

**UNIVERSITY OF MACEDONIA**  
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**Europe**

**AGRICULTURAL DYNAMICS IN**  
**SOUTHEASTERN EUROPE**  
**The case of Romania**



Dissertation by

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## **Abstract**

Agriculture is an important sector of production for economic growth in countries of Southeastern Europe (SEE) and especially for Romania that is the biggest country of the region in terms of land area. In addition, in a country like Romania where rural population accounts for the half of total civilian population, agricultural activity seems to play a key role in rural employment and in the overall economic development of these areas. On the other hand, there are many factors that influence agricultural production and agricultural dynamics in the national economy. This paper examines the potential of Romanian agriculture to grow analysing the development of key factors in agriculture over the last decade.

Key words: agriculture, economic growth, Southeastern Europe, Romania

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## **1. Introduction**

The term dynamics is frequently used in economic studies and generally in development studies; structural economic dynamics, industrial dynamics, agricultural dynamics, market dynamics and so on (Passinetti, 1993; Bhide et al., 1998; Nosova, 2005; Kopeva et al, 2011). We might say that it denotes the potential and sustainable growth of a sector within an economy. In the case of agricultural dynamics we have the potential of one sector- agriculture- to grow and contribute to the economic development of a country in the long term. Jorgenson (1970) analyses the role of agriculture in the development of a dual economy that is the development of a modern economic sector (e.g. services or industry) and a traditional economic sector (e.g. agriculture) according to classical and neoclassical theory approaches. Of course, the output of agriculture is determined by many factors and primarily by the inputs of labour, capital and land (Kitsopanidis et al., 2003).

The region of Southeastern Europe is the less developed one among the rest European regions, in recent history. Historically, the rigid reality of communism where the central government was the key player to policy and decision-making processes undermined the economic development in the region (Bache, 2010). Nowadays, most of the Southeast European countries are democracies in transition from a socialist institutional and administrative framework to a new western model of governance. So, within their post-communist future, these states experience for the first time, a sharp democratization and marketization process, struggling to fit in a democratic environment and develop a liberal- market economy (Kuzio, 2001). The structure of their economies was based on the industrial model (Papazoglou, 2005) undermining the other sectors of production, such as the primary and tertiary sector.

In the case of Romania, as regards the development of the agricultural sector, the country seems to be suffering from inefficiencies of the past. Schrieder et al. refer to the need of agricultural reforms in rural regions of the country in order to boost the economic development of Romania. Other studies refer to the significance and impact of privatization in agricultural farms (Rizov et al., 2001) and the impact of factor (land, labour, capital) markets on agricultural productivity (Petrick et al., 2013).

Therefore, this paper attempts to investigate the potential of the underdeveloped agricultural sector in Romania to grow and contribute to further economic development of the country, based on indices and trends for the period of the last ten years. In specific, chapter two provides an overview of the current economic situation in the countries of Southeast Europe and their economic development over the last decade emphasizing the role of the three sectors of production in the economy of each country; agriculture, industry and services. Chapter three continues with the literature review and methodology approach for the purpose of this paper while chapter four is concerned with the structure of the agricultural sector in Romania analyzing key drivers of the agricultural dynamics in the country over the last decade. Chapter five discusses the results from previous chapters and concludes.

## **2. Overview of the economic situation in Southeastern Europe (SEE)**

The region of Southeastern Europe consists of the following countries today: Albania (AL), Former Yugoslavian Republic of Macedonia (FYROM), Serbia (SB), Montenegro, Bosnia-Herzegovina (BiH), Kosovo, Croatia (CRO), Romania (RO) and Bulgaria (BG).

Macroeconomic analysis gives the framework within which economic sectors perform (Kopeva et al., 2011). Table 1 shows basic stylized facts regarding the macroeconomic situation in the region for the year 2012. As we can see, Romania is the biggest country of the region in terms of surface and population, while Romania, Bulgaria and Croatia accumulate over 75% of region's Gross Domestic Product (GDP). In terms of purchasing power, Croatians, Bulgarians and Romanians would spend less money in order to buy the same goods or services in comparison to Albanians or Bosnians. However, the per capita GDP at purchasing power parity for the SEE region average accounts for 40 per cent of the European Union's average. Hence, it is obvious that the region is still, in 2012, lagging behind in terms of economic development although there is a significant progress for the countries in comparison to a decade ago<sup>1</sup>.

**Table 1. Main macroeconomic indicators in SEE, 2012**

	Total surface area in km <sup>2</sup>	Population (million)	Gross Domestic Product (GDP) in US\$ billions	GDP per capita at current prices in US\$	GDP per capita at purchasing power parity (PPP), current prices in US\$
Albania	28.748	3,162	13,1	4.142	9.443
BiH	51.129	3,834	17,0	4.434	9.235
Bulgaria	110.994	7,305	51,0	6.981	15.933
Croatia	56.538	4,267	56,4	13.217	20.532
FYROM	25.713	2,106	9,6	4.558	11.654
Kosovo	10.908	1,806	6,2	3.433	-*
Romania	238.391	21,330	169,4	7.941	16.518
Serbia	88.361	7,224	37,5	5.191	11.544
Montenegro	13.812	0,621	4,2	6.763	14.206
<b>Total</b> (SEE-9 region)	624.594	51,655	364,4		
<b>Average</b> (SEE-9 region)				6.296	13.633
<b>European Union</b> (EU-27)	4.381.376	509,000	16.630,0	32.671	33.527
SEE-9 in percentage (%) of EU-27	14	10	2	19	40
Romania % of: EU-27	5,5	4,2	1	24	49,2
SEE-9 region	38	41	46,5	126	121

\* not available data

Source: The World Bank database, own calculations

<sup>1</sup> See Papazoglou, 2005. *Economies of Southeastern Europe: problems and prospects*; European Commission (EC), Albania 2012 Progress report; European Commission (EC), Montenegro 2012 Progress report.

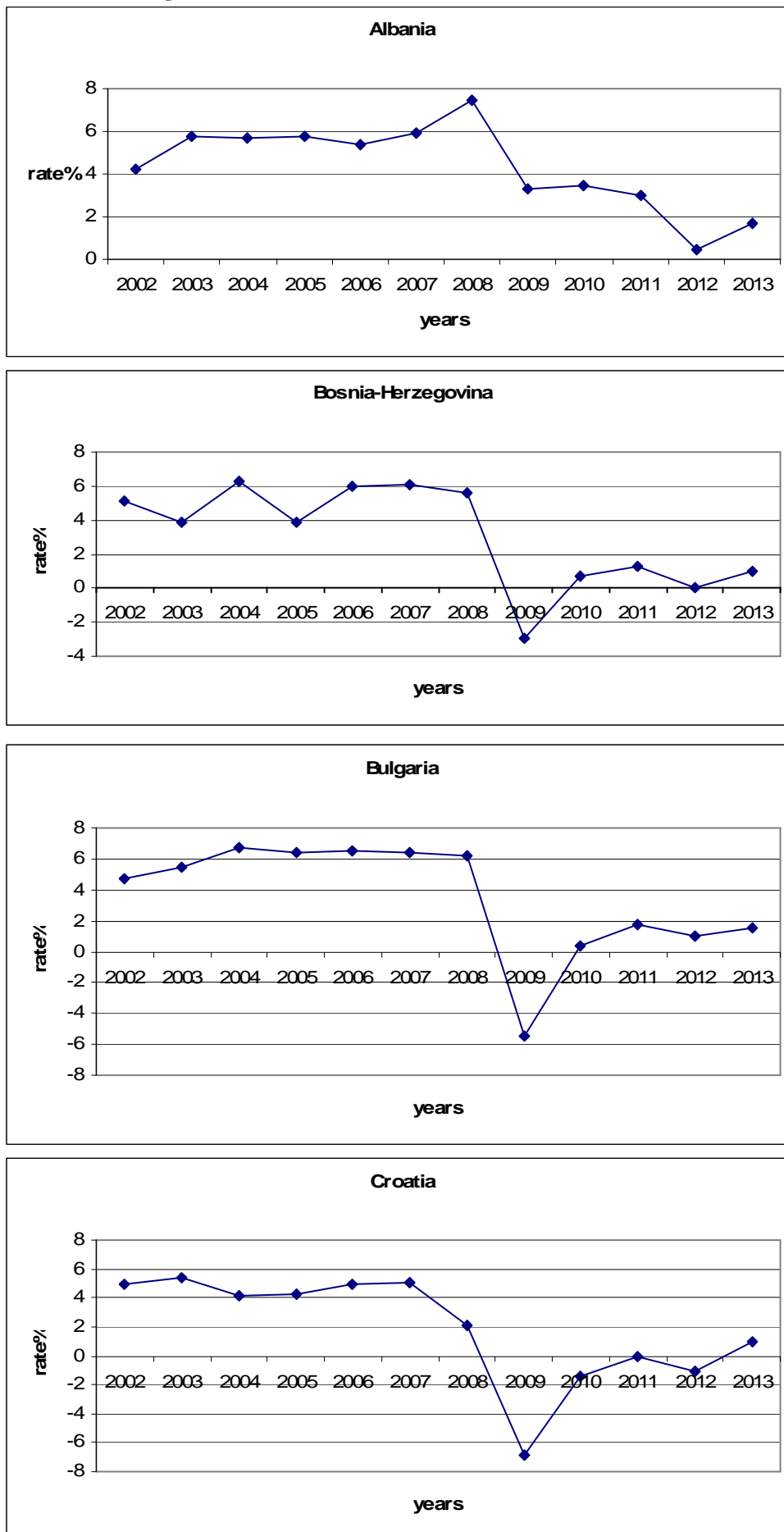
Gross domestic product is a key measure of economic development and growth. To better measure the economic development of a country we can observe the GDP growth rates during the last decade as shown in figure 1 below. We see that all countries exhibit growth rates between 4 and 6 per cent in 2002, except for Former Yugoslavian Republic of Macedonia and Montenegro that started from a lower base. Albania along with Bulgaria and Croatia follow a stable or increasing annual growth till the years of 2007 and 2008. Former Yugoslavian Republic of Macedonia and Montenegro, on the other hand, show a remarkable growth until 2007 with a pick of 6 per cent and almost 11 per cent respectively in 2007. Romania, Bosnia-Herzegovina and Serbia, in turn, show an unstable growth curve with rates increasing and decreasing from year to year until 2008. Data analysis after 2008 confirms the severe impact of the recent economic and financial crisis; observed annual growth of GDP was interrupted by the crisis and all countries encounter significant decline in economic growth.

According to the latest Regional Economic Prospects report of the European Bank for Reconstruction and Development (EBRD) economic growth in Kosovo in 2012 was the highest in the region at 2,5 per cent, although from the lowest base in the region. In addition, growth in 2013 is likely to be similar to last year and rise to 3,5 per cent in 2014. Economic activity in Albania has been weakening through 2012, while fiscal challenges are severe, with public debt above 60 per cent of GDP.

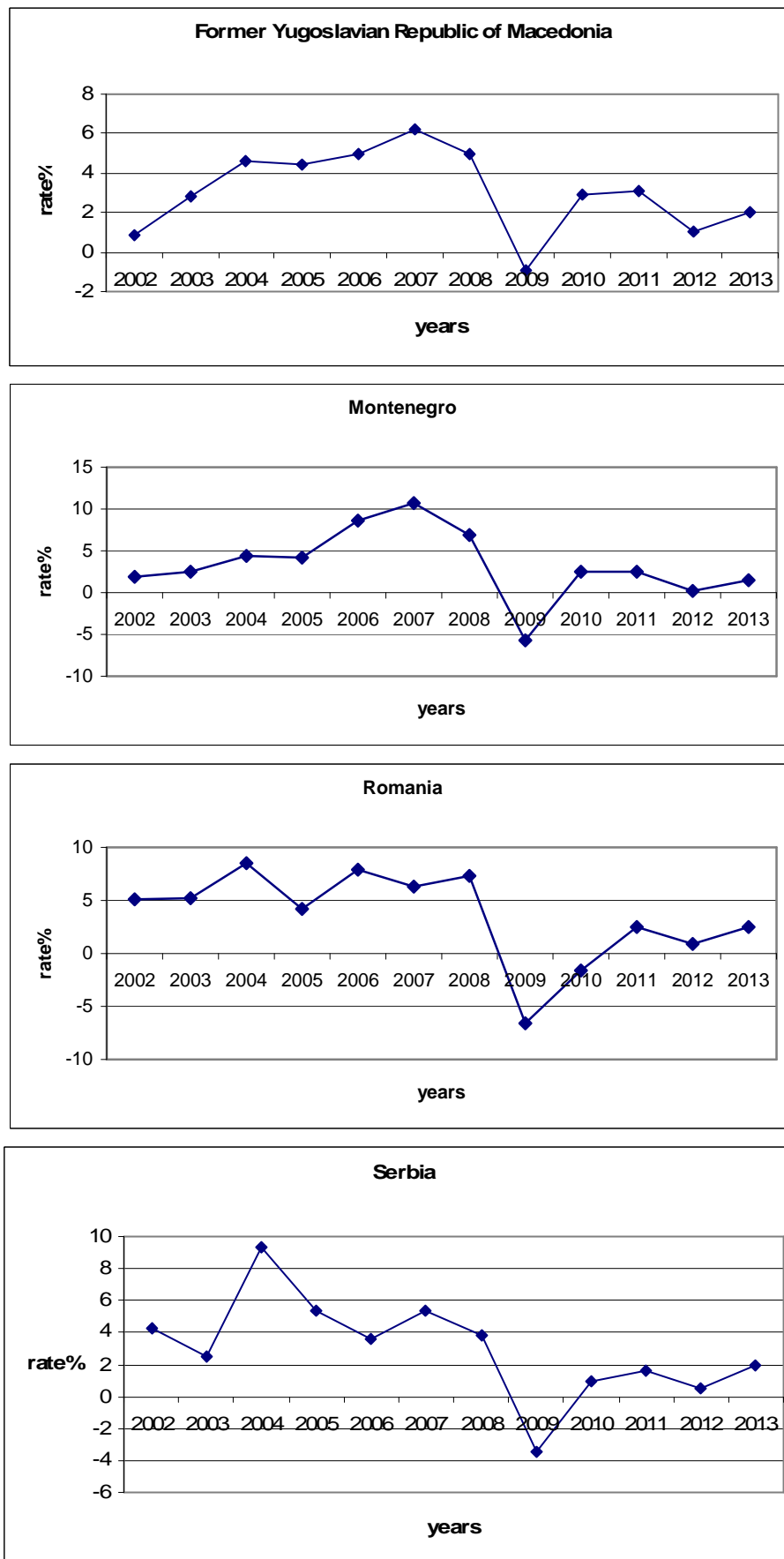
Bosnia- Herzegovina's economy remains stable but growth so far in 2013 is minimal after the recession in 2012. The complex political structure and weak business environment continue to hold back growth prospects. In Bulgaria the economy showed little signs of a sustained recovery in 2013. Weak internal demand holds down growth in 2013 which is slightly above 1 per cent that was recorded in 2012. The economy in Former Yugoslavian Republic of Macedonia has shown some signs of recovery in the first half of 2013 as output grew by 2 per cent. The country continues to make strong efforts to improve the business environment and attract Foreign Direct Investments (FDI). Romania's GDP rose by 2,5 per cent in 2013 but although inflation fell and the fiscal performance improved, growth prospects continue to be strongly dependent on the eurozone. Serbia's economy saw an export-led rise of GDP in 2013 compared to the level of 2012. However, severe fiscal problems and a high number of non-performing loans are severely affecting the economy.

In general, growth in Southeastern Europe is recovering from the very low levels recorded in 2012 (0,3 per cent on average) and growth, as figure 1 shows, in all countries is expected to be positive.

**Figure 1. Real GDP Growth Rates % in countries of SEE**



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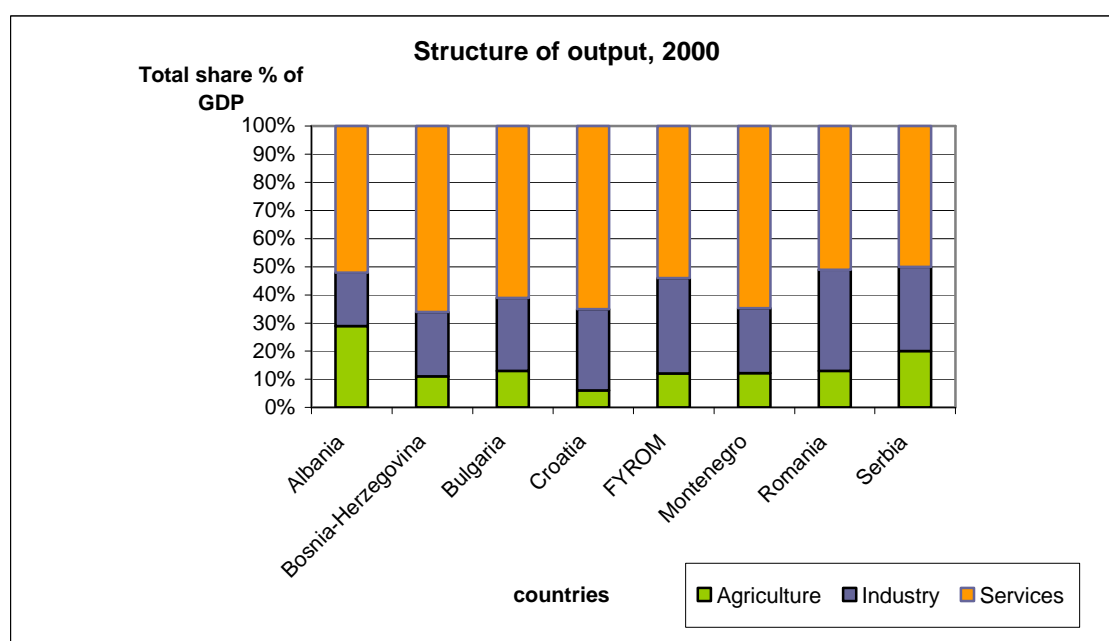


Source: The World Bank database



At this point it is prudent to highlight the value added of each sector of production in the economy of the countries of SEE based on two years of reference, 2000 and 2012 (see figure 2 and figure 3). We have divided the production into three sectors; agriculture<sup>2</sup> (primary sector), industry (secondary sector) and services (tertiary sector).

**Figure 2. Structure of output (%GDP) in countries of SEE, 2000**



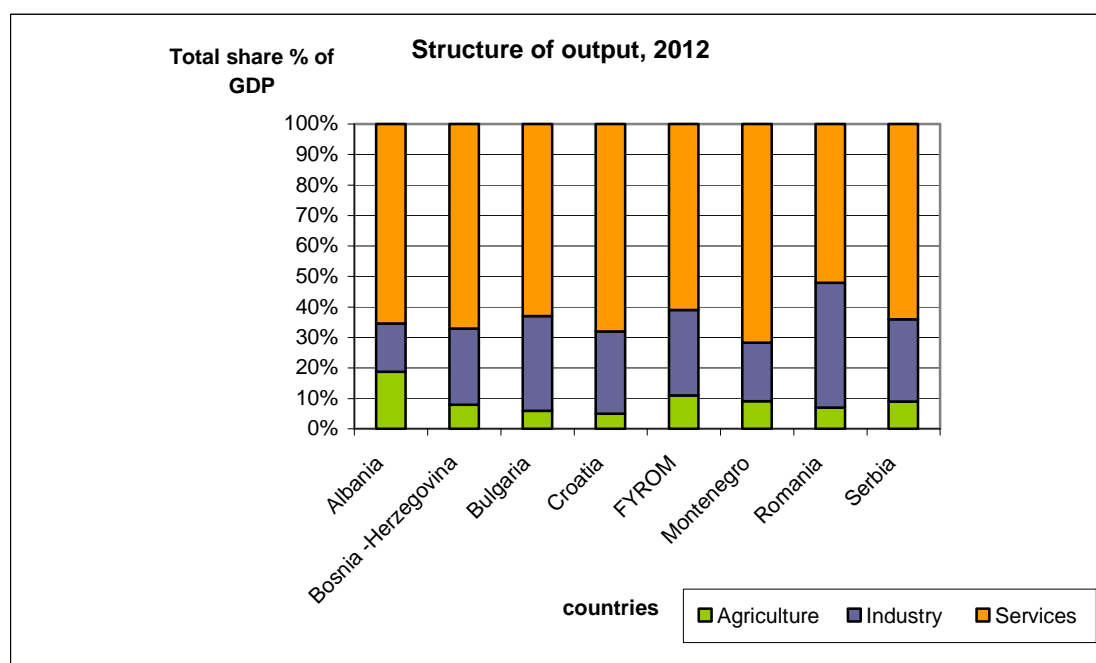
Source: The World Bank database

As we can see from above, the output of services for the year 2000 reaches approximately to 50 per cent of GDP in Albania, Former Yugoslavian Republic of Macedonia, Romania and Serbia while in Bulgaria, Croatia, Bosnia-Herzegovina and Montenegro varies from 60 to 65 per cent of GDP. Industry contributes to economic growth in all countries at a percentage of 20 to 30 with the exceptions of Romania and Former Yugoslavian Republic of Macedonia where the percentage is slightly higher, around 35 per cent of their GDP. At this point we must note that the share of agriculture in Albania's economy was the highest, almost 30 per cent, in the region in 2000 followed by Serbia (20 per cent). Romania's agriculture had a value added equal to 13 per cent of total GDP while agriculture in Croatia contributed only at a level of 6 per cent.

In 2012, the breakdown of GDP growth by its main aggregates (figure 3 below) confirms a growth of service sector in all countries (64 per cent of SEE-8 total value added on average originates from services) while industry growth remains stable in most of the countries with a slight downturn.

<sup>2</sup> Includes crops, livestock, fisheries and forestry

**Figure 3. Structure of output (%GDP) in countries of SEE (SEE-8), 2012**



Source: The World Bank database

In particular, Bulgaria and Romania are the only countries that exhibit growth in the industrial sector. This could be explained by their industrial tradition especially in manufacturing<sup>3</sup>. According to the European Commission's report of 2011<sup>4</sup> manufacturing plays a bigger role in Romania than in the European Union (EU) on average; approximately 22,5 per cent versus 15 per cent of total value added respectively. Consequently, Romania ranks among the EU member states with the highest share of manufacturing in GDP and the lowest share of market services.

Furthermore, a decrease of the agricultural sector's share in the economy of each country is noted. The latter is easily explained if we take into account that economic growth in these countries changed the composition of GDP in favour of the industrial sector because of the different rates of technological change and productivity rise between industry and agriculture (Kyrkilis et al., 2013) and in favour of the services sector as a common effect of a market oriented economy (Papazoglou, 2005).

In any case, the agriculture's share in the SEE region on average (equals to 15 per cent of total value added at 2000 and to 9 per cent of total value added at 2012) is much higher compared with the agriculture's share in the European Union average (equals to 3 per cent of total value added at 2000 and 2 per cent of total value added at 2012)<sup>5</sup> in the years 2000 and 2012. Particularly, Romania's agriculture, forestry and fisheries sector is one of the largest in terms of its contribution to total value added among member states<sup>6</sup>.

<sup>3</sup> see Papazoglou, 2005. *Economies of Southeastern Europe: problems and prospects*, p.29-30.

<sup>4</sup> see European Commission (EC) 2011, DG Enterprise and Industry staff working document "Member States competitiveness performance and policies: Reinforcing Competitiveness", p.172-173.

<sup>5</sup> datasource: The World Bank, available at: <http://data.worldbank.org/region/EUU>

<sup>6</sup> see Eurostat (2013), available at [http://epp.eurostat.ec.europa.eu/cache/ITY\\_OFFPUB/KS-HA-13-001/EN/KS-HA-13-001-EN.PDF](http://epp.eurostat.ec.europa.eu/cache/ITY_OFFPUB/KS-HA-13-001/EN/KS-HA-13-001-EN.PDF)

### 3. Methodology

Reviewing the literature that investigates the economic development in transition economies and countries of Southeast Europe (Petrakos et al., 2007; Graham et al., 2005; Schön et al., 2007; Petrakos, 1999; Kalogerisis et al., 2007; Gavrilencov, 2005) as well as the role of agriculture in the economies of developing countries (Theodosiou et al., 2007; Fulginiti et al., 1998, Bhide et al., 1998, Bojnec et al., 2013) and especially in Romania (Pop et al., 2013; Rizov et al., 2001; Fraser et al., 2009; Kotzeva et al., 2006), some studies refer to the low technological intensity in primary sector of production in Romania and in most of the SEE countries, other studies refer to the crucial role of agriculture in the SEE economies like in FYROM and Croatia as well as to the importance of rural development with allocation of resources according to specialization in production. Fraser et al. refer to the necessity of a sustainable land use in Romanian agricultural activity while Kotzeva et al. analyses the labour market dynamics in Romania relative to the wider economic environment in all sectors of production.

The literature review and collection of data was done from September 2013 to November 2013. The analysis draws on data from the international organisations Eurostat and World Bank covering a period of thirteen years, from 2000 until 2012. Data was processed with SPSS 13.0 package used for descriptive statistics. The results are presented with the form of tables and figures. When analysing data, it is worth mentioning that slight variations may be found in the data reported by different sources.

## 4. Case study of Romania

### 4.1 General overview

Romania<sup>7</sup> has an area of 238.391 km<sup>2</sup> and is the largest country in the SEE-9 region, as described above, having about the same area as the United Kingdom (244.100 km<sup>2</sup>) and it is the ninth largest member state by area in the EU-27 (EC, 2002). Romania's area represents almost 5,5 per cent of the EU-27 surface while the total area of SEE region represents 14 per cent of the EU-27 surface<sup>8</sup>.

The total Gross Domestic Product (GDP) of Romania is about 46,5 per cent of that of all the SEE-9 together and reaches to 1 per cent of that of the EU-27. The per capita GDP is at 26 per cent above the per capita GDP in SEE region average but equates to only 24 per cent of the EU-27 average (Table 1).

### 4.2 Economic Development

#### 4.2.1 Macroeconomic indicators

The current macroeconomic situation in Romania is depicted in Table 2 in annex. Further details have been mentioned in chapter two of this paper.

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<sup>7</sup> see Map in annex, p.27

<sup>8</sup> see Table 1, p.5

#### **4.2.2 Agriculture in the national economy**

During the more recent years of European economic recession, the role of agriculture in the economy of Romania has stabilised or even increased slightly. For instance, in 2008, the share of the agricultural sector in total gross value added amounted to approximately 7 per cent and has been stable since then (see figure 4 in annex). The stabilisation of the share of agriculture in the economy implies that agriculture has played a certain social-buffer role during the economic recession, against rising unemployment and worsening living conditions among the population in rural areas.

In the predominantly rural regions of Romania the contribution of agriculture, forestry and fisheries to total value added in 2010 was greater than that of construction while the highest contributions of agriculture, forestry and fisheries to value added were recorded in Bulgaria (11,2 per cent) followed by Romania with 11 per cent of total value added (see figure 5 in annex). By contrast, agriculture, forestry and fisheries contributed as little as 4,4 per cent of total value added in the predominantly rural regions of EU-27. Thus, agriculture seems to be of high importance for the development of rural areas and rural regions to be also important for the growth of agricultural sector in Romania.

#### **4.3 The agricultural sector**

As we have already mentioned in the introduction of this paper the main three factors of production regarding agriculture are land, labor and capital. By land we mean the agricultural area utilized for cultivation or pasture and all the physical, chemical and biological variables of the terrain that may influence the output of agricultural activity. Also, by microeconomic aspect, we are interested in the structure of farming (number of holdings, farm size, labor force and number of people employed in the agricultural sector), in investments for technological innovation and infrastructure that would increase productivity as well as the agricultural income and would influence the prices of agricultural products (Kitsopanidis et al., 2003). Of course, the above are interrelated to the fluctuations in the land, labor and capital markets of a country's economy (Swinnen et al., 2013). By capital we mean all the inputs in a farm business for example machinery, fertilizers or livestock feeding (including land and labor) in order to increase productivity and maximize the profit (Kitsopanidis et al., 2003). Moreover, a dynamic agricultural sector may positively contribute to the food and beverage industry and other manufacturing products due to the inputs supplied to these industries from primary production (MAFCP, 2007).

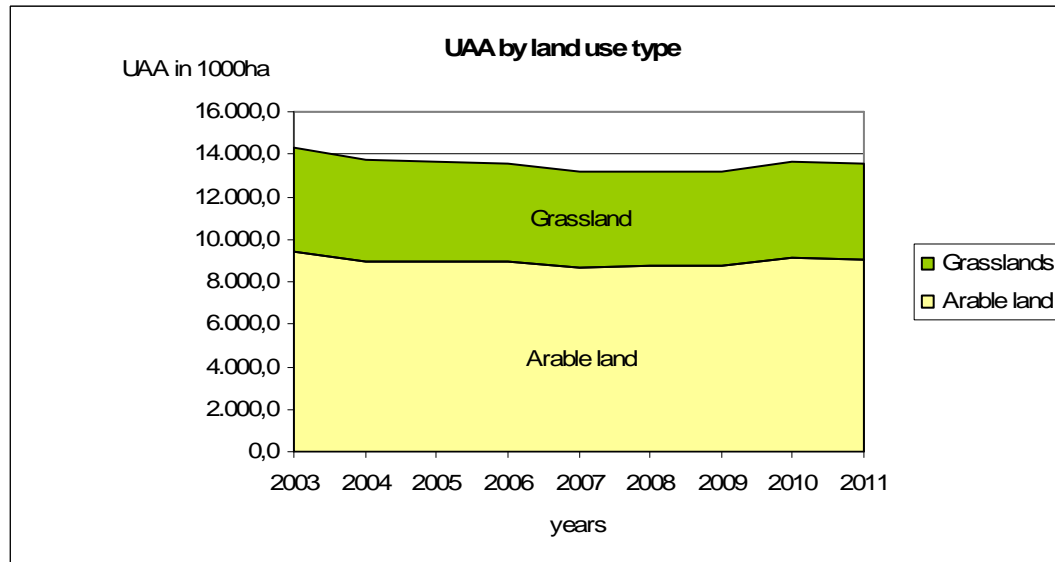
##### **4.3.1 Agricultural land**

The total agricultural land (UAA) represents 58 per cent of the total area of the country according to the latest available data (see Table 3 in annex). This is one of the highest shares of cultivated land in EU-27; EU-27 average for 2008 is nearly 41 per cent. Moreover, 38 per cent of total Romanian area is arable land and 22 per cent cereals.

According to 2008 data, the share of Romanian arable land in UAA surpasses the share of arable land in UAA EU-27 average; 64 per cent and 60 per cent respectively. Currently, arable land represents approximately 65 per cent of UAA, permanent crops

3 per cent and permanent grassland 33 per cent. As we can observe from figure 6 below the surface of the agricultural land remains stable and slightly decreasing in time.

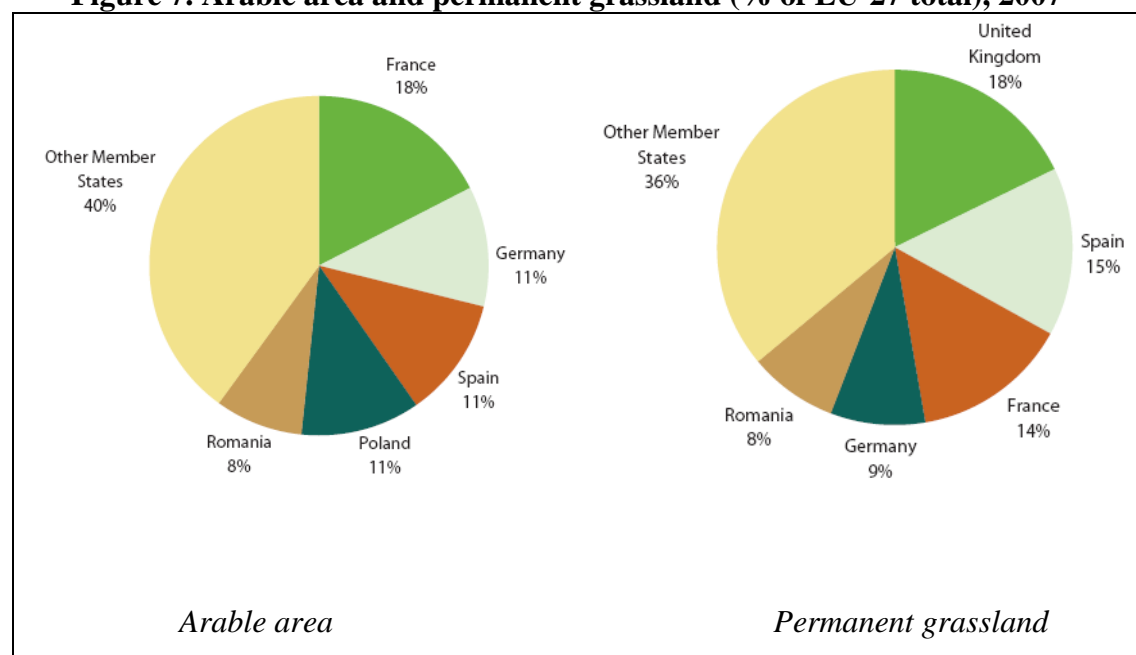
**Figure 6. Utilized Agricultural Area (UAA) in 1000 hectares (ha) by land use type (2003-2011)**



Source: Eurostat database

The agricultural area of Romania contributes nearly 8 per cent of the UAA of the EU-27. Figure 7 below shows the bigger shares of arable land and permanent grassland of member states in EU-27 total arable area and permanent grassland respectively. Romania ranks fifth among all member states.

**Figure 7. Arable area and permanent grassland (% of EU-27 total), 2007**



Source: Eurostat pocket statistics (from farm to fork statistics)

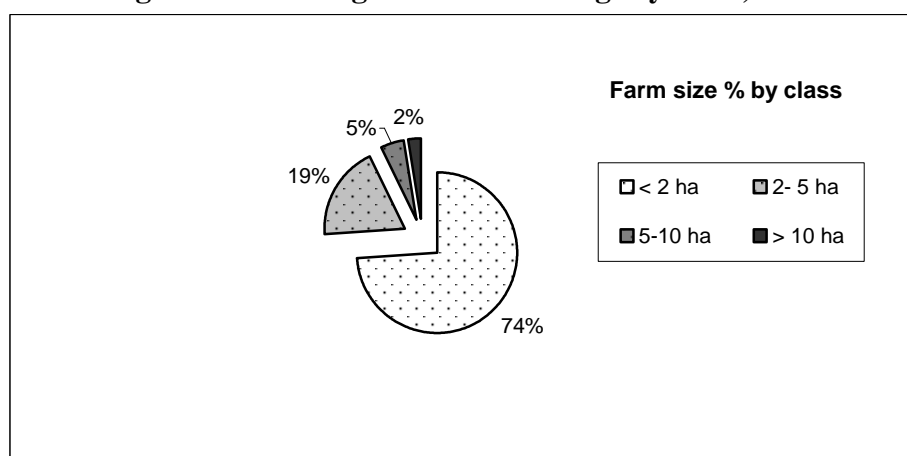
### 4.3.2 Farm structure

Currently, of a total of approximately 3,9 million holdings in Romania 74 per cent or 2,9 million of them cultivate less than 2 hectares of land. It is remarkable that 93 per cent of the farms are below 5 hectares with an average farm size of 3,6 hectares per holding (see Figure 8 below and Table 3 in annex).

The above is explained if we have to take into account that privatization of the agricultural land, by the form of restitution, in the post-socialist Romania was affected by the land reform carried out after World War II restricting farm size per family to 5 hectares. In addition, the upper limit of land to be received during restitution was no more than 10 hectares per family<sup>9</sup>. As a result privatisation and the lack of financial resources led to an agricultural structure dominated by small-scale farms with very fragmented field plots.

However, according to recent data (from 2003 to 2010) there has not been any dramatic change in farm size variation. The constraint by legislation of 10 hectares put on the size of land to be received by a family during restitution can be seen in the limited number of farms with a size above 10 hectares (see Table 4 in annex). An increase in the number of holdings with a size above 100 hectares is noted; in 1998 reached to 500 farms approximately<sup>10</sup> whilst in 2010 equals to 13.730 farms. In general, a slow tendency towards larger scale farms is observed. Land market liberalisation could contribute considerably to the growth of farm size, with implications for increased farm income.

**Figure 8. Size of agricultural holdings by UAA, 2010**



Datasource: EC factsheets 2013

In addition, a percentage of 74 per cent of total number of holdings accounts for an economic size<sup>11</sup> of less than 2 thousand euro. We must, also, point out the fact that the majority of agricultural holders is above 55 years old with a large number of holders

<sup>9</sup> see Heidhues et al., 1997.

<sup>10</sup> see EC DG Agri country report on Romania, p.8.

<sup>11</sup> For each activity on a farm, a standard gross margin is estimated, based on the area or the number of heads and a regional coefficient. The sum of all margins, for all activities of a given farm, is its economic size, expressed in euro (€). For further details about estimation of a farm business value see Kitsopanidis et al. (2003) *Agricultural Economics*.

above the age of 64 while a percentage of only 7 per cent of total agricultural holders are young people; less than 35 years old (see Table 4 in annex).

### **4.3.3 Labour force in agriculture**

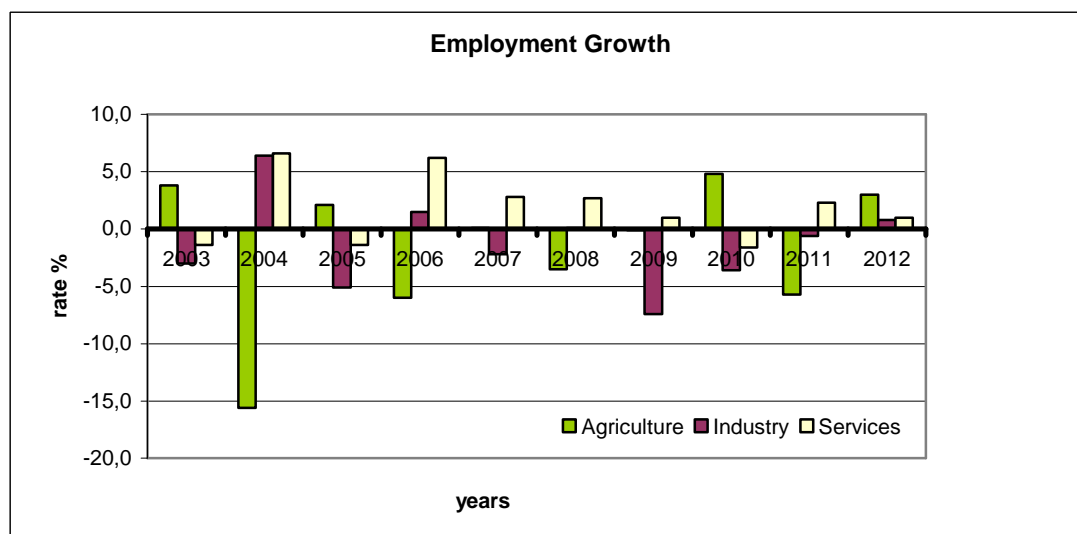
Labour force in agriculture is expressed in persons employed in an agricultural activity who may be paid or unpaid. Agricultural labour force includes only family members (husband, wife and children), only outsiders (employed workers outside the farm) or both. Employment in agriculture is analysed as a percentage of total employment in the economy.

In figure 9 employment growth rates in the three sectors of production are presented. As we see agricultural employment exhibits positive and negative growth rates through the last decade with a high positive rate in 2012 compared to industry and services employment growth. In particular, a decline in agricultural employment for a certain year co exists with an increase of the employment in industrial and service sector and vice versa.

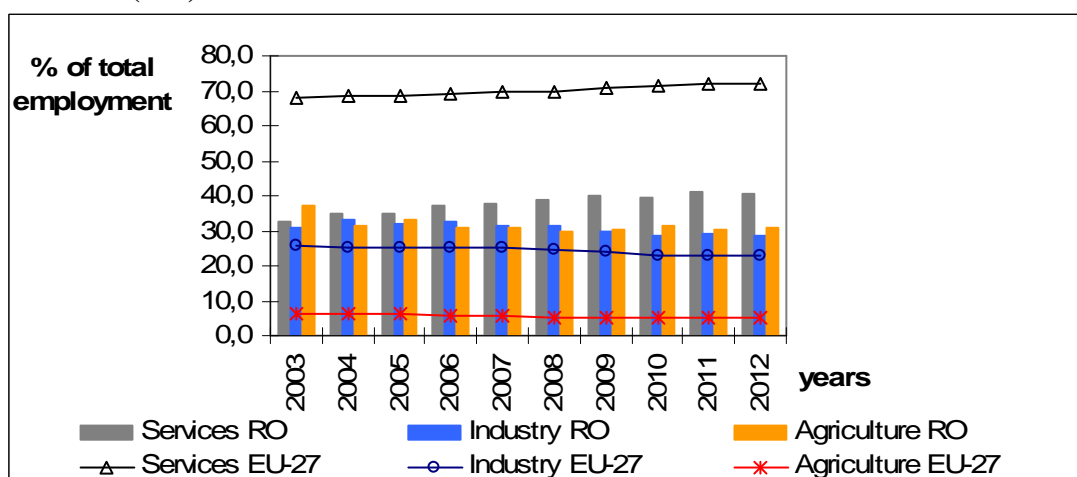
The share of agriculture, industry and services in total employment through the last decade in comparison to EU-27 average is depicted in figure 10. The figure shows the overall declining share of agriculture and industry in total employment in Romania as well as the increase in the number of people who work in the service sector from 2003 to 2012. EU-27 has the biggest share (an average of 70 per cent for the 2003-2012 period) of services in total employment -with a positive trend- relative to Romania. It is also remarkable that Romania's share of people working in agriculture, fishery and forestry corresponds to 32 per cent on average for the period 2003-2012 while in EU-27 agricultural employment equals roughly to 6 per cent for the same period.

However, agricultural labour force input is continuously decreasing from 2005 and on with a slight increase in 2012; in Romania the decline is bigger than that in EU-27 (see figure 11).

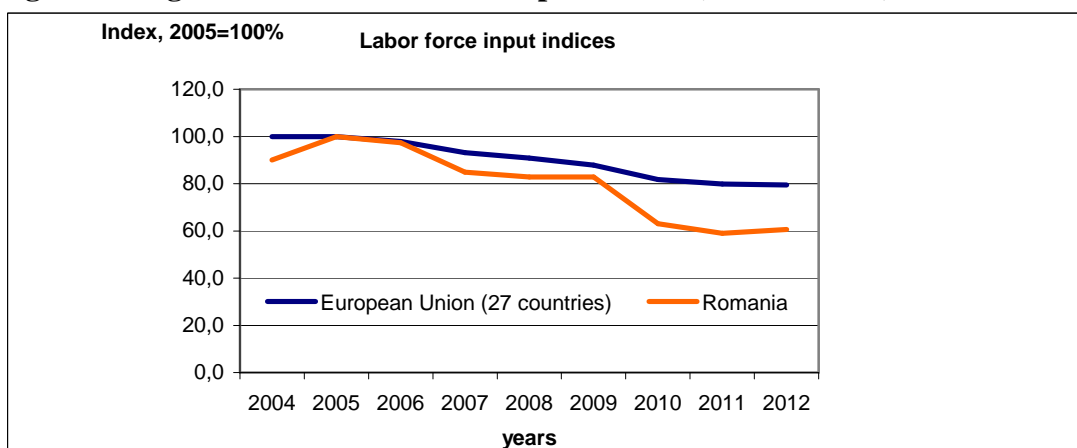
**Figure 9. Employment Growth rate in agriculture, industry and services in Romania (2003-2012).**



**Figure 10. Share of agriculture, industry and services in total employment in Romania (RO) and EU-27.**



**Figure 11. Agricultural Labour force input indices (2005 = 100%) 2004-2012.**



source: Eurostat database



Moreover, agricultural productivity in Romania seems to be low compared to EU-27 and most of the countries in SEE-8 (see Table 5 and Table 6 in annex). Productivity is commonly defined as the ratio of a volume measure of output to a measure of input use. If we want to measure productivity of existing labor force the following type is commonly used:

Labor productivity = Gross Domestic Product or Gross Value Added (GVA) / Total employment (in persons) or total number of hours worked of all persons employed

Among other productivity measures such as multi-factor productivity or capital productivity, labour productivity is particularly important in the economic and statistical analysis of a country because it is a revealing indicator as it offers a dynamic measure of economic growth, competitiveness, and living standards within an economy and enables us to explain the principal economic foundations that are necessary for both economic growth and social development (Freeman, 2008).

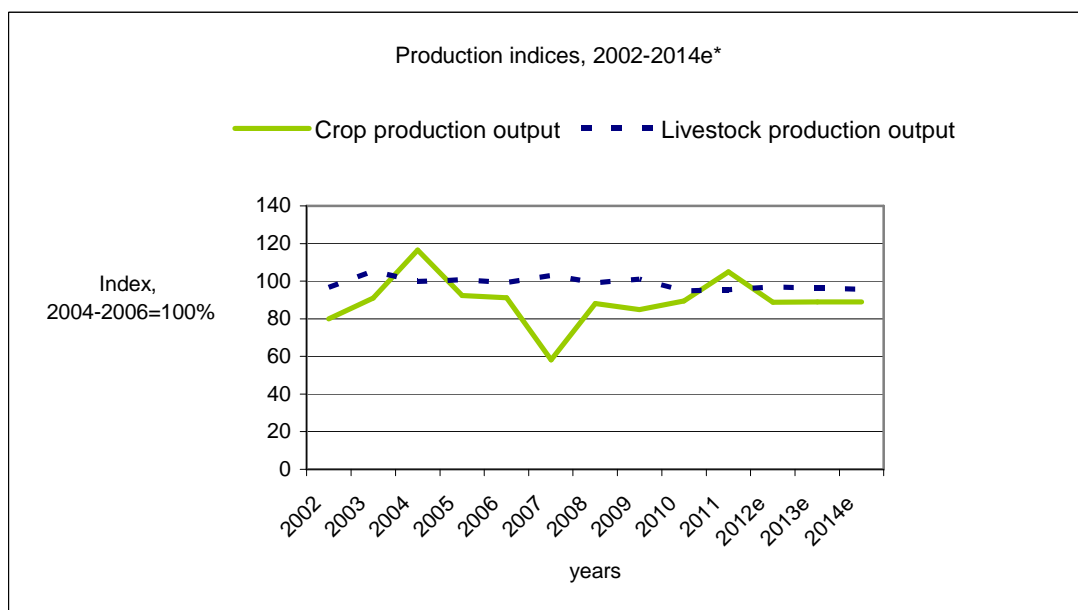
In the case of agricultural labour productivity we have used data about GVA of agricultural goods output in euro and total farm labour force in total number of full time employees extracted from Eurostat database. Total labor force (paid and unpaid), gross value added and labour productivity in agriculture estimated from the above mathematical type in Romania for selected years according to available data, are presented in Table 5 in annex. We note that Romania has low agricultural labour productivity especially if we compare it with EU-27 farm labour productivity. Nevertheless, its productivity has a positive trend.

Depicted data, for more recent years, in Table 6 in annex indicate substantial differences in agricultural labour productivity among the countries of SEE even though there is an increase of labour productivity in all the countries. For instance, in 2011 agricultural value added per worker in constant 2005 US\$ was \$24.686 for Croatia, \$11.504 for the Former Yugoslavian Republic of Macedonia, \$9.156 for Romania and \$3.462 for Albania. Value added per worker in Croatian agriculture was two times that in the Former Yugoslavian Republic of Macedonia, almost three times that in Romania and around eight times that in Albania.

#### **4.3.4 Value of Agricultural production, prices and farm income**

Agricultural production is fairly stable over the last decade (see figure 12) apart from the year 2007. The fall in agricultural production experienced in 2007 was mainly due to reduced crop production in that year. Indeed yearly fluctuations are observed mostly in crop production due to weather influence, while animal production has been more stable at about 33 per cent of total agricultural production. The trend for agricultural production after 2012 is stable and slightly increasing.

**Figure 12. Agricultural production indices<sup>12</sup>, 2004-2006=100% in Romania (2002-2014)**

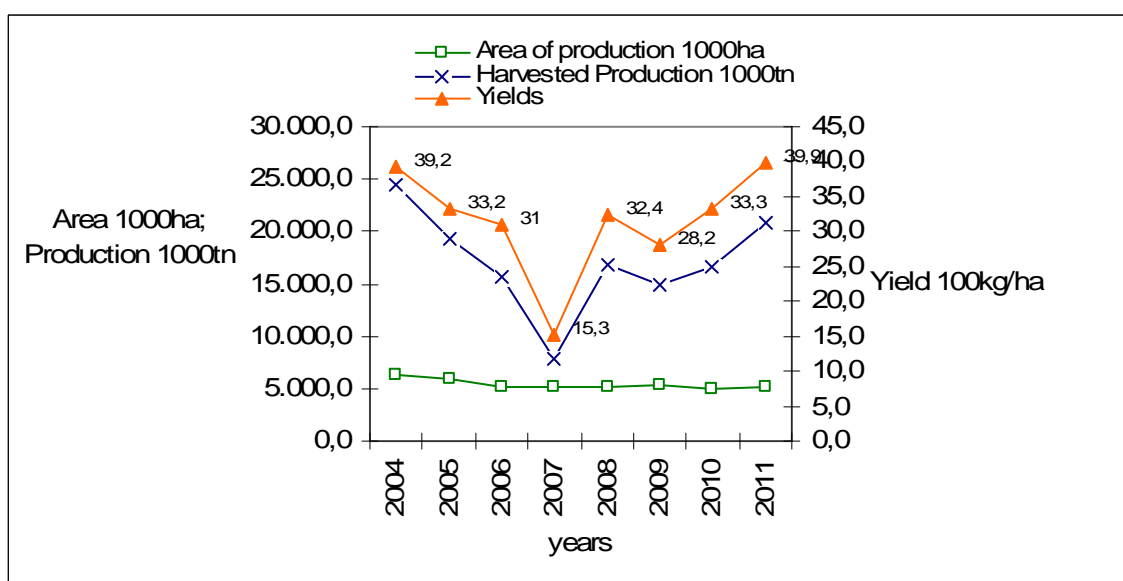


\*e: estimation

.Source: Eurostat database, own calculations

Romania is a big cereal producer country. In figure 13 we may see the evolution of cereal production in the country in terms of cultivated area measured in hectares (ha), harvested production measured in tones (tn) and yields expressed in kilograms (kg) per hectare for the period of 2004 until 2011. The fluctuation in the production and yield, especially for the year 2007, is due to weather conditions that influenced the total volume of cereal production.

**Figure 13. Cereal Production, Area and Yield (2004-2011)**



Source: Eurostat database

<sup>12</sup> Crop production index shows agricultural production for each year relative to the base period 2004-2006. Livestock production index includes meat and milk from all sources, dairy products such as cheese, and eggs, honey, raw silk, wool, and hides and skins.

Agricultural output amounts to 13,2 billion euro (€) in 2012 representing around 3,5 per cent of that of EU-27. For the 2001-2012 average crop output value represents 69 per cent of total agricultural output value and livestock output 31 per cent (see Table 7). The most important crop products, measured by their share in the value of agricultural output in the year 2012, are primarily cereals (21 per cent, especially maize 10,7 per cent and wheat 7,7 per cent), followed by vegetables (16 per cent), fruits (7 per cent) and potatoes (5 per cent). For animal production, milk accounts for 9 per cent, pigs for 7 per cent and eggs and poultry together for 9,5 per cent of agricultural output.

**Table 7. Agricultural Production value in Romania**

	<b>2001-2009 average value</b>		<b>2010</b>	<b>2011</b>	<b>2012</b>		
	in million euro	in %	in million euro	in million euro	in million euro	in %	% of EU-27
<b>Agricultural goods output</b>	12.383	100	13.960	16.670	13.215	100	3.5
<b>Crop output</b>	8.320	67	10.324	12.781	9.103	69	4.3
<b>Livestock output</b>	4.063	33	3.636	3.889	4.112	31	2.5

Source: Eurostat database, EC factsheet 2013

In figure 14 in annex we see the development of agricultural production value in the last decade.

As regards the economic accounts for agriculture (including prices and income) an overview of the current economic conditions in Romania is presented in Table 8. The composition of inputs used in agricultural production in Romania differs somewhat from that in other SEE countries. The share of intermediate consumption is relatively high with 55 per cent (%) of total agricultural output, while gross value added with 45 per cent (%) of agricultural output is relatively low. This is due to the increased level of input consumption (see figure 15 in annex) and the low level of labour input in agricultural activity (figure 11 above). In the case of livestock, the share of intermediate consumption is relative higher and reflects mainly the high cost of feeding stuffs, of veterinary products and other specific inputs (see EC factsheet, 2013).

Concerning producer prices of total agricultural production compared with the EU-27 price level, prices in Romania showed an increasing trend up until 2008- according to available data- whilst price gap much increased after 2005 relative to EU-27 price levels (see figure 16 in annex).

If we compare the agricultural income with the income received from other sectors of production in Romania we will see that the former is relatively low (see figure 17 in annex).

**Table 8. Economic accounts for agriculture in Romania for 2011 and change rate.**

	<b>2011</b>	<b>2011/2010</b>	<b>2012/2011</b>
	Million euro* <sup>1</sup>	Change in %	Change in % (estimation)
<b><i>Outputs</i></b>			
Crop output	12.781		
Livestock output	3.889		
Agricultural goods output	16.670		
Secondary activities	1.249		
<b><i>Inputs</i></b>			
Total intermediate consumption	10.025	14,8	-17,3
Fixed capital consumption	2.748	18,1	1,7
<b>Gross Value added at basic prices</b>	<b>8.023</b>	22,1	-22
<b>Net Value added</b>	<b>5.275</b>		
Taxes	14,6		
Subsidies	1.610,3		
<b>Factor income*<sup>2</sup></b>	<b>6.870,6</b>	39,7	-25,4

\*<sup>1</sup> values at current basic and producer prices

\*<sup>2</sup> it is calculated by subtracting the consumption of fixed capital from gross value added at basic prices and adding the value of subsidies less taxes

Source: Eurostat database (Economic Accounts for Agriculture), own calculations

### 4.3.5 Agricultural trade in general trade

Romania's trade increased from about € 3.5 billion (bln) in exports and € 5 billion in imports in 1991 to about € 11,5 billion and € 14 billion respectively by 2000. Consequently the trade deficit more than doubled from 1991 to 2000 to around € 3 billion<sup>13</sup>. In 2011, the trade deficit has tripled relative to 2000. Indeed, the value of the exports of Romania increased by 26,9 percent to reach 45,7 bln € and imports showed a similar development with an increase by 23,2 percent to 55,6 bln € that resulted in a trade deficit of 9,9 bln € in 2011, higher than the 2010 deficit of 9,1 bln € (see UN Comtrade database). Romania's agricultural exports accounted for 9 per cent of total exports and 8,1 per cent of total imports in 2011 with a negative trade balance. Agricultural exports are led by live animals and cereals.

Romania has increasingly integrated into the European economy. Its most important trading partner is the European Union which on average accounted for 62,6 per cent of all Romanian exports and 56,2 per cent of all its imports over the period

<sup>13</sup> see EC DG Agriculture, 2002.

1997 to 2000<sup>14</sup>. Moreover, exports are more diversified across trade partners than imports; in 2011, 18 major partners accounted for 80 per cent of exports compared to 15 major partners for imports (see UN).

As regards agricultural trade, the EU is one of the major trading partners, though much less important than for Romanian trade in general. In particular, trade in agricultural products with EU countries accounts for 9,1 per cent of total exports and 8,9 per cent of total imports while trade with non-EU countries accounts for 8,6 per cent of total exports and 6,2 per cent of total imports<sup>15</sup>. Agricultural trade with the European Union in particular changed a lot over the last years. While imports from the EU increased only slightly, exports have more than doubled between 2007 and 2011 (see figure 18 in annex). However, due to the absolute values involved for imports and exports the agricultural trade deficit is still at a level of € 626 million in the year 2011<sup>16</sup>.

#### **4.3.6 Investments in agriculture innovation**

Romanian economy has always been labour intensive with low technology inputs. Agriculture in turn has very low technological intensity (Kalogeressis et al., 2007). Therefore, investment in agriculture technological innovation that would increase productivity and exports and contribute to further growth of agricultural sector is still limited. Most foreign direct investments are headed towards the Romanian industrial sector. There is limited available data on investments for agricultural innovation and research and development.

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<sup>14</sup> as above 13

<sup>15</sup> see EC factsheet, 2013

<sup>16</sup> as above 15

## 5. Conclusions and discussion

To sum up, the economies of the countries in Southeast Europe (SEE) that we analysed in chapter two are fairly heterogeneous in terms of size, income levels and economic structure and the only common feature seems to be their communist past. Romania is the biggest country in terms of population and area size. We could categorise Romania in the group of the so called medium sized member states with a GDP share in EU-27 equal to 1 per cent. All the other member states of SEE region – Croatia and Bulgaria - or candidate member states – BiH, Kosovo, FYROM- which generate less than 1 per cent belong to the group of small sized states. In terms of GDP per capita Croatia is the richest country of the region followed by Romania while the poorest country of the region seems to be Kosovo followed by Albania and Bosnia-Herzegovina. Concerning the economic performance of the countries, growth in Southeastern Europe is recovering from the very low levels recorded in 2009 and 2012 while economic growth in all countries is expected to be positive.

The agriculture's share in the economies of SEE region, although it has declined over time, is much higher compared with the agriculture's share in the European Union economies for the last decade. So, agriculture remains a significant sector of SEE economies. The Romanian agricultural sector in turn is diminished (as contribution to GDP) although it remained stable since 2008 and it still is one of the largest sectors in terms of its contribution to total value added among EU member states.

In addition, after having analysed some key factors of agricultural dynamics in Romania the positive factors for agricultural growth seem to be the size of land area, the volume of cereal and livestock production as well as the increasing trend in prices of agricultural products. Nevertheless, there are still many weaknesses in the agricultural sector that prohibit its sustainable development.

First of all it is the high share of small-scale farms; most of the farms are small family businesses which mainly produce for own consumption and produce little to be sold in the market with little growth perspectives. In addition, these farms have hardly any other source of income and their well-being highly depends on the profitability of farming. Hence, to become competitive many farms in Romania need to enlarge. In second, the low levels of labour productivity and the decreasing levels of labour input in agriculture in combination with limited technological innovation restrain the potential for economic growth. All the above imply that reforms in land and labour markets should function better in order to foster innovation in agriculture, attract new investors and consequently increase the agricultural income.

On the other hand, agriculture contributes positively to employment growth in the national economy as people who work in the agricultural sector represent almost the one third of total employment; a share that is not at all negligible especially when agricultural activity provides employment and revenues for a large part of rural population. However, problems for the development of agriculture may arise due to increasing input prices and declining purchasing power for both agricultural enterprises and households that could hamper input use and innovation, as well as lead to a decrease in human capital and consequently an increase of poverty in rural areas.

Concluding, I suggest that attention should be given at agricultural innovation as future research on this topic will assist in further development of the sector especially in rural areas.

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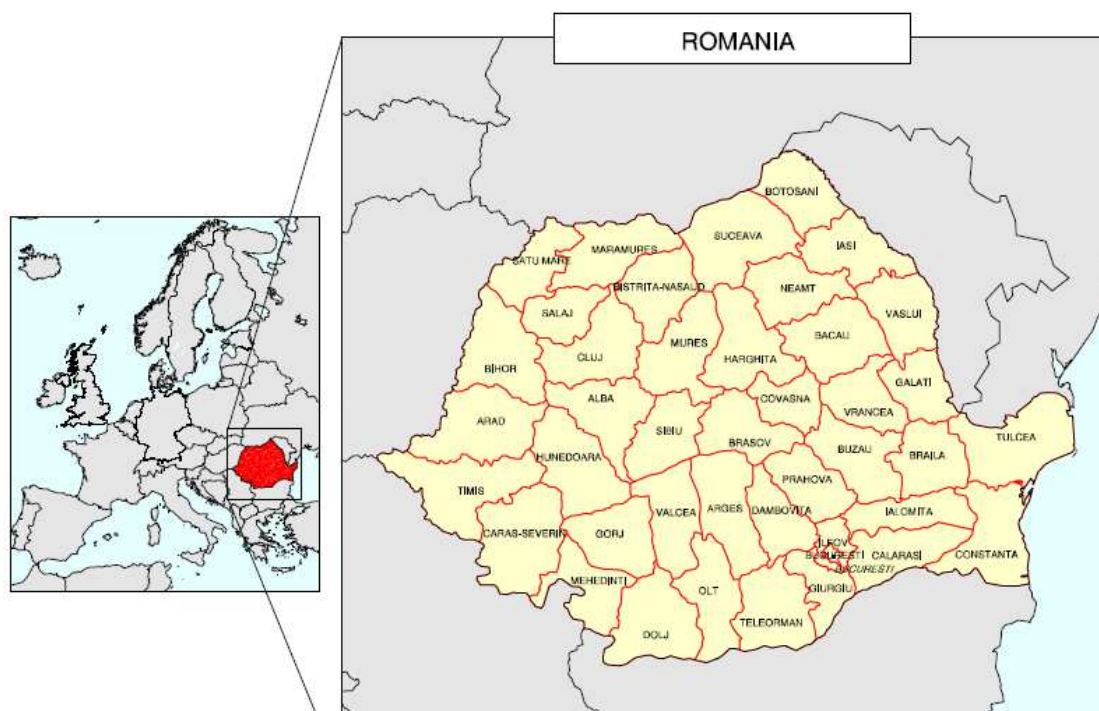
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## Annex

### Map of Romania



source: European Commission

## TABLES

**Table 2. Key macroeconomic data for Romania, 2012**

Main figures - Year 2012	
Population (1 <sup>st</sup> January)	21 355 849 inhabitants
Area	238 391 km <sup>2</sup>
Currency	RON – leu
Exchange rate (1 EUR = ... units)	4.46
Nominal GDP at current prices	131.7 billion EUR
GDP per capita at current prices	6 175 EUR
GDP per capita at purchasing power	12 209 PPS
Harmonised index of consumer prices	3.4 annual % change
Unemployment rate	7.0% of labour force
Exports (goods and services)	52.7 billion EUR
Imports (goods and services)	59.5 billion EUR
Exports of agricultural products	4.1 billion EUR
Imports of agricultural products	4.5 billion EUR
Current account balance	-4.0% of GDP
General government balance	-2.9% of GDP
General government gross debt	37.8% of GDP

source: EC factsheet, 2013

**Table 3. Utilized Agricultural Area (UAA) by land use type (2003-2011) and number of agricultural holdings**

	UAA 1000 hectares (ha)				Holdings	
	Total	Arable land	Permanent grassland	Permanent crops	Number 1000	UAA/holding (ha)
2003	14.798,7	9.377,1	4.957,6	464,8	4.299	3,4
2004	14.125,5	8.915,0	4.786,3	424,2	-*	-
2005	14.086,7	8.985,3	4.685,4	416,1	4.121	3,4
2006	13.944,0	8.939,4	4.630,7	373,8	-	-
2007	13.533,7	8.675,2	4.493,5	365,0	3.852	3,5
2008	13.536,0	8.718,2	4.449,6	368,4	-	-
2009	13.530,0	8.788,9	4.371,7	369,5	-	-
2010	14.013,0	9.146,5	4.546,7	320,7	3.859	3,6
2011	13.853,0	8.994,7	4.542,7	315,5	-	-
2003-2011 average	13.935,6	8.948,9	4.607,1	379,8	3.987	3,5

\* not available data

Source: Eurostat database, EC Member States factsheets 2013, own calculations

**Table 4. Structure of Agricultural Holdings depicted in terms of Number of holdings and percentage (%) by Utilized Agricultural Area farm size in hectares (ha), by economic size in euro (€), by livestock units (LSU) and by age of holder.**

Holdings		2003		2010	
		Total	%	Total	%
By UAA	< 2 ha	3 252 680	72.5	2 866 440	74.3
	2-5 ha	952 400	21.2	727 390	18.8
	5-10 ha	218 880	4.9	182 440	4.7
	10-20 ha	37 410	0.8	43 610	1.1
	20-30 ha	5 530	0.1	9 730	0.3
	30-50 ha	3 950	0.1	8 210	0.2
	50-100 ha	3 790	0.1	7 480	0.2
	> 100 ha	10 270	0.2	13 730	0.4
By Economic size	0			99 840	2.6
	< 2 000 €			2 716 620	70.4
	< 4 000 €			602 470	15.6
	< 8 000 €			313 000	8.1
	< 15 000 €			78 460	2.0
	< 25 000 €			22 240	0.6
	< 50 000 €			13 370	0.3
	< 100 000 €			6 450	0.2
	< 250 000 €			4 120	0.1
	< 500 000 €			1 450	0.0
	=/> 500 000 €			1 010	0.0
By LSU	0	906 230	20.2	1 032 420	26.8
	0-5	3 379 960	75.4	2 688 710	69.7
	5-10	160 830	3.6	88 150	2.3
	10-15	19 360	0.4	19 430	0.5
	15-20	6 870	0.2	9 460	0.2
	20-50	9 050	0.2	15 680	0.4
	50-100	1 670	0.0	3 530	0.1
	100-500	750	0.0	1 350	0.0
	> 500	180	0.0	310	0.0
By age of holder	< 35 years	400 410	8.9	280 440	7.3
	35-44 years	541 020	12.1	609 610	15.8
	45-54 years	846 210	18.9	636 370	16.5
	55-64 years	993 840	22.2	868 910	22.5
	> 64 years	1 703 410	38.0	1 463 720	37.9
<b>Total</b>		<b>4 484 910</b>	<b>100.0</b>	<b>3 859 030</b>	<b>100.0</b>

Source: EC factsheets 2013

**Table 5. Total labour force in agriculture, Gross Value added of agricultural goods output and Labour productivity in Romania for the years 2003, 2005 and 2007.**

	Romania			EU-27
	2003	2005	2007	2007
Labor force in agriculture (1000 full-time employees)	2.699,51	2.595,59	2.205,28	11.693
Gross Value Added (GVA) at basic prices in million €	5.653,44	6.189	6.244	156.478
Labor productivity in €/worker	2.094	2.384	2.831	13.382

Source: Eurostat database, own calculations

**Table 6. Agricultural labour productivity in SEE-8, 2009-2012.**

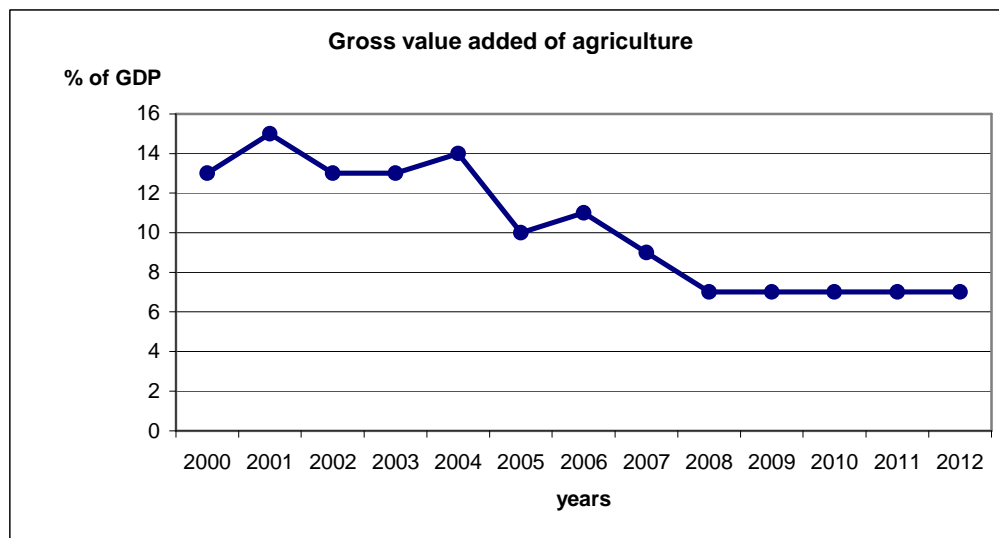
Agriculture value added per worker (constant 2005 US\$)				
Year Country	2009	2010	2011	2012
<b>AL</b>	3.069	3.302	3.462	-*
<b>BiH</b>	21.784	22.895	24.693	28.183
<b>BG</b>	13.593	13.573	14.474	-
<b>CRO</b>	22.597	23.489	24.686	26.983
<b>FYROM</b>	9.625	10.803	11.504	-
<b>MN</b>	5.958	6.000	6.903	-
<b>RO</b>	7.991	7.769	9.156	-
<b>SB</b>	3.904	-	-	-
<b>EU-27</b>	-	18.380	-	-

\*not available data

Source: The World Bank database, available at:  
<http://data.worldbank.org/indicator/EA.PRD.AGRI.KD>

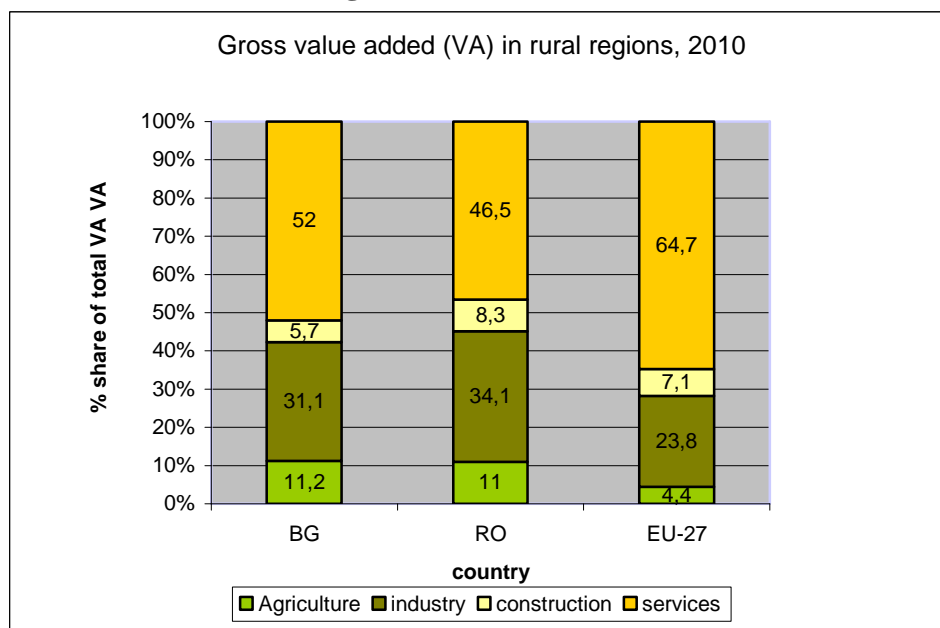
## FIGURES

**Figure 4. Evolution of Agriculture Gross Value added in the national economy of Romania (% of GDP), 2000-2012.**



source: Eurostat database

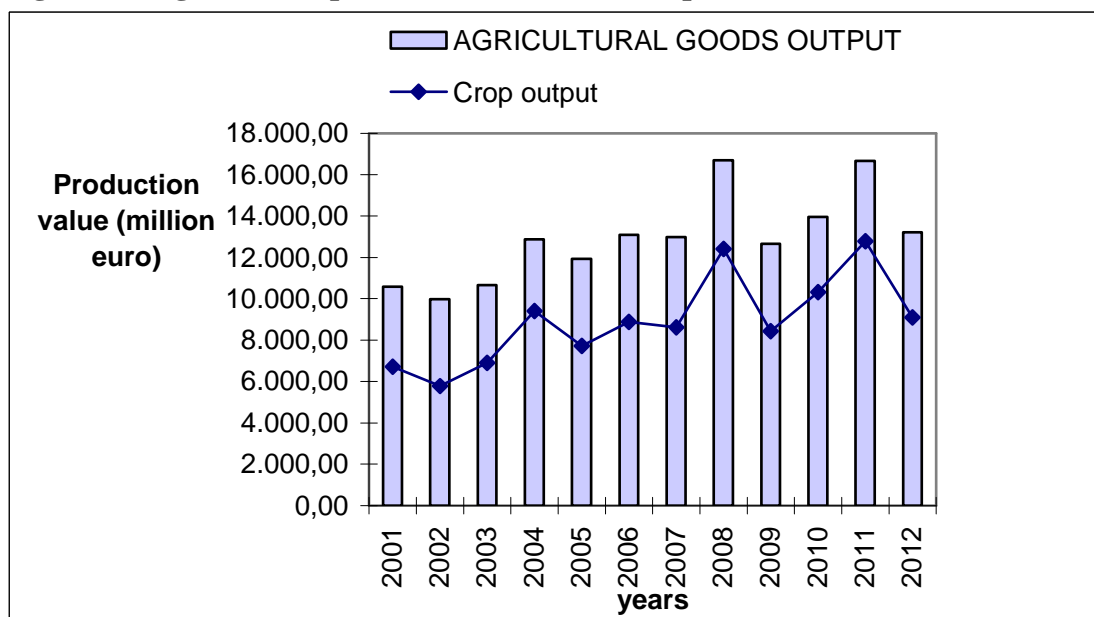
**Figure 5. Comparison of Gross value added in rural regions of Romania and Bulgaria with EU-27, 2010.**



Datasource: Eurostat, available at :

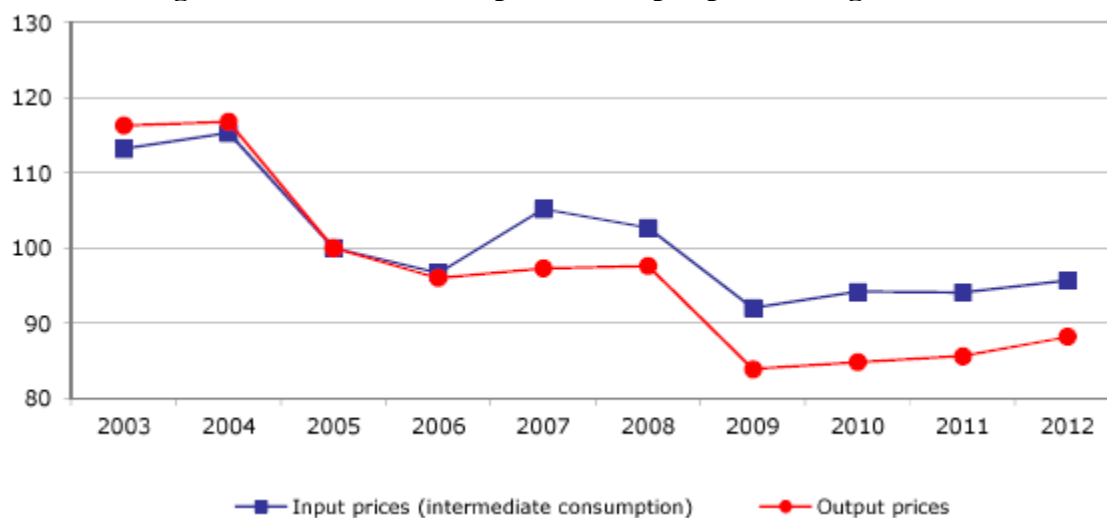
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**Figure 14. Agricultural production value at basic prices (2001-2012) in Romania**



Source: Eurostat database

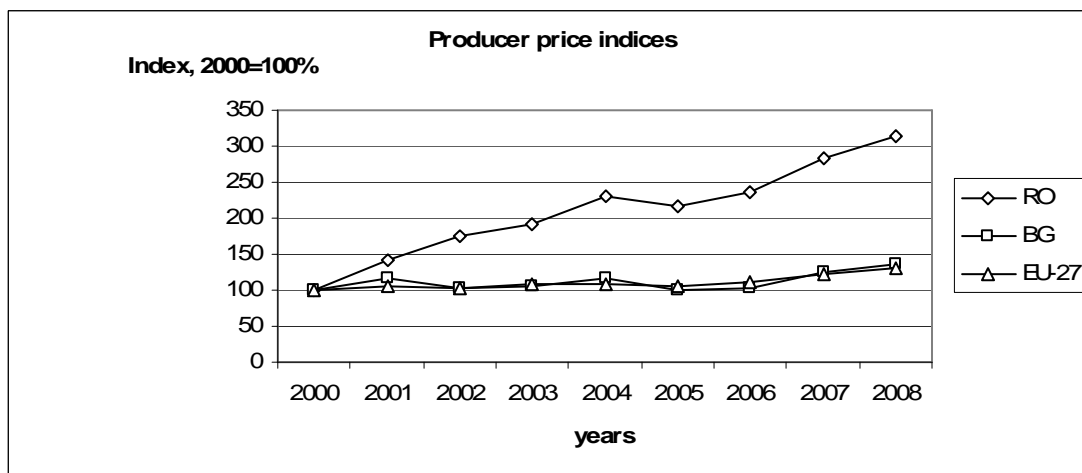
**Figure 15. Evolution of input and output prices in agriculture**



source: EC factsheet, 2013

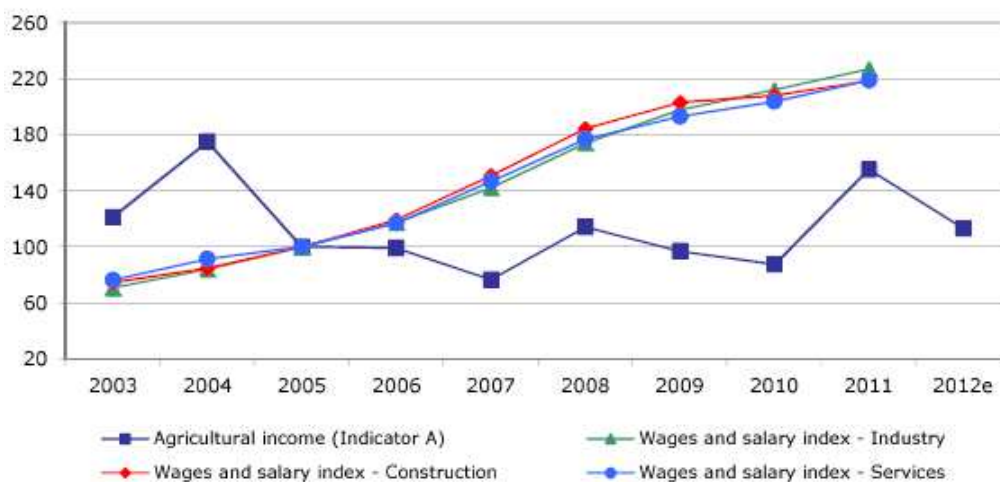


**Figure 16. Comparison of development of producer prices of total agricultural production at nominal value in Romania, Bulgaria and EU-27, 2000-2008.**



source: Eurostat database

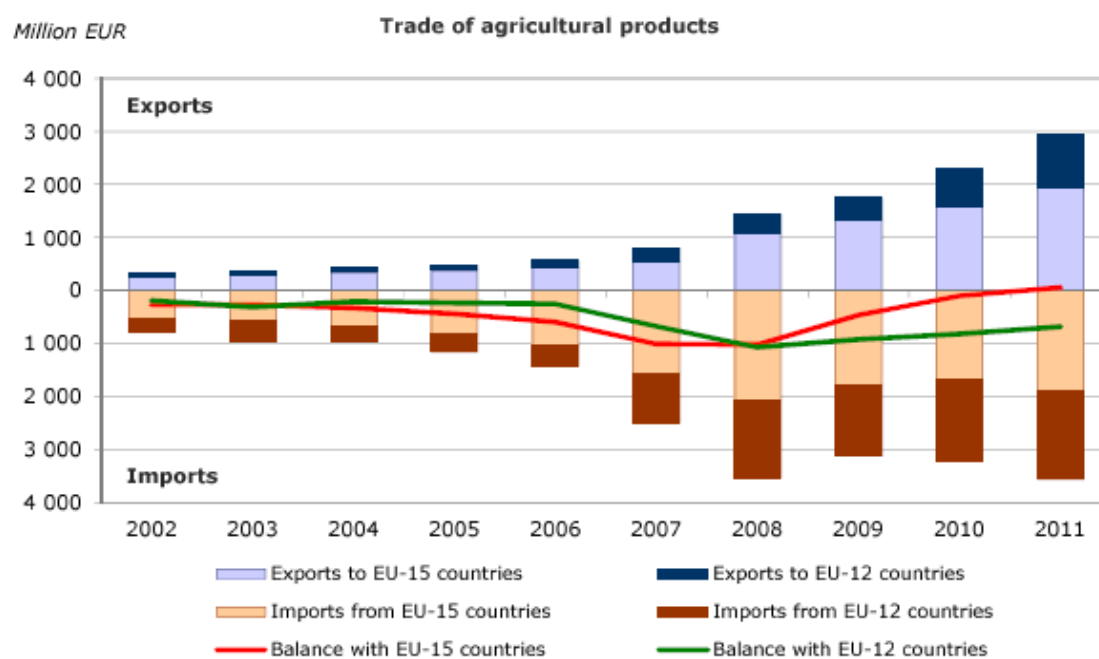
**Figure 17. Evolution in agricultural income\* compared to wages and salaries in other sectors of the Romanian economy**



\* Agricultural income as Indicator A: is the real net value added at factor cost (factor income) of agriculture per annual work unit (one full-time employee worked)

source: EC factsheet, 2013

**Figure 18. Evolution of Romanian agricultural trade with EU countries in million euro (EUR), 2002-2011.**



source: EC factsheets, 2013