

SERBIAN AGRO-INDUSTRY-POTENTIALS AND PERSPECTIVES¹*Ljubodrag Savić², Gorica Bošković³, Vladimir Mičić⁴***Summary**

This paper analyses agriculture and the food industry as dominant sectors of the Serbian agro industrial complex. The goal of the research is to stress the significance of the agro industry for economic development and the directions of its future development, as well as the significance of the agricultural and industrial policy for its development. For the purpose of a hypothesis the testing indicators of development, structural changes and work productivity will be analyzed. A correlation analysis is used to determine the character of dependence and the impact of the agriculture and food industry on key indicators of economic growth. The comparative method is used for a comparative analysis of the structural changes of Serbian agriculture as well as for some of the new EU member states. Research results show that new EU member states adapt the structure of their agriculture more efficiently to the new demands of development, resulting in the agro industry creating a greater added value which influences overall economic development. The great potential of the Serbian agro industrial complex could be a very good foundation for efficient agro industrial growth and an increase of competitiveness on EU and Russia markets, as well as on numerous markets of other world countries, having in mind that overall demands for ecologically healthy food will grow rapidly in the following period.

Key words: *agriculture, food industry, agro industry, agro industrial policy, industrial policy.*

JEL: *Q10, L66, Q13, Q18, O25*

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2 Ljubodrag Savić Ph.D., Full Professor, University of Belgrade, Faculty of Economics, Kamenička Street no. 6, Belgrade, Phone: +381 11 30 21 006, E-mail: ljubas@ekof.bg.ac.rs

3 Gorica Bošković Ph.D., Full Professor, University of Niš, Faculty of Economics, Kralja Aleksandra Ujedinitelja Square no. 11, Niš, Serbia, Phone: +381 18 528 653, E-mail: gorica.boskovic@eknfak.ni.ac.rs

4 Vladimir Mičić Ph.D., Associate Professor, University of Kragujevac, Faculty of Economics, Djure Pucara Starog Street no. 3, Kragujevac, Phone: +381 34 303 526, E-mail: mici cv@kg.ac.rs

Introduction

Multiple and functional correlations of agriculture and the manufacturing industry indicate an interdependence and complexity of activities of the two sectors which the agro industry consists of. This connection is particularly important for developing countries with a low GDP per capita which forms up to 50% of the GDP as well as for industrial growth, nonagricultural activities and urbanization (FAO et al., 2008). The growth of agro industries of developing countries is intensified due to dynamic structural changes, obeying international standards of product and procedures safety and quality, as well as due to technological innovation and a vertical and horizontal integration level increase. Significant factors were also market liberalization and changes within the demand structure in developed countries, resulting in an increase of export as well as increasing competitiveness (Henson, Cranfield, 2009).

The share of agro industry within GDP, employment and foreign trade indicates the degree of dependence of one country from traditional sectors. The agro industry is intensive in resources (Upadhyaya, 2011) and heterogeneous on the level of industrial and technological intensity of raw materials processing due to progress in biotechnology (Wilkinson, Rocha, 2009; FAO, 2011).

The agro industry encompasses all activities starting from harvests, transformation, storing and preparation of agricultural raw materials for production or final consumption (Wohlmuth, Kormawa, 2012). The main focus is on production and food processing, but it should not be wrongly identified with the food industry, which is processing agricultural raw materials into food and beverages (FAO et al., 2008). Agro industry is consisted from sectors which process raw materials of agriculture, fisheries and forestry. It is a part of the agro business complex, which includes suppliers for agriculture, fisheries and forestry as well as distributors of food and non food products of the agro industry (Henson, Cranfield, 2009).

According to the *International Standard Industrial Classification* (ISIC), the agro industry consists of the following: 1) food and beverages, 2) tobacco products, 3) paper and wood products, 4) textile, shoes and clothes, 5) leather products, 6) rubber products (FAO, 1997). It is a complex and heterogeneous system which, besides food areas also encompasses non food areas as well as non-manufacturing activities and services.

This research paper accentuates the part of Serbian agro industry which includes the agricultural and food (agri-food) industry. Agro industry, together with related activities, participates by about 15.5% in the GDP production. The subject of this research paper is the analysis of multiple connections between agriculture and the food industry, as well as directions and the intensity of necessary structural changes, which are preconditions for an efficient growth of the agro industry, but also of the sustainable development of the overall economy.

The goal of this research is to stress the importance of the agro industry, the desirable paths of its future growth, but also the importance of agrarian and industrial policies in the development of this complex. In accordance with the subject and the goal, the paper starts

with the hypothesis that the ratio of participation of the food industry and agriculture within GDP is in a correlation with GDP per capita (GDPpc) and the human development index (HDI).

Research methodology

Toward the goal of hypothesis testing, the development indicators and indicators of structural changes of agriculture and food industry are being considered. The production growth index is being analyzed but also the participation within GDP, gross value added (GVA) and employment. The structure of agricultural and food industry exporting is monitored according to the standard international trade classification (SITC). Agricultural work productivity is presented via a correlation of the total number of workers in agriculture and gross value added (GVA) of agriculture. The correlation analysis is used to determine the form and character of dependence between the achieved agricultural development level and food industry and elementary indicators of economic growth (GDPpc and HDI). For the comparative analysis of structural changes in agriculture and the food industry of Serbia, Bulgaria, Romania, Hungary, Czech Republic, Slovakia, Poland, Slovenia and Croatia, the comparative scientific method has been used, which application can contribute in defining future paths and guiding structural changes. The research is based on data analysis from publications and agricultural census data from 2012, done by the Republic Statistic Institute, Eurostat and United Nations Development Programme (UNDP).

Agricultural potentials - limitations or opportunity for the development?

In Serbia during 2014, 3.5 million acres of agricultural soil which is approximately 65% of total land has been cultivated. The total agricultural land consists of plowed fields and gardens 74.3%, meadows and pastures 20.3%, and orchards and vineyards 5.4%. The structure of used land is being dominated by wheat cultivation (52%), while the share of industrial herbs is 10%, roughage 7% and vegetable plants is 4.5% (RZS, 2015a). It is estimated that annually over half a million acres of agricultural soil is not being cultivated (RZS, 2013). The scope and structure of accessible agricultural land provides a significant opportunity for growth and diversification of production.

Statistics show that on average, each Serbian citizen has/her at his disposal 0.47 acres of plowed fields, gardens and permanent plantings. Unfortunately, barely 2.8% of cultivated land has been irrigated (RZS, 2013).

Table1. Arable land, gardens and permanent crops in 2013.

County	Per capita in hectares	Participation in agricultural land in %
Bulgaria	0.43	66.2
Czech R.	0.23	72.8
Croatia	0.30	74.7
Hungary	0.45	85.9
Poland	0.30	78.2
Romania	0.44	68.1

County	Per capita in hectares	Participation in agricultural land in %
Slovenia	0.08	40.9
Slovakia	0.25	73.0
Serbia	0.47	79.7

Source: RZS, (2015a): Revision of time series of statistics of agriculture, Belgrade and Eurostat, (2015): Statistical databases, Agriculture, Luxembourg.

According to the number and average size of agricultural households (in acres and Euros), Serbia compared with the other eight examined countries is better only than Romania. Over 631,500 agricultural households (99.5% are individuals) is registered in Serbia, with the average size of estate of only 5.4 acres, most of which is made of small and mutually unconnected parcels. Households smaller than 5 acres amount to 78%, while the number of households larger than 50 acres amounts to less than 1% (RZS, 2013). The size of the households falls far behind, especially when compared to the Czech Republic, Slovakia and Bulgaria, resulting in the economical value of each household amounting to only 5,939 Euros. This is a consequence of the slow process of enlarging agricultural households and inadequate agrarian policies.

Table 2. The number and average size of farms in 2013.

	Number of holdings	The average farm size (ha)	The average economic size of the farm (Euro)
Bulgaria	254,410	18.3	13,111
Czech R.	22,860	152.4	168,513
Croatia	233,280	5.6	9,065
Hungary	576,810	8.1	9,086
Poland	1,429,010	10.1	15,254
Romania	3,859,040	3.4	2,700
Slovenia	72,380	6.7	13,943
Slovakia	23,570	80.7	76,887
Serbia	631,552	5.4	5,939

Source: RZS, (2015a): Revision of time series of statistics of agriculture, Belgrade and Eurostat, (2015): Statistical databases, Agriculture, Luxembourg.

The weak economic strength of households is also linked with low investments in new technologies and mechanization, which is long overdue. In 2012, 583,000 tractors and 31,200 of harvesters have been registered in Serbia, of which 95% is older than 10 years (RZS, 2013). A similar condition is observed when it comes to terminal equipment and other equipment. The state of the condition of the mechanization reflects on the economical viability and actual productivity of its usage, thereby impacting the competitiveness of households.

According to the most recent census, 40% of the population lives in rural areas, but nevertheless the process of migration and village withering is rapidly increasing. At

the same time, the number of agricultural households which have no active workers is increasing, while the average age of householders is 59 years (RZS, 2013).

Industry capacities - choke points or potential for growth

The privatization in food industry has partially influenced the improvement of the conditions in particular branches. New owners have modernized their capacities, implementing quality and safety product standards when it comes to the areas of dairy, confectionery, milling and bakery and oil and sugar industries. The privatization and foreign investments have positively impacted the modernization of the capacities within brewery, beverage, water bottling and especially in the tobacco industry whose market is highly concentrated (Vuković et al., 2015). Unfortunately, during the privatization process the capacities for meat, fruit and vegetables processing have remained un-modernized, which has resulted in the low price competitiveness of those products.

Small enterprises dominate the food industry and the overall implemented capacities significantly exceed the current agricultural production and the size of the internal market, therefore they are being used less than 65% (MPZŽS, 2014) and in oil production barely around 40%. Those activities therefore show a low efficiency and price competitiveness, especially on EU markets.

Due to bad privatization and inefficient restructuring, the capacities for harvesters and tractor production have been ruined. A similar situation is found in mineral fertilizers, pesticides and seeds production. Most of the mechanization needs is being provided by the inputs from the import.

Results of achieved agricultural development

Previous decades of agricultural development have been characterized by substantial oscillations in production and a modest growth of the actual scope of overall agricultural production. When compared to 2005, 2013 has presented an increase in crop production, and a slight reduction in livestock.

Table 3. Agricultural production indices (2005 = 100)

	2005	2006	2007	2008	2009	2010	2011	2012	2013
Agriculture - total	100	99.9	92	100.7	95.9	102.3	103.2	85.9	106.8
Plant production	100	97.4	89.6	110	118.9	119	117.9	90.3	121.5
Livestock production	100	97.4	97.8	92.0	84.4	92.4	94.9	101.9	99.4

Source: Author's calculations based on RZS, (2015b): Economic accounts of agriculture in the Republic of Serbia, 2007–2013, Beograd and RZS, (2010): Statistical yearbook of the Republic of Serbia, Agriculture, Belgrade.

Two thirds of the overall agricultural production value (67.8%) comes from crop production, livestock 29, 7% and agricultural services 2.5%. The crop production mostly consists from wheat 41.5%, fruits 15.5%, industrial plants 14%, vegetables and horticulture 115, wine and roughage 6.5%, potatoes 4.3% and others 0.2% (RZS, 2015b).

Table 4. Crop Production, 2005-2014.

	Area at (000) hectares			Total yield at (000) tons		
	2005	2014	change	2005	2014	change
Cereals (total)	1,815	1,812	-3	10,088	10,840	+752
Wheat	630	604	-26	2,523	2,387	-136
Corn	1,005	1,058	+53	7,085	7,952	+867
Oilseeds	68	64	-4	3,298	3,507	+210
Sugar beet	331	339	+9	4,020	4,594	+574
Tobacco	6	5	-1	9	9	0
Potato	59	52	-7	970	592	-378
Vegetable	81	70	-11	1,040	920	-120
Roughage	213	216	+3	1,509	1,428	-81
Grapes	26	21	-5	150	122	-27
Fruit	170	165	-5	907	1,167	+260

Source: RZS, (2015c): Statistical data base, Vegetable production, Belgrade. Available at <http://webrzs.stat.gov.rs/WebSite/Default.aspx>

Crop production significantly oscillates in overall sown areas and returns. The structure of agricultural cultures within the period between 2005-2014 shows an increase of the sown areas and overall returns of corn, oilseeds and roughage, and a reduction when it comes to all other cultures, except for fruits (increase of return of 260 thousand tons) (Table 4) (RZS, 2015c).

Between 2007 and 2013, in regards to the value of livestock production, livestock breeding participated with a share of 71%, while livestock products filled the rest with 29%. When it comes to livestock, pig breeding participated in average with 51%, cattle breeding 28%, poultry 135, and sheep and goat breeding with 8%. The milk whose production is constantly in a decrease starting from 2007 participated in the overall product value of livestock with 77% in average (RZS, 2015b).

Despite the existing beneficial conditions and capacities especially for cattle and sheep breeding, the share of livestock production in the overall agricultural production value is in a decline, mostly due to a continuation of the tendencies of reducing overall livestock, particularly the number of cattle heads. Livestock scores point out that in 2014, when compared to 2005, there is a reduction of the number of cattle and poultry heads, but an increase in the number of pigs and sheep.

Table 5. Livestock balance, growth of livestock and meat production, 2005-2014.

	Livestock balance (000) tons			Increase in livestock (000) tons			Meat production (000) tons		
	2005	2014	Change	2005	2014	Change	2005	2014	Change
Cattle	1,079	920	-159	185	155	-30	90	73	-17
Pigs	3,212	3,236	+24	447	400	-47	253	258	+5
Sheep	1,609	1,748	+139	44	63	+19	21	27	+6
Poultry	17,905	17,167	-738	95	121	+26	67	94	+27

Source: RZS, (2015d): Statistical data base, Cattle breeding, Belgrade. Available at <http://webrzs.stat.gov.rs/WebSite/Default.aspx>

A significant factor which impacts the state of crop production is the extreme weather and climatic events (Radović et al., 2015), insufficient irrigation and drainage, a poor application of agro technical measures, scarce specialization and inadequate production of chain unification, obsolete mechanization, a lack of training of farmers, as well as an inappropriate agrar policy.

Besides an inadequate specialization and a poor connection between livestock and crop production, the crucial factor for the poor condition of livestock is bad privatization and a devastation of agribusiness, slaughterhouses and dairies, but also cooperative devastation. The number of households engaged in livestock production is rapidly being reduced. Cattle's breeding is in a bad state, which reduces meat and milk returns. There is a slightly better situation in poultry where huge households equipped with their own processing capacities dominate, which had a good impact on the growth of meat production.

The influence of agriculture and food industry on economy growth

Serbian agriculture is characterized by a significantly larger share within the GDP (8.1%) and GVA (9.7%) when compared to the group of countries in question (below 5% of the GDP) (Table 6). All these countries went through substantially greater structural changes in agriculture, accompanied by an adequate agriculture policy. The common characteristics of these observed countries is either a fall or stagnation of the approximate participation of the agriculture in the GDP, but also a low or negative average growth rate of GVA, excluding Slovakia. Some of these trends can be explained by a negative influence of the global economic crisis.

Table 6. The role of agriculture in economic development (%)

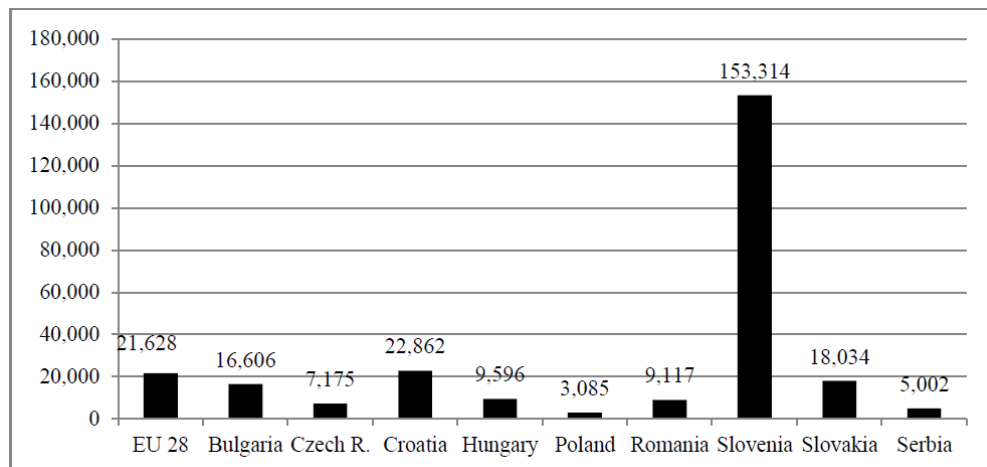
	Participation in GDP (%)		Participation in GVA (%)		The average growth rate of GVA (%)	Participation in employment (%)	
	2014	Change 2005-14	2014	Change 2005-14	2005-14	2013	Change 2005-14
Bulgaria	4.5	-2.9	5.3	-3.4	-2.0	19.2	-2.0

	Participation in GDP (%)		Participation in GVA (%)		The average growth rate of GVA (%)	Participation in employment (%)	
	2014	Change 2005-14	2014	Change 2005-14	2005-14	2013	Change 2005-14
Czech R.	2.4	+0.2	2.7	+0.3	-0.1	3.2	-0.6
Croatia	3.5	-0.7	4.1	-0.9	-2.4	13.2	-3.2
Hungary	3.7	0.0	4.4	+0.1	+0.6	7.0	-1.3
Poland	3.0	+0.1	3.4	+0.1	+0.8	12.0	-5.3
Romania	4.7	-3.7	5.4	-4.1	+0.7	30.0	-2.9
Slovenia	1.9	-0.4	2.2	-0.4	-0.6	8.4	-1.4
Slovakia	3.4	+0.2	3.7	+0.1	+5.2	3.2	-1.4
Serbia	8.1	-1.9	9.7	-2.3	+0.3	21.3	-2.0

Source: Calculation of authors based on RZS, (2015a): Revision of time series of statistics of agriculture, Belgrade and Eurostat, (2015): Statistical databases, Agriculture, Luxembourg.

Besides a decrease of 2%, Serbian agriculture participates greatly in overall employment (21.3%), which is 6.5 times greater than that of the Czech Republic and Slovakia. Such a participation is also shown by Romania – 30%, Bulgaria – 19.2%, Croatia – 13.2% and Poland – 12%. Besides a historical heritage and natural conditions, this is also a consequence of the deindustrializing of the economy and the devastation of the industry. The 2013 data shows that there were more employees in agriculture than in industry, which is illustratively indicative of the degree and character of Serbian economical development.

The intensity of structural changes influences the productivity and competitiveness of the Serbian agriculture. Price competitiveness exists only in herbal production. Work productivity of our agriculture is better only than the agriculture of Poland. The added value per employee in Serbian agriculture is 30 times lower than Slovenian, and 4.3 times smaller than the EU average (Graph 1). In order to increase work productivity in Serbian agriculture, new investments are required as well as a faster modernization of the agricultural production, a more dynamic development of livestock opposed to husbandry, but also letting go of surplus workers in agriculture.

Graph 1. GVA per worker in 2013. (constant 2005 USD)

Source: RZS, (2015a): Revision of time series of statistics of agriculture, Belgrade and Eurostat, (2015): Statistical databases, Agriculture, Luxembourg.

In 2014, food industry participated with 4.4% in the Serbian GDP, and with 4.6% in the gross added value (GVA), which is an insignificant increase dating from 2005. A higher participation of GDP than Serbia is enjoyed by Romania, Bulgaria and Poland, but only Romania in GVA. The importance of the food industry for Serbia is additionally confirmed by the dominant share of 32.7% in the overall GVA of the manufacturing sector. Serbian food industry employees amount up to 4.6% of the total employees, which is significantly higher when compared to the countries under analysis.

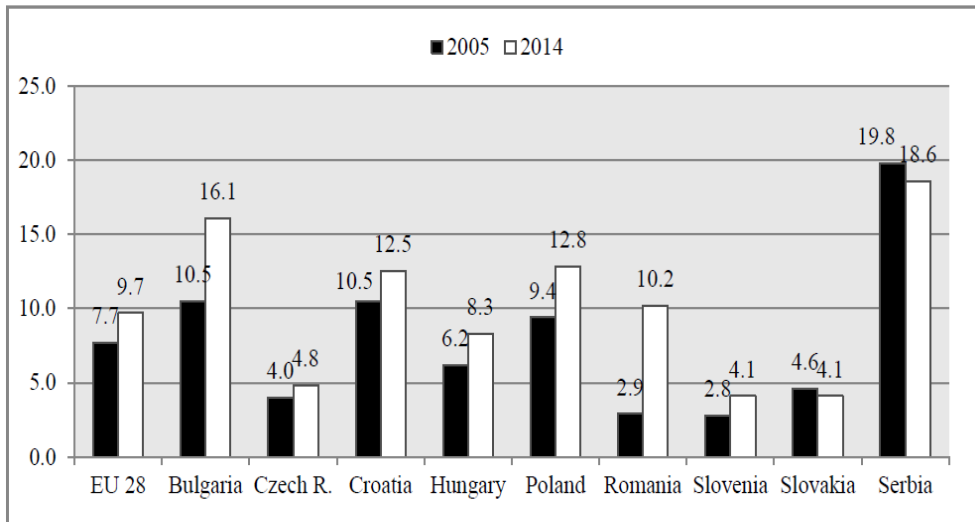
Table 7. The role of the food industry in economic development

	% in GDP		% in GVA		% GVA in manufacturing		% in employment	
	2012	Change 2005-12	2012	Change 2005-12	2012	Change 2005-12	2012	Change 2005-12
Bulgaria	6.6	+1.0	3.8	+0.7	20.6	+3.6	3.4	-0.3
Czech R.	3.5	-0.8	2.4	-0.6	10.3	-0.2	2.5	-0.4
Croatia
Hungary	4.9	0.0	2.2	-0.5	9.9	-1.9	3.0	+0.3
Austria	3.2	+0.1	1.9	-0.1	10.6	+1.5	1.9	-0.2
Poland	6.3	-0.3	2.3	+0.2	18.2	-5.1	3.3	+0.2
Romania	6.7	-1.7	6.1	-0.7	14.4	-0.9	2.3	-0.1
Slovenia	2.6	-0.4	1.5	-0.4	7.3	-0.5	1.7	-0.5
Slovakia	2.3	-1.0	1.7	-0.5	9.6	+2.4	2.0	-0.5
Serbia	4.4	+0.1	4.7	+0.1	32.7	+1.4	4.6	-1.6

Source: RZS, (2015a): Revision of time series of statistics of agriculture, Belgrade and Eurostat, (2015): Statistical databases, Agriculture, Luxembourg.

Agriculture and the food industry jointly create around 12.5% of the GDP. The remaining areas of the agro industry according to ISIC create an additional 3% of the GDP. Due to sufficient demand on the domestic market, a significant amount of agro industrial production has been exported. The export structure records a high score of 18.6% for food, livestock, beverages and tobacco, while the import is about 7%. Compared to the export of the analyzed countries, these products scoreless, particularly in the Czech Republic, Slovakia and Slovenia, which is in line with their real sector production structure (Graph 2).

Graph 2. Food exports (% of exports of goods)



Source: RZS, (2015a): Revision of time series of statistics of agriculture, Belgrade and Eurostat, (2015): Statistical databases, Agriculture, Luxembourg.

The ratio of the participation of the food industry and agriculture in GDP or in GVA indicates the contribution of these activities to economical growth. The higher the country is at the industrialization level, the greater the ratio is, and vice versa (Wilkinson, Rocha, 2009). Serbia's food industry contributes less to GDP when compared to primary agricultural production, which is not the case with other observed countries (excluding Slovakia).

Table 8. Ratios of the food industry and agriculture, 2012 and 2005th

	GDP		GVA	
	2012	2005	2012	2005
Bulgaria	1.40	0.76	0.70	0.36
Czech R.	1.46	1.95	0.92	1.25
Hungary	1.29	1.32	0.49	0.63
Poland	2.25	2.28	0.72	0.64
Romania	1.43	1.00	1.15	0.72

Slovenia	1.37	1.30	0.68	0.73
Slovakia	0.70	1.03	0.47	0.61
Serbia	0.59	0.45	0.52	0.38

Source: Author's calculations based on Table 7 and 8.

Also, if we observe the GVA, a similar situation of the ratio of these two activities is also applied. A review of the analyzed countries shows a growth of this ratio in Bulgaria, Romania and Poland, and a decrease in the Czech Republic, Hungary, Slovenia and Slovakia. At the same time, these four countries have the highest level of agricultural work production, as well as the most dedicated manufacturing sector in which propulsive areas of an average-high and an average-low technological intensity dominate.

In developing countries, there is a strong synergy between the highly developed agribusiness, the economy's growth and poverty reduction. The low HDI is the consequence of inefficient development of the agro business (Wilkinson, Rocha, 2009). By applying the Pearson coefficient, the correlation analysis shows that a higher coefficient of correlation between GDPpc and the food industry and a agricultural participation ratio within GDP is typical for those countries with lower GDPpc (Serbia and Bulgaria), or an increasing agricultural and food industry participation ratio in GDP (Poland and Romania). The remaining countries (Slovenia, the Czech Republic, Hungary and Slovakia) show a weak or inverse correlation.

Almost the exact results of correlation analysis have been reached when examining the correlation of HDI (UNDP, 2014) and food industry and the agricultural participation ratio in GDP (Table 8). Thus the hypothesis that less developed countries such as Serbia, which possesses a higher food industry and agricultural participation ratio in GDP, and therefore has a greater correlation with the GDPpc and HDI, is confirmed.

Table 9. Pearson correlation coefficient, the 2005-2012 period.

	GDP ratio of participation of the food industry and agriculture	HDI and Ratios food industry and agriculture
Bulgaria	0.678**	0.818**
Czech R.	-0.259**	-0.238**
Hungary	-0.533**	0.142**
Poland	0.873*	0.851*
Romania	0.468**	0.413**
Slovenia	0.446**	0.280**
Slovakia	-0.867*	-0.753**
Serbia	0.632**	0.620**

* Correlation is significant at the 0.01; ** Correlation is significant at the 0.05 level (2-tailed) level (2-tailed).

Source: Author's calculations

Can the agro industry be the backbone of Serbian industrial development?

The high participation of the agro industry in GDP, employment and exporting indicates that it provides a significant contribution to Serbia's overall economical development. It would be even greater if there was an overall and efficient connectivity in the production chain, which encompasses producers, manufacturers, financiers and exporters.

In order for the development of the agro industry to be efficient, there are some necessary structural changes in agriculture and the food industry which are required. Although they are time consuming and financially demanding, the practice shows that they are manageable, but with an inadequate support of agrarian and industrial policies.

A more intensive and more modernized agriculture would expand the scope and quality of production. In order to achieve this, it is necessary to perform and apply contemporary standards and security and quality process control, as well as the transfer of newest knowledge, technologies and innovation, which is a precondition for an effective alignment of Serbian agricultural policies toward demands and the principles of the Common Agrarian Policy of the EU (CAP), and especially the goals of rural development policy (Đurić, Njegovan, 2015).

The primary aim of agrarian policy are changes of a structural nature in increasing the intensity of agricultural production, i.e. increasing the productivity and economic strength of households, therefore allowing the quality of life for the agricultural and rural population to improve. Measures must be compatible with those of CAP (Popović, Grujić, 2015) which assume less direct help and subventions, and more indirect encouragement of investments and sustainable rural development.

Implementing these measures requires a significant increase of budget funding and a greater exploitation of EU agricultural and rural development help funds. That must be followed by strengthening of institutions, infrastructural development, increasing the size of households, mechanization and equipment modernization and training of agricultural workers.

The agrarian policy should be harmonized with the industrial policy, thus impacting a more efficient development of the food industry and exporting. Modernization and better capacity exploitation, strengthening the ties between raw materials manufacturers and processors, and production diversification significantly increase the comparative advantages of agriculture, food self reliability and the overall supply of meat, milk fruit and vegetables.

Export increase requires a production of higher added value competitive products, based upon knowledge and technological innovations that will respond in size, quality, standards and safety demands on products and processes for foreign market needs, particularly the EU food market is still highly protected from foreign competition (Marković, Marković, 2014) and it is burdened with a significant surplus of food.

An important role in the implementation of industrial policies should be held by tax incentives, which should stimulate investments and food industry capacity development and raise the primary products processing level. Subventions should be applied in alignment

with the already established principles and goals such are production growth, new job creation, a positive export effect or modernization and purchase of modern technology.

In order for the agrarian and industrial policy to be more efficient, the state should provide security and certainty of agricultural product placement, a healthy business environment, favorable and stable sources of financing and their efficient allocation for promoting production and export. These policies must set clearly defined goals, instruments and accessible means, and leaders as well as very precise method of evaluating their realization.

Conclusion

Serbia is an agrarian country which does not use sufficiently its comparative advantages and natural potentials. The high share of agriculture within the GDP and in employment is the result of favorable environmental conditions and historical heritage, deindustrialization, as well as slow reforms in agriculture, which fail to provide a reallocation of the work force into other sectors. The Serbian agriculture is characterized by extensiveness and a low work productivity, which promptly requires efficient structural changes as a precondition for intensive production and agricultural development. During the privatization period, many food industry factories were closed, and some which managed to survive the Serbian transition insufficiently explore the disposable capacities.

Agriculture and the food industry creates approximately 12.5% of the GDP and participates with 25% in overall employment, which strongly marks Serbian industry as agricultural. The participation of the food industry, beverages and tobacco which is also 1/3 of GVA of the manufacturing sector points to the significance of these areas for overall industry and economy development.

Correlation analyses show that Serbia, as developing country, has a higher correlation coefficient between the food industry and agricultural participation ratio in GDP on one hand, and GDPpc and HDI on the other, which means that the state and the condition of the development of the food industry and agriculture is in a correlation with the basic indicators of economical growth.

The scientific contribution of this paper lies in a critical examination of the results of agriculture and food industry development as the biggest shares of the complex of the Serbian agro industry, as well as to mark the potentials and perspectives of its future growth toward more propulsive areas, in order to put in use the comparative advantages of agriculture. The paper has a practical approach and it could be of use for decision makers and bearers of agrarian and industrial policies.

Due to methodological differences within the previous two statistical censuses, some data is not comparable, therefore excluding an analysis of complex indicators of structural changes and agro industry development, particularly during a longer time span. For future exploration, a focus should be made toward an interdependence of the comparative advantages of agriculture, and changes in the food industry production structure, toward the goal of creating higher added value products and export growth.

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AGROINDUSTRIJA SRBIJE – POTENCIJALI I PERSPEKTIVE⁵

Ljubodrag Savić⁶, Gorica Bošković⁷, Vladimir Mičić⁸,

Apstrakt

U radu se analiziraju poljoprivreda i prehrambena industrija kao dominantni sektori kompleksa agroindustrije Srbije. Cilj istraživanja je da ukaže na značaj agroindustrije u privrednom razvoju i pravce njenog budućeg razvoja, kao i na mesto agrarne i industrijske politike u njenom razvoju. U cilju testiranja hipoteza analiziraće se pokazatelji razvoja, strukturnih promena i produktivnosti rada. Korelaciona analiza koristi se za utvrđivanje prirode povezanosti i uticaja poljoprivrede i prehrambene industrije na ključne indikatore ekonomskog razvoja. Za uporednu analizu strukturnih promena poljoprivrede Srbije i nekih od novih članica EU primenjen je komparativni metod. Rezultati istraživanja pokazuju da nove članice EU efikasnije prilagođavaju strukturu poljoprivrede novim zahtevima razvoja, zbog čega agroindustrija stvara veću dodatnu vrednost, značajno utičući na ukupan privredni razvoj. Veliki potencijali agro-industrijskog kompleksa Srbije, mogu biti veoma dobra osnova za efikasan razvoj agroindustrije i povećanje konkurentnosti na tržištima EU, Rusije, ali i brojnih drugih zemalja sveta, imajući u vidu da će ukupna tražnja za ekološki zdravom hranom ubrzano rasti u narednom periodu.

Ključne reči: *poljoprivreda, prehrambena industrija, agroindustrija, agrarna politika, industrijska politika*

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6 Redovni profesor, dr Ljubodrag Savić, Univerzitet u Beogradu, Ekonomski fakultet, Ulica Kamenička br. 6, Beograd, Telefon: +381 11 30 21 006, E-mail: ljubas@vektor.net

7 Redovni profesor dr Gorica Bošković, Univerzitet u Nišu, Ekonomski fakultet, Trg kralja Aleksandra Ujedinitelja br. 11, Niš, Telefon: +381 18 528 601, E-mail: gorica.boskovic@eknfak.ni.ac.rs

8 Vanredni profesor, dr Vladimir Mičić, Univerzitet u Kragujevcu, Ekonomski fakultet Ulica Dure Pucara br. 3, Kragujevac, Telefon: +381 34 303 526, E-mail: mici cv@kg.ac.rs