

IMPORTANCE OF THE AGRO-FOOD SYSTEM FOR ECONOMIC DEVELOPMENT IN SELECTED LMICs

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Abstract

Primary agricultural production and the food industry jointly represent the agro-food system of one country. This system has an important role in the economic development of the Republic of Serbia, which according to the World Bank classification, belongs to the group of LMICs. The aim of this paper is to validate the strategic role of the agro-food system in the economic structure of low- and middle-income countries and its contribution to overall economic development. Applied criteria for selecting the countries for the analysis were: gross national income per capita, territorial affiliation (geographical position), and CEFTA agreement. Based on such criteria, the sample countries include Serbia, Albania, Bosnia & Herzegovina, and North Macedonia. Indicators of the contribution to economic development are created using secondary data and divided into four categories: employment indicators, activity indicators, population indicators, and economic indicators. The period covered by this analysis is from 2013 to 2018.

Key words: *agro-food system, LMICs, economic development, qualitative indicators, Serbia*

Introduction

The socioeconomic characteristics of the developing countries together with geographical position determine the intensity and progress of economic development (Jovanović, 2021). When the economic growth rates of low- and middle-income countries are analyzed, special attention is dedicated to agriculture and its contribution to economic development. Besides primary agriculture, the research includes the processing industry (separately or as a part of the agro-food sector).

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Various indicators can be used to estimate the contribution of the agro-food system to the economic development of low- and middle-income countries. Numerous studies worldwide analyzed indicators of primary agricultural production and the food industry individually, to determine how these two sectors behaved over years. Especially, in years close to important moments in the country's economic development. Nevertheless, for the improvement of current agricultural policy, it is important to observe not only national indicators for Serbia but also to go beyond borders.

Methodology

Since the contributions of the agro-food system can be measured through various indicators, we selected only those identified according to Mitrović et al., 2017. The contributions of the primary agricultural production (*i.e. sector A from the Classification of Activities*), were mostly presented in the literature (Meijernik, Roza, 2007; Vaško, Mirjanić, 2013). The contributions of the food industry were often researched as part of the processing industry (*i.e. sector C according to the Classification of Activities*). In addition, the least represented in the literature are studies about the contributions of the agro-food system.

For comparison, countries that have common characteristics and similarities with the Serbian economy were chosen. Three criteria were applied to decide which countries will be included in the analysis. The first applied criterion is *the gross national income per capita*. According to the World Bank, countries can be divided into three groups based on the GNI per capita – with low, middle, or high income. Low- and middle-income countries are often considered developing countries in the literature. Based on this criterion, all countries that, like Serbia, have a middle-income level and consequently belong to the LMIC group are suitable for analysis. As the second criterion, we include *territorial affiliation* (geographical position). The scope of the analysis is narrowed to the countries of the Western Balkan, so the indicators of the agro-food system of Serbia are compared with the countries that geographically belong to this region. As a third criterion, *membership in international trade agreements* is included. Thus, the fact that the selected countries, together with Serbia, are signatories to the CEFTA agreement determined the final sample.

Taking into account the above, the selected indicators for Serbia were compared with Albania, Montenegro, Bosnia and Herzegovina, and North Mace-

donia. Although Moldova and Kosovo* are also signatories to the CEFTA agreement, they were not taken into consideration. Moldova is excluded due to the low volume of international trade in agricultural and food products with other countries of the Western Balkans. Kosovo* is excluded due to the lack of reliable data for comparative analysis.

The indicators are divided into the following four categories: a) Employment indicators, b) Activity indicators, c) Population indicators, and d) Economic indicators.

Indicators were obtained using secondary data or publicly available databases. The reliability of databases was the main criterion for selecting relevant sources. Additionally, comparability between countries and consistency over the years were considered. Accordingly, the following databases were used: (a) the World Bank database; (b) the UN FAO database; (v) the SEE Rural database (SEE RURAL); (g) the national database of the Republic Institute for Statistics of the Republic of Serbia.

The research covers the period 2013-2018. At the time of the research, there were no comparative indicators for 2019, so it was not taken into consideration. Also, countries or years were excluded from the analysis for several indicators due to data reliability.

Results

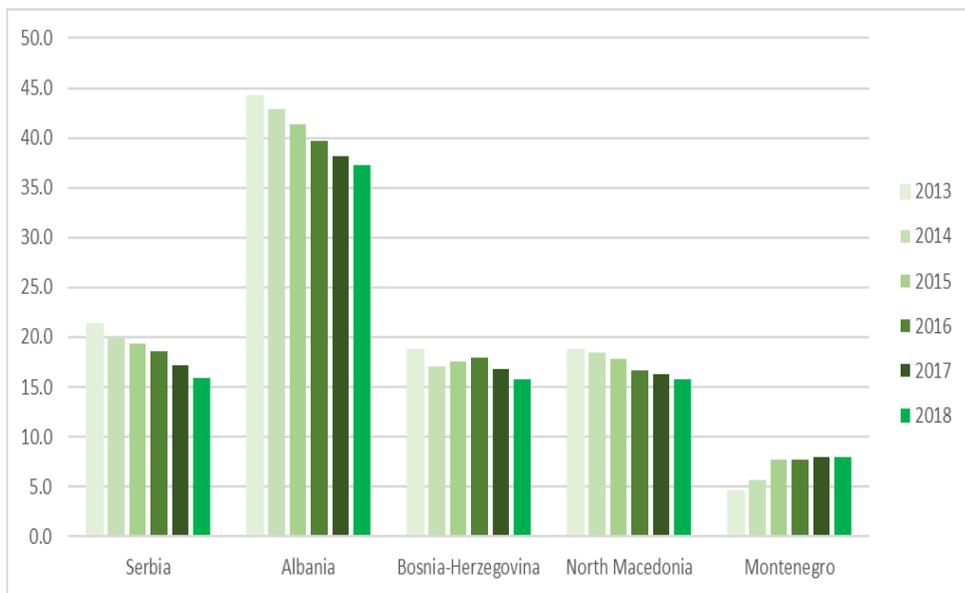
The first employment indicator is the ratio of employees in agriculture to total employment. According to the FAO UN definition, this relative indicator represents the ratio of the number employed in agriculture to the total employed population. It includes all people aged 15 to 64 working for an employer or self-employed during a short period of time (a week or even a day) (FAO UN database, 2020).

There are no missing data for this indicator, so the results are shown in Figure 1. First of all, a significantly higher share of employees in agriculture in the total employment in Albania, compared to other countries can be noticed. However, it is not surprising, bearing in mind that agriculture participated with 23 percent in the creation of the gross value added in this country in 2017 (Volk et al., 2019). The average share of agriculture to the gross value added in other observed countries was between 7 percent and 12 percent in 2017. However, the participation of employees in agriculture in the total employment of Albania decreased by

almost 7 percentage points (from 44.2 percent in 2013 to 37.3 percent in 2018). At the same time, the value of this indicator decreased by 5.4 percentage points in Serbia (from 21.3 percent in 2013 to 15.9 percent in 2018).

This is not surprising and is completely in line with the conclusions presented by the authors Zakić and Stojanović (Zakić, Stojanović, 2008). It is consistent with the fact that transfers of capital and labor from agriculture to other sectors are considered a significant sign of economic empowerment in developing countries. The growing need for labor in industry causes a decrease in the number of employees in agriculture (as well as other sectors of the economy). This does not indicate that agriculture is less important for economic growth. On the contrary, the reduced value of this indicator indicates the existence of a factor contributing to economic development. It can be concluded that primary agriculture (along with the food industry) takes a strategic role in low- and middle-income countries.

Figure 1. *The ratio of employees in agriculture to total employment (in %)*



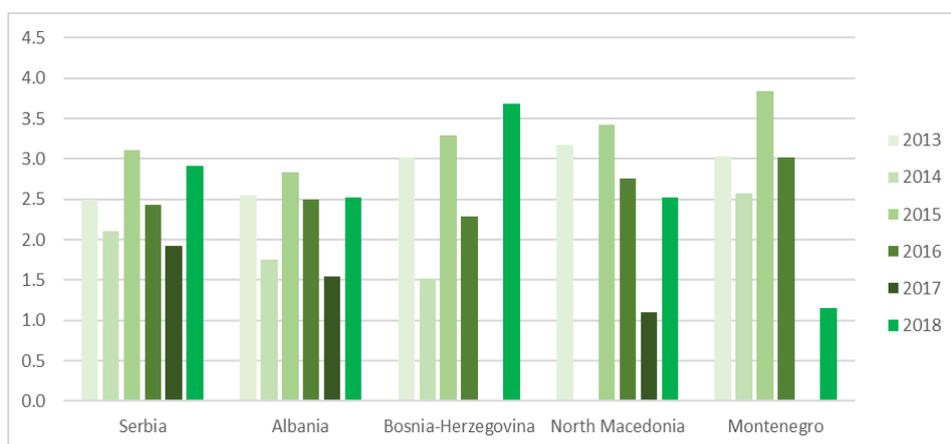
Source: World Bank database, November 2020.

The second employment indicator is the ratio of people employed by employers in agriculture to the overall number of people employed by employers. According to the FAO UN definition, this indicator refers to employed persons who have concluded an employment contract with the company or farm

where they work; who receive a monthly salary, and where earnings are independent of the company or farm gains.

The results are shown in Figure 2. The value did not exceed 4 percent in the observed period. The shares varied during the observed period, so the value in 2013 was lower compared to 2018 only in Serbia and Bosnia and Herzegovina. In all other countries, this value was higher. The unstable movements are in accordance with the nature of the agricultural activity, which does not require the long-term engagement of the labor force based on employment contracts. There is a greater need for seasonal workers. Also, fluctuations in the number of paid employees can be justified primarily due to the adaptation of agricultural production to market requirements and growing needs for food, as well as the process of industrialization.

Figure 2. *The ratio of people that were employed by employers in agriculture in the overall number of people employed by employers (in %).*



Source: FAOSTAT database, November 2020.

The first activity indicator is the ratio of the active rural population to the total rural population. More than half of the population in rural areas in Serbia belongs to the active population (aged 15 to 64). The active rural population growth may mean that the younger ones remain in rural areas due to better living and working conditions. Due to a lack of reliable data, the results are considered only for Serbia and Bosnia and Herzegovina. The percentage of the active population in rural areas in Bosnia and Herzegovina is lower compared to Serbia (40 percent). Also, the increasing number of inactive population (housewives, pensioners) indicates that farming is a way of life in developing

countries, with noticeably older households. Results for Serbia suggest that significant labor force potential exists in rural areas, and it can be used to achieve economic development goals. On the other hand, it is necessary to improve the rural development policy in Bosnia and Herzegovina in order to increase the usage of rural areas and improve the living standards of agricultural workers.

The second activity indicator is the ratio of the employed population in rural areas to the working-age population. In order to have a more detailed analysis, the active population is divided into employed and unemployed persons. In Serbia, growing employment in rural areas is noticeable. Almost 50% of the active population of the rural areas were employed, with a tendency for further growth. Although employment in the rural areas in Bosnia and Herzegovina is lower than in Serbia, in the observed six-years period it increased by about 3 percentage points. The increase in the number of employees leads to social benefits such as improvement of living conditions in rural areas, rural empowerment, development of rural infrastructure, and others.

The ratio of the rural population to the total population is one of the two population indicators. Bosnia and Herzegovina has the largest share of the rural population in the total, more than 50 percent during the observed period. Although the indicator recorded a slight decline over time, the percentage is still the highest in the region. At the beginning of the observed period, Serbia and Albania had similar values of the indicator with a share of the rural population of almost 45 percent. A higher decline in the number of people in rural areas was recorded in Albania compared to Serbia – the value of the indicator in 2018 was lower by 0.6 percentage points in Serbia and 4.9 percentage points in Albania. Because the lowest decline in the share of the rural population to the total was recorded in Serbia, it can be concluded that the rural development policy measures and activities stimulate the development of rural areas, and improve the infrastructure and telecommunication network, in order to create a surrounding for a longer stay and permanent residence. The data for North Macedonia were not included in the analysis due to inconsistent and missing data.

The total rural population in the selected Western Balkan Countries is another population indicator. This indicator in absolute numbers is also important because its use can lead to indicators of activity and employment expressed in absolute rather than relative terms. The total number of the rural population in the selected LMICs decreased by 476,085 inhabitants in 2018. The values of the indicator are presented in Table 1.

Table 1. *The total rural population in the selected Western Balkan countries.*

Country	2013	2014	2015	2016	2017	2018
Serbia	3,190,260	3,167,188	3,143,538	3,119,072	3,093,250	3,065,922
Albania	1,291,587	1,258,985	1,226,200	1,195,854	1,167,112	1,137,407
Bosnia and Herzegovina	1,894,621	1,851,086	1,811,629	1,777,181	1,746,950	1,720,299
North Macedonia	888,785	887,542	885,627	883,006	879,685	875,613
Montenegro	216,571	214,705	212,741	210,706	208,638	206,498

Source: World Bank database, November 2020.

One of the most important economic indicators is the share of the agri-food system in GDP. In Serbia, the agri-food system contributes to GDP by 8.9 percent in 2018. It is lower than in 2013 when it was 10.4 percent. Almost a tenth of the GDP is generated in the agri-food system, which means significant participation in national economic empowerment. Observed by activities within the agri-food system, Albania has the largest share of the Agriculture, forestry, and fishing sector in GDP (18.4 percent in 2018). On the contrary, the lowest share was recorded in Bosnia and Herzegovina (5.9 percent in 2018). The average value of this indicator for all observed countries in the analysis was 9.2 percent in 2018.

The second economic indicator relevant to the topic is the share of the agri-food system in foreign trade exchange. Since the data were not available for all countries, the analysis covered the period from 2013 to 2017. Serbia had the largest export of agricultural and food products among the countries of the Western Balkans in the observed period. In 2017 Serbia recorded a 35 percent higher export value than in 2013. Nevertheless, in all countries in the sample, the export of agricultural and food products grew. On the other hand, the value of the import is also considered an important factor for the rural empowerment of developing countries. The average import value of agricultural and food products was 1,363 million euros. The highest import values were achieved by Bosnia and Herzegovina, while the lowest import values had Montenegro.

Serbia is the only one among the observed countries that had a positive value of net exports. In other words, the export of agricultural and food products is greater than the import. Consequently, the agro-food system plays a key role in the economic development of Serbia. In other countries, however, net exports recorded a negative value. The average values of negative net exports in the observed period were as follows: Albania: 554 million euros, Bosnia and

Herzegovina: 1,044 million euros, North Macedonia: 188 million euros, and Montenegro: 419 million euros. The average value of the surplus of agricultural and food products in Serbia was 1,164 million euros.

Conclusions

When analyzing the strategic role of the agro-food system in low- and middle-income countries, it is especially important to emphasize the opinion that supports the importance of this economic branch for overall economic and social development. First of all, in countries that have lower values of disposable income per capita (and consequently are considered poorer), primary agriculture production represents the backbone of the development of other (non)agrarian activities. Therefore, the connection between economic sectors is becoming more intense and stronger.

The criteria that were applied to evaluate indicators are: a) improving the quality of life of the rural population (positive effect), b) labor transfer from agriculture (positive effect), c) improving the rural development, d) the lower contribution of agriculture in GDP indicate economic empowerment, e) increase the value of export, f) decrease in the import of agriculture products.

Indicators used in this paper have been developed to evaluate the contribution of the agri-food system over a six-year period to the economic development of selected Western Balkans. They can also be used for future evaluations of the economic effects. In addition to the indicators used in this research, more indicators could be created depending on the data availability.

Following the criteria, and based on analysis of each indicator separately, with a reasonable level of reliability, we can conclude: the agri-food system, as part of the agricultural sector, has a significant role in the economic development of low- and middle-income countries.

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