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# COMPARATIVE ANALYSIS OF THE ECONOMIC POTENTIAL OF THE SMALL AND FAMILY FARMS IN THE REPUBLIC OF SERBIA AND ROMANIA

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## ABSTRACT

The authors provide an overview and the analysis of the situation of agricultural holdings in the Republic of Serbia and Romania, with special emphasis on the importance and role of small and family farms in creating economic and social sustainability. The paper analyses three thematic research areas – the roll and definition of small farms in the Republic of Serbia and Romania with their basic features the policy on agricultural, national and from foreign funds incentive measures, as well as statistical presentation of the state of agricultural holdings. The purpose of this study is to recognize how small and family farms are significant for the national economy and to compare the situation in the Republic of Serbia and Romania. Published papers and statistical data were used for the statistical review and comparative analysis of their advantages, potentials, and limitations of agricultural holdings in the Republic of Serbia and Romania.

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## Introduction

Agriculture is one of the pillars of the economic development of the Republic of Serbia, and it is significant for the national economy in terms of economic, social and ecological value (Mihailović et al., 2013). Serbia has a great potential for the development of agriculture (conventional and organic), processing and trade of food, however, the problem is to turn its comparative advantages into competitive ones (Pejanović, 2016).

Agricultural holdings are created on agricultural land and imply private ownership of the land and other means of production. They display the connection between the land and the family as a source of labour, on the one hand, and consumers of a part of the products produced on the individual property, on the other hand (Simonović et al., 2018). Nowadays, a family farm is the basic economic-production unit in a village and, unlike other forms of organization in the economy of a state, it has encountered a lot of obstacles in the past, such as social and economic problems (Prodanović et al., 2017).

Small agricultural producers in Serbia play an important role in agricultural production and self-employment, creating a general environment in rural areas (Zarić et al., 2008). General public and practical agricultural policy focuses their attention on family farms. The vitality of small farms, as well as a large number of positive examples of their economic performance and rational management, imposed the need to redefine the importance, place and role of small farms in the strategy of agricultural development (Pejanović, 2007). Small family farms in Serbia provide numerous benefits to the society, such as food safety, high-quality agricultural products, employment and family income, at the same time preserving ecology and adapting themselves to local resources, as well as preserving tradition and cultural heritage.

The FAO underlines that family farms are the key to sustainable future in Europe and Central Asia. There are an estimated 500 million family farms in the world, representing more than 90 percent of all farms. They are essential to our way of life, producing the bulk of our food and serving as the foundation of agriculture and the rural economy. Family farmers hold the key to a more sustainable future. Building on the achievements of the International Year of Family Farming 2014, the United Nations declared 2019–2028 to be the Decade of Family Farming.

According to the press release sent by the Romanian authorities to Food and Agriculture Organization of the United Nations, Romania has a long tradition in family farming. The farm represents the pillar on which the Romanian society developed. Family farm activities are not limited to the agriculture. They also comprise important social activities for the community and family, preserve traditions and crafts, attract rural tourism and agrotourism, and help to protect the environment through extensive agricultural practices. Agriculture plays a significant socio-economic role in Romania and its transformation to a modern, vibrant, and market-oriented sector is central to fighting poverty, promoting social inclusion, and reducing the urban/rural development divide. Most of Romania's poor live in rural areas and earn their living from agriculture or agriculture-related activities (Romanian National Institute of Statistics, 2019).

Agricultural development is always framed by the support policy, not only by provided incentive measures, but also by its positive direction of agricultural production. Hence, analysis not only of the current position of small farms in Serbia, but also an assessment of its future development opportunities, presupposes a comparison of development flows and basic principles of support policy in Serbia with dominant development flows in Europe, with a particular focus on the neighboring countries.

After 2000s, the policy of incentive measures in Serbia was primarily focused on strengthening production, with a particular focus on the fields which contribute to the growth of the food sector and with positive impact to the export. Significant efforts were made to restore the production of meat, sugar, fruit and vegetables, whose volume during the period of the country's isolation and economic sanctions, as well as of the loss of earlier markets, has significantly reduced (Strategy, 2014: 40-41). During 2005, the *Strategy on Agricultural Development of Serbia* was adopted, by which agricultural policy was defined with the aim to contribute to the growth of competitiveness of family commercial agricultural holdings. In the implementation mechanisms, a shift was made from incentive policies on production and income to investment incentive measures (Chivu & Ciutacu, 2014). However, without clearly defined budgetary frameworks the objectives were only partly supported with the appropriate measures and funds. As Simonović et al. emphasized, the unpredictability and inconsistency were the main features of the reform of agricultural policy in Serbia in the period from 2000 to 2015 (Simonović et al., 2016). In order to make clear directions for future reforms, the Ministry of Agriculture and Environmental Protection urged the development of a new strategic document, which resulted in the adoption of the *Strategy on Agriculture and Rural Development 2014 to 2024*.

The purpose of this study is to recognize how small and family farms are significant for the national economy and to compare the situation in the Republic of Serbia and Romania. For better understanding the agricultural sector in Republic of Serbia (competitive and non-competitive advantages) we will do the comparative analysis of the economic potential of the agricultural sector in Republic of Serbia and Romania. Therefore, the paper is structured in four segments. In the first segment we presented theoretical background and importance of small and family farms. The methodology and data basis are explained in the second segment, the results and discussion are submitted in the third segment and the conclusions is the final segment of the paper with its contributes and the list of references.

### **Materials and methods**

The study depends on secondary data, which are collected from the relevant institutions interrelated to the current study during the 2019 in the Republic of Serbia and Romania. Taking into consideration the object of the analysis (framework of the economic potential of small and family farms), the content analysis and comparative method will be used as the main toll, completed with support policy analysis and impact assessment (economic outcomes).

In the first place, the study depends on various statistical data and literary sources related to the object of the analysis, as well as statistical presentation of the state of agricultural holdings by using the data of the Statistical Office of the Republic of Serbia (SORS), the data of the Census of Agriculture in Serbia in 2012 and 2018, strategic documents in the field of agriculture, rural development and living standard in Serbia (*Strategy on Agriculture and Rural Development*, 2005; *Strategy on Agriculture and Rural Development 2014 to 2024*; *National Programme for Rural Development 2011-2013*; *National Programme for Rural Development 2018-2020*; *National Programme for Agriculture 2010-2013*; *National Programme for Agriculture 2018-2020*; Living Standards Measurement Study), as well as by taking into account the results of researches by domestic and foreign authors in this field.

At the level of support policy analysis, the text will compare the defined forms of support in Romania and Serbia, as indicators of a strategic visions for agricultural development and its relations to the small farms. The analysis of strategic development in Serbia was carried out on the basis of current laws, by-laws, official reports and on the *Strategy on Agriculture and Rural Development 2014 to 2024*. The support policy in Romania is analysed at the basis of the report: *Diagnosis of the Romanian Agricultural sector in the context of sustainable development, including especially small farms* (Muntean et al., 2019).

For achieving more reliable data and conclusions, authors were used comparative analysis based on the available statistical data and statistical surveys published by the Statistical Office of the Republic of Serbia, Romanian National Institute of Statistics and Eurostat.

## **Results and Discussion**

*Small and family farms in the Republic of Serbia.* In terms of owned structure, the importance of individual holdings is immense. However, their possibilities are not fully realized, mainly because they are small and without adequate state support in the long run. Small family farms are based on family labour, that is, senilisation and deagrarisation, which can result in the reduced work potentials of our village (Simonović et al., 2018). According to Munćan and Božić (2017) analysis of the labour force and employment on family farms is very complicated, taking into account the specificities of agricultural production and a pronounced seasonality (a large number of workers engaged in a relatively short period of time).

A more detailed analysis of the ownership structure of agricultural holdings, based on the data from the Census of Agricultural 2012, points to significant differences between the three subgroups of all farms (small - up to 5 ha, medium - 5-20 ha, and large - over 20 ha). As the size of an agricultural holding is determined based on the agricultural land, the economic size of the holding is determined by the standard output (SO), that is, the value of the agricultural production according to production prices.

Due to the data from the Census of Agriculture 2012, the average economic size of agricultural holdings in the Republic of Serbia in 2012 was € 5,939 and according

to the organizational-legal form of agricultural holdings, the indicator amounts to the following values in these two sectors: in the sector of family farms - € 4,990; in the sector of legal entities and entrepreneurs - € 204,755. According to the official data from the Statistical Office of the Republic of Serbia, in this paper family farms up to 5 hectares are going to be considered as small farms in the Republic of Serbia, with the average economic size of agricultural holdings (standard output) amounting to € 4,990.

*Small and family farms in Romania.* Romania has an important agricultural potential. It holds 7.8% of the agricultural area used by EU-27, being close from this point of view to German agriculture (9.8%) and Polish (8.5%). The population's employment in Romania agriculture amounts to 21.2% of the EU-27 farm labour force. Romania has four times more labour force employed in agriculture than Germany. According to Page and Popa (2013) the large number of small-scale holdings is an important source of economic, cultural, social, and natural strength for Romania. Romanian farm sizes cover a wide spectrum, influenced by land use. Very large corporate farms are concentrated mostly in South and East. Although family farms are found in great numbers all over Romania, they are found in their highest numbers, and in the most typical traditional small-scale farmed landscapes, in the northern and central parts of Romania (Page, Popa, 2013).

Romania's agriculture is characterized by a high number of very small non-commercial farms and most of its farm holdings have a very small economic size. In 2013, very small (< € 2,000 output) and small farms (€ 2,000 – € 8,000 in output) accounted for 94.9 percent of all the farms in Romania, compared with 69.1 percent in the EU-28. Romania ranks first in the share of very small and small farms across European countries. Set of criteria used to determine a small farm in 2016 (Muntean et al., 2019): 1) Area of land (in EU – 5 ha; <10 mln of farms; in Romania: 3,053,088 farms – 91.58%), 2) Standard Output (in EU – 8 SO; ca. 10 mln of farms; in Romania: 3,188,660 farms – 93.18%, up to 15 SO: 114,168 farms – 3.34%); 3) Labour input (AWU, FWU) - determination of the threshold value, eg. 1 or 2 AWU; 4) Market share (level of self-supply) - “semi-subsistence farm” where less than 50% of the agricultural output is sold, with the remainder being consumed within the farm household (in Romania: 2,917,250 farms - 81% of farms 0-15 th SO). Criteria used in a survey in Romania: - Standard Output - less than 49,999 euro; - Small commercial farms that commercialize more than 50% of the agricultural production that they realize per year.

The Table 1 presents the differences between small and large agricultural holdings in Romania based on house holding, production, return, profit, agricultural land management and management of agricultural activities.

**Table 1.** How small farms function compared to larger farms in Romania

Small farms	Large farms
<p><i>House Holding</i></p> <ul style="list-style-type: none"> <li>- It is based on the available resources: lands, crafts in the area, spontaneous flora products or berries</li> <li>- Structuring and sizing of the household according to the available labor force</li> <li>- Uses all available resources: vegetable debris as feed for animals, the resulting garbage is used as a fertilizer for the production of vegetal mass</li> </ul>	<p><i>Production</i></p> <ul style="list-style-type: none"> <li>- Uses available resources but not only</li> <li>- The production activity is mechanized, automated, using technology</li> <li>- In the production activity is used the external human resource, employed on the labor contract or daily</li> <li>- Uses attracted financial resources</li> </ul>
<p><i>Return</i></p> <ul style="list-style-type: none"> <li>- The preponderant development of cost-effective activities; activities necessary for daily living or those with potential for the future.</li> <li>- The surplus goods resulting from household activities is generally sold in fairs or markets</li> <li>- Using subsidies, European funds, or Development programs</li> <li>- Bank loans are not used to a large extent</li> <li>- Low Profitability</li> </ul>	<p><i>Return</i></p> <ul style="list-style-type: none"> <li>- Production is used in its own stores or in other partner stores</li> <li>- Profitability for greater access to bank financing</li> <li>- They can be part of associations that ensure better product traceability</li> </ul> <p>It uses software type - Agricultural Farming Management - which assures the collection, reporting, reporting and forecasting of farm and farm management data. Management is an accomplished one</p>
<p><i>Making profit</i></p> <ul style="list-style-type: none"> <li>- Profit is generally reinvested</li> <li>- In order to obtain profit - the association is the legal form used for profit or commercial purposes (ex: producer groups)</li> </ul>	<p><i>Agricultural land management</i></p> <ul style="list-style-type: none"> <li>- using graphical and realistic land plots</li> <li>- interfacing the system with agricultural machinery</li> <li>- crop management (crop planning, rotation, main crops, precursors and intermediate plants)</li> <li>- Fertilization planning based on existing nutrients</li> </ul> <p><i>Management of agricultural activities</i></p> <ul style="list-style-type: none"> <li>- Managed production; human resource planning (working hours / man)</li> <li>- Planning, tracking and performing agricultural activities; Farm equipment management and fuel consumption</li> </ul> <p><i>Profit</i></p> <p>Ensures the development of the farm</p>

Source: Muntean et al., 2019

*Policy on agricultural incentive measures.* According to the previously mentioned Report (*Diagnosis of the Romanian agricultural sector in the context of sustainable development, including especially small farms*), the following financial support schemes were available in Romania in 2019 from national and European funds: a) The

direct payment schemes (as support mechanisms for agricultural producers), which were: 1) The single area payment scheme (SAPS), 2) The redistributive payment, 3) The payment for agricultural practices beneficial for the climate and the environment, 4) The payment for young farmers; the coupled support scheme (vegetal and zootechnical sectors), 5) The payment for small farmers (underlined by the authors); b) The transitional national aid (TNA, granted for the vegetal and zootechnical sectors in the limit of the yearly budgets allocated to the Ministry for Agriculture and Rural Development), which were: 1) TNA 1 – arable crops, 2) TNA 2 – flax for fibre, 3) TNA 3 – hemp for fibre, 4) TNA 4 – tobacco, 5) TNA 5 – hops, 6) TNA 6 – sugar beet, 7) ZTNA 7 - cattle-milk, 8) ZTNA 8 - cattle –meat, 9) ZTNA 9 - ovine/caprine, 10) The coupled support; and c) The compensatory measures for rural development related to arable land (for engagement starting in 2015), which were: 1) Measure 10 - Agro-environment and climate, 2) Measure 11 – Ecological agriculture, 3) Measure 13 – Payments for areas confronting natural or other specific constraints.

These measures were accompanied by following non-financial measures: a) The reduction of rural school abandonment, b) the modernisation of the agricultural educational system, c) The solutions for the problems related to the functioning of the land market, including farm consolidation measures for crop lands, d) the development of local regional and national e-governing services.

By the Romanian National Rural Development Programme 2014-2020, the following strategic priorities were recognised (Muntean et al., 2019): 1) Support for the development of the small farms, 2) Support for the investments in the agricultural exploitations, 3) Support for the investments in the agricultural and forest infrastructure, 4) Support for the development of new products, processes and technologies, 5) Start up support for young farmers.

The central strategic document in the field of agriculture in Serbia is the *Strategy on Agriculture and Rural Development 2014 to 2024*. The strategy defines the vision of the development of agriculture and rural areas, which assumes the development of the knowledge-based agricultural sector, modern technologies and standards; management of rural areas in line with the principles of sustainable development, aiming to prevent the trend of population migration from these areas. According to the vision, the Strategy highlights four key principles: 1) *Sustainable agriculture*, within which agriculture is recognized as the most important industry in rural areas; 2) *Polycentric development, based on the respect for the diversity of production systems and types of agricultural holdings*, highlighting the equal position of all producers and other participants involved in the production chain in the agricultural sector and related activities; 3) *Modernization of bodies and organizations*, with special emphasis on the harmonization of the national system of agricultural policy management with the EU standards; 4) *Stability and consistency of the agricultural budget*, emphasizing the necessity of adjusting (that is, increasing) agricultural budget support to real needs in this sector (Strategy, 2014:60-61).

Another strategic document is the *Law on Incentives in Agriculture and Rural Development*, according to which the following types of incentives are defined: 1) direct payments, 2) incentives for rural development measures, 3) special incentives, 4) loans. Pursuant to Article 6 of the Law, the right to the incentives can be provided to agricultural holdings and family farms registered in the Register of Agricultural Holdings, local self-government units, other organizations; whereas non-commercial family farms are limited only to those types of incentives which are closely specified by the Minister. Based on the provision, small producers registered as non-commercial agricultural holdings have the access only to limited funds of incentive measures.

International assistance in Serbia in the field of agriculture has been intensified since 2001, and in the first ten years it was mainly implemented in the form of providing technical assistance (equipment, laboratories, vehicles, etc.) and employee training (primarily as a part of the preparation for the adoption of the EU procedures and regulations) (Strategy, 2014:50). The financial support from IPA I funds for agriculture and rural development in the period 2007-2012 was mainly used for the following activities: establishment of FADN<sup>6</sup>, support to the Directorate of National Reference Laboratories, support to food safety, improvement of animal welfare and control, for building institutional capacities, etc.

Unlike the support policy in Romania, which recognizes the special status of small farms in the strategic development of agriculture, the adopted support measures in Serbia, outlined in the Strategy for 2014-2024 does not specify the special status of any category of agricultural holdings determined by their type or size. Furthermore, the equalization of the status of agricultural holdings is particularly underlined by the second key principle of this strategy, which emphasizes the equal position of all producers and other participants involved in the production chain in the agricultural sector and related activities.

The legislative framework of agricultural policy and rural development policy in Serbia is based on two basic legal acts: the *Law on Agriculture and Rural Development*, which establishes the basic mechanisms for the creation and implementation of agricultural and rural development policy, and the *Law on Incentives in Agriculture and Rural Development*, which defines how to use the incentives, its users, the conditions for exercising the right to the incentives, and the amounts according to the type of incentive. The act does not recognize a special status of small farms, only the framework capacities that have to be fulfilled as the condition of participation in the competition.<sup>7</sup> The financial basis for the implementation of the incentives is the Decree on the Allocation of Incentives in Agriculture and Rural Development for the current year. By analysing the regulations for 2014, 2015, 2016, 2017, 2018, and 2019, a special status of small farms in support policy also was not been underlined.

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6 Farm Account Data Network

7 Payments for milk (at least 3,000 litres of delivered cow's milk per quarter, or 1,500 in difficult areas for agricultural activities); Incentives for plant production and production-related incentives (up to 20 ha of planted area with an appropriate culture), Incentives for fattening cattle (at least 5 herds), etc.



Among all foreign incentive programs in Serbia, the IPARD II EU Program is one of the most significant, being an instrument for pre-accession assistance in the field of rural development for 2014-2020 program period. According to the amendments to the IPARD Program in Serbia for the period 2014-2020 (March 21<sup>st</sup>, 2019), a special status of small farms was also not defined.

*Comparative analysis.* According to data published by the Romanian National Institute of Statistics (The Structural Agricultural Survey in 2016) and the Statistical Office of the Republic of Serbia (The Survey on The Structure of Agricultural Holdings 2018) the number of agricultural holdings in Romania (3,422,026) is 6 times higher than in Serbia (564,541). In both countries is noticed a decrease in the number of agricultural holdings in the last years (10.8% and 11.3% compared to 2012 and 2010 in Serbia and Romania, respectively). Likewise, the total area of utilized agricultural area in Romania (15,018,615 ha) is about 4 times higher than in Serbia (3,476,788 ha). In terms of category, in both countries the largest area includes arable land, 74% in Serbia in 2018 and 64.2% in Romania in 2014 (Table 2). (Survey on The Structure of Agricultural Holdings, 2018 and Muntean et al., 2019).

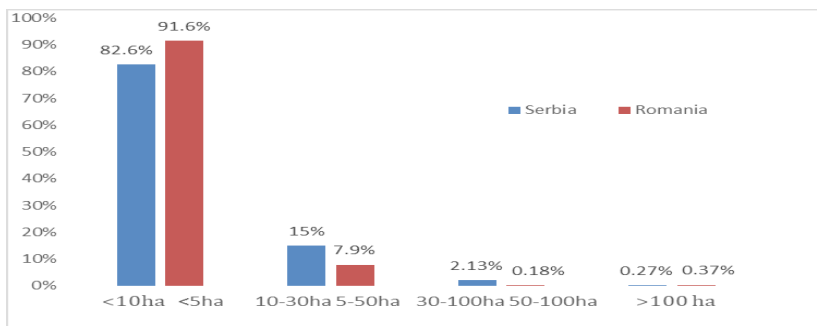
**Table 2.** Area of agricultural utilised area of farms by categories in Serbia in 2018 and Romania in 2014 (ha/%)

Category	Serbia (ha/%)	Category	Romania (ha/%)
Arable land	2,571,504/74	Arable land	9,641,950/64.2
Permanent grassland	676,724/19	Pastures	3,364,170/22.4
Permanent crops	206,357/6	Hayfields	1,591,973/10.6
Kitchen garden	22,203/1	Vineyards and orchards	420,521/2.8

*Source:* The data from The Survey on the Structure of Agricultural Holdings, 2018 and Muntean et al., 2019

On the other hand, average size of utilized agricultural area per farm in Serbia (6.2 ha) is higher than in Romania (3.65 ha). In both countries is noted an increase in the average size (13.5% and 1.4% compared to 2012 and 2013 in Serbia and Romania, respectively).

**Figure 1.** Area structure of the Serbian and Romanian Farms

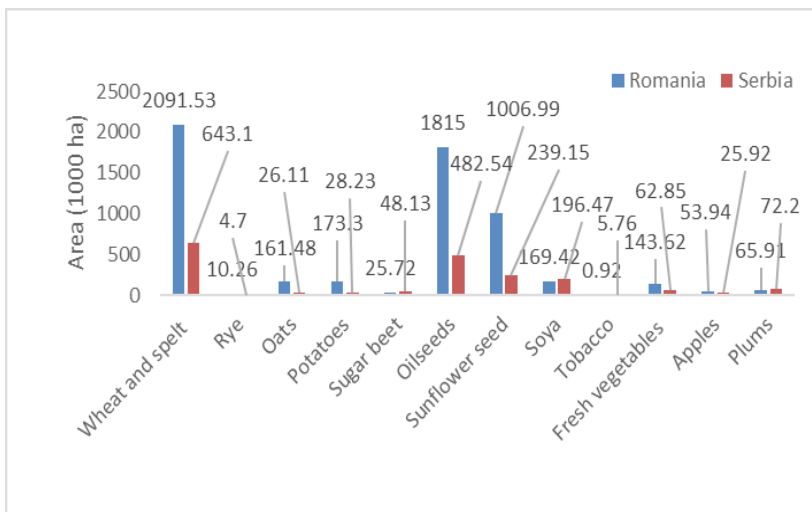


*Source:* The data from The Survey on the Structure of Agricultural Holdings, 2018 and Muntean et al., 2019

The largest number of farms have a small area under 5 ha (91.6%) and 10 ha (82.6%) in Romania and Serbia, respectively and only less than 0.4% farms have area over 100 ha (Figure 1). In Serbia 38.2% (217,682) farms used up to 2 hectares of agricultural land in 2018, this number was reduced by 27% from 2012. In Romania there are even 70.6% (2,415,716) of these farms in 2016, this number has not significantly changed since 2013 but increased in period from 2007 to 2013 which contrasts land concentration increase among several new members of the EU as well as with the EU average. (The Survey on the Structure of Agricultural Holdings, 2018 and Muntean et al., 2019).

Both countries have a very small number of young farmers (under 40 years), only about 7%. There is higher number of female farmers (33.6%) in Romania than in Serbia (19%).

**Figure 2.** Crop production area

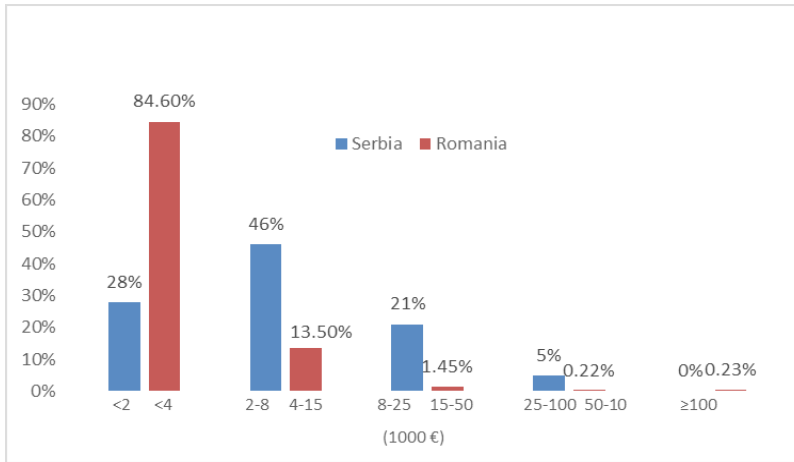


Source: Based on data from Eurostat

In both countries the largest areas are under wheat and spelt, oilseeds and sunflower seed and much smaller areas are sown with rye, oats, potatoes, sugar beet, soya, tobacco, fresh vegetables, apples and plums (Figure 2). Serbia, in comparison with Romania, has a larger area under sugar beet, soya, tobacco and plums. (Eurostat)

Contribution of agriculture to Gross Domestic Product in 2018 was 6.3% and 4.1% in Serbia and Romania, respectively. Value of agricultural standard output (SO) in Romania (18,554 million €) is about 3.5 times higher than in Serbia (5,338 million €) (Eurostat and The Survey on the Structure of Agricultural Holdings, 2018).

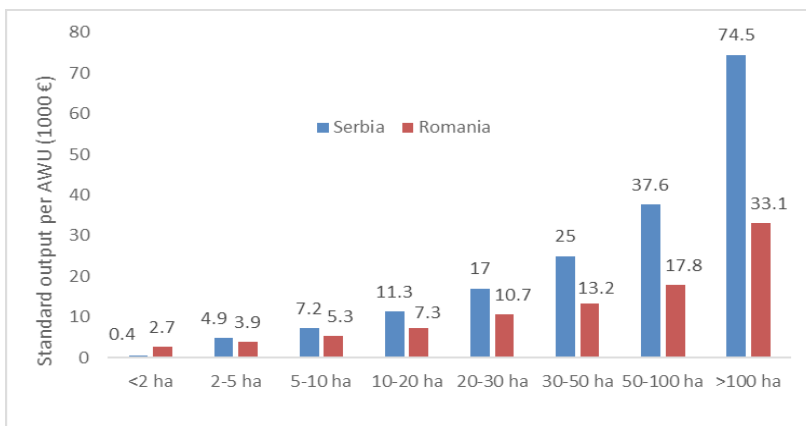
**Figure 3.** The structure of agricultural holdings in Serbia (2018) and Romania (2013), class standard output in euros (1000 €)



*Source:* Based on data from Eurostat and The Survey on the Structure of Agricultural Holdings, 2018

By standard output, the largest number (46%) of agricultural holdings (AH) in Serbia is in the category of small (2,000-8,000 €) and very small holdings (< 2,000 €) are the second most represented category (Figure 3). In Romania, the great majority of AH are in the category of < 4,000 € (84.6%), and only about 2% of AH are in the categories  $\geq 15,000$  €. In Romania is negligible percent and in Serbia (using the EU classification) there are no AH which fall into the category of very large ( $\geq 100,000$  €). Thus, in both countries large majority of AH belong to categories of small and very small holdings (Eurostat and The Survey on the Structure of Agricultural Holdings, 2018).

**Figure 4.** Agricultural standard output per annual working unit (AWU) and farm size in Serbia (2018) and Romania (2013) in euros (1000 €)



*Source:* Based on data from The Survey on the Structure of Agricultural Holdings, 2018 and Muntean et al., 2019

Fragmentation and size of farm operations are associated with low productivity. In Serbia and Romania, agricultural standard output per AWU is about 400 € and 2,700 € in farms of less than 2 ha and about 74,500 € and 33,100 € in farms of over 100 ha, respectively (Figure 4) (The Survey on the Structure of Agricultural Holdings, 2018 and Muntean et al., 2019). Very large farms produce more than 186 and 12 times per AWU than farms of less than 2 ha, in Serbia and Romania, respectively. Therefore, the farm size has a major effect on agricultural labor productivity.

### **Conclusions**

Romania has 6 times higher number of agricultural holdings and 4 times higher area of utilized agricultural area than Serbia but more fragmented farmland with smaller average size of utilized agricultural area per farm. In both countries, the largest number of farms have a small area under 10 ha and according to standard output, belong to categories of small and very small holdings. In Serbia and Romania, the largest areas are under wheat and spelt, oilseeds and sunflower seed. Three main priorities were identified by the Romanian Government (FAO, 2019) in order to better support the family farms: promoting the family farm as a sustainable, inclusive growth model; creating an institutional framework to implement support measures; including family farms in the food supply chain.

The Republic of Serbia has a favourable factor and trade conditions for the development of intensive and competitive agriculture, but the agriculture in these farms is characterized by low marketability and lack of specialization of production due to limited human resources (knowledge and skills of farmers), physical resources (small land area, lack of facilities and/or equipment for storage), social capital (association of farmers, chambers of commerce, co-ops). To improve their economic performance and increase the competitiveness of their products, small farms in Republic of Serbia shall work together. Through stronger networking and supported by state, small and family farms will strengthen their potential to overcome internal limitations.

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### **Conflict of interests**

The authors declare no conflict of interest.

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