ECONOMIC ANALYSIS OF FOOD INDUSTRY IN REPUBLIC OF MACEDONIA

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Abstract

Based on scientific research, the aim of this paper is economic analysis of food industry in Republic of Macedonia, from two points of view. First, we will see how the food industry influences onthe economic performance from an macroeconomic aspect, and second, we will try to get deepmicroeconomic analysis of food industry. When we speak about microanalysis we think of costs of production, investment and return of investment in food industry, analysis the influence of human capital and technology in food industry and other micro aspects.

Considering the fact that Republic of Macedonia has trade deficit in food products, the basic task will be focus on a strategy to improve the trade deficit on the macro level. Then, the micro level of food industry follows: analysis of R&D activities in food industry, industry based on technology, production processes, and other aspects at the micro level.

Introduction

Today we are witnessing a trend of increaseof the prices of food and food products, which ultimately causes an increase in the cost of living and poverty rate. Poverty is closely related to prices of basic food products, because the largest portion of the Poor's income is used to satisfy some basic existential needs. So, each increase in the prices of food products means a lower standard of living and increase in the poverty rate.

The growth theory shows that the agricultural sector in present growth models is marginalized. This can be seen from the fact that highly developed countries base their growth on innovation and technologies in new industries, for example informatics, telecommunication and pharmaceutical industry. Empirical analysis also confirms the marginal significance of the agricultural sector, analyzing the participation of the agricultural sector in the total output. There are numerous reasons we can point out, and

which refer to the previously presented results from theoretical and empirical analysis in respect of agriculture: workers' wages in the agricultural sector are lower compared with those in other sectors, the rate of return from investments in the agricultural sector is smaller than the return from investments in other sectors, and many other reasons.

In this paper we will focus our attention in two directions. First, through macroeconomic analyses, we will analyze the agricultural sector on one hand, and the food industry on the other hand, in the framework of Macedonian economy, and make comparisons with the other countries in the region. Second, through microeconomic analysis, we will refer to the question on low productivity of the agricultural sector in our country, and the uncompetitiveness of the Macedonian food products as a consequence of which Republic of Macedonia records negative results in foreign trade with other countries.

Macroeconomic analysis of the food industry in the Republic of Macedonia

We will start the macroeconomic analysis of the agricultural sector with Cobb-Douglas production function.[1]

$$Y_i = F(K_i, L_i) = K^\alpha L^{1-\alpha} \tag{1}$$

The equation of the production function shows the combination of factors in production (capital and labor) necessary in manufacturing a product. Depending on which sector the production function refers, it can be of increasing, constant or decreasing returns to scale.[2] It is assumed that the agricultural sector has decreasing returns to scale, which means that increase in the amount of production factors results in smaller rate of increase in output compared with additionally engaged units of productivity factors (labor, capital and land).This ascertainment is widely accepted in the growth theory when talking about the agricultural i.e. primary sector. Unlike the agricultural sector which is characterized by decreasing returns to scale, the food industry as part of the processing industry is usually characterized by constant returns to scale. Further on, we will try to elaborate the previous ascertainments and to deepen our analysis in respect of the agricultural sector and food industry.

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[1]where *i s*hows that this production function refers to the agricultural sector

[2] $F(\alpha K, \alpha L) = \alpha Y$ production function with constant returns to scale (each increase of the productivity factors of 10% causes the output to increase in 10%), production function with decreasing returns to scale $F(\alpha K, \alpha L) > \alpha Y$ (as we previously mentioned this production function is specific for the primary sector) and, production function with increasing returns to scale $F(\alpha K, \alpha L) < \alpha Y$ (most frequent in industries with high technological intensity and in sectors where high level of human capital is needed - informatics and telecommunications).

Our goal, in this part of the paper, will be set to analyze the agricultural sector in the economy of the Republic of Macedonia and its participation in the creation of the GDP, that is to say to what extent the increase of the total economic activity can be based on the increase of the agricultural production on one hand, and analysis of the food industry, that is to say, food and drinks production industry. Through this analysis we will try to refer to the question why Republic of Macedonia faces a large tradedeficit this year in respect of food products and which de facto, are directly connected with food products.

Microeconomic analysis of the food industry in the Republic of Macedonia

Our main task in this part is to find the reasons for the bad economic performances continuously seen in the last period by the food sector in the Republic of Macedonia, through macroeconomic analysis. We will try to perform this task by analyzing the human capital and the level of technology used in this industry.

As a main reason for trade deficit, that is to say, greater import than export level in any industry unambiguously shows that that industry is facing uncompetitiveness on foreign markets. Analogous to this, the main reason for trade deficit of products from the food industry, recorded by Macedonian economy in a longer period of time, is the sole uncompetitiveness of the Macedonian food products on foreign markets. Uncompetitiveness of the Macedonian companies in the production of food, mainly results from low productivity, that is to say, inability to produce items at same or lower cost than the foreign companies.

As we previously noted, to accomplish our task in the framework of this research, we will analyze technology and the human capital, implemented in the food industry of the Republic of Macedonia, as major productivity factors, i.e. competitiveness of Macedonian food companies on foreign markets. Through conclusions reached with this analysis, we will try to suggest some economic policies, and by implementing the sameMacedonian economy might hope for better results in agriculture and food production in the following period.

Data given in table 1 give a general image of the agricultural sector in the last period. Positive results are seen in investments and export of the agriculture products which, in the last period, show a tendency to increase. One of the reasons for this state of the agricultural sector is the government policy to pay subsidies (subventions) in this sector, which in the last few years had a positive effect

Table1

A General overview of agricultural development

	Employees in agricultural and agricultural cooperatives	Investment in million denars *000.000 denars	Production index 2000=100	Exports of agricultural products in 000.000 denars	Imports of agricultural products in 000.000 denars
2004	5332	1467	98	5259	5204
2005	5024	1538	98	7762	4260

2006	4611	1917	103	8348	3838
2007	3961	1833	101	8642	5171
2008	2907	/	106	9270	6105

Source: State Statistical Office

Analysisofemploymentin theagriculturalsectorandfood industryshowsthat 7% oftotalemploymentin theeconomybelongsto thesesectors. In fact, employmentin theagriculturalsectorin2008amounted to12,852employeesand16,693in thefoodindustryfaces.

Table2

Employees in Agriculture and Food industry

	2005	2006	2007	2008
Agriculturel sector	12.115	11.864	12.568	12.852
Agricultrure and hunting	9.566	9.347	10.329	10.176
Culitivation and exploitation of forests	2.549	2.517	2.239	2.676
Food industry	16.650	15.120	16.160	16.693
Manufacturing of food and beverages	13.150	11.849	11.810	13.206
Manufacturing of tobacco	3.410	3.271	4.350	3.487

Sourse: State Statistical Office

Analysisof the amountofwagesintwosectorsshowsthe followingresults:the averagewageinthe agriculturalsectorin2008amounted to11 929denarsandin the foodindustryis 16.693 denars.[3]

Table3

Average net-wage per employee in Agriculture and Food industry

SECTOR, SECTIONS AND	Net-wage per employee, in denars			
DEVISION	2005	2006	2007	2008
Agriculturel sector	10.042	10.401	10.740	11.929
Agricultrure and hunting	9.734	9.805	9.968	10.054
Culitivation and exploitation of forests	11.452	11.821	13.937	14.215
Food industry	13.962	13.748	13.965	14.278
Manufacturing of food and beverages	14.405	14.696	14.665	15.260
Manufacturing of tobacco	13.146	12.243	12.098	12.461

Sourse: State Statistical Office

As wecanseefromthe table, the value ofimportoffoodproducts inRepublic ofMacedoniaislargerintermsofexportsinthesamecontinuity, it meansthat the countryhastradedeficitinrelation tothefoodsector, whichdirectlyshowsthesectorIncompetencein theMacedonianeconomy. Slightlybetterresults

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[3]The official exchange rate is: 61 denars for 1 euro (61denars=1euro)

appearwhenit comes tothetrade balanceofbeveragesand tobacco, as a result ofstrong exportsof wine.

Table4

Exports and Imports of Food products, Beverages and tobaccoIn 000 US$

	Exports		Imports	
	2008	2009	2008	2009
Food products	308.528	293.543	620.900	560.371
Live animals	3.542	6.248	2.231	1.724
Meat and meat processings	33.790	35.915	139.614	141.188
Eggs and dairy products	9.648	6.431	43.214	41.663
Fish and fish processings	10.682	9.793	26.768	23.805
Cereals and cereal processings	41.150	42.888	116.737	81.176
Fruits and vegetables	165.747	142.523	76.892	70.020
Sugaar, sugar processings	10.123	9.875	45.759	45.140
Coffee, tea, cocoa and spices	13.996	11.841	66.838	64.426
Livestock fodder	294	812	29.921	24.539
Other food products	19.555	17.216	72.925	66.691
Beverages and tobacco	218.825	197.022	51.162	51.710
Beverages and tobacco	95.548	86.039	33.202	33.420
Tobacco and tobacco processings	123.277	110.982	17.959	18.290

Sourse: State Statistical Office

Analysisof the Gross output atbasic pricesfor 2009 intwosectors (agriculturel and food sector)showsthe followingresults: the Gross output in agruculturel sector is 75.229 million denars and the Gross output in food industry is 42.340 million denars. From this analysis we can conclude that agriculturel secotor has more value that food industry.[4]

Conclusion

Our research was directed towardstheoretical and empirical analysis of the food industry and agricultural sector in Macedonia. We have seen that the agricultural sector has positive trade balance unlike the food industry. Such an indicator shows that the Republic of Macedonia in the forthcoming period should improve the performance of the food industry. There are several ways to do it: to invest in new machinery and new

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[4]State Statistical Office

equipment for processing food products, with part of the agricultural products are now exported with little market value can be used as inputs in the food industry, investing in human capital and new technology as a way to increase the productivity of the industry and improve economic performance in tradeoffoodproducts.
Such efforts will undoubtedly contribute to positive economic effects, such as balance of payments, economy growth, increasing employment and wage levels in the food industry, stimulating the agricultural sector, reducing the economy's dependence on imports of food products and avoidance of price shocks on food products that occur in the world today.

References:

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