Scientific Papers Series Management, Economic Engineering in Agriculture and Rural Development
Vol. 23, Issue 1, 2023
PRINT ISSN 2284-7995, E-ISSN 2285-3952

COMPARATIVE STUDY ON THE EVOLUTION OF THE NUMBER OF AGRICULTURAL FARMS, THE AVERAGE SIZE AND AGRICULTURAL PRODUCTION IN THE SOUTH-MUNTENIA AND SOUTH-EAST REGIONS OF ROMANIA

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Abstract

Starting from the importance of the optimal size of an agricultural holding for increasing the efficiency of the activity carried out, the objective of this work was to carry out a comparative analysis between 2 development regions of Romania regarding the situation of agricultural holdings. The choice of the two regions, South-Muntenia and South-East, was made based on their agricultural potential, and the monitored indicators were both the number of agricultural holdings and their size. The analysis assumed the monitoring of the evolution of the indicators in the period 2010-2020. The comparison was made not only between the two development areas, but also at the national and community level, the aim being to identify some solutions for the development and increase of the economic performance within the agricultural holdings in Romania and for the reduction of existing gaps both at the national and regional level and community. In order to carry out the research, we started from the analysis of specialized literature, following the role that agriculture has in economic development, as well as how it contributes to the formation of the GDP, followed by the collection, processing and analysis of regional and community statistical data regarding to the situation of agricultural holdings. The processing and interpretation of the data allowed us to formulate conclusions regarding the situation of agricultural holdings in the two development regions and to formulate recommendations. From the conducted research, it emerged that there are differences in Romania's agriculture both at the national and regional levels. For the year 2020, the average surface of an agricultural holding in Romania was 4.42 ha, which shows that in the Sud-Muntenia region the holdings are the closest to this average, having an area of 4.4 ha. At the level of the South-East region, the agricultural area is almost 50% larger than the average area, given that it is 6.7 ha. This influences both the way agricultural land is exploited and the profitability of agricultural holdings.

Key words: *agricultural holding, number of holdings, size, South-Muntenia region, South-East region*

INTRODUCTION

In the contemporary economy, agriculture, as the fundamental economic branch, has an important role contributing to economic development both at the national, community and world level [25]. Agriculture is thus a strong balancing factor with a role in solving serious problems such as: smoothing social conflicts generated by the food problem, environmental degradation, population growth and implicitly the need for food, thus ensuring food security etc. [21, 24, 19].

Over time, agriculture has been subjected to multiple and important paradigm transformations, thus becoming a determining sector in the modern economy and significantly contributing to the growth of gross added value, which in turn influences the growth of the Gross Domestic Product [26].

According to the data published in 2021 by the Food and Agriculture Organization (FAO), it shows that at a global level the added value generated by agriculture, forestry and fishing in 2018 was 3.5 trillion USD with a percentage increase of 73% and with a absolute increase of 1.5 trillion USD compared to 2000. The largest increase was recorded by Asia, which from 2000 to 2019 had a percentage increase of 84%, and in absolute values of 1.2 trillion USD. Asia's contribution to global added value was 64%. The United States of America recorded an

increase in value added of 52% in the period 2000-2019. Africa was the one that from an added value of 170 billion USD in 2000 reached a value of 404 billion USD in 2019. The increase was thus 42%. Europe had a 19% increase and Oceania a 9% increase in agricultural value added, after registering a decrease since [5].

The countries that registered the highest added value from agriculture, forestry and fishing in 2019 were China, India and the United States of America [1, 8].

According to Eurostat data, in 2021 the obtained agricultural production had a value of 449,500 million euros, calculated at the value of basic prices. In 2021, agricultural production increased by 8% compared to the previous year, and this was due not only to the increase in production, but also to inflation, which in turn led to an increase in the price of agricultural products and services. Also analyzed from the perspective of the contribution of these two elements to the increase, it turns out that the majority share was the increase in prices (by 90%), while the increase in production had an increase of only 10% [7].

The states that contributed approximately 63% to the increase in agricultural production in the European Union were France with 18% (82.4 billion euros), Italy with approximately 14% (61.2 billion euros), Germany and Spain with approximately 13 % (ie 59.2 billion euros, respectively 57.1 billion euros), the Netherlands with approximately 7% (30.6 billion euros), Poland with almost 6% (27.9 billion euros) and Romania by 5% (21.1 billion euros). Romania, along with Italy, is one of the European countries with the largest grain production [27].

The highest growth rates were recorded by Bulgaria with a 37% increase, Romania with a 25% increase and the Czech Republic with a 16% increase. The countries that recorded decreases were Slovenia, with 4% and Denmark with 2%. The countries that recorded relatively unchanged agricultural production values were Cyprus, Malta and Finland [7, 25].

The largest share in the value of agricultural production was determined by the value of vegetable production (55%). The increase compared to 2020 was 13%, meaning 249 billion Euros. A little more than a third (36%) came from animal production and animal products had a weight of 36% in the total agricultural production. The increase compared to 2020 was 3%, which in absolute values means approximately 163 billion Euros. Agricultural services and secondary activities contributed 9% [7].

All these are elements that demonstrate both the important role of agriculture in economic development, but also the way in which this contribution is distributed worldwide and at the community level. Agriculture remains one of the sectors of activity that contribute to economic development, to the emergence of additional jobs, to the risks related to food security, to the increase of incomes, all thus contributing to the creation of a fairer society. In this way, it is possible to reach that sustainable economic system that corresponds to the sustainable development objectives of the UN [28]. The current way of managing agricultural activity, finding solutions to obtain sustainable production leaves its mark on future generations. One of the factors that contribute to increasing the efficiency of agricultural activity and obtaining profitability is the size of the agricultural holding, which in turn is influenced both according to the number of agricultural holdings, according to their surface, but also depending on the structure [6]. In this way, there is an increase in the efficiency of the use of resources, but it also actively contributes to the increase of sustainability [23].

Analyze the size of agricultural holdings and the relationship between this and productivity is important because it also influences access to the different categories of resources, such as financial resources, human capital, organizational structure, vulnerability to market changes, etc. [18, 20].

Also, the size of the farm, along with the institutional support, are factors that decisively influence the marketing behavior of farmers, a mandatory requirement for the development of any business [3].

The economic size of a farm is also quantified by the value of the production obtained and

evaluated at the price obtained at the farm gate [3].

However, in the current period, when humanity has faced numerous economic, sanitary (Covid-19), social, military conflicts (the war in Ukraine) we find that profitability is no longer the only objective that must be pursued, but also the development of regional businesses that to be able to support the consumption needs in conditions where the global system is interrupted [11, 22]. According to Guth et al. there are other non-financial indicators that can directly influence the size of agricultural holdings, and their tracking is important from the point of view of the durability and sustainability of the following areas. The pursuit of economic efficiency is important, but in the case of small farms, although sometimes inefficient or irrelevant in relation to modern agriculture, their important role for local development must be recognized [10].

MATERIALS AND METHODS

The methodology used in the research involved the use of analysis methods and techniques based on the principle of triangulation, according to which the data were collected, processed and interpreted, so that they could then be transformed into conclusions and recommendations regarding the level of development of agriculture in the two regions (South-Muntenia region and South-East region).

The bibliographic study sought to highlight the role that agriculture has on the economic development registered at the national, community and world level.

To carry out the quantitative and qualitative analysis, they were taken from national and international databases (National Institute of Statistics, Eurostat, FAO).

The indices used were:

- The dynamics index with a fixed base, through which the value of the increases or decreases recorded in 2021 compared to 2017 could be determined:

$I_{t/1} = (y_t/y_1) \times 100$ [2]

- the dynamic index based on the chain, through which the value of the increases or decreases recorded in the period 2017-2021 could be determined

$I_{t/t-1} = (y_t/y_{t-1}) \times 100$ [2]

Comparand cele 2 relatii rezulta ca:

$I_{t/1} = \Pi I_{t/t-1}$ [4]

RESULTS AND DISCUSSIONS

Romania is one of the countries of the European Union with a developed agricultural potential as a result of the agricultural areas owned, but also due to the soil fertility, which is why the participation of agriculture in the formation of GDP was 4.4% in 2021. Compared to the previous period, the share decreased, but it was 6.4% of GDP in 2011 and 7.4% in 2012. According to statistical data, it turns out that Romania is the country that, at the level of the European Union, has the largest number of agricultural holdings [9], being characterized by a pronounced form of structural division of agricultural land.

Analysis of the data published in the 2020 Agricultural Census, which are still partial, shows that the number of agricultural holdings registered in 2019 was approximately 2,887 million. Although there is a decrease of 27% compared to 2010 and 25% compared to 2007, the year of Romania's accession to the European Union, their number is still increased compared to the community level.

Of the total of these holdings, 99% have legal personality, the difference of 1% being represented by small, subsistence farms. The continuous decrease in the number of agricultural holdings is also the result of an increase in the average area and the "settlement" of the situation immediately following the agricultural reform started after 1989, characterized by the fragmentation of property. The development of modern farms, which use a new, digital technology, the understanding of the concept of profitability have contributed to the increase of the average area of agricultural holdings. In this way, it was reached that in 2020 the average agricultural surface of a holding was 4.42 ha, an increase of 28% compared to 2010. With all this, compared to the other member states, Romania is still among the countries with the

smallest average areas of an agricultural holding. In relation to the form of organization, agricultural holdings are divided into holdings with legal personality, which in the present case had an average surface of 195 ha, for the year 2020, and entities without legal personality (the majority of subsistence agricultural holdings) whose the average surface was approximately 2.7 ha, at the level of the same year. In relation to the used agricultural surface, which determines the size class of the agricultural holdings, the data showed that there is an inversely proportional relationship between their number and the exploited surface. Thus, in 2020, agricultural holdings with areas smaller than 1 ha, although they represented 53% of the total agricultural holdings, exploited less than 5% of the agricultural area, while agricultural holdings with an area larger than 50 ha, which had represented approximately 1% of the total holdings, they used an area of approximately 53% of the total (Figure 1).

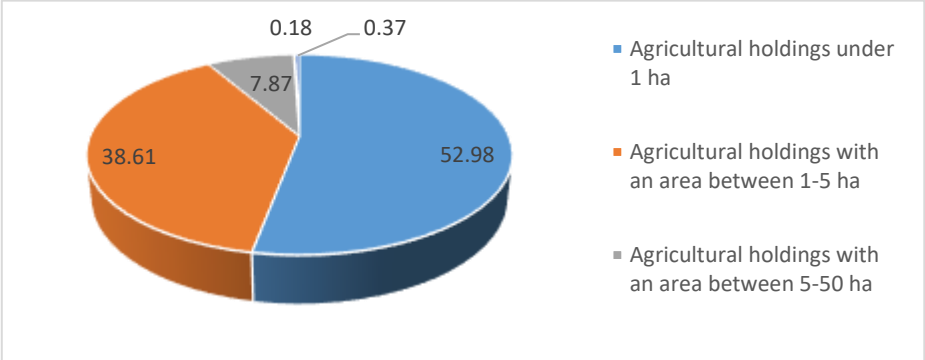

Fig. 1. Structure of agricultural holdings, by size class, in 2020 (%)
Source: own processing [17].

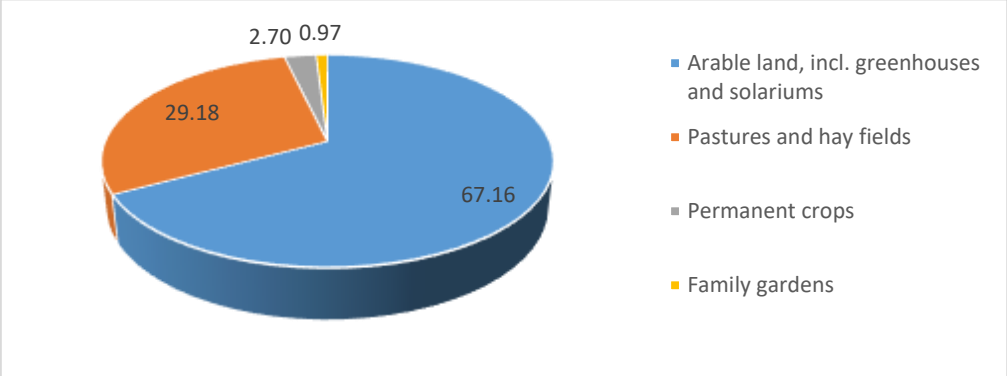

Fig. 2. The use of agricultural land, by categories of use, in 2020 (thousands ha)
Source: own processing [17].

Regarding the way of using the agricultural areas, it is found that in 2020 the largest share of the used agricultural area was owned by agricultural lands, including greenhouses and solariums, with 67% (8,571 thousand ha), followed by pastures and hay fields with 29% (3,724 thousand ha), permanent crops with 2.7% (344 thousand ha) and family gardens with less than 1% (124 thousand ha) (Figure 2).

Figure 3 shows both the evolution of the number of agricultural holdings in Romania, as well as the evolution of the used surfaces and the average surfaces for an agricultural holding, noting that there is a direct correlation between the decrease in the number of holdings and the increase of the average surfaces.

The to regions that are the subject of the case study are located in Microregion two (South-East Region) and Microregion three (South-Muntenia Region). The reason for choosing them is their geographical proximity and the fact that they benefit from similar conditions for practicing agriculture, both from a

climatic, pedological and organizational point of view.

The South Muntenia region includes the following counties: Arges, Calarasi, Dambovita, Giurgiu, Ialomita, Prahova and Teleorman. The South-East region includes the following counties: Braila, Buzau, Constanta, Galati, Tulcea and Vrancea.

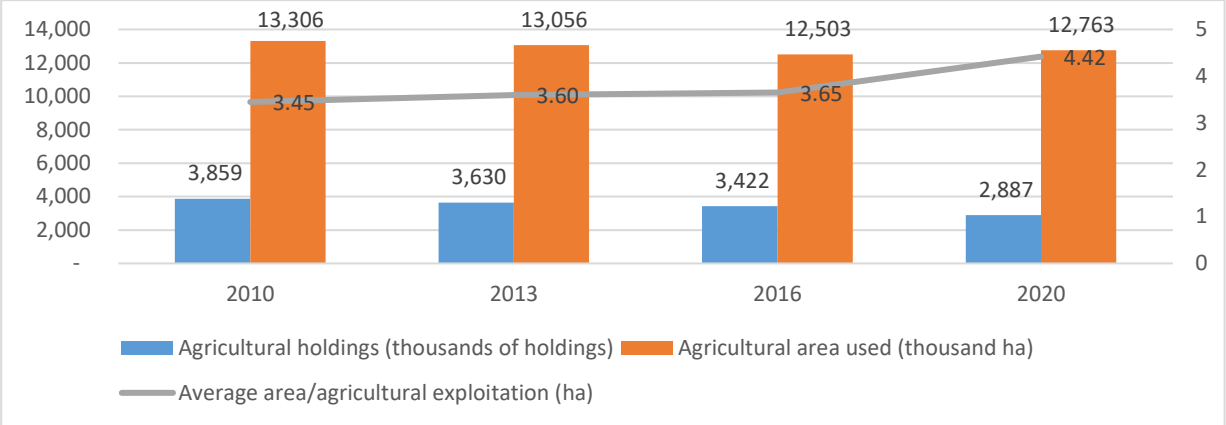

Fig. 3. The situation of their agricultural exploitation and of the surfaces in Romania, in the period 2010-2020
Source: own processing [12, 13, 14, 15, 16, 17].

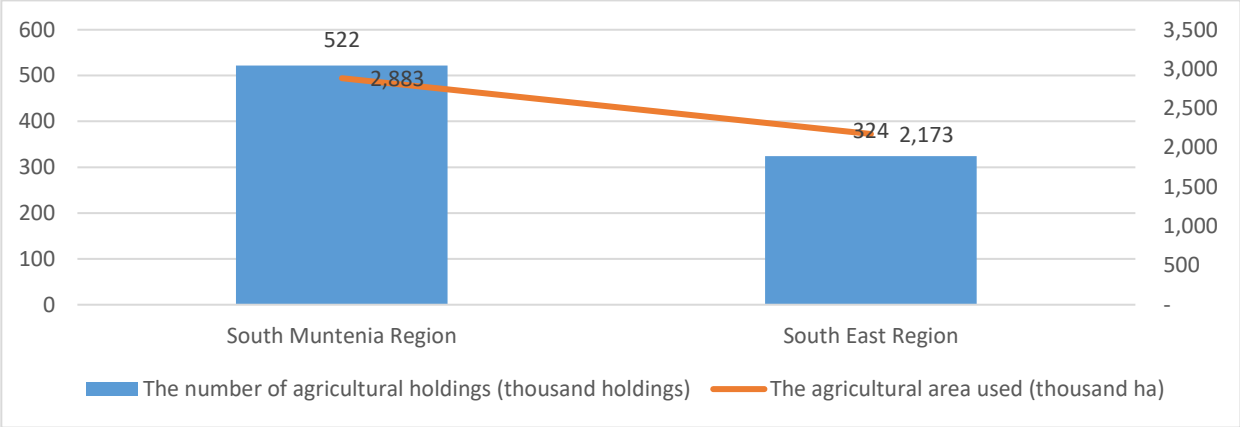

Fig. 4. The number of agricultural holdings and the average area in the South-Muntenia and South-East Regions, in 2020
Source: own processing [12, 13, 14, 15, 16, 17].

The analysis carried out for the year 2020 highlights the fact that the number of agricultural holdings in the South-Muntenia Region was 10% higher than that of the holdings in the South-East Region, but this is not due to the areas occupied by the two regions, which are approximately equal (The Southeast Region has an area of 35,762 km^2, and the South-Muntenia Region has an area of 34,489 km^2). The difference regarding the average area is given by the number of existing agricultural holdings in the two development regions. (Figure 4).

The value of agricultural production recorded in 2021 was approximately 104 billion lei. The way in which the two sectors, vegetable and animal, contributed to obtaining the production was 71%, respectively 27%, the difference of 2% being represented by the value of agricultural services.

At the level of the 2 regions, in 2020 the production value represented a little over a third of that achieved at the national level, the contribution of each region being 17.6% for the South-Muntenia Region and 13.4% for the South-East Region. The increase in 2021 was supported by regional increases, so that for the South-Mountain Region this was 1.3%, and for the South-East Region the increase was 5%. In these regions, due to their agricultural potential, the shares of production, both from the vegetable and animal sectors, were above the national average (Figure 5). Regarding plant

production, the South Region - Muntenia recorded a 31.4% increase, and the South-East Region an 82.5% increase, and for livestock production, there were decreases. At the national level, the regions that had increases were the North-East Region with an increase of 5.1% and the North-West Regions West-Oltenia with increases of 2.8%.

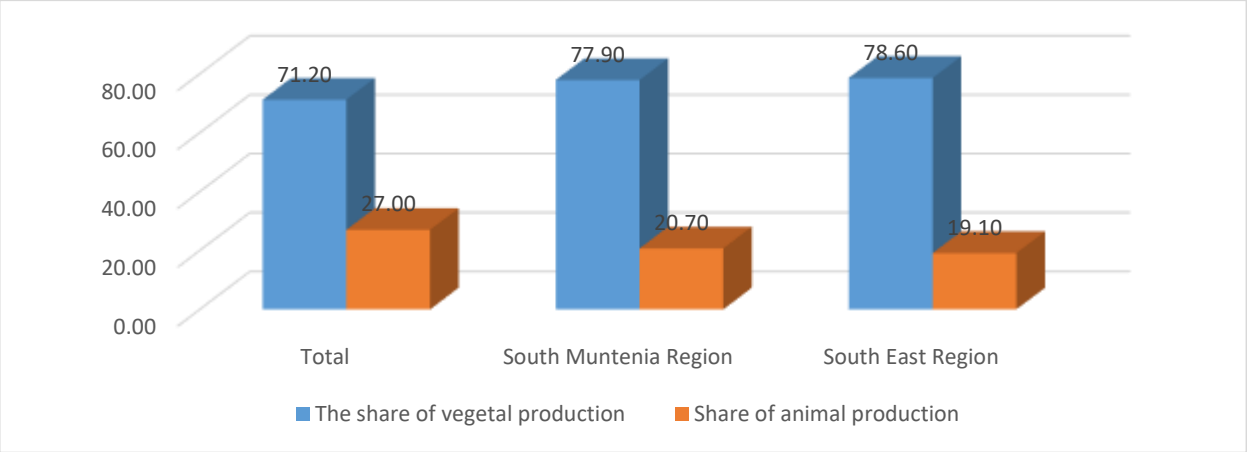

Fig. 5. Share of agricultural production in 2021 (%)
Source: own processing [12, 13, 14, 15, 16, 17].

The production indices recorded at the level of the two analyzed regions highlight the fact that two activity sectors are above the average (plant and service sectors), while the livestock sector is below the average of the branch (Table 1).
Compared to the total for the country, the South-Muntenia region registered an increase of +6.5 percentage points, and the South-East region increased by +38 percentage points.

Table 1. Agricultural production indices, 2021 compared to 2020

	Total branch	Vegetal sector	Animal sector	Agricultural services
Total country	114.3	122.2	99.8	99.3
South-Mountenia region	120.8	131.4	94.7	123.5
South East Region	152.3	182.5	96.9	111.2

Source: own processing [12, 13, 14, 15, 16, 17].

CONCLUSIONS

The conclusions arrived at after analyzing the statistical data regarding the two development regions highlight the fact that they recorded the highest increases in production compared to the national average, but also compared to the other six development regions. This is due to the agricultural potential that the South-Muntenia and South-East regions have, an aspect supported by the agricultural area owned, which places them on the 1st and 2nd place among the development regions. At the same time, the average areas registered in the two regions in 2020 were: 4.4 ha in the South-Muntenia Region and 6.7 ha in the South-East region, compared to the average area registered at the national level of 4.42 ha.
Therefore, we note the existence of regional differences in the growth rate of the size of economic farms.
The size of agricultural holdings, when we talk about small sizes, influences their profitability not only as a result of the volume of production obtained, but also due to the fact that they face some barriers in terms of innovation or less access to technology (digitalization, robotization, etc.) and technologies (precision agriculture, hybrids, new varieties, etc.) at lower investment funds, all translating into viability and competitiveness.

AKNONOWLEDGEMENTS

The work **of** Tachianu Alexandru Valentin was supported by the project "PROINVENT", Contract no. 62487/03.06.2022 - POCU/993/6/13 - Code 153299, financed by The Human Capital

Operational Programme 2014–2020 (POCU), Romania.

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