BULGARIA'S PROCESSED FOOD INDUSTRY – TRANSITION TO MARKET ECONOMY

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ABSTRACT

The subject of the research is the analysis of the competitiveness and comparative advantage of the agricultural products and processed food products of Bulgaria on the international market. The study covers the period from 1998 to 2017. In order to measure the level of comparative advantage of the export and the degree of specialization in international trade RCA and GL indices have been used. The aim of or research was to identify products that have previously before the EU accession had, and still have, export potential. That is, the objective was to point the trend of changes in the foreign trade of processed food sector in the period before and after the EU accession in 2007. The results indicate that after joining the EU Bulgaria has changed its foreign trade structure. The decrease of exports and increase of imports of processed food sector products requires a comprehensive export strategy in order to strengthen its competitiveness.

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Introduction

Competitiveness is always a comparative category that shows the ability of the economy to raise the overall national productivity and quality and to compete with other economies regionally and globally. The food industry(Vasić, 2015) has a significant importance for the economy of Bulgaria with its potential to enhance considerably the delivery of growth and jobs in a resource-efficient way. The research findings of the authors Boneva (2011, 2012), as well as Ignjatijević and Milojević (2011), have well proven the notable share of agricultural products and especially food products in the export structure of Bulgaria.

The study of the comparative advantage in Bulgaria's exports of processed food products indicates problems and changes in production(Grbić & Jovanović, 2020; Nadoveza & Pešić, 2020) and positioning in the world market. Especially important is the cooperation of all participants in the value chain: manufacturers, distributors, exporters, scientists, etc. Therefore, the subject of the research is the analysis of the comparative advantages in the export of processed food sector(Hasanov, 2019; Dimitrovski et al., 2019; Krunić, Matić & Đukić, 2019; Zekić, 2015; Pantić et al., 2019) and specialization of international trade of Bulgaria. Furthermore, the argument presented conveys the need to manage the comparative advantage in exports in order to intensify, modernize and harness the potential of Bulgaria's processed food sector.

The paper is structured as follows: an overview of the literature on competitiveness is presented below, especially on the competitiveness of the processed food sector and the targeted processed food sector of Bulgaria. The research method is then described, followed by results and discussion. The last section contains concluding remarks.

Literature review

The conceptual framework of competitiveness at a sectorial level (Bojnec, Fertő, 2015; Collignon, Esposito, 2017) combine definitions and indicators based on foreign trade performance with those based on productivity and labor costs. Bojnec et al. (2005) have pointed out the significance of the structural reforms in the food sector of Slovenia in EU integration, while Jaklič and Svetličič (2017) have argued that lack of experience and knowledge about investing, administrative procedures in international business entry into foreign markets, international marketing and management are the biggest obstacles in the process of integration in the EU market. An emphasis on the change of the export structure of Czech Republic was put by Vološin et al. (2011), Svatoš and Smutka (2012), De Castro and Hnát (2017); Hungarian industry was put by Smutka et al. (2017), Fertö and Hubbard (2002), Bojnec and Fertö (2006), Török and Jámbor (2013); Ukraina was put by Qineti et al. (2009) and Slovakia was put by Simo et al. (2016).

Bulgaria appears to be in the focus of the research of Bojnec and Fertö (2015) and they have shown that Bulgaria is a stable net exporter of food products. This advantage has been proven once again by Ignjatijević and Milojević (2011) and Ignjatijević et al. (2013a) have pointed out that Bulgaria is the one of the biggest exporters of agro-food products.

The interest about the competitive advantage of the processed food sector of Bulgaria and its market position continues to be present in the further works of Ignjatijević et al. (2014, 2015). Balogh and Jámbor (2017) went even further, identifying key industry specific causes for changing patterns in comparative advantage in the EU using the wine industry as an example. Slavova (2016) has examined the activities of companies in the food industry in order to create recommendations for improving the managerial level of the production process and quality in the company. Terziev and Arabska (2015) have analyzed the Bulgarian agriculture from the point of view of its impact on the development of rural areas through the exchange of knowledge on production, marketing, processing and management of natural resources and emphasized the need to establish the Knowledge and Innovation System in Agriculture (AKIS). Vassileva et al. (2014), as well as Zhelev and Tzanov (2012), have pointed out that the sectors of the Bulgarian economy have experienced uneven development since 2000. Boneva (2011) points out that although efforts seem to be made, there remains an impression of absence of a strategic link between goals, resources, organization and management of the development process and the strengthening of the export competitiveness of Bulgarian companies in the food processing sector. Kopeva et al. (2016) have critically assessed the existing instruments and conclude that they have to be included in a comprehensive long-term sectorial strategy which is to be consistently implemented. Ivanov (2015) has examined the competitiveness of the canning industry in Bulgaria and suggests two ways for its improvement: through increasing the efficiency of the use of competitive advantages, and complex reengineering approach.

Materials and methods

The subject of this research is to analyze the comparative advantage of Bulgaria's processed food sector exports, with the aim of measuring the comparative advantage of exporting sector and point out which products have a stable position on the international market. Referring to the research of Buturac (2008, 2009), the logarithmic form of the comparative advantage of exports has been applied. The formula for calculating the expressed comparative advantage is the following:

$$RCA = \mathbf{h}\left[\frac{X_i}{M_i}\right] \times \left(\frac{\sum_{i=1}^{n} X_i}{\sum_{i=1}^{n} M_i}\right) \times 100 \quad ,$$

Where X is the export value and M is the sign for the import value. Index i indicates the processed food sector as a whole or products of that sector. For the purpose of a detailed survey of the foreign trade exchange of processed food sector in Bulgaria analysis of the export of product groups that are present in the export of Bulgaria, has been made (3digit SITC). Grubel Lloyd's index is used to analyze the level of specialization in intra-industrial exchange. The Grubel Lloyd index is calculated using the formula (1975):

GL_i^t is the Grubel Lloyd's index value for the product group *i.* X_i^t represents the value of exports and *M* is the value of imports. The index ranges from 0 to 1. Values closer to 0 indicate the inter-industrial character of the exchange, and values closer to 1 indicate the intra-industrial character of the exchange

Results and discussion

The Bulgarian food industry is traditionally export-oriented a serious threat to the balance of trade is the increase of the imports (Kopeva et al., 2016). In 1998, exports accounted for 9.46% in total export, actually this favorable position has not recurred to date. During the period (1998-2006) Bulgaria had a positive trade balance amounting to an average of $ 40 million, competitive prices and standardized quality. The exports of food products have grown steadily, with an increase in imports and a foreign trade deficit in the period 2007-2009 (Boneva, 2011). The turnover of food products (in the period 1998 - 2017) increased 5.36 times - from USD 406 million to USD 2.178 million (Table 1).

Table 1. Export and import, RCA and GL index of processed food sector in Bulgaria in the period from 1998 to 2017

		Processed food sector (In 000$)			Total (% share)		RCA	GL
		Export	Import	Neto export	Export	Import		
Before the EU	1998	406,047	241,149	164,898	9.46	4.83	0.45	0.75
	Average 98-06	397,009	356,364	40,645	5.74	3.52	0.10	0.93
Year of joining the EU	**2007**	**825,453**	**1,009,336**	**-183,883**	**4.44**	**3.36**	**-0.12**	**0.9**
After joining the EU	2008	1,132,397	1,422,206	-289,809	5.04	3.84	-0.14	0.89
	2017	2,178,371	1,879,253	299,118	7.22	5.5	0.13	0.93
	Average 08-17	1,728,504	1,612,224	116,280	6.75	5.20	0.05	0.94

Source: UN Comtrade and authors' calculation

The significant increase of imports of 4.18 times resulted in foreign trade deficit of USD 184 million. Although the increase in exports by 2017 is accompanied by an increase in imports, there is a surplus of exports of food products at an average of USD 116 million (2007-2017).

The period of Bulgaria's accession to the EU also coincides with the prohibition of exports of live animals from Bulgaria to the EU, due to the "bluetongue" illness pork and veal practically did not participate in exports because of non-tariff restrictions (quotas for

the export of pigs, pork and mutton). In later years, biosecurity and risk mitigation measures were introduced in line with the European regulations. Vaccination against lumpy skin diseases (since 2017) and against bluetongue (since 2016) is being introduced (Slette, Boshnakova, 2018; Jolović & Bobera, 2019). During this period, there were non-tariff export restrictions and negotiations were underway to list dairy exports to the EU, at that time only three Bulgarian companies were involved (Ivanov, 2007; Ivanova et al., 2007). An increase in consumption and production of yoghurt has been noticed compared to the overall growth of the milk market. Yoghurt and cheese are among the most traditional dairy products in the country, there is an increase in production even after a sharp slowdown in growth in the years of accession, as well as in the years of economic crisis. An analysis of exports and imports in the period after 2007 shows that the disappearance of restrictions on trade of food products to the EU countries in a 10 years period contributed to an increase in exports 2,64 times (from USD 825 million in 2007 to USD 2,178 billion in 2017). Bulgarian companies base their international market entry strategy on price and quality. The export-oriented companies have one or more internationally recognized quality certificates (Kopeva et al., 2016**).**

As per Bulgaria's processed food sector exports, foreign trade of processed food sector in the period 1998-2006 amounted to USD 753 million average, of which exports accounted for an average of 397 thousand. The average share of exports of processed food products in the country's total exports amounted to 5.74%, while imports accounted for 3.52%, which indicates a greater export importance of the sector. In 2007 when Bulgaria became a member of the EU, the export of processed food sector amounted to USD 825 million with a negative foreign trade balance of USD 183 million. In the period after joining the EU, Bulgaria increased the export and the import of products of the processed food sector several times (Svatoš Smutka, 2009). Foreign trade of processed food in the period 2008-2017 amounted to USD 3,341 million, of which exports amounted to USD 1,728 million. The share of exports of this sector in the country's total exports has enhanced with the increase of the share of imports in total imports.

Comparative advantage in the export of processed food sector

The results of the research on the presence of comparative advantage in the export of processed food sector of Bulgaria are presented in Table 2. Previous research of Ignjatijević et al. (2013b) on the competitiveness of the Bulgarian food industry pointed out the high share of processed food sector in the total exports of the country (Kopeva et al., 2016) and the positive value of RCA index in the period up to 2000 (Gorton et al., 2000) and the period after 2005 (Ignjatijević et al., 2013b). The analysis of the comparative advantage of exports of processed food sector has showed that it had positive values in the period before EU accession (except in 2001 and 2006), with an average value of RCA = 0.1. In fact, in the period from 2006 to 2009 a negative balance was achieved in foreign exchange, which resulted in a decrease of the value of the RCA index. However, after 2009 Bulgaria has increased exports and positive RCA index has been present throughout the next coming period. During the analyzed period, the processed food sector has had a high intra-industrial exchange value.

Table 2. Ranking of processed food sectors products by RCA index in 1998 and 2017

	Bulgaria 1998 (name and number of products groups)	RCA	GL		Bulgaria 2017 (number of products groups)	RCA	GL
Exeptional RCA	Fruit and prepared products -058	2.65	0.09	Notable RCA	421	1.76	0.49
	Non-alcoholic beverages - 111	2.58	0.1		046	0.97	0.64
	Tobacco, processed - 122	2.40	0.11		037	0.90	0.7
Notable RCA	Alcoholic beverages – 112	1.80	0.22		058	0.88	0.58
	Cheese and curd - 024	1.27	0.37		025	0.80	0.96
	Fixed vegetable fats, soft oils - 421	1.23	0.39		048	0.59	0.77
	Vegetables, roots and tubers, processed - 056	1.01	0.47		042	0.54	0.5
Satisfactory RCA	Preparations of cereals, flour, starch - 048	0.71	0.61		551	0.47	0.47
	Chocolate and other food preparations with cocoa – 073	0.57	0.68		081	0.43	0.46
	Fish, dried, salted, in brine, smoked - 035	0.37	0.79		122	0.27	0.58
	Fish and crustaceans, molluscs, Preserved - 037	0.33	0.81		024	0.08	0.53
	Edible products and preparations - 098	0.19	0.89		035	0.07	0.83
	Birds eggs and egg yolks, fresh, dried, egg whites - 025	0.09	0.95	Satisfactory RCA	061	0.00	0.76
	Fruit and vegetables juices- 059	0.00	1		073	-0.05	0.42
Negatve RCA	Meat and edible offal, preserved – 017	-0.12	0.93		017	-0.06	0.43
	Flour, groats and meal of wheat – 046	-0.34	0.8		431	-0.14	0.74
	Animal food - 081	-0.42	0.76		062	-0.30	0.97
	Sugar products - 062	-0.45	0.75		056	-0.42	0.54
	Rice - 042	-0.51	0.71		098	-0.49	0.45
	Sugar, molasses and honey - 061	-0.87	0.53		112	-0.55	0.85
	Essential oils, perfumery products - 551	-1.00	0.48		047	-0.67	0.68
	Animal oils and fats - 411	-1.09	0.44		059	-0.79	1
	Meat and edible offal, salted, dried – 016	-1.26	0.38		422	-1.01	0.92
	Margarine and other edible fats – 091	-1.51	0.29		091	-1.04	0.73
	Milk products, except butter or cheese - 022	-1.77	0.23		411	-1.07	0.24
	Butter and other fats from milk, dairy spreads - 023	-2.11	0.16		111	-1.08	0.7
	Animal and vegetable fats, oils - 431	-2.24	0.14		016	-1.14	0.97
	Groats and meal of other cereals - 047	-3.15	0.05		022	-1.18	0.13
	Fixed vegetable fats, oils – 422	-4.47	0.01	Negative RCA	023	-2.39	0.96

Source: Authors' calculations

In 14 out of 29 commodity groups in the processed food sector the value of RCA index in 1998 is positive as well as in13 commodity groups in 2017. An increase in RCA values was observed in 17 commodity groups. There are 10 product groups in which there is the biggest increase of RCA index. The results show that for some products a decrease in the RCA index has been noticed. They also show that Bulgaria's EU membership did not guarantee an increase in exports. The figures from 2017 indicate a drastic decline in exports of the spirits and non-alcoholic beverages sector. The reasons should be sought in the lack of adaptability to the requirements of the European market.

The paired-sample test has estimated the level of change in the comparative advantage of exports of Bulgaria's food industry (RCA). A decrease in the value of RCA has been confirmed since 1998, i.e. the beginning of the analysis ($M = 0.079$; $SD = 0.16$) to 2017 or after joining the EU ($M = 0.029$; $SD = 0.11$), $t(9) = 0.64$, $p = 0.538$. The average decrease in RCA was 0.05, while the 95% confidence interval extends from -0.13 to 0.078. The value of eta squared (0.04) shows that the impact of accession was small. As far as the separate groups of products are concerned, the change is well noticed, but in the case of the entire group of products the processed food sector loses significance (because the value of some groups of products decreases and for some groups of goods increases).

The paired-sample test estimates the level of change in intra-industrial exchange in exports of the Bulgarian food industry (GL) An increase of the value of GL from the start of the analysis has been confirmed (1998) ($M = 0.923$; $SD = 0.076$) to 2017, or after EU accession ($M = 0.939$; $SD = 0.039$ $t(9) = -0.791$, $p = 0.449$. The average increase of the value of GL was 0.016, while the interval 95% confidence interval extends from -0.06 to 0.0297. The value of eta squared (0.065) shows that the impact of the accession to the EU was moderate.

Further research has established a correlation between the changes of comparative advantage in exports and intra-industrial character of exchange. A strong negative statistically significant correlation between the two variables was present $r = -0.591$, $n = 21$, $p < 0.005$, whereby an increase in the comparative advantage of exports is accompanied by a decrease in intra-industrial character, that is, strengthening of inter-industrial character. The result from the Paired Samples Test confirms the correlation results that a decrease in RCA values is accompanied by an increase in the GL index. In our case 34.9% of GL variance is caused by RCA variance.

Conclusions

Based on our research and previous analysis we found out that the accession of Bulgaria to the EU did not enhance automatically the opportunities for export of the processed food sector. In short, we can say that the development and restructuring of the food industry in the analyzed period has been influenced by many internal and international factors, which resulted in different rates of production growth in the period 1998 - 2017. In the period immediately after the accession investments contributed to the improvement of technology, creating new products and modernization of packing. The food industry

sector has utilized the SAPARD and RDP (Rural Development Program 2007-2013) programs. More than 1/5 of funds were intended for the introduction of European standards of food hygiene and food safety standards, which has led to the increase of production and productivity, and ultimately exports. Based on the results, we can see that the total value of exports has increased many times and has been accompanied by a change in the structure of exports. The research on Bulgaria's processed food sector has pointed out the commodity groups that have a high share in the country's exports and have achieved a positive comparative export advantage (RCA). The study of the comparative advantage of the exports of the sector as a whole or of the separate processed food sectors indicates the following results: the comparative advantage of the export sector as a whole indicates a reduction of RCA index in 2017, 10 years after the accession of Bulgaria to the EU. The result can be considered as a dynamic change in the value of the index in the last year of analysis compared to some earlier years, or as a static category of ex post analysis, but it still deserves deeper analysis.

Further integration within EU has accelerated the structural transformation and technological upgrading of the sector in the country but the process is still rather slow. Bulgaria has not managed to take full advantage of its EU integration and enhance its export competitiveness. Despite the steady increase in the value of exports before the global economic crises occurred, the imports were exceeding, thus leading to a trade deficit, a meaningful sign of inadequate export competitiveness (Zhelev, Tzanov, 2016). The RCA index of exports of processed food sector had positive values before the accession of Bulgaria to the EU, then it had decreased, and after 2009 it had reached positive values in the next coming period. In order to improve its international competitiveness and not to remain steadily anchored to low value-added traditional export the processed food sector can no longer rely on its previous achievements but rather on a well-focused export strategy on a national, sectorial and company level. By far one of the most important issues for the Bulgarian processed food sector is stronger support from the state which can be achieved by a comprehensive national strategy for encouraging and facilitating the export. Its main role should be to concentrate and unite the efforts of state agencies and institutions engaged with promoting Bulgarian exports as Bulgarian Small and Medium-size Enterprises Promotion Agency, Bulgarian Export Insurance Agency, Bulgarian Development Bank, Invest Bulgaria Agency and the country's trade missions abroad. Greater flexibility is needed for improving the access to European funds, as well. Strengthening the export potential, ensuring energy efficiency, providing more investments in R&D and innovations will determine the accelerated growth perspective of the economy and its international competitiveness.

Conflict of interests

The authors declare no conflict of interest.

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