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Margarita BOGDANOVA

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REGIONAL DIFFERENCIES IN THE AGRICULTURE OF BULGARIA AND ROMANIA

Margarita BOGDANOVA

1. Introduction

Today, after the finishing the accession negotiations with EU, Bulgaria and Romania have the real chance to become full member states. But there are significant disparities between them and other state members. The differences concern many economic sectors and they can impede the integration process and to prolong it in the future.

Agriculture is the sector in which the asymmetry is the biggest. On one hand the share of employed persons in agriculture is very high in the both countries. As a result the productivity per worker in the sector is lower than in EU. On other hand, in the agriculture of Bulgaria and Romania will be initiated many changes, which should increase its competitiveness. Because of the high employment in the agriculture in the both countries, the reforms can be very painful and they can become a social problem. That's why the reforms must be conducted carefully and the advantages and disadvantages should be weight. In this sense the research of regional disparities in agriculture of Bulgaria and Romania on one hand and EU on other hand, is a question of present interest.

Except similarities there are many differences between the two countries. Therefore the applying of common approach to them could be unjustifiable and useless. So the outline of the

regional economic asymmetry in the agriculture of Bulgaria and Romania is relevant both to European Commission and to the governments of the countries and for the economic subjects, who will be direct affected by the coming changes.

The sources of information for this research are statistical yearbooks of the two countries, statistical information of EUROSTAT, strategic planning documents of the two governments, the monitoring reports of European Commission and so on.

2. Formulation of the regional differences issue

One of the major issues in the beginning of the 21st century is the deepening of regional differences. This issue is most explicitly revealed by the growing social disproportions among individual countries and groups of countries. Asymmetry can have various dimensions, yet it is a phenomenon that is becoming more and more topical to a large number of countries in the world.

This holds particularly true to the European Union. Being a complex device with an ever changing status quo, the EU has been going through incessant evolution during the last years. Its parts vary in their dimensions and mechanisms but they are to function as a single whole. The unification of those various parts of a single device is a slow process that is further complicated by the spatial expansion of the system and the introduction of new elements to it. Not surprisingly, the study of regional asymmetry and the proposals of measures for its reduction are a

¹ *Corresponding address:* Em. Chakarov Str. 2, Tcenov Academy of Economics, 5250 Svishtov, Bulgaria, e-mail: margarita_bogdanova@abv.bg

focus of special attention to the European Commission. Diminishing regional discrepancies is the corner stone of regional policy, whose aim is to advance social and economic unification within the Union. The guideline of regional policy in the EU is to support less developed regions and social communities and establish favorable environment for income and employment convergence, and as a result lead to convergent competitiveness of different countries and regions within the EU.

The ambition to reduce regional discrepancies is in the core of a major complex process through which the world is going nowadays – **globalization**. Regardless of which interpretation of the concept globalization we have in mind, it is inevitably related to overcoming backwardness within various groups, transforming social structures through technological innovation, changing the way of life, and hence – reducing social and regional discrepancies among countries in the world.

Regional asymmetry is overcome by various policies and instruments for economic and social convergence. According to I. Angelov (2003), there are two basic types of convergence in economic theory and practice – nominal and real.

Nominal convergence relates to growing similarities of nominal values of macroeconomic stability, namely: the relative share of public deficit within the GDP, the share of public debt to GDP, average inflation rate, long-term nominal interest rate, exchange rate, etc. Thus, for example, the convergence criteria of the Treaty of Maastricht for establishing an economic and monetary union are considered to be nominal values.

Real convergence is more difficult to measure as it is rather a process of increasing the similarities among life-styles, than obtaining two or more equal values. Hence real convergence is the process of convergence of various aspects of the development of countries.

The convergence theory related directly to the theory about the convergence of economic systems and hence the theories about economic growth. This could be explained with the basic assumption that convergence should come as a result of less developed economies' efforts to reach advanced economies and not vice versa.

According to the **neoclassical growth model**, presented by Ramsey, Solow, etc. eco-

nomical growth per capita is reciprocal to the initial GDP rate or individual incomes. Hence in a more narrow sense, if we have similar economies in terms of production technologies, then poor economies would have a higher growth rate than rich ones. This is due to the diminishing return of capital. Thus according to neoclassicists, there are powers in society which influence automatically the convergence of GDP and incomes per capita in different countries, i.e. after a certain period convergence is a fact and regional discrepancies become insignificant.

A number of further speculations have been made on the basis of the neoclassical theory. One of the most popular ones is that of Robert Barro and Javier Sala-i-Martin (1992). They formulate a regional model comprising twenty-two factors that influence economic growth, namely: level of incomes, GDP structure, inflation, financial market equilibrium, cross border trade tariffs, etc. Barro and Javier Sala-i-Martin then calculate beta regression coefficients based on statistical data, that would help identify by how many units the dependent value will change if the factor dependent variable is changed by one unit.

J. Bradford de Long puts to criticism the model proposed by Robert Barro and Javier Sala-i-Martin, as they have included, alongside with strictly economic factors, variables such as religious traditions (for example, Confucianism and Islam); geographic latitude of the country; the share of Protestants, Buddhists or Catholics in the population; and they have even examined how much a country's development is influenced by its being a former Spanish colony.²

Latest theories of convergence are based on an important consequence of existent significant socio-economic discrepancies – the growing terrorism threat. In its declaration on combating terrorism from March 2004, the European Committee stated that: "An investigation will be made into the relation between terrorism support and extreme religious and political beliefs and the influence of socio-economic

² Thus for example, Sala-i-Martin claim that the share of Protestants and Catholics within a given population are reciprocal to the economic growth, while Buddhists influence economic growth favorably. For further details see: **Bradford DeLong**, J. Comment on Sala-i-Martin, "I Just Ran Two Million Regressions". <http://www.j-bradford-delong.net/Comments/decadnewgrowth.html>

factors”.³ Terrorism is considered to be stemming from socio-economic discrepancies among countries or groups of countries, alongside with other major prerequisites.

Anthony Venables (2002) believes that establishing an economic union leads to diminishing regional discrepancies among member states only if the union includes relatively rich countries. If this is not the case, the discrepancy in income per capita keeps growing and poor members get even poorer. He also gives a number of examples of economic unions in West Africa and Central America to prove his thesis. At the same time, Venables takes into account the fact that a tendency for convergence has been observed among income per capita in the member states throughout the history of the European Union.

It is obvious to all researchers that there is substantial asymmetry between old and new member states of the EU. The major question that becomes relevant with the accession of new countries is whether this accession would reduce asymmetry, and if yes, in what terms, and what the expected consequences would be. The debate, as it has been reflected in scientific literature, comprises various points of view. All in all, there seems to be no consensus if integrating new countries would lead to symmetry of fluctuations in the business cycle of different countries or, on the contrary, shocks would become even more asymmetrical.

Yuliya Demyanyk and Vadym Volosovych (2004) study the asymmetry between acceding and current members by examining macroeconomic fluctuations of the GDP. While member states have unified their business cycles, the fluctuations of newly acceded do not coincide, that is during the periods when EU-15 has been in crisis, the economies of many of the newly-acceding countries have marked a growth. When the GDP of a country is nonsymmetrical to the GDP of the group it is about to accede, a danger occurs of the so-called idiosyncratic shock (typical only of some of the countries), that could lead to substantial deterioration of welfare in these countries.

Frankel and Rose (1998) believe that economic integration influences positively the reduction of asymmetry in GDP fluctuations in

the countries of the group. The major prerequisite relates to trade among member countries which facilitates the expansion of demand fluctuations outside the borders of national economies.

According to Kalemli, Sorensen and Yosha (2004), an appropriate mechanism for reducing discrepancies in GDP would be the so called risk sharing among countries. It could be achieved by means of changes in the taxation system (i.e. reducing taxes and increasing transfers towards individuals living in countries in a recession) and by applying the instruments of capital markets, in which case risk would be reduced through diversification of the assets portfolio. In a similar way, consumers could change their consumption patterns by adapting their savings to the new situation. If the countries are more open to the rest of the group and the risk sharing is more balanced, the symmetry among their GDP fluctuations would be greater.

A counter-thesis to this theory is the one, according to which economic integration leads to further deepening of discrepancies among countries. This thesis is supported by Krugman (1993), who believes that lowering barriers to cross border trade encourages countries to specialize their production. This, he claims, leads to stronger asymmetry in production, therefore branch specialization fosters more marked fluctuations in the business cycles of different countries.

The influence of economic integration on GDP fluctuations asymmetry and asymmetry of incomes and expenditures has been shown in figure 1. It illustrates the basic contradiction in economic literature, namely – the way in which lowering trade barriers results in demand expansion, which, in turn, reduces asymmetry in the production of the EU member states; such lowering of trade barriers, however, tends to increase branch specialization, which then increases asymmetry in GDP fluctuations.

De Grauwe (1997) calls these contradicting points of view on the relation between economic integration and the synchronization of business cycles “The European Committee point of view” and “Krugman’s point of view”.

In his research work of the economy of the Czech Republic, Jan Babetski (2004) tries to find arguments in favour of these two points of view. He comes to the conclusions that 1) greater intensifying of trade results in greater demand

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<http://www.mediapool.bg/site/security/2004/11/page.shtml>

dynamics symmetry, while the effect of integration upon supply varies in different countries; 2) reducing exchange rate volatility influences positively demand shocks balancing. These findings seem to support the European Commission point of view, which is also known as endogeneity argument of Frankel and Rose.

The European Commission takes into consideration the fact that after the latest expansion of the EU economic and social discrepancies

among member states and among regions have increased and the common dynamics of the EU has been reduced. Discrepancies within the twenty-five member states and 254 regions of the EU have doubled in comparison to those present when there were 15 member states only. The accession of Bulgaria and Romania, and eventually that of the other Balkan countries, will clearly increase incomes asymmetry in the Union.

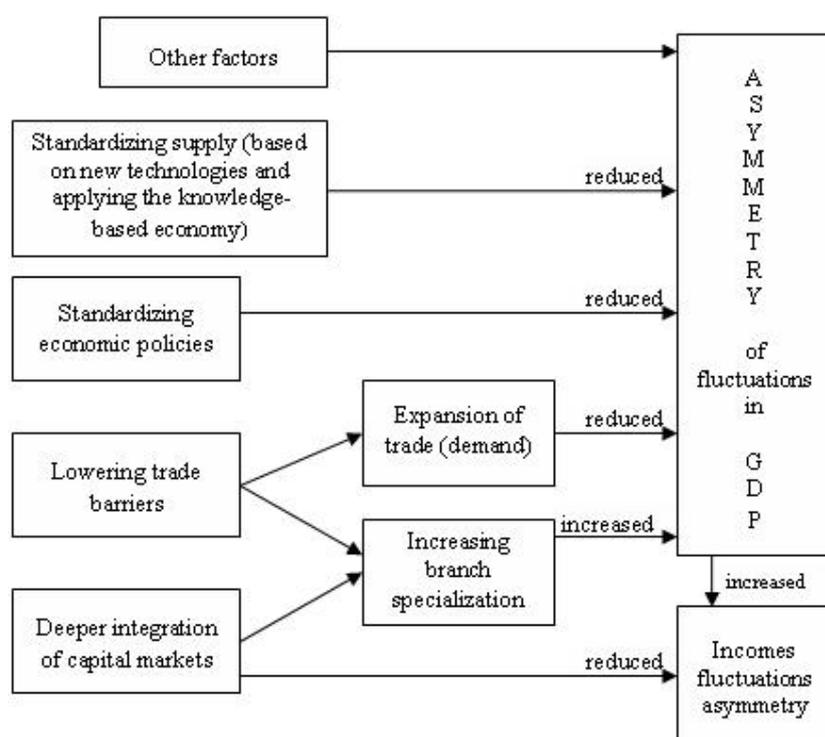


Fig. 1. Factors which influence the asymmetry of GDP and incomes fluctuations
(Adapted after Kalemli-Ozcan, S., Bent E. Sorensen, O.Yosha (2004))

3. Regional discrepancies dimensions

Regional discrepancies could be measured with various instruments of statistics and econometrics. The instruments used to measure asymmetry would depend on its character, as well as on the aim and the objectives of the study.

We could broadly identify these types of asymmetry: static and dynamic; stable and unstable; bilateral and multilateral; intra-regional and inter-regional; asymmetry of consumption

and asymmetry of production; microeconomic and macroeconomic asymmetry, etc.

Static asymmetry on its part could be structural, technological, asymmetry in products, incomes, in unemployment, in inflation, etc. As a matter of fact, various indexes could be applied to characterize macroeconomic development and serve as a basis on which to identify static discrepancies between two countries or among a number of countries.

Direct measurement of static asymmetry could be conducted by observing various indexes, such as GDP level per capita; incomes; expenditures; total tax burden as a share of

GDP; average individual salaries; the number, kind and cost of obtained social services, etc.

By designing groups of indexes more complex measurements could be made, such as the standard of living; the competitiveness of companies; the state's planning capacity; the technological innovations potential (or asymmetry of knowledge), etc.

Dynamic asymmetry could also be considered in various aspects. All processes that change in the course of time could be evidence of the lack or presence of discrepancies between two countries. As we mentioned earlier, a common measure for Dynamic asymmetry are GDP fluctuations in different countries, as well as unemployment rate fluctuations, supply and demand fluctuations, etc.

Asymmetry could be stable and unstable. Regardless of how different in size two countries may be, the relations between them could be stable or unstable, yet the important question is: "Is Asymmetry between them growing or not?" The USA, for example, steadily maintain a substantial deficit of their balance of payments, but as the US dollar is important to the investors' portfolio, they accept such conditions of trade and investments and keep the assets of their portfolio relatively steady.

Stability of asymmetry, which is studied by examining the balance of payments structure, relates to steady proportions and to the existence of factors which could influence these proportions. For example, investors might worry about the return of their investments if there is an enormous deficit in the balance of payments. If they feel too insecure, they could sell some of their assets, which would then affect the interest rate or the exchange rate. In this case, the balance of payments deficit would not remain stable by definition. An enormous balance of payments deficit, however, does not automatically presuppose similar behavior on behalf of

investors. If the economy of the country is characterized by high economic growth, investors will readily dispose of assets. Then the interest rate will not rise and the exchange rate will remain the same. And even if assets are sold, this will not automatically lead to a crisis.

To the state obtaining the credit, a key stable proportion is the share of the deficit in the GDP of the country. Therefore, if the current account deficit in the balance of payments is increasing, but the GDP increases at the same rate and the proportion between the two remains stable, the deficit will be steady.

When bilateral comparisons are made, usually a wider set of indexes are employed. Apart from those mentioned above, in practice such measures are used as the indexes of structural similarity and a number of other ratios, so that conclusions can be drawn about existing discrepancies and above all, what their effect would be on the further development of the countries.

The research work done so far about Bulgaria and Romania mainly concern incomes asymmetry. At the same time, we should take into account the fact that a number of factors determine discrepancies in incomes and examining these factors could help us identify the processes that lead to increasing or reducing incomes discrepancies.

4. Performance of agricultural sector in Bulgaria and Romania

The **utilized agricultural area (UAA)** in Bulgaria and Romania is one of the highest in Europe. It is 14.8 Million ha in Romania, which is 62.3% of the country territory. This put Romania on the first place in Europe, where the share of the UAA is 44%.

Table 1

Utilized agricultural area (UAA) in Bulgaria and Romania in 2003

	Bulgaria	Romania
Utilized agricultural area, thousand ha	5326.3	14717.4
Share of the country territory, %	48.0	61.7
Arable land, thousand ha	3238.8	9414.3
Share of UAA, %	60.8	64.0

The UAA in Bulgaria is 5,326 Million ha - 48% of the country territory.

The distribution of UAA by planning regions (NUTS 2) is presented on table 2. The highest is the share of UAA in the region territory in the South (Sud) region in Romania (71%). In Bulgaria such region is Nord-East (Severoiztochen).

Table 2

Utilized agricultural area (UAA) in Bulgaria and Romania by planning regions

	UAA in 2003, thousand ha	Share of UAA in the re- gion territory,%
Bulgaria	5326,3	48
Nord-West	571,2	53
Nord-Central	1023,7	58
Nord-East	1258,8	63
South-West	692,4	34
South-Central	1116,7	41
South-East	663,5	46
Romania	14717,4	62
Nord-Est	2133,6	58
Sud-Est	2335,8	65
Sud	2443	71
Sud-Vest	1810,7	62
Vest	1892,9	59
Nord-Vest	2090,5	61
Centru	1893,5	56
Bucuresti	117,4	64

In the beginning of 2006 the land privatization is finished in the both countries. It was conducted mainly as restitution. In Romania the process is affected by previous reform – after the II World War, when the size of the family farms is restricted to 5 ha. As a result today's restituted farms are small and fragmented. Some mistakes in the reform additionally lead to partition of the agricultural land. Because most of the farmers haven't access to investment in the last years, they haven't enough equipment and are not competitive in the long-term.

From over of 3.9 million farms in Romania, 1.6 million farms (40%) cultivate less than 1 ha land, which is approximately 6% of the utilized agricultural area. Two third of the farms possess land, which is less than 3 ha (20% of UAA). Around 290 thousand farms cultivate between 10 and 20 ha and only some scores till a land over 20 ha. But there are 255 big farms, which possess land of 2000 ha average (12% of the UAA of the country. The average size of one farms for year 2002 is 2,67 ha.⁴

For the same period the average size of one farm in Bulgaria is 4.7 ha. But after the census of the agricultural farms, there is established that the UAA of the farms in Bulgaria is 4.36 ha.

Table 3

Structure of the farms in Bulgaria and Romania in 2002, %

	Bulgaria		Romania	
	Share of farms	Share of UAA	Share of farms	Share of UAA
0 to 0,5 ha	56,0	3,0	15,0	0,8
0,5 to 1 ha	23,0	4,0	25,9	5,2
1 to 2 ha	12,0	4,0	16,9	8,1
2 – 5 ha	6,0	4,0	24,1	23,9
5 – 100 ha	3,0	10,0	18,0	49,5
100 – 1000 ha	0,01	42,0	0,003	0,9
Over 1000 ha	0,01	34,0	0,23	12,2

⁴Agricultural Situation in the Candidate Countries. Romania. European Commission. Directorate General for Agriculture. July 2002.

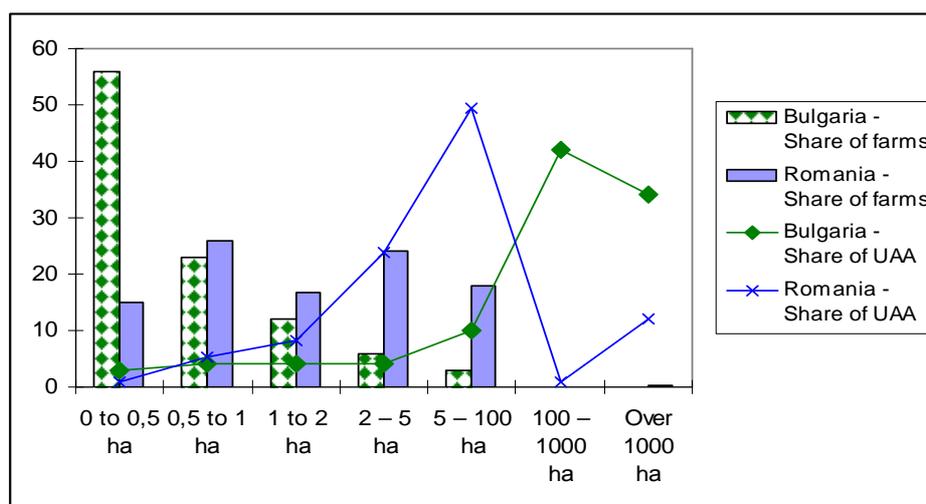


Fig. 2. Structure of the farms and UAA in Bulgaria and Romania in 2002, %

As can be seen from table 3 and fig. 2, the share of the small farms (less than 0.5 ha) in Bulgaria is much bigger than in Romania. But in Romania the farms which are from 2 to 5 ha and from 5 to 10 ha are prevailing. The last group cultivates over of half of the UAA. The smaller group in the both countries is this of the big farmers. They are less than 1% of the total number of entrepreneurs in the sector, but they cultivate over than halve of the land in Bulgaria and 13% in Romania. These are farmers, who developed successful their business in spite of the limitations of the transition. They have large opportunities and probably they will take advantage to a great extend from the structural funds of EU.

The small farms in both countries are not specialized and they produce only for their own consumption. They rely only on their own skills and they couldn't be affected by the regulation rules. The increasing of the competitiveness requires consolidation of the small farms in the both countries. Therefore the land market and the labour market must become more effective. Because the agriculture is the main source of income for the farmers, the change of the structure must be directed to alternative employment for these who will leave the sector.

The used technical equipment in 2002 is shown in table 4. There are for disposal 11 tractors per 1000 ha agricultural land in Romania and 10 in Bulgaria. Romania surpasses Bulgaria in number of ploughs and other equipment, too.

Table 4

Number of tractors and ploughs to 01. 01. 2003 in Romania and Bulgaria

	Number of tractors	Number of tractors per 1000 ha UAA	Number of ploughs	Number of ploughs per 1000 ha UAA
Romania	163 711	11,03	127 829	8,6
Bulgaria	32 602	9,73	20 926	6,2

As a whole Romania is better equipped with agricultural machines, but the facilities are old and with insufficient technical efficiency in the both countries.

The **Gross Value Added** (GVA) at basic prices in the agriculture is presented in table 10. GVA is a difference between the value of production and the intermediate consumption according to Division 01 of NACE Rev. 1.⁵

⁵ Statistical Office of the European Commission (EUROSTAT) <http://epp.eurostat.ec.eu.int>

Table 10

Gross Value Added in the agriculture, Million EUR

	1999	2000	2001	2002	2003	2004
Bulgaria	1679	1634	1803	1605	1532	1838
Romania	4220	4217	5709	5198	5653	:

Table 11

Share of GVA in agriculture in the GVA of the country, %

	1998	1999	2000	2001	2002	2003	2004
Bulgaria	18,8	16,3	13,9	13,4	12,1	11,4	10,9
Romania	16,0	14,9	12,4	14,7	12,5	12,9	

*Note: There is a difference between the information of EUROSTAT and the Statistical Yearbook of Romania. The data in the table are of EUROSTAT.

Because the Gross Value Added and the production volume are determined by the factors in each country and therefore they are different, the absolute value of these indicators is unusable for the purposes of comparison. That's why here is presented the GVA per worker in the sector. This is the most used indicator for the productivity measuring.

The most productive is agriculture in Great Britain - 42 333 EUR per worker in 2003. The GVA in agriculture in this country is 11 342 Million EUR and it is created by 267.9 thousand employed persons. In Bulgaria in the same year there were engaged tree times more people (797.6 thousand employed persons), who create 7.5 times less value added (1532 Million EUR).

Bulgaria drops behind EU-15 over 11 times and Romania – almost 10 times. That's why the change of agricultural structure is the most important question for the both countries. From all 27 states (member and candidate countries) only Latvia and Lithuania are beyond Bulgaria and Romania.

Table 12

Gross Value Added per employed person in agriculture, EUR

	1999	2000	2001	2002	2003
EU-15	19227	20313	21547	21004	21730
Denmark	29030	34461	39910	33768	33451
Latvia	1023	1571	1710	1581	1580
Lithuania	:	1288	1390	1431	1639
Great Britain	31420	30780	36690	41944	42333
Bulgaria	2107	2093	2355	2165	1921
Romania	1216	1180	1630	1912	2242

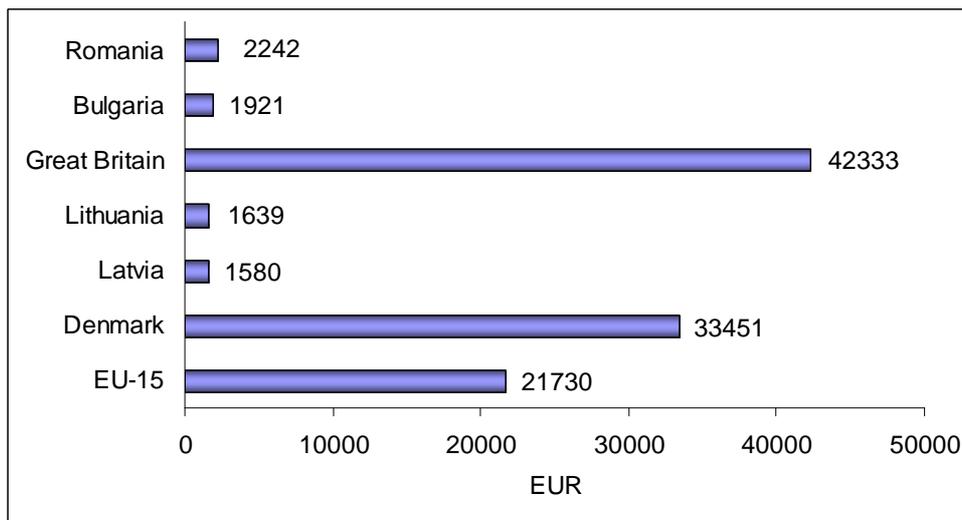


Fig. 16. Gross Value Added per employed person in agriculture in 2003, EUR.

The **average salary** in the agriculture is similar in the both countries. It is approximately $\frac{3}{4}$ of the salary in each country. Therefore the sector is not enough attractive from the income point of view.

The **employed persons in agriculture** of Romania are 2.521 million in 2003, i.e. 34.1% of total employed people. In Bulgaria for the same year the employed in agriculture are 797.6 thousand, i.e. 26% of the total employment.⁶

Table 13

Employed persons in agriculture in Bulgaria and Romania in 2003

	Employed persons, Thousand people	Share of total employment, %
Bulgaria	797,6	25,9
Romania	2521,0	34,1

The big number of employed persons in agriculture in Bulgaria and Romania is a serious problem and the European Commission emphasizes on that in every report for the progress of the countries and in the monitoring report from 2005. The reasons for the problem are:

- The low productivity of the sector – it is a factor on one hand, and a result on other hand of the using of too many labour resources;
- The traditions in the both countries;
- The specific of the reform in the agriculture and so on.

A part of the problem will be solved by natural way. In the both countries the population engaged in the sector gets on age. But nevertheless it is necessary to be taken measurements for re-qualifying of large part of the people, who work in agriculture.

In the transition period, the level of the agricultural production in Romania is stable. It doesn't show the typical decreasing like in the other CEE countries. The scope of the output has minimum deviation, mainly because of the climate factors. The crop output dominates over the livestock output.

The agricultural output decreases significantly in Bulgaria during the transition period. The lowest level is in 1996, when it is 62% of one from 1990. After that the agricultural output shows stability until 2000, when it decreases again. In the last years the growth of the production is negligible. The crop production is the half of the total output.

The value of the **crop** production at basic prices is shown in table 5.

⁶ Statistical Yearbook (Romania), 2003., Статистически годишник, 2004.

According to the EUROSTAT methodology, the basic price is defined as the price received by the producer, after deduction of all taxes on products but including all subsidies on products. The concept of output comprises sales, changes in stocks, and crop products used as animal feedingsuffs, for processing and own final use by the producers.

Table 5
Crop output in Bulgaria and Romania for the period 1999 – 2005, Million EUR (at basic prices)⁷

	1999	2000	2001	2002	2003	2004	2005
Bulgaria	1 602	1 305	1 464	1 708	1 619	1 846	1 621
Romania	6 279	4 975	6 729	5 971	6 570	8 332	:

The crop production per inhabitant in 2004 is shown on fig. 3. There are presented for comparison the countries with the highest indicator – Greece and Netherlands and the counties with lowest one – Malta and Latvia, and the average level in EU-15 and EU-25.

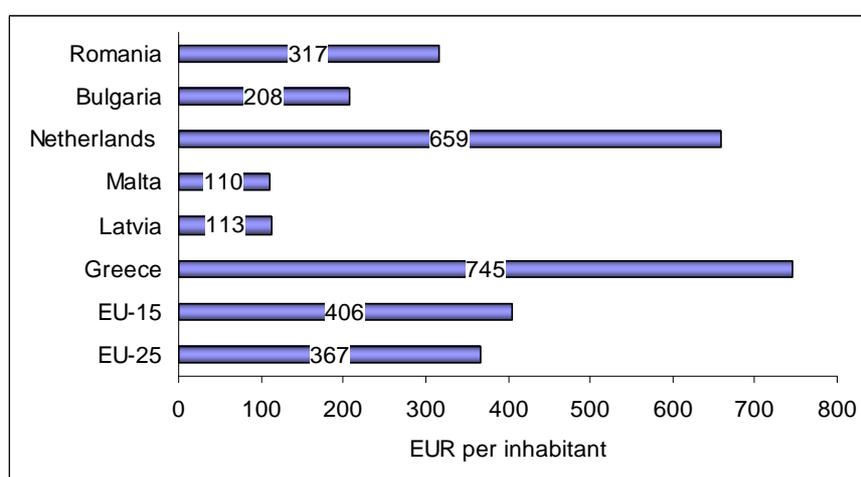


Fig. 3. Crop output in 2004, EUR per inhabitant

Obviously the crop output in Bulgaria per inhabitant is two times lower than in EU-15. Romania is closer to the average level in EU.

The **cereals** output for 1992-2004 is presented in table 6. The average volume for Bulgaria is a little over 6 million tons per year and in Romania – near 17 million tons. The deviations are in the same periods. They are affected by climate factors, which are similar for both countries.

Table 6
Cereal output in Bulgaria and Romania for 1992-2004, thousand tons

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
Bulgaria	6644	5717	6462	6600	3435	6209	5856	5924	5242	6056	6754	3814	7463
Romania	12285	15490	18182	19882	14197	22110	15452	17037	10478	18871	14356	12964	24403

⁷ Statistical Office of the European Commission (EUROSTAT) <http://epp.eurostat.cec.eu.int>

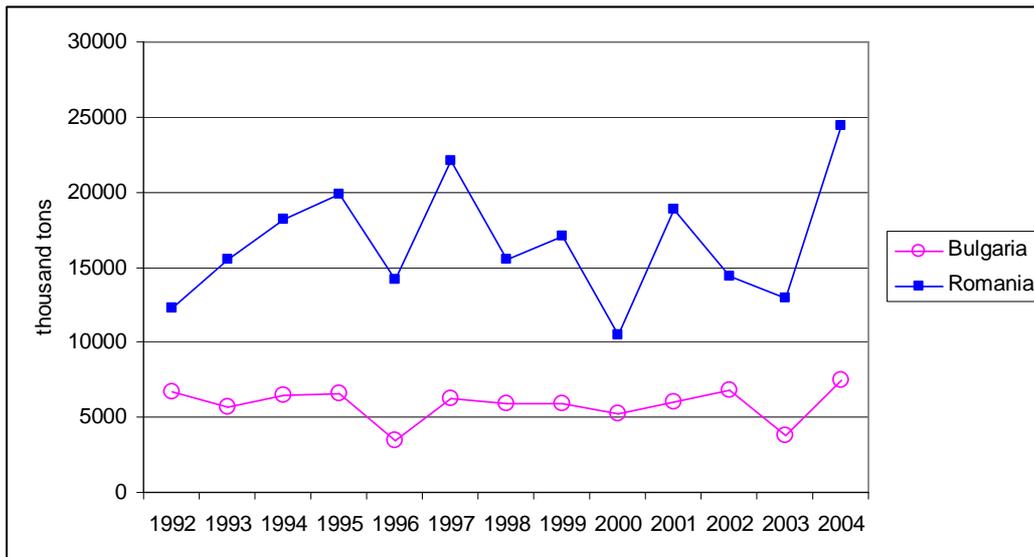


Fig. 4. Cereal output in Bulgaria and Romania for 1992-2004, thousand tons

The variation of **wheat** output is shown on fig 5. The data is per inhabitant, too. The average production of wheat in Bulgaria for the period 1992 – 2004 is 415 kg per inhabitant, in Romania – 238 kg and in EU-15 – 251 kg. At first sight it looks, that Bulgaria has competitive advantage in wheat production. But the yields of wheat and of cereals in general are much lower in Bulgaria and Romania, than in EU, as it's shown in table 7. Therefore the competitive advantage of Bulgaria is only extensive.

Table 7

Yields of cereals and wheat in Bulgaria and Romania for the period 1992 – 2004, tons per ha

	Cereal	Wheat
EU-25	4.7	5.2
EU-15	5.4	5.6
Bulgaria	2.9	2.9
Romania	2.7	2.5

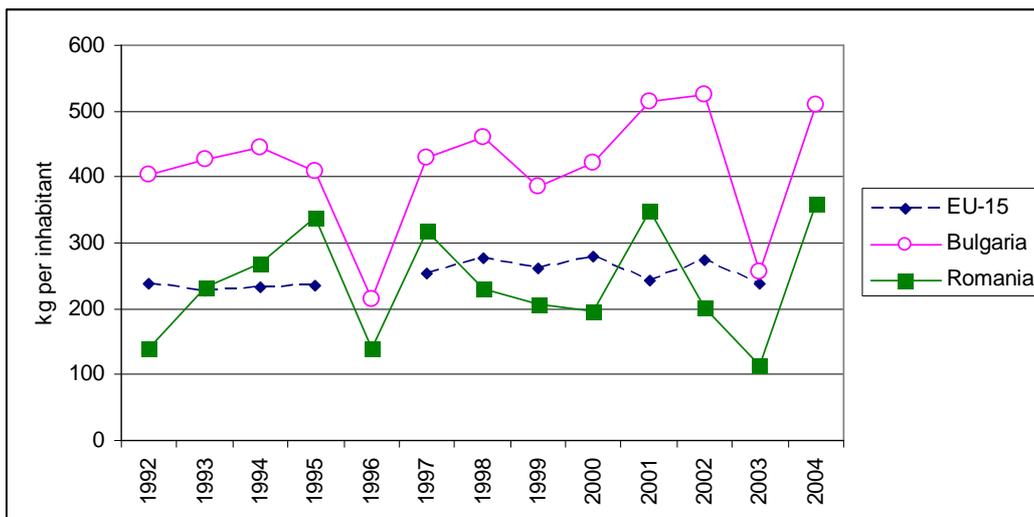


Fig. 5. Wheat production per inhabitant in Bulgaria, Romania and EU-15 for the period 1992 – 2004

In the **maize** production the interrelation is contrariwise. In Romania the maize output per inhabitant is 2.4 times more than in Bulgaria. The average level for Bulgaria is 74 kg per inhabitant and for Romania – 422 kg. The extreme levels are in the same years. But the amplitudes in Romania are higher because of the large areas with product. The average output per inhabitant in EU-15 is 95 kg. It seems that Romania has competitive advantage in maize production, but this advantage is extensive, too. The average yield in EU-15 for the period 1992 – 2004 is 8.5 tons per ha. The yield in Romania is 3.1 tons and in Bulgaria – 3.3 tons per ha.

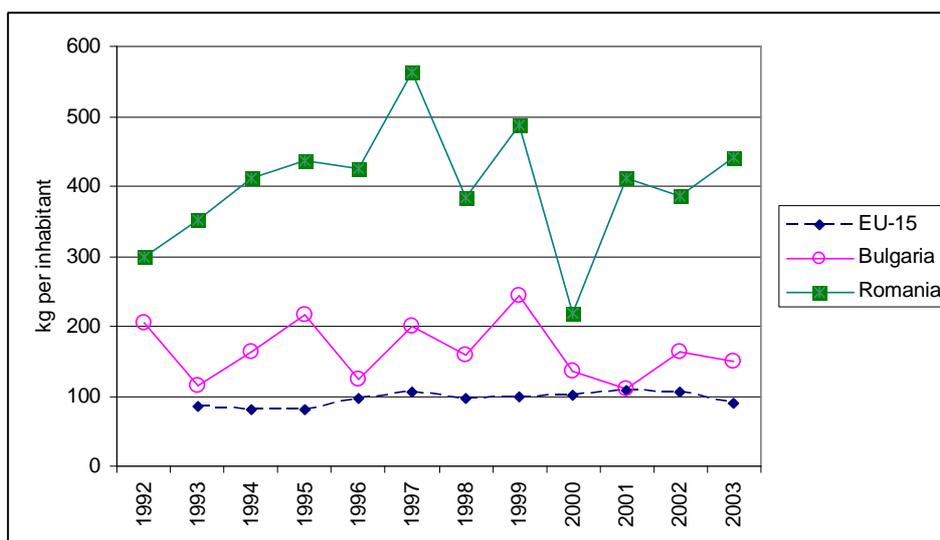


Fig. 6. Maize production per inhabitant in Bulgaria, Romania and EU-15 for the period 1992 – 2004

In the **sunflower** production, Bulgaria (with 78 kg per inhabitant for the research period) outstrips Romania (with 45 kg per inhabitant). Both countries leave behind EU-15, where the average level of sunflower production is 10 kg per inhabitant for the same period. Bulgaria and Romania have competitive advantage and even increase the production in the last years, but this advantage is extensive, again. The average yield of sunflower in Bulgaria and Romania for the period 1992 – 2004 is 1.2 tons per ha, and in EU-15 – 1.6 tons per ha.

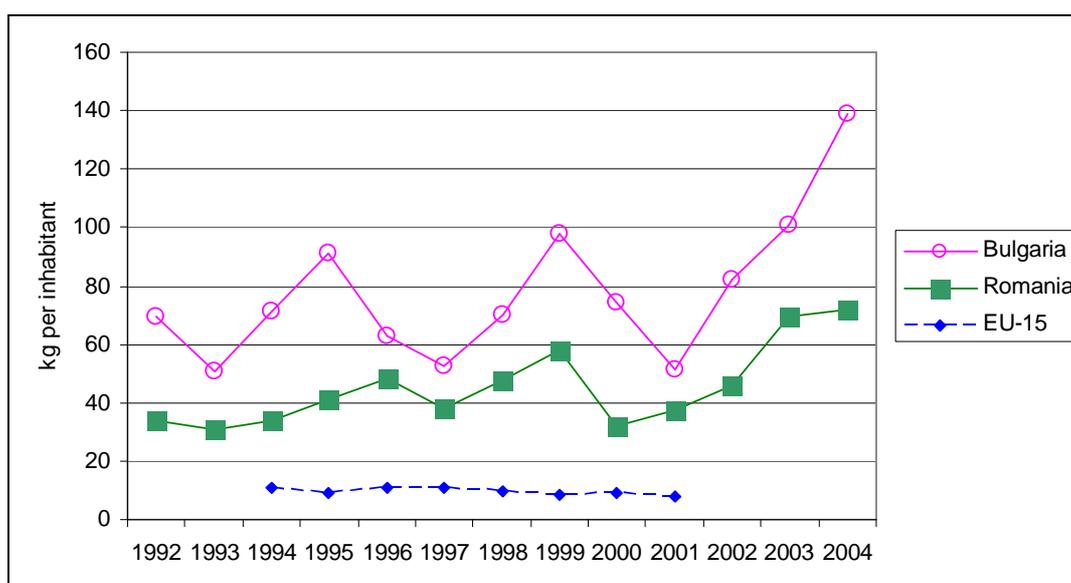


Fig. 7. Sunflower production per inhabitant in Bulgaria, Romania and EU-15 for the period 1992 – 2004

The **sugar beet** output decreases in both countries. In Bulgaria this industrial crop has even any practical importance for sugar refining. In 2004 there was produced 26 000 tons sugar beet. This is 12 times less than the level from 1992 and 65 times less than the level from 80 years. The trend is similar in Romania, but there are cultivated still 700 thousand tons sugar beet per year. This volume is insufficient, because it covers only 15% of the necessary raw material for sugar production. That's why both countries import non refined sugar. The average production of sugar beet for the period 1992 – 2004 in Bulgaria is 10 kg per inhabitant, in Romania – 80 kg and in EU-15 – 304 kg. The deep crisis in the sector can be seen from the productivity, too. The average yield of sugar beet in Bulgaria is 16.8 tons per ha, in Romania – 21.3 tons and in EU-15 – 57.1 tons per ha. Therefore both countries have no competitive advantage in sugar beet production. Just the contrary, this sector is in deep crisis and probably in the next years the import will continue.

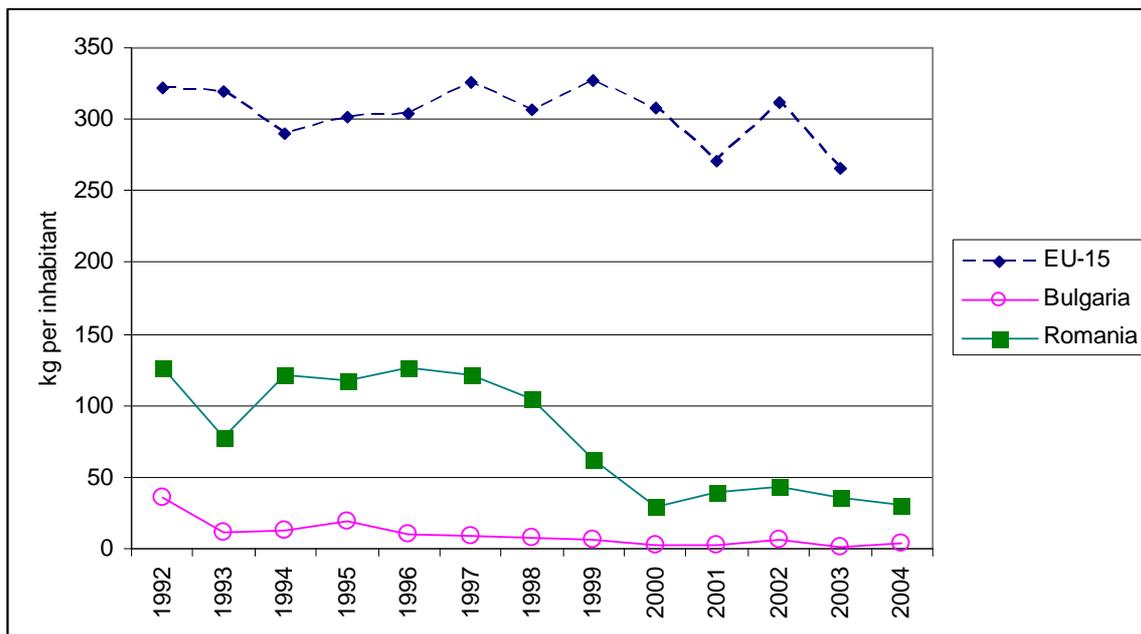


Fig. 8. Sugar beet production per inhabitant in Bulgaria, Romania and EU-15 for the period 1992 – 2004

In **potatoes** production Romania (with 159 kg per inhabitant per year) outdistances Bulgaria, where the production is 62 kg per inhabitant for the same period. In EU-15 the output of potatoes is 124 kg per inhabitant, but the yields are very different. Both Bulgaria and Romania are far behind EU-15 level.

Table 8

Yields of potatoes in the period 1992 – 2004, tons per ha

	Yields
EU-25	25.1
EU-15	34.0
Bulgaria	11.3
Romania	13.5

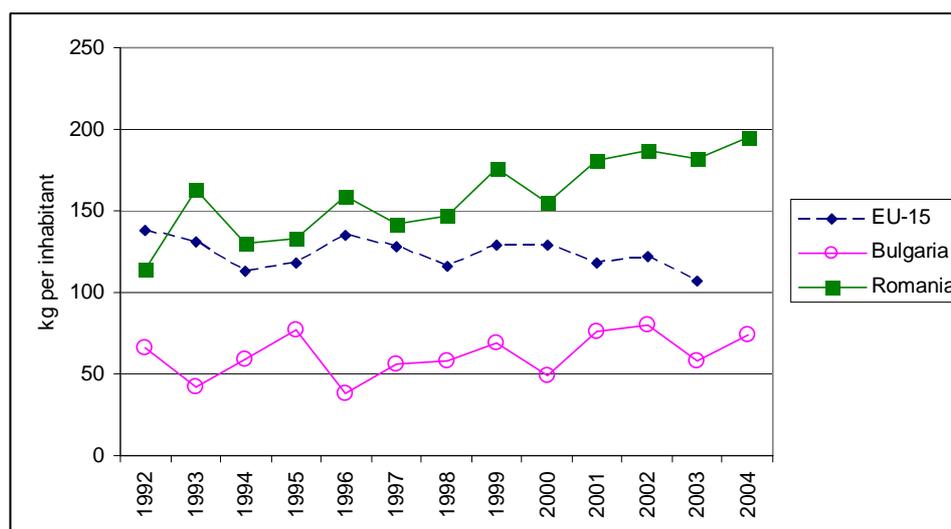


Fig. 9. Potatoes production per inhabitant in Bulgaria, Romania and EU-15 for the period 1992 – 2004

The tobacco production is shown on fig. 10. Because of the better climate conditions for this crop, and because of the traditions, the level of tobacco output in Bulgaria is much higher than in Romania. The production per inhabitant in Bulgaria is 6.4 kg and in Romania – 0.48 kg. It couldn't be made analogy with EU countries, because this crop is cultivated only in Mediterranean and any comparison will be misled.

It can be noted that the tobacco production decreases in the last 20 years in Bulgaria. The volume for 2004 for example is only 70 thousand tons, while there were produced 170 thousand tons in the past. According to specialists, it is needed changing of the structure of the sorts in favor of the so called "light" tobacco, like "Virginia".

The yield of tobacco in Bulgaria and Romania is almost the same – 1.2 – 1.3 tons per ha. The yield of tobacco in EU-15 is twice – 2.6 tons per ha.

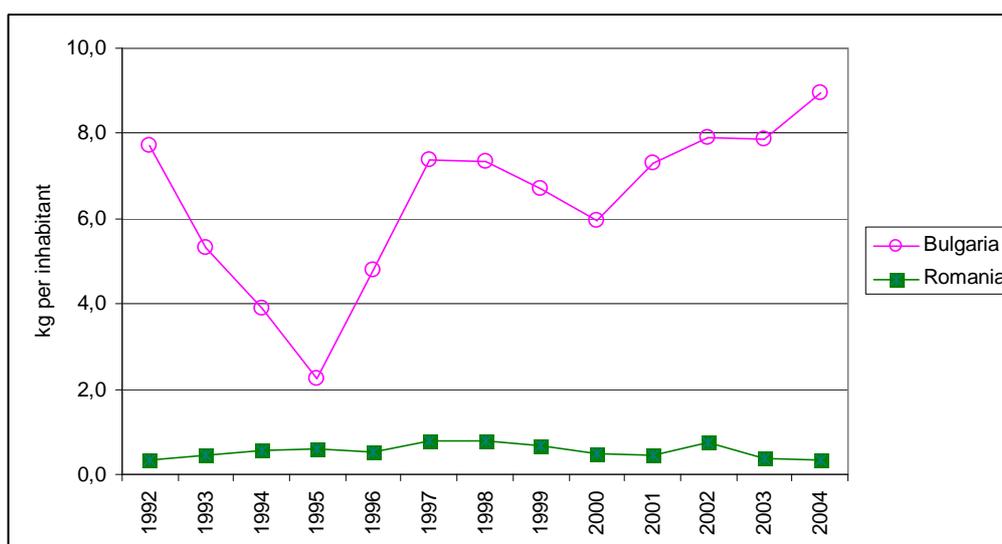


Fig. 10. Tobacco production per inhabitant in Bulgaria, Romania and EU-15 for the period 1992 – 2004

Therefore the main problem in both countries is the low yields. Bulgaria and Romania are far behind the EU level in the most crop yields and the difference is many times. Consequently all

competitive advantages of Bulgaria and Romania are extensive. They are achieved by including of more production factors – labour and capital, than in the EU countries. Hence the whole sector could be re-structured in the next years and the core must be the increasing of the productivity.

The livestock production in Bulgaria and Romania is presented in table 9. While the output in Romania increases until 2002 and drops a little in the last years, in Bulgaria the level in 2005 is with 17% less than in 1999.

Table 9

Livestock production in Bulgaria and Romania for the period 1999-2005, mil. EUR⁸

	1999	2000	2001	2002	2003	2004	2005
Bulgaria	1338,2	1448,1	1530,5	1186,9	1018,7	1087,9	1110,7
Romania	2687,2	2992,7	3863,0	4201,8	3759,6	3465,4	:

The livestock production per inhabitant is presented on fig. 11. There are shown the two countries with highest levels – Ireland and Denmark, and the two countries with lowest levels – Latvia and Lithuania. As can be seen the livestock production in Bulgaria is twice times less than in EU-25.

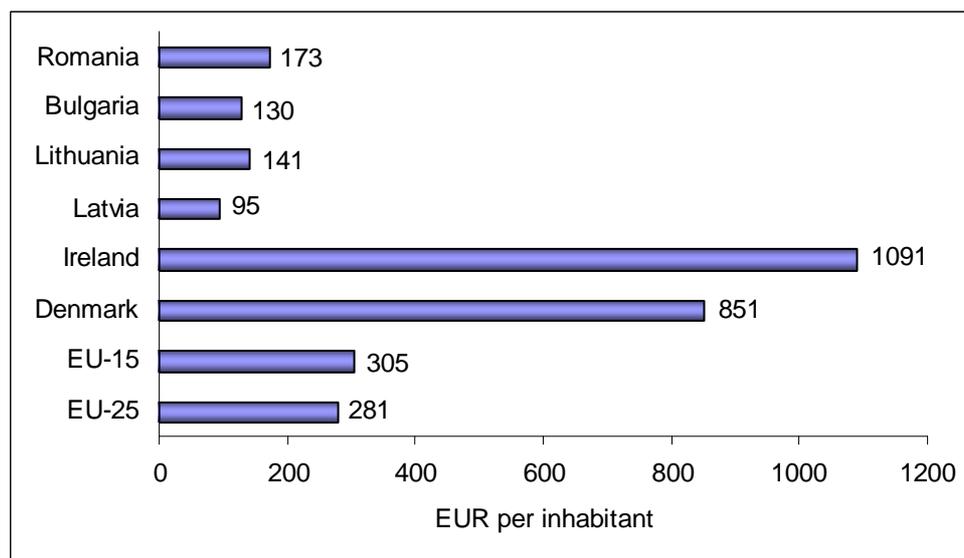


Fig. 11. Livestock production in 2004, EUR per inhabitant

The variation in the livestock is much smaller, than in crop production. The trend of **meat** production is shown on fig. 12. In the both countries the volume of meat drops behind the EU level. The average output for the research period in Bulgaria is 103 kg per inhabitant, in Romania – 81 kg and in EU-15 – 192 kg per inhabitant.

⁸ <http://epp.eurostat.cec.eu.int>

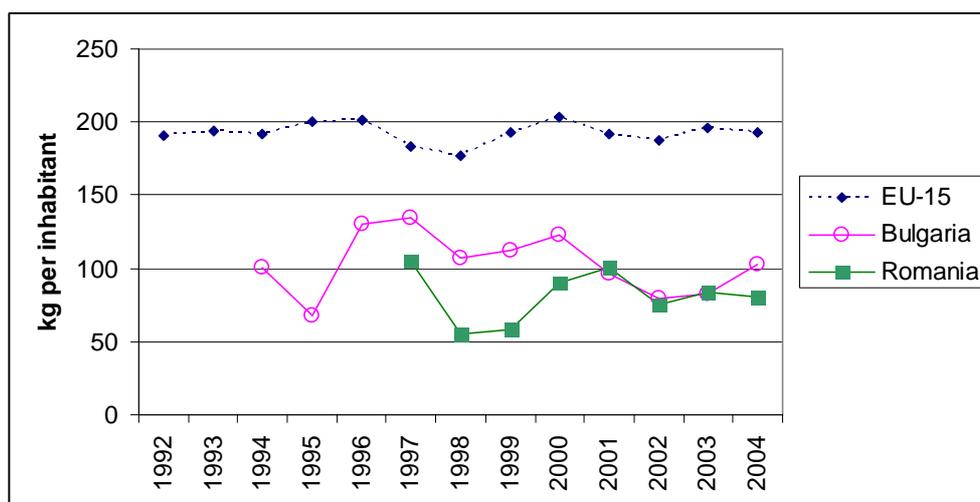


Fig. 12. Meat production in Bulgaria, Romania and EU-15 for the period 1990 – 2004 г., kg per inhabitant

The same situation is in the **milk** production. The average output for the research period in Bulgaria in 2004 is 205 liters per inhabitant, in Romania – 266 liters and in EU-15 – 333 liters per inhabitant.

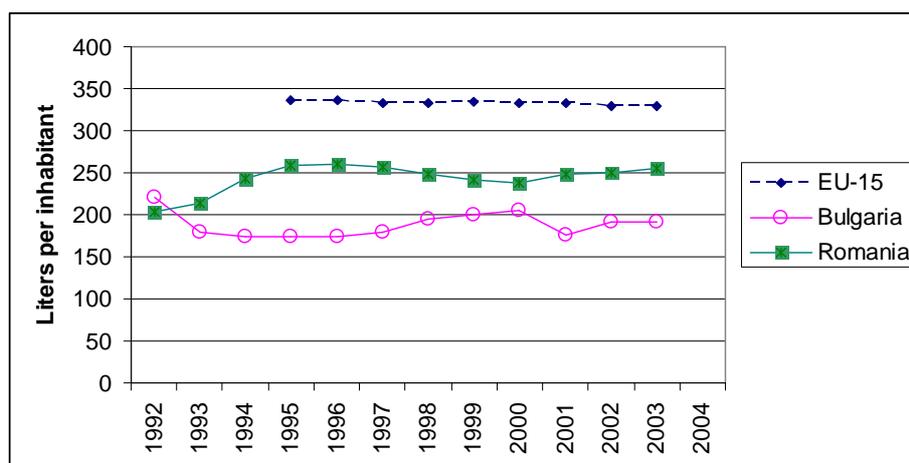


Fig. 13. Milk production in Bulgaria, Romania and EU-15 for the period 1990 – 2004 г., liters per inhabitant

There is dramatic drop in the **wool** production in Bulgaria. The decreasing for the period 1990 – 2000 is 3.5 times. Such reduction is characteristic of Romania, too, but in the last years the decreasing is insufficient. The potential of both countries for wool production in 2000 is the same.

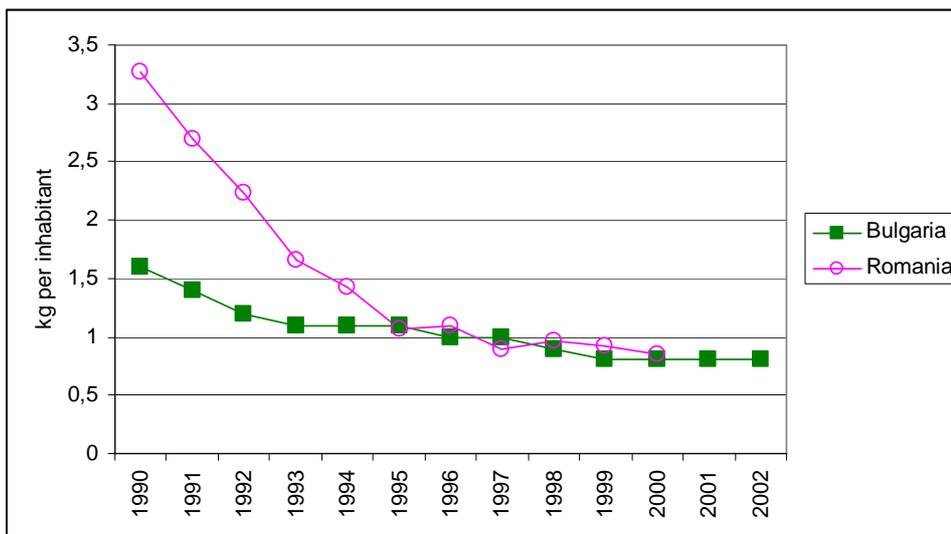


Fig. 14. Wool production in Bulgaria and Romania for the period 1990 – 2000, kg per inhabitant

The **eggs** production is better developed in Romania, where the output for the period 1990-2000 is 263 eggs per inhabitant per year. In Bulgaria the volume is 211 eggs and in EU-15 – 304 eggs per inhabitant per year. There is a similar decreasing of the production in the both countries, as can be seen from fig. 15.

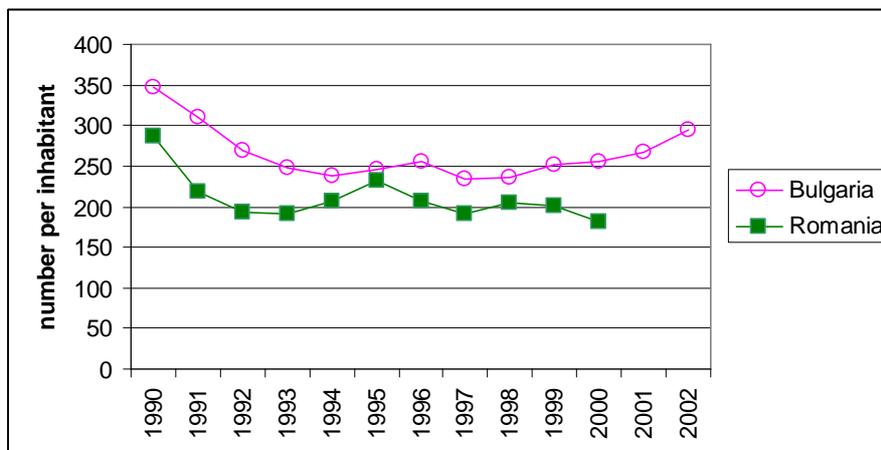


Fig. 15. Eggs production in Bulgaria and Romania for the period 1990 – 2000, number per inhabitant

The farms in Romania produce enough livestock production for satisfying the internal consumption in the last years. There was a tendency of slowing only of the poultry meet supplying. Bulgaria is slowing in the beef and milk production for internal consumption. For example the net import of meet and meet products in 2004 is roughly 8 Million EUR.⁹

⁹ Развитие на производството и продажбите на месо в България. Отраслов анализ. СФБ Капиталов пазар. <http://www.sfb.bia-bg.com/index.php?sel=71>

5. Between conclusion

Bulgaria and Romania have significant potential for development of agriculture. They own one of the largest utilized agricultural areas in Europe and high level of employed persons in the sector.

But the productivity of the sector is small and the reasons are:

- Fragmentation of the land;
- Large number of semi-subsistence farms, which work mainly for their own consumption;
- Insufficient technical equipment;
- Low productivity of the employed persons.

Agriculture falls in a deep crisis in the transition period in the both countries and especially in Bulgaria. The volume of the agricultural products decreased, the income lessened, and the quality changed for the worse, the tie with food industry was interrupted and the traditional external markets were lost.

As a result from the low effectiveness, Bulgaria and Romania seem to be the slowest from all 27 state members and candidate countries in all agricultural indicators.

In spite of that there are indications for stabilizing of the agricultural sector, especially in Romania. It concerns mainly the crop production, where the indicators of the both countries are better than in the livestock. Bulgaria and Romania have some competitive advantages in the wheat, maize, sunflower production but these advantages are only extensive, achieved by including of more labour and capital.

The agricultural trade between Bulgaria and Romania become more intensive in the last years. Traditionally the balance is positive for Bulgaria, i.e. the export exceeds the import. Exception is 2004, when because of the weak yield of wheat, import was necessary and the trade balance became negative.

Table 14

Agricultural trade between Bulgaria and Romania, thousand USD¹⁰

	2003	2004
Export (FOB) to Romania	38 661	35 411
Import (SIF) from Romania	16 854	53 334
Balance	21 807	-17 924

The difference between the two countries on one hand and EU on other hand is mainly in the effectiveness of the sector. This means that Bulgaria and Romania fail to use in best way their big natural and human potential in agriculture.

The general conclusion is that both countries have some common strengths and weaknesses, opportunities and treats. They are presented in table 15. With the biggest weigh in the weaknesses are the duality of the farms and the fragmentation of the sector, which doesn't allow applying of scale economy and increasing of the competitiveness of farms.

Table 15

SWOT analysis of Bulgarian and Romanian agriculture

Strengths	Weaknesses	Opportunities	Treats
Traditions in agriculture	Extensive agriculture	Integration to the Common European market	High level of input for the small farms
Favorable climate, fertility soil	Fragmented agricultural area	Potential for producing of organic products	Bad distribution channel of agricultural products

¹⁰ Годишен доклад за състоянието и развитието на земеделието (Аграрен доклад) 2005. http://www.mzgar.government.bg/OfficialDocuments/Agry_report/Agry_report_2005.htm

Strengths	Weaknesses	Opportunities	Treats
Low labour costs in agriculture	Big share of the semi-subsistence farms under 2 ha, duality of the farms	Cooperation of Bulgarian and Romanian farms from food industry	Strong competition from EU
Concluded privatization/ Restituted land	Insufficient market orientation of agriculture		Uncompetitive food industry
	Outdated equipment/technique		

In addition to these common features, Bulgaria and Romania have some specific strengths and weaknesses, opportunities and treats:

- **Romania**
 - **Strengths:**
 - The second agricultural manufacturer in CEE next to Poland (62% of the territory is agricultural area);
 - Big internal market (2,8 times bigger than Bulgarian);
 - **Weaknesses:**
 - Low labour productivity because of the land fragmentation.
 - **Opportunities:**
 - Big human potential (45% of the population live in rural areas);
 - Large number of agricultural specialists (over 60000 experts with university and high education);
 - **Treats:**
 - The young people don't own land, many farms are managed by aged farmers;
 - Low level of absorption of pre accession funds in agriculture
- **България**
 - **Weaknesses:**
 - Small internal market
 - **Opportunities:**
 - Many traditional products are still known in Russia and some Arabian countries;
 - Uncultivated land.

The similarity in the agricultural structure of both countries is a precondition for competition between them. This competition didn't put into practice until now mainly because of the decreasing of the agricultural output especially in Bulgaria. Both countries produce basically to satisfy their internal needs. The export is relatively small and it is mostly of crop production (wheat, maize, barley, sunflower and so on).

Both countries have unused potential for production, which is a precondition to competition, too. This potential is bigger for Romania, especially in livestock, where the output is on the level of 1989 and before.

In spite of these premises, with a view to the coming structural changes, which are expect to be painful and difficult, in the government agenda of both countries will be such problems as increasing of agriculture competitiveness and managing the accession challenges, not the competition between neighbors. As future full member states Bulgaria and Romania will have the opportunity to solve any discrepancies in the European way – by participation, discussion and implementation of the resolutions of EU – quotas, referent prices and so on. In this way slow as it is, the Community has solve all contradictions and debates.

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