REGIONAL ANALYSIS OF AGRICULTURAL AND FOOD TRADE OF SERBIA

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Abstract: The processes of economic transformation and integration in which Serbia is included (gaining membership in the WTO and the EU), are accompanied by significant liberalization of markets, including the market of agricultural products, which causes certain changes in the size, structure and mode of foreign trade. Foreign trade regime of Serbian agrarian products is being harmonized to the requirements of the World Trade Organization (WTO) in anticipation of acquiring the status of member, as well as the Stabilisation and Association Agreement between Serbia and the EU and CEFTA-2006, whose members are the most important trade partners of our country. Trade liberalization and the growing international market of agricultural and food products represent an opportunity to promote exports of agrarian products from Serbia, but also opening of the market might seem a serious threat to some of our agricultural products and affect the change of production structure, where agricultural policy makers should pay special attention. The aim of this paper is to perform a regional analysis of foreign trade of agricultural and food products from Serbia with key trading partners such as EU, CEFTA-2006, and especially with some of its members for the period 2004-2011. In order to gain insight into the degree of integration of the Serbian agricultural sector in the markets of these countries, Grubel-Lloyd index of intra-industry trade (GLIIT) is calculated, which indicate the intensity and the level of intra-industry trade, implying mutual – bilateral exchange (import and export) of similar or identical products between regions (countries). A higher degree of integration on the markets of

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certain countries indicates the possibility of easier adjustment to the conditions of liberalization (and lower cost) because certain products are already present on them. Performed analysis provides insight into the potential consequences of further liberalization on the development of the agrarian sector and expected structural adjustments. Calculated GLIIT index for different groups of agricultural and food products and for individual countries are considerably different and vary in the observed period, but in general the level of intra-industry trade between Serbia and its leading trade partners (especially the EU) is low, indicating a low integration of agrarian sector of Serbia on these markets.

Keywords: foreign trade, agricultural and food products, region analysis, intra industry trade.

INTRODUCTION

Strengthening integration processes in the global economy is the trend that largely determines the characteristics of the overall international trade, and trade of agricultural and food products. Numerous studies analyzes and explains trends in international trade, based on different approaches, such as comparative advantage or intra-industry trade (Grubel, Lloyd, 1975;-Van Berkum, 1999; Bojnec, Hartmann 2004; Luka Levkovych, 2004, etc). It was observed that an increasing part of the exchange is mutual-sided trade (imports and exports) of similar or identical products between regions (countries) or intra-industry trade.2 Examination of trade flows indicate that most of the trade takes place between countries that have the approximate same level of economic development, or a similar level of GDP per capita, similar cultural characteristics, geographic parameters, and the available factors of production, similar characteristics of the development of the food industry, as well as a similar level of consumers' demand in terms of safety and quality standards (Andresen, 2003; Port, Levkovych, 2004). Research of trends in the trade of agricultural and food products in some regions of the world show significant differences in the level of intra-industry trade, which is the highest in Europe, especially in the EU countries, about 99% in 1997. (Bojnec, 2001)

Significant changes occurred in the structure of foreign trade of agricultural products and food of Serbia and its territorial orientation (in current international integration processes). This, in particular, refers to the mode of foreign trade of agro-industrial products of Serbia, which is adjusted to the requirements of the World Trade Organization (WTO) in anticipation of acquiring the status of member state and the Stabilization and Association Agreement between Serbia

[2] In 2006 27% of world trade had intra-industry character (if the calculated were on 5-digit level), or 44% if it was on 3-digit level of aggregate. *(Brulhart M, 2008)*

and EU; and final to CEFTA agreement, whose members are the most important trade partners of our country. Serbia's membership in CEFTA (Central European Free Trade Agreement) in 2006, as well as the Stabilization and Association Agreement to EU imply major (full) market liberalization. Trade liberalization and the growing international market of agricultural and food products is an opportunity to promote exports of agro-industrial products from Serbia, but also opening of the market can be a serious threat for some branches of agriculture in our country and may have an impact on changing production structure.

The aim of this paper is to perform a regional analysis of foreign trade of agricultural and food products from Serbia with major trading partners: EU-27, CEFTA-2006, and in particular its individual member states, the countries in our surroundings (and potential competitors in this area) in the period 2004-2011. In order to gain insight into the degree of integration of the agro-industry sector of Serbia into markets of these countries, we analyzed intra-industrial trade of agricultural and food products. Grubel-Lloyd index of Intra-Industry Trade – GLIIT was calculated, which indicates the intensity and the level of intra-industry trade, which means mutual two-sided trade (imports and exports) of similar or identical products between regions (countries). A higher degree of integration on the markets of certain countries suggests the possibility of easier adjustment to the conditions of liberalization on these markets (and lower cost), because certain products are already present on them.

The paper consists of six chapters. After the second part where are listed data sources and methods, in the third part we presented a comparative analysis of the volume and balance of total foreign trade of agricultural and food products in Serbia and major trading partners (the EU-27, the CEFTA-2006 and some of its member countries). The fourth part presents a regional analysis of foreign trade of agricultural and food products of Serbia and key trading partners in the period 2004-2011. Regional analysis of foreign trade of agricultural and food products from Serbia to each member of CEFTA were done separately. In the fifth chapter we calculated Grubel-Lloyd index of Intra-Industry Trade (GLIIT) in the period 2004-2011, in order to determine the degree of integration of the Serbian agro-industrial sector on the markets of major trading partners. The last (sixth) part of the paper contains some concluding remarks.

1. DATA SOURCES AND METHODS

The database and publications of the Statistical Office of the Republic of Serbia was the main source of data for analysis used in this study. We used the SITC (Rev.4) – Standard International Trade Classification. According to this classification, the agro-industrial sector (Agro-food products) include the following sections: 0-Food and live animals (2-digit level or division: 01-09),

1-Beverages and tobacco (11, 12), 2-Crude materials, inedible, except fuels (21, 22, 29), 4-Animal and vegetable oils, fats and waxes (41, 42, 43). These data were used to calculate the GLIIT index for Serbia and most important trading partners. For comparative analysis of the scope and balance of foreign trade of agricultural and food products between Serbia and some countries, major trading partners, the FAO data database was used.

For the analysis of flows of foreign trade between Serbia and the most important trading partners we calculated Grubel-Lloyd Index of Intra-Industry Trade. Index of Intra-Industry Trade (GLIIT) indicates whether the trade takes place within a sector (industries), and whether the exchange occurs in both directions (export and import), or whether countries trade with the same product groups and to what extent. There are numerous indicators for measuring the Index of Intra-Industry Trade in the literature (*Gullstrand, 2002; Andresen, 2003; Bojnec, Hartmann, 2004; and others*). GLIIT index (*Grubel, Lloyd, 1975*) is the most common used, and it represents the share of IIT (Intra-Industry Trade) of the product (i) in total trade of the product (i) between the two regions (countries) per year, and it can be calculated by the following formula:

(1) $$GLIIT = \frac{(Xi + Mi) - |Xi - Mi|}{(Xi + Mi)} * 100$$ or

(2) $$GLIITi = \left(1 - \frac{|Xi - Mi|}{(Xi + Mi)}\right) * 100$$

Xi – value of export, Mi – value of import of product - i.

In addition to this equation for calculation IIT relating to specific product – i, Grubel and Lloyd (1975) have proposed, and in this paper was used, the following formula (3), which includes the weighted aggregates (groups of products, sectors or sub-sectors or a total exchange for the country, the group or the world:

(3) $$GLIITi = \left(1 - \frac{\Sigma_i |Xi - Mi|}{\Sigma_i (Xi + Mi)}\right) * 100$$

Xi – value of export, Mi – value of import of product – i.

GLIIT index ranges from 0 to 100%. GLIIT equal to 0 if a country is only importing or exporting a product of a sector, which means that there is no intra-trade but only inter-industry trade exchange. GLIIT is 100%, if the value of exports equals the value of imports of a product (sector) between the two regions (countries) and there is only intra-trade exchange. So, if the value of GLIIT is closer to 100%, intra-industry trade is higher than inter trade between different sectors, and there is a higher level of economic integration of the sector in a

particular market (in one year). This means that there is a greater ability of a sector to adapt conditions in a given market at a lower cost. It also guarantee more successfully impose on a specific regional market or a better position and greater opportunities for its development. GLIIT indicator reflects the level of integration in a particular market sector and its competitiveness, or the ability of its products to deal with competition in the markets in destination countries.

In the literature there are some limitations in calculating the GL index, especially in case of market "imbalance" (*Luka, Levkovych 2004; Andresen, 2003 Bojnec, Hartman, 2004*) and particularly the aggregation problem which has two dimension: geographic (territorial) and industrial. Regarding geographical dimension there is the question of observing the exchange bilaterally (between two countries) or in multilateral level (between groups of countries, such as trade with EU, CEFTA, or for the world total). There are two options in minimizing the geographical dimension problem: the first is to compute GL index with each trading partner, and then unite on the group level, and the second is to immediately calculate on the multilateral level (for a regional group, or the world – in total). In this paper GL index was calculated according to the second method, or at the multilateral level for each group of countries (EU-25, EU-27; CEFTA 2006), as well as the world-total.

The existence of a large number of final or unprocessed agricultural and food products involved in international trade or complex product classification causes another problem related to the calculation and presentation of GL index on group, aggregate level. In order to minimize the industrial dimension of the aggregation problem, the authors used a 5-digit level of the Harmonized System nomenclature and then calculate the weighted average of sub-industry IIT levels (for 2-digit level of SITS), using as weights the share of product or group (*i*) in total foreign exchange of aggregate.

GL index was calculated for the exchange of Serbian agro-food sector (total and individual sub-sectors according to SITC) with major trading partners, groups of countries (EU-25 and EU-27, CEFTA-2006), as well as the world-total (for total trade) in the period 2004-2011.

As a threshold (or the lowest value for GL index), which indicates that the sector is significantly integrated in a regional market, or that there is more significant intra-industry trade of certain groups of agricultural and food products, or the entire sector, in the literature underscore the value of 15% (*Bojnec et al., 2005, Luka, Levkovych, 2004*). Higher index values indicate that the sector has a significant ability to impose on specific regional market with lower adapting costs in existing conditions, allowing creators of foreign, economic and agricultural policy to make important strategic decisions.

2. COMPARATIVE ANALYSIS OF FOREIGN TRADE OF SERBIAN AGRICULTURAL AND FOOD PRODUCTS WITH EU AND CEFTA-2006

The most important trading partners of our country, EU and CEFTA-2006, differ in terms of actual trade balance of agricultural and food products (Table 1).

Table 1: Volume and balance of foreign trade of agricultural and food products with EU-27 and CEFTA-2006 member countries in 2004, 2006 and 2010 (million U.S. $)

	2004		2006		2010		Balance		
	Export	Import	Export	Import	Export	Import	2004	2006	2010
EU	289,128.4	293,641.5	333,036.5	333,989.9	442,334.3	439,647.8	-4,513.1	-953.3	2,686.5
CEFTA-2006	1,662.1	3,515.0	3,479.7	5.473.8	5.208.3	7.626.0	-1,852.9	-1,994.1	-2,417.7
Albania	37.4	433.1	45.8	527.1	60.9	807.6	-395.7	-481.3	-746.7
B&H	113.5	992.8	207.3	1,301.6	396.2	1,714.9	-879.4	-1,094.3	-1,318.7
Montenegro	*56.4	*234.8	50.3	282.8	66.6	524.3	*-178.4	-232.5	-457.8
Croatia	659.0	1,402.6	1,054.1	1,769.7	1,237.8	2,069.8	-743.6	-715.6	-832.0
Macedonia	260.0	403.9	390.6	438.7	469.3	949.5	-144.0	-48.1	-480.2
Moldova	592.3	282.5	468.2	294.8	737.1	550.8	309.8	173.5	186.3
Serbia**	800.1	855.6	1,265.6	905.6	2,240.8	1,199.3	-88.5	360.0	1,041.5

** - Data refer to 2005 and are calculated into U.S. $ based on data from MONstat, Montenegro.*
*** - Data retrieved from the SORS database – Statistical Office of the Republic of Serbia, Belgrade.*

Source: Author's calculation based on FAO Database

The EU countries achieved a positive balance in trade of agricultural and food products more than 2.5 billion U.S. $ in 2010, while the CEFTA-2006 generated nearly as much deficit in the trade of these products, which is noticeable increasing (about 30% compared to 2004, or 20% compared to 2006). All CEFTA countries, except Moldova, which has a very modest trade with Serbia, have a negative trade balance of agricultural and food products. Bosnia and Herzegovina is a member with the largest deficit in the trade of agricultural and food products (about 1.3 billion U.S. $) and the most important export market of agro-food products of Serbia on CEFTA market. It can be noticed that in all CEFTA countries the deficit trend in trade of agro-industry products is increasing, and it is much higher in the last analyzed year comparing to the base year of analysis (especially in Macedonia and Montenegro). Factors that contributed to this trend are unfavorable trends in agricultural production and incomplete transformation and privatization of the food industry, since they slow down the development of the whole sector in these countries. Since 2005 Serbia achieved positive trade balance of agricultural and food products constantly, that made the agricultural sector one of the few sectors which contribute to balancing the foreign trade of the country.

3. REGIONAL DIRECTION OF FOREIGN TRADE OF AGRICULTURAL AND FOOD PRODUCTS FROM SERBIA

Total foreign exchange and the value of exports, imports and total trade deficit of Serbian economy grow by 2008 in which is recorded the largest Serbian trade deficit in analyzes period from over $ 13 billion (Table 2). The negative impact of the overall global economic crises caused the significant decline in total exports (around 24%) and imports (about 35%) and, consequently, of the total trade deficit of Serbia (about 44%), while in the subsequent years the value of foreign trade increased.

The exports in the Serbian agro-food products were in a slight decline in the value (less than 1%), in 2009 caused by the negative impact of the global economic situation, while reducing imports of these products were more significant (about 10%), but less than the reduction of total exports of the economy. Hence, in that year was recorded the highest share of agricultural products in the total foreign trade of Serbia (23.3%). In the subsequent years of analysis, the increase in the value of foreign trade of agro-food products Serbia was observed.

Since 2005, there is a constant positive trade balance of the Serbian agro-industrial sector, which is one of the few sectors that has positive balance, and it is continuously increasing.

Regional analysis of total foreign trade indicates that the EU market is of most importance, since over 50% of the exchange is conducted with these countries, where there is a constant deficit (which in some years exceed half of the total trade deficit of Serbia). This is an indication of the crisis of our economy, so it is more difficult to meet the high requirements of the EU market, which is why our exporters turn to countries where they may still sell our, largely uncompetitive, products.

Share of CEFTA-2006 in Serbia's total exports reach about one-third of its value, while the share in imports is far more modest, about 8%, so there is always a surplus in Serbian trade with these countries. Other countries account for about 12-15% of total exports, and significantly higher (about 35%) of total Serbian import.

Exports of agro-industry sector in Serbia is predominantly focused on the EU and CEFTA-2006, since we only export 6-9% of these products to the rest of the world (although there is a slight upward trend that can be explained, among other things, by signing trade agreements with some countries like the Russian Federation, Turkey, EFTA and others). The share of the EU countries in total agro-industrial exports of Serbia in the early years of the analyzed period was

about 55%, and after the signing the CEFTA agreement in 2006 it was significantly reduced causing the increased exports of these products to the neighboring countries, which is 2008 exceeded 52%. However, after the entry into force of The Interim Trade Agreement with the EU (unilateral application by Serbia from 2009 and complete application by 2010) exports of the agro-industrial products in CEFTA countries has declined, while its share in the EU is increased and reached almost 50% the 2011.

Table 2: Regional orientation of Serbian total and agro-food trade orientation in 2004-2011

		2004	2005	2006	2007	2008	2009	2010	2011
mil US$	**Total export**	3,522.4	4,480.8	6,426.6	8,824.0	10,972.2	8,342.9	9,793.0	11,777.9
%	EU-27	56.7	58.7	57.4	55.9	54.3	53.7	57.3	57.7
	CEFTA	29.8	27.3	30.5	32.2	33.1	31.6	28.7	27.3
	Other countries	13.5	14.0	12.1	11.8	12.6	14.8	14.0	15.1
mil US$	Export of agro-food products	797.2	919.0	1,263.6	1,684.0	1,955.5	1,942.7	2,240.8	2,696.5
%	EU-27	54.9	55.4	46.4	43.1	40.6	47.5	48.2	49.9
	CEFTA	39.5	38.0	47.0	50.2	52.3	46.1	43.0	40.9
	Other countries	5.6	6.6	6.6	6.8	7.1	6.4	8.8	9.3
Share of agro-food products in total export		22,6	20.5	19.7	19.1	17.8	23.3	22.9	22.9
mil US$	**Total import**	10,750.6	10,458.6	13,169.5	19,161.2	24,327.9	15,804.5	16,467.7	19,859.1
%	EU-27	58.0	54.2	54.5	55.1	55.1	56.7	55.8	55.5
	CEFTA	5.7	7.2	8.2	8.2	7.8	8.2	8.8	8.6
	Other countries	36.3	38.6	37.3	36.7	37.0	35.1	35.5	35.9
mil US$	Import of agro-food products	853.4	770.1	903.3	827.6	1,113.0	997.7	1,199.3	1,404.5
%	EU-27	46.8	47.3	42.6	40.0	40.0	39.9	43.7	45.2
	CEFTA	11.3	14.0	19.8	24.2	24.6	24.9	23.3	22.6
	Other countries	41.9	38.7	37.5	35.9	35.4	35.2	33.0	32.2
Share of agro-food products in total import		7,94	7.36	6.86	4.32	4.57	6.31	7.28	7.07
mil US$	**Balance of total trade**	-7,228.2	-5,977.8	-6,742.9	-10,337.2	-13,355.7	-7,461.5	-6,674.7	-8,081.2
	EU-27	-4,238.6	-3,036.1	-3,482.0	-5,625.8	-7,458.1	-4,481.8	-3,567.5	-4,233.7
	CEFTA	438.1	470.8	877.7	1,277.0	1,732.4	1,336.1	1,370.4	1,512.3
	Other countries	-3,427.7	-3,412.5	-4,138.6	-5,988.4	-7,630.0	-4,315.8	-4,477.6	-5,359.8
mil US$	Balance of agro-food products	-56.2	148.9	360.3	856.4	842.6	945.0	1,041.5	1292.0
	EU-27	37.5	144.6	201.7	394.3	349.0	524.3	557.1	709.4
	CEFTA	218.9	241.3	414.6	644.7	748.7	646.7	683.8	784.5
	Other countries	-312.6	-237.0	-255.9	-182.5	-255.1	-226.0	-199.4	-201.9

Source: Author's calculation based on SORS database.

Since CEFTA-2006 consists of the countries in our immediate environment and our potential competitors in the trade of agricultural and food products, we conducted the analysis of the territorial orientation of Serbian foreign trade of the agro-industrial products on the market of individual countries (Table 3). Most of the value of exports of Serbian agro-food products is implemented in Bosnia and Herzegovina, with noticeable decline in the share (from 60 to 40% in the observed period). This can be explained, among others, by exports of the agro-food products in Montenegro, recorded since 2006, and which was approximately about one third of our agrarian export. According to the representation in the regional structure of exports within the CEFTA member states follow Macedonia (with the notable decline from about 22 to 15%), and by Croatia (which had the largest share of exports in 2011 exceeding 10%). Albania (with about 2-3%) and Moldova (less than 1%) are not a major destination for agro-industrial products from Serbia.

Table 3: Regional structure and balance of Serbian foreign trade of agricultural and food products with CEFTA member countries in 2004-2011

		2004	2005	2006	2007	2008	2009	2010	2011
mil US$	**Export of agro-food products in CEFTA**	**315.0**	**349.4**	**593.8**	**844.6**	**1.022.3**	**894.7**	**963.3**	**1.101.8**
%	Albania	3.7	3.6	3.2	3.4	1.7	1.9	2.7	1.9
	Bosnia and Herzegovina	64.6	65.9	42.2	40.3	40.7	41.9	43.7	42.0
	Montenegro	-	-	32.9	32.9	35.6	33.8	29.4	30.2
	Croatia	8.9	9.0	6.6	5.3	6.2	6.5	6.7	10.1
	Macedonia	22.7	21.4	15.0	17.9	15.8	15.8	17.4	15.8
	Moldova	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0
mil US$	**Import of agro-food products from CEFTA**	**96.1**	**108.0**	**179.3**	**199.9**	**273.7**	**248.0**	**279.5**	**317.2**
%	Albania	0.0	0.2	0.3	0.4	0.2	0.3	0.5	0.7
	Bosnia and Herzegovina	21.4	17.4	16.8	19.0	19.9	22.6	22.1	20.5
	Montenegro	-	-	14.7	13.8	10.5	9.0	7.3	6.4
	Croatia	31.1	33.4	30.4	27.5	29.8	30.4	30.0	32.5
	Macedonia	47.1	48.8	36.6	37.4	36.3	35.6	38.7	39.4
	Moldova	0.3	0.1	1.3	1.9	3.2	2.0	1.5	0.6
mil US$	**Balance of agro-food products with CEFTA**	**218.9**	**241.3**	**414.6**	**644.7**	**748.7**	**646.7**	**683.8**	**784.5**
	Albania	11.6	12.2	18.5	27.9	16.9	16.5	24.3	18.9
	Bosnia and Herzegovina	182.9	211.4	220.4	302.7	361.3	318.7	358.9	398.2
	Montenegro	0.0	0.0	168.9	250.6	335.4	280.0	263.4	312.6
	Croatia	-1.9	-4.7	-15.0	-10.4	-18.6	-17.1	-18.8	7.5
	Macedonia	26.3	22.0	23.7	76.8	61.6	52.9	59.6	48.7
	Moldova	0.0	0.3	-1.9	-3.0	-7.9	-4.3	-3.6	-1.3

Source: Author's calculation based on SORS database.

In the structure of import of agrarian products from CEFTA into Serbia, the most represented are products from Macedonia (around 36-49%), followed by Croatia (about one third). According to the importance of imports of agrarian products from CEFTA countries next is Bosnia and Herzegovina, with a share of around 17-22%, followed by Montenegro with the slightly lower share, which fell from nearly 15% in 2006 to 6.4% in the last year of observation.

With most CEFTA countries, Serbian agrarian sector has a positive trade balance, with the largest surplus in trade with Bosnia and Herzegovina, and then with Montenegro. The exception is Croatia (though in 2011 we recorded a surplus even with this country) and Moldova (but in trade with this country is presented a very small deficit).

4. INTRA-INDUSTRY TRADE OF AGRICULTURAL AND FOOD PRODUCTS BETWEEN SERBIA AND MAJOR REGIONAL TRADING PARTNERS

For consideration the comparative advantages of the Serbian agrarian sector, it is important to determine how much it has been integrated in a particular market, or how it was capable to attract customers on this market. A higher level of intra-industry trade shows similarities in the economies of individual countries, similar features in the structure of demand in the market, as well as production. Higher values of the GL index for some sectors suggests that its products are attractive enough to find buyers on the market in certain countries, and indicate the level of competitiveness of the sector, as well as its level of integration of the markets of individual trading partners. A higher degree of integration on markets in some countries suggests the possibility of easier adjustment to the conditions of liberalization on these markets (and lower cost), because certain agricultural and food products are already present in them.

The level of intra-industry trade (IIT) of agro-food products from Serbia differ between countries the most important trading partners in certain years. Overall, the largest percentage (about 75%) of Serbian foreign trade of agricultural and food products (for all countries of the world total) has inter-industry character, or in other words it is done between different sectors. About one-fourth of the exchange of agricultural products is performed within the sector, and the value GLIIT index was highest in the 2006 – 26.2 % (Table 4).

GLIIT index for CEFTA-2006 is significantly higher than the level for EU member states, and ranged from 21 to 25%. It is noted that the level of integration and similarity of the Serbian agrarian sector is higher in the regional

market of CEFTA than in the EU market. This can be explained by the fact that most of the CEFTA members used to be one country in previous period, so that they have similar level of economic development, GDP per capita, lower level of technical and non-tariff barriers, and similar habits in consumption of agricultural and food products. The signing of CEFTA Agreement had for a result achieving of more significant level of trade liberalization in agricultural and food products between countries. This is the reason that Serbian agrarian sector has higher level of integration in these countries in recent years.

EU member states achieved higher levels of economic development, have different resources for the development of the agrarian sector, and different consumers' habits, resulting in lower integration of Serbian agro-food products in their markets. Although some increase in the last two years of analysis was recorded, GLIIT indicators and intra-industry trade with EU countries is below 15%, which is cited in the literature as the lowest limit of significant level of integration. It can be concluded that the agrarian sector is not sufficiently qualified to offer the EU market adequate quantities of quality products. The improvement and development of the food industry and adapting the required standards of quality and safety of food products, as well as implementation of The Interim Trade Agreement, have contributed that in the last two years of observation GLIIT index value increased, indicating that the level of integration (and competitiveness) of the agrarian sector into EU market is slightly higher.

Table 4: Level of intra-industry trade (IIT) of Serbia agrarian sector with major trading partners and the world in period 2004-2010 (%)

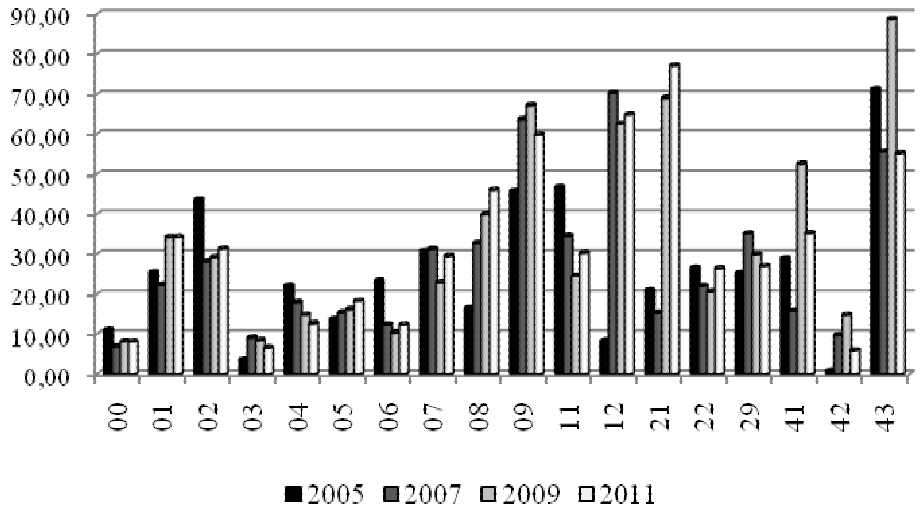
Country/group	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**
EU*	12.0	12.4	12.7	10.2	11.8	11.0	13.2	14.4
CEFTA -2006	25.6	22.9	21.8	20.2	21.8	23.2	24.3	24.3
World-total	**24.7**	**22.5**	**26.2**	**24.1**	**26.0**	**23.9**	**25.6**	**25.0**

** Calculation included EU-25 level for period 2004-2006 and EU-27 level for period 2007-2011*
Source: Author's calculation based on SORS database.

Analysis of inter-industry foreign trade by groups of agricultural and food products showed significant differences. If we analyze the total foreign trade of agrarian products from Serbia (to the world) intra-industry trade is more present at higher levels of processing products (where there is a significant product

differentiation) such as: 09-Miscellaneous edible products and preparations, 12-Tobacco and tobacco manufactures, and others (Figure 1). The lowest level of intra-industry trade is characteristic for the commodity groups consisted of raw or lower levels of processing products (00-Live Animals; 03-Fish and crustaceans, and preparations, 04-Cereals and cereal preparations; 06-Sugars, and others). This is consistent with the theoretical conclusions that the lower the level of intra-industry trade is present at products of lower levels of processing. (*Bojnec, Hartmann, 2004*)

Figure 1: Intra-industry trade (IIT) of Serbian agrarian sector with the world in period 2004-2010 (%)



In foreign trade with EU countries the highest level of intra-industry trade was achieved at groups of products at higher processing level or substantial product differentiation: 09-Miscellaneous edible products and preparations, 11-Beverages, 12-Tobacco and tobacco manufactures, but in recent years in division 21-Hides, skins and furskins, raw; and 08-Feeding stuff for animals (Table 5). In other groups of products values of GLIIT index are generally smaller than 15% and the lowest (less than 5%) are recorder in division 00-Live animals; 01-Meat and meat preparations; 02- Dairy products and birds' eggs; 03-Fish, crustaceans, molluscs and aquatic invertebrates, and preparations; 06-Sugar; and 42-Fixed vegetable fats and oils, and 43-Animal or vegetable fats and oils, processed. In the future process of complete liberalization and integrations, these groups of products will require additional costs of adapting to existing conditions on the EU market.

Table 5: Level of intra-industry trade (IIT) of agrarian sector of Serbia with EU countries in period 2004-2010 (%)

SITC divisions	2004	2005	2006	2007	2008	2009	2010	2011
00- Live animals other than animals of division 03	5.3	1.3	2.7	3.1	3.8	4.4	3.9	2.3
01- Meat and meat preparations	0.4	1.1	0.5	1.3	0.8	0.7	1.8	1.6
02- Dairy products and birds' eggs	0.6	0.1	0.5	0.2	0.0	4.4	3.4	3.9
03- Fish, crustaceans, molluscs and aquatic invertebrates, and preparations	0.4	0.5	1.2	0.0	0.1	1.1	1.7	1.0
04- Cereals and cereal preparations	18.4	9.0	7.4	14.3	16.6	7.9	6.6	7.4
05- Vegetables and fruit	10.8	7.8	9.0	7.7	9.4	8.6	9.5	9.4
06- Sugars, sugar preparations and honey	8.4	18.3	9.2	1.4	1.0	1.5	1.3	2.0
07- Coffee, tea, cocoa, spices, and manufactures	14.0	15.3	17.4	19.1	30.7	26.8	15.8	16.4
08- Feeding stuff for animals (not including unmilled cereals)	1.6	0.5	1.7	4.9	11.1	6.1	15.2	28.3
09- Miscellaneous edible products and preparations	15.3	15.2	23.3	39.3	34.9	38.0	30.1	29.8
11- Beverages	19.7	31.8	25.6	42.0	51.2	37.3	41.0	52.5
12- Tobacco and tobacco manufactures	11.9	7.8	17.4	17.9	16.1	17.0	65.5	78.8
21- Hides, skins and furskins, raw	11.2	28.6	83.9	20.4	56.7	78.8	89.3	82.8
22- Oil-seeds and oleaginous fruits	38.8	28.9	23.8	16.9	19.0	13.7	7.6	12.2
29- Crude animal and vegetable materials	8.5	7.9	8.6	13.1	6.9	15.1	13.5	18.2
41- Animal oils and fats	0.1	2.0	1.5	9.1	2.2	6.3	10.2	13.2
42- Fixed vegetable fats and oils, crude, refined or fractionated	1.0	1.1	4.6	2.9	4.3	2.9	0.7	0.9
43- Animal or vegetable fats and oils, processed	0.0	2.5	0.4	0.0	1.0	0.0	2.0	6.9
T o t a l	**10.5**	**11.4**	**10.6**	**10.2**	**11.8**	**11.0**	**13.2**	**14.4**

Source: Author's calculation based on SORS database.

Analysis of intra-industrial trade by groups of agricultural and food products with the CEFTA-2006 indicate that there are a number of agro-food products capable to cope with the competition in this market. The highest level of integration (and competitiveness) is characteristic for divisions: 12-Tobacco and tobacco manufactures and 09-Miscellaneous edible products and preparations. A more significant level of integration (over 20%) in CEFTA market is recorded for division 01-Meat and meat preparations; 06-Sugars, sugar preparations and

honey; 07-Coffee, tea, cocoa, spices, and manufactures; 02-Dairy products and birds' eggs; and 05-Vegetables and fruit, and in recent years 21-Hides, skins and furskins, raw. Favorable positions on the CEFTA markets have lost in recent years Beverages and Feeding stuff for animals. Intra-industry trade is the lowest at primary agricultural products and products at the low level of processing: 00-Live animals; 03-Fish, crustaceans, molluscs and aquatic invertebrates, and 04-Cereals and cereal preparations.

Table 6: The level of intra-industry trade (IIT) of Serbian agrarian sector with CEFTA-2006 in period 2004-2010 (%)

SITC divisions	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**
00- Live animals other than animals of division 03	7.8	1.0	8.9	1.2	3.1	6.9	5.7	5.1
01- Meat and meat preparations	25.0	14.2	8.9	10.6	20.9	22.4	28.9	33.6
02- Dairy products and birds' eggs	26.0	21.1	6.5	13.1	15.8	19.8	25.7	26.2
03- Fish, crustaceans, molluscs and aquatic invertebrates, and preparations	11.2	10.2	9.0	13.3	17.0	12.0	13.3	12.6
04- Cereals and cereal preparations	20.0	13.3	14.5	10.9	12.8	15.6	13.5	11.0
05- Vegetables and fruit	24.0	17.1	23.4	19.9	22.0	24.7	22.4	22.9
06- Sugars, sugar preparations and honey	60.5	55.6	35.4	42.1	43.1	33.4	12.4	32.7
07- Coffee, tea, cocoa, spices, and manufactures	28.3	36.4	32.7	34.9	35.4	28.5	34.3	31.8
08- Feeding stuff for animals (not including unmilled cereals)	42.7	44.8	19.8	16.2	24.1	10.7	20.2	13.2
09- Miscellaneous edible products and preparations	55.8	53.8	37.1	35.2	36.2	32.2	51.3	57.6
11- Beverages	31.2	33.7	28.1	23.9	19.4	17.0	16.4	16.2
12- Tobacco and tobacco manufactures	39.7	12.3	47.5	84.1	70.2	88.4	88.5	97.6
21- Hides, skins and furskins, raw	7.6	4.7	1.3	12.5	42.3	51.8	35.0	45.4
22- Oil-seeds and oleaginous fruits	32.3	24.5	14.3	22.4	28.7	30.5	34.3	32.1
29- Crude animal and vegetable materials	20.7	16.1	22.8	19.5	16.6	11.1	17.7	22.9
41- Animal oils and fats	0.1	1.3	2.4	10.8	30.9	15.5	26.1	18.0
42- Fixed vegetable fats and oils, crude, refined or fractionated	0.4	0.1	23.8	4.9	10.8	24.7	17.8	11.4
43- Animal or vegetable fats and oils, processed	17.2	11.5	2.6	0.1	1.5	1.7	0.0	0.0
T o t a l	**25.6**	**22.9**	**21.8**	**20.2**	**21.8**	**23.2**	**24.3**	**24.3**

Source: Author's calculation based on SORS database.

CONCLUSION

Processes of economic transformation and integration in which Serbia is included (gaining membership in the WTO and the EU), are followed by the constant required adjustments in the direction of further liberalization of the market, including the market of agricultural products, and changes in the mode, scope, structure and regional orientation of foreign trade. In the regional structure of the Serbian agricultural and food exports the largest shares have EU-27 and CEFTA-2006. Exports of agricultural and food products in the EU reached a maximum in the 2005 (55%) and then decreased, but after the signing and implementation of The Interim Trade Agreement with the EU it increased again and in the last year of observation reached 50%. Growth of export of the agrarian sector in CEFTA-2006 was particularly marked in the years after the signing of Agreement (when exceeded half of the total exports of the sector). Most of the exports of agro-food products to the neighboring countries is carried out in Bosnia and Herzegovina, and most of the imports of these products comes from Macedonia and Croatia.

However, apart from the strategic orientations for EU integration and the importance of the export destination for our agricultural and food products, there is a low level of integration (and competitiveness) of the Serbian agrarian sector on that market, as indicated by the calculated GLIIT index which were from 10 to 14%. Analysis of intra-industrial trade with CEFTA-2006 revealed a higher degree of integration of the Serbian agrarian sector. It also indicate that there are a large number of agricultural and food products able to cope with the competition on this market, which is understandable since there are significant similarities in the economies, similar features in the structure of demand and agricultural production and food processing characteristics.

It is increasingly difficult to meet the high demands of the EU market in terms of quality and adequate quantity and stability of supply. This may require the further increase of the costs of adaptation to these demands in the process of integration and liberalization. This is especially important for certain product groups where are determined small values of the GLIIT index or particularly low level of integration and competitiveness (livestock, meat and meat products, milk and dairy products, etc).

REFERENCES

Andresen, M. A. (2003). Empirical Intra Industry Trade: What We Know and What We Need to Know? Department of Geography, University of British Columbia and Institute for Canadian Urban Research Studies, Canada.

Bojnec Š. & Hartmann Monika (2004). Agricultural and food trade in Central and Eastern Europe: The case of Slovenia Intra-industry Trade. IAMO Discussion Paper No. 65, Halle, Germany.

Bojnec Š. (2001). Trade and Revealed Comparative Advantage Measures (Regional and Central and East European Agricultural Trade). Eastern European Economics, vol.39. No. 1, page 72-98.

Bojnec Š., Majkovič Darja & Turk J. (2005). Trade types in Slovenian primary and processed agricultural trade. XI EAAE Congress The Future of Rural Europe in the Global Agri-Food System, Copenhagen.

Brulhart M. (2008). An Account of Global Intra-industry Trade, 1962-2006, World Development Report. Background paper, University of Lausanne, Switzerland.

Greenaway, D. & Milner C. (2003). Effective Protection, Policy Appraisal and Trade Policy Reform. University of Nottingham, GEP Working Paper No. 2003/06.

Grubel, H. G. & Lloyd, P. J. (1975). Intra-Industry Trade: The theory and measurement of international trade in differentiated products. Wiley, London: MacMillan.

Gullstrand J. (2001). Demand Patterns and Vertical Intra-Industry Trade with Special Reference to North South Trade. CFE Working paper series, Center for European Studies at Lund University.

Luka Oksana & Levkovych Inna (2004). Intra-industry trade in agricultural and food products: The case of Ukraine. Institute of agricultural Development in Central and Eastern Europe, (IAMO). Discussion paper, N0. 78, Halle, Germany.

Van Berkum, S. (1991). Patterns of Intra-Industry Trade and Foreign Direct Investment in Agro-food Products for East-West Integration. MOCT-MOST, 9(3): 255-271.