lowest average weight of carcass (12.8 kg/head).

The average farm size is continues to be low (29 sheep heads/farm and 11 goat heads/farm) making it difficult to adapt to the new performant technologies as a result of the insufficient own financial means and low access to other funding sources.

The consumption of this type of meat is most often occasional, accounting for 3.5% in total meat consumption structure, with maximum values in the Easter period. Romanian consumers' preferences for sheep and goat meat is different across regions, with higher consumption in the region Sud-Est, with Greek and Turkish influences, and the region Centru, with tradition in sheep raising.

The analysis of self-supply level for the period 2006-2015 reveals 100% and over self-sufficiency from domestic production. It is worth noting that in the period 2012-2015 an increasing trend was noticed, so that by the year 2015, self-sufficiency reached 115% due to the significant increase of exports.

Trade balance in live sheep was positive in the period 2003-2016, due to the steady increase of exports. The greatest revigoration was produced since 2011 (increase by 37.5% compared to 2010), and the largest trade balance was recorded in 2014 and 2016 (163.4 million euro). In the year 2016, Romania ranked 1st in the EU in *exports* (22%), followed by Spain (20%) and Hungary (19%) and in ranked 14th in *imports* (0.78%).

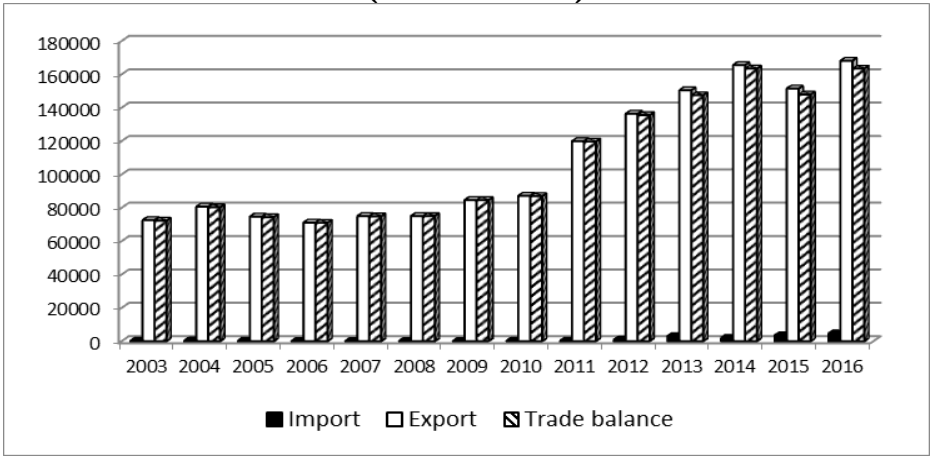
Table 2.10. Distribution of slaughtered sheep and goat herds, of the volume and value of production in the main EU member states, in the year 2016

	Production value – basic prices		Production of slaughter meat		Slaughtered sheep and goats	
	million euro	%	thousand tons	%	thousand heads	%
EU-28	5772	100	753.9	100	48410	100
United Knigdom	1813	31.4	289.9	38.5	14544	30.0
Spain	1107	19.2	126.3	16.8	11419	23.6
France	855	14.8	89.3	11.8	5034	10.4
Greece	635	11.0	74.5	9.9	6865	14.2
Ireland	244	4.2	61.0	8.1	2892	6.0
Romania	**202**	**3.5**	**8.4**	**1.1**	**637**	**1.3**
Italy	169	2.9	32.9	4.4	3079	6.4
Germany	156	2.7	22.0	2.9	1077	2.2

Source: Eurostat

Since 2009, Romania has no longer imported live sheep and goats from the extra-Community area. The imports from intra-Community countries significantly increased instead, mainly after 2013, with imports mainly coming from Spain (72%) and Hungary (19%) in the year 2016.

Figure 2.9. Romania's trade balance in live sheep and goats and meat (thousand euro)



Source: Eurostat

The sheep export almost fully depends on the orders coming from Northern Africa and Middle East, and has the following extra-Community countries as destinations: Jordan (58%) and Libya (26%). In

the year 2016, according to data from the National Institute of Statistics, Jordan was the main export destination country, with a total value of exports of 73.4 million euro, which represents 58% of the total value of extra-Community sheep exports. The export destinations in the intra-Community area are Greece, Italy and Bulgaria, category "lambs up to 1 year", with a share of 83% in the total value of exports.

Conclusions

At the level of agricultural markets, the ***effects of accession to the European Single Market were not at the level of expectations***, the most improtant causes being the low competitiveness of most agricultural products, production instability, low yields, large scale of subsistence economy and last but not least, the existing gaps between the levels of direct payments received by the Romanian farms and by the other countries from the region.

In the case of cereals, although the yields continued to be lower than those of the great producers from the EU, in the post-accession period a ***steady increasing trend was noticed***, due to the easier economic access of farms to quality inputs, as well as to farmland consolidation and increase in the size of farms where cereals are cultivated. The average wheat and maize prices were, as a rule, below the EU average, which provided competitiveness to the Romanian cereals and contributed to the growth of the foreign trade with cereals in the period 2008-2016.

At the same time, the oil crops (sunflower and rapeseed in particular) have fast developed in recent years, under the background of increasing external demand of biofules and rising prices on international markets. ***Romania became one of the important European producers of oilseeds***, ranking 3rd in the EU in the year 2016, next to Germany and France. The oilseed yields also increased, yet below the European average. The success of these crops is due to the fact that they are grown on large-sized faarms, of thousands of hectares, and their production mainly goes to export on markets where prices are stimulating. The trade balance in oilseeds is positive, and it steadily increased in the period 2007-2016, ranging from 123 to 850 million euro.

The sector of vegetables has not performed very well in the post-accession period. The main causes are the ***weak organization of the chain*** (about 1% organization level compared to 45% the EU average), variability of weather conditions (the very cold winters in particular make out-of-season growing of vegetables be very expensive) and the constant decrease of areas cultivated under greenhouses (that reached only 220 ha

at present). Although there were different forms of support addressed to the vegetable sector, under NRDP and CAP Pillar 1, the absorption level was low compared to other agricultural sectors, and this contributed to maintaining a weak organization of the chain, compared to other countries from the EU. Yields are also much lower in Romania compared to the EU average (in tomatoes, for instance), which creates premises for low competitiveness. The balance of trade remained negative after the accession, under the background of insufficient supply, both for fresh and processed vegetables.

At the same time, the fruit production sector has not improved significantly in the post-accession period. ***Orchards continued to have a low productive potential in Romania***, due to the advanced age of orchards and prevailing classical growing system. This is reflected in the existing gaps between the fruit yields obtained in Romania and those from other EU member states. The EU funds attracted in the fruit sector were low and could not stop the decline of areas under orchards, have not attenuated the structural constraints and have not stopped either the land fragmentation. The support measures mainly focused on marketing, through producer groups. In this context, competitiveness has remained low in Romania, the producer prices being much higher than in the neighbouring countries. The trade deficit has deepened under the background of domestic fruit consumption increase.

The viticultural sector has had a positive evolution after 2007, due to funding received under the specific measures from the *National Support Program 2009-2013*, mainly the ***restructuring/reconversion measure, the implementation of which had a significant structural impact on the medium and large-sized farms***, through quality-focused production and improvement of the fruit plantation structure by age. The funding received also led to the increase in the workforce on the farms specialized in viticulture. The effects of this restructuring, of plantation rejuvenation in particular, will be seen in the periods to come. In the investigated period, the trade deficit deepened, under the background of the tendency to import cheap wines and export more expensive wines. Thus, the average value of imports was almost 35.6 million euro, with an average quantity of almost 43 thousand tons/year. The annual average value of wine exports was 16.6 million euro, with average exports of 11.4 thousand tons/year.

EU membership has not brought about a revigoration of the cattle raising sector. ***A drastic decline of herds was noticed***, of the number of animals to be slaughtered for human consumption. At the same time, the

slaughtering weight of animals in Romania is under the EU average. A positive element is that meat production obtained in specialized slaughterhouses, according to EU norms, increased. Another positive element was that, although the number of farms raising cattle decreased, a process of consolidation of herds into medium and large-sized farms was initiated. For instance, in the year 2013, the number of cattle farms from the category 100000-249000 euro increased by 50%, compared to 2005. The balance of trade in live bovines was permanently positive in the period 2007-2016, with the largest surplus in the year 2012.

The dairy cow herds also decreased, together with the decrease of the quantity of raw milk produced, yet a slight increase of average milk yields was noticed. It is worth noting that the ***share of collected raw milk that reaches the chain continued to be very low***, continuing to account for only 19-22% of total cow and buffalo cow milk production. This was also negatively influenced by the removal of milk quotas in the EU in the year 2015. The failure of milk collection activity is explained by the excessive fragmentation of herds (2.3 dairy cows/farm in 2016) and the unattractive prices paid by the collectors. Most raw milk quantities are valorized on the farms, under different forms, while increasing amounts of raw milk are imported for processing.

Pig herds also diminished (by 29% in 2016, as against 2007), as a result of the low profitability and new sanitary-veterinary regulatory conditions. The decrease of pig farm profitability was produced in the context of increased feed prices, as althougb Romania produces sufficient cereals, it is dependent on the import of protein feeds. The lower competitiveness materialized into higher prices for carcass meat than the EU average. Pork meat production also decreased significantly, and ***Romania became a net pork importer to meet the consumption needs of the population.*** As positive elements, we can mention the tendency of pig herds concentration into large and very large-sized farms and the increase in number of the animals slaughtered in EU-certified slaughterhouses.

The post-accession evolutions of poultry meat market in Romania describe a sub-sector under full restructuring, with already noticeable positive results: the increase of the contribution of large-sized professional farms, most of them intergrated with slaughterhouses, which can obtain quality products, at competitive prices in the EU. In this context, poultry meat production slaughtering for consumption increased by 33% in the period 2007-2016, and the production of poultry meat obtained in certified slaughterhouses also increased. ***The poultry raising sector in Romania has technical performances comparable to those of***

the most performant producers in the EU, yet is is somehow disadvantaged by the domestic market characteristics, i.e. consumers' preferences for cheap, lower quality products. Thus, although broiler prices in Romania are below the European average, the Romanian farms are facing competition on the domestic market both from countries with higher prices that find an outlet here for lower quality products and from the most performant countries in the region (e.g. Poland).

Unlike the other animal raising sectors, the ***sheep and goat sector experienced revigoration after Romania's accession to the EU***, the number of animals steadily increased, 1.2 times in the case of sheep and 2.7 times in the case of goats. These evolutions took place as a result of the support received by the sector from EU and national funds, as well as of the increase of demand for sheep meat from foreign countries and of the domestic demand of goat and ewe milk. Thus, the surplus in the balance of trade in live sheep was permanent in the period 2007 – 2014, the main export destinations being the countries from Middle East and Northern Africa. Romania ranks 1st in the EU in the export of live sheep.

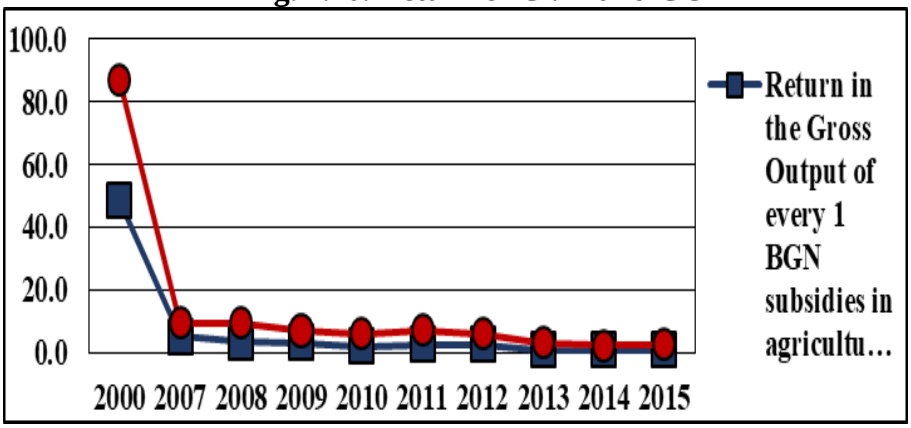
2.2. REPERCUSSION OF PUBLIC SUPPORT TO BULGARIAN AGRICULTURAL DEVELOPMENT

Bozhidar Ivanov, Emiliya Sokolova and Vasil Stoychev, Rumen Popov

Direct payments impact on the competitiveness and sustainability in agriculture

The initial CAP target from its formation is to support the sector competitiveness which has a key position in the economy of EU states. The direct payments evolve. They have been remodeled from protection and support in the 90[s] of the last century to the main tool of incomes' support. Thus, they do not have a direct orientation to the output stimulation. This occurs in the new stage of global economic and politic development when the accent is put on the sustainable development.

Fig. 2.10. Return of GVA and GO



Source: Own evaluations according data of National Statistical Institute and Payment Agency

The competitiveness of an economy, sector or firm means the capacity of protect and increase its market share and added value. The concept of sustainability is to achieve a competitiveness and growth with regards to the social and ecological aspects. For measuring of the competitiveness are used multiple indicators (efficiency, productivity, return, innovativeness etc.), all of them giving an assessment of the competitiveness. After the EU accession there is an expectation about subsidies to contribute for the renaissance of the ruined agricultural production, which turns out 3 times lower up to 2007, related to the end of 80[s]. To realize this target Bulgaria needs the CAP, implemented up to the end of 90 years or coupled politics. Nevertheless, the subsidies should contribute indirectly (through incomes and creation of better

economic environment and security for the producers) to the increase of the competitiveness – increase of output, market realization and added value.

The Bulgarian agriculture shows a trend to stagnation, even slight decrease of added value in the structure of national economy in the last years. The added value of the agriculture maintains the level of 5 % for all the period of membership. After 2007 a growth of the output and its realization has been observed, due to the increase of average yields, technologies improvement and price raising of the main agricultural output (between 10-20%). There is low use of land resources, which is an indicator of competitiveness. In Bulgaria are available under 4% of EU resources and the production is lower than 1% of the GDP. The land productivity (GVA per unit of agricultural land) is 300 EUR/ha at EU average 880 EUR/ha. The labor productivity GVA/AWU in our country is 3 times lower than in EU. The labor force in agriculture has diminished permanently in the last 15 years. There is a trend of reduction of the input labor. The remunerations in agriculture are nominally lower than in the rest of sectors and the pace of their increase is the lowest in comparison to other sectors of the economy. The ratio of factors land/capital is 2 times lower than in EU, which outlines the low work efficiency.

The farms' economic potential is low - 4,4 ESU at average size of 15,2 ESU for EU. The increase of the costs for agricultural production is considerable. Despite the growth of both exportation (14% annual growth for 2007-2016) and importation (9% average annual growth) of agricultural products and the availability of various assortment, prices, qualities and trade chains, the farms suffer the competitive pressure on the international market because of the fact that the direct payments levels are lower than the average ones in EU. On this background, the return of GDP for each 1 BGN of subsidies in agriculture has decreased from about 10 BGN in 2007 to 3,3 BGN in 2015, and in GVA – from 5,60 BGN to 1,4 BGN or almost 4 times.

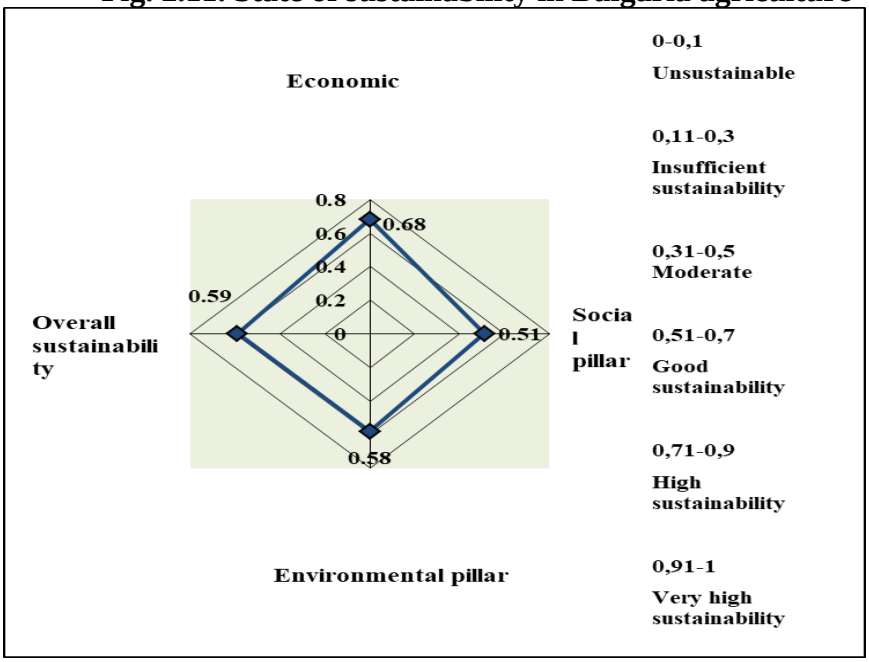
A study has been made about the sustainable development, based on over 30 indicators in 3 main pillars – economic, ecological and social, giving idea of the sustainable functioning of the sector up to 2015. Although they do not give full warranty for the existence of the sector in the future, they could be accepted for sufficiently representative for the next 3-5 years. The analysis of sustainability of agriculture under 3 pillars shows a good level in the economic sphere, on a level of 0,68 at a maximum of 1. The assessment under this pillar has been made through the comparison of determined levels in the developed European

agriculture. One of the biggest weaknesses, identified in the economic pillar, is for the labor and land productivity, where the indicators'values correspond to very low sustainability.

The lowest sustainability is measured for the social pillar, where the evaluated coefficient is about 0,51, which is at the limit of restricted but good sustainability. This relatively low result of social activity in agriculture reveals lots of challenges. They are related to the payment of employed, to the labor conditions, to the organization of the labor force and organizations for protection of their interest, to the education and qualification. The state of ecological aspects of sustainability were evaluated on levels about 0,58, which could be defined as a good sustainability. This result, although defined as good, could not be considered as extraordinary performance, in view of the weak intensification in Bulgarian agriculture in the last decades.

The sustainability of Bulgarian agriculture for the period 2013-2015 could be generally assessed as good (0,59), but according many indicators for output (added value, payment, employment, biodiversity) the assessment is relatively low.

Fig. 2.11. State of sustainability in Bulgaria agriculture



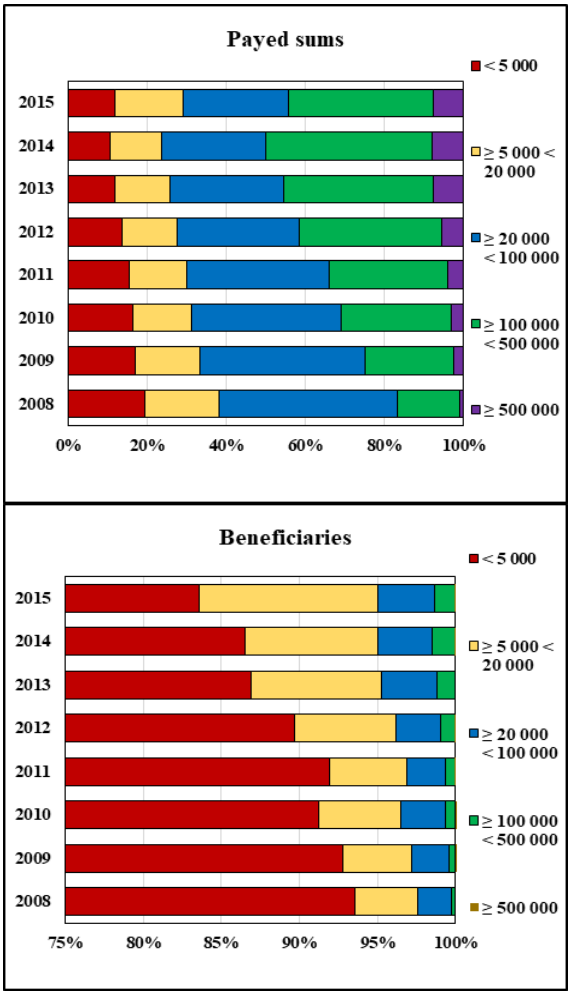
Source: CAPA.

Unequal distribution of direct payments per area

A serious problem in the past ten years was the inequality of these financial funds – big number of farms receive small of size and total value direct payments. There is a trend of diminution of the share of farms receiving up to 5 000 EUR annually (93% in 2008 to 83,6% in 2015), which is related from one hand to the restructuring processes and agricultural consolidation and on the other hand, to the yearly increase of the rate of single area payment. Nevertheless, these 83% of beneficiaries receive 12% of direct payments. In this group are usually small size farms or farms of the intensive agricultural sectors – production of vegetables and livestock-breeding. The number of farms receiving more than 100 000 EUR is small - 0,2% in 2008, and in 2015 – 1,3. The increase of farms' share, receiving big single area payments is related to the growth of farms' number having large areas. Beneficiaries from this group receive 16,8% of single area payments in 2008, and in 2015 this percentage increases considerably up to 44,2% of all decoupled payments. The amount of annual payments is almost constant in the group from 5 000 to 20 000 EUR, despite the increase of the number of beneficiaries in this category.

The data of direct payments distribution are important for two reasons. Firstly, they illustrate the disadvantages of SAPS, regarding the support for the group of small farms. As the direct payments are based on the owned areas, we could notice that the big part of farms receiving support up to 5000 EUR are namely small- size farms. This means that payments, destined to support economically weak farmers, are received to a big degree by farms, having capacity to realize revenues from their activities. In 2015 the direct payments in EU-28 are 74 5 of all CAP expenses, and 93% of them are not coupled with the production. The unequal direct payments distribution is a problem, identified and discussed on European level - 80% of payments in the Union are received by barely 20% of beneficiaries, which trend is close to the situation in Bulgaria. About 130 thousand beneficiaries in EU-28 receive over 50 thousand EUR yearly, which is in total over 13 milliard EUR of the budget for direct payments. Each year the average size of payments for these farms is more than 100 thousand EUR. Analyzing this situation, there are two main questions – is it necessary to provide so much public funds to big-sized and efficient farms and is it necessary for the agricultural policy to have social aims.

Fig. 2.12. Distribution of payed sums and beneficiaries

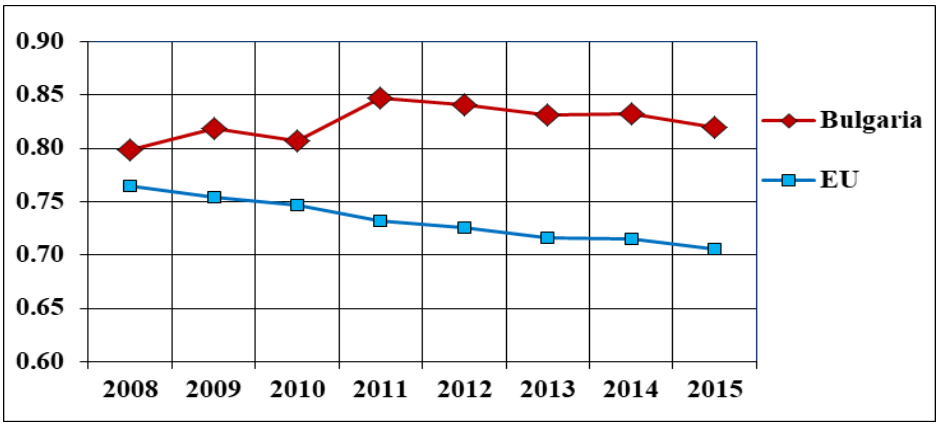


Source: DG Agri.

In the new program period 2014-2020 there is an attempt to address problems of unequal distribution through the introduction of mechanisms, oriented to more equitable distribution of direct payments as the Redistribution Scheme and the introduction of a payments' ceiling for over 300 thousand EUR per beneficiary. These measures give certain result, e.g. the coefficient of unequal distribution (Gini) for the direct payments in 2015 diminishes both in Bulgaria and in EU. Nevertheless, the effect of the above mentioned Scheme is less than the expected and could not repair the big differentiation of the support, due to the principle of decoupled support and the unified payment per area.

CAP impact on incomes and expenses

Fig. 2.13. Coefficient of unequal distribution of direct payments with a maximum of 1



Source: DG Agri

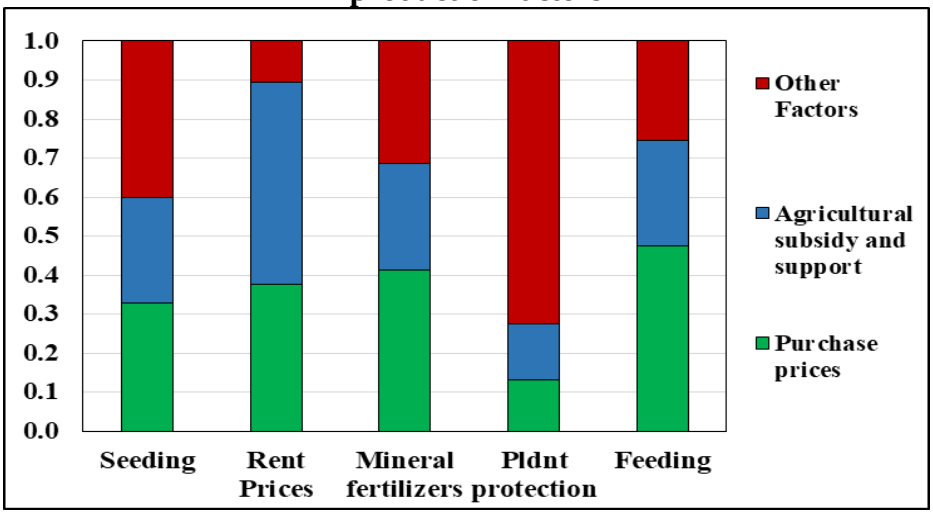
The factor income is one of main indicators for incomes in agriculture on a macro-level. It expresses the income from agricultural activity after the deduction of production costs, amortization and taxes, adding the subsidies, i.e. the factor income contains also the received direct payments in the farms. During the 10 years of EU membership the incomes of agricultural producers, expressed through the indicator factor income increase both in nominal and in real expression (analyzing on the base of 2005 prices) until 2014, after that there is a decrease. This decrease is related to the drop of prices of the main agricultural products on world markets and to different other reasons of market character. Excluding the impact of prices inflation, the factor income in 2015 was still on the levels of the beginning of 21-st century – 2001, 2002.

The subsidies in total (without the subsidies for investments) are about 37% of the factor income in 2015, and they could cover approximately 30% of production costs in the same year. Direct payments are the main part of these subsidies in agriculture. The positive trend in the factor income development, even per current prices, would not be very strongly expressed, without the received subsidies by the farmers; in some cases, the farmers would not be able to cover their costs and this fact would have a negative impact on the output.

During their ten-years period of implementation the direct payments insure a part of incomes in agriculture and have impact on price changes of some production factors. Undoubtedly, their impact is strongest on the land price and on lease payments. Their commitment to

the size of the managed land is the cause of this strong influence, as 52% of the amount and changes of lease payments is due namely to subsidies and to the support, 38% to the purchase prices in agriculture and barely 10% to other factors. The subsidies significance is weaker for the prices of the seed material - 27%, the same is for fertilizers and fodders. Slightly 14% in price indexes of products for plant protection are due to subsidies. For this group minimal importance have also the purchase prices of output, which means that despite the changes of purchase prices in the last years and their drop in last 2-3 years, this does not reflect on prices of plant protection products, because of the stable demand and supply.

Fig. 2.14. Impact of chosen factors on the price index of main production factors



Source: National Statistical Institute and CAPA.

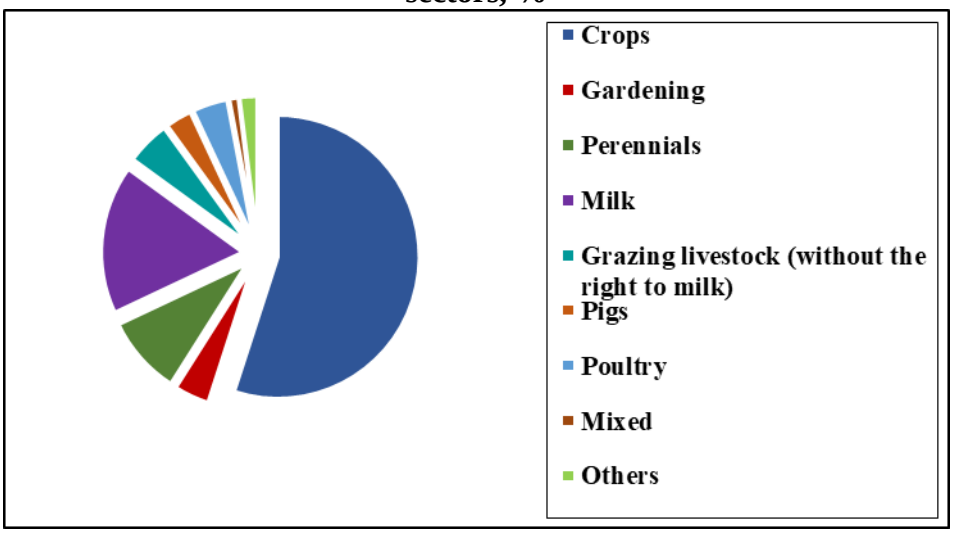
In the last two years was observed a price decrease of main agricultural crops, at a world scale. The drop of prices of cereals, some oilseeds and milk have significance on the producers, taking in consideration the not-corresponding decrease of costs. Especially in these conditions direct payments play the role of buffer and allow the output maintenance. This is particularly valid for producers specialized in the production of field crops in the country, which are also the biggest beneficiaries of the scheme. Direct payments are important part of their incomes (in some years over 30%) allowing them to continue their production, despite the lower purchase prices. The situation with the production of vegetables, where direct payments are less than 5% of incomes and their importance for production continuity is minimal.

Investment support in agriculture

The investments' support through the second pillar is examined as extremely important for the competitiveness increase of the sector and for achieving of commitments, related to environment protection, better labor conditions, better efficiency and quality of output. It is considered that direct support for investments in agriculture leads to higher and direct benefits for the sector, the farmers and the whole society, compared with the decoupled support. After analyzing the main support measure, the farms modernization M 121, we can notice that the support distribution on the sector base, the inevitable leader is sector "Crop growing" with 72% relative share on the base of concluded contracts and 68% on the base of amount of financial support. The projects of the sector "Livestock breeding" have a relative share of 25 % on a base of contracts as a number and 30% relative share as approved financial support. These data show the higher interest and the faster execution of projects in sector" Crop growing" and the payment of financial support, which is to a big degree related to the kind of activities, for which farmers apply in different sectors, in correspondence to the nature of their productions. The leadership of sector "Crop-growing" is due to the characteristic of farms in the country and their opportunities for investments.

Data testify for some misbalance between different sectors. The biggest financial flux for realization of investment projects has been generated in sub-sector "Field crops". By the end of 2015, 51% of concluded contracts under the measure are in this sector, as the included financial resource under these contracts amounts 280,62 million EUR. Almost three times less are the contracts in the milk sector with amount of public costs of 118 million EUR. The sub-sectors "Horticulture" and "Perennial crops" generate 82 million EUR public funds. Animal farms, excluding sector "Milk", have relative share of 7% of signed contracts and financial support of 60 million EUR. The distribution of approved projects under Measure 112 „Creation of young farmers' holdings" is also misbalanced. The low relative share (8%) of livestock farms from the approved projects makes impression for all the period of this measure implementation.

Fig. 2.15. Distribution of public costs under Measure 121 per sub-sectors, %



Source: *RDP 2007-2013- Annual Progress Report 2015_BG_30 June2016-1.*

The reasons of this are in the nature of different projects in execution and in the capacity of economic subjects, which perform the projects, which explains the observed results, but also testifies for certain weaknesses in the whole mechanism of the Program. The structure of Bulgarian agriculture is such that the predominant part of farms a priori is not able to use the opportunities of the Program and they are auto-excluded as participants, which is a shortcoming needing some solution. The small and a big part of medium-size farms have problems with the proving of investments efficiency, which put limits of their application for the investment measures, which is also due to the restriction of the eligibility only for a purchase of new equipment. In RDP 2007-2013 there were measures for the support of semi-subsistence holdings in transition and for young farmers, where high results have been achieved, regarding the budgets and the beneficiaries number; at the same time just a small part of them have succeeded to upgrade their investments through Measure 121 (about 7% of all beneficiaries under Measure 121 are also beneficiaries of Measures 112 and 141).

The indicator of payed public costs per added value unit gives an idea for the productivity of the investment support under RDP 2007-2013. The dynamics of investment support's productivity is directly proportional to the dynamics of the amount of payed public funds. In

2015 the investment support of sector exceeds three times this of 2014. Simultaneously, the creation of a unit of added value in the sector in 2015 has been guaranteed by 3 times lower public funds than in 2014. The problem of this account is that in evaluation of the created added value has been taken in consideration the extensive enlargement of the activity, which could be at the expense of other producers and this way the net added value between the project of application and the side effects of this applications did not been calculated.

Table 2.11. Public costs under Measure 121 per unit of added value, million EUR

	2009	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**
Payed public costs under Measure 121, total, million BGN	71	110	50	35	50,2	46	153
Public costs under Measure 121 per unit of added value	22,3	14,7	37,9	54,7	38,4	42,5	12,7

***Source*:** National statistical Institute, RDP 2007-2013- Annual Progress Report 2015_BG_30 June2016-1, own calculations

In the new program period have been implemented lots of innovations regarding the better projects monitoring and especially the control of the production program implementation. The sector distribution of funds under Measure 121 of RDP 2007-2013 shows the necessity of change of assessment criteria and of the approach for determination of support intensity, aiming the diminution of support for farms having considerable market force and free resources and increase of support for small agricultural producers from the sensitive sectors. For improvement of process of European funds absorption, it is necessary to include a financial criterion for sub-measures 4.1 and 4.2, which will measure the ratio investments – revenues of applicants and will define their opportunity to realize an investment of fixed amount.

The new assessment criteria for sub-measure 4.1 of RDP 2014-2020 give advantage to farms having at least 3-year history and medium number of staff in this period, 5 persons minimum (and this number should be kept during the realization of project investments) and to projects with over 65% of eligible investment costs related to building or renovation of premises or other real estate or equipment and machinery, different from agricultural technique. This way, have been created

conditions for smaller chance for the producers that really need funds, contrary to big land-owners with lots of hired workers.

Under sub-measure 4.2 of RDP 2014-2020 arise questions about the projects sustainability of new-created firms and for sustainable development of priority sectors, determined under the sub-measure. Within the conditions of low self-sufficiency with raw materials of national origin there is a high risk of low competitiveness and inefficient functioning of new-created farms under eligible sectors under sub-measure 4.2. It is necessary to enlarge criteria for sector priority under this sub-measure, toward the proving of potential for sustainable development – base of raw materials, market positions, financial stability and economic efficiency.

CONCLUSIONS

In 2007 Bulgaria has become a full EU member and has acquired the opportunity to profit of the implementation of the biggest financial policy of the community – the Common Agricultural Policy (CAP) - 43% of the EU budget for 2007-2013. The state EU membership has brought not only financial benefit to economy and, in particular, to agricultural sector, moreover, Bulgaria has become an integral part of the most important and progressive European unification from the middle of XXth century. The agriculture is without analog among the other economic sectors with such high levels of public funding. For comparison, in 2000 e BGN of public funds in agriculture is against 32 BGN added value, in 2010 1 BGN of public funding is equal to 2 BGN of added value. In 2015 the created in agriculture GVA, compared to the support through direct payments, national complementary payments and RDP funds (destined for the agriculture) will probably drop to 1 – 1,4 BGN. The reasons are in the agricultural policy model, led by EU and this is a system problem for CAP in the last 15 years; in our country remain the manifestations and they show the incapacity to achieve more than to be beneficiaries of these funds.

CAP predominant policy, adapted more to old member-states, which could be explained by the historical approach of development. This policy is deprived of flexibility to meet the structural, economic and production differences in the Community of 28 independent states.

The CAP policy in Bulgaria during these 10 years show difficulties, related to actual national problems in agriculture of market, production and structural character. Bulgaria has less ecological problems, but more with the added value, competitiveness and

modernization of small and medium farms. The support under First and Second pillars is fruitful for the producers, but the efficiency of results should be increased and the negative effects decreased, related to the intervention in management and production decisions, envisaged by farmers.

The introduced from the beginning of the new millennium decoupled support under the First CAP pillar has turned out controversial decision, having weaknesses, in Bulgaria, as in the all EU. European agriculture shows slowdown, in comparison not only to fast-developing countries as China, India and Brazil, but also in comparison to USA. The created added value in the last 10 years in EU-28 is about 4 EUR against each 1 EUR, distributed as direct payments, but there is a big differentiation between new and old member-states. In EU-13 the added value in agriculture per unit of subsidy for 2015 has been calculated under 3 EUR, while in EU-15 this correlation is above 2 times bigger. There is a strongly adaptive behavior from the part of producers regarding the taking of management and production decisions, conforming the supporting framework, which in the last 2 years reflects on increasing of some less widespread crops with uncertain profit.

The other big problem for direct payments is the unequal distribution between beneficiaries. The support is made to guarantee the incomes and the sector viability, while the unequal distribution is a signal of non-conformity of funds to the needs and the state of other beneficiaries. About 12 % of beneficiaries receive 83% of public funds and they are big land- owners with large land parcels and receiving public support, independently of their farm income, viability and reciprocal public benefit.

The support under the II pillar through the RDP has big benefit for the development, modernization and equipment of farms in the sector. Despite the difficulties, with the funds absorption in the beginning of the previous program period (2007-2013), at the end the level of realization has been high – 99%. At the same time, there are disproportions in the funds distribution, as over 67% of the support is for the crop-growing and of some of involved in the Program indicators are half or less realized.

Despite these weaknesses the agriculture remains principal and key sector in Bulgarian economy, deserving special attention. Farms are in process of modernization and consolidation, but the problems of low added value and production misbalances have not been solved. Thanks to the led policy after 2007 the ecological problem with abandoned and uncultivated land is marginalized to a considerable extent.

2.3. EFFECTS OF THE ACCESSION TO THE EU SINGLE MARKET ON THE INTERNATIONAL TRADE WITH AGRI-FOOD PRODUCTS FOR ROMANIA

Gavrilescu Camelia

Introduction

The international agri-food market has experienced major changes over the last 15 years due to the three waves of EU enlargement, as a result of the economic crisis in 2008-2009, and last but not least due to exchange rate developments between major world currencies [6].

The enlargements in 2004, 2007 and 2013 have had a significant positive impact on the EU agri-food trade. The value of trade has grown in real terms, allowing it to preserve a place among the top players in the world agri-food market. The new Member States have contributed positively to the volume of traded goods, but also negatively by contributing to the already negative balance of the old Member States.

At the time of its accession to the European Union, Romania presented itself with a non-competitive agri-food sector, and hence non-competitive international trade compared to the other EU Member States, whether old (EU-15) or new (EU -13).

Major foreign and domestic capital investments, facilitated by the pre-accession programs (such as SAPARD) and post-accession programs (such as NRDP), allowed for significant increases in the volume, efficiency and quality of the Romanian agri-food products. Free access to the Single Market has favored Romanian exports, at the same time compelling them to meet the quality required by EU rules; but, on the other hand, allowed unrestricted access of Community products to Romanian markets, putting pressure on the latter, often less developed and less competitive.

At the beginning of the pre-accession period (2000), the agri-food trade volume was rather low: EUR 368 million in exports and 1.01 billion in imports. During the seven years of the pre-accession period (2000-2006), both the value of exports and imports increased 2.3 times. The coverage of imports by exports was as low as 35%, so the main feature of the agri-food trade was the fast increasing deficit, from EUR -647 million (in 2000) to -1.34 billion in 2006.

The removal of the export quotas and all custom duties when Romania entered the Single Market as EU member resulted in a significant increase of its general international trade: total exports increased 2.6 times (average values in the pre-accession period as

compared to those in the post-accession period) (table 2.12), to reach EUR 62.6 billion in 2017, while the imports increased slower, only 2.3 times, to reach EUR 75.6 billion in 2017. The general trade balance has been negative all along these years, and the coverage of imports by exports ranged from 58-90%. One can also notice a significant intensification of the agri-food trade as compared to the general trade: agri-food exports were 17 times higher in 2017 as compared to 2000, while imports 7 times only, indicating also an important reduction in the deficit of the sector.

Table 2.12. Changes in the Romanian general and agri-food trade

Item	Flow	Pre-accession period average (2000-2006) (EUR billion)	Post - accession period average (2007-2016) (EUR billion)	$\frac{\text{2007-2016}}{\text{2000-2006}}$	2016/2000
Total general trade	export	17.33	45.16	2.61	5.56
	import	24.47	56.89	2.32	5.31
Total agri-food trade	export	0.56	4.19	7.47	17.44
	import	1.62	4.60	2.84	7.29
General trade with the EU	export	11.80	32.73	2.77	6.60
	import	14.87	42.08	2.83	7.12
Agri-food trade with the EU	export	0.33	2.78	8.44	24.22
	import	0.72	4.06	5.67	19.17

Source: author's calculations using Eurostat data [4]

The free access on the Single Market, as well as the devaluation of the national currency (between 2007 and 2009, RON depreciated by 27% against the EUR) were factors favoring the exports to the EU (figure 1). Similarly, the 33% devaluation of the RON against the US dollar in 2011-2017 and the significant penetration on the Mediterranean and Middle East markets favored growth in exports to extra-EU destinations.

The increase in export value was mainly the consequence of a significantly higher volume of marketed products and, to a much lesser extent, the consequence of price increase, both for aggregated level (total agri-food products - chapters 01-24 NC) and for the majority of chapters (2 digits NC) (table 2.13.).

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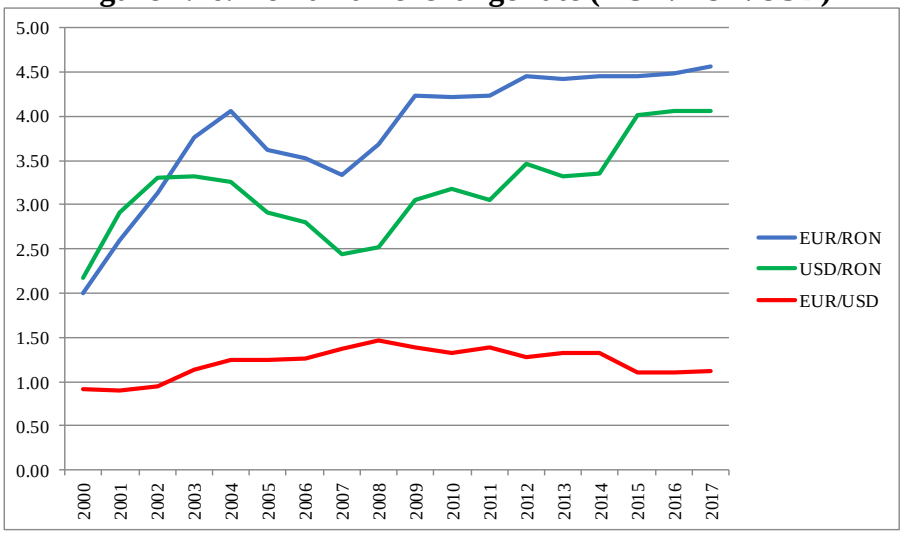
agri-food products - chapters 01-24 NC) and for the majority of chapters (2 digits NC) (table 2.13.).

Figure 2.16. Romanian exchange rate (RON/EUR/USD)



Source: National Bank of Romania [1]

The year 2006 was chosen as a basis for reporting, as it is the last year before Romania's accession to the EU and signs of the economic and financial crisis were present.

For most product groups, volume indices are higher than price indices, indicating an increase in the quantities of goods exported in 2017 compared to the base year 2006. Significant increases in the volume of exported goods are highlighted in: cereals, meat (beef and poultry), fish, vegetables, cereals, and among the processed products, tobacco and tobacco products, dairy products, milling industry products, bakery and pastry products, meat products.

Table 2.13

Volume and price index for the Romanian agri-food exports and imports (2017/2006**)**

Export		**Product group (HS chapter)**	**Import**	
Volume index	**Price index**		**Volume index**	**Price index**
2.15	1.28	01-live animals	3.55	1.35
20.32	0.87	02-meat	0.89	1.64
12.02	1.01	03-fish and seafood	1.21	2.48
7.35	0.79	04-dairy products, eggs and honey	10.14	0.94

Export		Product group (HS chapter)	Import	
Volume index	Price index		Volume index	Price index
10.92	0.39	05-other animal products	1.73	1.04
0.39	5.31	06-live plants	2.46	1.44
11.65	0.34	07-vegetables	1.64	3.34
0.97	1.69	08-fruit	1.66	2.34
0.64	7.93	09-coffee, tea and spices	1.18	2.12
8.76	1.57	10-cereals	11.09	0.93
6.47	1.64	11-products of the milling industry	1.71	1.25
3.92	1.83	12-oilseeds	7.84	0.76
7.96	0.54	13-lacs, gums and resins	1.61	1.95
0.34	1.62	14-other vegetable products	10.61	0.24
2.80	1.33	15-oils and fats	1.47	1.78
5.25	1.24	16-meat and fish preparations	3.08	2.04
1.89	1.38	17-sugar and confectionery	0.75	1.97
6.53	1.53	18-cocoa and cocoa products	3.14	1.64
4.56	1.39	19-cereal baking and pastry products	5.52	1.00
3.38	1.32	20-vegetable and fruit preparations	1.93	1.35
2.12	3.91	21-miscellaneous edible preparations	2.16	1.31
3.49	1.03	22-beverages	3.19	1.11
3.76	2.87	23-animal feed	4.05	1.03
23.79	3.15	24-tobacco and tobacco products	1.56	0.91
6.05	1.24	TOTAL AGRI-FOOD PRODUCTS	2.47	1.24

Source: author's calculations using Eurostat data [4]

The product groups for which, on the contrary, unit export prices were the main determinants of the increase in the value of exports during the post-accession period were: coffee, tea and spices; various food preparations; preparations of vegetables or fruit; animal feed; live plants and floriculture products.

The quantities of imported products increased in almost all product groups. But there are two important exceptions: meat and sugar.

These two product groups have been for years the top import articles, but in the post-accession period, imported quantities have continued to decline, which can be correlated with a decrease in annual average per capita consumption:

- for meat, meat products and edible meat (in fresh meat equivalent), annual average per capita consumption decreased from 71.2 kg in 2006 (maximum value of the period) to 57.5 kg in 2013 (minimum value of the period);

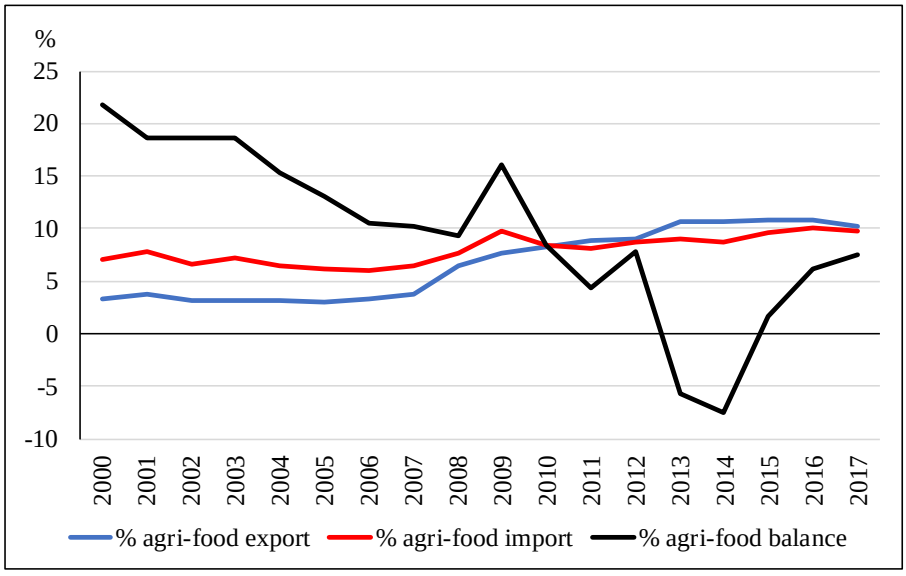
- for sugar and sugar products (in refined sugar equivalent), the annual average per capita consumption decreased from 29.5 kg in 2006 to 21.1 kg in 2013.

At the same time, one can notice a continuous trend of industrial domestic production of meat, meat preparations, canned meat, but also sugar and sugar products during 2006-2017, which also contributed to the decrease of the imported quantities. Unit import prices have fallen for these product groups as well.

For almost all imported products, unit import prices increased in the post-accession period compared to 2006, but just slightly. Romania imported more expensive products, such as vegetables, fish, fruit, coffee, tea and spices. There are few exceptions: dairy products, tobacco and tobacco products, cereals and oilseeds, for which the unit import prices decreased in time, thus putting pressure on the domestic markets.

As EU member, Romania entered much better the international agri-food products markets (both intra and extra-EU markets): if in 2006 the agri-food exports accounted for 3.3% of the general Romanian exports, until 2017 their share tripled (10.2%); for imports, the share increased from 6% to 9.8% (figure 2.17). The years 2013 and 2014 were an exception - the only ones when the agri-food trade balance has been positive, while in general, both the general and the agri-food trade balances have been continuously negatives since 1990.

Figure 2.17. Share of agri-food trade in the general Romanian international trade



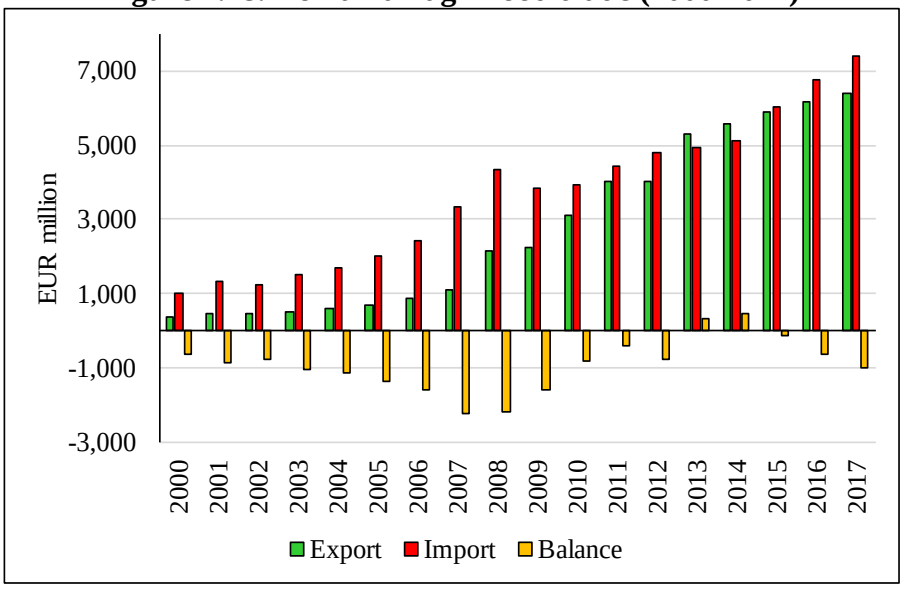
Source: author's calculations using Eurostat data [4]

During the transition and the pre-accession period, the agri-food trade balance has been permanently negative, and the deficit grew massively in the first two years of membership, reaching a historical peak in 2008 (EUR -2.2 billion). Similar phenomena occurred in most of the New Member States immediately after accession, that is an imbalance in their trade, as a result of the adapting to the new „rules of the game".

The economic crisis affected Romania mostly in 2009, when the agri-food imports dropped by EUR 519 million due to a contraction of demand which resulted from the increased unemployment and reduced incomes of the population. Nevertheless, the import upward trend resumed since 2010, but at a much slower pace than for exports.

The slower growth rate of imports as compared to exports resulted in a diminishing agri-food trade deficit in 2009-2012. In 2013-2014, the trade balance became positive (up to EUR +455 million), to shift again to slightly negative in 2015-2017 (figure 2.18).

Figure 2.18. Romanian agri-food trade (2000-2017)

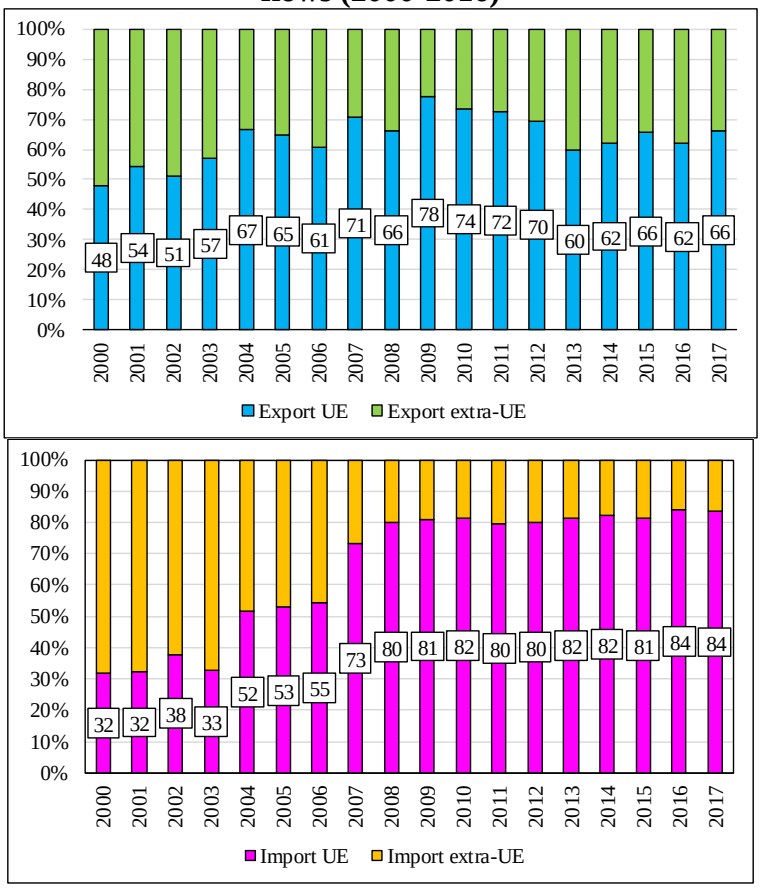


Source: author's calculations using Eurostat data [4]

In the pre-accession period, Romania benefitted from its Association Agreement with the EU, as part of the preparation time for becoming a member state. Therefore, its exports turned to the EU in particular: 59% (average 2000-2006); the share increased in the first years of membership 72% (average 2007-2011) (Figure 2.19), then

diminished to 64% in 2012-2016, when the Romanian exports of cereals, oil and live animals turned massively towards the Near and Middle East.

Figure 2.19. The EU-orientation of the Romanian agri-food trade flows (2000-2016)

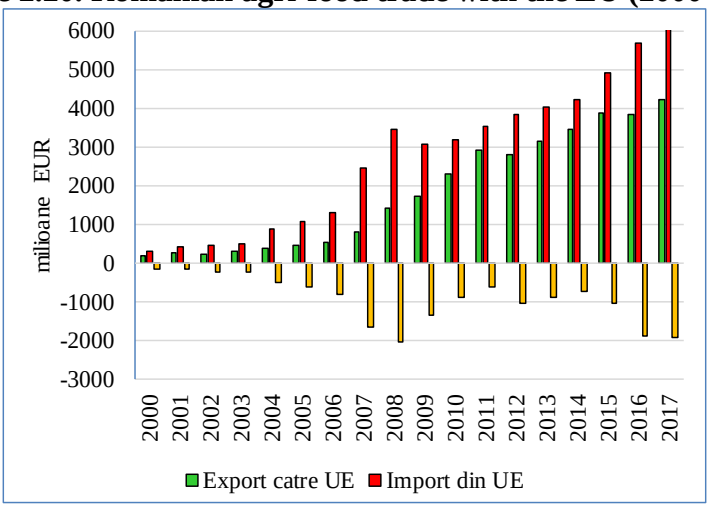


Source: author's calculations using Eurostat data [4]

The export value to the EU increased 8 times after accession as compared to 2000-2006, reaching a maximum of EUR 4.3 billion in 2017. Although the import value growth rate has been lower (only 5.4 times), in absolute terms it remained significantly higher, with the highest value again in 2017 (EUR 6.2 billion). The resulting trade deficit between Romania and EU reached its highest in the first years after accession, contributing to the total agri-food deficit by 74% in 2007 and by 94% in 2008. The deficit on the EU relationship diminished subsequently from the peak of 2008 (EUR -2.2 billion) to a minimum of EUR 0.6 billion in 2011, but increased again afterwards and reach EUR 1.9 billion in 2017.

The Romanian agri-food products are not yet competitive enough on the Single Market; as a result, the trade balance on the EU relationship remained permanently negative (Figure 2.20).

Figure 2.20. Romanian agri-food trade with the EU (2000-2016)



Note: EU-15 in 2000-2003; EU-25 in 2004-2006; EU-27 in 2007-2012; EU-28 in 2013-2016. Source: author's calculations using Eurostat data [4]

In the pre-accession period, the main intra-EU export partners for Romania were Italy, Germany and Spain, after accession, Italy remained the first destination, with Bulgaria and the Netherlands ranking second and third (table 2.14).

Table 2.14. Rank and share (%) of the top five EU partners for the Romanian agri-food trade

Rank	Average 2002-2006		Average 2007-2010		Average 2011-2017	
EXPORT						
1	Italy	24.2	Italy	24.9	Italy	21.2
2	Greece	13.7	Bulgaria	12.0	Hungary	11.4
3	Germany	12.9	Spain	9.1	Bulgaria	11.2
4	Spain	8.7	Hungary	8.6	Netherlands	8.9
5	Croatia	7.5	Netherlands	8.5	Spain	8.8
IMPORT						
1	Germany	18.1	Hungary	21.2	Hungary	20.2
2	Hungary	10.5	Germany	15.7	Germany	16.7
3	Austria	10.5	Netherlands	10.4	Bulgaria	11.3
4	Netherlands	9.8	Bulgaria	9.1	Poland	9.3
5	France	9.5	Italy	7.7	Netherlands	8.6

Source: author's calculations using Eurostat data [4]

Before accession, Romanian imports from EU originated mainly from Germany, Hungary and Austria, while after accession, the main EU suppliers became Hungary, Germany and Poland.

Among the old member states, after accession, Romania registered positive trade balances with Greece, Ireland, Italy, Portugal, Spain and UK. Although exports increased to the new member states (NMS-13) 6.7 times and imports 5.4 times, Romania shows trade deficit with all of them.

If we look at the trade performance of the 28 EU member states, only 10 of them have themselves a positive trade balance: 6 countries from the old member states (Belgium, Denmark, France, Ireland, the Netherlands and Spain) and 4 Central and Eastern European countries (Bulgaria, Hungary, Lithuania and Poland). The last two ones shifted to trade excedent after their accession to the EU.

Among the NMS, Poland has achieved the best performance in international trade, with a steady positive growth since 2003. Despite some fluctuations, Hungary also managed to maintain a positive balance in the post-accession period, as did Bulgaria. A surprising presence in the NMS group with positive balances is Lithuania, which has managed to recover quite well (like Poland) after the losses caused by the Russian embargo on agri-food trade with EU countries, given the relatively high share of Russia in the exports of these two countries in the pre-embargo period (August 2014).

The composition by main product groups of the Romanian agri-food trade with the EU changed significantly in the last two decades: cereals and oilseeds exports intensified (their share in the total exports to the EU increased from 29% before accession to 74% after accession), while the share of live animals, animal feed, fats and oils (combined) diminished from 40% before accession to 4% after accession (they reoriented towards the Arabic countries). The main imports remained roughly the same: sugar, animal feed and fruits.

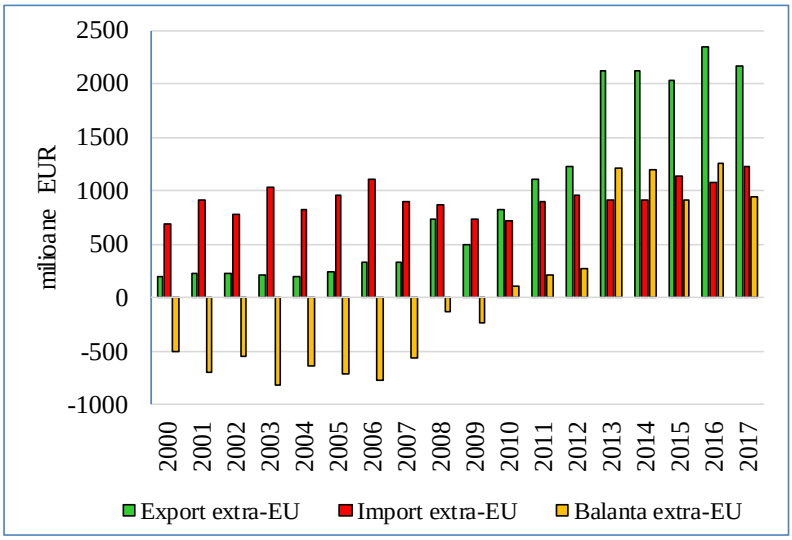
Both exports and imports concentrated since 2007: the first five groups of products account for 87.4% of total exports to the EU, respectively 58.6% for imports from EU. This reduction in the degree of diversification of trade may prove unfavorable, however, if disturbances occur in the European or world markets of those products.

The Romanian agri-food trade with non-EU countries continued also after accession, especially with the countries with which Romania used to have preferential trade agreements before 2007 (such as Turkey, Moldova, Israel). Although in the first years after accession the imports

decreased due to the enforcement of the principle of community preference, in the following years Romanian exports to extra-European destinations increased significantly: in 2007-2012, the average value of extra-EU exports tripled compared to the pre-accession average and in the period 2013-2016 the average value was 8.5 times higher than in 2000-2006. This evolution was possible due to Romania's strong entry of grain exports on the Egyptian, Jordanian and Libyan markets.

Since 2010, the agro-food trade balance with the extra-EU countries has become positive, and the trade surplus has steadily increased, reaching a maximum of EUR 1.3 billion in 2016 (figure 2.21).

Figure 2.21. Romanian agri-food trade with non-EU countries



Source: author's calculations using Eurostat data [4]

While before accession, the top four destinations for the Romanian extra-EU exports were Turkey, Pakistan, Moldova and the Russian Federation, after 2007 the export flows shifted to Egypt, Jordan, Libya and Turkey; these four destinations absorbed in 2017 exports worth EUR 872 million EUR, that is 9.4 times higher than in 2007.

The range of products is very narrow: cereals, live animals, oilseeds and animal feed: in 2003-2006 they accounted for 68% of the value of exports; in 2013-2017, their cumulative share rose to 95%.

Over 2/3 of all Romanian exports of live animals, animal and cereal fodder are heading to destinations outside the EU [9]; of these, the

Mediterranean countries accumulate the most significant part: 92% for live animals, 82% for animal feed and 64% for cereals.

CONCLUSIONS

At the time of joining the EU, the Romanian agri-food sector of Romania was uncompetitive, as proven by a 35% degree of import coverage by exports and a huge trade deficit.

The Romanian and foreign capital investments and the financial infusion through the CAP tools allowed for important increases in the volume, efficiency and quality of agricultural and food products; adding to that the free access on the Single Market the result was, in the 10 years since accession, a significant increase in exports and imports and a massive reduction of the agri-food trade deficit.

Throughout the analyzed period, Romanian exports have focused mainly on the EU. Although exports to the EU have increased significantly, Romanian agri-food products are not yet competitive enough on the Single Market; as a result, the trade balance on the EU relationship remained permanently negative. The main export destinations are Italy and Bulgaria, and our main suppliers of agri-food products are Hungary, Germany and Poland. Products exported to the EU are cereals (maize and wheat), oilseeds (rape and sunflower) and live animals, accounting for 80% of the value of exports to member countries. Imports from EU are mainly sugar, animal feed, tobacco, fruit, meat and processed products.

Romanian exports to non-EU countries also grew significantly over the pre-accession period, while imports remained at about the same level; as a result, the trade deficit has fallen rapidly, and since 2010 the balance on the extra-EU relationship has become positive, the surplus rising every year. After accession the Romanian extra-EU exports shifted from Moldova and Turkey to the Middle East (eg Egypt, Jordan, Libya), to which cereals (wheat and maize), oilseeds (sunflower) and live animals (sheep) are massively exported. From outside the EU, Romania mainly imports sugar, soybeans, raw tobacco, fruit and vegetables.

Romania's agri-food trade primary targets should be in the following period [15, 16]: diversification of exports, increasing exports of high quality products (wines, horticultural products, organic products, traditional processed products, etc.), diminishing the share of basic agricultural exports in favor of processed products; reducing the imports

of basic food (meat, vegetables, fruits) and replacing them with products obtained in the country.

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CHAPTER 3. RISK MANAGEMENT

3.1. FINANCIAL INSTRUMENTS FOR AGRICULTURE AND RURAL AREA Daniela Giurca

The financial instruments are innovative financial support measures, funded from the Community budget, targeting one or several specific objectives, with an increasingly greater role in the EU policies. They include support for investments by means of loans, guarantee funds, equity and other risk-bearing mechanisms, as well as interest rate subsidy schemes.

The financial instruments co-financed through the European Agricultural Fund for Rural Development represent a sustainable and efficient modality to support growth and development of the agri-food sector and rural economy. These instruments facilitate reaching the objectives of rural development plans for a wider range of beneficiaries, and the allocated funds have the potential to be re-utilized for other investments. More exactly, the *funds allocated to these instruments are reimbursable and re-usable, for the same types of projects,* being suitable for financially viable projects. They are conceived to attract co-investments from other sources, private investments inclusively, to increase the value of available funds mainly in the sectors in which access to funding is more difficult.

The financial instruments can take the form of loans, guarantees or capital investments. They can support the growth and diversification of the supply of banking products, contributing to banking market development and can be used in a complementary way to grants. The financial instruments can be managed by national or regional banks, international organizations such as the European Investment Bank or the European Investment Fund, by financial intermediaries as well as (only for loans and guarantees) by management authorities.

Since 2007, in Romania, the demand for financial instruments co-financed through EAFRD has increased, mainly as a result of the financial and economic crisis, having a catalyzing and stimulating effect for the efficient utilization of the European rural development funds.

The agricultural sector and the rural economy in Romania generally have a more limited accessibility to the financial services offered by the banking system, compared to the rest of the economy. Although in the last 10 years, the Romanian banking system had a fast

development, and the banks and financial institutions began to pay increased attention to financing the rural SMEs and the agri-food business (mainly encouraged by the predictability of the Common Agricultural Policy), the accessibility to and appetence for credits and other financial products in this sector is still low.

In the pre-accession period and in the early years of EU membership, the banking sector perception on the agri-food businesses and rural area was associated with high risk, as profitability in this activity sector is lower compared to other sectors and usually weather dependent. At the same time, a significant part of the economic operators could not prove financial-banking performance, because their business was new, with no history of banking operations or loans, or they did not have other material collaterals. The use of farmland as a collateral could not represent an option for Romania, due to price volatility and to lack of clarity in relation to landed properties and the absence of cadastre, which made the land market inoperative. These problems, adding to the financial crisis and the structural dysfunctionalities in agriculture, led to very high costs of credit administration, compared to the value of loans, practically discouraging the beneficiaries.

The business sector in the rural area was extremely interested in accessing the pre-accession funds provided under SAPARD program and subsequently through NRDP; yet, due to the above-mentioned problems and in the absence of own financial resources, the co-financing of projects was dependent on getting a loan, which proved to be very expensive or difficult to obtain.

Thus, in order to stimulate the access to funds allocated to the development of projects in the rural area, in the year 2005 a package of normative acts was promulgated, aiming at crediting and guaranteeing the loans required for co-financing the projects from the SAPARD pre-accession fund (Law 231/2005), providing guarantees of 100% of the value of the loan and taking over the credit risk by a guarantee fund. By taking over part of the risk and by further monitoring the implementation of the project for which guarantees were required, the guarantee fund allowed credit institutions to expand their client portfolio to this difficult to reach sector. Two financial institutions were designated to manage the guarantee scheme, namely: the Rural Credit Guarantee Fund IFN – SA

(FGCR) and the National Fund for Small and Medium Enterprises (FNIMM)[8].

Another instrument facilitating the access to credit in that period was the program "the Farmer", a financial instrument through which the commercial banks participating in the program could provide farmers credits with subsidized interest rates (5%) and secure the credit with machinery and implements purchased through the credit. The program "the Farmer" (subsequently continued with the program "Farmer 2") was a pioneer in the creation and implementation of financial instruments in Romania, as well as EU level, proving to be an efficient instrument for stimulating the credit institutions to get involved in investment development projects in agricultural activities and to improve and increase the absorption of EU funds under the program SAPARD and NRDP.

In the period 2007-2013, other financial instruments were also available at national level, such as JEREMIE initiative, offering loans, guarantees and equity investments to SMEs and the "Kogălniceanu" SME program providing credit lines[9].

In the period 2007-2009, Romania's agricultural sector benefitted from a series of national financial support schemes (notified as state aid existing at the moment of accession), out of which a subsidy for the agricultural production credits, providing for a 30% bonus from the volume of credits committed and reimbursed to financing banks (Law 150/2003) and a warrantee scheme for warehouse receipts (Government's Ordinance 7/2009). Starting with the year 2010, the state aids have been

[8] Registered by the National Bank of Romania in the Special Register of Non-banking Financial Institutions operating on the Romanian banking guarantee market in 2005. For the program SAPARD, under this credit guarantee scheme from MARD budget, FNIMM was allocated the amount of 39,000,000 RON for which guarantees were provided worth 204,078,139 RON, while FGCR was allocated the amount of 123,000,000 RON, to which guarantees were provided worth 990,727,883 RON, with the maximum exposure stipulated in Law no. 218/2005. (source NRDP 2007-2014, version III.

[9] Further details can be found in the Ex-ante Evaluation of NRDP 2014-2020 financial instruments.

reconsidered[10] and a subsidizing scheme for the interest rates to production credits was prioritized, yet this scheme was not implemented.

The implementation of these guarantee schemes contributed to the acceleration of the absorption of EU funds allocated under SAPARD program (in the year 2005 the commitment ratio was 47% and the payment ratio 29%; by November 2008 the commitment was 93% and the payment ratio 80%), so that it was necessary to develop a similar financial instrument in NRDP 2007-2013 in agreement with the EU regulations (EC 1974/2006) by which to increase the accessibility of NRDP beneficiaries to the credit system of financial-banking institutions on the market, in order to get credits for co-financing the private contribution necessary to access projects.

NRDP version III from 2009[11] chapter 5.2.7 "*Guarantee schemes*'' included two guarantee schemes funded from the program, namely:

- *"Agricultural guarantee scheme''*, providing loan guarantees to applicants for bank loans to finance private investment projects, co-financed by:
  - Measure 121 "Modernization of agricultural holdings'';
  - Measure 123 "Adding value to agricultural and forestry products", excluding State aid schemes.
- *"Guarantee scheme for small and medium enterprises (SMEs)*, providing loan guarantees for SMEs to finance private investment projects, co-financed by:
  - Measure 123 "Adding value to agricultural and forestry products", for the State aid schemes;
  - Measure 312 "Support to the creation and development of micro-enterprises'';
  - Measure 313 "Encouragement of tourism activities".

These schemes began to be applied in the year 2010. Each guarantee scheme was managed by a "Fund Manager", selected on

[10] The State aids, including those under the incidence of L 218/2005, entered under the incidence of "Sun Set Clause" provisions from the Treaty on the accession of Bulgaria and Romania to the European Union and could no longer be applied, the legal framework being replaced by Government's Ordinance 14/2010 on financial measures regulating the state aids granted to farmers

[11] http://old.madr.ro/pages/dezvoltare_rurala/pndr-versiune-martie-2009.pdf

competitive basis from the financial institutions active on the credit guarantee market in Romania. Following the FGCR-IFN SA competition, the manager of the guarantee schemes funded from NRDP 2007-2013 was appointed. "Work contracts" were concluded with 29 banking institutions from Romania with which FGCR collaborated, out of which 21 got effectively involved in implementation, as financial intermediaries. NRDP beneficiaries were given the possibility to submit a request for a guarantee once they had a contract signed with AFIR for each funded project under NRDP.

In the conventions concluded between MARD and the scheme manager (with initial validity until December 31, 2013), a total allocation of 220 million euro was foreseen (190 million euro for the first scheme and 30 million euro for the second scheme). Later on, 7 additional acts were concluded to the initial convention, bringing necessary amendments to regulate certain dysfunctionalities appeared during the implementation, to extend deadlines (by late 2015) and to adapt the scheme to the new EU regulations, which had foreseen that the financial allocation for guarantee schemes should be correlated with the estimated rate of failure of secured loans. Thus, the initial financial allocation was reduced to 115 million euro in 2013 (with more than 50% of the amount being taken from the guarantee scheme for M121). The following final amounts were allocated through the guarantee scheme: 97.1 million euro for the agricultural sector and 18.1 million euro for the non-agricultural sector[12]. EAFRD allocation under the guarantee scheme was 92.2 million euro, out of which 84.2% in the agricultural sector and 15.8% in the non-agricultural sector. For both schemes, the allocation for the guarantee schemes from EAFRD accounted for 80% of the total amount of project, and not more than 2.5 million euro, the average guarantee being under the maximum established limits, which reveals that the maximum eligible value of a project was high (e.g. 2 million euro for the Modernization of agricultural holdings – Measure 121). The investment strategy was defined in conformity with the NRDP objectives, without the direct involvement of private investors in ensuring the capital for the guarantees; the guarantee system is state-aid free at the level of beneficiaries (final recipients of guarantee scheme), guarantee fund and financial intermediaries, at the moment of acceptance of the request for the guarantee, according to EC

[12] Data from the ex-post NRDP 2007-2013 evaluation study, MARD 2017

provisions[13]. Thus, final beneficiaries paid a market price for the guarantees.

According to data presented in the (updated[14]) Ex-post Evaluation Study of NRDP, in the period 2008-2013 a total number of 7,407 investment projects were contracted under Measures 121, 123, 312 and 313 with a total volume of 4.9 billion euro. Out of these, 664 projects benefitted from guarantees through the guarantee scheme: 258 projects under Measure 121, 129 projects under Measure 123 and 277 projects under Measures 312 and 313. The total value of guarantees provided was 289 million euro, out of which 138 million for projects under Measure 121, 125 million for Measure 123 and 26 million for Measures 312 and 313. 3,568 projects were finalized and for 10% of these (320 projects) guarantees were provided. 1,790 projects were cancelled, out of which only 1% benefitted from guarantees.

As regards the performance of guarantee schemes under NRDP 2007-2013, the 115.3 million euro allocated for guarantees generated total guarantees received of 289.3 million euro, which corresponds to a weighted average multiplier effect of 251% for all measures. These guarantees generated 425.6 million euro credits supported under the guarantee scheme, out of which 201.3 million euro for Measure 121, 183.1 million euro for Measure 123 and 41.2 million for Measures 312 and 313. Cumulated for all measures, the value of these credits corresponds to a leverage of 369%. The total estimated value of credit-supported projects under the guarantee scheme was 1,178.4 million euro for all measures[15].

Besides these schemes, in the year 2013 MARD also adopted a national crediting instrument through Government's Emergency Ordinance (GEO) 43/2013 on certain measures for the development and support of family farms and facilitating farmers' access to finance so as to provide a financial support instrument for small and medium-sized farmers as well through non-banking financial institutions. Unfortunately,

[13] Community Guidelines on the State Aid in Agriculture and Forestry 2007-2013, Commission Communication no. 155/2008 on the application of Articles 87 and 88 from the EC Treaty on State Aids under guarantee form

[14] September 2016

[15] According to data from http://www.madr.ro/docs/dezvoltare-rurala/programare-2014-2020/Evaluarea-ex-ante-implementare-instrumente-financiare-PNDR-2014-2020-iunie-2015.pdf

GEO 43/2013 has not been functional due to the delayed elaboration of implementation procedures and lack of small farmers' information.

The support allocated through the Common Agricultural Policy (under Pillar I – direct payments and Pillar II - investments) as well as he financial instruments implemented in the first budget exercise to facilitate beneficiaries' access to NRDP projects, as well as the experience acquired by farmers in this period, regarding the collaboration with credit institutions, contributed to increase funding in this area and to increase the demand for different financial products.

At present, the financial institutions attribute a high potential to agriculture, along with the development of the sector, identifying an increased need of funding the current activities and investment projects in this sector. However, there are certain impediments, on both sides, which affect the relation between credit providers and farmers, generating a significant funding deficit. According to the conclusions presented in the most recent ex-ante evaluation[16] for the implementation of financial instruments in NRDP 2014-2020, the main risks of the activities in agriculture and rural economy, which lead to increased prudence in crediting this sector, are related to:

- difficulty of agricultural activity standardization as process of activity and quality;
- the economic and financial analysis performed to provide a credit based on the predictability of the funded business results. There are very many factors that can affect the agricultural holding activity, independently from the effort made by the farmer to obtain the desired results (e.g. natural, institutional, legislative factors);
- disproportionality between the investment project for which funding is requested and business ability to generate sufficient revenue to meet its payment obligations;
- a great part of businesses in agriculture and rural area are poorly capitalized and many times the precarious entrepreneurial education results in the lack of strategic planning regarding their evolution.

In the period 2014-2020, taking into consideration the already proved advantages of financial instruments (Romania being among the countries with a positive experience of good practice in this respect), their utilization can be extended to all the thematic objectives and it is

16 Ex-ante evaluation for the implementation of financial instruments in NRDP, September 2016, MARD

expected to extend them after the current programming period as well, due to their better and more flexible implementation options.

The financial instruments can be co-financed through EAFRD to support the investment priorities included in the Rural Development Programs of member states. They can provide support to the implementation of measures from the program, on the condition to address to an identified market deficiency, such as: the areas in which banks are not willing to provide loans and where the private sector is not willing to invest, for instance on small farms or in the new agricultural enterprises with no banking history or no sufficient assets for collaterals. The financial instruments from EAFRD are available for all the potential beneficiaries in agriculture, forestry and from the rural areas that implement investment projects that are financially viable. A wide range of financial instruments can be implemented, namely[17]:

- *Loans*, available when they are not provided on commercial basis (from banks, for instance) or could be offered under more advantageous conditions than the commercial ones (e.g. at lower interest rates, on longer repayment periods or with fewer required collaterals). For instance, loans could be available to help farmers and their families in the diversification of income sources by the development of certain economic activities like agro-tourism or enterprises in the food sector, such as restaurants selling local products, for investments in support to young farmers or for investments in agricultural machinery and implements targeting the increase of farm performance and sustainability.
- *Microcredits*, smaller loans dedicated to persons excluded from access to financial services, most often on short term, with no collaterals or low guarantees. For instance: loans to farmers to procure equipment, to improve value added to products or harvest quality, or for projects within local development strategies at community level;
- *Guarantees*, if the assurance is given to a creditor regarding the repayment of the capital, in the event that the debtor fails to repay the loan. For instance, this can benefit the companies that intend to invest in bio-economy, in the efficient use of resources or for the farmers who have the necessary abilities and finance opportunities, yet in order to have access to financial resources they do not have the necessary collateral to get the loan;

[17]https://www.ficompass.eu/sites/default/files/publications/EAFRD_The_european_agricultural_fund_for_rural_development_RO.pdf

- *Capital*, in the case when the capital is invested in exchange for total or partial control of a firm; the equity investor can assume a certain control over the management of the company, may benefit from a part of the company's profits, and then can sell the detained capital again generating profit. Capital investment instruments are relevant for firms with high risk and high potential for growth, for instance those operating in the agri-food sector, developing/investing in new technological processes;

The financial instruments can be implemented in combination with grants and other forms of assistance. In many member states, in Romania inclusively, the agri-food sector and the rural business are still considered by banks and other financial institutions as having high risk. The ex-ante evaluation of NRDP 2014-2020 identified, among others, a funding deficit of about 2.36 billion euro, out of which 2.09 billion euro in agriculture and 0.27 billion euro in the non-agricultural sectors from the rural area.

The investment projects can become more attractive to beneficiaries by using financial instruments such as those presented above, due to the benefit of sharing the associated risks, by using public funds as appropriate. The choice of a certain type or combination of financial instruments depends on the need of a member state concerning the rural development plan, estimated by the program ex-ante analysis.

The ex-ante analysis to substantiate the need to introduce financial instruments in the National Rural Development Program financed from the European Agricultural Fund for Rural Development (EAFRD) 2014-2020, finalized in June 2015 and updated in September 2016, emphasizes the opportunity of adopting guarantee and crediting financial instruments adequate to the identified co-financing needs, following the consultations with the financial market and farmers' representatives throughout 2016, from which the following strategic priorities resulted:

- extending the applicability of financial instruments, while maintaining the possibility of co-financing projects supported from non-reimbursable sources, which are made available to end-beneficiaries and grant-independent, as stand-alone financial instruments, in compliance with the eligibility and state aid rules;
- prioritization of the risk-sharing crediting instrument, with support under collateral continuing to be available through guarantee schemes financed from the state budget (through Government's Ordinance 43). In order to introduce the risk-sharing crediting instrument,

MARD modified NRDP and the Commission approved the NRDP modification proposal on October 21, 2016.

Based on this re-evaluation, MARD identified the need to combine the financial instruments with the grants[18], to support the beneficiaries of investment projects co-financed under the following MARD measures:

- Measure 4 "Investments in physical assets" – Sub-measure 4.1 "Investments in agricultural holdings" and Sub-measure 4.2 "Investments for processing/marketing of agricultural products";
- Measure 6 "Farm and business development" – Sub-measure 6.4 "Investments in creation and development of non-agricultural micro-enterprises and small enterprises";
- Sub-measures 4.1a and 4.2a from the Thematic Sub-program for the Fruit Growing Sector;
- LEADER-funded projects responding to the objectives of the sub-measures presented above.

The instrument financed by the EAFRD will be used for:

- stand-alone credits for eligible investments under the measures and sub-measures listed above;
- credits for private co-financing of investment projects grant-supported under the above-mentioned measures.

According to Regulation no. 1303/2013 on financial instrument management, there were several financial instrument implementation options (provided in Art. 38 paragraph (4) letter b), namely:

- entrusted to EIB (EIF), having in view that they are institutions regulated by the EU Treaty. Subsequently, these have the possibility to select the financial intermediaries on the basis of own norms;
- entrusted to another international financial institution (IFI), in which a Member State is a shareholder, or financial institutions established in a Member State aiming at the achievement of public interest under the control of a public authority;
- entrusted to a body governed by public or private law.

After the detailed analysis of all possibilities, MA-NRDP chose to entrust implementation tasks to the European Investment Fund, and the

[18] The financial instruments are created on the basis of Art. 38 (1) b and Art. 38 (3) b from (EU) Regulation no. 1303/2013.

decision was approved in November 2016 through a memorandum[19] and later on, after the political changes that took place, the negotiations with the EIF were resumed throughout 2017. During the initial negotiations with EIF the following were agreed:

- capping the crediting to maximum 1 million euro, enabling access to a larger number of beneficiaries. The risk-sharing rate for NRDP contribution was agreed to 70% for agriculture (while in other sectors the risk-sharing rate is 50%); this will benefit beneficiaries, by reducing the interest rate by 70% as against the market interest rate and by about 50% the required guarantees for farmers.
- priority lending to small farms (by awarding an additional score in the selection of financial intermediaries/banks prioritizing the small farms, coupled with a higher performance fee for credits granted to small farms and a special distinct monitoring of credits provided to small farms.
- 20% allocation for micro-credits (credits up to maximum 50,000 euro), with the possibility to adjust allocation, in accordance with the demand on the financial market.

Unfortunately, the implementation of this financial instruments has not been finalized yet[20] (July 2018), because with the change of government it was considered that the implementation options had not been fully analyzed, so it was decided to resume the procedures. Thus, only on November 28, 2017, the Minister of Agriculture signed the re-negotiated agreement with EIF for an amount of 93.8 million euro. After signing the agreement, EIF initiated the selection procedures for the banks that will implement the agreed financial instrument, and the selection process will be completed by September 30, 2018, according to data from the EIF website.

From the experience of previous programs, the delay in the implementation of financial instruments is not beneficial, as the problem

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[19] MEMORANDUM on the theme: Approving the entrusting of implementation task of crediting instrument to the European Investment Fund with risk sharing funded from the National Rural Development Program 2014 - 2020 (PNDR 2014 - 2020) and appointing the Minister of Agriculture and Rural development and the general manager of the Agency for Rural Investment Financing for the signing of the Financing Agreement, approved in the Government Meeting on 23 .11.2016

20 http://www.eif.org/what_we_do/resources/eafrd-fof-romania/index.htm

of project co-financing is a real problem and there might be decommitments or cancellation of contracts due to lack of co-financing.

Considering the already advanced stage of NRDP implementation and the minimum allocation left for the investment measures under NRDP, until the effective operation of these instruments, it is possible that these will serve only for projects that can no longer be combined with grants, as the money allocated for eligible projects through NRDP might get exhausted. In these conditions, the financial instruments, as described and negotiated with the EIF might be used only for the projects that can no longer benefit from funding by grants, but they had high evaluation scores and are "bankable" projects for which credit can be granted for the entire requested amount.

In conclusion, we can state that Romania's experience in the implementation of financial instruments (guarantee schemes) during SAPARD pre-accession program and NRDP 2007-2013, produced significant results in terms of deficiencies noted in the relation with the crediting market, namely[21]:

- facilitated the implementation of (SAPARD and NRDP) programs and contributed to project quality;
- attracted private funds for supporting the implementation of NRDP and increased the efficiency and effectiveness at program level;
- produced positive economic and financial effects;
- proved a good management capacity.

The guarantee schemes could facilitate access to credits only for those beneficiaries who met the prudential requirements of the lending institutions concerning the viability of the proposed investment to be credited, the beneficiary's financial performance, a good credit history, with no outstanding debts to banks or the state budget, and who had staff with experience in the field where the investment was made, and the business cash-flow resulted in the ability to pay all the obligations from the credit agreement.

The guarantee fund helped to obtain 426 million euro in available credits by providing 116 million euro as guarantee, meaning more than 3.5 euro credit for each euro.

The financial instruments are very important mechanisms to boost agriculture development in the EU, acting as magnets designed to attract private funds.

[21] http://www.madr.ro/docs/dezvoltare-rurala/studii/Studiu-evaluare-ex-post-PNDR-2007-2013.pdf

According to the recent CAP legislative proposals, after 2020[22] the financial instruments will become an important component in the Common Agricultural Policy, the member states will have the possibility to create financial tools to support working capital for young farmers, who often face great difficulties in raising funds, given the high investment and low profitability of a farm in the initial phase. The Commission will consolidate cooperation with the European Investment Bank mainly through the FI-compass platform [23], to capitalize on the experience gained in the field of financial instruments and good practice related to the specific schemes, mainly for the young farmers. Romania should consolidate its accumulated experience through active participation in the negotiations on new post-2020 CAP regulations.

[22] https://ec.europa.eu/info/food-farming-fisheries/key-policies/common-agricultural-policy/future-cap_en#documents
[23] https://www.fi-compass.eu

3.2. RISK MANAGEMENT IN AGRICULTURE – INSURANCE MECHANISMS IN BULGARIA Dimitre Nikolov, Svetlana Alexandrova

Risk management - factors and models

Agriculture is a sector facing a variety of risks emanating from natural factors, from price volatility, from market competition, from seasonal production, from macroeconomic and political changes. These risks are characteristic not only for farmers, but also for companies and sectors related to the supply of raw materials and to the producers of processed agricultural products. The risks to agriculture also affect the relevant actors in the food chain.

According to an assessment by the European Environment Agency, Bulgaria is situated in one of the regions that are particularly vulnerable to climate change (by raising the temperature and unusually intense rainfall) as well as to the frequency of extreme events related to climate change, as well as droughts and floods. The risks posed by climate change events can lead to the loss of human life or cause significant damages affecting economic growth and prosperity, both at national and cross-border levels. Climate risks are expected to increase over the next decades, due to the changing climate. The climatic changes and the resulting meteorological anomalies are among the main factors determining the productivity of the agricultural crops, their yields and the related incomes. For the period 1988-2014 Bulgaria experienced temperature anomalies, the average annual air temperature has increased by 0.8 ° C, compared to the reference rate for the 1961-1990 climatic period, ranging from 10.6 ° C to 13.0 ° C[24]. The average rainfall in Bulgaria is also increasing by intensity and strength. In the period 1988-2014 the average precipitation rates in Bulgaria varied between 377 and 1013 millimeters per year[25]. The scenarios made by the National Institute of Meteorology and Hydrology for the climate change in Bulgaria show a greater frequency of extreme events and disasters such as heavy rainfall, floods, heat waves and droughts. Droughts and floods are one of the most important manifestations of climate change in agriculture, which cause significant fluctuations of yields.

[24]National report for the environment state and protection in Bulgaria 2016.

[25] National report for the environment state and protection in Bulgaria 2016.

The most adverse impacts of climate change are the drought due to the combined effect of rising temperatures and the reduced rainfall and the severe floods, caused by prolonged and severe rainfall. According to the Global Climate Risk Index of the German Watch ecological group, Bulgaria ranks sixth place[26] among the countries most affected by extreme weather events in 2014. According to the European Environment Agency (EEA), for the period 1980-2013 Bulgaria recorded economic losses of 1.2 billion EUR[27] (according the EUR value in 2013), related to adverse climatic events, which represents an average economic loss of 150 EUR per capita and 11,140 EUR per square kilometer loss.

Risk management and applied models

The economic activity of farmers is exposed to many and varied risks. The risks that can be predicted, managed and controlled by farmers are those caused by fluctuations of agricultural output prices, by changes in legislation, by administrative rules and regulations and changes of interest rates. Risks that are difficult to control are those that arise from weather and natural conditions. Events such as floods, intense rainfall, droughts, causing substantial losses to agricultural products, are attributable to direct effects. Indirect effects are the reduction of incomes, the deterioration of agricultural products quality and the reduction of food security.

The risk factors are interrelated and have a strong dependence, therefore, they are conditionally systematized in more general aspect; they are differentiated in terms of market, production and financial uncertainty.

Risk management is a continuous process of identifying, evaluating and monitoring the various types of risks that may affect agricultural activity. Given the above factors, the following major risks can be identified.

[26]Kreft S., Eckstein D., Dorsch L., Fischer L. (2016) – Global Climatic Risk Index 2016, German Watch

[27] EEA (2017) – Changes in climate, impacts and vulnerability in Europe 2016, Report № 1/2017, EEA

Table 3.1. Risks and impacts on agriculture

Risk factors	Effects	Impacts
Climate changes	Floods, drought	Decrease of yields, of agricultural products quality; loss of arable land; water shortage; deterioration of soil structure; drop of incomes of farmers and of participants throughout the food chain. A change occurs in shortening the duration of the reproductive period of the plants.
Bio-system change	Increase of weeds, pests and diseases	Reduction of yields and incomes
Market conjuncture - price volatility	Imbalance between demand and supply	Low prices and loss of income, decrease in profit margin
Funding	Volatility of interest and exchange rates	Increase of financial resource for investment
Regulations and policy	Change of legislation, regulations (taxes, fees, trade restrictions / incentives) and production requirements, to access domestic and foreign markets	Decrease / increase of incomes and profit margin

Source: Systematization of the authors

Market risks - This type of risks affect farmers, processors, traders and raw material suppliers. They arise from the volatility of agricultural commodity prices on domestic and international markets. In the context of globalization and liberalization of commodity markets, agricultural prices are influenced by fluctuations in supply and demand, by the degree of integration and market segmentation. Fuel, water, electricity and fertilizers prices directly affect the production and the volume of food products sales. The indirect impact of the yields and the realized revenues for all participants is the changes in the meteorological conditions and the ecological status of the bio-system. As a result of these risks have been caused adverse effects, such as yields and incomes diminution. Instability of agricultural output can lead to high volatility in food prices and vice versa, which means that high volatility of input prices may affect productivity levels and production volumes. In

addition, the price is changed by the transaction costs associated with distribution logistics[28] and asymmetric information. The sensitivity of farmers to market conditions is determined by the profit margin, low-margin farmers are expected to be more vulnerable to price changes.

Production risks - Agriculture is often characterized by high production variability. Unlike other sectors, farmers cannot predict the amount of losses from climatic conditions and their consequences such as floods, hailstorms, cold and hot waves, drought, pests and diseases in crop and livestock farming. The risks of climate change are unsystematic in nature and their neutralization requires investments, knowledge for adaptation to climate change and risk neutralization, which requires available and reliable information. As production risks we determine those that lead to losses in crop yields, incomes, arable land, livestock productivity, profitability and profit from agricultural and processing activities.

Institutional and political risks - These risks are linked to inadequate regulatory measures, legislative gaps, inappropriate policy decisions and lack of information. Regulatory and agricultural policies concern national and European subsidies, food safety, environmental regulations and adaptation to climate change. Trade policy and regulations predetermine the incentive to export agricultural products (primary and processed) and the import restriction measures. Sudden changes in government decisions often have a negative impact on production or marketing decisions, farmers 'and producers' revenues. Trade barriers and inadequate administrative measures lead to adverse effects on markets, trade and transaction costs.

Financial risks - arising from changes in interest rates, exchange rates, loss of liquidity, assets, etc. As a result of the financial risk, the agricultural and processing businesses are insolvent and unable to repay current and future liabilities.

Risks in agriculture are manifested in economic, social and environmental terms. From an economic point of view, risk factors lead to instability of income and profit for farmers and all actors in the food

[28] Article 68 of Council Regulation (EC) No 73/2009 of 19 January 2009 establishing common rules for direct support schemes for farmers under the Common Agricultural Policy for 2009 and establishing certain support schemes for farmers

chain, productivity, and change in employment. Socially, there is a growing risk of depopulation and poverty in rural areas, especially in areas where agriculture is a major source of income. From an ecological point of view, the changes occurring in natural resources, biodiversity and ecosystems are considered.

According to the European Commission (EC), as a result of climate and market risks, about 30% of farmers suffer annual losses that lead to volatility and uncertainty of income[29].

Risk management is an element of strategic management and planning at micro and macro levels. The extent of risk exposure is assessed prior to the occurrence of the risk event by identifying the risk factors. Risk management distinguishes the following main approaches:

- *Mitigation of risks* - limiting the adverse effects of risk hazards and identifying mitigation options. Opportunities to reduce the impact of unfavorable climate and market factors are varied, for example, diversification of crops and animals, income, adaptation of plants to climate change, construction of irrigation facilities, etc.
- *Risk management within the farm* is done by developing strategies and risk management plans that include non-traditional insurance measures linked to production-related risks mainly caused by climate change - such as the application of new technologies to production, processing of agricultural products, diversification of farmers' incomes. Innovative technical improvements such as drought-resistant plant varieties, improved pest and disease control, improved maintenance and restoration of soil structures, etc. can be introduced at farm level. These measures are to optimize the scale of the farm or to increase the added value of the product **in** the farm, in the process of processing and selling. Maintaining the sustainability of

[6]Risk management schemes in EU agriculture Dealing with risk and volatility, Agricultural Markets Briefs are available on Europa: No 12 / September 2017; EU

http://ec.europa.eu/agriculture/markets-and-prices/market-briefs/index_en.htm

[7] A futures contract is a derivative instrument that represents a standard agreement between two parties to buy or sell an asset at a predetermined price with future delivery. When buying a futures contract, the price of the underlying asset (agricultural commodity) is expected to rise in the future, allowing it to realize a profit or benefit from risk neutralization. When selling a futures contract, the relationship is reversed.

agricultural products and of agricultural and processing activities to the various types of risks and challenges is achieved through the means of planning and management and technological renewal.

- *Transfer of risk to third parties* is done through financial and insurance instruments. The insurance contract is a service that allows the farmer and the food chain participants to transfer some of the risks to a third party. The practice of insurance shows that the insurance refers to elimination of production risk. Farmers insure tangible assets, harvest, income of agricultural activity from climatic conditions.
- *Unconventional risk transfer* by applying futures contracts[30]. Futures are standardized contracts traded on futures markets that are a means of risk management. Farmers use futures contracts to protect against price volatility, with the risk of price change being passed on by investors to investors and speculators who accept it as a risk and make a profit from it. An innovative approach is a futures contract with a base index that is calculated on the basis of a difference in average temperatures and precipitation between regions. This type of financial products is used to neutralize risks in agriculture and tourism. Some insurances for compensation of income losses and of yields due to meteorological events, use indices based on meteorological data. Index-based financial products fall into a category of derivatives, traded on the exchanges and can be used by each business entity for hedging. This type of instrument is suitable for large farms specializing in growing crops that are traded on international commodity exchanges.

New solutions to cover natural and catastrophic risks in some countries are short-term bonds, providing capital in the event of catastrophic events. Buyers of such bonds receive high returns, in the absence of catastrophic events, they are traded on the debt markets.

Insurance as a risk management mechanism

Insurance is a financial instrument for effective risk management in agriculture that allows the farmer to transfer some of the risks to a third party. To mitigate the effects of climate change and to neutralize risks, insurance products, financial instruments for hedging risks, etc. are used.

Indeed, it is the insurance industry that can take action to overcome the effects of climate change through tools that are accessible to farmers. Insurance provides various insurance products - single-risk insurance, multi-risk insurance, income insurance, income insurance for agricultural produce, insurance indices, etc.

Insurance provides prevention and in the sense of socio-economic relations performs economic, social and environmental functions.

The economic function is to reduce the risk of declining yields, farmers' incomes and investment due to the protection of tangible assets and agricultural produce. The social function is related to preserving the workforce, ensuring employment and protecting human health.

The environmental function is risk management in terms of environmental protection, efficient use of natural resources, soil protection from erosion and salinisation.

The value of crop insurance is determined by the degree of demand for insurance products, the coverage of risk, the implementation of government insurance programs, the participation of the state in the insurance system through subsidies to insurance premiums, Models of agricultural insurance are mainly determined by the approach of institutionalizing insurance, by the capacity of the insurance business.

In this respect, the following basic models[31] can be distinguished from the review of the practice of agricultural insurance:

- State-controlled model: characterized by a high level of state support and monopolized insurance provision. In this case, public costs are a burden for the state budget.
- Public-private partnerships between public and private companies: a successful insurance scheme exists, as it involves state participation, i.e. higher fiscal costs, a wider range of insured farms and an increase in market demand. By its nature, this approach shares the risk between insurers, farmers and the state.
- Market model - free voluntary option for farmers to insure. Insurance companies operate on a market principle, compete and the demand for insurance is market-determining.

Major insurance products and their characteristics are presented in the following table.

[31] Study of WB "Insurance against Climate Change Financial Management of Risk of Disasters and Insurance Opportunities for Adaptation to Climate Change in Bulgaria", 2013

Table 3.2. Key features of insurance products

Types of insurance instruments	Main features
One risk insurance	Covers one risky event
Combined insurance	Covers risks for more risky events merged into one insurance product
Agricultural crop insurance	Provides coverage of major risks affecting yields (e.g. drought, disease, moisture). This insurance can be offered for individual crops.
Revenue insurance	Revenue insurance: Combines profitability coverage and price risks in one insurance product. These may be typical farm hazards depending on the structure of the farm. These insurances are related to sensitivity and dependence between price and yield.
Income insurance	Income insurance refers to the income of the entire holding, which is why it is preferred by the farmers. It is determined on the basis of the net income of the farm. Ensuring individual income risks poses the risk of moral hazard and unfavorable choice as potential losses do not arise accidentally, but largely depend on how well a farmer manages his farm.
Index insurance products	They are an alternative form of insurance, risk payments are based on predefined indices that show the benefits according to the expected decline in the average yield for a given region and for a group of crops. For this type of insurance products, payments are based on farm profitability or income results, taking into account yields or losses on area or at farm level. They offer protection against risks, these are standard financial products traded as derivatives on the fixed financial markets and are a good tool for risk management. The index is appropriate for stabilizing the incomes of small and medium-sized farms. Two major indexes, a revenue-based index and an index based on a change in metrological conditions, are distinguished, and reliable weather information is needed to calculate it, as there is a risk that the losses incurred will be inaccurate. This insurance product for insurers has no moral hazard and asymmetry of the information. As they are standardized and transparent, index insurance contracts are also used as a basis for reinsurance, thus transferring the risk of loss of agricultural output on a larger scale.

Insurance Funds, based on Mutual Insurance Scheme	They are a specific collective institutional form to insure the accumulation of financial resources by different investors on the principle of solidarity in mutual funds for insurance. Mutual insurance funds require farmers to pay a fixed rate, regardless of the risk coverage, in case of losses. As an institutional structure, funds are a way of sharing risk among groups of farmers who want to take on their responsibility for risk management. They can be considered as a specific compensation financial scheme. The advantage is that depositors in the fund exercise mutual control over the allocation of financial resources, and this reduces the possibility of unfavorable choice. The lack of financial capacity and sufficient capital of the funds is complemented by public financial resources. Insurance funds can be seen as innovations for financing farmers against different types of risks. Mutual stabilization funds provide an opportunity for a group of producers to share the risk. The loss suffered by a member of the fund is wholly or partly compensated by the accumulated financial resources available in the fund according to predefined rules. They are primarily created for a particular sector or region.

The difference between a stabilization fund and a mutual insurance scheme is that the scheme has a legal right to compensation, premiums are calculated on an actuarial basis (as opposed to a risk-free, flat-rate amount). The advantage of such a fund is that sharing risk is solid, farmers know each other, which reduces moral hazard and the risk of unfavorable choice. Disadvantages are limited resources to cover risk and act on the principle of solidarity. The efficiency of the mutual fund depends on the accumulation of sufficient reserves from the savings of farmers who are not used to cover risks.

Subsidized insurance programs are a management approach that facilitates access to the insurance market for small and medium-sized farms, as state premium payments cover heavier risk events.

The application of different insurance products is determined by the available capital, traditions and culture of insurance, access to the insurance market, asymmetric information and the degree of risk coverage. The insurance industry and its products play an important role in ensuring climate risk coverage, but limited financial resources do not allow farmers to contribute more than one risk. Therefore, in the event of extreme climatic events, losses are not fully recoverable.

The Common Agricultural Policy in Relation to Risk Management

Risk management is essential for the sustainability and competitiveness of agriculture, taking into account its dependence on climate change and the market situation of agricultural production.

The European Commission adopts a strategy for adaptation to climate change in 2013. The strategy is aimed at achieving co-ordination between countries to reduce the negative impacts of global climate destabilization on the economy and business. Sharing knowledge and experience on measures to adapt and limit climate change is an essential element of the policy dealing with climate change. It is set up by Climate-Adapt, a platform of European Environment Agency for adaptation to climate change, which provides exchange of information on specific adaptation measures to mitigate the effects of climate change. A new initiative of the European Commission is the establishment of a Disaster Risk Management Center, which will contribute to the expansion of information and communication between politicians, business and scientists, based on partnership, knowledge and innovation. [32] (De Groeve et al., 2013, 2014; JRC, 2015).

The EU's Green Paper on Insurance has highlighted the need for synergies between climate change and disaster risk reduction. The "Green Paper on Insurance" puts a number of questions on the appropriate approaches to disaster insurance.

Regulation 73/2009 of the European Commission (EC) establishes specific financial and organizational decisions to pay financial compensation to farmers who have suffered economic losses caused by the outbreak of animal and plant diseases, weather conditions and environmental incidents. The Regulation provides for the possibility for the State to take part in insurance by making contributions to crop, animal and plant insurance premiums, against economic losses caused by adverse climatic events and diseases or pest infestations[33]. For the first time, financial compensation in the form of contributions to a mutual fund was recorded in the regulation[34].

[32] https://www.eea.europa.eu/publications/climate-change-adaptation-and-disaster

[33] Art. 70 of Council Regulation (EC) No 73/2009 of 19 January 2009 establishing common rules for direct support schemes under the common agricultural policy and establishing certain support schemes for farmers amending Regulations (EC) No 1290/2005, (EC) No 247/2006, (EC) No 378/2007 and repealing Regulation (EC) No 1782/200.

[34] The definition of mutual fund is as follows: "mutual fund" means a scheme accredited by a Member State under national law whose purpose is to insure member farmers who are compensated to farmers who have suffered economic losses caused by the occurrence animal or plant disease, pest infestation or environmental accident, or a serious decline in their income.

The CAP in the last programming period introduced insurance mechanisms for risk prevention and management. Within the first pillar of the CAP has been applied Art. 68 of Regulation (EC) No 73/2009, which allows Member States to grant direct payments to farmers in the form of crop-growing insurance contributions. Council Regulation (EC) No 73/2009 establishes a new model for the co-financing of crop, livestock and crop insurance premiums against economic losses caused by adverse climatic events in the event of animal or plant diseases or invasion from pests[35]. According to the regulation, the financial contribution[36] covers losses caused by an adverse climatic event, animal or plant disease or pest infestation which destroy more than 30% of the average annual production of a given farmer for the preceding three-year period or the average of three years on the basis of the preceding five-year period, excluding the highest and lowest indices. The financial contribution granted to a farmer should not exceed 65% of the insurance premium due.

Direct payments under the first pillar of the current CAP make a significant contribution to maintaining farm income stability, but specific risk management measures are included in the second pillar of the CAP - Rural Development, where Member States could benefit from support for the development of national risk management schemes and overcome income insecurity for farmers.

To achieve effective risk management by farmers for this programming period, a current risk management measure is foreseen in the current Rural Development Program. The possibilities for using insurance instruments are described in Regulation (EC) № 1305/2013 of European Parliament and of the Council from December 17th 2013. These options are financial contributions to crop and livestock insurance premiums against economic losses to farmers[37]. New insurance

[35] Article 73, Regulation (EC) No 73/2009 of the Council of 19 January 2009 establishing common rules for direct support schemes under the common agricultural policy and establishing certain support schemes for farmers, amending Regulations (EC) No 1290/2005, (EC) No 247/2006, (EC) No 378/2007 and repealing Regulation (EC) No 1782/2003.

[36]A financial contribution is paid directly to the farmer concerned from the public pillar first pillar.

[37] Art. 37 of Regulation 13.05.2013, crop, livestock and crop insurance only provides for insurance contracts covering losses caused by adverse climatic events, animal or plant disease, pest infestation or ecological accident, or acceptance of a measure in accordance with Directive 2000/29 / EC for the purpose of eradicating or limiting plant disease or invasion of harmful organisms which have destroyed more than 30% of the average annual production of a given farmer for the preceding three years or the average

instruments are Mutual Insurance Funds and Instrument for Stabilization of Income; for both instruments is characteristic the participation of farmers with contributions to mutual funds for compensations of farmers with a serious drop in their income[38]. Under the Regulation, mutual funds pay the financial compensation directly to the participating farmers who are affected by the economic losses. The financial compensation paid by the mutual funds to the farmers shall be financed by: (a) the basic capital contributed to the funds by the farmers participating in the fund; (b) loans taken from the Funds and financial institutions under market conditions; and (c) recovered sums from the farmers[39]. An essential condition of the regulation is that funding from the national budget is up to 65% of the amount made by the mutual fund for: (a) the administrative costs of setting up a mutual fund, spread over a maximum of three years; (b) the payment of capital and interest on commercial loans granted for the purpose of payment of compensation for losses or premiums for insurance contracts, concluded with a common fund at market prices; (c) the amounts paid by the mutual fund as financial compensation to farmers.

Mutual funds for insurance, as an organizational institutional structure, are a type of public-private partnership. EU Member States lay down rules on the establishment and management of mutual funds, the payment for occurrence of a risky events, the eligibility of farmers, and the management and monitoring of compliance with these rules. The Regulation establishes special financial and organizational decisions for the payment of financial insurance by mutual funds[40].

The income stabilization instrument aims to cover farmers' losses from risky events in case of a sharp drop in incomes. The income reduction shall be calculated on the basis of the average annual income of the holding for a previous period of time. Farmers' contributions are

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three years from the preceding five-year period, excluding the years with the highest and lowest indices.

[38] According to Art. 39 of Regulation 1305/2013 support shall be granted if the decline in income exceeds 30% of the average annual income of the individual farmer for the preceding three-year period or the three-year average over the preceding five-year period excluding the highest, low indicator. Payments to mutual fund farmers compensate for less than 70% of the loss of income during the year.

[39] Article 73 of Regulation No 73/2009

[40] Pursuant to Article 71 of Regulation No 73/2009, the definition of a mutual aid fund is a scheme accredited by a Member State under national law, the purpose of which is to insure members of a farm undertaking compensatory payments to farmers who have suffered economically losses caused by the occurrence of animal or plant disease or an environmental disaster

accrued as a reserve to the fund that is used to offset the loss of income. This instrument has a usage limitation because income compensation is in the case of average annual income losses of more than 30% over a previous period. Difficulties arise in connection with the organization and management of the mutual fund, the creation of initial capital. In 2014-2020, the planned total amount of public spending on subsidizing insurance premiums is about € 2.2 billion.

Insurance model of Bulgarian agriculture

The insurance industry in the country is well developed. The insurance process is voluntary and by mutual agreement. The insurance sector provides specialized insurance products that cover various types of risks for crop and livestock breeding. Insurance practice in agriculture is determined by the specific nature of agricultural production. One of the most important features of agricultural insurance is the possibility of catastrophic events (drought, flood, etc.) that can affect most of the farms and insured producers, as well as insurers who cannot cover all damages. Increased risk determines the high cost of insurance services for agricultural activities, which is one of the reasons for the slow development of the agricultural insurance market. On the other hand, the low share of agricultural insurance is determined both by the lack of resources, especially in small farms, and by the poor knowledge of the specifics of agricultural production by insurance companies. Although they are interested in insuring their products, farmers are not convinced of the insurance benefits and are skeptical to insurance. Farmers still rely to a big degree on State aid in case of a disaster, such as applying for State aid to compensate for the loss of completely destroyed areas due to natural disasters or adverse weather conditions. Expenditure on extreme risks is covered from the state budget, but they do not cover total losses.

Agricultural insurance is voluntary. Bulgaria has a competitive market-based insurance market. In Bulgaria, the insurance in agriculture has a long history, since 1885, after the National Assembly adopted a Law on the compulsory insurance of agricultural crops from hail. Farmers can insure their production on a voluntary or mandatory basis with the adoption of a new law on voluntary crop insurance against hail in 1910. In the period from 1980 to 1991, agricultural insurance is compulsory. The risks covered are for over 40 types of damage, for diseases, pests, droughts, hailstorms and others that cause serious damage to agriculture. In 1992, voluntary crop insurance was introduced, initially covering only hail and storm risks. Later, insurance companies expand insurance products by covering fire damage, flooding, frost, etc.

Currently in Bulgaria the total number of licensed insurers is 46; 29 of them are general insurance companies, 14 are life insurance companies and 2 are life insurance cooperatives. Insurance companies offer a variety of products to cover damage from risky events - storms, frost, fire, floods that mainly affect cereals, corn, sunflower, fruits and vineyards, etc. There are insurance policies that provide a wide protection of the crop from various natural hazards - hail, frost, drought, fire, etc. (Lefer, Nikolov, D. and others, 2014) [41]

The gross premium income realized by the insurance companies (non-life insurance) for 2017 is BGN 1 752 087 031, of which the gross premium income for agriculture is BGN 3 179 932 and the animal insurance is BGN 63 626. Of the total paid indemnities, for agriculture are BGN 15 664 563. The paid insurances for animals are BGN 568 215. The gross premium income realized by the non-life insurers is BGN 16 591 783, the animal insurance is BGN 568 215. [42]

The share of agricultural insurance in the country's total insurance market is insignificant - about 1%.

Farmers are insured according to their financial capabilities, small and medium-sized farms do not have sufficient financial resources and the insurance is at a premium that does not meet their insurance needs, and in the event of risk the losses are not fully covered by the insurance companies. Insurance premiums in the sector range from 3% to 10% of the insured amount. The highest insurance rates are for vegetables, fruits and tobacco because they are most at risk. The livestock premium ranges from 5% to 8% of the insurance amount depending on the livestock species.

For the implementation of projects under the Rural Development Program, in case of use of bank credit, insurance is obligatory, but the premium on the insurance policy is not sufficient to cover the risks of unusual climatic conditions.

Since 2010, the Ministry of Agriculture, Food and Forestry has implemented a state support scheme to co-finance insurance premiums for agricultural products on the fruit and vegetables market, and since 2012, a scheme for financing premiums for bee hives with bees. The two

[41] Marianne Lifer, Dimitre Nikolov, Sergio Gomez and Paloma, Minka Chopeva "Main factors of the development and attractiveness of the insurance market for agricultural holdings", Economic Studies, vol.2, 2014

[42] Data from the Financial Supervision Commission. The Financial Supervision Commission takes into account insurance investments that are grouped by type of risk, and since 2017 it publishes information on insurance policies in agriculture.

state support schemes co-finance up to 80% of the premium, the insurance covers only losses caused by adverse weather events (hail, torrential rain, hurricanes, floods, storms) and losses more than 30% of the average annual output of the farmer. In the case of insurance covering natural disasters and other losses caused by climatic events and / or bee diseases, the insurance premium is 50%. By virtue of the reinsurance premium in the fruit and vegetable market, the aid helps to cover the losses from the insurance rate up to 6% and the maximum allowable amount of the insurance rate - 300 BGN / ha.

Under Regulation 73/2009, the State Fund Agriculture supports state aid for farmers who grow fruit, vegetables, essential oil crops and tobacco for insurance against losses, caused by climatic events. Currently, the intensity of the support is 65% of the value of the insurance premium. The State Agricultural Fund (SFA) provides co-financing of insurance premiums, i.e. compensatory payments to cover crop damage as a result of adverse climatic events (frost, flood, flood, overflow, hail and drought). [43]**.** Payments are from the SFA budget and are in line with EU state aid legislation. The state support for co-financing of insurance premiums for agricultural output insurance limits the risk of losses as a result of climate change.

State aids in agriculture to subsidize insurance and to cover damage from climate change are outlined in table. 3.3.

Table 3.3. State aids for insurance (million BGN)

	2011	2012	2013	2014	2015	2016
State support to compensate damage to crops from climatic events	1,244000	3,966000	15,446000	4,301000	5,525511	5,920698
State support for the co-financing of insurance premiums	520000	358000	594000	5,10000	1,138225	1,434 837

[43] 80% of the amount of the insurance premium paid under insurance contracts is co-financed, in cases where the insurance covers losses from natural disasters, if they are destroyed up to 30% of the average annual production, co-financed by 50% % of the insurance premium.

Source: Agro-statistics, Ministry of Agriculture, Food and Forestry

The state aid to cover losses from climatic events for the period 2011-2016 amounts to BGN 36 403 209 for 4000 agricultural holdings. The public resources for co-financing of insurance premiums are BGN 4 555 062, which have been utilized by 1403 beneficiaries for the period. For small and medium-sized farms that grow fruits, vegetables, essential oil crops, support is up to 65% of the value of the insurance premium for 2017. This is a prerequisite for encouraging farmers to insure and acquire a culture of insurance to prevent risk climatic events.[44]

For the year 2017, the co-financing of insurance premiums for agricultural output is about BGN 2 500 000. [45]

According to the European Commission's assessment, the insurance sector in Bulgaria is lagging behind most European countries, with a share of 2.1 per cent of per capita income, compared to 7.6 per cent in most European countries[46].

The limited financial capacity of farmers is the reason why the insured amount is not in line with the actual value of the property and the harvest or does not cover the entire volume of the agricultural area. Therefore, sometimes the purchased insurance product does not correspond to the extent of losses and does not cover the risks caused by extreme weather conditions. Because of the lack of "Hail" insurance, the losses of the farmers have to be covered at least in part with the funds of the state budget.

State aid is also an important part of agricultural support and is additional support for small and medium-sized farmers in sensitive sectors.

To achieve effective risk management by farmers for this programming period, a risk management measure is implemented to support the payment of crop, livestock and harvest insurance premiums and the creation of mutual funds. [47] The measure covers the following insurances - financial contributions to premiums for harvest and livestock against economic losses of farmers[48]; mutual funds to pay financial

[44] The aid is considered as State aid under EU legislation. Co-financing schemes for insurance premiums are under Regulation (EC) No 1857/2006

[45] Data from MAFF

[46] EUROSTAT 2013

[47] In the present programming period, the possibilities for support of insurance instruments are according to Art. 36 of Regulation (EU) No 1305/2013 of the European Parliament and of the Council of 17 December 2013 on support for rural development by the European Agricultural Fund for Rural Development (EAFRD).

[48] Art. 37 of Regulation 1305.2013, Harvest insurance, animals and plants. provides only for insurance contracts covering losses due to adverse climatic events, animal or

compensation to farmers for economic losses[49]; an income stabilization instrument in the form of financial contributions to mutual funds to compensate farmers for a serious decline in their income[50] and to cover damage from adverse climatic events, animal diseases, pest infestations and ecological incidents. However, the aid is granted only to cover the losses caused by the occurrence of one of the following incidents: catastrophic climatic conditions, animal or plant diseases, losses caused by pests, environmental incidents that have damaged more than 30% of the average annual output of the farmer in the previous three years, or the average of three years calculated on the basis of the previous five years, with the exception of the highest and lowest values. According to Annex II of Regulation No 1305/2013, the maximum level of subsidies cannot yet exceed 65% of the eligible costs. Member States may limit these costs by introducing ceilings linked to the Fund or respective individual ceilings.

In accordance with Article 38 of Regulation 1305/2013, mutual funds must be accredited by the competent authority and operated in accordance with national legislation. In addition, the funds must have clear rules for the accumulation of financial contributions and the payment of benefits.

In the current programming period Bulgaria and Greece do not apply the risk management measure. The Mutual Funds Facility (Measure 17.2 under the Rural Development Program) was selected by Romania, Italy and France. Romania has the highest costs (200 million EUR), Italy and France under 100 million EUR for the period. The income stabilization fund (measure 17.3) is implemented by three Member States: Italy (nearly EUR 100 million), Hungary (EUR 19 million) and Castile and Leon (EUR 14 million).

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plant disease, pest infestation or environmental incidents or the adoption of a measure in accordance with Directive 2000/29 / EC for the purpose of losing The eradication or limitation of plant disease or the invasion of pests which have destroyed more than 30% of the average annual production of a given farmer for the preceding three-year period or an average of three years from the preceding five years, excluding years with the highest and lowest indices.

[49] The Mutual Funds rules are determined by the State, the creation and management of Mutual Funds.

[50] Under Article 39 of Regulation 1305/2013, support is granted if the decline in earnings exceeds 30% of the average annual income of the individual farmer for the preceding three-year period or the three-year average based on the preceding five-year period, excluding the highest and the lowest indicator. Payments to mutual fund farmers compensate for less than 70% of the loss of income in the year in which the grower is entitled to the aid.

The Government and stakeholders in agriculture can take advantage of risk management tools in the RDP (2014-2020) and develop an insurance mechanism based on a public-private partnership between the private and public sectors. Undoubtedly, this would ensure good moral risk management and optimize risk management in agriculture.

Income pressure, due to risks of price volatility, climate change, increased incidence and severity of extreme events and more frequent sanitary and phytosanitary crises is a problem. The CAP therefore provides for the establishment of a clear financial mechanism to address risks and crises and to maintain the sustainability of farms.

The CAP already offers a set of tools to help farmers prevent and manage risks - will continue to promote the introduction of an income stabilization instrument and support for the insurance premium. At the same time, it is appropriate to explore how to further develop an integrated and coherent approach to risk prevention, management and sustainability, combining, in an additional way, EU-level interventions with Member State and private strategies that affect stability of income, as well as climatic risks. The use of financial instruments that stimulate private capital inflow can help overcome the temporary cash flow shortage and be used for risk management, such as insurance and reinsurance support.

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3.3. RISKS MANAGEMENT IN ROMANIAN AGRICULTURE Cristian Kevorchian, Gheorghe Hurduzeu

The agriculture of Romania, similar to the agriculture of the other EU countries, is marked by a series of risks, which have increased in the last 10 years: production risks (due to climatic natural factors, disease and pests), risks of not reaching expected earnings due to agricultural product price volatility. In addition, the impossibility to access credits since estimated revenues are uncertain and agricultural production is not taken into account as guarantee.

Unlike other member countries, Romania faces a much more pronounced climate risk component (production variability for main crops is almost twice the EU average). Even if considered in the global context, the changes in the climate regime in Romania, exhibit the traits of the geographic region in which our country is located. The agricultural areas are most affected by the frequent drought (about 7 million ha), water erosion and landslides (about 6.4 million ha), temporary excess of water (about 4 million ha), compaction (approx. 2.8 million ha). To be noted that drought is a limiting factor in the crop cultivation on the largest surface. The most vulnerable areas to water scarcity, with a tendency of total exposure to aridity, are in Dobrogea, southern Oltenia, southeastern and eastern Moldova, and the west of the Tisa Plain. Analysis of historical precipitation data shows that the drought rate is increasing significantly in the first decade of the 21st century, accounting for 5 years of drought compared to every decade in the 20th century when the number of drought years was 1 to 3-4 years every decade[51].

Hence, agricultural production is strongly reliant on climate change; circumstance that demands adequate access of farmers to management tools, funds that partially offset losses resulting from natural disasters, or other unfavorable phenomena; funds that enable them to guarantee revenue security. Such risk management schemes must be able to cover, in addition to the damage caused by adverse climatic events (drought, floods, soil erosions, etc.) also those caused by animal and plant diseases, pest and incidental pest infestations (toxic waste discharges,

[51] National Strategy on mitigation of drought effects, prevention and combating of land degradation and desertification, short, medium and long term, MADR, 2008.

etc.), providing an overall protection for farmers experiencing disruptions of activity and / or loss of production due to such incidents.

Risk conditions require a certain behavior of the producer in the form of reaction to risk. Reaction to risk, as perception of the phenomenon, as explanation, and as means of coverage, is different, depending on the type of holdings and, of course, on those who manage them.

In the case of family farms (households), due to insufficient financial capacity (poor capitalization) and therefore based on traditional technologies, on physical work of household members and less on modern elements, the possibilities of cover against risks, such as natural ones, are very limited.

Agricultural holdings with legal personality are considerably larger, their management is in many cases carried out by specialists with university education and connected to market relations. As a result, there is a different perception of the risks and they are much more active in the fight against them, the technological and economic knowledge favors managers and they pay marked attention to the information circulated, to both ecologic data and economic data, specific to the business world.

The current situation in Romanian agriculture, namely the lack of funds in particular, as well as of a safe sale market, where the absence of loyal competitors and of economic mechanisms that ensure a suitable price for agricultural products, leads to great imbalances and implicitly to increasing market risks. For example, in small, subsistence farms, the existence of insufficient funds leads to the emergence of risks such as the risk of disease or pests caused by non-application of standard technology.

Similar to other EU countries, Romania is also affected by the ***volatility*** of agricultural products on national, regional and international markets. Risks arising from price volatility are reflected in how market conditions and unforeseen events translate into greater uncertainty, uncertainty that causes losses due to huge price differences from one agricultural year to another and even within the same agricultural year. The resulting risks have been caused by the global economic and political situation, climate change, increasing demand, stock levels, search for short term profit, the correlation between agricultural commodity prices and fuel prices, and some policy measures.

According to statistical data, 6-month agricultural price volatility averaged 30-45% in recent years, compared with an average of 5-10% in

the 1990s[52]. And for Romania, since 2006 (one year before accession) we are talking about the beginning of a phase of extreme volatility. Prices rose sharply in 2006, reaching a peak in the second half of 2007 or in the first half of 2008. In the second half of 2008 prices fell sharply even though most of them stagnated at or above the level in the period immediately before growth. Market tensions emerged again in 2010 and there have been sharp escalations in food prices.

In this context, even before joining the EU, Romania began to draw up a policy of risk management in agriculture. Thus, Law 381/2002 referred to the need to compensate for the potential risks associated with production in agriculture, especially drought, which was and remains one of the most seriously catastrophic risks facing Romanian agriculture. As expected, post EU accession, Romania aligned its legislation with relevant EU regulations on protection against risks in agriculture.

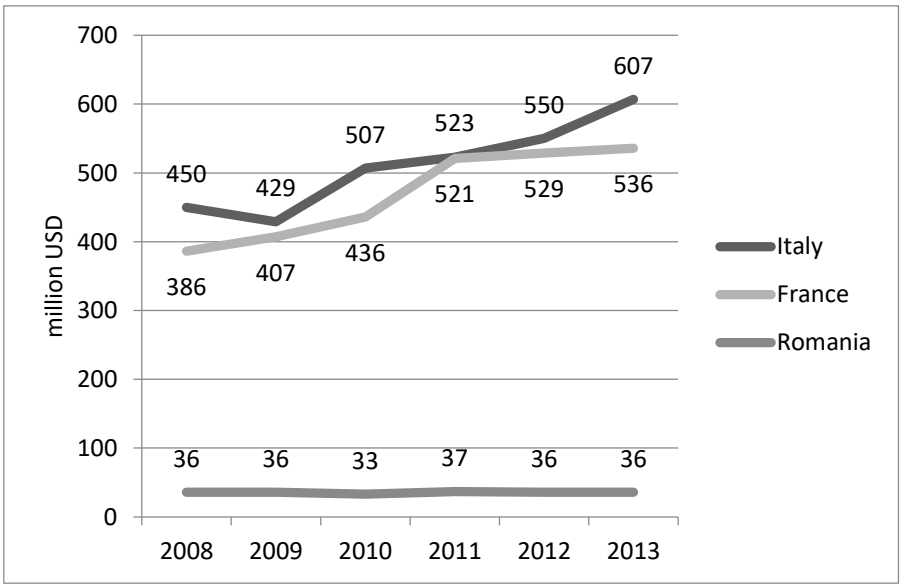
In the case of traditional agricultural insurance, a defining component in risk management, we can say that this sector has developed, the Romanian insurance market operates, but is limited: the market is very concentrated, with a small number of companies holding more than 80% of the market; the area of agricultural land currently covered by risk insurance contracts is small compared to necessities; more than 80% of agricultural insurance instruments, in terms of insured areas, are issued for large farms and agricultural associations, while the remaining 20% are held by medium-size farms.

Small, subsistence farmers are almost non-existent on the agricultural insurance market and are not protected in the case of marketable, catastrophic or systemic risks as these are defined by OECD. Usual risks, which are characterized by frequent occurrences but generating minor damage that can be managed at the farm level. Events belonging to this category may be small price changes or weather events with minor influences on production. The lack of aversion to risk, which is manifested in the subsistence farm, is also due to the modest results that characterize it. As the activity of the subsistence farm will mature and develop outside the spectrum of self-consumption, risk aversion will increase, and awareness of the need for forms of profit cover by hedging will be a business necessity.

[52] Cordier Jean, *Assessment of the Policy Risk Management in Agriculture*, Document of World Bank Group, 2013, p. 47.

At the same time, there is a significant gap in the volume of subscribed premiums between Romania and EU countries with tradition in agricultural insurance, such as France or Italy.

Figure 3.1. Agricultural insurance premiums in some of the EU Member States



Source: Swiss Re[53]

A poor culture of risk management embraced by the vast majority of agribusiness managers, as well as a series of administrative blocks in setting up mutual funds to provide financial support for farmers who have suffered production losses due to unfavorable climatic events, result in a low level of competitiveness on European markets where the subsidy to the insurance premium is up to 65% (France). The model that is supposed to be adopted by Romania is the one already implemented in most EU countries and regulated by the CAP, with measures included in the second pillar concerning rural development, which attracts annual payments directed toward Romania to subsidize the insurance premium that are worth about 30 million euros.

[53] Swiss Re, *Romanian Agricultural Insurance*, ICAR forum Bucharest, 1 October 2015

The Financial Supervisory Authority (FSA), in a document posted on the website of the institution, points to the need to implement a system of risk management in agriculture organized into three levels:

- *individual responsibility of the farmer* by granting tax incentives under the conditions of saving a sum of money in favorable years to bear the damages in less favorable years;
- *pooling climate risks* through insurance companies and subsidizing insurance premiums to increase farmers' accessibility to cover all climate risks, including drought;
- *creation of the National Fund for Solidarity in Agriculture*, to compensate for damages caused by events not insured by the private insurance system (diseases, pests, natural disasters).

As has been shown above, agriculture takes place under risk conditions due to the influence of natural factors, whose unfavorable development can cause, year after year, considerable damage to farmers. Granting compensation for natural phenomena in agriculture aims to revive the agricultural insurance market, both for agricultural crops and for livestock, birds, bee families, snails and aquatic creatures. With the compensation they receive, farmers recover some of their losses, managing to resume production.

However, insurance contracts do not currently cover climate risks with an evident systemic component such as drought, winter frost or floods. The main risks covered are hailstone, fires, direct effects of torrential rains, storms, early fall frost and late spring frost, all considered as independent risks. Drought is often considered as a catastrophic risk, as the amount of losses is very high, as is the frequency of occurrence.

Most agricultural insurance policies in Romania compensate farmers for their production costs and not for the value of crops, as is the case for most crop insurance in the rest of Europe. This distinct situation is related to the low level of information available on individual agricultural production. This information-related issue, as well as the transparency and reliability of agricultural data in Romania, are serious obstacles to implementing successful policies.

Both general and special conditions of agricultural insurance contracts in Romania are very different among insurance companies, well above the usual difference between contracts with stipulated terms and services. Examples of excessive differentiation include, but are not limited to: the difference between capital coverage related to the value of the crop and capital cover for production costs; the different procedures for estimating production costs; the various procedures for estimating

production losses; the various triggering of compensation payments; and last but not least; the different arbitration systems for settling disputes between the contracting parties.

These and other elements of contracts and procedures should be standardized so that more transparent and competitive market conditions may surface and reduce the current information asymmetry between farmers and insurance companies. Such improved market conditions will benefit both farmers and insurance companies.

The poor representation of some categories of agricultural insurance based on indices. For example, a climate index is an index that uses parameters mainly related to temperature and rainfall. In some cases, clues may be linked to exposure to wind, snow or sun, as the case may be. They can be constructed as a basket based on bivariate or multivariate climatic dimensions. An index is typically built by daily measurement of selected parameters over a certain period of time. For these forms of insurance, the action for triggering compensation payments may be based on an index of yield, based on historical crop yield data for certain areas or regions. In practice, if the yield in a given year falls below the historical average, compensation is prompted. Alternatively, the indemnity may be triggered by a predetermined value of a climatic index, consisting of specific data, for example: the total precipitation level; rainfall in specific time periods of importance for plant growth and development; rainfall combinations and temperature levels (for example, Selianynov type indices). In practice, the use of the climate index in insurance supports the correlation between certain climatic conditions (expressed by index) and their economic impact.

It is necessary to emphasize that the development of the agricultural insurance market in Romania is also limited by the reinsurance capacity of the national insurers.

In the field of the use of ***alternative insurance instruments*** (stock markets, specific operations, etc.) we find that they are poorly represented in Romania, compared to other European Union countries. This has at least two negative economic effects, one leading to weaker sector efficiency and the other leading to insufficient funding levels for investment in agriculture.

Under current circumstances, in Romania, the small producer sells grain production to storage facilities, in order to avoid the risk of being subjected to the unpleasant situation - present on the market - of inability to capitalize on this production. Subsequently, the individual with the storage facility takes advantage on own terms of this production, outside

the stock market, and the one at disadvantage is always the small producer. Noteworthy is that, in this case, both manufacturer and processor are at a significant price risk, namely that, at the moment of sale / purchase, the price on the market may evolve in an unfavorable direction. Since we are talking about this as a generalized price across the market, the affected person no longer has the opportunity to find a better price from another operator. Confronted with this type of risk, the agricultural producer cannot be insured by the insurance companies because they do not offer such a product. Instead, the mechanisms of the stock exchange system offer the possibility of diminishing this risk by use of futures contracts. Romania's grain market, in terms of risk, is exposed to lack of liquidity, lack of export promotion measures, deferred payment practice, and counter-trade.

Currently, the futures market is the least known to businesses in Romania. This is due to the lack of precedent in our country, as well as to the inherent difficulties related with a relatively new phenomenon. The above, coupled with a lack of interest shown so far in getting to know the problems of this market, are all aspects to be found in presently issued legislation. That is why, to start with, it is necessary to familiarize economic agents involved in agriculture, with the BRM auctions, with the spot market, in order to gradually, but ultimately reach the financial derivatives, insofar as the laws would allow it.

This process of adjustment can be done by establishing contacts with potential producers (farmers, agricultural associations, agricultural societies etc.), processors (mills, bakeries), livestock breeders, traders (wholesalers, depositories etc.), exporters, by presenting them with materials related to auctions, and the advantages of the latter.

Romanian farmers use prices on the representative markets CBOT, MATIF, LIFFE - especially *futures* markets - more as references and a lot less for managing the price risk linked to increasing volatility generated by hedging operations. Ideally, in the absence of a stock exchange of functional agricultural derivatives in Romania, a functional OTC type market would offer both income risk contracts (from forward contracts to structured derivatives), and would prove useful in obtaining financing through the use of deposit certificates and other market support guarantees.

However, progress has been made in using the main representative markets and price risk management techniques such as "temporary cover" and "risk transfer" by large farmers and producer associations.

A temporary cover is used when price volatility is in the "normal" range of 30-45% for 6-month volatility, the main risk management technique is price mediation either through an individual timing strategy or through an individual contract on the OTC market provided by a market intermediary (for example, a trading company or a specialized bank) and finally a dedicated agricultural organization (e.g. a group of farmers or an agricultural cooperative). This type of strategy, also called "timed hedging", uses the hedging operations for an existing merchandise cargo - a short position on the futures market to balance the risk of falling prices especially during the harvest period.

The second method of price risk management in Romania is to "sell" a risk to a third party, or by calling on the futures derivatives markets or options against a premium. Theoretically, these most widely used contracts can be valued on futures and OTC markets, both by farmers, traders, and by banks or insurance companies.

Swaps and other OTC derivatives are also rarely used to reduce the cost of pricing for farmers and users of agricultural raw materials in Romania.

The creation of ***mutual funds*** in Romania has been prompted by the fact that risk management strategies in agriculture have to be improved, for farm level and sector level equally. A mutual fund could fill certain gaps (we have seen that traditional and complementary insurance instruments are insufficiently used) and could provide partial financial coverage against systemic climate and health risks.

On the other hand, the need to set up mutual funds in Romania's agriculture became a necessity once it was noticed that private insurers in the market do not offer policies covering certain risks such as drought, floods, frost or certain zoonotic diseases and quarantine bodies due to the incapacity of insurance companies to endure the consistent damage that these events bring.

Traditional agricultural insurance, multi-risk (considering a wide range of risks) or single-risk (refers to the production of a single risk) has a number of limitations, which is sometimes avoided by potential buyers. The main limits of classical agricultural insurance can be: a) *information asymmetry* - successful insurance programs require the insurer to have adequate (suitable, sufficient) information about the nature of the risk to be secured; b) *distorted stimulation* - when insurers know that the state will automatically cover most of the losses in agriculture, the incentive for fairness is reduced; c) *adverse selection*, it is possible that due to the involvement of the public sector, private insurance companies focus their

attention mainly on "good" risks, leaving them uncovered and implicitly handing over the "bad" ones to the state; d) *administrative costs* - the more the information on the agricultural holding is deficient (the gap), the higher the costs for risk inspections; e) *moral hazard* - all risks caused by human behavior represent moral hazard.

Thus, the reduced capacity of farmers to cope with such risks has imposed in Romania the creation of a legal framework for the establishment and functioning of mutual funds in agriculture. Under current legislation, a mutual fund is a system accredited by a competent authority in accordance with national law and allowing affiliated farmers to adhere to it so that if they are affected by economic losses caused by adverse climatic events, the occurrence of a disease animals or plants, or an environmental incident, they may benefit from compensatory payments consistent with this scheme.

The mutual fund is an open, apolitical, non-patrimonial non-governmental organization with legal personality that is being established. It is organized and operates in accordance with Romanian law and has as its sole object the granting of financial compensations to affiliated farmers for economic losses caused by animal diseases, plant diseases or an environmental incident.

The main role of the mutual fund is to manage agricultural risks and to provide financial compensation to its members for economic losses caused by diseases and / or pests of plants and animals, environmental incidents and other natural factors. The economic losses likely to result in the payment of financial compensation are determined by the following events: (a) animal diseases appearing on the list established by the World Organization for Animal Health and / or Annex I to Council Decision 2009/470 / EC of 25 May 2009 on certain expenditure in the veterinary field; (b) harmful organisms to plants and plant diseases which are the subject of compulsory or exceptional control measures; c) environmental incident.

Support in the form of financial contributions to the mutual fund granted by the budget of the Ministry of Agriculture and Rural Development represents no more than 65% of eligible costs, the costs not covered by financial support are to be incurred by the members. Support in the form of 75% financial contributions is co-financed by the European Agricultural Guarantee Fund in accordance with the provisions of Art. 71, paragraph 8 of Regulation (EC) No. 73/2009 and for the period 2014-2020 this financial support is settled within the European Agricultural Fund for Rural Development (EAFRD). The 25% difference is provided

by the state budget and represents the national contribution. Accreditation of a mutual fund is subject to several conditions, including the technical expertise and financial management capacity of the fund as well as a requirement of representativeness. Regarding this last condition, the law provides that a mutual fund must reunite members that, in aggregate, exploit over 20% of Romania's agricultural area or the equivalent in UVM (large beef unit) / ha (the load or the number of animals returning to a hectare of pasture).

Although the Fund was to be accredited, created and operated after the emergence of the legislative framework, i.e. as early as 2014, no mutual fund has been accredited and functioning to date.

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CHAPTER 4. FOOD CHAIN AND DISTRIBUTION OF VALUE

4.1. DYNAMICS OF THE ORGANIC AGRICULTURE AND THE EU QUALITY SCHEMES Nicole Livia Petculescu, Camelia Gavrilescu, Dan Marius Voicilaș

This section of the study aims to assess the developments in the organic products chains (production, processing, trade), and in the market potential for the products under EU quality schemes, represented by: protected designation of origin (PDO), protected geographical indication (PGI) and traditional speciality guaranteed (TSG), in Romania and Bulgaria.

Various terms have been used over time when referring to what we today call organic farming (ecological, bio, etc.). The origins of the scientific concerns regarding this type of agriculture date back to early 20th century, but the strict conceptual delimitations, accompanied by remarkable legislative and institutional progress, and then implemented in production and on the market, were mainly made in the last decades of the previous century. But, one agrees that, irrespectively of the words one uses, organic products must be produced on organic farms, under strict regulations, free of any "non-natural" additives or methods, based on natural growth, in a clear environment (soil), useful for the next generations, as well.

At present, there is no agreed universal definition for organic products accepted by all scientists and producers in the world (Voicilas-coord., 2017). Nonetheless, the EU bodies regulated the field by Council Regulation (EC) no.834/2007 of 28 June, 2007 on organic production and labelling of organic products. In the last decades, different and more detailed concepts and definitions were developed to differentiate organic products from other products. For instance, a rather commonly accepted definition states that organic food production is a self-regulated industry with government oversight, distinct from private gardening. Organic foods are produced using methods of organic farming. In general, organic farming responds to site-specific farming and crop conditions by integrating cultural, biological, and mechanical practices that foster resources recycling, promote ecological balance and conserve

biodiversity. Organic foodstuffs are not processed using irradiation, industrial solvents, or chemical food additives.

Organic farming is a modern crop growing, animal husbandry and agro-processing practice, fundamentally different from conventional farming. The role of this farming system is to produce much cleaner food, more suitable for the metabolism of human body, in full correlation with the conservation and development of the environment, respecting its nature and its laws. The processes and procedures used for producing organic products are regulated by strict production rules and principles, which start from soil quality to the final product, in conformity with the national and EU legislation into effect. The organic farming does not use chemical fertilizers or pesticides, growth stimulators or growth regulators, hormones, antibiotics or intensive animal raising systems. The genetically modified organisms and the products derived from these are prohibited by the organic farming legislation. EU pays particular attention to the production of crop and animal products based on organic farming procedures and provides incentives to those who wish to practice organic farming. The shift to the new organic farming procedures is not easy at all, as the rules are very strict, and they involve a conversion period, so that the final product is fully organic and can obtain certification.

By contrast, at present, in many situations, the market supplies products that seem to be designed by computers, of impressive sizes, with perfect shapes, wonderfully coloured, as if they came from an unreal world; big and nice-looking fruit, of the same size; colourful and appetizing vegetables, looking like pictures, as if cut from magazines. But beyond this exterior aspect that are pleasant for the eyes, there is something that disappears, something that some of us have completely forgotten. It is something about essence, content, texture, it is that "something" that pleases not only the eye but also the other senses. This is the taste. So, a few additional questions are raised: are products still tasty today? Are products still healthy today? Are they organic products? The knowledgeable consumers' opinion is that most often these products have almost nothing in common with their natural taste. As regards quality, it is difficult for consumers to give a prompt answer and the help of experts from different fields is needed (Voicilas & Gavrilescu, 2018).

The theme has been studied by many authors from different countries over time. At the same time, the EU regulations gave farmers and researchers the possibility to focus on organic food production, and thus various studies on the quality of organic products were made.

According to IFOAM (International Federation of Organic Agriculture Movements), the definition of organic farming is "…a production system that sustains the health of soils, ecosystems and people. It relies on ecological processes**, biodiversity and cycles adapted to local conditions***, rather than on the use of inputs with adverse effects. Organic Agriculture combines* **tradition, innovation** *and* **science** *to benefit the shared environment and promote* **fair relationships** *and a good* **quality of life** *for all involved."* (IFOAM, 2016). According to the same organization, organic farming is based on four fundamental principles (Voicilas & Gavrilescu, 2018):

a) The Principle of Health: "Organic farming should sustain and enhance the health of soil, plant, animal, human and planet as one and indivisible";
b) The Principle of Ecology: "Organic farming should be based on living ecological systems and cycles, work with them, emulate them and help sustain them";
c) The Principle of Fairness: "Organic farming should build on relationships that ensure fairness with regard to the common environment and life opportunities";
d) The Principle of Care: "Organic farming should be managed in a precautionary and responsible manner to protect the health and well-being of present and future generations and the environment" (IFOAM, 2016).

The double role of organic farming is recognized: on the one hand it provides food meeting a specific consumer demand for organic products and on the other hand it has an important role in delivering public goods (e.g. protection and improvement of water and soil quality as a result of the management practices of land areas cultivated under organic farming system) (European Commission, 2004). Organic farming has been initially defined and regulated by Council Regulation (EEC) no.2092/1991, and support payments for conversion and maintaining land under organic farming system were introduced into the CAP in the early 1990s. The land areas under conversion and those cultivated under organic system have significantly increased ever since, the same as the number of organic farmers and processors, the volume of production and the range of products, sales, exports and consumption of organic products.

In 2007, the regulation set a new course for developing organic farming further, with the following aims

(https://ec.europa.eu/agriculture/organic/eu-policy/eu-legislation/brief-overview_en):

- sustainable cultivation systems;
- a variety of high-quality products;
- greater emphasis on environmental protection;
- more attention paid to biodiversity;
- higher standards of animal protection;
- consumer confidence;
- protecting consumer interests.

Organic production respects natural systems and cycles. Biological and mechanical production processes and land-related production should be used to achieve sustainability, without having to resort to genetically modified organisms.

In organic farming, closed cycles using internal resources and inputs are preferred to open cycles based on external resources. If the latter are used, they should be:

- organic materials from other organic farms;
- natural substances;
- materials obtained naturally, or
- mineral fertilizers with low solubility (https://ec.europa.eu/agriculture/organic/eu-policy/eu-legislation/brief-overview_en).

Exceptionally, however, synthetic resources and inputs may be allowed if there are no suitable alternatives. Such products are listed in the annexes to the implementing regulation (Commission Regulation (EC) no.889/2008).

Foods may be labelled as "organic" only if at least 95% of their agricultural ingredients meet the required standards. In non-organic foods, any ingredients that meet organic standards can be listed as organic.

Since July 1st, 2010, the producers of packaged organic food have been required under EU law to use the EU organic logo. The logo (Figure 4.1) and the labelling rules are an important part of the organic regulations. With this regulatory framework, the EU provides conditions under which the organic sector can progress in line with production and market developments, thus improving and reinforcing the EU organic farming standards, as well as import and inspection requirements.

Figure 4.1. Logo for organic products in the EU

Source: https://ec.europa.eu/agriculture/organic/downloads/logo_en

The main objective of the European logo is to make organic products easier to be identified by consumers. Furthermore, it provides a visual identity to the organic farming sector and thus contributes to ensure overall coherence and a proper functioning of the internal market in this field.

The common organic symbol is protected from being used on non-organic products throughout the EU. This enhances fair competition in the market, and of course, consumer protection. The use of the logo and correct labelling is compulsory as well for all organic pre-packaged food produced within the EU.

The EU organic logo was introduced by the Commission Regulation (EU) no. 271/2010 of March 24, 2010. Its utilization is regulated through Article 57 of the Commission Regulation (EC) no.889/2008 (MARD, 2010).

Consumers are increasingly focusing on the quality and origin of products that they consume. EU quality schemes are associated with particular labels, which were introduced to allow consumers to make an informed choice and to protect producers from unfair practices. In order to help European agricultural producers to adapt to the changes in customers' attitudes and meet the demand for high quality products with individual characteristics linked to specific production methods, composition or origin, EU developed three quality schemes regarding product indications and designations: protected designation of origin (PDO), protected geographical indication (PGI) and traditional speciality guaranteed (TSG).

As regards the products with protected designation of origin (PDO), the EU legislation defines them as: "products originating from a

particular place, region, or country exceptionally; quality or characteristics are due to the geographical environment with own natural and human factors; production is entirely obtained in the specified geographical area".

The products with protected geographical indication (PGI) are: "originating from a particular place, region or country; a given quality, reputation or other characteristic is essentially attributable to the geographical origin of the product; at least one of the stages of production is carried out in the specified geographical area".

As regards traditional speciality guaranteed products (TSG), they are defined as: "products resulting from a production process, processing or composition corresponding to traditional practice of the food product; specific products or food products from raw materials or ingredients traditionally used".

The logos used in the EU for the above-mentioned products are represented in Figure 4.2.

Figure 4.2. Logo for PDO, PGI and TSG products in the EU

Source: http://ec.europa.eu/agriculture/quality/schemes_en

The legislation concerning product quality systems was developed since 1980s for quality wines. In 1992, the first European legislation on geographical indications and protected designation of origin for agricultural products and foodstuffs (other than spirits beverages and wine products) was adopted, inspired by existing national systems (such as the French system).

The basic EU legislation on the quality labelling scheme is (Velcovska & Sadilek, 2014):

- Regulation (EU) no.1151/2012 of the European Parliament and of the Council of November 21, 2012 on quality schemes for agricultural products and foodstuffs, which replaced the Council Regulation (EC) no.509/2006 on agricultural products and foodstuffs as traditional specialities guaranteed and Council Regulation (EC) no.510/2006 on

the protection of geographical indications and designations of origin for agricultural products and foodstuffs;
- Commission Regulation (EC) no.1898/2006 of December 14, 2006 laying down detailed rules for the implementation of Council Regulation (EC) no.510/2006 on the protection of geographical indications and designations of origin for agricultural products and foodstuffs;
- Commission Regulation (EC) no.1216/2007 of October 18, 2007 laying down detailed rules for the implementation of Council Regulation (EC) no.509/2006 on agricultural products and foodstuffs as traditional specialities guaranteed.

The most recent regulation on quality schemes aims to help producers of agricultural aand food products to communicate the product characteristics and farming attributes of those products and foodstuffs to buyers and consumers, thereby ensuring (Hajdukiewicz, 2014):
- fair competition for farmers and producers of agricultural products and foodstuffs having value-adding characteristics and attributes;
- the availability of reliable information pertaining to such products to consumers;
- respect for intellectual property rights;
- the integrity of the internal market.

Organic Farming and The Products Included in The EU Quality Schemes in Romania

Legislative and institutional frame

The Romanian legislation on organic farming and the EU quality schemes had to get in line with the EU legislation as soon as the Association Agreement with the EU entered into force and the EU accession negotiations were initiated. Consequently, at present, the Romanian legislation complies with EU requirements and orientations (Voicilas-coord., 2017).

The main legislation on the subject includes:
- general rules and principles of organic production;
- the system of inspection and certification for organic production (setup and accreditation of institutions and bodies; rules for inspection and certification of organic farms; rules for becoming certified producers, processors and import-export operators for organic products; rules for production, labelling, processing and trading organic products etc.).

- the list of the relevant legislation on organic farming is provided in Annex 2.3.1.

On the other hand, the legal frame for EU quality schemes comprises: MARD Order no.690/2004 for the approval of the conditions and criteria for certifying traditional products; Government's Decision no.828/2007, establishing a system for the protection of geographical indications and designations of origin for agricultural products and foodstuffs; Government's Decision no.134/2008 on the traditional specialities guaranteed for agricultural products and foodstuffs; MARD Order no.160/2008 - Procedure for registration and documentation for obtaining protection of traditional specialities guaranteed, national opposition procedure and procedure for submission to the European Commission of the application for registration of traditional speciality guaranteed in order to gain protection in the European Union, as well as specific rules about the design and use of national logo.

The logo used in Romania for organic products, PDO, PGI and TSG is shown in figure 4.3.

Figure 4.3. Logo for organic, PDO, PGI and TSG products in Romania

Source: http://www.madr.ro/agricultura-ecologica.html

The utilization right of the Romanian "organic farming" logo can be obtained by applying to MARD along with the documents for registration in the Organic Farming Registry and used on products alongside the European logo (Community Logo User Manual, MARD, 2010).

In Romania, the government, the civil society and the business environment are becoming increasingly aware of the need to promote

organic farming. The governmental policy is elaborated and coordinated by the Ministry of Agriculture and Rural Development (MARD), under which the Office of the National Authority for Organic Products (NAOP) is operating, which is the authority in charge of the organic farming sector. NAOP has collaborated with different agencies, education and research institutions, foundations, among which we can list the following (Voicilas & Gavrilescu, 2018):

- The Academy of Agricultural and Forestry Sciences (AAFS);
- Higher education institutions, agricultural research institutes and stations;
- The National Organic Farming Federation, whose activity is based on the "sustainable development principle", a development type that should not disable the next generations' access to a clean environment.

The Ministry of Agriculture establishes an action plan for the development of the domestic market of organic products, which includes (Voicilas, 2009):

- intensification of actions promoting the organic farming concept;
- improvement of information on organic farming practice, and the qualification of the participants in this sector;
- increase of areas under the experimental modules "organic micro-farms";
- delimitation of organic farming areas;
- support to farmers during the conversion period;
- creation of an information system accessible to farmers.

As regards the quality schemes, we would like to mention that the quality policy is one of the 16 sub-community policies on agriculture. In Romania, MARD is in charge of the quality schemes implementation. In the year 2008, the National Office of Romanian Traditional and Ecological Products was established under MARD. Its main tasks were:

- promoting the concept of "product quality" and "green products";
- technical assistance to producers/processors in developing documentation under Community and national legislation to require PGI, PDO and TSG Romanian agricultural products or foodstuffs at national and EU level;
- technical assistance in developing projects to promote Romanian traditional and organic products;
- promoting the image of Romanian traditional and organic products;

- verification of products dossiers applying for EU protection (PGI, PDO and TSG) in terms of compliance with Romanian and European legislation;
- dissemination of national and Community provisions on Romanian traditional and organic products to farmers and processors;
- seminars, courses, training and information for the producer or processor groups and farmer associations.

Unfortunately, this office ceased to exist in the year 2010, with the reorganization of MARD.

In order to include a national (traditional) product in any of the three categories, a complex dossier is required to be examined at national level (MARD) and then at EU level for verification, attestation and final registration in the European registries and in the database of the agricultural and food products by quality schemes (http://ec.europa.eu/agriculture/quality/door/list.html).

The national legislation on traditional products is applied by MARD and the County Agricultural Departments (Alexandri-coord., 2017).

MARD has the following role:

- to reconsider the application and specification;
- to register the products in the National Register of Traditional Products;
- to issue the document "Traditional product certificate".

The role of the County Agricultural Departments is:

- to provide useful information to those who wish to register a product in the National Register of Traditional Products;
- to analyse the request and specifications;
- to check the spot conformity of the data in the specification.

Traditional products can apply for and enter EU quality scheme as follows (Alexandri-coord., 2017):

- the combination of several manufacturers that make the same product in a defined geographical area;
- industry associations can promote products that are enshrined in the national market (for example: the products of Sibiu, Bran, Bucovina, etc.);
- businesses that specialize in a traditional product can receive exemptions concerning the association.

The application of European legislation on quality schemes includes the following:

- preparation of specifications as required by law;

- contacting and contracting an inspection and certification body;
- establishment of an association to promote the product.

The main stages of product registration in the PDO, PGI and TSG database are (Alexandri-coord., 2017):

- obtaining the document "Certificate of compliance in order to obtain protection";
- submission of the file to MARD;
- national objection period (60 days);
- sending the necessary documentation to the European Commission;
- European opposition period (two months);
- publication of product registration in the EU Official Journal.

Market organization

As regards market organization, since 2007, several organizations were registered at MARD, with attributes or concerns in organic farming, rural development, environment protection and sustainable development. A list of such organizations can be found in Annex 2.3.2.

In 2016, the list of organizations in organic agriculture, rural development, environmental protection, and sustainable development included 9 operators: Association of Organic Farming Operators BIO ROMANIA **[**Asociația Operatorilor din Agricultura ecologică BIO ROMÂNIA], Romanian Association for Sustainable Agriculture **[**Asociația Română pentru Agricultură Durabilă], EcoR Partner Association **[**Asociația EcoR Partener], National Federation of Organic Farming **[**Federația Națională a Agriculturii Ecologice], Romanian Biofarmers Association "BIOTERRA" **[**Asociaţia bioagricultorilor din România „BIOTERRA"], Romanian Bio Poultry Breeders Association – BIOAVIROM **[**Asociaţia Bioavicultorilor din România – BIOAVIROM], Romanian Association for Applied Biofarming – Organic Family Farm [Asociația Romană de Bioagricultura Aplicativa - Ferma Ecologica Familială**]**, Biofarmers Association from Moldova "BIOMOLD" [Asociația Bioagricultorilor din Moldova „BIOMOLD"**]**, Pro-organic System Association [Asociația Proecologic Sistem**]** (http://www.madr.ro/agricultura-ecologica/organizatii-non-guvernamentale.html).

The organic operators (farmers) were registered at MADR and classified into three large categories of products: crop, livestock and beehive products. The farmers are organized either as independent producers, natural persons, or as family associations or commercial

companies as legal entities under the form of limited liability companies or joint stock companies.

The organic products are found both in the large store network and in the small-specialized shops. At the beginning of the year 2007, only two specialized organic shop chains were registered at MADR: the chain "BIOCOOP" (Sibiu) and the chain Naturalia (www.naturalia.ro), with units both in Bucharest and in the county Ilfov (Voluntari). After one year, there were 6 shops. At the end of 2012 there were already 25 shops registered and presently their number has increased to 176, showing the Romanian consumers' growing interest in organic products. (http://www.madr.ro/agricultura-ecologica/operatorii-certificati-in-agricultura-ecologica-2016.html).

In Romania, the organic products are sold on the domestic market through the main hypermarkets or by retail shops. The first supermarkets that introduced organic products in their assortment of merchandise were Carrefour, Cora, Gima, La Fourmi, Mega Image, Nic, Primavera and OK.

Supply, demand and trade of organic products

Organic farming is practised in about 100 countries of the world and the area under organic management is continuously growing. Also, for some countries, where no statistical material was available, it may be assumed that organic agriculture methods are practised (Voicilas, 2009). The global market of organic products increased 2.5 times from 2004 (29 billion USD) to 2014 (72 billion USD), similarly to the EU market (from 10 billion euro in 2004 to 24 billion euro in 2014). Worldwide, the largest market of organic products is the USA (43% of the sales from 2014), followed by the EU (38%) and China (6%), which is the market with the highest development rate (Gavrilescu et al., 2016).

The organic sector in the EU has developed quickly in recent years. According to the latest Eurostat data, in the year 2016, the total area cultivated under organic farming system (including the land area under conversion) in EU-28 doubled compared to that in 2002 (11.9 million ha, compared to 5.7 million ha); the average annual increase was about 500,000 ha in the last 10 years, so that in the year 2016 the land areas under organic farming system accounted for 6.9% of total utilized agricultural area in Europe.

In the hierarchy of member states with the largest areas under organic farming system in the year 2016, Spain ranked 1st, with 2 million ha, followed by Italy and France (with about 1.5 million ha each) and

Germany (1.1 million ha), the 4 countries together accounting for 51% of total area cultivated under organic system in EU-28. In the EU-13 Member States, the largest areas under organic farming system in 2016 were found in Poland (0.537 million ha) and Czech Republic (0.489 million ha); in Romania, only 226 thousand ha were cultivated under organic system.

Table 4.1. Retail sales, consumption per capita and exports in the countries with the largest organic produce markets (2014)

Country	Retail sales (million EUR)	Consumption per capita (EUR)	Exports (million EUR)
USA	27,062	85	2,409
Germany	7,910	97	...
France	4,830	73	435
China	3,701	3	467
Canada	2,728	77	378
United Kingdom	2,307	36	...
Italy	2,145	35	1,420
Switzerland	1,817	221	...
Romania	**80**	**4**	**200**

Source: FIBL&IFOAM – Organics International (2016): The World of Organic Agriculture. Statistics and emerging trends 2016, p.66.

In the year 2013, about 185,000 organic farms were registered in Europe, out of which 81% were on the territory of the EU Old Member States (EU-15), covering 78% of Europe's organic land area. The Eurostat data show that the EU-13 Member States (that joined the EU since 2004) also adopted this development direction, with a higher growth rate, i.e. 12% per year, with the number of organic farms increasing almost 10 times in the period 2003-2015 (EU, 2016).

In the year 2015, in the structure of land areas under organic farming system, in EU - 28, pastures had the largest share (58%), followed by cereals (20%), permanent crops (vineyards and orchards) (15%). In animal production, sheep (42%) and bovines (34%) were the most important, next to poultry (mainly laying hens, due to the great demand for organic eggs), while pig raising (9%) and goat raising (7%) are also worth mentioning (EU, 2016).

The development of organic farming had different characteristics in the group of EU Old Member States (EU-15) and the group of EU New Member States (EU-13). In EU-15, the areas under organic farming have steadily grown over the last decade, similarly to the organic product

market. There is a diverse range of products, covered both by domestic production and by imports. The consumption of organic products per capita is among the largest in the world. This development was also the result of consumers' interest and public support, as well as of the implementation of the European Action Plan for Organic Farming.

The EU New Member States (EU-13) also developed their organic sector mainly after the accession, stimulated by the adoption of the EU rules in this field of activity, by the financial support received through the national rural development programs, as well as by the export opportunities to the EU-15 Member States. Although the ecologically cultivated areas and organic production increased, the processing industry developed at a lower rate. As a result, the organic product market developed to a lesser extent, the market shares of products are much lower, the supply of processed products is low, while consumption per capita is much lower, due to the lower purchasing power of consumers from the EU-13 Member States. In these countries, the domestic demand of organic agricultural products is most often covered by domestic production, while the most part of processed organic products is imported.

In terms of share of cultivated areas under organic farming system in utilized agricultural area (UAA) in 2015, Austria ranked 1st in EU-28 (19%), followed by Sweden (15%) and Estonia (13%).

Germany has the highest market share in organic products and the largest market for organic products, with annual sales of almost 2.5 billion euro. As regards the consumption of organic products, the highest levels are found in northern Europe, while the lowest in southern Europe.

In Romania, the organic farming sector has become increasingly important for the Romanian farmers. The positive developments of areas, livestock herds and yields in the organic farming sector reveals the existing potential, the initiative, development prospects and the increasing consumers' demand (Tables 2.3.2-2.3.4).

Thus, the areas under organic farming system grew significantly: from 17.4 thousand ha in 2000, to 170 thousand ha in 2006, to reach 250 thousand ha in 2007 (when Romania ranked 35th in the world in terms of organically cultivated areas and 38th as number of organic farms) (Alexandri-coord., 2017). In the post-accession period, due to stricter rules concerning organic farming, the cultivated area fluctuated, to decrease immediately after the accession (182.7 thousand ha in 2010), to recover afterwards (301 thousand ha in 2013), to decrease again to 226.3 thousand ha in 2016 (Table 4.2). In the year 2017, the areas under

organic crops increased again, up to 258.5 thousand ha; as compared to 2016, larger areas were cultivated with cereals (+13%), dry legumes (+127%), industrial crops (+36%), crops harvested green (+43%), vegetables, permanent crops (fruit trees, vines, fruit bushes) (+10%).

Table 4.2. Dynamics of operators and cultivated areas in organic farming

Indicator	2007	2010	2013	2016	2000-2006 average	2007-2016 average	2000-2006/ 2007-2016 index
Number of registered operators in organic faming	3,834	3,155	15,194	10,562	3,409	9,211	2.7
Utilized agricultural area (UAA) (ha)	131,456	182,706	301,148	226,309	67,759	220,342	3.3
Arable crops (ha)	65,112	148,034	173,794	156,678	45,605	140,539	3.1
Cereals (ha)	32,222	72,298	109,105	75,198	14,125	77,689	5.5
Legumes and protein crops (ha)	1,394	5,560	2,397	2,204	7,777	2,857	0.4
Vegetables (ha)	310	734	1,068	1,175	356	884	2.5
Orchards and vineyards (ha)	954	3,093	9,400	12,020	214	6,136	28.6
Pastures and hayfields (ha)	57,600	31,579	103,702	57,612	27,461	69,130	2.5

Source: Alexandri-coord., 2017 (processing of Eurostat and MARD data)

The most spectacular growth in the post-accession period was noticed in the areas under organically certified vineyards and orchards (or the areas in the conversion period).

Organic production has experienced upward trends (Table 4.3). Although organic production level is several times higher compared to 5 – 6 years ago, the domestic supply does not cover the domestic supply, leaving room to imports of organic products, mainly processed products. On the other hand, Romania exports organic products to western European countries (Germany, Italy, Switzerland, the Netherlands), and efforts have been made to enter the American market. Wild berries are sold very well; the volume of fruit exports from certified farms has increased year after year.

Both the cultivated areas and the livestock herds under organic farming system have increased in the pre-accession period, the Romanian operators being increasingly aware that organic farming can become a

viable income source, the prices for organic products being significantly higher compared to the prices of products coming from conventional farming. Thus, the basis has been laid for this activity that exploits the market niches, both on the domestic and the world markets.

After the accession, the Romanian farmers had to strictly comply with the EU quality, inspection and certification rules. The improvement of the Romanian legislation also contributed to this process, authorizing national certification bodies (before the accession, the organic farms and products were certified by certification bodies from Hungary, Germany and Austria, at very high costs, often prohibitive for the Romanian farmers). At the same time, after the accession, farmers had access to specific support measures under NRDP 2007-2014. Within Axis II, Measure 214 – Agro-environmental payments (under which the support for organic farming came from), out of the financial allocation of 1428.4 million euro, by December 31, 2015, payments were made worth 1377.9 million euro (96.5%), benefitting 321,544 farms, with a total area of 2.3 million ha.

At EU-28 level, Measure 214 accounted for about 24% of total EAFRD allocations (European Commission, 2013).

Table 4.3 Dynamics of productions obtained under the organic farming system in Romania (tons)

Crop	2013	2014	2015	2016	2000-2006 average	2007-2016 average	2007-2016/ 2000-2006 index
Cereals	147,831	277,560	239,394	208,575	21,424	218,340	10.2
Legumes and protein crops	1,966	3,659	2,276	2,009	1,539	2,478	1.6
Vegetables	…	2,336	3,663	3,352	6,074	3,117	0.5
Fruit	…	10,002	7,098	16,330	201	11,143	55.4

Source: Alexandri-coord., 2017 (processing of Eurostat and MARD data)

For the period 2014-2020, through measure M11 under NRDP – Organic farming, the financial resources dedicated to organic farming were separated from those dedicated to the agro-environmental measures. For organic farming, the financial allocation is 236.4 million euro, for a targeted organic farmland area of 226 thousand hectares.

In the period 2014-2016, 2111 Romanian farms (2026 without legal status and 85 with legal status) received support for organic farming under NRDP (FSS, 2016).

Table 4.4 Dynamics of livestock herds raised under organic farming system in Romania

Animals (heads)	2007	2010	2013	2016	2000-2006 average	2007-2016 average	2007-2016 2000-2006 index
Live cattle	6,985	5,358	20,113	20,093	11,365	13,137	1.2
Pigs	1,174	320	258	20	1,652	443	0.3
Sheep	59,680	18,883	80,309	66,401	86,180	56,318	0.7
Goats	215	1,093	3,032	2,618	117	1,740	14.9
Poultry	4,320	21,580	74,220	63,254	4,300	40,844	9.5

Source: Alexandri-coord., 2017 (processing of Eurostat and MARD data)

The number of animals raised under organic farming system also increased in the post-accession period, except for pigs, in which the number of heads is still very low. At the level of EU-28, the following number of animals were organically certified (in 2015): 3.7 million cattle heads, 0.97 million pig heads, 4.5 million sheep heads, 0.7 million goats and 31.7 million poultry heads.

There are relatively few data referring to organic livestock production in Romania, yet there are several recent benchmarks, according to the 2016 data (Eurostat): 34,995 tons cow milk; 2445 tons ewe milk; 398 tons goat milk; 1000 tons drinking milk; 42 tons butter; 50 tons fermented products (yoghurt, etc.); 4016 tons cheese; 12.3 million organic eggs. The organic goat milk and derived dairy products are very much demanded both on the domestic and foreign markets, which led to the increase of goat herds.

The production of organic milk tripled in the post-accession period, from 1225 tons (in 2006) to 3489 tons (in 2016) and, together with the wild berries, it is one of the most demanded products on the Western European and US markets.

As regards the trade with organic products, in Romania, as everywhere in the world, the marketing activity plays an important role in market promotion and obtaining new market shares and segments of consumers. The presentation of products, the beneficial effects upon the human body, the gains obtained by buying clean and healthy products, even though these are more expensive than the conventional products, as well as consumers growing aware of their importance, are the main concerns that the producers and sellers of organic products should have in

their development policy. The participation in exhibitions, fairs and other national and international events is a modality to present the organic products and to establish new contacts for marketing these products. It is only a promotion modality among several possibilities, with a special impact upon consumers.

The fact that there is a well-established market for organic products in Romania is proved by imports, which have doubled almost each year (Voicilas & Alboiu, 2014). In 2007, the market of organic products was estimated at 2.5 mil euro (1 million euro more than in 2006, before the accession). At that time, about 70% of the organic products on the market were imported. Meantime, imports decreased and by the end of 2010, exports totalled about 150 million and imports totalled about 35 million euro [http://www.eco-ferma.ro/performantele-agriculturii-ecologice/]. The value of imports reached about 75 million euro in 2011, according to MARD estimates.

The Expert Group study in 2007 (Voicilas & Alboiu, 2014) reveals that about 30% of the organic production was sold on the domestic market (the remaining production was exported). The main organic products sold through the organized commercial network were eggs and dairy products.

By comparison, in the year 2012, a percentage of about 70-80% of organic products was exported.

The Romanian organic products are mainly exported to Western Europe (Germany, Italy, Switzerland and the Netherlands, for example) and attempts are being made to penetrate the US market. The wild berries, either organic or non-organic, have a much higher export price, and the price is even higher if these are organically certified. The main exported products are: cereals, oilseeds and protein, berries, herbs, honey and ewe cheese.

The reaching of the export targets is linked to other objectives as well (on the short, medium and long-term), which can contribute to the improvement of the competitiveness of the Romanian organic sector in the next period (Voicilaș & Alboiu, 2014):

- increase in the number of operators in this sector, receiving financial support from the Romanian Government Programs;
- increase of the role of non-governmental organizations (NGOs) in this sector through programs for the development of trade with organic products;

- increase in the number of exporters who are actively involved in programs for organic agricultural trade development in the less-favoured areas;
- support provided to organic commercial farms, to be more active on the market;
- association of the small organic farmers to co-operate in the marketing of organic products;
- increase in the number of municipal and regional organizations directly involved in the implementation of the National Export Strategy in its initial stage;
- increase in the number of local processing units and foreign direct investment projects;
- growth of investments in related activities in rural areas;
- increase in the number of employees in the exporting units which are implementing organic farming regulations;
- growth of investments in the activities related to exportable organic products from the less developed rural areas;
- increase of the organic farm output;
- increase in the number of new companies involved in export activities with primary and processed organic agricultural products;
- increase in the number of optimal operation modules by the association of crop and livestock farms;
- development of processing capacities for the organic farming sector;
- capacity improvement in terms of products and value added;
- development of services oriented towards the export of organic products;
- diversification of the exportable cultivated species (for example: vegetables, fruit) and of the range of processed products (e.g. bakery and pastry products);
- increase in the number of newly approved investment projects.

The Romanian products included in the European quality and geographical indication systems are few compared to those from other EU member states (Table 4.5).

After the accession, Romania has neglected for a while the need to protect and promote its top quality traditional agricultural and food products on the European market, so that we can say that our country is on one of the last positions in the EU as regards the registration of these types of products in the European database. In July 2018, 1581 products from the EU member states were registered in the EU DOOR database,

included in the PGI, PDO and TSG quality schemes. Romania has been registered with only 4 products so far (one PDO product: Ibăneşti ewe cheese (*Telemeaua de Ibăneşti*), and 3 PGI products: Topoloveni plum jam (*Magiunul de prune Topoloveni),* Sibiu Salami *(Salam de Sibiu)* and Smoked Carp from Ţara Bârsei (*Novacul afumat de Ţara Bârsei*).

Table 4.5. Products included in the European quality and geographical indication systems

Country	Total	Registered				Published Total	Applied Total
		Total	PGI	PDO	TSG		
Austria	22	17	6	10	1	3	2
Belgium	24	19	11	3	5	1	4
Bulgaria	8	7	2	0	5	0	1
Croatia	27	19	9	10	0	2	6
Cyprus	9	5	4	1	0	1	3
Czech Rep.	35	34	23	6	5	0	1
Denmark	10	7	7	0	0	1	2
Finland	10	10	2	5	3	0	0
France	272	246	142	103	1	7	19
Germany	96	90	78	12	0	1	5
Greece	113	106	30	76	0	1	6
Hungary	27	15	8	6	1	0	12
Ireland	10	7	4	3	0	0	3
Italy	327	295	126	167	2	8	24
Latvia	6	5	1	1	3	1	0
Lithuania	10	7	4	1	2	0	3
Luxembourg	4	4	2	2	0	0	0
Netherlands	15	15	5	6	4	0	0
Poland	43	39	22	8	9	2	2
Portugal	141	139	74	64	1	0	2
Romania	8	4	3	1	0	1	3
Slovakia	21	19	10	2	7	1	1
Slovenia	25	24	13	8	3	0	1
Spain	225	195	89	102	4	3	27
Sweden	12	8	3	3	2	0	4
United Kingdom	80	71	41	26	4	0	9
EU - total	1581	1407	719	626	62	33	141

Source: data processing from DOOR database (http://ec.europa.eu/agriculture/quality/door/list.html)

At the same time, there is also one product in the "published" stage: Smoked Danube Mackerel (*Scrumbie de Dunăre afumată* – PGI) and 3 products in the "applied" stage: Sibiu ewe cheese (*Telemeaua de Sibiu),* Săveni Kashkaval (*Caşcavalul de Săveni)* and Pleșcoi Sausages

(Cârnații de Pleșcoi). By comparison, the most products of this type are registered by Italy (291), France (246), Spain (195), Portugal (139), Greece (106). The New Member States also registered a fairly large number of such products: Poland (39), Czech Republic (34), Slovenia (25), Croatia (19), Slovakia (19), Hungary (15), Lithuania (7), Bulgaria (7), Latvia (5).

Alcoholic beverages can be also protected at EU level through Protected Geographical Indications; currently Romania has 5 varieties of wine spirits and 14 varieties of fruit spirits included in this category.

Products included in the national quality schemes

Besides the products attested and certified at EU level, in Romania there are a few categories of products that are either under attestation procedure at European level or recognized only at national level, as we shall see in the next paragraphs.

The national register of protected quality schemes includes three products at present (Pleșcoi Sausages, Smoked Danube Mackerel and Săveni Kashkaval), which passed the evaluation at national level and were submitted to the EU to be approved for PGI.

The traditional Romanian product was initially defined (MARD Order no. 690/2004 approving the Norm on the conditions and criteria for the attestation of traditional products) as food product manufactured on the national territory and for which local raw products are used, which does not include food additives in its composition, which presents a traditional recipe, a traditional production and/or processing modality and technological procedure and makes the difference from other similar products belonging to the same category.

The ambiguous definition and the lack of control resulted in the registration of 4402 traditional Romanian products at MARD by the end of 2010: 1541 (35%) meat products, 1535 (34.9%) dairy products, 750 (17%) bakery products, 285 beverages, 193 products from vegetables and fruit (juices and jams) and 11 fish products (Alexandri-coord., 2017).

Subsequent checks showed that in many cases these were counterfeits or industrial products declared as “traditional products” and sold at higher prices.

A new MARD Order (724/2013) imposed a more rigorous attestation of all products previously declared as “traditional” and their registration in a new register. The present National Register of Traditional Products (NRTP) includes (July 2018) 613 traditional

products, out of which 34% beverages, 22% dairy products, 14% bread, bakery products and pastry, 11% products from vegetables and fruit, 3% fish products and 16% other products.

The logo used for traditional products can be seen in Figure 4.4.

Figure 4.4. Logo for traditional products in Romania

Source: www.madr.ro

Romanian consecrated recipes

These are defined as foodstuffs manufactured with respecting the composition (recipe) used more than 30 years ago from the data of coming into force of MARD Order no.394/2014. These recipes (after attestation) are entered in the National Register of Consecrated Recipes (NRCR). The respective products can be labelled with the specific logo (Figure 4.4); at present (July 2018), 138 recipes are registered in NRCR (bakery products, meat products, dairy products, fruit and vegetable preparations).

Mountain product

The European Commission set up a system of optional quality terms, to help producers communicate on the domestic market the characteristics or properties that add value to their agricultural products. Such an optional quality term is “mountain product” (introduced very recently in Romania, by MARD Order no.52/2017) defined as a product intended for human consumption, in which the raw materials and feed for farm animals come mainly from mountain areas; in the case of processed products, processing takes place in the mountain areas as well; the mountain areas are delimited according to the National Rural Development Program 2014-2020. By September 2017, 36 products were already registered in the National Register of Mountain Products (NRMP) (25 dairy products, 6 products from vegetables and fruit, 2 meat products, 2 fish products and 1 type of bee honey).

Conclusions

The organic farming sector has been on the rise for the last decade, in terms of cultivated areas, number of animals, productions, number of involved farms and of operators in the production and marketing sector. Although most farms, operated areas and production are found in EU-15, in the last years, the EU-13 Member States also significantly developed their organic farming sector.

For Romania, the EU membership has brought additional funds for the organic farming sector development; the organization of the chain for these products and the strict compliance with the provisions of the specific inspection and certification system have guaranteed the authenticity and quality of products.

Efforts have been also made in promoting the organic farming concept in order to increase consumer awareness of the advantages of organic food consumption; yet the application of strict production technologies, that are less efficient than those from conventional farming, the additional costs generated by products going through the inspection and certification system, and finally the higher quality of products are reflected in higher prices than those from conventional products.

A great part of Romanian consumers have too low incomes to afford buying such products, which on the other hand sell very well for export to richer countries.

Romania has significant potential for organic farming, this sector having a dynamic evolution, both in the crop production and livestock sector, yet still to a lower extent in processing into organic food products

The objectives, principles and norms applicable to organic production are included in the EU and national legislation in this domain. These norms, together with defining the production method in the crop, livestock and aquaculture production sector also regulate aspects related to the marketing system: inspection, certification, processing, labelling, domestic and international trade.

The provisions on labelling the products obtained from organic farming (EC Regulation no. 834/2007 and no. 889/2008) are very accurate and have in view providing consumers with full confidence in organic products, as high-quality products obtained and certified in conformity with strict rules. Last but not least, they have in view the removal of counterfeits from the market, which bring moral and material damage to producers.

The ascending trend of organic production is present both in Romania and in the other EU Member States, and the financial support

envisaged for the period 2014-2020 will continue to encourage this sector development.

The registration of more Romanian products in the European Register of Quality Schemes and Protected Geographical Indications will contribute to adding market value to the traditional Romanian products, to several access opportunities to global markets and to European consumers becoming more aware of the quality of traditional products that are part of the Romanian cultural heritage.

Rigorous quality controls to register and maintain the products in the National Register of Traditional Products, in the National Register of Romanian Consecrated Recipes and in the National Register of Mountain Products will contribute to the development of a market of quality foodstuffs, to restoring links between the Romanian producers and Romanian consumers, to practically regaining the domestic market by the Romanian food products.

ANNEX 2.3.1 Relevant legislation on organic farming

- Government's Emergency Ordinance (GEO) no.34/2000 on the organic agri-food products, approved by Law no.38/2000;
- Government's Decision no.917/2001, approving the Methodological Norms for the application of provisions from GEO no.34/2000 regarding the organic agri-food products;
- Joint Order no.417/2002 and no.110/2002 of the Minister of Agriculture and of the President of the National Authority for Consumers' Protection;
- Order no.70/2002 of the Minister of Agriculture on the establishment of the Commission for Organic Farming Development in Romania;
- Order no.527/2003 of the Minister of the Agriculture for the approval of the Rules on the inspection and certification system and the accrediting conditions for the inspection and certification bodies in organic farming;
- Order no.721/2003 of the Minister of the Agriculture approving the rules on the import and export of organic agri-food products;
- Order no.153/2006 regarding the approval of the members of the Commission for the accrediting of inspection and certification bodies in the organic farming sector, which inspects and controls the operators on Romania's territory;

- Order no.317/2006 regarding the modification and completion of the Annex to the Order of the Ministry of Agriculture and of the President of the National Authority for Consumers' Protection no.417/110/2002, for the approval of the specific labelling rules for the organic agri-food products;
- GEO no.62/2006 for the modification and completion of GEO no.34/2000 on the organic agri-food products;
- Law no.513/2006 on the approval of GEO no.62/2006 for the modification and completion of GEO no.34/2000 regarding the organic agri-food products;
- Order no.219/2007 on the approval of rules regarding the organic farmers' official registration.

Source: http://www.madr.ro/agricultura-ecologica

ANNEX 2.3.2 Organizations in organic agriculture

- The Association for Ecological Agriculture "Agri-eco",
- The Professional Organization "Agroecologia",
- Romanian Biofarmers Association "BIOTERRA",
- The Romanian Association for Sustainable Agriculture,
- The Association "Terra Verde",
- Romanian Bio Poultry Breeders Association "BIOAVIROM",
- The Association for the Organic Farming Development in Romania "Ecofocus",
- Ecorural
- The Association for Environmental Protection and Organic Agriculture "TER",
- The Foundation "Mama Terra",
- The National Association of Agricultural Consultants,
- The Academic Foundation for Rural Progress "TERRA NOSTRA",
- The Ecologist Society in Maramureş,
- The Foundation for Rural Development in Romania,
- The Ecological Group for Cooperation Bucovina,
- The Foundation "Business School Mehedinţi",
- The Society "Avram Iancu",
- The Foundation "The Operation Romanian Villages",
- The Ecological Club Transylvania,
- The Romanian Rural Foundation,

- "Bioclub Cluj",
- The Group of Gardeners Biodynamics,
- The Romanian Association for Applied Biofarming,
- The Centre for Ecological Consulting Galaţi,
- The Association for Environmental and Nature Protection,
- The Foundation "Divers Eco",
- The Foundation "Noema Consulting",
- The Association "Albina" ("The Bee"),

The Association for Environment Protection and Preservation of Resources.

Source: Voicilas, D.M., New challenges for Romanian agriculture – Organic farming, in Neuwirth, J., Wagner, K. (ed.), Rural areas and development – vol. 6 "Multifunctional Territories: Importance of Rural Areas beyond Food Production", ERDN, AWI, IERIGZ-PIB, ISBN 978-83-7658-096-8, ISBN 3-901338-29-2, 2009, Warszawa, Poland

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Voicilaş, D.M. (coord.), "The Competitiveness of the Agro-Food Chains in the European Union", Institute of Agricultural Economics-Romanian Academy, Ed. Romanian Academy, 2017, Bucureşti, Romania.
*** http://ec.europa.eu/agriculture/quality/door/list.html
*** Eurostat (2015), Organic farming statistics, http://ec.europa.eu/eurostat/statistics-explained/index.php/Organic_farming_statistics
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*** European Commission, (2013), *'Let´s talk about rural development money! Financial planning and implementation of rural development programmes in the 2007-2013 programming period', EU Agricultural Economic Brief No 10 – October 2013.*
*** European Commission, (2016), *EU Agricultural Outlook, Prospect for the EU agricultural markets and income 2016-2026*.
*** Tempo-online – National Institute of Statistics (NIS), 2007-2016.
*** http://madr.ro
*** http://ec.europa.eu/eurostat/data/database
*** http://www.onpterbv.ro/, Oficiul National al Produselor Traditionale si Ecologice Romanesti (National Office for Traditional and Organic Romanian Products).
*** https://ec.europa.eu/agriculture/organic/eu-policy/eu-legislation/brief-overview_en
*** https://ec.europa.eu/agriculture/organic/eu-policy/eu-legislation/brief-overview_en

***https://ec.europa.eu/agriculture/organic/downloads/logo_en
*** http://ec.europa.eu/agriculture/quality/schemes_en
*** http://www.madr.ro/agricultura-ecologica.html
*** http://ec.europa.eu/agriculture/quality/door/list.html
*** http://www.madr.ro/agricultura-ecologica/organizatii-non-guvernamentale.html
*** http://www.madr.ro/agricultura-ecologica/operatorii-certificati-in-agricultura-ecologica-2016.html
*** MADR (2010) – Manual de utilizare al logo-ului comunitar (http://madr.ro/agricultura-ecologica/sigle-agricultura-ecologica.html)
*** Farm Structure Survey (FSS) 2016, NIS.

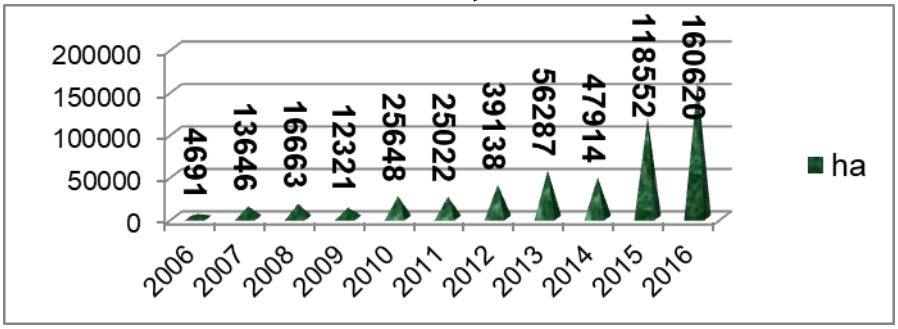
4.2. ORGANIC FARMING IN BULGARIA **Dilyana Mitova**

Organic farming (OF) is one of the sectors that is developing at a rapid pace in Bulgaria, with the number of operators involved in a control system continuously increasing. The reasons are related to the very good prerequisites for the development of organic farming in our country - ecologically preserved areas; awareness and willingness of consumers to eat healthy and safe foods, sustainability and environmental protection efforts and awareness of the environmental and rural benefits, support for organic farmers under the Rural Development Program and measures for rural areas in support of biodiversity, promoting the benefits to producers and consumers of this type of products and food, and the good reception of organic products on local and foreign markets.

OF is an agricultural production system with priority in the future, because its nature is preserving natural resources and preserving health. There is already a unanimous opinion on the sustainable nature of organic farming - OF is recognized as a production method which main goal is producing food while protecting the environment and human and animal health.

The organic sector in Bulgaria has been rapidly developing during the past years. According to Eurostat data, Bulgaria had in 2016 a total area of 160 620 hectares cultivated as organic, up 13 646 ha in 2007 (the EU-28 had in 2015 a total area of 11.1 million hectares cultivated as organic, up from 5.0 million in 2002). In 2016 the organic area in Bulgaria **has increased 12 times** compared to 2007 - or by 15 000 hectares per year.

Fig.4.5. UAE in Bulgaria, total fully converted and in conversion to OF, ha

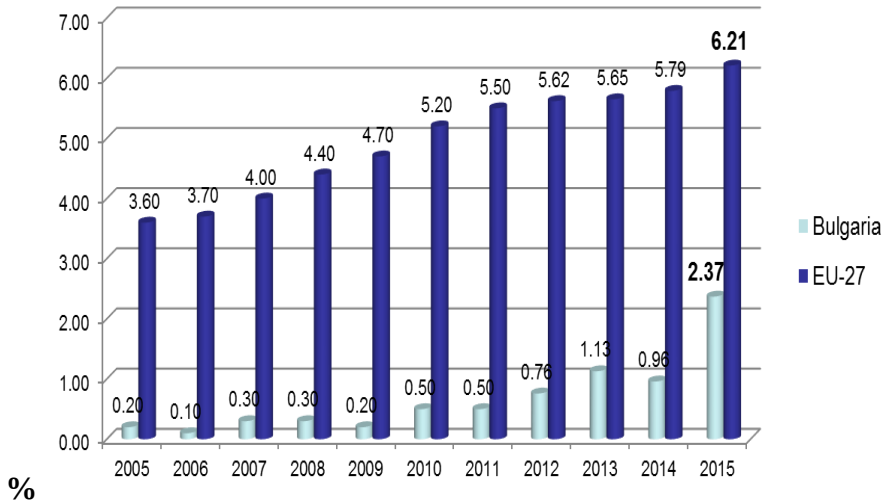


Source: Eurostat

The above absolute figures tell us only part of the story. Although this is a big increase, the whole organic area represents only 2,4% of total

utilised agricultural area in Bulgaria (in EU- 6.2%). However, the rate of increase of the share of OF in total UAA is sluggish for our country – **8 times.**

Fig.4.6. Share of OF areas in total utilized agricultural area (UAA),



%

Source: Eurostat

For example, the share of OF area in UAA was:

Year 2007: EU-28 - 4,0%
Bulgaria – 0,3%

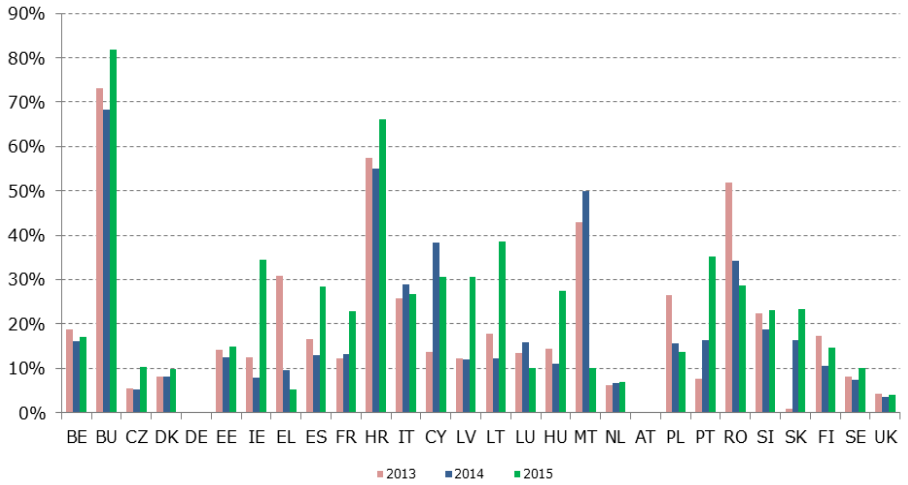
Year 2015: EU-28 – 6,21%
Bulgaria – 2,37%
Austria – 20,3%
Sweden – 16,5%
Estonia – 15,7%
Romania – 1,78%

The observation of the share of in-conversion area within the total area of the organic sector (in-conversion and certified organic areas) provides an indication of the growth potential of the sector for the next few years.

In about half of EU-28 countries, the areas in conversion in last three years are between 10 and 30% from all organic areas. **In Bulgaria it is between 70 and 82%** (highest in the EU-28) - followed by Croatia, Malta, Lithuania, Romania, Spain and Poland. The increase of land in

conversion guarantees a significant increase of Bulgarian organic products in domestic and export markets.

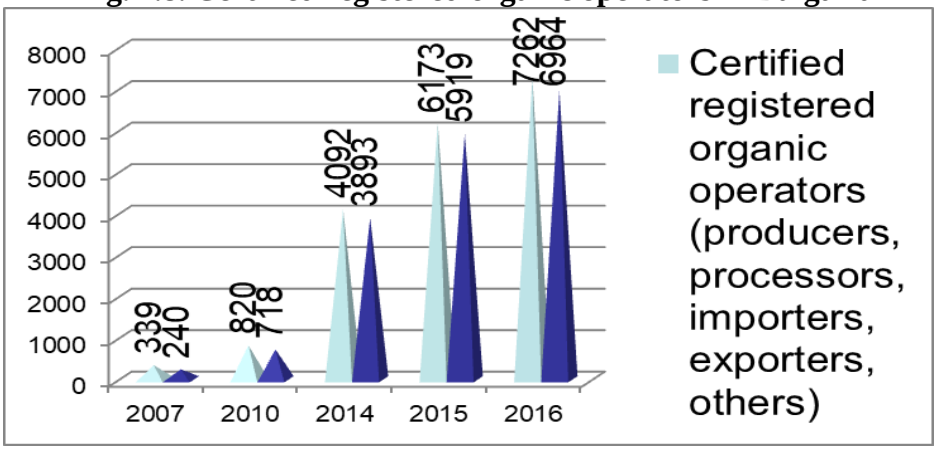
Fig.4.7. Share of the in-conversion area in total organic area



Source: Eurostat data on the basis of Council Regulation (EC) No 834/2007 on organic production.

The evolution of the total certified organic farming area should be considered together with the evolution of the number of holdings active in this sector, which gives an idea about the interest of agricultural producers and other operators in this sector. Next graph shows the change of the number of organic holdings for the studied years.

Fig. 4.8. Certified registered organic operators in Bulgaria



Source: Eurostat

Of the total number of operators, producers seem to take the lead. When analysing the number of organic holdings in comparison to the total number of holdings in Bulgarian agriculture, **a** diverging trend is observed. Available data shows that the number of organic farms is increasing while there is a consolidation of conventional agricultural holdings in the country. For example, total number of farms (conventional and organic) in 2007 was 493 140; in 2013 – 254 140; while the number of organic farms in 2007 was 240; in 2013 – 3 123, or 1,2% of all holdings in Bulgaria.

The same trend can be observed for EU-28. As organic farms represent less than 5% of all holdings, the FSS (farm structure survey) surveys are not stratified according to organic/non organic criteria. According to the latest FSS, there were 184 900 organic farms (i.e. holdings with organicarea and/or organic animals) in 2013. These represented **2%** of total farms (conventionaland organic) in the EU-28.

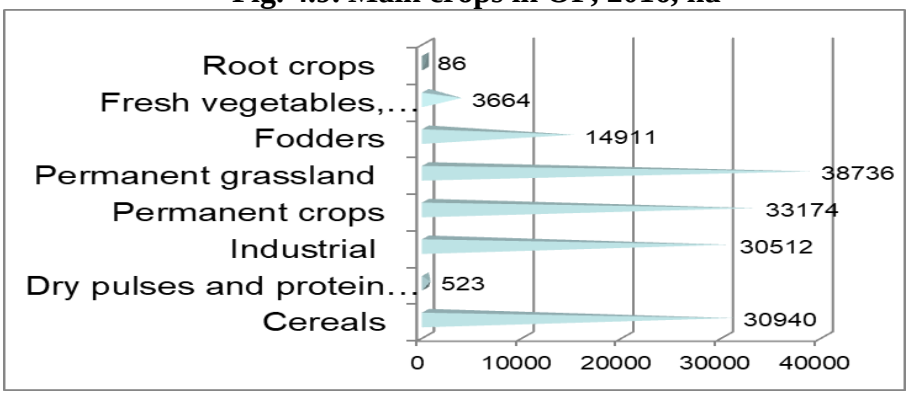
On the basis of available data, one interpretation would be that the number of producers in the organic sector has been overall on an increasing trend. For the period 2007- 2016 the number of operators in OF in Bulgaria grew more than 20 times. Producers tend to remain in organic farming rather than heavily leaving this type of production. Explanation is that farmers make a substantial investment during the two years of conversion period foreseen by the Organic farming Regulation, during which, in spite of higher costs associated with organic farming, the production is sold as conventional and returns can be expected only once they certified as organic.

The average size of organic holdings appears larger than the average size of conventional holdings across the EU-28 and in Bulgaria. Organic farms tend overall to be bigger than conventional farms. The average area of organic holdings in the EU-28 amounted to 47 ha in 2013 (37 ha organic compared to 13 ha for conventional farms (EU-27, 2007). In Bulgaria in 2007 the average area of organic holdings was 56 ha (6,2 ha for all holdings); in 2013 – 18 ha (14,9 ha for all holdings); in 2016 – 23 ha. Detailed comparisons of organic and conventional farms operating in the same sector and with similar size present in the European Farm Accountancy Data Network (FADN) seem to confirm that organic farming is more labour intensive for certain types of production.This would be due to the fact that organic farms have limitations in using inputs and agricultural practices which make it more labour intensive.

Another important aspect is the type of production (arable crops and orchard as well as animal) of organic farms. The choice of the type of

production depends on various factors - the technical aspects related to organic production, the structure of consumer demand, subsidies.

Fig. 4.9. Main crops in OF, 2016, ha



Source: Eurostat

This graph gives an idea of the main types of land used for organic agriculture. The share of permanent crops is high in the organic sector (21%) because the demand for fruit is among the highest on the organic market. Permanent grassland represent 24% of the organic agricultural area; cereals – 19%. Permanent pastures are often eligible for agrienvironmental organic payments and easier and less risky to convert to the organic sector than the other types of crops (e.g. arable crops). This could lead to a bias towards the development of organic permanent pastures.

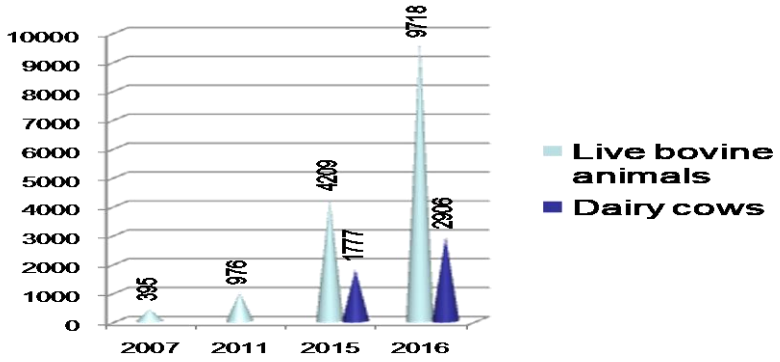
Table 4.6. Main crops in OF, %

Year	**2010**	**2016**
Field crops cereals, green fodders and industrial crops	55%	47%
Perennial crops (orchards, berries, vineyards)	23%	21%
Meadows and pastures	14%	24%
Others	8%	8%

Source: Eurostat

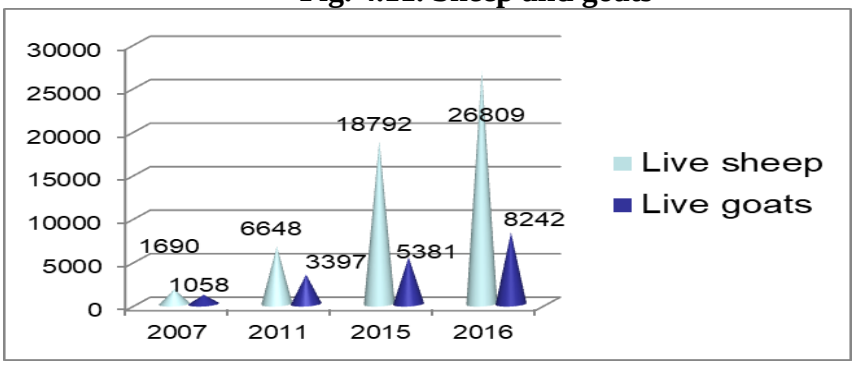
The organic animal sector is developing at a fast pace in Bulgaria. As shown in the graph, for Bulgaria sheep and cattle, as well as bee products are the most important, out of the total organic animal production.

Fig. 4.10. Live bovine animals, inc. dairy cows



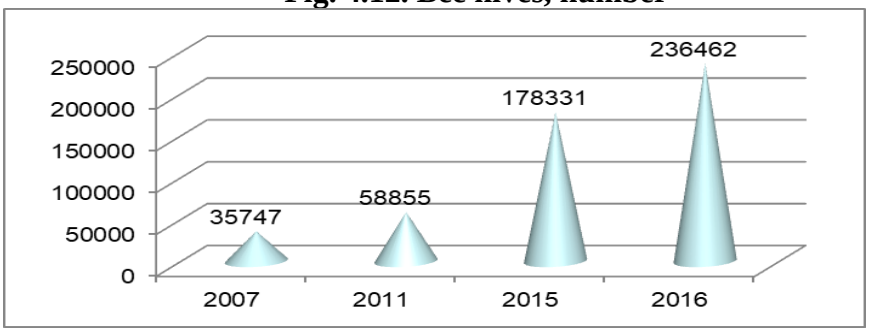
Source: Eurostat

Fig. 4.11. Sheep and goats



Source: Eurostat

Fig. 4.12. Bee hives, number



Source: Eurostat

Potential for organic livestock and honey share increase - slow but firm increase: Sheep - from 1690 in 2007 to 26809 in 2016, or 16 times; Cattle – from 395 in 2007 to 9718 in 2016 or 27 times; Goats from 1058 to 8242 or 8 times. Certified bee population and honey production: 35747 beehives and 998 tons organic honey in 2007; 236 462 beehives and 1941 tons organic honey in 2016.

Due to insufficient data on certain aspects of organic production and of the organic food chain (in particular sales and trade) a complete picture of the sector is at this point in time unavailable. However, the data shows that Bulgaria is the world's leading export of organic oilseed rose and lavender.

In general, what we can say about the organic market in Bulgaria, is:

- Lack of official data for the organic market in Bulgaria
- The only substantional study - Vitosha Research, 2009
- Domestic market:
  - Demand of organic products is not large, but growing
  - Market share of bio-products in Bulgaria:

2005: 0,8 million euro (0,023% of the total food market)
2008: 4 million euro (1% of the food market)

- The emergence of OP from profiled shops and the growing interest of the retail chains is a lasting trend in recent years. Farmer markets and online trade are also growing channels.

- Export: 80% - 95%. Top export products:
  - Wild dried forest fruits and herbs; frozen fruits: strawberries, raspberries and blueberries,
  - Essential oils from rose, lavender and mint
  - Honey
- Bulgarian OP has great potential for export.

The development of organic area in Bulgaria should also be seen in the light of the support provided for this farming practice through rural development (National and CAP support). Organic farming is supported through the Second Pillar of the Common Agricultural Policy (CAP) which covers rural development. Since there was no specific measure for organic farming in the rural development programming period 2007-2013, OF was supported via the measure 214 'Agri-environment payments', which contributed to the development of rural areas and provided environmental services. These payments encouraged farmers to adopt production methods which were compatible with the sustainable use of environment, landscape and natural resources and with the

preservation of genetic resources. The payments included 'horizontal' elements, such as organic farming (organic crop production), organic grassland management and organic fruit production. The OF sub-measure supported farmers who grow organic crops and organic beekeeping, but not livestock. OF also was indirectly supported by Measure 121 "Modernization of agricultural holdings“; Measure 142 "Setting up producers' organizations”; Measure 111 "Vocational training, information and dissemination of scientific knowledge“ and Measure 114 “Use of advisory services by farmers and forest owners.“

For the 2014-2020 period, the Regulation on support for rural development through the **European Agricultural Fund for Rural Development (**EAFRD), introduced a specific measure for organic farming, which also supports raising organic livestock (in Bulgaria – Measure 11).

Table 4.7. Compensatory payments, Euro/ha or number/year

Main crops/Farm animals	In conversion	Fully converted
Meadows and pastures	128	112
Field crops, including fodder	284	168
Perennials - fruit, vines and roses	736	557
Aromatic and medicinal plants	515	405
Vegetables, incl. cult. mushrooms and potatoes	575	399
Bee hives	35	25
Dairy cows and buffaloes	230	77
Cows and buffaloes for meat	160	63
Sheep, goats	122	90

Source: MAFF

Subsidies are step in the right direction – they help organic farmers to sustain, organize, promote their production and to find better markets. The goal of payments for the conversion to or maintenance of organic farming is to encourage farmers to participate in such schemes in order to answer society's increasing demand for the use of environmentally friendly farm practices.

Highlights:

- The state of organic farming in the country can be determined in recent years as Upward development and Good prospects.

- The evolution of the sector can be linked to major drivers such as the support provided to the sector, market developments as well as a 'facilitating' environment (extension services, vocational training, agronomic research, etc.). The weight of these factors varies.
- Among the key issues for the development of bio-production is the lack of targeted support for the processing of primary organic production. This is why the added value of this type of production is exported outside the country.
- There is a great dependence of the organic producers on the payments under the RDP. Subsidies play an important role in sustaining the income of organic farmers.
- Consumer demand determines to a large extent whether OF has the potential to develop and expand in the future.
- The choice to buy OP is determined mainly by the OP price, the consumers' income, living standard and food culture.
- Lagging behind in the marketing of organic products – an obstacle.
- Organic products are niche, they are less widely available and often have a unique point of difference.
- Comprehensive official statistics remain necessary for any future analysis of this sector in Bulgaria.

What can be done?

- Implement declared policy priority in favor of OF and Improve the dialogue between organic farmers and institutions.
- Support for OF must be continuous, not accidental.
- Simplify application procedures for subsidies;
- Accelerate the disbursement of funds for OF.
- Increase the quality of organic products.
- Improve coordination and cooperation between government, NGOs, consumers and farmers.
- Develop a national strategy for the promotion of organically grown foods For example organic products should be more widely used in national nutrition programs in schools.
- Establish a system for market data for organic products.
- Ensure effective control of the market to avoid counterfeits and imitations of organic products.

4.3. EVOLUTIONS IN ROMANIA'S AGRI-FOOD PROCESSING SECTOR Mirela Rusali

The agri-food manufacturing sector (food industry & beverage manufacturing and tobacco products) is, alike the other EU-28 countries, Romania's economic sector with major employment contributions (13.2%) and value added (26.2%) to the manufacturing industry, corresponding to the ten-year post-accession averages, yet below the EU-28 average.

Within this period, Romania's agri-food industry had an average contribution of 5.8% in the total gross value added (GVA) obtained from national economic activities (GDP), ranking first among the EU-28 countries with a 2.1% average. As well, the minimum share of the agri-food industry in GDP, of 5.1%, was registered in 2014. As well, it was evidenced a decreasing trend of the sector's share in the national manufacturing industry, both in GDP and in GVA, excepting the 2009-2012 recovery period following the global financial crisis[54].

According to the Eurostat statistics, while the gross value added in Romania's agri-food industry almost doubled, from EUR 3.7 billion current prices (c,p.) in the year 2004, to EUR 6.7 billion c.p. in 2014, the gross value added achieved in Romania's agriculture, although oscillating, summed EUR 7.1 billion in 2014, but slightly below the 2004 level of EUR 7.6 billion.

The production of the agri-food business activities in Romania grew over the past 10 years with an average annual rate of 3.7%, though at a slower pace than in the manufacturing sector.

The evolution of the volume production index over the same period reflects the fact that while most of the EU-28 States registered declines, Romania recorded the largest increase in food and beverage production, from 2.4% average of the period 2000-2006, to 3.8% average of the period 2007-2016[55].

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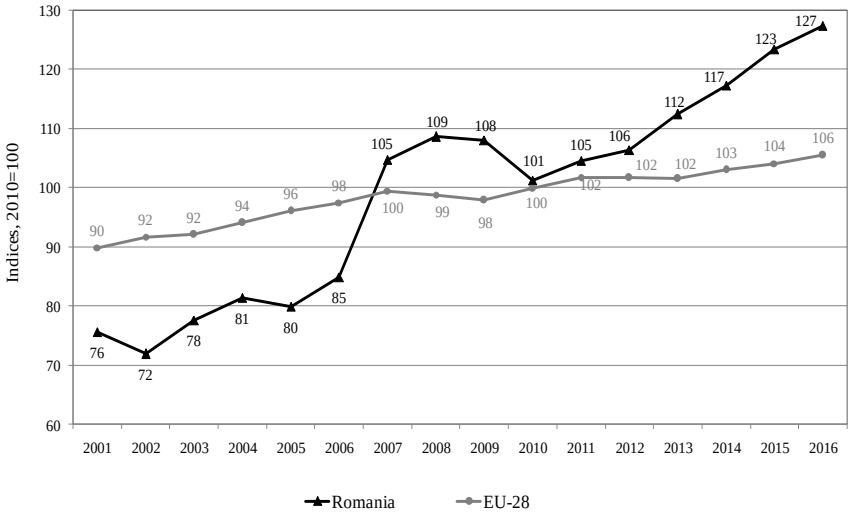
[54] Rusali, M., *Evolutii ale sectorului de prelucrare a produselor agroalimentare - industria alimentara,* [in]: Alexandri, C. et al (coord.) – „Impactul PAC asupra agriculturii si spatiului rural – Evaluari la 10 ani de la aderare", Editura Academiei Romane, Bucuresti, 2018. ISBN 9789732728604.

[55] Rusali, M., *Dimensiuni si tendinte principale privind sectorul de prelucrare a produselor agroalimentare,* [in]: Alexandri, C. et al (coord.)

As fig. 3.12. shows, in the period 2001-2016, the volume indices of production of the food and beverage manufacture sectors in Romania and EU-28 indicate an evolution with larger oscillations of Romania's indices comparing to EU-28 that experienced a down trend in the period 2008-2009 corresponding to the financial crisis, but an attenuation after 2011 and with an increasing trend, more rapid than the EU28 trend.

Figure 4.12. Volume indices of production of food and beverages sectors, Romania and EU-28 – Evolution 2001-2016



Source: Author's processing of statistics from Eurostat - Production in industry (NACE C10_C11 - Manufacture of food products and beverages) - Calendar adjusted data, not seasonally adjusted data.

However, a trend towards improving the ratio between the gross value added of Romania's agri-food industry and GVA in agriculture, from an average of 0.6, was estimated for the pre-accession period (2000-2006), to 0.9 in the post-accession period (2007-2015), yet still sub unitary and below the EU-28 level of 1.2 (see Footnote 1).

– „Economie agroalimentara si dezvoltare rurala intr-o perspectiva regionala", Editura Academiei Romane, Bucureşti, 2017. ISBN 978-973-27-2816-1.

Table 4.8. Romania's food production, export and import and growth in the period 2007-2016 vs. 2000-2006

Activity / Indicator	Production		Export		Import	
	Average 2007-2016 (EUR mill.)	Growth post/pre accession	Average 2007-2016 (EUR mill.)	Growth post/pre accession	Average 2007-2016 (EUR mill.)	Growth post/pre accession
Meat	2059	3.4	205	7.4	589	1.1
Fish	41	7.8	5	2.8	84	0.8
Fruits and vegetables	157	1.9	62	1.5	172	2.8
Oils and fats	496	0.6	263	3.7	341	3.8
Dairy and cheese	707	1.5	56	4.2	248	8.9
Milling products	398	0.5	47	13.0	148	1.7
Bakery and pasta	1008	0.5	67	3.0	153	3.9
Sugar confectionery	678	0.5	190	13.0	768	2.3
Animal feed	542	3.3	16	38.8	159	3.2
Food industry	6086	3.4	911	7.4	2661	1.1

Source: Author's estimates based on statistics from Eurostat - Sold production, exports and imports by PRODCOM series (NACE - C10 Rev. 2) - annual data.

Estimates of the export, import and production growth of Romania's food industry over the period 2007-2016 (post-accession), compared to the period 2000-2006 (pre-accession), presented in table 4.8 have been resulted by quantification of the averages of each variable for the specified periods and then calculating the percentage increase, based on the Eurostat statistics – PRODCOM series, aggregated by subgroups of the NACE-C10 at 8-digits, corresponding to the food industry.

Among the main developments in the Romanian activities included in the sub-sectors of the food industry, in the post-accession period compared to the previous period, were observed the following results.

The largest increase of the value of industrial productions was made in the subsectors: processing and preserving of *fish* (index 7.8 represents the increase of 780% of the average production in the period 2007-2016, compared to the average of the period 2000-2006),

amounting EUR 5.1 million, but had the lowest share in food production in the pre-accession period (0.7 Production, processing and preserving of *meat*, with an average production of over EUR 2 billion, had the highest share in production (34%); and Manufacture of *animal feed* (9% in production). These groups accounted for 43% of the food industry output.

The most significant increase in the value of exports was recorded in the subsector manufacture of animal *feed* (growth index 38.8%), which had a minor share in exports (1.7%), followed by manufacture of *sugar confectionery*, sharing 21% in exports) and the production of *milling industry* (each with a 13% growth); together these subsectors cumulated only 28% of the food exports.

By comparison, it can be noticed that the production of *oils and fats*, although with the largest share in exports, grew more slowly (3.7%).

While the imports from the *sugar* industry absorbed the largest part of the imports value (29%), they had a slower growth rate than the products from the most importing subsectors, respectively, manufacturing of *dairy and cheese* (index 8.9%), fabrication of *bakery & pastry products*, *oils & fats* industry and manufacture of *animal feed*, which accounted for 34% of food imports.

Romania's balance of foreign trade systematically recorded a deficit in all food industry activities, which widened over the pre-accession period, from an average of EUR -673 million cumulated in the period 2000-2006, to a total of EUR -1.75 billion cumulated in the post-accession period 2007-2016 (table 4.9.).

The main deficient food products groups in Romania's post-accession foreign trade, sharing together for 66% of the food trade balance were those in the sub-sectors manufacture of *sugar confectionery* (EUR -578 million), production, processing and preserving of *meat* (EUR -383 million) and manufacture of *dairy and cheese* (EUR -191 million).

Manufacturing of *oils and fats* was the only activity that has accumulated a positive quantitative balance throughout the period after 2000, but there was a significant decrease of the trade surplus in the post-accession period compared to the previous period, from a surplus of 98 thousand tons, to 20 thousand tons. By the value of the trade balance, however, the production of oils and fats was the third most deficient activity in the Romanian food industry.

Table 4.9. Romania's foreign trade balance in the food processing subsectors and variation indices [(a)] (2007-2016 vs. 2000-2006)

Activity / Indicator	Balance, Average 2000-2006	Balance, Average 2007-2016	Variation post/pre accession	Balance, Average 2000-2006	Balance, Average 2007-2016	Variation post/pre accession
	EUR mill.	EUR mill.	%	1000 tons	1000 tons	%
Meat	-258	-383	149	-245	-271	110
Fish	-45	-79	176	-68	-62	91
Fruits and vegetables	-20	-110	541	-40	-145	366
Oils and fats	-14	-78	542	**98**	**20**	21
Dairy and cheese	-14	-191	1335	-11	-161	1411
Milling products	-51	-101	200	-216	-210	97
Bakery and pasta	-14	-86	605	-8	-47	625
Sugar confectionery	-219	-578	265	-608	-605	99
Animal feed	-38	-143	379	-77	-227	295
Food industry	**-673**	**-1751**	260	**-1175**	**-1708**	145

[(a)] $X_{(2007-2016)} * 100 / X_{(2000-2006)}$

Source: Author's estimates based on statistics from Eurostat - Sold production, exports and imports by PRODCOM series (NACE –C10 Rev. 2) - annual data.

It was observed that in ten years after accession, in the dairy production the increase of the foreign trade imbalance value was the most dramatic, of over 13 times related to the average of the previous period, followed by the manufacturing of *animal feed and milling products subsectors*, with a deficit of EUR -143 million, respectively, EUR -101million. As well,, with an almost six-fold increase in the imbalance of Romania's foreign food trade, the activities in the subsector processing and preserving of *fruit and vegetables* ranked fourth among the most significant deterioration of the post-accession trade balance, cumulating EUR -110 million.

A deeper analysis on the evolutions of Romania's food manufacturing subsectors, during the period 2007-2016, indicates that the internal food manufacturing industry provided an available domestic consumption estimated at an average of EUR 7.8 billion, of which, the largest share was represented by the products from the *meat industry* (31%), with an average value of EUR 2.4 billion, followed by products

from the sub-sectors from *sugar industry* (16%), *bakery* (14%) and *dairy* (11%) (table 4.10.).

Table 4.10. Available domestic food consumption in Romania, by the manufacturing subsectors (average, 2007-2016)

Activity / Indicator	Available domestic consumption (DC) [b]		Import[c] Share in DC (%)
	Average 2007-2016 (EUR mill.)	Activity Share in total DC (%)	
Meat	2443	31	24
Sugar confectionery	1256	16	61
Bakery and pasta	1094	14	14
Dairy and cheese	898	11	28
Animal feed	685	9	23
Oils and fats	575	7	59
Milling products	500	6	30
Fruits & vegetables	267	3	64
Fish	120	2	70
Food industry, total	7836	100	34

[b] DC = internal production – export + import;

[c] Average value, period 2007-2016.

Source: Author's estimates based on statistics from Eurostat - Sold production, exports and imports by PRODCOM series (NACE-10 Rev. 2) - annual data.

The results indicates also that, in average, within ten years post-accession, 34% of Romania's available domestic consumption were imported products.

To conclude, the largest share of the imports into Romania's available domestic consumption of the post-accession period of time correspond to the products of the manufacturing activities of *processing and preserving of fish* (70%), *processing and preserving of fruits and vegetables* (64%), *sugar confectionery* (61%) and of *oils and fats* (59%).

CHAPTER 5. RURAL DEVELOPMENT ASPECTS / ISSUES

5.1. CHARACTERISTICS OF RURAL DEVELOPMENT IN ROMANIA Marioara Rusu, Violeta Florian, Monica Tudor, Chitea Mihai, Elena Sima, Elisabeta Roșu, Lorena Chițea, Bucur Sorinel and Corina Dinculescu

The Human Capital in the Rural Area[56]

One of the challenges the Romanian rural area had to face after the accession to the EU was the initiation and consolidation of the sustainable development process: empowerment of human resources, institutional system modernization and efficient allocation of the socio-economic resources.

Population. In the year 2017, according to NIS data, the population with legal residence in Romania, i.e. 22,223 thousand persons, was classified into rurality classes, as follows: 11.3% of the population was living in predominantly urban regions, 44.1% in intermediate regions and 44.6% in predominantly rural regions. In the ten years under analysis, a slight modification was noticed in this structure, in the sense of the increase in share of the population living in predominantly urban regions (by 0.5%) and intermediate regions (by 0.3 %), to the detriment of the population living in predominantly rural regions. The small changes that have been produced in this structure may be the result of the population's attraction by the urban areas, through the opportunities provided (access to various

[56] **Methodological note**: the analysis from the third part of the volume was based on the rural-urban typology defined at NUTS3 level in the European Union. This comprises three types of regions: predominantly urban regions (Bucharest municipality and Ilfov county), intermediate regions **(**Argeş, Bacău, Bihor, Braşov, Brăila, Cluj, Constanţa, Dolj, Galaţi, Hunedoara, Iaşi, Neamţ, Prahova, Sibiu, Timiş), predominantly rural regions **(**Alba, Arad, Bistriţa-Năsăud, Botoşani, Buzău, Călăraşi, Caraş-Severin, Covasna, Dâmboviţa, Giurgiu, Gorj, Harghita, Ialomiţa, Maramureş, Mehedinţi, Mureş, Olt, Satu Mare, Sălaj, Suceava, Teleorman, Tulcea, Vâlcea, Vaslui, Vrancea).

jobs, to dwellings with adequate endowments, to health and educational services, etc.).

After Romania's accession to the EU, the population decreased by 400 thousand, deepening the demographic decline, year after year. Population's decline is generally due to the negative natural increase of the population, as well as to the negative migration balance. *The decline in the natural increase of the population was noticed in all the three types of regions.* This situation has been influenced by the total fertility rate in Romania that is much too low for sustainable demographic growth. Although slightly higher than at the beginning of the analyzed interval (1.58 live births per woman, in the year 2015, compared to 1.42 in 2006[57]), the total fertility rate continues to be below the generational replacement threshold (a total fertility rate of 2.1 live births per woman is considered the natural replacement rate, which would maintain the population at the existing level, on the long term, in the absence of emigration and immigration).

The changes that have been produced during Romania's EU membership period also concern the population density. In the year 2017, *the population density was 93 inhabitants per square kilometer nationwide, down by almost 2 inhabitants per square kilometer compared to the beginning of the analyzed interval.* This may seem a positive situation, as a certain territory is less populated/crowded, yet the value at national level is only the expression of certain regional particularities. By types of regions, the predominantly urban regions are the most populated, with 1379 inhabitants/km², followed by the intermediate regions with 104 inhabitants/km² and the predominantly rural regions with 70 inhabitants/km².

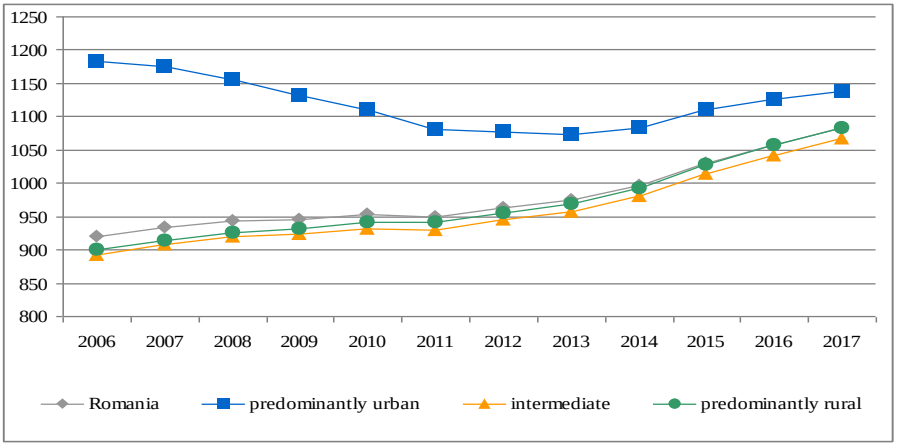
The evolution of the population's structure by ages reveals the accentuation of the demographic ageing phenomenon. While at the beginning of the analyzed interval the share of elderly people was lower than that of young people, in the year 2017, the situation was reversed, as the share of elderly people was higher than that of young people. The demographic aging index (DAI), as number of elderly people in 1000 young people, has continuously increased, year after year, from 920 persons in 2006 to 1082 in 2017. While until 2013, the demographic ageing index was below 1000 (young people were more numerous than elderly people), after this year the situation has reversed. *In 2016, Romania ranked 11th in EU-28, the demographic ageing index being*

[57] According to Eurostat data

below the EU average, (1229 elderly people in 1000 young people, under 15 years old), on the rise compared to the beginning of the analyzed interval (half of the EU member states were in this situation).

The trend described for the national level is almost similar in the case of intermediate and predominantly rural regions, as it can be seen in the figure below; only the predominantly urban regions have a different trend: the trend declined significantly until 2012, to increase afterwards.

Figure 5.1. Demographic ageing index, by types of regions, in the period 2006-2017



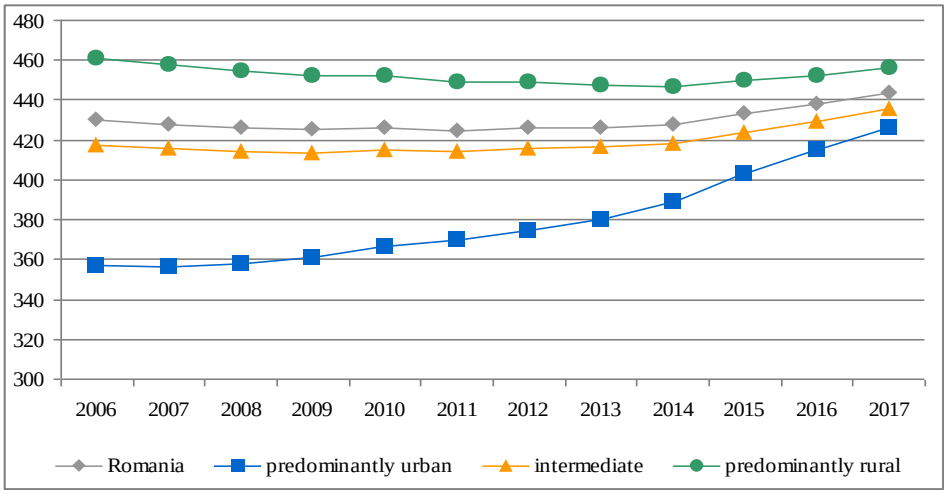
Source: author's processing of NIS data, Tempo Online database

Thus, in the intermediate and predominantly rural regions, DAI increased by 75, i.e. 18 elderly people in 1000 young people in the investigated period, *which reveals that the predominantly rural regions have an older population than the others.* The higher concentration of elderly people in these regions has been accompanied by social and economic challenges: lower incomes, rising costs for pensions, healthcare, etc.

The dynamics of the *demographic dependency ratio* reveals the pressure exercised by the elderly and young people on the potential workforce population (population of working age). *At national level, in the investigated period, a certain linearity can be noticed in the evolution of this indicator over the years.* The demographic dependency ratio was maintained at about the same level, i.e. 430 dependent persons in 1000 persons of working age, until 2016, when the situation changed, in the sense of a slight increase of this ratio (which also continued in the next year), to 444 dependent persons (in 2017). Even though in the ten years

under investigation there were no significant changes of this indicator, we can mention that that *this ratio is quite high, which means a high economic and social burden on the population of working age,* which creates a disequilibrium between the involved actors: the segment of dependent population, beneficiary of economic support, and the population of working age, contributor to the pension fund. However, compared to the European average (532 young and elderly people in 1000 persons of working age), *Romania ranks among the EU-28 countries with the lowest demographic dependency ratios.*

Figure 5.2. Demographic dependency ratio by types of regions, in the period 2006-2017



Source: author's processing of NIS data, Tempo Online database

The continuous decline of the population, demographic ageing and the high economic dependency rate are important phenomena that affect the labour market. As far as the persons who are not working increase in percentage, the working persons can be subject to higher taxes to support and offset the costs of the dependent population. Yet the greater focus should be on the elderly population segment, as this most often needs greater assistance than the young people under 15 years old, owing to greater needs associated to old age.

Labour force. Romania's integration into the EU structures has brought about new challenges for the economic sector and labour force, such as the free and fast movement of capital and commodity flows, as well as the great workforce mobility, determining an unprecedented labour force

dynamics generated by the opportunities provided by the relocation in the developed member states. *Romania's best export product after 1989 was undoubtedly the human capital.*

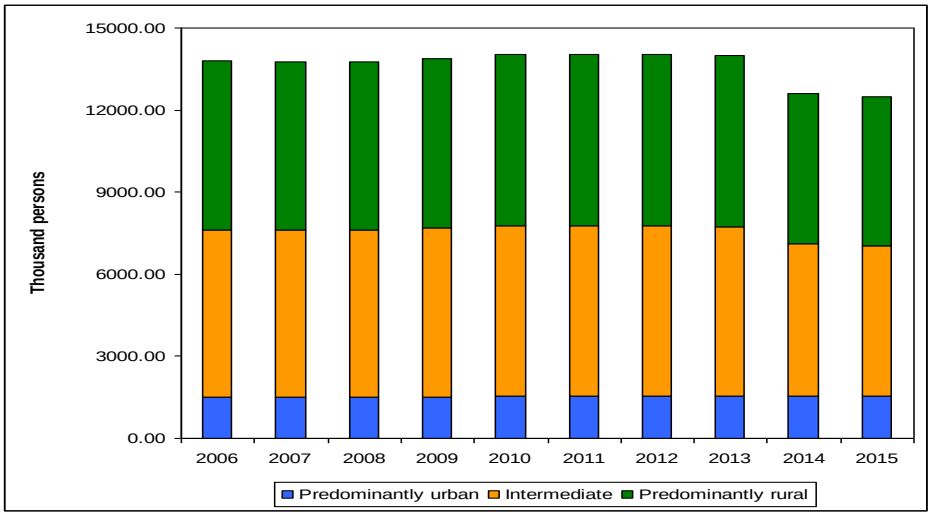
Migration for work was the most important component of national migration in the last decades, yet the intensity of this phenomenon has not been fully revealed by official statistics (Roman, Voicu, 2010). According to UN statistics, more than 3.4 million people had left abroad for work or established their permanent residence there, by the year 2016. The financial support provided for their relatives who remained in Romania has contributed to the increase of their quality of life, yet the phenomenon was doubled by a series of socio-demographic problems: depopulation of the areas or origin, mainly rural areas, population ageing and degradation of family relations (Roman, Voicu, 2010). "*External migration was a very prompt and harsh reaction to the economic situation in the country, on the one hand, and to the benefits that migration to a developed country can bring*" (Gheță u, 2016).

Factors of internal nature added to these, such as the rural-urban migration and the demographic decline, all these together contributing to the current situation of labour market nationwide, characterized by ever increasing difficulties regarding the necessary labour force for the economic activities, adaptation to the new professional training requirements and stability on the labour market. Romania is heading for an acute crisis of the labour market, which may increase in the future, in the absence of integrated educational and occupational strategies, which should enable the development of labour resources according to the new economic activity requirements.

In the year 2006, Romania's labour resources totalled 13801.6 thousand persons, out of which 51.75% men and 48.25% women. Out of these, the labour resources at the level of predominantly urban regions accounted for 10.88%, the remaining resources being distributed under almost equal shares between the intermediate regions and the predominantly rural regions, i.e. 44.29% and 44.83%. In the first two years of EU membership, Romania's total labour resources began to slightly decrease, this phenomenon being followed by a two-year period of growth at the same rate. The year 2011, marked by the *peak of the global economic and financial crisis*, which strongly affected Romania, was the beginning of the decline, the labour resources gradually decreasing at national level (mainly in the period 2013-2014), reaching 12481.1 thousand persons in 2015, lower by 9.56% than its value in the reference year.

The strongest decline was noticed in the predominantly rural regions, where the labour resources decreased by 12.13% (750.6 thousand persons), the intermediate regions coming next, with a decline of labour resources by 9.85% (602.4 thousand persons). In the same period, the urban regions experienced a slight increase of the labour resources volume, by 2.16%; this phenomenon can be explained by the labour employment opportunities in the urban areas and the higher levels of income that can be obtained in these areas.

Figure 5.3. Labour resources by types of regions, in the period 2006-2015



Source: author's processing of NIS data, Tempo Online database

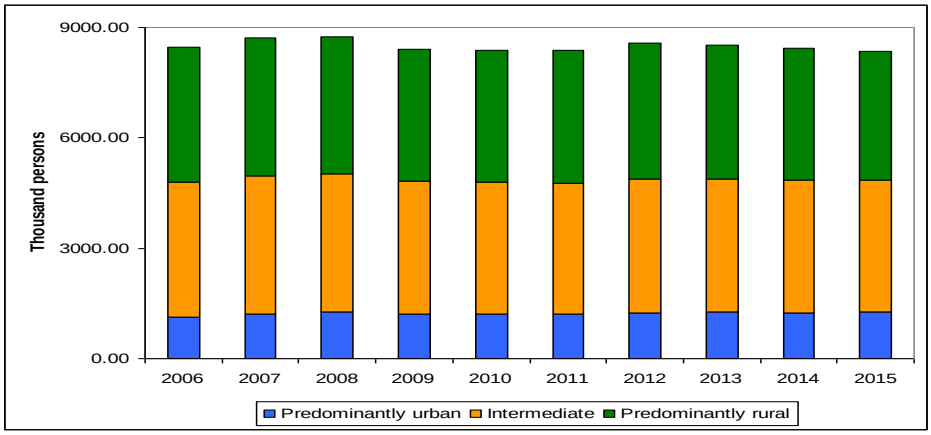
The labour supply has narrowed nationwide, in the analyzed period, the most affected being the predominantly rural areas. In the reference year (2006), Romania's civilian active population totalled 8929.8 thousand people, out of which 52.95% men and 47.05% women. The predominantly rural regions concentrated almost 44% of the active population volume, followed by the intermediate regions (about 43%) and the urban regions (about 13%).

The first two years of EU membership marked a period of civilian active population growth, mainly in the intermediate and predominantly urban regions, followed by three consecutive years of decline, in the context of the global economic and financial crisis. The strongest impact was noticed in the intermediate and predominantly rural regions, where the active population decreased by 270.1 thousand persons, on cumulated

basis, in this time interval. After a temporary recovery in the year 2012, the active population followed a new downward trend, to reach 8776.8 thousand persons at the end of the period, by 1.71% lower than the value in the reference year. Throughout 2007-2015, the civilian active population had successive growth and decline periods; *the predominantly rural regions had the strongest active population decline* (about 5%), followed by the intermediate regions, with about 2.5%, while the predominantly urban regions experienced a significant increase of the active population, by about 12%; in this context, by the end of the period, the share of the active population in the predominantly urban regions accounted for about 15% of total active population.

The predominantly urban regions – labour force polarization centers. In the investigated period, the employed population had a similar evolution to that of the active population, in close relation to this: a first period of growth (2007, 2008), under the background of economic activity dynamics generated by the accession to the European Union, followed by a three consecutive years period of decline (2009-2011) that coincided with the restructuring of the public and private sector activity determined by the financial and economic crisis; the slight recovery in the year 2012 was followed by other three consecutive years of decline, by the end of the period the employed population totaling 8340.60 thousand people, by 1.5% lower than its value in the reference year (2006).

Figure 5.4. Employed population, by types of regions, in the period 2006-2015



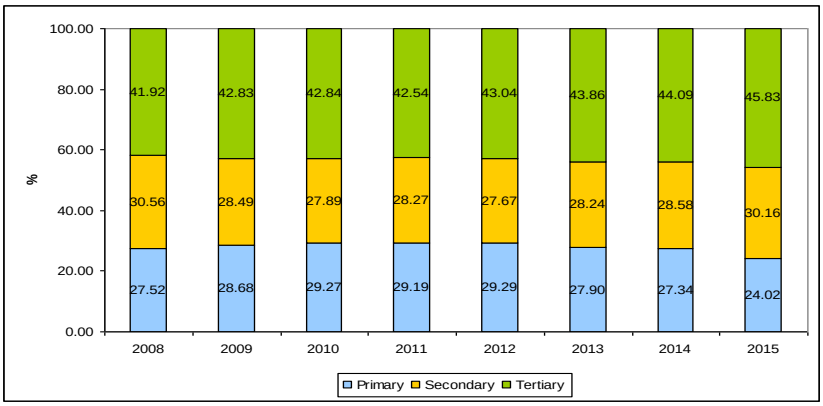
Source: author's processing of NIS data, Tempo Online database

In this case as well, for the whole investigated period, *the net beneficiary of labour force transfer between the three types of regions (mainly from the predominantly rural regions) were the predominantly urban regions*, the employed population, in this case, increasing by 12.8%; in the predominantly rural and intermediate regions, the employed population decreased by 5.2% and 2.2% respectively.

The employed population also experienced changes in its structure by main economic activity sectors in the period 2008-2015. *Nationwide, the most dynamic sector was the tertiary sector*, the sector of services, which attracted an ever-increasing part of labour force each year, to reach 45.83% of total employed population in the year 2015, as against 41.92% at the beginning of the period. At the same time, the secondary sector, industry and constructions, the second as share in total employed population, had a fluctuating evolution, marked by decline and growth periods, to reach a similar share to the reference share, i.e. around 30%, by the end of the investigated interval. The primary sector, i.e. agriculture, forestry and fisheries, after a period of consecutive growth of its share in total employed population, in the period 2009-2012 (which confirms the hypothesis of *the rural area as transitional refuge space for the labour force*, in the economic recession periods), followed a decline period, to reach 24.02% in the year 2015 (compared to 27.52% in 2008).

This situation is also present at the level of urban-rural typology, *the tertiary sector taking the largest share of the employed population in all types of regions*: predominantly urban (71.33%), intermediate (45.00%), predominantly rural (37.76%), followed by the secondary sector, that of industry and constructions.

Figure 5.5. Structure of employed population, by activity sectors, in the period 2008-2015

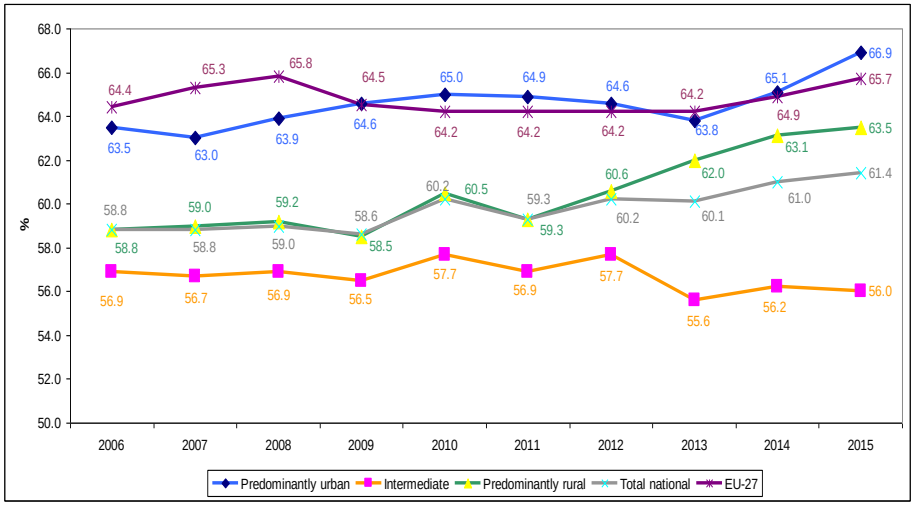


Source: author's processing of NIS data, Tempo Online database

The predominantly rural regions are an exception, where the primary sector, although under restructuring in the investigated period, continues to be the second activity sector as share in the employed population structure, with 33.40%. In the structure of employed population, the employment in activity sectors with low productivity and low value added (primary sector) continues to have a high share, the highest in the EU and at great distance from the countries that rank next.

The employment rate – increasing trend, yet it continues to be below the EU level. The employment rate in the population of working age at national level had an increasing evolution in the period 2007-2015, yet under the EU-27 level, by about 4%. *By types of regions, the most important employment growth rate was noticed in the predominantly rural regions,* this exceeding the national level starting with the year 2012, to reach 63.5% in the year 2015.

Figure 5.6. Employment rate of the population of working age, by types of regions, in the period 2006-2015



Source: author's processing of data from Eurostat database

The predominantly urban regions had the highest employment rate values, throughout the investigated period; in the year 2015, the employment rate was 66.9% (74.4% in men and 59.9% in women). The only zones where the employment rate decreased in the period 2007-2015 were the intermediate regions, with values significantly lower than those of urban and predominantly rural regions – at the end of the period, the employment rate in the intermediate regions was 56% (64.1% in men and 47.8% in women).

Rural poverty. Rural development has involved overcoming uncertainties and risks, generated by the structural and functional changes, by the application of new economic and fiscal policies and at the same time the diminution of inhibiting phenomena for the development of rural areas. One of the socio-economic mechanisms limiting development is poverty, which is a phenomenon inherited both at individual and community level, which became a life style for a significant part of the rural population.

After Romania's accession to the EU, the economic development has induced significant changes in the structure and profile of rural poverty: the absolute poverty rate reached 6.4% in the year 2014 (3.8% nationwide), the depth of poverty was 1.08% (0.67% at national level) while Gini indicator was 23.44% (24.62% at national level).

"*Romania is among the EU member states that made the greatest progress in the diminution of poverty and social exclusion risk in the period 2008 – 2014, in the conditions in which this risk decreased by 4 percent; a greater diminution in the Union, i.e. by 5.8 percent was found only in Poland. At EU level, the percentage of population under poverty and social exclusion risk increased from 23.8%, in 2008, to 24.4%, in 2014. This percentage diminution is one of the main objectives of Europe 2020 Strategy" (NIS, 2016)*.

Table 5.1. Absolute poverty rates [58], depth of poverty[59] and Gini coefficient[60], for the rural area, 2007-2014 (%)

	Absolute poverty rate	Depth of absolute poverty	Gini coefficient
2007	15.8	3.30	26.52
2010	8.80	1.69	24.54
2014	6.40	1.08	23.44

Source: Ministry of Labour, Family, Social Protection and Elderly, Department of Social Services, Service of Social Economy, Social Innovation and Programs with international bodies, Poverty and

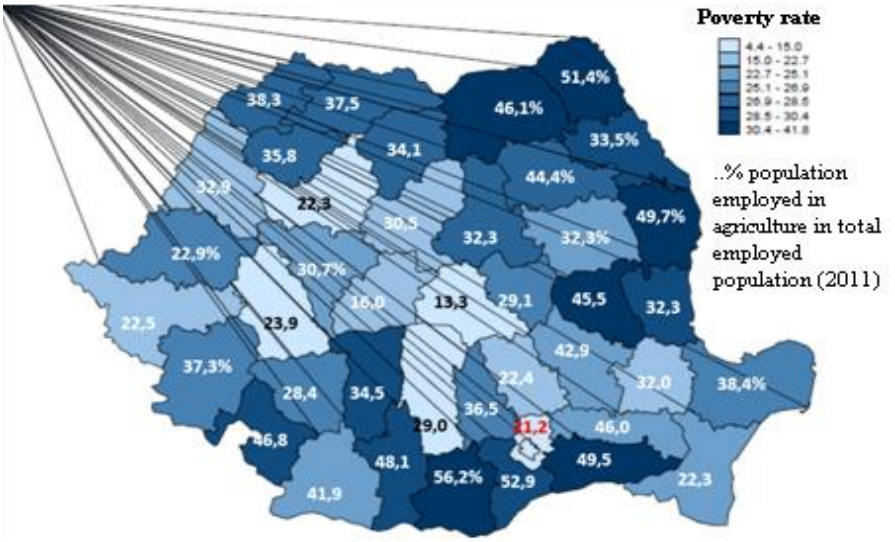
[58] Absolute poverty rate is the share of persons from households whose consumption expenditures per adult equivalent are lower than the poverty threshold in total population.

[59] Depth of poverty is an indicator measuring the poverty deficit of the entire population, e.g. the percentage of total household consumption that would be needed to bring all poor people out of poverty.

[60] Gini coefficient, distribution of population by the consumption expenditures per adult equivalent: it characterizes the inequality of income or resource distribution among the members of the society.

inequality indicators by characteristics of persons and households, 2004-2014, Bucharest, 2015:1-7.

Figure 5.7. Relationship between the employment in agriculture and poverty incidence



Poverty risk rates and importance of agriculture for labour employment by counties

Source: poverty rate estimates operated by the World Bank experts, 2014, Brief of poverty mapping in Romania; NIS; TEMPO on-line, [FOM103D]

In the rural communities, the poverty phenomenon has been maintained, with 55% of the rural population under poverty or social exclusion risk and a high level of monetary poverty (71%).

The main source is the rural occupational pattern: "*In 2014, the independent and unpaid household activities, often associated with (semi)subsistence farming, accounted for 60% of labour employment in the rural areas. Wage work accounted for only 39% of workforce employment in the rural areas ….The low incomes from semi-subsistence farming activities are the cause of this highest poverty rate of persons employed in the EU (20 %),… poor workers are unpaid family workers or people who are self-employed in (semi)subsistence farming, to which the minimum salary is applied … about 80 % of the social assistance beneficiaries are living in the rural areas"(EC, 2016:27,67).*

The rural poverty characteristic to be highly territorially differentiated has been also maintained in the ten-year period of EU membership. When analyzing the administrative territorial units, we can notice the persistence of increased poverty risk for the villages with a low number of inhabitants, with a peripheral position within the communes, at great distance from the urban centers and from the national road transport ways. "*In the rural areas there are twice as many people who are living in marginalized communities, facing housing, employment and social problems. (EC, 2017:25))". Material deprivation is an objective phenomenon through the lack of educational and healthcare services, of post offices, significant share of households with no modern utilities.*

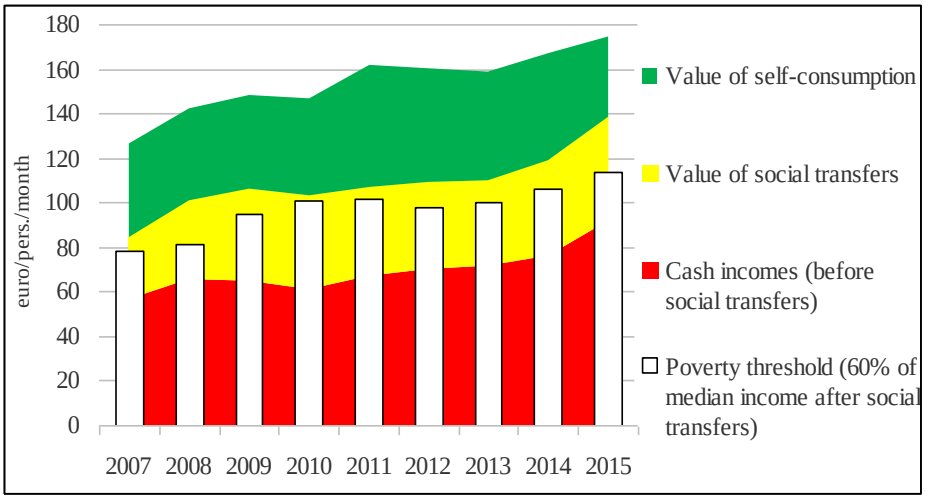
"*The fact that one in two inhabitants from the predominantly rural regions, located at great distance from important urban centers, is poor, reveals that poverty is a chronic self-produced and self-sustained phenomenon. Most poor people are living in the eastern and southern part of Romania, more than 55% of these having their residence in the areas considered "rural", by Eurostat definition, while other 19% are living in intermediate areas (Tudor, 2015:44).*

Although the rural communities are characterized by a high poverty level, the incomes of the rural population followed an accelerated upward trend after Romania's accession to the EU, mainly by the increase of incomes from social benefits (pensions, child allowances, student scholarships, unemployment benefits) whose value increased by 50% in the period 2007-2010, thus offseting the decreasing living standard due to the economic crisis. Although the cash incomes of the rural population (before social transfers) increased by 15% in the first year after the accession due to the positive effects produced on the economy and investments by the EU membership, they were affected by the economic crisis through capping in 2009 and even decrease by 10% in the year 2010. The recovery after crisis and reinsertion on an upward trend of revenues from work and economic activities of the rural population was produced at a lower rate (about 5% annually in the first three years after crisis), which increased the dependency of households on the social transfers and self-consumption of own produced food. However, since 2014, the growth rate of cash incomes (before social transfers) has been accelerated with the revigoration of the economy, leading to the improvement of the population's living standard in the rural area.

The statistical data show that *generally, in the absence of self-consumption of own produced food, in the periods of economic crisis, the*

rural population is under risk of slipping below the threshold of relative poverty. The social transfers make it possible for a rural resident to exceed only to a small extent the statistical limits of the poverty threshold. The critical point was reached in the peak year of the economic crisis, i.e.2010 and in the next year as well, when the disposable cash incomes per adult equivalent exceeded by only 2% and 5% respectively the relative poverty rate threshold.

Figure 5.8. Level and structure of rural population's incomes in the period 2007-2015



Source: author's processing of NIS data, Tempo Online database

On the other hand, *the consumption of own produced food significantly contributes to rural population's well-being*, as the self-consumption value accounts for about one-third of the total incomes of a rural person in the investigated period, with the notable exception of the year 2015.

In order to reduce the poverty and social exclusion risk, the rural population has benefited from certain social support measures, focusing on a rather passive support. On the average, smaller amounts were annually spent for social protection in the predominantly rural regions as compared to the other regions.

Since 2016, a comprehensive package for combating poverty has been adopted, funded from EU and national funds, in order to ensure a safety net for the people under poverty risk; these make a shift from programs focusing on the payment of social services to providing specialized services: for instance, for the vulnerable group represented by

children – access to education and pre-school care (in the year 2015, 84% of children aged 3 to 5 years were enrolled in the pre-school education system in the rural regions, compared to 90 % in the predominantly urban regions), preventing early school leaving (in 2013, 2.3% of families declared that in the last year at least one child abandoned school due to poverty and poor school results), transition from school to work. Another dimension of the program corresponding to specific needs is focused on the improvement of social and healthcare services for elderly people (EC, 2017).

The annual average amounts paid for combating social marginalization has followed a sinuous path, both in the intermediate regions and in the predominantly rural regions: intermediate regions - from 203947 RON (2006) to 532007 RON (2008), to reach 106094 RON (2016); predominantly rural regions - from 192700 RON (2006) to 535676 RON (2011) up to 187630 RON (2016).

In the case of marginalized communities, integrated packages have been conceived since 2017, focused on diminishing the poverty risk, in line with the requirements and specific needs of vulnerable groups; the new approach started with 100 marginalized communities out of the 500 existing communities; the integrated package is based on the creation of functional expert network (consisting of community social workers, medical assistants, support teachers or school mediators and public employment service experts) to provide support services to the less favoured groups, children and young people.

Adopted in 2016, the Law on minimum inclusion income consolidates a series of "*passive support measures with more attractive measures for the labour market, retaining some of the benefits for getting and introducing active and compulsory measures on the labour market" (EC, 2017).*

In the recent statistics, the monthly average number of families or single persons who benefited from social benefits to ensure minimum income significantly increased: in 2011 in the intermediate regions 5003 persons benefited from these aids, while in 2015, 6726 persons; in the predominantly rural regions, the number increased from 4382 persons (2011) to 5679 persons (2015).

Economy and quality of rural life

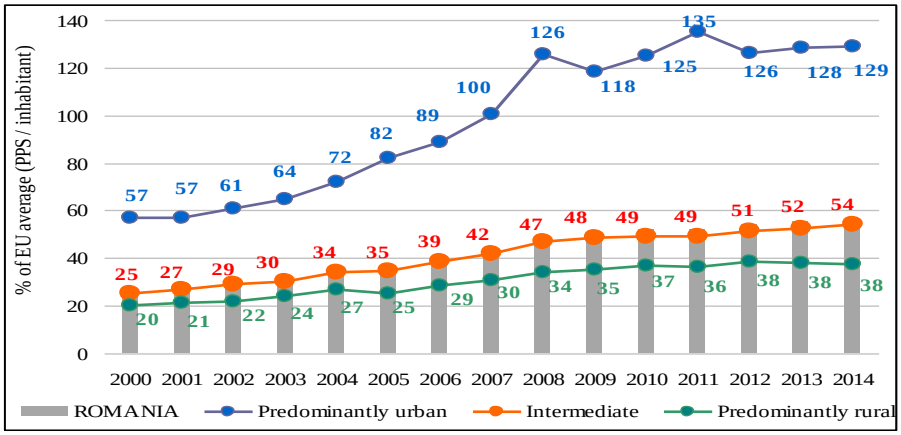
The economic development level is closely correlated with the ability and capacity of a territory to know and fructify the local natural, material and human resources, to valorize the opportunities opened by the

economic context and by the capacity to improve the access to these opportunities. The pre-accession and accession to the European Union, through the facilities provided regarding the free movement of goods, services and persons and the promoted territorial cohesion premises, represent an opportunity for Romania's sustainable development, in general, and for the development of rural areas.

Diversification of economic activities in the Romanian rural area. After ten years of EU membership, Romania has managed to narrow the economic gap with the EU average, the Gross Domestic Product (GDP) /capita in purchasing power parity, as percentage of EU average increasing from 39% in 2006 to 55% in 2014. In the first two years after the accession, Romania had a fast economic growth rate both overall and by categories of regions, the volume of investments increasing under the background of the enthusiasm and trust generated by the EU membership. The economic crisis produced its effects starting with 2008, yet it did not stop (except for one year, i.e. 2009) the upward economic trend of Romania in bridging up the gaps with the EU, it only slowed down the rate of this process.

Although the intermediate and predominantly rural regions are quite equal in terms of the volume of the population (about 45% of total population living in each of these two categories of regions), their economic performance is different, while the territorial disparities have the tendency to be perpetuated and even accentuated after Romania's accession to the EU.

Figure 5.9. Gross Domestic Product /capita (PPS) in percentage of EU average



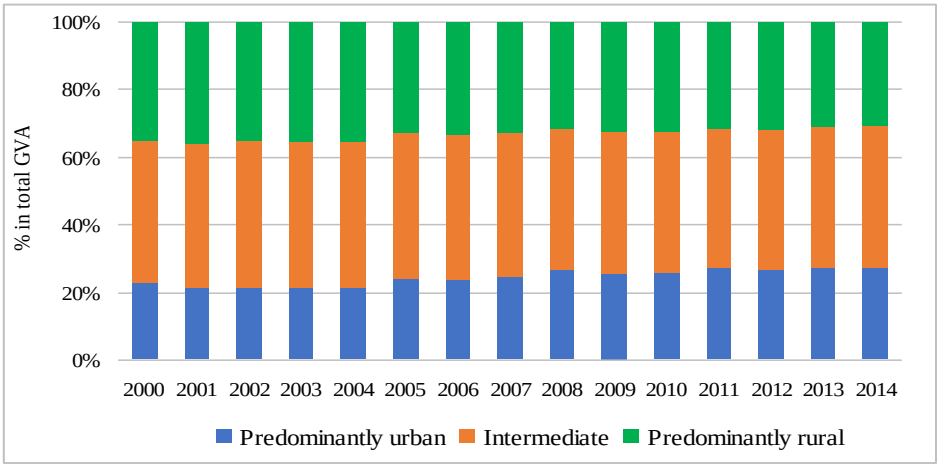
Source: EUROSTAT

The data highlight an increasing trend of the GDP/capita divergence across the categories of regions, which is contrary to the economic convergence objectives of the Community Area and which was accentuated after the Accession to the EU. This evolution is explained by the interference of several factors, among which the following are the most important: impact of economic crisis and the different capacity to accommodate to the new European context of the Single Market. Thus, Zaman, Georgescu et al, (2015: 86-87) consider that: as a rule, the relatively developed regions and counties had a greater accommodation capacity to the costs of integration and to the external shocks of the crisis.

The economies of the three categories of regions had different growth rates in the pre- and post- accession periods, with slower growth rates in the predominantly rural regions as compared to the other two categories of regions from Romania. This led to the modification of the percentage contribution of each category of regions to the creation of the national Gross Value Added (GVA):

- in the period 2000 – 2014, the percentage contribution of *intermediate regions* to national GVA was maintained relatively constant around the value of 42.5%, with oscillations up to ±1,5 %;
- the contribution of *predominantly rural regions* to GVA formation decreased by 4.8 percentage points in the investigated period, as the growth rate of the economies of these regions is lower compared to national average. The accession to the EU has not led to the increase of the economic convergence, the predominantly rural regions continuing to contribute by increasingly lower shares to GVA formation (from 33.5% in 2006 to 30.5% in 2014);
- the contribution of *predominantly urban regions* to GVA formation has increased as far as the contribution of predominantly rural regions to GVA has decreased, the former being net beneficiaries of the European integration. Thus, while in the pre-accession period, the contribution of Ilfov county and Bucharest to GVA formation increased by only 1% (from 22.3% in 2000, to 23.3% in 2006), after the accession the economic growth rate of the predominantly urban regions intensified, so that by the year 2014 they contributed by 26.8% to national GVA.

Figure 5.10. Contribution of regions to national Gross Value Added



Source: EUROSTAT

As a trend, the contribution of predominantly rural regions to GVA has decreased proportionally with the increase in share of the predominantly urban regions to national GVA. The EU membership has not changed the general trend in the contribution of these two categories of regions to Romania's total GVA creation.

The structure of the economies of the three categories of regions, by main economic sectors (primary, secondary and tertiary), had significant variations not only in time but also in space. At the level of overall national economy, for the period 2000 – 2014, the analysis of GVA formation reveals three major characteristics:

- the *tertiary sector* had the greatest contribution to GVA formation (which contributed by over 50% to total GVA, with variations ranging from minimum 49.9% in 2001 to maximum 59% in 2014). Almost half of national GVA created in the sector of services comes from activities in the following sectors: *trade; transport; hotels and restaurants; information and communications* (≈ 24% of GVA total, with variations from minimum 18%, in 2011, after the economic crisis, to maximum 28% in the year of accession to the EU);
- the contribution of the *primary* sector (agriculture, forestry and fisheries) to GVA followed a decreasing trend in the pre-accession period. The European integration process stopped the primary sector decline, its contribution to GVA creation getting stabilized to 5-7%;

- the *secondary* sector contributed by more than 35% to national GVA. While in the pre-accession period and immediately after accession, the importance of the secondary sector had an increasing trend, after the economic crisis we assisted to the decline of the percentage contribution to GVA of the industry and constructions sector.

With a share of 28.6% of GVA obtained in industry, Romania is on a favourable position compared to the EU average, with only 15.5% of GVA obtained in industry in 2015. The effects of the economic and financial crisis were extremely tough in the industrial economy, and the relative share of the industrial sector in EU was under decline during the recession (Eurostat, Regional Yearbook: 130). The economic crisis that occurred immediately after Romania's accession to the EU also affected the processing sector of our country, yet the effects across regions were different depending on the integration, connection degree of different regional industries to the European and world industries. Thus, at the level of the three categories of regions, classified by the rurality level, there are disparities in the structure and structural changes in GVA formation, the most affected being the predominantly urban regions, whose industrial activities were connected to a larger extent to the European economy.

For the predominantly urban regions, the tertiary sector had the greatest contribution to GVA formation (more than 65%). The deeper specialization of these regions in economic sectors with high value added led to the increase of their contribution to national GVA. Thus, after the accession to the European Union, we can notice an increase of the concentration of the *financial sector and professional scientific and technical activities* in these regions. While in the year 2006, Bucharest and Ilfov county cumulated 55% of GVA created in the *financial* sector and 47% of GVA in the sector of *professional, scientific and technical activities*, in the year 2014 the contribution of these regions reached 72% and 53% respectively.

The secondary sector contribution to GVA formation in the predominantly urban regions followed a decreasing trend after the accession to the EU (from 19.5% to 17.6% for *industry* and from 10.1% to 7.5% for *constructions*). The secondary sector in these regions was deeply affected by the economic crisis in the context of interconnection with the European economy (Zaman, Georgescu et al., 2015: 289). The primary sector had a non-significant contribution to GVA formation in these regions.

For the regions with various rurality degrees (intermediate and predominantly rural), the most important contribution to GVA formation came from the tertiary sector, mainly the trade and trade related activities (transport, HORECA system). As far as the rurality degree increases, the tertiary sector contribution to GVA decreases. After Romania's accession to the EU, the changes in the structure of the economies of regions with different rurality degrees have had certain similitudes and differences that will be next highlighted.

The similitudes are the following: i) *stopping the decline of the primary sector*, whose contribution to regional GVA formation got stabilized around 6% for the intermediate regions and 10% for the predominantly rural regions; ii) *expansion of the sector of public services* (administration, defense, education and health care) *as well as of the sector of financial services and technical support* (which can facilitate the access to financing of the economic operators, as well as their access to innovation – as the main pillar of competitiveness growth).

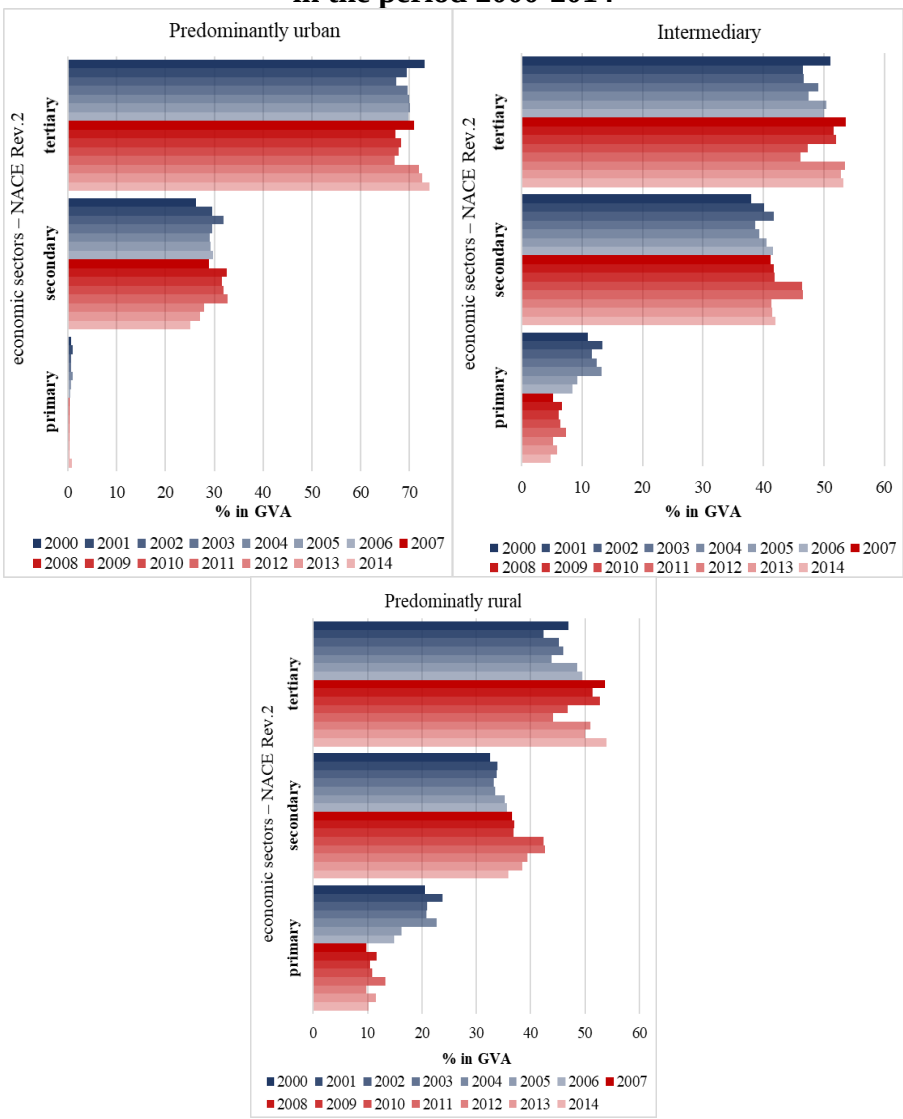
In the case of intermediate regions, after 2007 a major structural change was produced in the regional economy: the deepening of industrial specialization. While in the year 2007 industry contributed by 30% to regional GVA formation, by the year 2014 this percentage increased to 34.6%.

In the predominantly rural regions, the industrial sector had a sinuous evolution, the expansion after the economic crisis being followed by a reverse trend. Thus, while in the year 2011, the industrial sector of these regions reached a maximum contribution to GVA formation of 35.5%, after this moment the trend was permanently decreasing, to reach 29.8% by the year 2014.

It is important to highlight that the predominantly rural and intermediate regions of Romania, through the above 20% shares of the processing sectors in GVA, have reached the targets set out by the European Commission in (COM(2014) 14 final), with the title: 'For a European Industrial Renaissance' by which a 20% target is established for the contribution of European industry to GVA by the year 2020. The same European document mentions the central role of upgrading the industrial base, increasing industrial competitiveness and industrial investments in economic growth and job creation, the decision makers at EU and member states level being invited to work towards stimulating growth in the processing sector. In Romania, after the economic crisis, the only regions for which the importance of industry in GVA increased are the intermediate regions, while in the predominantly urban and

predominantly rural regions, a contraction of the industrial sector has been produced, contrary to the European convergence desiderata.

Figure 5.11. Modifications of the contribution of economic sectors to GVA formation, by categories of regions, in the period 2000-2014



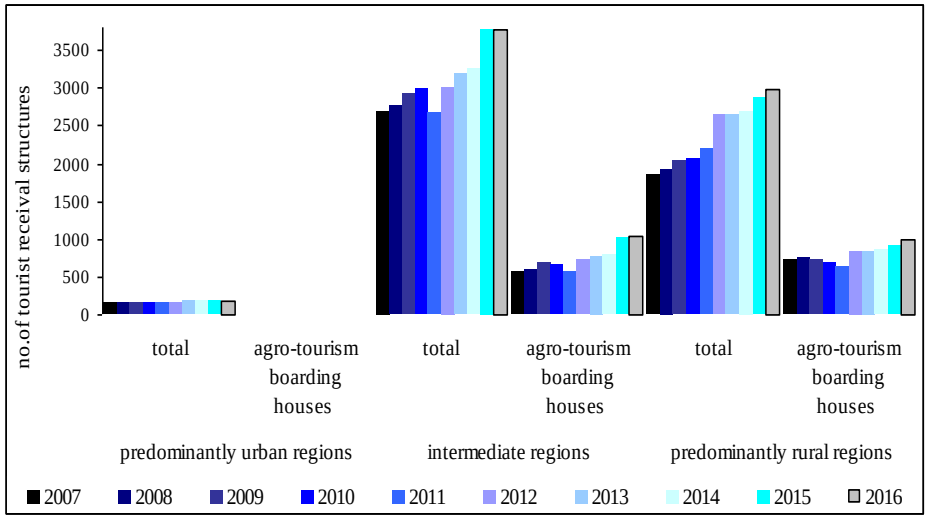
Source: EUROSTAT

<u>Tourism activity – support for the diversification of rural economy.</u>
The tourist accommodation capacity in service at the level of the whole

country had an ascending evolution in the period 2007-2016, due to the increase of the number of tourist receival structures, as well as to the number of days when the units in the respective period are open. The positive evolution of these indicators may be also a consequence of the access to EU funds.

In the period 2007-2016, nationwide, the number of tourist receival structures increased significantly, from 4694 to 6946 (48%). The number of these structures increased the most in the predominantly rural regions (1.6 times) followed by the intermediate regions (1.4 times).

Figure 5.12. Evolution of the total number of tourist receival structures and agro-tourism boarding houses, by types of regions, in the period 2007-2016

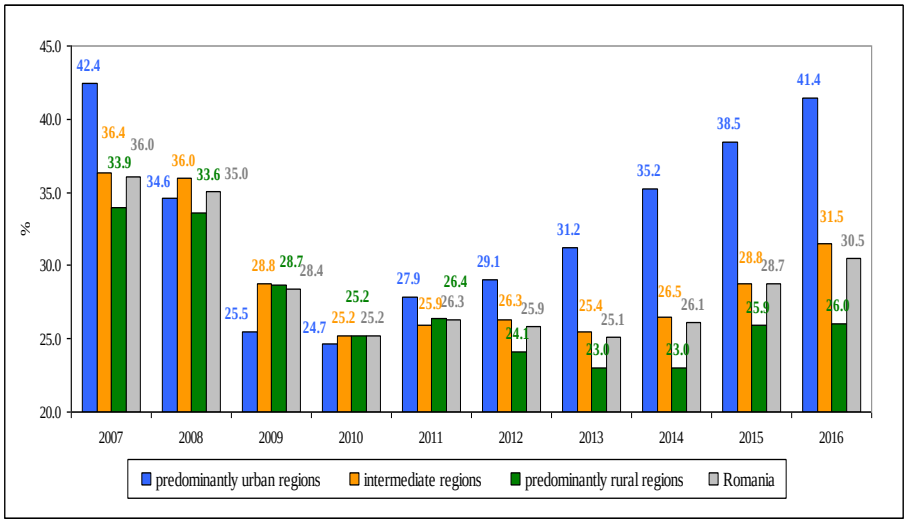


Source: author's processing of NIS data, Tempo Online database

In total tourist receival structures, the agro-tourism boarding houses[61] represented an important segment, accounting for 27.5% in 2007 and 29.2% respectively in the year 2016.

[61] The agro-tourism boarding houses were the favorite business of those who used EU funds under the National Rural Development Program. Under NRDP 2007-2013, Sub-measure 313 "Encouraging tourism activities", investments could be made both in new tourist receival structures and in upgrading and expanding the existing structures.

Figure 5.13. Net utilization index of the tourist accommodation capacity in service, by types of regions, in the period 2007-2016



Source: author's processing of NIS data, Tempo Online database

The utilization of the tourist capacity in service, expressed by the net utilization index of the tourist accommodation capacity was 36% nationwide in the year 2007. In the predominantly rural regions the lowest value was found (33.9%), while the predominantly urban regions had the highest value of this index (42.4%), higher than that at national level. In the following years, the net utilization of the accommodation capacity in operation decreased, with the lowest values of this index in the year 2010, both at national level and in the three regions. The predominantly rural regions were the most exposed to decline, throughout the period.

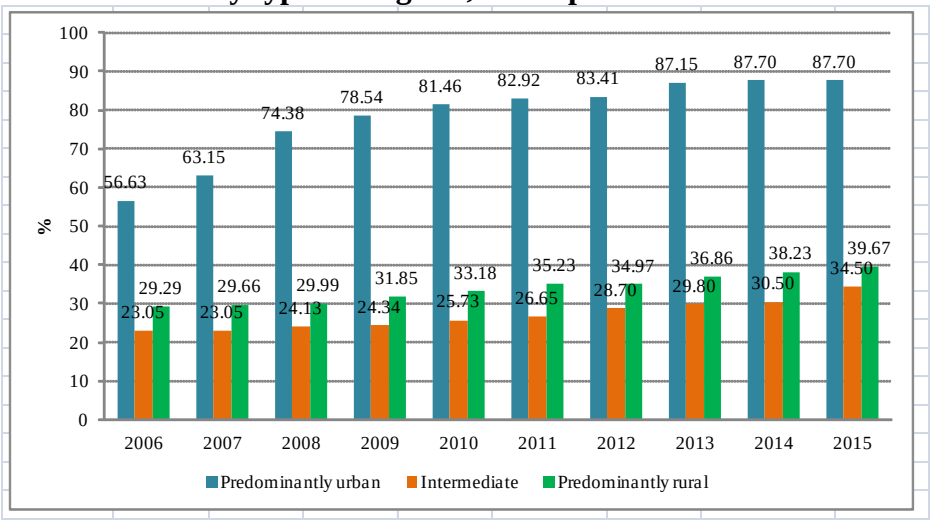
In the year 2016, the utilization of the tourist accommodation capacity, both nationwide and by types of regions, was lower than in the year 2007. This was the result of the economic crisis that implicitly affected the tourism sector, which is still under recovery.

Infrastructure – support for rural development. Analyzed in relation to the rurality degree of the territory, Romania's technical and transport infrastructure has undergone significant structural changes, with a direct impact on the general economic development level and on the living standard in the rural communities.

As a first indicator of road infrastructure, the road length at national level totaled 85920 km in 2015. The largest part of the road network (57.12%) was located in the predominantly rural regions, while the smallest part in the predominantly urban regions. After Romania's accession to the EU, the growth rate of road infrastructure has accelerated. Compared to the year 2006, except for the urban regions, road infrastructure followed an ascending trend: 8.52% in the predominantly rural regions and 6.28% in the intermediate regions.

In the year 2015, the length of modernized roads summed up 32648 km at national level (38.00% of total length of road network). In the intermediate and predominantly rural regions, the share of modernized roads was under 40% throughout the entire post-accession period (2007-2015). However, in this period, the trend was increasing by all types of regions: the increase had an average annual rate of 4.72% throughout the period 2006-2015, situation that can be explained by the attraction of foreign financial sources for the development of transport infrastructure.

Figure 5.14. Evolution of the share of modernized roads in total roads by types of regions, in the period 2000-2015



Source: author's processing of NIS data, Tempo Online database

In the post-accession period, the process of expanding the drinking water supply network is also worth noting, with average annual growth rates ranging from 3.71% (in the predominantly urban regions) to 5.25% (in the predominantly rural regions). In the year 2015, the drinking

water supply network totaled 76945 km nationwide, double compared to the year 2000; this situation was also found in the predominantly rural regions. In fact, these regions had also the highest annual growth rate.

The period 2000-2015 is also characterized by the increasing trend of the number of localities connected to the drinking water supply system, both at national level (+59,2%, i.e. from 1355 in 2000 to 2157 in 2015), as well as by types of regions. Compared to the 791 localities from the predominantly rural regions connected to the drinking water supply network in the year 2000, the number of the localities increased to 1246 in 2015, up by 57.5%; this percentaget was exceeded only by the intermediate regions (63.2%) in the reference period.

The sewerage network has been expanded significantly both at national level and by types of regions. Thus, the sewerage network increased by 93.9% nationwide (i.e. from 16.3 thousand km in 2000 to 31.7 thousand km in 2015), this trend being also followed by the three types of regions, with different intensities.

In dynamics, in the investigated periods, the sewerage network has been averagely expanded at an average annual growth rate ranging from +3.6% (in the intermediate regions) to 6.4% (in the predominantly urban regions), while in the predominantly rural regions the percentage stood at 5%. As percentage in total sewerage network, the predominantly rural regions increased in share by 2.7 %, i.e. from 38.1% (2000) to 40.8% (2015), while the intermediate regions diminished their specific weight from 50.5% (2000) to 44.2% (2015).

In relation to the number of rural localities connected to the sewerage network, this was double in the year 2015 compared to the year 2000, from 375 localities (2000) to 809 localities (2015). In the predominantly rural regions, the process of connecting the rural settlements to the sewerage network was more pronounced, exceeding the national average by 11 %.

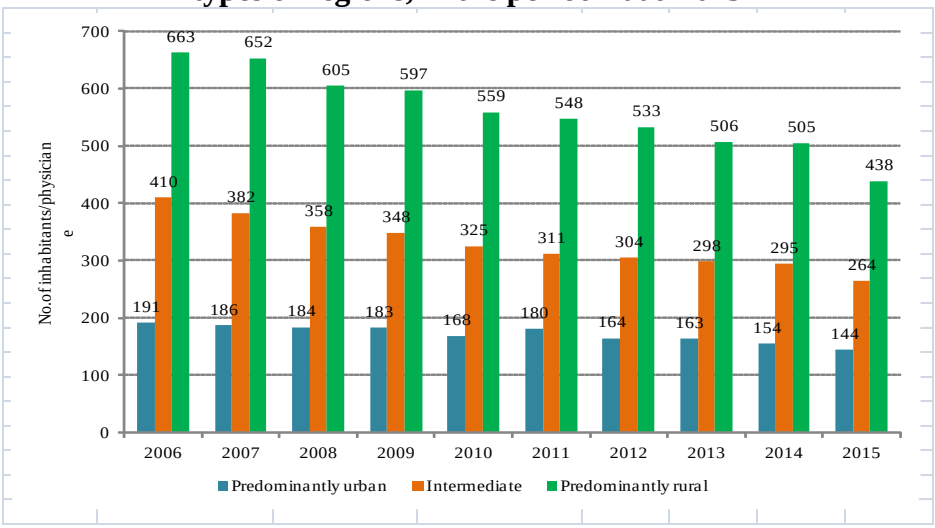
Summarizing the above-mentioned aspects, we can state that the technical and transport infrastructure is under continuous modernization process, with a direct effect on local development. However, there are significant inter-regional gaps, motivated either by the non-existence of sufficient financial sources or by the investment opportunities in certain areas. The assessment of the necessity to extend the technical infrastructure, mainly the public utility infrastructure, should consider, among other things, the inhabitants' ability to bear the connection and usage costs. On the other hand, the expansion and modernization of technical and road infrastructure is part of the overall economic

development, creating both jobs for the population and mainly value added, by considering the economic activities that can be developed at zonal level (locally, regionally).

As a priority focused on the national reality and traditions, providing high quality healthcare services, able to transpose the most recent research results in this field into clinical applications, focusing on prevention and improvement of public health, should represent one of the central priorities of any system viewed in its entirety.

Under the background of a slight decreasing trend of the population number and of increasing the number of physicians, the number of inhabitants per physician decreased nationwide in 2015 as against 2006, by 37.8%, i.e. from 464 inhabitants per physician (2000) to 288 inhabitants/physician (2015), which was a noticeable situation at the level of investigated types of regions as well.

Figure 5.15. Evolution of the number of inhabitants per physician, by types of regions, in the period 2006-2015



Source: author's processing of NIS data, Tempo Online database

By the three types of regions, the predominantly rural regions had the most significant decrease, in absolute value: from 663 inhabitants per physician, in the year 2006, to 438 inhabitants per physician in 2015. However, in the predominantly rural regions, the access to specialized healthcare is limited by comparison with the intermediate and predominantly urban regions, where the number of inhabitants/physician is almost double.

Although Romania has benefited from several strategies, and numerous governments have declared education as national priority, the education system suffers from chronic underfunding. In the year 2015, Romania allocated 3.2% of GDP to education, which is a much lower value than the EU average (4.9%). In fact, this situation was a constant of the post-accession period and placed Romania on the last place among the EU member states. Although, by the Law on Education of 2011, a target of 6% of GDP was established for the public education expenditure, this provision has not been materialized so far, affecting the schools from the regions with the highest rurality level in the first place, which have the highest level of poverty exposure and where neither the local authorities nor the parents have necessary financial resources to support the education system.

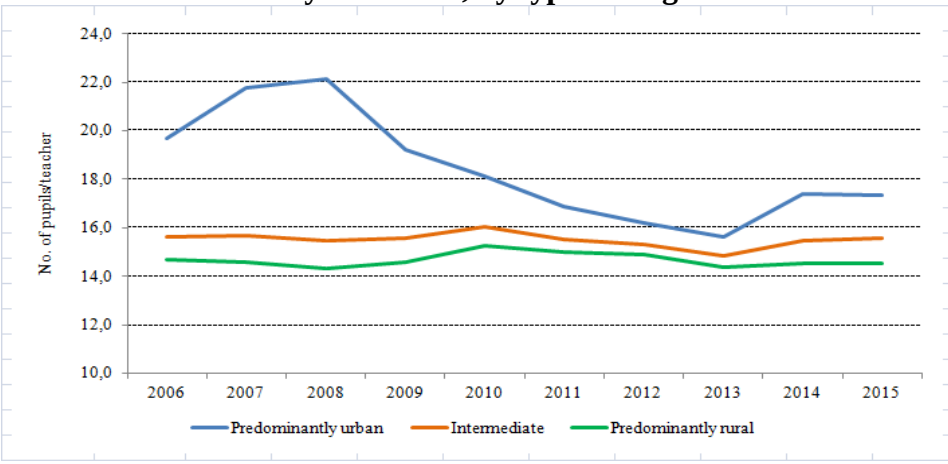
The total volume of school population (3.6 million pupils and students in the year 2015) was mainly concentrated in the intermediate regions (47%) and in the predominantly rural regions (39%) (NIS, 2017). In the period 2006 – 2015, school population decreased, both nationwide (by 16%), and by the three types of regions. The predominantly rural regions, except for the post high school and foremen education[62], experienced a significant decline of the number of school population by all education levels. On the contrary, the predominantly urban regions had positive trends in the pre-school and primary education, with strong decline in the case of high school and vocational education. This decreasing trend of the school population is a direct effect of the demographic evolutions – birth rate decrease and migration rate increase.

The present education system is facing not only a dramatic decline in numbers but also serious efficiency, equity, quality and relevance problems for the economy of knowledge (Stanef, 2013). The legal access to quality education of young people represents the basis of inclusive development, yet in Romania many young people do not have basic competences: according to the Program for International Student Assessment (PISA), almost half of the Romanian pupils (40%) do not have the basic cognitive skills they would need for productive employment (OECD, 2016).

[62] In the context of adopting certain measures regarding the post-high school and foremen education, several pupils followed this study path: in the year 2015, 99,476 thousand pupils got enrolled, by 61,779 thousand more than in the year 2006. Yet this is the educational level that is the least represented in total school population (2.73%).

The indicator number of pupils per number of teachers is used to measure the level of human resources allocated, in relation to the number of pupils. From the analysis of statistical data, one can notice that the number of employed teachers has annual oscillations. The decrease in number of teachers that has been produced as a reaction to the decrease of school population enabled to maintain a relatively stable teacher-pupils ratio, slightly above the EU average. The quality of the educational process is not reflected only by this indicator, but is considered in the context of differences in the training / qualification of teaching staff, pedagogical training, experience and status of teaching staff, teaching methods, available teaching aids, etc. (Apostu et al., 2015). In general, the basic training of Romanian teachers is deficient compared to other EU member states, mainly in terms of pedagogical practice and practical activities (Velea and Istrate, 2011).

Figure 5.16. Evolution of the number of pupils per teacher in pre-tertiary education, by types of regions

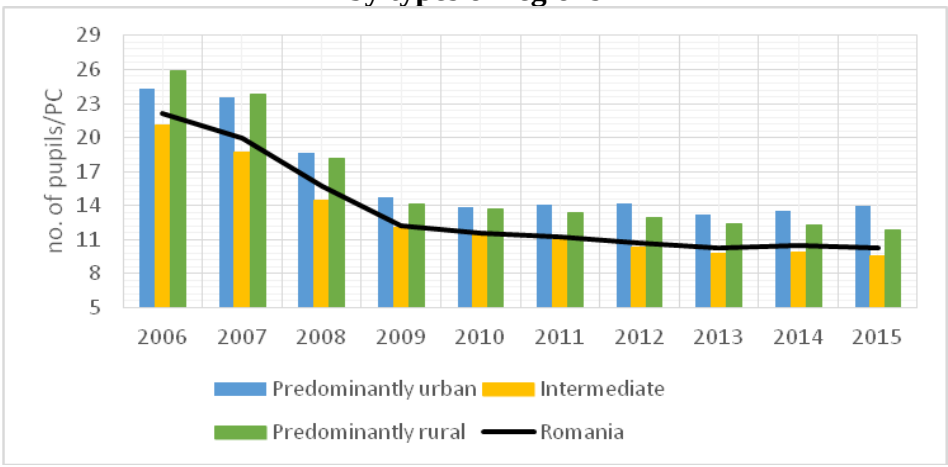


Source: author's processing of NIS data, Tempo Online database

The educational infrastructure analyzed in terms of pupils and students per personal computer makes it possible to assess the quality of the teaching process, from the perspective of providing the necessary material base. The indicator reveals that the predominantly rural regions have a weaker educational infrastructure than the other categories of regions. This situation leads to a lower training level of rural young people, which adversely impacts the social and economic development of human capital as well as the social inclusion. The deficient funding of the Romanian education system is among the most important causes of this

situation. Furthermore, in the case of predominantly rural regions, the public administrations have a limited capacity to access and manage European funds and investments.

Figure 5.17. Evolution of the number of pupils/PC, by types of regions



Source: author's processing of NIS data, Tempo Online database

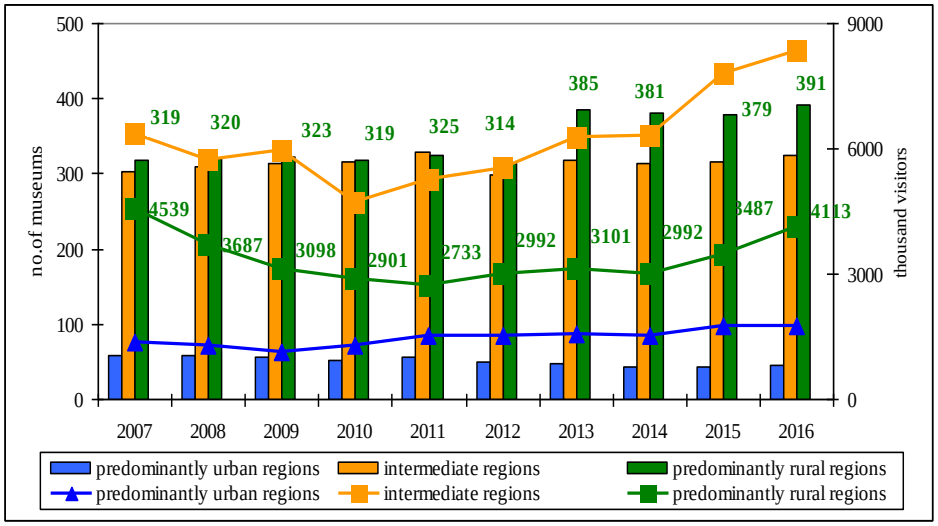
In conclusion, in the ten years of EU membership, although progress has been made with regard to the participation, performance and endowment level in education, the results are significantly influenced by the residence area, and they are obviously to the disadvantage of the predominantly rural regions.

In the post-accession period, the greatest number of museums and public collections were found in the predominantly rural regions. The physical or legal entities that had into ownership or administered cultural heritage objectives of local interest, with the support of non-refundable funds[63] could establish public or private collections in their own houses of in renovated buildings dedicated to this purpose. *In the predominantly rural regions the number of museums and public collections increased from 319 in 2007 to 391 in 2016, so that in the year 2007, more than 47%, and in 2016 more than 51% of the national museums and public collections were found in these regions.*

[63] The NRDP funds, Axis 3, sub-measure 322 "Village renewal, development, improvement of basic services for the rural economy and population, and valorization of rural heritage" contributed to the increase of the number of rural patrimony objectives.

While the number of museums and public collections followed an ascending trend, the number of visitors had a decreasing trend in the predominantly rural regions in the investigated period.

Figure 5.18. Evolution of the number of museums and public collections and visitors by types of regions, in the period 2007-2016



Note: the columns represent the number of museums, the lines represent the number of visitors

Source: author's processing of NIS data, Tempo Online database, accessed June 2017

In the investigated period, there were years when the spectators and auditors were present in a large majority at cultural events organized in the predominantly rural regions. For instance, the cultural events and the artistic representations organized in these regions attracted more than 65% of the spectators and auditors at national level in the year 2012.

In Romania, culture financing from public and private funds has been insufficient so far and has not always been based on coherent programs on longer terms. The EU countries attach great importance to the development of cultural and creative industries, this domain enjoying increased attention from the European Commission, both in the past and now, through the special support program that began in the year 2014 (Towards an integrated approach to cultural heritage for Europe).

The cultural heritage must be protected, this being an additional aspect to the capitalization of the national heritage, by restoring the

pieces found in inadequate conditions to be integrated into the tourism circuit, to which tourist access improvement measures are added, through the physical infrastructure and adequate promotion measures.

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5.2. DEVELOPMENT OF HUMAN AND LABOR CAPITAL IN THE VILLAGES BEFORE AND AFTER THE ACCESSION OF BULGARIA TO THE EU Minka Anastasova-Chopeva

Introduction

In rural areas, the total population is irreversibly and permanently declining both in the period before our EU membership and after that period. The rate of decline is almost unchanged. According to the National Statistical Institute (NSI), every year since 2008, until 2017. villages lose their human potential by approximately 1.6% - 1.7%. This negative process has a long-standing story that dates back to the last century and continues so far. There is a continuing deterioration in all demographic indicators related to age, natural and mechanical growth, mortality rates and birth rates, educational level, etc. In all these characteristics the rural population lags behind the urban one. The reasons for the unseen demographic situation in the villages are similar in the different periods.

The deteriorated demographic situation of the Bulgarian villages is not a good social basis for the formation of the necessary labor potential in rural areas. There is a steady decline in the number of people of working age.

Enduring the employment of rural population in working age is a priority task for the social policy of the state. Formation of sustainable work habits and motivation for work is related to the opportunity provided for development in the field of work, with the jobs created, with the development of small and medium-sized businesses in the villages and last but not least with the diversification of the local economy. Moreover, the provision of conditions for acquiring additional professional qualifications or retraining is an important factor in improving the competitiveness of the labour market for those who have decided to make their living in rural areas.

Employment and economic activity are one of the main factors for the employment and social status, income and well-being of the rural population. Certainly, it can be argued that socio-economic conditions of life force in the field of labour some persons to seek out their development whose education does not allow them to devote their labour in the area of agricultural activity and therefore they have to acquire new knowledge and skills. This is particularly valid for those who are moving from the city to the villages, some of whom are former residents, and

after retirement they return to their native places. Another part, though insignificant, is the relatively younger groups, for whom the hectic and dynamic way of life in the town motivates them to choose the tranquillity and natural way of life in a village.

Taking into account the negative demographic processes, the labour force situation in the villages, the changes in the employment of the rural population during the period 2003-2016 are examined depending on basic socio-demographic indicators are assessed. The role of the Lifelong Learning Program (LLP) for better career development on the labour market in the villages and the participation of the rural population in the different forms of education and training is revealed. Trends and factors effecting level of unemployment change in the villages are examined.

Metodology and data

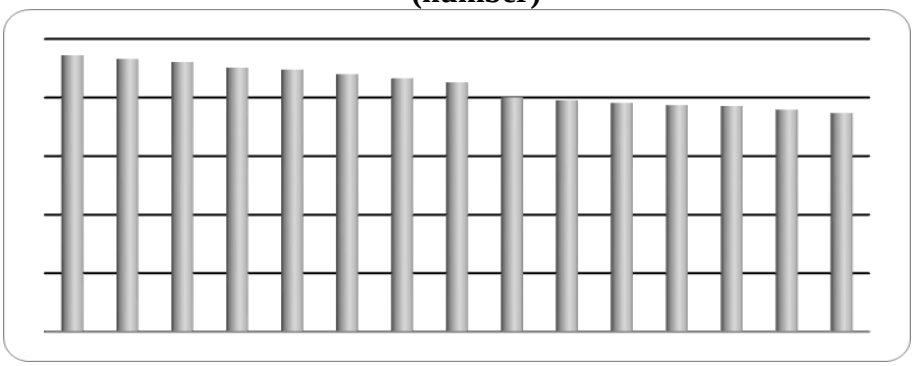
The methods of comparative and dynamic analysis, statistical grouping and variance analysis are applied. Data from officially published NSI publications were predominantly used, some results from nationally representative empirical studies conducted by a team of the IAE, with team leader prof. D. Nikolov "Farms investment behaviour under different development policy scenarios" (2007) and "Impact of investment support on farm economic viability" (2016) as well as information from officially published reports from the National Agricultural Advisory Service (NAAS).

General analysis of demographic developments in villages

As early as the 60s-70s of the last century there was a powerful migration wave from the villages to the cities connected with the intensified industrialization of the country. This resulted in a drastic decline in the rural population and the depopulation of entire villages (especially in mountainous and semi-mountainous areas). Subsequently, the intensity of intra-migration movements is gradually dwindling, but negative demographic processes continue to this day. Dynamics of the change in the number of rural population since 2003. is now outlined in Figure 4.31.

Obviously the continuing decline of the rural population - from nearly 2 million and 600 thousand people in 2003 it drops below 2 million in 2017(1868279).

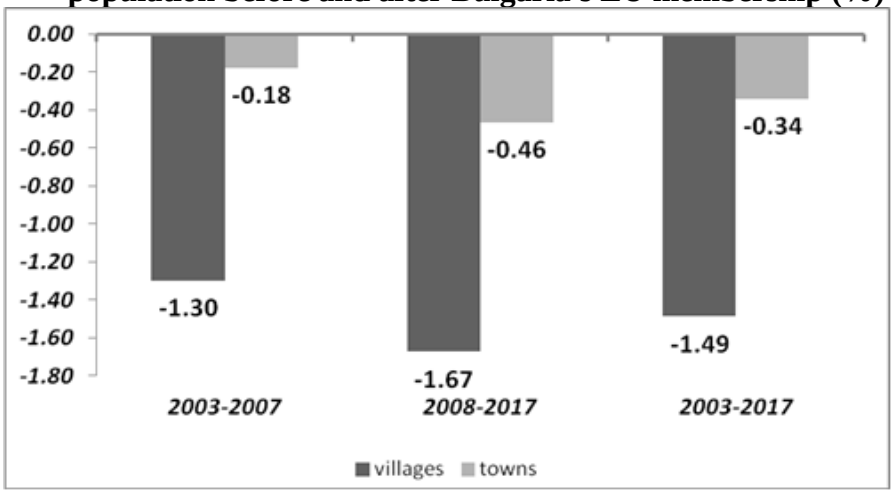
Figure 5.19. Change in the size of the rural population in 2003-2017 (number)



Source: Own figure with NSI data

The demographic crisis in the Bulgarian villages is part of the general demographic crisis in the country. However, the rate of population decline in cities and villages is different, as can be seen in Figure 4.32.

Figure 5.20. Average annual rate of decline of the rural and urban population before and after Bulgaria's EU membership (%)



Source: Own figure with NSI data

The analysis of the data in the above graph shows that there are significant differences between the rates of decline of the population in the villages and the cities. It is most pronounced in the period 2008-2017, where the difference for the benefit of the urban population is greatest. On average, for the entire period (2003-2017), villages lose almost 1.5% of the population, and the towns - by 0.34%. An acceleration of this

negative process has been observed in 2008-2017 compared to 2003-2007. This is due to the increased migration abroad in recent years. On average, for the period 2010-2017, the country has dispatched about 7,000 people abroad, a per cent of the villages less than 2,000 people (1870).

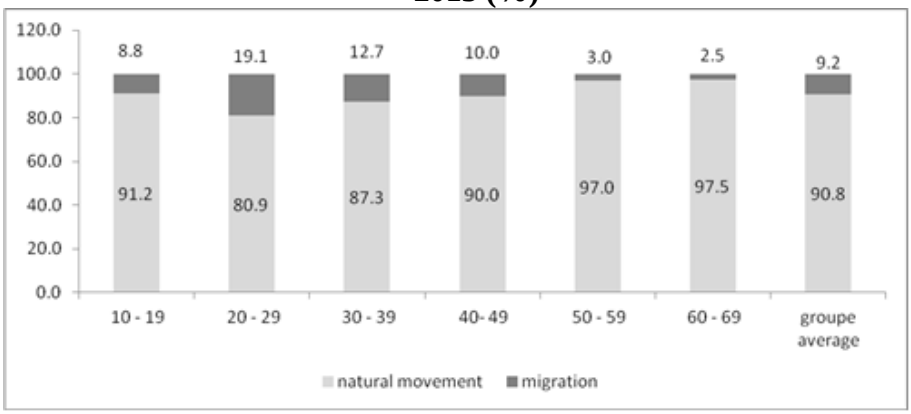
The process of reducing the rural population is accompanied by a severe deterioration of its age structure. The age dependency ratio is 63.07% vs. 39.01% of the urban population, the average life expectancy in the villages is 71.5 years, versus 73 years in the towns, and the average age of the rural population reaches 45, 4years against 39.9 years in the towns. The aging process is even more pronounced in women, which disturbs gender balance in individual age groups. The share of persons with reproductive capacity is particularly low, which is the main reason for the large negative natural population growth in the villages. In 2010 the natural growth in the villages is minus 12.1 ‰ and in 2017 it is already minus 13.5 ‰.

Intra-migration processes as well as migration abroad also influence the quantitative and qualitative characteristics of human potential in the villages, Although the main reason for the continuing trend of the permanent decrease of the rural population is mainly related to the negative natural growth, the processes of the internal leakage of people from the villages to the towns in the country and beyond continue in 2003-2016.

The processes of domestic outflow of people from the villages to the cities and abroad continue at present, but compared to the natural movement of the rural population, they remain second. The influence of the "negative natural growth" factor on the migration of the population is increasing. During 2003-2006 in the structure of the main causes of the demographic decline in the villages the natural growth is about 70%, while in the period 2007-2016 this share reaches almost 83% (Figure 4.24). The predominant role of the negative natural growth is determined by the strongly deteriorated values of the demographic indicators.

The natural demographic processes (nearly 9 times larger than migration), associated with corresponding high mortality rates and low birth rates, have a much greater significance for declining human resources in rural areas. The relative share of natural growth reaches an impressive value of 91%, while the mechanical movement factor accounts for about 10% of the further decline in rural population.

Figure 5.21. Structure of the natural growth and the migration in the total change in the number of rural population in Bulgaria in 2007-2013 (%)



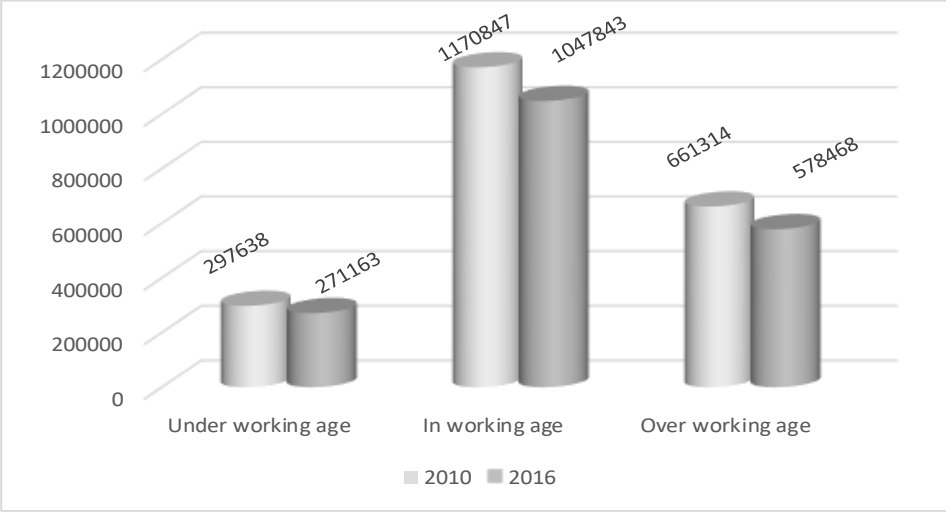
Source: Own figure with NSI data

The analysis shows that there are some differences between the groups, for example, it is quite clear how younger contingents have the importance of migration than those aged over 50. This is most pronounced in the age group of 20 to 29, where the mechanical movement forms about 1/5 of the population decline. At the same time, as age increases, dampening migration processes account for only 3% of the rural population aged over 60.

Development of labour force in villages

Trends in development and formation of the rural labour force are largely in line with demographic processes in rural areas. State of deteriorated age structure of the population in the villages has a negative impact on quality and number of the labour force. Despite the absolute reduction of labour potential in the villages, relative share of working population in the general structure of the rural population remained at almost the same level, even slightly increasing (from 54.8% in 2010 to 55.2% in 2016). The very slight positive change is due to the fact that the upper limit of the category of "working population" has been expanding over the years with gradual increase in retirement age. Therefore, it is more appropriate to use the absolute rather than the relative statistical indicators in the analysis (Figure 4.34).

Figure 5.22. Rural population below, at and above working age for the period 2010-2016 (number)



Source: NSI

Analysis of the data in the figure above shows that there has been a decrease in the number of persons in all categories. The absolute size of the decline in the number of working people is 123 000, or the villages lost 20 500 of their labor potential per annum. It is necessary to conclude that the reduction of the labor force in the villages continues to go along with socio-economic development of the rural areas in Bulgaria. According to official statistics, in 2016 the value of the employment rate in rural areas amounts to 37.1% and it is significantly lower than urban employment rate (53.8%).

Nevertheless, a positive moment in development of the labor market in villages during period 2003-2016 is increase in the employment (Table 4.12).

The data in the table above show total employment for all age groups in 2016 increased by 12.4 compared to 2003. There are uncertain trends in the development of rural employment in almost all age groups. At the beginning of the first programming period of Bulgaria's EU membership, there has been an increase in employment for both youngsters up to 24 and for the elderly. This is related to the hopes for an expected positive development of the potential of the Bulgarian villages through measures set out in the Program for Rural Development (RDP 2007-2013). In response to the incentives for the development of a modern farms and the diversification of the rural economy, which have been set in this program, the initiative and entrepreneurial beginnings

among the rural population and migrants from towns to the villages increased.

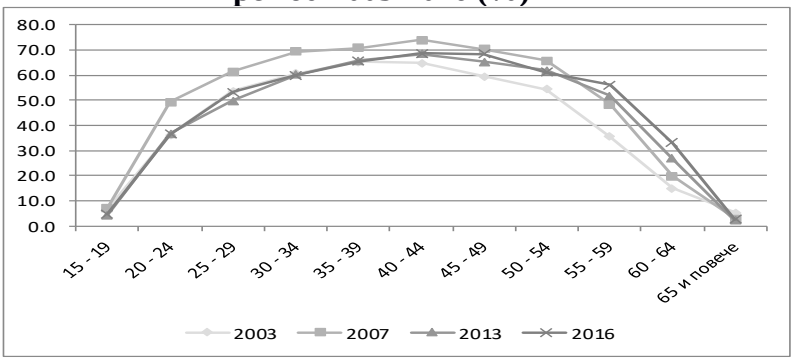
Table 5.2. Alteration of the employment rate by age groups in villages during the period 2003-2016 (%)

Age groups	2003	2007	2013	2016
Total	33.0	37.3	35.6	37.1
15 - 19	6.9	7.2	4.2	4.9
20 - 24	36.2	49.4	36.8	36.5
25 - 29	53.7	61.5	49.8	53.2
30 - 34	60.6	69.4	60.2	60.0
35 - 39	65.3	70.8	65.7	65.6
40 - 44	**64.7**	**73.9**	**68.3**	**68.7**
45 - 49	**59.4**	**70.4**	**65.2**	**68.3**
50 - 54	**54.5**	**65.8**	**61.8**	**61.1**
55 - 59	**35.6**	**48.4**	**51.7**	**56.0**
60 - 64	**14.9**	**19.8**	**26.7**	**33.2**
65 and more	5.3	2.8	2.2	2.7

Source: NSI

After the end of the first period (since 2013), the employment rate among younger age groups (under 39 years of age) is decreasing. There is a discrepancy between the expectations for rapid adaptation to the labour market in the villages and lack of real opportunities for young people to develop. In the older population, especially in the 55-64 age group, the tendency to increase employment is still maintained. The graphic of data in Table 4.12. can be seen in Figure 4.35.

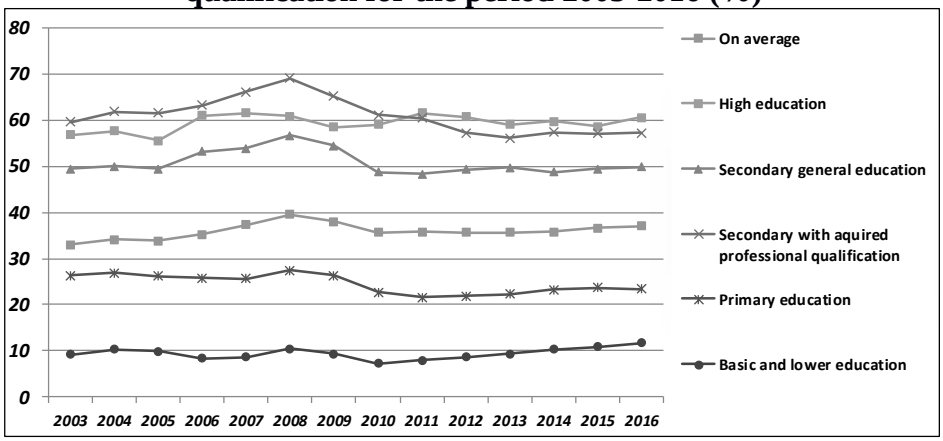
Figure 5.23. Employment rate in villages by age groups for the period 2003-2016 (%)



Source: NSI

It should be noted disparity in the employment among different age groups slightly diminished over the years of the surveyed period and continue to be large. This conclusion follows from the coefficient of variation, which from 54.5% in 2003 drops to 50.6% in 2016. To a significant extent, the level of education and qualification of the employed has a certain role for successful realization on the labour market. This is also true for employment in rural areas. The employment dependence on gained educational and qualification degree can be traced in Figure 4.36.

Figure 5.24. Employment rate in villages by degree of education and qualification for the period 2003-2016 (%)



Source: NSI

The analysis of the data in the graph above clearly shows how the employment of the people with higher and secondary education is above the average total in the villages. This fact is particularly valid for employed persons with acquired professional qualification. Until 2010 they dominate the labour market as in 2008, the peak of employment rate was reached (the employment rate was close to 70%). After 2010 the employment of qualified persons has been offset by the category of higher education. In 2016. the employment rate among them is almost 61%, compared to 57% for the group of persons with acquired professional qualification. This fact can be explained on one hand by the emerging new production and information technologies in the sector, which require the application of new knowledge not only related to agrarian production, but also to management and marketing, agroecology, finance, etc., for which the people with higher education are more prepared. On the other hand, part of the persons with higher education have returned from towns to the villages pensioners. For that reason, the majority of them have higher education, related to labour implementation

extraneous to agricultural activities, yet they are being successful in finding jobs on the labour market in the villages.

The difference between total employment in villages and that of people with a high level of education has remained relatively constant throughout all the years - it is on the order of 23-24%. Opposite to that position is the employment situation of persons with lower education (basic, primary and lower). The employment rate remains below the total employment rate for the whole surveyed period. Especially low is employment among people with the lowest education, for whom it is only 9-12%. Employment disparities in terms of level of education are significant, which is more strongly statistically evidenced by the high values of the coefficient of variation, which is maintained in the years at a level of approximately 50%.

It should be noted that there is a noticeable increase in employment between 2003 and 2008 when the overall employment rate of 33% was reached almost 40% and only the persons with higher education from 56,9% in 2003 to 61% in 2008. Overall, it can be summarized that during the years 2003-2016, rural employment alteration for individual categories of people is fluctuating. Generally, at the end of surveyed period, the level of total employment is slightly higher than that at its beginning - by only about 4%. Among the main reasons for this situation are the limited number of jobs opened in the villages, the lack of opportunities for work different than agricultural employment and others.

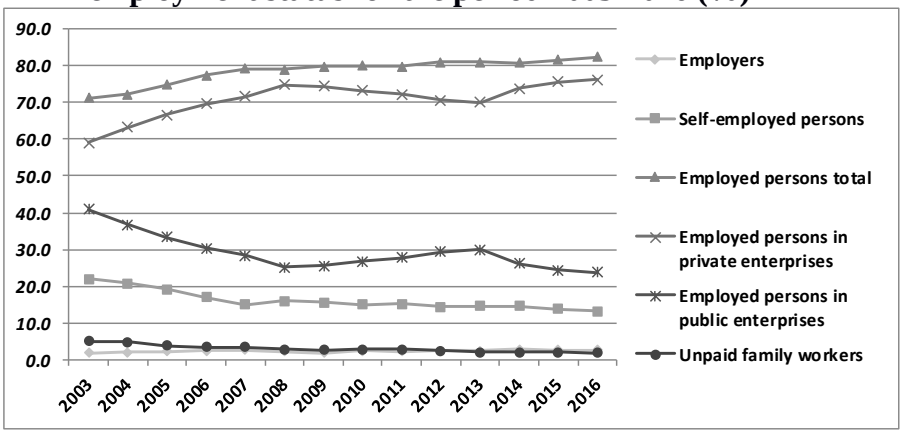
Proof of this is preservation of employment in the agricultural sector and related activities as the main source of income in rural households, which can be found in the following researches: “Farms investment behaviour under different development policy scenarios”, (2007) and “Impact of investment support on farm economic viability”, (2016). As a result of the empirical data obtained, the share of households relying mainly on employment in agriculture and related activities amounts to 87.8% in 2007 and to 88.6% in 2016, i.e. remains approximately unchanged. Activities related to agriculture are those about processing of agricultural produce, provision of agricultural services, development of rural tourism and others. Non-agricultural activities are mainly related to employment in sphere of social services, trade and others. Around 11-12% of rural households count on non-agricultural employment as main source of income. It is obvious that the process of diversification of economic activities in the villages since our accession to the EU so far has been slow and uncertain.

In support of that conclusion are results obtained about attitudes of the farmers towards measures under the RDP in the period 2014-2020 in the project "Impact of investment support on farm economic viability".

The interest in investment measures related to the main agricultural activity and the modernization of agricultural holdings (57.2%) stands out very distinctly compared to other investment measures in processing, marketing and other non-agricultural activities. The share of farms interested in different types of measures supporting investments for the development of non-agricultural activities is below 10%. In practice that means in the coming years no major changes are expected in the diversification of the rural economy and hence in the additional jobs creation out of sphere of agriculture in the formation of the labour market in the villages.

During the period 2003-2016, there are some interesting trends in rural employment depending on its status (Figure 4.37.).

Figure 5.25. Relative share of employed persons in villages by employment status for the period 2003-2016 (%)



Source: NSI

Employed work force has a dominant and strengthening role in all the years. The relative share of people employed in the villages increased by almost 10% (from 71.3% in 2003 to 82.4% in 2016). Leading role of private sector in recruitment process is retained and growing from 59.1% in the structure of total employment to 76.2% respectively in base and accounting years. Relevant to that, in the villages, share of employed in the public sector decreased significantly from 40.9% to 23.8%. A positive moment in the development of the labour market is an insignificant increase in the share of employers (compared to total number of employers in the villages). Nevertheless, it remains symbolic about 2.5% in 2016 in comparison with 1.8% in 2003. It is essential, the unpaid

family labour force is reduced 2.6 times and its share in 2016 is already below 2% (1.9%).

The downward trend in the unpaid labour of family members employed on the farm is an indication of the need to introduce fairer financial mechanisms to take account of labour input from family labour force. This is in line with fall in the range of self-employed group from 22% to 13.2%. It can be concluded that in the villages there are weak beginning of positive changes in the structure of the employed according to the employment status. Incentives to develop a stand-alone agrobusiness or other business are not yet fully exploited and wage labour remains the main form of employment in 2003-2016.

Activity of rural population in the Lifelong Learning Program

An important prerequisite for better labour utilization is participation of the rural population in program Lifelong Learning Program (Resolution of Council of Europe on Lifelong Learning - 2002 / C 163/01). This program is accentuated as a key factor in achieving the overall goal of the European Union (Lisbon European Concil, 2000) - to "become the most competitive and dynamic knowledge-based economy in the world capable of sustainable economic growth with more and better jobs and greater social cohesion". Lifelong learning includes various forms of formal, non-formal and informal education and training by the working population. In order to assess participation of the working age population (25-64) in lifelong learning between December 2011 and January 2012, a national representative survey was conducted among 25-64-year-olds by the National Statistical Institute. A wide range of topics are covered: participation in various forms of education (formal, non-formal and informal), use of languages, access to information about education and training opportunities, visits to cultural events and participation in community activities (Table 4.13).

The analysis of the data in Table 4.13 shows certain differences between town and village in terms of activity in formal and non-formal education. The rural population is lagging behind in the process of constantly improving knowledge, skills and competence, both from a professional and general interest, for personal and social purposes. The lowest is share of people in villages who participated in formal education and training system, less than 1%. The reason is that persons in active working age (25-64 years), especially from villages, compared to young people at typical school and university age (7-24 years), are much less likely to fall upon school or student bench. Urban residents are more

active and with greater ability to participate in non-formal learning about 26.2% versus 18.9% for rural residents.

Table 5.3. Inclusion of population ages 25-64 in lifelong learning by towns and villages in 2011 (%)

Forms of education, training and self-improvement	**In towns**	**In villages**
Participation in formal education	2.8	0.9
Participation in non-formal education	26.2	18.9
Participation in self-education and training	13.4	7.9
Searching for information about education and training opportunities	8.8	3.1
Individuals who have found information about education and training opportunities	90.7*/	82.9*/
Use of foreign languages	44.2	23
Individuals who attended cultural events in the last 12 months prior to the survey	37.7	15.8
Participation in at least 1 community service in the last 12 months prior to the survey	15.8	22

Source: NSI

*/ Relative share is comparable to the total number of persons who were looking for information about opportunities for education and training

It should be noted that after 2011 as a result of increased activity under measure 111 "Vocational training, information activities and dissemination of scientific knowledge" of the RDP there is an increase in participation of present and future farmers in professional courses, seminars, training workshops and the like. According to data from the National Agricultural Advisory Service (NAAS) at Centre for Vocational Training at NAAS, 2933 farmers and other persons have been trained by the end of 2016 (annual report on NAAS activity for 2016). In addition to raising the knowledge and skills of farmers, successful completion of some of the training courses is a prerequisite for fulfilment of farmers' commitments under various RDP measures. Applying to receive financial support under a number of measures in the RDP requires possession of an appropriate certificate of successful completion of a vocational training course. This is an additional incentive for farmers to take part in formal training. The positive change considered here is in the attitudes towards improvement of qualifications and prequalification, above all among the farmers. With regard to part of the rural population, which is engaged in farming predominantly in order to meet family’s needs of food, these people are

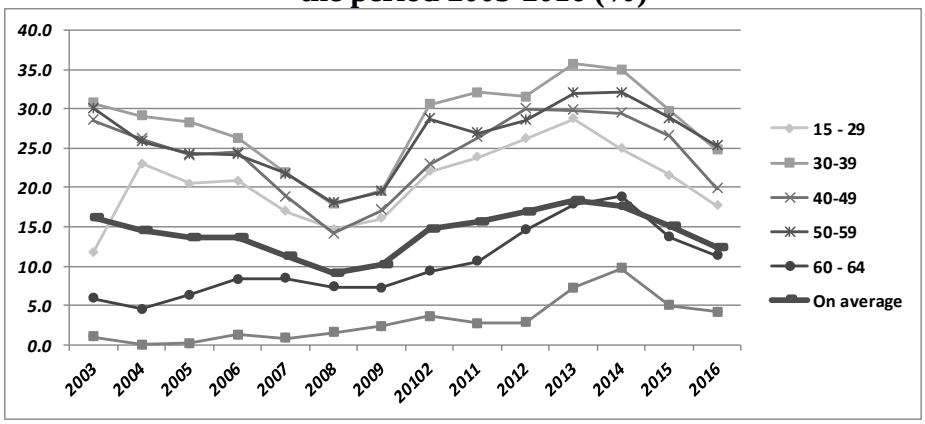
rarely included in formal or informal training. The lack of sufficient information in the villages on the benefits of visiting the working-age population in various forms of training contributes to a certain extent to the existence of observed differences in "town-village" line.

Regarding participation in some form of self-education in order to increase personal knowledge and skills, village residents again lag behind those in the towns. Due to lack of broadband internet network in many villages, the population there cannot benefit from the convenience of one of the most popular forms of self-learning using computer. The use of printed materials (books, textbooks, professional magazines, manuals, etc.) is also not a priority for the rural population. Insufficient participation of the rural population in process of learning and acquiring knowledge and skills through the different forms of the Lifelong Learning Program does not meet the increasing demands for employability in rural areas. This factor, along with massive job closure since the start of the transition period are mainly the reasons for lower employment in smaller communities than in urban areas.

Changes in the level of unemployment in the villages

The labour market survey is supplemented by an analysis of rural employment. Correspondingly to the increase in employment is observed a decrease in the unemployment rate from 16.2 per cent to 12.4 per cent in 2016. (Figure 4.38).

Figure 5.26. Unemployment rate by age groups in villages for the period 2003-2016 (%)



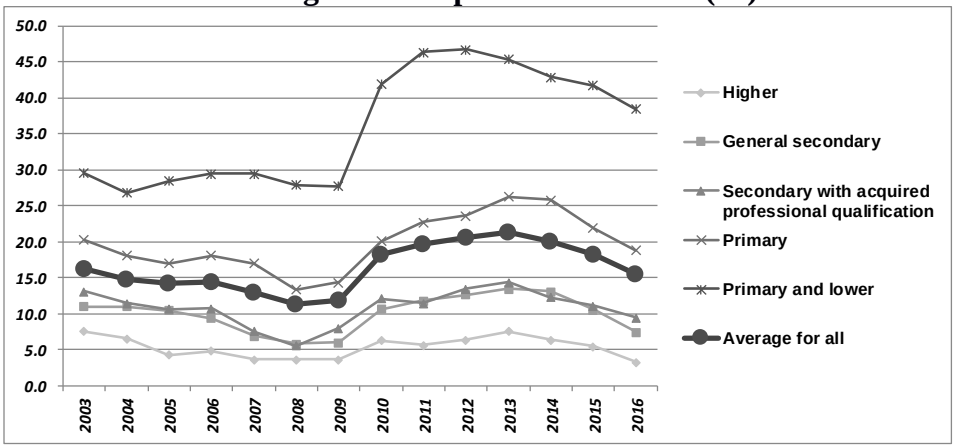
Source: NSI

The data analysis in the figure above shows similar trends in development of unemployment at different ages. The period until 2007-

2008 was marked by a decrease to 9.1%, which is the lowest level for the whole surveyed period. Then, in the context of the global economic crisis and the subsequent massive job closure, not only in rural areas, but they were most affected, there was a sharp rise in the number of unemployed people. That increase was typical for the worsened economic situation and continues until 2013-2014 when the unemployment rate in the villages reaches a maximum of 18.4%. In the last two years, due to revitalization and relative stabilization of economic processes in the country, unemployment has fallen again. The older rural population group in the 60-64 age is the closest to the average unemployment for rural areas. This is due to the fact that presence of this age group in the category of "working population" is most significant, caused by aging. Despite the similarity in alteration of unemployment among people of different ages, unemployment figures differ significantly between age groups. Proof of this is the calculated coefficients of variation, which, although decreasing from 67.8% in 2003 to 43.4% in 2016 remain rather high. Decrease in the variation is an indicator for age diminution effect on the unemployment rate alteration.

It turned out that people with higher education find employment easily not only in towns but in rural areas. Among them the unemployment rate is much lower than the average unemployment rate in the villages (Figure 4.39).

Figure 5.27. Unemployment rate by degree of educationin villages for the period 2003-2016. (%)



Source: NSI

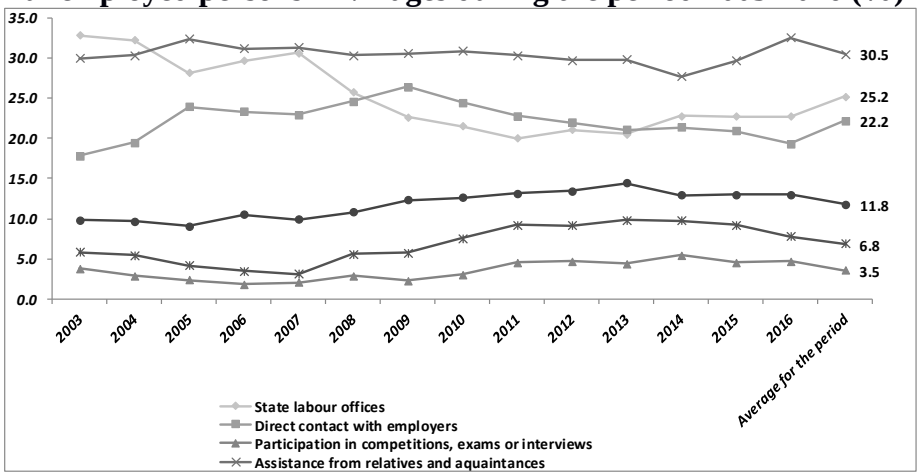
On average the unemployment rate among graduates is 5.3% and is more than 3 times lower than among all individuals 16.3% Over

the years of the surveyed period, the unemployment rate among the persons with higher education marked the largest decrease from 7.5% in 2003 to 3.2% in 2016. For those with secondary education, unemployment also declines, with the differences between those who have a general secondary education and who have acquired professional qualifications are insignificant. A conclusion can be made that the new challenges for development of agriculture and rural areas require application of highly qualified labour which correspond to new technological and production conditions of agribusiness. The requirements for availability of specific knowledge in more professional fields make highly educated and qualified staff more competitive on the labour market in the villages.

Further evidence of this is the continuing trend of relatively higher unemployment rate for people with the lowest level of education or no education at all. Logical in this context is the fact that unemployment of persons with primary and lower education increased from 29.5% in 2003 to 38.4% at the end of the reporting period, i.e. with nearly 9%. The increasing role of highly qualified staff at the expense of those with low educational and qualification levels increases the degree of heterogeneity of jobseekers in the villages. While at the beginning of the period, the coefficient of variation among unemployed persons, depending on their educational and qualification level was 53.7%, in 2016 it has already reached 91% This result once again shows great differences between the different educational and qualification groups in terms of their chances of finding work in the villages.

The rural population successful realization in the labour market is influenced by the opportunities for access to information about the labour market situation and corresponding job search channels. According to NSI data, the unemployed in the villages rely mostly on the assistance of relatives and friends in the search for a job. (Figure 4.40). Approximately 1/3 of all unemployed people in the villages looking for work refer to this resource. It is noteworthy the confidence in state labor offices has dropped significantly from 33% in 2003 to 22.7% at the end of the period. Obviously, the unemployed entrust higher expectation of finding a job in the close surroundings of friendly and family circles, as well as direct contacts with employers (22.2% average for the whole period) than on the state.

Figure 5.28. Relative share of job search channels among unemployed persons in villages during the period 2003-2016 (%)



Source: NSI

The relatively great importance of direct contacts with employers in the search for a job is determined by the established informal social communities in the villages where business people are easily recognized by the local population. To least extent the unemployed in the villages rely on their activity for participation in competitions, exams, interviews and other similar appearances. For the whole period, only 3.5% of all unemployed people want to start work based on this type of job search. This is definitely a consequence of the low educational level of the unemployed and the lack of timely and sufficient information on existing job vacancies Approximately every 10th of the entire period relies on the job announcements published in the newspapers, magazines. Approximately every 10th of the entire period relies on the job announcements published in the newspapers, magazines.

Conclusions

Despite the measures in the RDP, the villages continue to lose their human potential and the constant decrease of the rural population is one of the most acute problems in the development of the Bulgarian villages. Demographic crisis in the villages is part of the overall demographic crisis in the country, but in all demographic indicators, villages are in a less favorable situation than in the towns. The negative natural growth in the villages has a dominant role in reducing the rural population in the face of migration processes. Not withstanding the

above conclusion, migration among young people in the countryside (between 20 and 29) is strong enough.

The decrease of the rural population leads to a corresponding drop in the labor force in the villages in Bulgaria. Differences in employment in terms of level of education are significant. The persons with secondary and higher education throughout the whole period have higher chances for successful employment in the villages. Employment among the people with primary education is particulary low. Employment in the agricultural sector and related activities remains the main sphere of implementaton of labor. The process of diversification of economic activities in the villages and the corresponding divercity of employment from our accession to the EU on runs at a slow pace. Incentives to develop a stand-alone agrobuiness or other business are not yet fully exploited and wage labour remains the main form of employment in 2003-2016. It is not enough to include the rural population in the process of learning and acquiring knowledge and skills through various forms of the Lifelong Learning Program. This is a factor which, along with the massive job closure since the beginning of the transition period is largely due to lower employment in small communities. Over years of the surveyed period, unemployment amongst university graduates and skilled workers has declined the most.

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