ECONOMIC SIZE OF HOLDING IN SERBIA AND MEASURES FOR THEIR STRENGTHENING\textsuperscript{1}

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Abstract

The authors of this paper analyze agricultural holdings in the Republic of Serbia according to their economic size and use comparative analysis to observe them along with those in selected EU Member States. Due to extremely low economic strength of local farmers compared with farmers in developed EU countries, certain measures and activities are proposed, aiming at their economic empowerment and creating sustainable competitive advantage both in domestic and international market.

Keywords: agricultural holdings, economic size, competitiveness.

Introduction

In order to analyze agricultural holdings in the Republic of Serbia in terms of their economic size, the authors of this paper use statistics databases of Statistical Office of the Republic of Serbia (Census of Agriculture 2012) and statistics databases of European Commission (EC) – Eurostat. In addition, their research also relies on strategic documents of the Republic of Serbia and the EU in the field of agriculture and rural development, as well as on the results of numerous local and foreign authors, who deal with this issue in scientific work.

According to EC typology for agricultural holdings (Regulation EC No. 1242/2008; Typology handbook EC, RI/CC 1500, Brussels, July 25, 2008), which has been used to adjust appropriate methodology of the Statistical Office of the Republic of Serbia, the economic size of the

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holding is equal to the total standard output (SO) of the holding or its results, i.e. mean monetary value of gross agricultural production, which the farmer can expect to gain from the land (crops/perennial plants/animal production) in a particular region and within "normal" conditions of production. The total standard output of the holding, expressed in euros, is the sum of the values obtained for each characteristic (crops / perennial plants, animal production) by multiplying the standard outputs per unit by the number of corresponding units (hectares/head of cattle). Statistical Office of the Republic of Serbia has calculated SO coefficient 2007 for the reference period 2005-2009 for level Srbija sever and Srbija jug.

Analysis of the economic size of agricultural holdings in Serbia

Based on the data published by the Statistical Office of the Republic of Serbia (Census of Agriculture 2012), the average economic size or power of agricultural holding in Serbia in 2012 was 5,939 euros (Graph 1). According to their legal form of organization, the average economic size was:

- Family agricultural holdings – 4,990 euros;
- Holdings of legal entity and unincorporated enterprise – 204,755 euros.

The value of the average economic size of agricultural holdings in Serbia is mostly determined by the sector of family agricultural holdings, given that this sector accounts for 99.5% of the total number of farms in Serbia.

Viewed by regions, and according to the average economic size of agricultural holdings in Serbia (5,939 euros), economically weak farms are located in Južna and Istočna Srbija, Šumadija and Zapadna Srbija, whereas economically strong farms are located in Vojvodina, and the economic size of farms in region Beograd is almost at the level of the state average (Graph 1). The highest average economic size of agricultural holdings is in Vojvodina (12,023 euros) and the lowest (3,414 euros) in the region of Južna and Istočna Srbija. The average economic power of farms in Vojvodina is more than 2 times, or 3.5 times higher than the average economic power of agricultural holdings in Serbia, i.e. in Južna and Istočna Srbija, respectively.

Source: Statistical office databases, Census of Agriculture 2012.

Graph 2. Structure of the agricultural holdings in Serbia by the economic size classes, 2012

Source: Statistical office databases, Census of Agriculture 2012.

At the level of Serbia, from the total number of agricultural holdings (631,552) the largest number of farms (288,559 or 45.7%) has the economic size less than 2,000 euros. At the same time, the smallest number of farms (1,902 or 0.3%) is recorded in the economic size class 100,000 euros or more (Graph 2). Such correlation (the highest number of
agricultural holdings in the class of the lowest economic size and the 
lowest number of farms in the class of the highest economic size) is 
present in the regions of Srbija-sever and Srbija-jug, as well as in the 
sector of family agricultural holdings. However, this correlation does not 
exist in the sector of legal entities and unincorporated enterprises.

**Graph 3. Average economic size of agricultural holdings in Serbia by 
the type of farming, 2012.**

![Graph showing average economic size by type of farming]

Source: Statistical office databases, Census of Agriculture 2012.

Regarding the economic size of agricultural holdings by the type of farming\(^4\) (Graph 3), it can be noticed that at the level of Serbia, the 
highest average economic size per farm (10,829 euros) have agricultural 
holdings specialized in vegetable and flower production (although the 
smallest number of farms belongs to this type of farming), whereas at the 
bottom of the list, according to the average economic size, are farms 
specialized in grape and fruit production (their average economic size is 

\[^4\] The type of farming of the holding is the production system of the holding which is 
characterised by the relative contribution of the standard output of different production 
sectors to the total standard output of the holding. European Commission (EC, RI / CC 
1500, Brussels, June 25, 2008, p. 29) provides the classification of agricultural holdings 
into five specialist groups, three mixed groups and one group of "non-classified 
holdings".
2,359 euros)\(^5\).

**Graph 4. Utilized agricultural area (UAA) by the agricultural holding in Serbia, by the economic classes, 2012.**

Source: Statistical office databases, Census of Agriculture 2012.

With higher economic power of agricultural holdings, Utilised Agricultural Area\(^6\) (UAA) per farm is significantly increased (Graph 4). These correlations also exist when agricultural holdings are observed in both sectors (family holding and holdings of legal entity and unincorporated enterprise), and when the levels Srbija-sever and Srbija-jug are considered.

It is worth noting that at the level of functional territorial unit Srbija-sever family agricultural holdings in the highest economic size class use around 3 times as much agricultural land compared to family agricultural holdings from the same economic class at the level of Srbija-jug.

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\(^5\) Non-classified holdings that do not have SO value (if the agricultural holding consists of kitchen garden or land that is not used for gainful activities), fishing cooperatives and similar are not included.

\(^6\) Utilized agricultural area (UAA) comprises: agricultural area used for kitchen garden, arable land (including fallow land), permanent crops (fruit plantations, vineyards, nurseries, and other permanent crops), permanent grassland and pastures that the holding regularly cultivates – uses in agricultural year 2011/2012.
Comparative analysis of the economic size of agricultural holdings in Serbia and selected EU Member States

Data presented in Table 1 and Graph 5 indicate that, compared to selected EU Member States, Serbia occupies penultimate position according to the average economic size of agricultural holdings (Romania is on the last place). In addition, the average economic size of agricultural holdings in Netherlands, Czech Republic and Germany (the first three countries ranked by the average value of SO per farm) is almost 44 times, 28 times and 23 times higher than in Serbia, respectively.

Table 1. Number of agricultural holdings and average value of SO per agricultural holding in Serbia* and selected EU Member States, 2010

<table>
<thead>
<tr>
<th>Selected EU Member States and Serbia</th>
<th>Number of agricultural holdings</th>
<th>Average SO value per agricultural holding, in euros</th>
</tr>
</thead>
<tbody>
<tr>
<td>EU - 28</td>
<td>12,248,000</td>
<td>25,138</td>
</tr>
<tr>
<td>1. Netherlands</td>
<td>72,320</td>
<td>261,753</td>
</tr>
<tr>
<td>2. Czech Republic</td>
<td>22,860</td>
<td>168,513</td>
</tr>
<tr>
<td>3. Germany</td>
<td>299,130</td>
<td>138,716</td>
</tr>
<tr>
<td>4. France</td>
<td>516,100</td>
<td>98,301</td>
</tr>
<tr>
<td>5. Slovakia</td>
<td>24,460</td>
<td>70,769</td>
</tr>
<tr>
<td>6. Austria</td>
<td>150,170</td>
<td>39,151</td>
</tr>
<tr>
<td>7. Spain</td>
<td>989,800</td>
<td>34,525</td>
</tr>
<tr>
<td>8. Italy</td>
<td>1,620,880</td>
<td>30,514</td>
</tr>
<tr>
<td>9. Poland</td>
<td>1,506,620</td>
<td>12,602</td>
</tr>
<tr>
<td>10. Slovenia</td>
<td>74,650</td>
<td>12,233</td>
</tr>
<tr>
<td>11. Greece</td>
<td>723,060</td>
<td>9,505</td>
</tr>
<tr>
<td>12. Hungary</td>
<td>576,810</td>
<td>9,086</td>
</tr>
<tr>
<td>13. Bulgaria</td>
<td>370,490</td>
<td>6,847</td>
</tr>
<tr>
<td>14. Serbia*</td>
<td>631,552</td>
<td>5,939</td>
</tr>
<tr>
<td>15. Romania</td>
<td>3,859,040</td>
<td>2,700</td>
</tr>
</tbody>
</table>

* Data for Serbia 2012.

Data presented in Graphs 6 and 7 indicate that compared to Serbia only three countries (Romania, Bulgaria, and Hungary) have a higher share of agricultural holdings in the economic size class 0-1,999 euros in the total number of holdings. Furthermore, Serbia is at the bottom of the list (last is Romania) compared to selected EU Member States according to the share of holdings with the highest economic power (100,000 euros and more). Countries such as Netherlands, Germany, and France have a high share of economically strongest agricultural holdings in the total number of holdings.
Graph 6. Share of agricultural holdings in economic size class 0-1,999 euro in total number of holdings in selected countries, 2010

Graph 7. Share of agricultural holdings in economic size class equal to or greater than 100,000 euro in total number of holdings, 2010

\(^1\) Data for Serbia 2012.
Data in Graph 8 indicate that according to average UAA per agricultural holding, Serbia occupies penultimate position compared to selected EU Member States (Romania is ranked as last). Maximum UAA size per farm has Czech Republic (152.4 ha).

**Graph 8. Average UAA of agricultural holdings, 2010/1**

/1 Data for Serbia 2012.

**Basic characteristics of agricultural holdings in Serbia according to their economic size**

The paper points out that agricultural holdings in the economic class from 0 to 1,999 euros and from 2,000 to 3,999 euros make up 68% of the total number of farms in Serbia, as well as that their average UAA per farm is not more than 3 ha. In this respect, and regarding Census of Agriculture 2012 data that 77.4% of the total number of farms in Serbia have UAA up to 5 ha, it can be concluded that small and medium-sized agricultural holdings (in terms of UAA), of low economic power (in terms of SO per farm) prevail in domestic agriculture.

According to the Statistical Office of the Republic of Serbia database (Census of Agriculture 2012), comparative analysis of domestic agricultural holdings based on Eurostat, analysis of strategic documents in the field of agriculture, rural development and standard of living in Serbia (Agriculture and Rural Development Strategy of the Republic of Serbia, 2005; National Rural Development Programme 2011-2013; Draft strategy for Serbia's agriculture and rural development 2014-2024. page 55-56; National Priorities for International Assistance in the Period 2014-2017, with projections until 2020, page 222; Living Standard Measurement Study, 2008), as well as by analyzing the research results of local and foreign authors in this area (Bogdanov, 2007; Paraušić et al., 2007; Cvejić et al., 2010; Stantič, 2011; Živkov et al., 2012; Paraušić, Cvijanović, 2014) the following major characteristics of small and medium-sized agricultural holdings in Serbia can be distinguished:

**I The importance of agricultural holdings.** The number of small family agricultural holdings is decreasing (due to ageing of rural population, migration, globalization, increased concentration of capital in agriculture, etc.). However, small agricultural holdings are very important for local commodity market, in terms of food production (their contribution to the self-sufficiency rate and food security), as well as in terms of preservation of natural resources in rural areas.

**II Constraints of development.** Development of small agricultural holdings is mostly limited by: (a) lack of equity capital (money), (b) lack of favourable terms for credit facilities, (c) lack of market, and (d) low prices of agricultural products. Regarding equity capital, salaries, income earned from agricultural activities and pensions are mostly present in the total income structure of these farms. Due to low agricultural productivity, income earned from agricultural activities is practically of no importance for the standard of living of rural population (in spite of high, especially informal employment in agriculture7). In order to reduce

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7 Informal employment in the Republic of Serbia in 2012 was 17.5% (in rural areas 31.3%), and in the agriculture, forestry and fishing sector in rural areas informal employment has reached 62.1% (Labor Force Survey, 2012, Bulletin 564, p.57-58).
income risk the farms are facing "poverty caused diversification". In addition, constraints on farm development, which farmers due to their mentality are usually not aware of, are underdeveloped:

- Human resources (low knowledge and skills of farmers, low rate of entrepreneurship for implementation of innovations, business expansion, lack of desire and interest to gain knowledge, lack of association, etc.);
- Physical resources (small area of agricultural land, lack of facilities and/or equipment for storage, preservation and packaging of agricultural products, lack of conditions and facilities for processing of agricultural products, etc.);
- Social capital. Large percentage of these producers is fragmented regarding: undeveloped/inactive farmers associations; lack of awareness of farmers about the need and importance to unite; lack of trust, both among farmers as well as between farmers and local/central government authorities, chambers of commerce, unions and so on;
- Absence of vertical integration of farmers in producer to consumer food supply chain, either due to long-term contracts or ownership ties to food industry, cooperatives, trade and so on. Therefore, primary producers do not have the power to influence purchase price and conditions of purchase, as product value and additional profit are in most cases generated at higher levels in the value chain (in trade, i.e. in broker operations).

**III Extensive agriculture.** Due to decades of disinvestment (low support from agricultural budget, underdeveloped financial market for increased investment in modernization and consolidation of agricultural funds) and inefficient organization of production and transport activities, these farms are predominantly characterized by traditional, extensive agriculture of low productivity, with many oscillations and highly dependent on climate conditions.

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8 Census of Agriculture 2012 data indicate that agricultural holdings with other gainful activities, which are not related to the farm, are predominantly present (with 46.4%) in the economic size class of agricultural holdings 0-1,999 euros.

9 According to OECD, social capital is defined as networks together with shared norms, values and understandings that facilitate co-operation within or among groups. (see The Well-being of Nations, 2001, page 41).
**IV Low marketability.** Small size of agricultural land per farm leads to inability to use the effects of economies of scale, which further leads to high unit costs of production and low marketability, which is reflected in the fact that agricultural holdings have performance of subsistence and semi-subsistence farms, with modest and uncertain market surpluses. As a result, there is a lack of competitiveness of domestic producers, or their small opportunities to meet the needs of foreign and local consumers in terms of quantity, quality and continuity of supply, as well as regarding quality standards through the entire food supply chain.

**V Low specialization.** Uncertain business environment (variable and discouraging agricultural and overall economic policy), small area of agricultural land, lack of favourable terms for credit sources, and need to reduce production and profit risks, lead to low specialization of producers. According to Census of Agriculture 2012 data, by the type of farming, more than half of the total number of agricultural holdings in Serbia (actually 53.8%) belong to one of the three groups of mixed holdings (see footnote 4).

**VI Rural poverty and underdeveloped rural areas.** Small economic size of agricultural holdings is directly related to rural poverty and low standard of living of rural population. Better standard of rural population is significantly limited by underdeveloped rural areas, especially in mountainous regions. Rural areas are characterized by underdeveloped: (a) physical, communal, rural infrastructure, (b) infrastructure that provides social services and health care, cultural and sports activities; (c) labour market, financial market and market for agricultural products (distant markets for product placement, underdeveloped and/or unfair competition), (d) inefficient local government (usually there is a lack of trained staff and resources to take on greater responsibility for the implementation of development projects); (e) unstable and discouraging agricultural and economic state policy. In addition, rural areas are also characterized by high depopulation, migration and unfavourable age and educational structure of rural population.

**Recommendations for strengthening agricultural holdings in Serbia**

Serbia has favourable factor and trading conditions for development of intensive and competitive agriculture (Paraušić, Cvijanović, 2014).
However, according to (Stantič, 2011, page 2) the only competitive advantages of rural areas in the Western Balkans are: (a) low labour costs and (b) high-quality natural resources.

For small and medium-sized agricultural holdings in Serbia (which dominate in the total structure of farms) to improve their physical and economic performance (through ensuring stable and high income sources of the farm) and become more competitive in domestic and foreign markets, farmers need to engage actively to eliminate their internal constraints, or to develop internal capacities of farms in the areas of: (a) education, gaining new knowledge, skills and information; (b) development of entrepreneurial and competitive spirit; (c) increased implementation of innovations in production and business activities, which are not significantly related to financial assets; (d) changes in awareness and mentality in order to realize their own errors, problems, opportunities, needs to unite, importance of investing in products with higher added value, introducing quality standards, improving the quality of products and similar. Perhaps the most important thing is to change awareness of the farmers regarding the necessity to consider their development in the long run, as it usually happens, due to short-term benefits, that farmers ignore the general interest and established business agreements with cooperatives, associations and so on.

In addition to these activities of farmers, it is important that agricultural holdings receive support from political leaders, in the form of stimulative economic and agricultural policy, developed institutional capacity of the state and developed physical, trade, financial and innovation infrastructure in the country.

Below will be emphasized measures for strengthening agricultural holdings taken by the state, i.e. Government of the Republic of Serbia, which are in accordance with legal and strategic framework in the area

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of agriculture and rural development in Serbia and the EU for the period after 2014 godine\textsuperscript{11}:

\textbf{I} According to (Liefert, Swinnen, 2002, page 28) to improve competitiveness of agriculture and rural areas in transition countries, \textit{agricultural productivity growth} is more important than agricultural production growth, as the first leads to income growth in agricultural sector and improvement of living standard of rural population. In this respect, and in order to create conditions for consolidation of fragmented agricultural land and productivity growth (through modernization of agricultural holdings, investments in technical and technological improvement of agricultural production, processing and marketing) government support is essential in the form of: (a) predictable and stimulative agricultural policy and (b) development of financial market to attract external sources of funding: establishing efficient credit mechanism adjusted to specific needs and long-term financing for farmers (adapting the terms and conditions of loan repayment), development of non-banking institutions and so on.

\textbf{II Development of:} (a) market for agricultural products\textsuperscript{12} (effective competition policy in the area of reducing "gray" economy and controlling the abuse of dominant position of some companies; development of market for forward contracts, development of futures market; introducing intervention buying in the case of obvious "error" of the market); (b) financial market (money and capital market); (c) land market (policy changes in the area of land inheritance, land transfer, establishing an efficient system of land management, etc.); (d) knowledge market (providing effective transfer of knowledge, information and innovation by agricultural extension services to farmers).

\textbf{III Creating stimulating business environment} for larger investment in agricultural production and non agricultural activities (by minimizing investment risk), in order to increase employment, development of


\textsuperscript{12} For more information about development of competition in agricultural market, see Paraušić et al., 2010.
Creating stimulating business environment requires adjustment of: (a) fiscal policy (reducing tax and non-fiscal levies); (b) labour law, (c) trade regulations and (d) measures of economic and agricultural policy in general. Moreover, Serbian Association of Employers constantly draws attention to numerous elements that create unfavourable business environment for SME sector (Conditions and burdens in the Serbian economy, 2010; Opinion of employers about business environment, 2013).

**IV Improving the quality of life of rural population and creating favourable conditions for activity and income diversification of rural population**, which includes: (a) improving physical and social infrastructure in rural areas; (b) creating stimulating business environment and (c) creating conditions for overall economic development (development of industrial production, service activities). The abovementioned aims to provide favourable conditions for employment in rural areas outside agriculture (in the context of activity and income diversification), which will be inevitable in the following period with an increase in productivity and reduction in the number of agricultural workers that are needed.

**V Building administrative capacity (by the Serbian Ministry of Agriculture, Trade, Forestry and Water Management (MAFWM) and the Ministry of Finance) for using IPARD funds** (pre-accession EU funds for rural development in the Western Balkans), as stated in the EC Serbia 2013 Progress Report in the area of agriculture and rural development. Serbia is unable to use IPARD funds in the period 2013+3, since it was not able to meet the administrative requirements by the EC related to these assets until 2013. In document which the Government of Serbia adopted in 2013 ("National Priorities for International Assistance for the period 2014-2017, with projections until 2020," p. 244) it is stated that IPARD Operationing Structure and IPARD measures will be defined and accredited in 2016, and that the transfer of authority for IPARD funds management will be signed in 2017. The group of authors (Živkov, et al., 2012) points out that Serbian administration is not prepared to adapt to EU system of planning and implementation of measures for rural development, nor the citizens are able to use EU funds for rural development (underdeveloped local action groups, public-private partnership, lack of access to information for rural population, etc.).
VI Development of public institutions (establishing the rule of law through effective legislative and judicial powers) which allows/provides: (a) contract compliance, effective protection of property rights and equal access to the resources, commodity market and financial market for all participants; (c) building trust among farmers/entrepreneurs, as well as between civil society and government authorities.

Conclusion

The economic size of agricultural holdings in Serbia (the average economic size per farm is 5,939 euros) is very low compared to the average economic size of agricultural holdings in EU - 28 (25,138 euros), as well as compared to selected EU Member States. According to UAA and SO of the farm, in the Serbian agriculture are predominantly present small and medium-sized agricultural holdings, with high constraints of development, in the first place regarding financial, human and physical resources. Agriculture in these farms is traditional and extensive (of low productivity, with many oscillations and highly dependent on climate conditions), and these farms are characterized by low marketability and lack of specialization. For small and medium-sized agricultural holdings in Serbia to improve their physical and economic performance and become more competitive, the farmers need to engage actively to eliminate their numerous internal constraints, which "lie" in the mentality and undeveloped awareness about the methods for further development. In addition, it is important that agricultural holdings receive support from political leaders, through implementation of numerous support measures: (a) ensuring predictable and stimulative agricultural and overall economic policy; (b) create a stimulating business environment for higher investment, employment, overall economic development and activity and income diversification of the rural population.

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