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DEVELOPMENT PERFORMANCES OF AGRICULTURE IN THE DANUBE REGION COUNTRIES[1]

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Summary

In the recent decades, the Danube Region countries profile their policies towards a more efficient way of exploiting the natural resources of the Danube basin. The Danube can contribute to a better integration of the countries, enhancing economic opportunities through diversification and promotion of rural development. The trend analysis in the agricultural sector of the Danube Region countries refers to the first decade of this century, and it begins with the determination of the agricultural importance in the overall economy. The development performances of agriculture in the Danube Region countries are considered according to the production and export performances of this economic sector, using a comparative approach. The agricultural production growth, level and growth of the partial agricultural productivities - labour and land, as well as the value of exports in relation to engaged labour and agricultural land, are analysed in such a context.

Key words: *Agriculture, the Danube Region, agricultural productivity, export performances*

JEL: *Q10*

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Introduction

With more than 200 million inhabitants and about one fifth the European Union (EU) surface area, the Danube Region, being functionally linked to its catchment area, is of great importance to entire Europe. The Region comprises of ten countries through which the river Danube flows or makes their borders, and they are: Germany, Austria, Slovakia, Hungary, Moldova, Croatia, Serbia, Bulgaria, Romania and Ukraine. In addition to these states, in broader terms, the Danube Region includes the Czech Republic, Slovenia, Bosnia and Herzegovina, and Montenegro. The River Danube links 14 extremely economically, environmentally and culturally different countries. A healthy environment and climate change challenges have been a contemporary basis for economic, social and cultural progress in the Region. Agriculture is of great strategic importance for most countries of the Danube Region, while resource potentials available to individual countries are very heterogeneous.

The Danube is the most important European river that forms part of the trans-European navigation system Rheine – Main – Danube (Tešanović et al., 2013). Also, the Danube links Western, Central and Eastern Europe. These regions had very different stages of economic development after World War II. The most of Central and Eastern European countries were centrally-planned socialist economies. The political changes that have occurred in these countries in the late 20th century caused changes in the whole economic system, as well as in the agricultural sector (Zekić et al., 2009). Such historical circumstances had a major impact on the production performances of agriculture in these countries.

Throughout its length the Danube River provides a valuable resource for many competing uses. Downstream from Slovakia, the river is the major source of drinking water in all the countries (except Bulgaria) and it is an important source in Austria and Slovakia. The river is also used extensively for irrigation, especially in the Hungarian plain. Fisheries are important source of food and income at its lower reaches, and the Danube Delta at the Black Sea is a large tourist area (Linnerooth-Bayer, Murcott, 1997).

Agriculture is the foundation that could be significantly technologically and organizationally modernized. Since the Danube region represents a potential basic and potential for the creation of a single market it is necessary to consider the level of competitiveness of the agricultural sector and take advantage of the development potential of the region. Achieving macro-regional competitiveness and regional coherence is important in strengthening international coperation (Ignjatijević et al., 2014).

Materials and methods

The empirical research was based on the data of the Food and Agriculture Organization (FAO), especially the data related to the resources, production and foreign trade of agricultural products in the period 2001-2011. The data of the number of active farmers in Slovenia and Bosnia and Herzegovina were taken from the national statistical databases, while the data of share of agriculture in gross domestic product (GDP)

were taken from World Bank database. Standard mathematical and statistical methods were used for the analysis of the main trends and characteristics of the agricultural development performances in the Danube Region countries. The general method was the comparative analysis, used also to identify differentiations in agricultural performances of the Danube Region countries.

The growth rates were calculated from the exponential function, so they represent the average annual dynamics of the phenomena in the related period. From the exponential function in the form $y=ab^x$, the growth rate was calculated according to the formula: $r=(b-1)*100$, where x and y represent the dependent and independent variables, respectively, while a and b are the parameters of the function. The partial agricultural productivities - labour productivity and land productivity were obtained as the ratio of final agricultural production per active farmer or per hectare of agricultural land, respectively. Partial labour and land productivities are connected via the factor land/labour ratio, which can be expressed through the relation: $(P/L)=(A/L)*(P/A)$, where P, L and A are the production, labour and land, respectively (Zekić et al., 2010a).

Cluster analysis is the modern statistical method of partitioning an observed sample population into relatively homogeneous classes, to produce an operational classification. The objective is to sort observations into groups called clusters so that the degree of statistical association is high among members of the same group and low between members of different groups (Berlage, Terweduwe, 1988). The grouping in cluster analysis was based on the results (scores) calculated according to the characteristic values of all the variables, separately for each observed unit. A hierarchical method was used in this study, while the indicators of the agricultural importance in the economic development were used as variables.

Economic relevance of agriculture

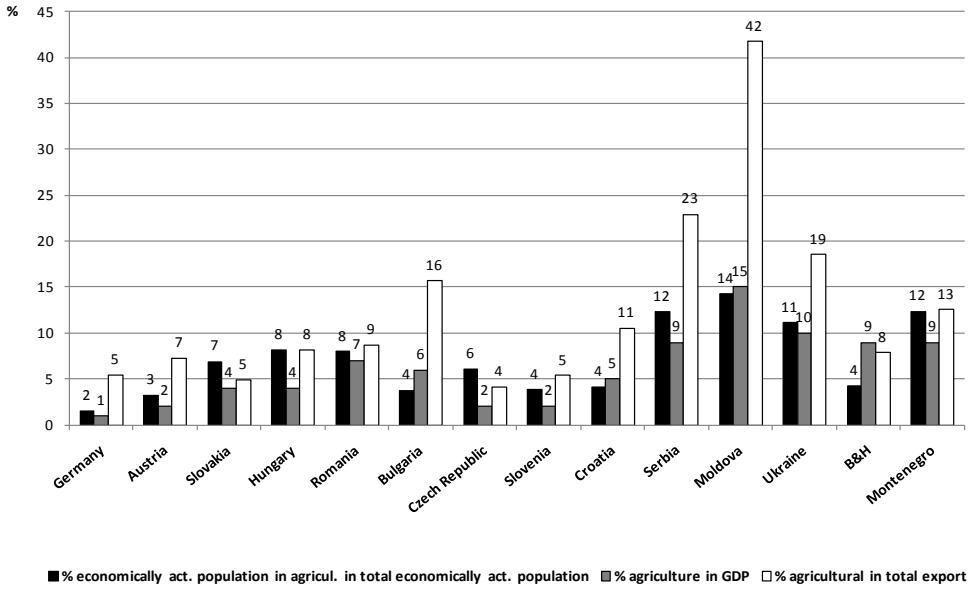
Agriculture is the raw material base for food industry and a number of other industries. In the initial stage of economic development, most of the working population is active in agriculture, and a large part of national income also is from agriculture (Marković, Marković, 2014).

To determine the importance of agriculture in the overall economy, the following indicators were used: the share of economically active population in agriculture in the total economically active population, the share of agriculture in GDP and the share of agriculture in foreign trade. As a rule, relevance of agriculture is lower in the countries with higher level of economic development. With the overall economic development, and thus the development of agriculture, the engaged agricultural labour is significantly reduced, while the use of machinery and chemical substances in agricultural production is increased. Although the development of the traditional society mainly was initiated by the development of agricultural technology, in modern times, its share in the economic organization of society has been declining (Čučković, 2004). Beside the agricultural development, there were other factors that

had influence on development of society, such as environmental factors, religious factors, social norms, market characteristics, etc.

The development regularity of the economically active population in agriculture decline in the total economically active population is confirmed by the data for the Danube Region countries (*Figure 1*). According to FAOstat estimation, the Danube Region has a population of 215 million people with approximately 5.8% engaged in agriculture as the basic activity. The largest relevance of agriculture in the overall employment is in Moldova, with 14.2% of the population engaged in this activity, followed by Montenegro and Serbia, with approximately 12% of economically active population in agriculture. The smallest share of economically active population in agriculture is, as expected, in the most developed countries of the Region - Germany and Austria, with only 1.5% and 3.2% of the economically active population engaged in agriculture, respectively. In comparison with the EU countries of the Region, the non-EU countries of the Region have a much larger share of economically active population in agriculture in the total economically active population.

Figure 1. Economic relevance of agriculture in Danube region countries in 2011



Source: The authors' calculations on the basis of FAOstat and World Bank.

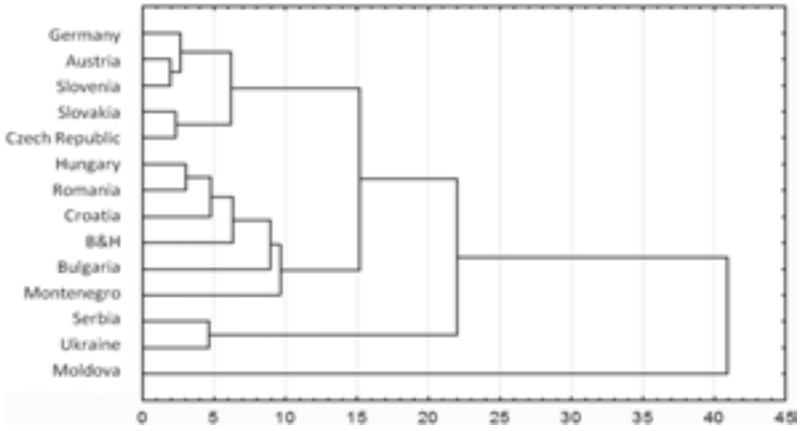
In the countries of Southeastern Europe and Ukraine, agriculture has greater relevance than in other Danube Region countries, which can be seen in its contribution to the overall economic activity, i.e. its participation in GDP. This percentage ranges from 1% in Germany to 15% in Moldova. The lower agricultural share in the GDP is in the EU countries of the Region, while in Serbia, Bosnia and Herzegovina and Montenegro it

is approximately 9% (*Figure 1*). In the recent decades, a tendency of declining share of agriculture in GDP is obvious in all the countries of the Danube Region (FAOstat).

Among the analysed countries, Moldova has the highest share of agricultural products in its total exports - 42% of its total exports in 2011, followed by Serbia with 23% and Ukraine with 19%. In the export structure, agriculture has an important role in Montenegro, Croatia, and Bosnia and Herzegovina, with the shares of 13%, 11% and 8%, respectively. The export structure of agricultural products in these countries is not particularly favorable, since it mainly relies on the export of raw materials, while finished products with the higher added value are exported to a much lesser extent. In Serbia, for example, the export is dominated by cereals, primarily corn, fruit and vegetables (raspberries, apples), sugar, flour and flour products, etc. (Zekić et al., 2010b). In other countries of the Danube Region, the dependence of the total exports on agriculture is significantly lower, and the lowest percentage of agricultural exports is in the Czech Republic - 4% of total exports. The slightly higher share of agricultural exports in the total than the EU-member Danube Region average is in Bulgaria - 16%, while in the other EU-member countries of the Region, this share is less than 12% *(Figure 1)*.

The cluster analysis refers to the factors that determine the importance of agriculture in the overall economy - the share of agriculture in employment, the creation of GDP and exports. The results show that the analysed countries can be classified into four clusters. The first one includes Germany, Austria, Slovenia, Slovakia and the Czech Republic, i.e. the most developed countries in the Danube Region, with the small share of agriculture in the total economic activity. Those countries represent the development drivers of the entire Region. The second cluster includes Hungary, Romania, Croatia, Bosnia and Herzegovina, Bulgaria and Montenegro – the less developed countries, where agriculture does not constitute a key economic activity. The third cluster includes Serbia and Ukraine, which are also the less developed countries, but with relatively greater importance of agriculture in the overall economy. The fourth cluster includes only Moldova, the least developed country in the Region, with the dominant role of agriculture in the overall economy (*Figure 2*).

Figure 2. Cluster analysis - relevance of the agriculture in economy



Source: The authors' calculations on the basis of FAOstat.

The first two clusters comprise the member countries or potential member countries of the European Union in which the agricultural policy framework include agriculture and rural development. Zekić and Matkovski (2014) indicated that decades ago, the main mission of the EU agriculture, defined by the Common Agricultural Policy (CAP), was the production of raw materials and increased share in the world market. Unlimited price support made the EU one of the largest food exporters in the world. These measures caused many negative effects, which, together with the new international challenges and the EU enlargement to the "East", enforced changes of the CAP model and redefined role of agriculture in European society.

In future, the support for agriculture in the EU will be based on decoupled direct payments, which will have the role of "greening" the European agriculture, while rural development policy will maintain its prominence (Birovljev et al., 2014). Mizik and Meyers (2013) indicated that the major and common objective of the Western Balkan countries is the quickest possible accession to the European Union. That will open new markets for agricultural products and in most cases increase support for agriculture and rural development, although Western Balkan's producers will also face with higher competition. Additionally, countries preparing for the membership in the European Union must follow European model of rural development which promote multifunctional agriculture and the integral rural development concept with more respect to environmental protection (Lovre et al., 2010).

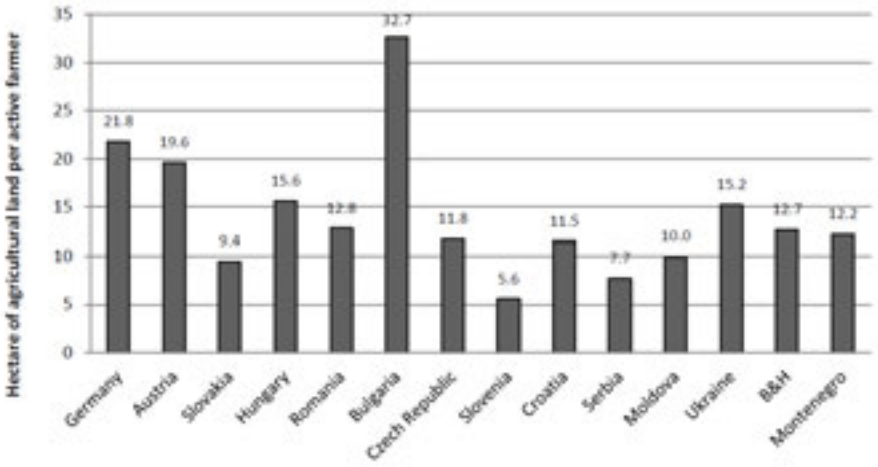
Structure of resources in agriculture

With the development gap reduction in the most developed countries in the world, it is more evident that the differences in agricultural productivity are primarily determined by agro-ecological conditions in agricultural production. In this context, before the analysis of the partial productivities of agriculture, it is substantial to analyse the

agricultural resource structure, represented by the relationship land/labour.[6] In the development of agriculture, land/labour ratio is the dominant factor for selection of production technology (chemical-biological and/or mechanical), i.e. it has a crucial influence on preferences towards labour-saving or land-saving technologies.

The analysis of the agricultural resource structure in the Danube Region countries shows that Slovenia and Serbia have the worst resource structures. Slovakia and Moldova have a low land/labour ratio, as well. The highest level of the agricultural resource structure in the Region is in Bulgaria and Germany (*Figure 3*).

Figure 3. Structure of resources in agriculture



Source: The authors' calculations on the basis of FAOstat.

Note: Average for period 2001-2011.

In the analysed period, the largest increase of the land/labour ratio was recorded in the newer EU members, so the average annual growth rate of the resource structure was 8.7% in Croatia, 6.1% in Bulgaria and 5.9% in Romania. This may indicate positive reduction trends of "too much employment" in agriculture as a result of the structural changes in agricultural sector during the pre-accession period. In case of Bulgaria and Romania that process has continued during the period after joining EU. The main characteristic of that period is rapid development of non-agricultural sector, as well as modernization of agricultural production. The decrease of the engaged labour in agriculture was also present in Serbia. These trends led to the positive impact on the resource structure of Serbian agriculture; however it was still less favorable in comparison to the EU member states. In the observed period, the land/labour ratio in Serbia was increased from 5.9 to 8.6 hectares per active farmer, while in the same period this ratio was increased from 24.1 to 44.2 hectares per active farmer in Bulgaria.[7]

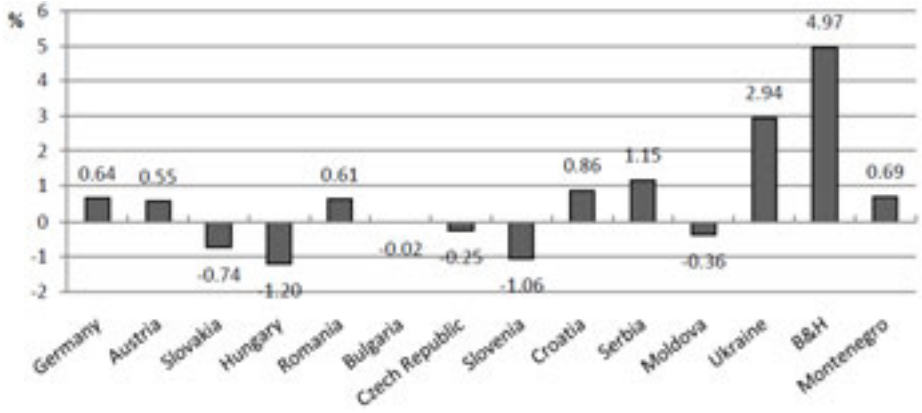
6 This relationship is expressed in hectares of agricultural land per active farmer.

7 The authors' calculations on the basis of FAOstat.

Performances of agricultural production

For the total observed period, the dynamics of agricultural production in the Danube Region countries shows different trends for individual countries, which suggests heterogeneity of agriculture and the conditions of agricultural production (*Figure 4*). Such tendencies indisputably coincide with the economic and financial crisis which has been present for the last few years, but also with the agricultural adaptation to the implemented transformation processes of the agricultural sector in certain countries.

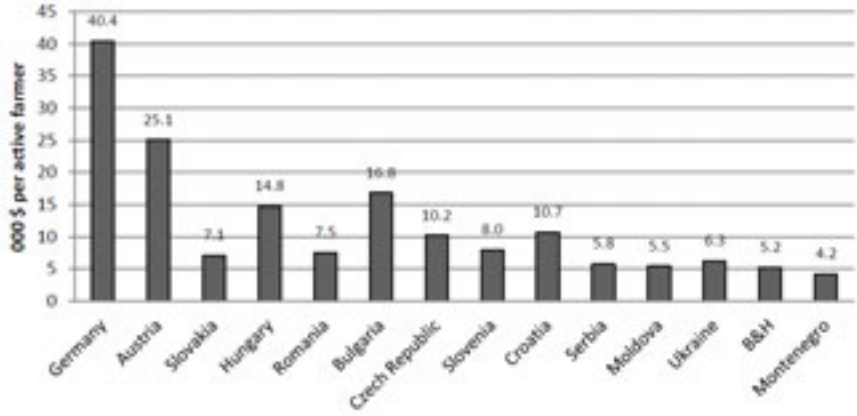
Figure 4. The average annual growth rate of agricultural production for period 2001-2011.



Source: The authors' calculations on the basis of FAOstat.

The agricultural productivity in the Danube Region was analysed according to the partial productivities of agriculture - labour productivity and land productivity. From the standpoint of agricultural labour productivity there was a significant lag of the non-EU Danube Region countries. The high level of this productivity was achieved in Germany and Austria: in the observed period, the agricultural production per active farmer in Germany was almost 8 times higher than the same in Serbia (*Figure 5*). However, in the same period, the agricultural labour productivity in Serbia was increased, primarily as the consequence of the reduced number of active farmers.

Figure 5. Labour productivity in agriculture

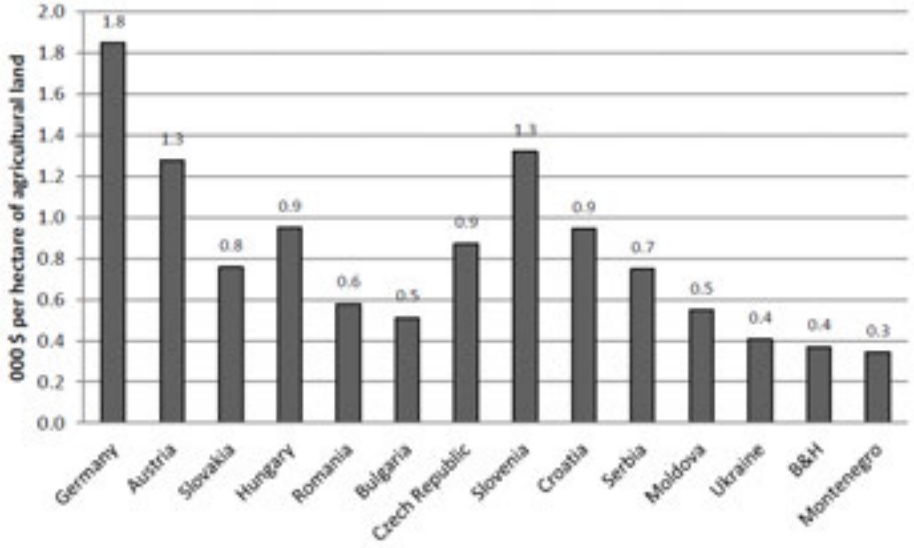


Source: The authors' calculations on the basis of FAOstat.

Note: Average for the period 2001-2011.

Similar to the labour productivity, the land productivity was higher in the EU member countries than in non-EU member countries. According to this indicator, Serbia led in relation to the non-EU countries of the Region, due to the availability and quality of the land resources in Serbia. Additionally, Serbia had higher average land productivity than the new EU members, Bulgaria and Romania. When the land productivity was concerned, the non-EU countries of the Region lagged less. The highest level of this productivity was achieved in Germany, followed by Slovenia and Austria. The land productivity in Germany was approximately 2.5 times higher than the same in Serbia. The lowest production per unit of agricultural land was in Montenegro; it was 5.4 times lower than the same in Germany, and 2.2 times if compared with Serbia (*Figure 6*).

Figure 6. Land productivity in agriculture

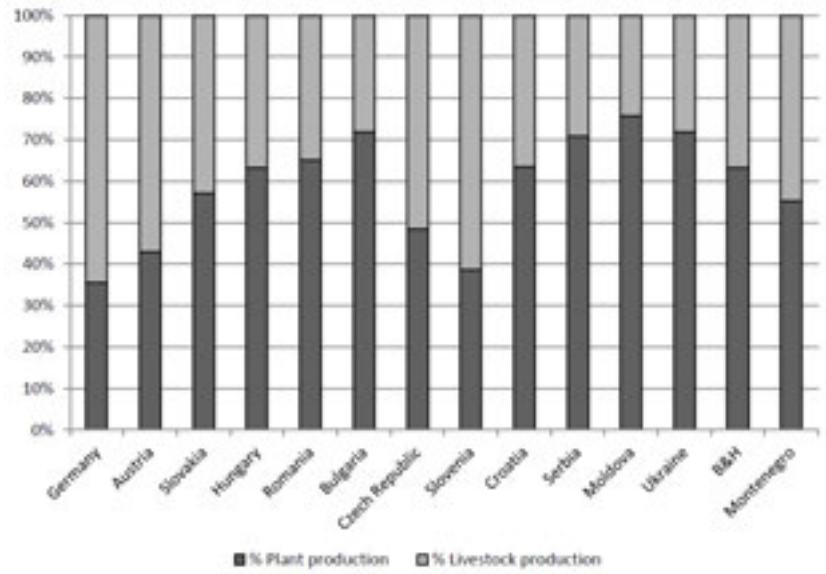


Source: The authors' calculations on the basis of FAOstat.

Note: Average for the period 2001-2011.

The less favorable parameters of agriculture in Serbia and other non-EU Danube Region countries are the result of the extensive agriculture, which can be seen in the structure of agricultural production. The agricultural structure was dominated mainly by lower-value, plant-origin products, which were insufficiently used for conversion into livestock products with higher added values. In some countries, the crop production accounts for more than 70% of the total production value of agriculture. In this regard, the development of livestock production would maximise production per capacity unit in these countries. In Serbia, the value of crop production in the total agriculture was 71%, in Bulgaria and Ukraine 72%, and in Moldova 76%. The Danube Region countries with the higher values of the livestock than the crop production were Germany, Slovenia and Austria, with the shares of the livestock production of 64%, 61% and 57%, respectively (*Figure 7*).

Figure 7. Structure of *a*gricultural production in 2011



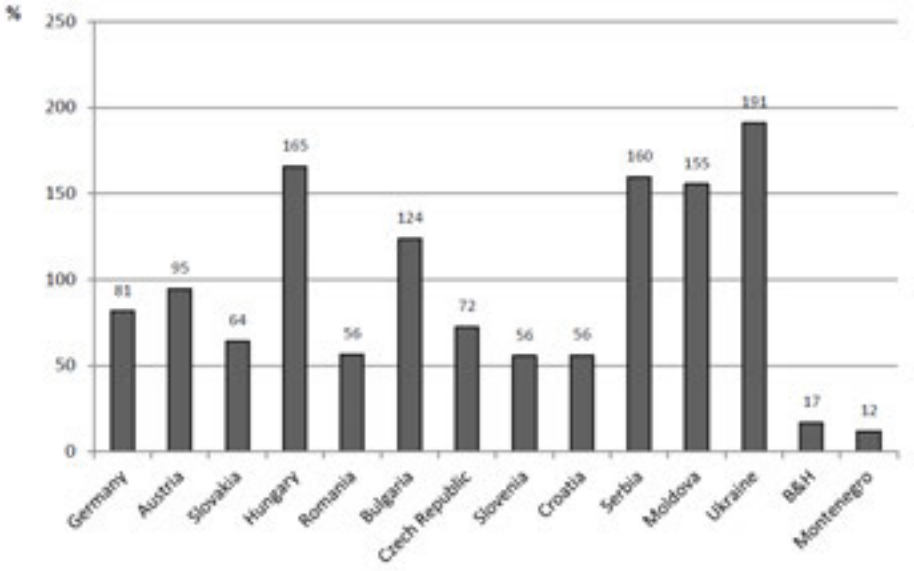
Source: The authors' calculations on the basis of FAOstat.

The lag of Serbia in the labour and land productivities, both behind the EU countries and in relation to other countries in transition was mostly conditioned by the livestock/labour and livestock/land ratios, which implied an insufficient livestock production and low utilization rate of potential livestock production in Serbia (Zekić et al., 2012). In this context, it could be seen a low milk production per active farmer, which was in Serbia 3.3 times lower than in Croatia, and 2.75 times lower than in Hungary, while the meat production per active farmer lagged slightly less. These rates were slightly lower in the milk and meat production per hectare of agricultural land, so Serbia produced more meat per engaged land unit than Croatia and only slightly less than Hungary (Zekić et al., 2010a).

Agriculture and foreign trade

The importance of the agricultural sector in the foreign trade in the Danube Region countries varies from country to country. The countries with a very high positive foreign trade balance in the agricultural sector are the following: Ukraine, Hungary, Serbia, Moldova and Bulgaria. Bosnia and Herzegovina and Montenegro are on the other side, i.e. their imports are far higher than their exports, and the import coverage by food export does not reach 20% (*Figure 8*), and therefore they represent a significant export market for other countries of the Region.

Figure 8. The *e*xport/import coverage of the agricultural products



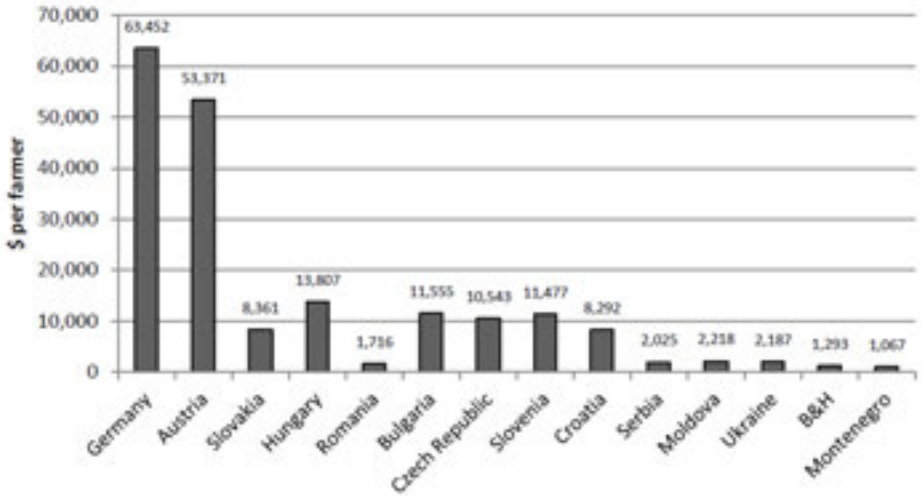
Source: The authors' calculations on the basis of FAOstat.

Note: Average for the period 2001-2011.

Ignjatijević et al. (2011) indicated the existence of positive revealed comparative advantages of agricultural and food products in few countries of Danube region. In the international trade of agricultural and food products following countries achieved a surplus and a positive comparative advantage: Hungary, Serbia, Moldova, Ukraine, Bulgaria and Romania. Using index of revealed comparative advantage more competitive agri-food products and markets, as well as potentials for further improvement of the competitiveness of the agri-food products can be identified (Birovljev et al., 2015). Over the last fifty years, the situation has changed significantly in the EU countries. Now, the EU makes the surplus in competitive agricultural products, while there is the deficit mainly in those products that require specific agro-ecological conditions that are not typical for the EU countries (Zekić et al., 2012).

In relation to the primary resources - labour and land, the agricultural export performances of the Danube Region countries show that Serbia and the other non-EU countries lag behind the EU, except Romania, which has a very poor export performance. The export per active farmer shows the best performances in Germany and Austria. The situation is similar with the export value of agro-food products per hectare of agricultural land. Although the positive foreign trade balance in the food sector has been continuously realized in Serbia, if the agricultural export is considered in relation to the engaged labour and land, a rather modest performance is achieved. That is another indicator of the extensiveness of Serbian agriculture, i.e. the underutilization of its production potential (*Figure 9* and *Figure 10*).

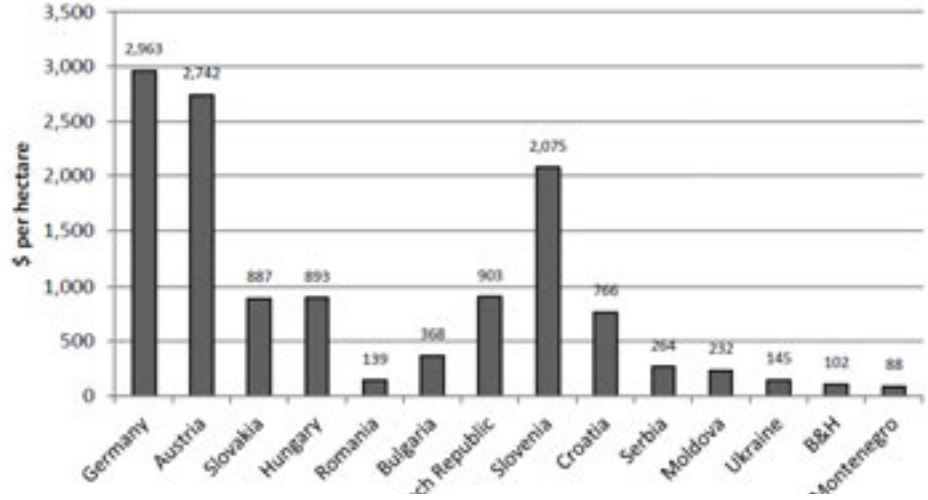
Figure 9. Export of agricultural products per active farmer



Source: The authors' calculations on the basis of FAOstat.

Note: Average for the period 2001-2011.

Figure 10. Export of agricultural products per hectare of agricultural land



Source: The authors' calculations on the basis of FAOstat.

Note: Average for the period 2001-2011.

The changes in Danube Region countries have been significantly influenced by the European integration process, since it creates a wide variety of options, such as the improvement of the socio-economic development, increase of competitiveness, adequate environmental management, efficient use of resources, as well as the ongoing modernization of the security and transport corridors (Gajić et al., 2011). The adoption of the EU Strategy for the Danube Region opens up great opportunities for the

infrastructure development, environmental protection, tourism, transport and extension of cooperation among the Danube Region countries (Stojović et al., 2012).

Conclusion

According to the importance of agriculture in the economy, there are significant differences among the countries of the Danube Region. The importance of agriculture is relatively small in the countries that joined the EU earlier, if compared with the countries that joined the EU later or are not the members of the Union, yet. The situation is similar if the agricultural production performance is observed, i.e. the higher productivities of labour and land are characteristic for the EU members. In addition, the agricultural production structure is dominated by the crop production in the non-EU countries. Based on the production of raw materials and products of lower values, this kind of agriculture results in relatively weaker export performance. The most developed countries of the Region should be the drivers of more intensive interstate cooperation within the Region in order to exploit the advantages provided by the Danube properly and to enable a balanced agricultural development in the Region.

Literature

1. Berlage, L., Terweduwe, D. (1988): *The Classification of Countries by Cluster and by Factor Analysis,* World Development, Vol. 16, No. 12, pp. 1527-1545, Pergamon, United Kingdom.
2. Birovljev, J., Matkovski, B., Ćetković, B. (2014): *Poljoprivreda i zaštita* životne *sredine Srbije u funkciji prilagođavanja Zajedničkoj agrarnoj politici Evropske unije,* Anali Ekonomskog fakulteta u Subotici, Vol. 50, No. 32, pp. 17-29, Ekonomski fakultet u Subotici, Srbija.
3. Birovljev, J., Matkovski, B., Ćetković, B. (2015): *Konkurentnost poljoprivredno-prehrambenih proizvoda Srbije na tržištu zemalja regiona,* Anali Ekonomskog fakulteta u Subotici, Vol. 51, No. 33, pp. 61-78, Ekonomski fakultet u Subotici, Srbija.
4. Čučković, A. (2004): *Tehnologija i komunikacija*, Anali Ekonomskog fakulteta u Subotici, No. 11, pp. 3-16, Ekonomski fakultet u Subotici, Srbija.
5. FAO, FAOstat, (2014): *World agriculture statistics data base* (available at: http://faostat.fao.org).
6. Gajić, M., Lovre, K., Zekić, S., Kresoja, M. (2011): *Razvojni potencijali Dunavskog regiona s posebnim osvrtom na Srbiju*, Sustainable agriculture and rural development in terms of the Republic of Serbia strategic goals implementation within Danube region, Institut za ekonomiku poljoprivrede, Beograd, pp. 262-268.
7. Ignjatijević, S., Matijašević, J., Milojević, I. (2014): *Revealed comparative advantages and competitiveness of the processed food sector for the Danube countries*, Custos e @gronegócio, Vol. 10, No. 3, pp. 256-281.
8. Ignjatijević, S., Milojević, I., Ivančević, S. (2011): *Komparativna prednost izvoza poljoprivrednih proizvoda i hrane Srbije i zemalja Dunavskog regiona*, Ekonomika

poljoprivrede, Institute of Agricultural Economics, Belgrade, Serbia, Vol. 58, No. 1, pp. 103-110.

9. Linnerooth-Bayer, J., Murcott, S. (1997): *Danube River Basin: International Cooperation or Sustainable Development*, Natural Resources Journal, Vol. 36, No. 3, pp. 631-657, University of New Mexico School of Law.
10. Lovre, K., Zekić, S., Gajić, M. (2010): *The policy of rural development and agroenvironmental protection in the Western Balkan countries and European Union – comparative analysis,* TTEM, Vol. 5, No. 3, pp. 521-530, DRUNPP, Sarajevo, Bosnia and Herzegovina.
11. Marković, M., Marković, I. (2014): *Agricultural protectionism of the European Union in the conditions of international trade liberalization*, Economics of Agriculture, Institute of Agricultural Economics, Belgrade, Serbia, Vol. 61, No. 2, pp. 423-440.
12. Mizik, T., Meyers, W. (2013): *The possible effects of the EU accession on the Western Balkans agricultural trade*, Economics of Agriculture, Vol. 60, No. 4, pp. 857-865, Institute of Agricultural Economics, Belgrade, Serbia.
13. Stojović, J., Knežević, S., Bogdanović, A., Knežević, I. (2012): *Vodič kroz Dunavsku strategiju,* Evropski pokret u Srbiji, Beograd, Srbija.
14. Tešanović, D., Vuksanović, N., Kalenjuk, B., Vukić, M. i Gagić, S. (2013): *Danube tourist ships as an opportunity for export of agricultural and food products,* Economics of Agriculture, Vol. 60, No. 1, pp. 179-194, Institute of Agricultural Economics, Belgrade, Serbia.
15. The World Bank. (2014): *World Bank Open Data* (available at: http://data.worldbank.org).
16. Zekić, S., Gajić, M., Kresoja, M. (2012): *Razvojne performanse agrarnog sektora Srbije u funkciji prevazilaženja ekonomsko-finansijske krize*, Anali Ekonomskog fakulteta u Subotici, Vol. 48, No. 27, pp. 97-109, Ekonomski fakultet u Subotici, Srbija.
17. Zekić, S., Lovre, K., Gajić, M. (2009): *Transformacija poljoprivrede zemalja Zapadnog Balkana u periodu tranzicije,* Ekonomika poljoprivrede, Vol. 56, No. 2, pp. 187-200, Institut za ekonomiku poljoprivrede, Beograd, Srbija.
18. Zekić, S., Matkovski, B. (2014): *New CAP reform and Serbian agriculture*, Sustainable agriculture and rural development in terms of Republic of Serbia strategic goals realization within Danube region, Institute of Agricultural Economics, Thematic Proceedings, Belgrade, pp. 1095-1110.
19. Zekić, S., Lovre, K. i Gajić, M. (2010a): *Production performances in agriculture of the Western Balkan countries in the transition process*, TTEM, Vol. 5, No. 1, pp. 100-105, DRUNPP, Sarajevo, Bosnia and Herzegovina.
20. Zekić, S., Tošin, M. i Kresoja, M. (2010b): *Spoljnotrgovinska razmena poljoprivredno-prehrambenih proizvoda Srbije,* objavljeno u: M. Ševarlić, D. Tomić, ured. Agroprivreda Srbije i evropske integracije, Tematski zbornik, Društvo agrarnih ekonomista Srbije, Beograd, pp. 95-102.

РАЗВОЈНЕ ПЕРФОРМАНСЕ ПОЉОПРИВРЕДЕ ЗЕМАЉА ДУНАВСКОГ РЕГИОНА

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Резиме

Последњих деценија земље Дунавског региона профилишу своје политике ка што ефикаснијем начину искоришћавања природних потенцијала дунавског слива. Ток Дунава може допринети бољој интеграцији земаља, путем могућности унапређења привредних активности кроз диверсификацију, као и унапређење руралног развоја. Анализа тенденција у пољопривредном сектору земаља Дунавског региона односи се на прву деценију овог века, а започета је детерминисањем значаја пољопривреде у укупној привреди. Развојне перформансе пољопривреде земаља Дунавског региона разматране су кроз производне и извозне перформансе овог привредног сектора, а у свим анализама коришћен је компаративни приступ. У том контексту извршена је анализа раста пољопривредне производње, нивоа и раста парцијалних продуктивности пољопривреде - продуктивности рада и земљишта, као и анализа вредности извоза у односу на ангажовану радну снагу и пољопривредно земљиште.

Кључне речи*: *Пољопривреда, Дунавски регион, парцијалне продуктивности пољопривреде, извозне перформансе.

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