SMALL FARMERS IN THE CZECH REPUBLIC AND THE EUROPEAN UNION

Marie Šimpachová Pechrová – Martin Hruška

Abstract

Small farms play a key role in the European Union's (EU) rural areas for social reasons and involvement in local food systems. Therefore, Common Agricultural Policy of the EU supports the farms up to 10 ha under simplified subsidies scheme. The aim of the paper is to describe the small farms in the Czech Republic and compare them with the EU in key indicators. The data is taken from Eurostat for farms with more than 0 ha up to 10 ha (included) for years 2010, 2013, 2016, and 2020. CR belongs among countries with the lowest share of small farms, but it increased from 32.5% in 2010 to 38.8% in 2020. Share of small farms on the total land slightly exceeded 1.0% in the observed years. Also, the share of labour force in small farms is one of the lowest in CR (it increased from 7.8% in 2010 to 11.2% in 2020). The trend of shares of small farms on the total number of farms and on AWU in the CR goes the opposite way (increase) than in the EU (decrease). The share on the farmed land is still. Detailed analysis of EU member states showed that small farms are still important part of the agri-food systems in certain countries. Hence, their support with simplified subsidy scheme is well-founded.

Key words: Common Agricultural Policy, hypothesis testing, small farmers, subsidies

JEL Code: Q18, Q10

Introduction

Small farms are highly heterogeneous and diverse depending on the part of the world where they are located. They “exhibit specific characteristics and play multifunctional roles in different regions of the world, and these roles vary in significance in different stages of economic development” (von Braun and Mirzabaev, 2015). The small farms are diverse also in within various regions. Also, in the European Union (EU) “some are specialised commercial operations, while others produce mainly to satisfy household food needs, the so-called semi-subsistence farms” (Davidova, 2014). Small farms play a key role in the EU's rural areas for social reasons and involvement in local food systems. They maintain rural entrepreneurship,

keep rural areas populated, preserve traditional farming methods, contribute to the rural non-farm economy, ensure food diversity, and provide environmental public goods. (Davidova and Bailey, 2014). “Almost two-thirds of EU farms are under 5 hectares, playing a key role in reducing rural poverty”. (The Farmtopia project, 2024). Ayaz and Mughal (2024) found out that “small farms achieve lower total factor productivity compared with large farms, even though the yield of small farms may be higher”. This is in line with the research of Galnaityte et al. (2024), who found out that large pig farms in Lithuania in the years examined (2016–2021) had significantly higher labour productivity, lower costs, lower prices, and better production indicators.

Common Agricultural Policy (CAP) for years 2023–2027 of the EU supports the farms up to 10 ha under simplified subsidies scheme. It provides greater access to financial support for small farms. (Yang et al., 2024). Small Farmers Scheme offers small farms the option of an unconditional annual lump-sum payment per farm replacing the standard first pillar direct payments. (Lécole, Préget and Thoyer, 2022). Its aim is to facilitate to the small farmers submitting the grant applications. CR implemented this mechanism as a payment per hectare. The payment replaces all other forms of income support payment, therefore the farmers applying for this payment cannot receive any other direct payment. (European Commission, 2023). Rumanovská, Lazíková and Takác (2018) argue that small farming encounters difficulties and it is hard to imagine functioning of small farms without subsidies for production, especially direct area payments. The efficiency and effectiveness of the support is constantly a subject of the evaluation. Lécole, Préget and Thoyer (2022) used discrete choice experiment in France (608 farmers receiving less than 15,000 euro in first pillar payments). The results showed that an small farmer scheme with an environmental certification prerequisite was attractive to French small farmers, notably in the market gardening sector. On the other hand, research of Staniszewski and Borychowski (2020) identified stimulating effect of subsidies only in the group of the largest farms instead of smaller farms as is intended by the CAP.

1 Methodology and Data

The aim of the paper is to describe the small farms in the Czech Republic and compare them with the EU in key indicators. Particularly we choose the number of holdings (and share on the total number of holdings), utilized agricultural area (and its share), annual work unit (AWU), livestock unit (LSU), standard productions (in euros), age of the main manager, and legal form.

The χ^2 test of goodness of fit was used to test whether the structure of the agricultural holdings according to the size (relative frequencies) is the similar as in the EU-27 (that was a null hypothesis H_0). Level of significance was chosen to be 0.05. Size categories were 0 ha, over 0 to 9.9 ha, from 10 to 19.9 ha, from 20 to 29.9 ha, from 30 to 49.9 ha, from 50 to 99.9 ha and 100 ha or over. Because the size categories are not similar (interval length is different), the pie charts cannot be used for the display and also the share on total has to be taken only informatively and cannot be compared among themselves. Test criterion is calculated as (1).

$$G = \sum_{j=1}^{k} \frac{(n_j - n_j')^2}{n_j'} \qquad (1)$$

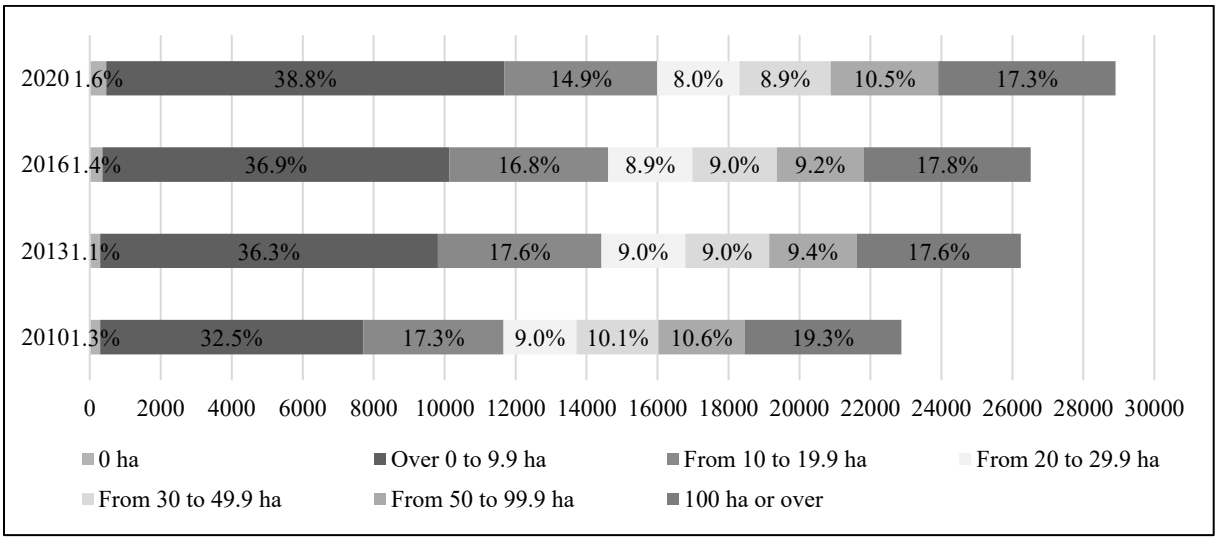
where n_i are empirical absolute frequencies and n_i' are theoretical (calculated absolute frequencies of Czech farms if the relative frequencies were the same as in the case of EU-27). The value of text criterion G is compared to the critical value of χ^2 distribution with probability 1-α (where $\alpha = 0.05$) and k degrees of freedom (where k is the number of size categories).

The data was taken from the Eurostat database for years 2010, 2013, 2016, and 2020 (the newest available data) and was processed in MS Excel.

2 Results and Discussion

As can be seen from Fig. 1., the number of farms up to 9.9 ha increased as same as the total number of farms between 2010 and 2020. The growth rate for this category was higher (increase by 51%) than the growth rate for all (by 26%) and also its share on total increased to 39%. The highest increase was in category without land (by 62%), but its share stayed the lowest.

Fig. 1: Development of size structure of agricultural holdings in CR



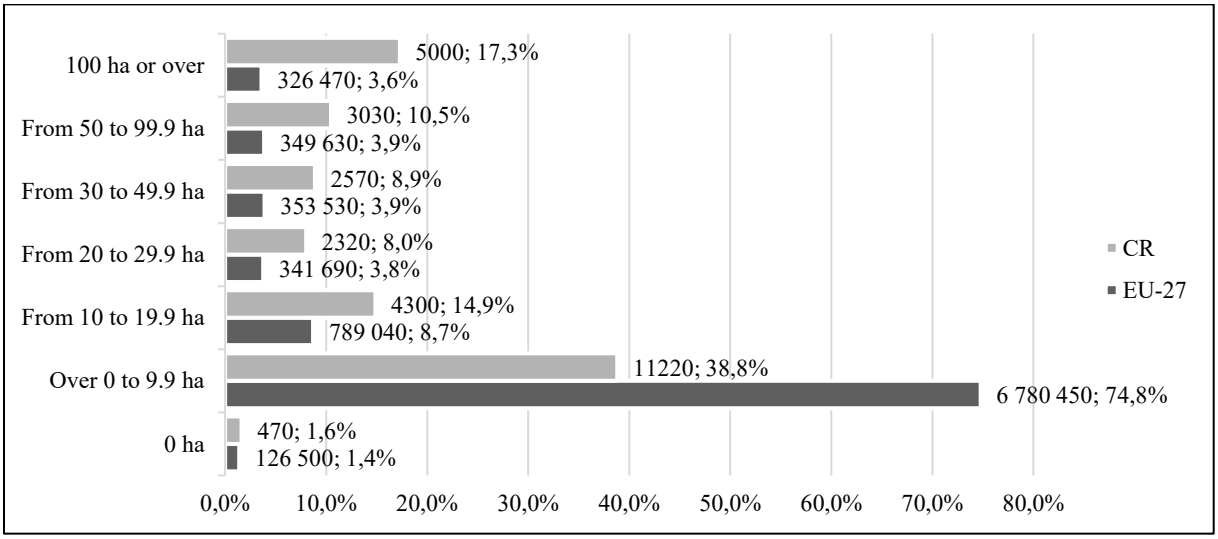
Source: own elaboration based on data from Eurostat

The lowest increase was in category from 10 to 19.9 ha (by 9%), so its share decreased on 15%. The growth rate and share of the total for the categories from 20 to 29.9 ha, from 30 to 49.9 ha and from 50 to 99.9 ha were almost identical and stable. In category of largest farms with more than 100 ha, the growth rate was only 13%, so the share stayed around 17% for almost all periods. The increase in the number of farms was like the increase of the utilized agricultural area which was the highest in 2020 (3.49 mil. ha). The trend was opposite in the EU-27, the area decreased and was the highest in 2010 (158.51 mil. ha).

1.1 Number of farms

CR belongs among countries with the lowest share of small farms, but it increased from 32.5% in 2010 to 38.8% in 2020. On the other hand, the share decreased from 79.1% to 74.8% on the EU-27 level during the same period. Compared to the EU average, the CR has also high share of farms from 10 to 19.9 ha and from 50 to 99.9 ha and 100 ha or over as it can be seen from Fig. 2. (The intervals are not similar, so pie graph cannot be used.) Based on the χ^2 test of goodness of fit the structure of the farms according to their size statistically significantly differs between the EU-27 and the CR at $\alpha = 0.05$ level.

Fig. 2: Share of number of agricultural holdings of different sizes on total in EU and CR



Source: own elaboration based on data from Eurostat

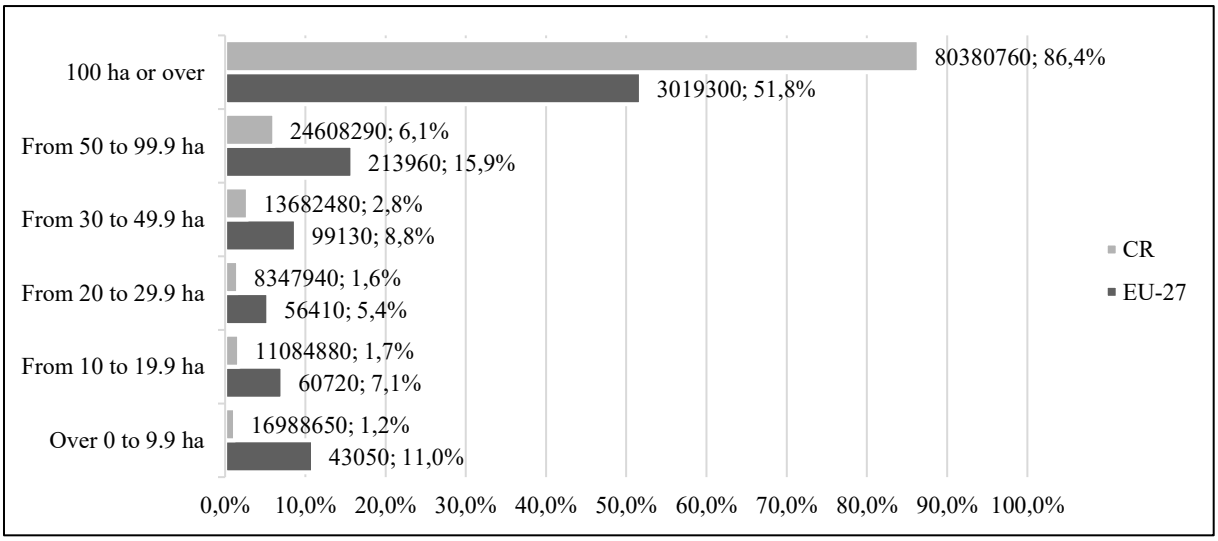
1.2 Utilized agricultural area (UAA)

Despite that the share of small farms on all farms is over one third, the share on total land slightly exceeded 1.0% in the CR during the observed period which is displayed at Fig. 3. Similarly, while the farms in the EU-27 had the share almost three forth, the share on land was only around 12.0% in all observed years. But there was not statistically significant difference

found in share of the land farmed by small holdings on total between CR and the EU average (other 26 member states of the EU). Also, the share of labour force in small farms is one of the lowest in CR (it increased from 7.8% in 2010 to 11.2% in 2020). While the average size of one holding in the EU-27 was 2.5 ha, Czech small farms were larger (3.8 ha on average). It is because farms in the CR are larger in general (311.3 ha compared to 22.9 ha).

There was statistically significant difference in share of AWU in the small holdings on total between Czech Republic and the EU average (where it is 45.3%). Not only the Fig. 2, but also χ^2 test confirmed that the structure of the UAA is statistically significantly different in the CR than in EU. CR had very high share of UAA that is managed by agricultural holdings with more than 100 ha. Skalicky et al. (2021) found out that with the growing size of a farm, there is a continuous increase in yields of wheat per hectare, which suggests that larger farms are more efficient in utilization of the land as they can gain more output with similar input (land).

Fig. 3: Share of UAA of agricultural holdings of different sizes on total in EU and CR



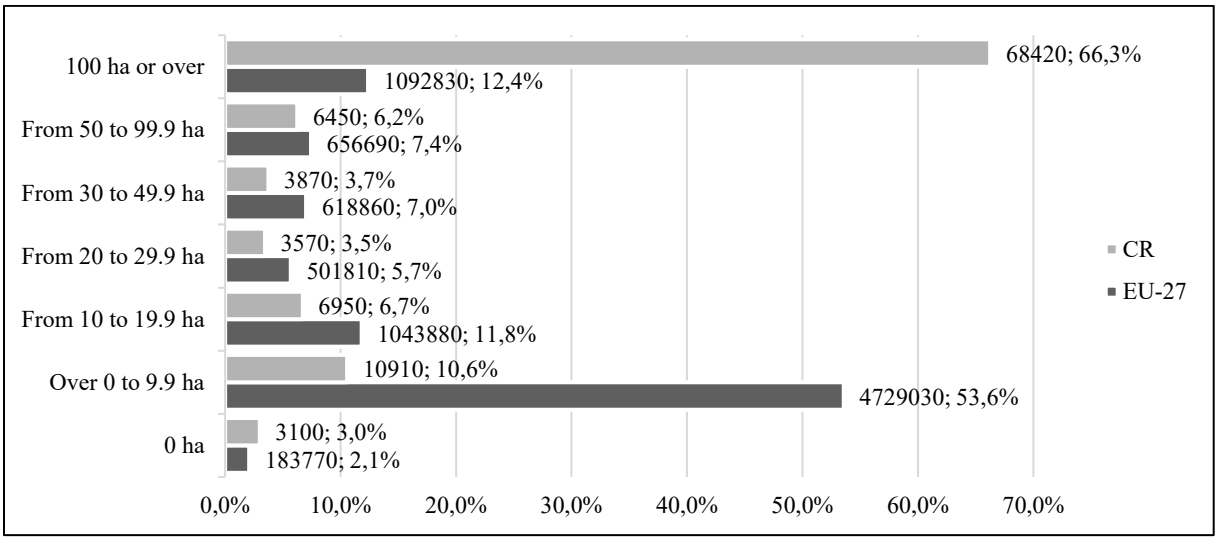
Source: own elaboration based on data from Eurostat

1.3 Annual work unit (AWU)

The contribution to the employment was the largest in small farms in the EU (53.6%). Contrary to that, the highest share had the largest farms in the CR. This is due to the fact that in other European countries small family farms are essential part of the agricultural sector. According to Eurostat, people working in agriculture accounted for about 4.2% of total employment in the EU in 2020, corresponding to an estimated 8.7 million workers (Eurostat, 2022). This shows importance of the sector especially for rural employment. Average number of employees was higher in the CR (1.0 AWU/farm or 0.3AWU/ha in small farms) than in the EU-27 (0.7

AWU/farm, 0.3 AWU/ha). There were statistically significant differences found between the AWU structure in the CR and in the EU-27.

Fig. 4: Share of AWU of agricultural holdings of different sizes on total in EU and CR

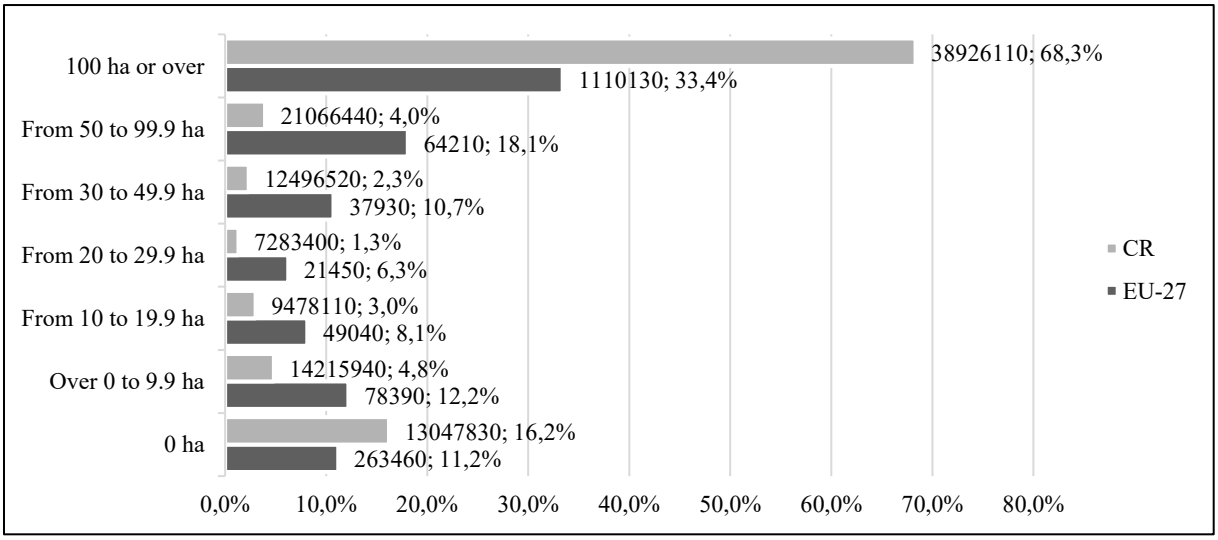


Source: own elaboration based on data from Eurostat

1.4 Livestock Unit (LSU)

LSU represents 500 kg of live weight of livestock. It enables to recalculate various types of livestock on a common unit. LSU facilitates the aggregation of livestock from various species and age as per convention, via the use of specific coefficients established initially on the basis of the nutritional or feed requirement of each type of animal. (Eurostat, 2025).

Fig. 5: Share of AWU of agricultural holdings of different sizes on total in EU and CR



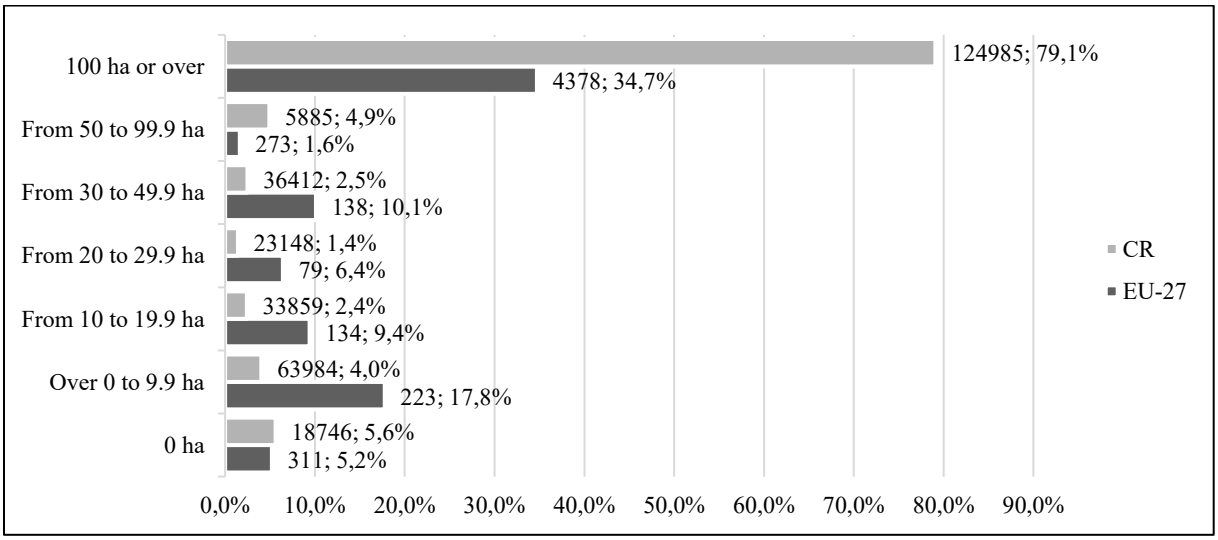
Source: own elaboration based on data from Eurostat

The most of livestock is not surprisingly raised at large farms. The share was higher in the CR (68.3%) than in the EU-27, where only one third of livestock is breed (33.4%). Second largest share was at farms with 50 ha and up to 99.9 ha in the EU-27. However, these two categories together (the farms with 50 and more hectares) still had lower share of LSU in the EU-27 than in the CR. Farms with 0 hectares means that they are specialised at livestock production. Nevertheless, they breed only 16.2% (in case of the CR) and only 11.2% (in the EU-27) of total livestock (LSU). The share is even higher at small farms (over 0 ha to 9.9 ha) in the EU-27 (12.2%). On the other hand, the share in the CR is very low meaning that small farms there might be mainly oriented at crop production. Average farm had almost 7.0 LSU / ha in the CR, while in the EU-27 it was only 2.1. There was a statistically significant difference found in the structure of LSU in the CR and EU-27.

1.5 Standard output (SO)

Standard output measures the economic size of the agricultural holding. It is the average monetary value of the agricultural output at farm-gate price. "The sum of all the SO per hectare of crop and per head of livestock in a farm is a measure of its overall economic size, expressed in euro." (Eurostat, 2025).

Fig. 6: Share of SO of agricultural holdings of different sizes on total in EU and CR



Source: own elaboration based on data from Eurostat

The highest was in large farms: in the CR it accounted to 79.1% and in the EU-27 to over one third (34. 7%) of total SO summarized for all farms at the territory. While small farms up to 10 ha had negligible share of SO in the CR, in the EU-27 it was 17.8% and the second

most important. Average small Czech farmer produced higher standard output (19895.9 EUR) than European (9436.5 EUR). The difference in structure between the CR and the EU-27 is statistically significant.

1.6 Age of the manager

Farmers up to 40 years (considered to be young farmers) had only 9.9% share on all farmers in the category of small farmers that is lower than of all farmers (11.9%) in Czechia. The situation in the EU-27 is different, because small farms are managed by young farmers in 13.4%. It is 17.8% in total, so small farms are less often managed by young farmers. Contrary to that the share of retired farmers is higher in small farms. The share is in small Czech farms 29.0% and in all 20.5%. EU-27 small farms are managed by retired farmer in 38.1% of cases while 33.2% is for all farms. The average age is higher in small farms than in all. The share for small farms was 55.0 years in the CR while in the EU-27 even 57.7 years. The average age was lower in all farms in the CR (52.3 years) and also in the EU-27 (56.4 years).

1.7 Legal form

According to the expectations the main legal form of the small farms was natural person. Share of small farms on all was 43.3% in the CR and even 77.3% in the EU-27. On the other hand, legal persons were in minority – share in the CR was 13.1% and 23.0% in the EU.

Conclusion

The paper analysed agricultural holdings' structure according to the size. The results revealed fundamental differences between the CR and the EU-27 that reflect distinct agricultural development patterns. The findings demonstrate how various factors have shaped agricultural systems within Europe.

The CR exhibits a dual agricultural structure characterized by a concentration of resources in large-scale operations. While small farms (up to 10 ha) represent 38.8% of all holdings, they control merely 1.0% of utilized agricultural area and contribute minimally to overall agricultural output. This is in contrasts with the EU-27 average, where small farms constitute 74.8% of holdings and manage 11.0% of agricultural land, indicating a more distributed farming structure. The dominance of large farms (over 100 ha) in the CR is particularly pronounced, controlling 79.1% of standard output compared to just 34.7% in the EU-27. Those farms can contribute from scale efficiency.

Czech small farms are managed by older farmers (55.0 years average) compared to all farms, suggesting limited generational renewal in the small farm sector. The lower participation of young farmers in small-scale agriculture (9.9% versus 11.9% overall) raises concerns about their sustainability. The employment implications are equally significant. While small farms provide substantial employment opportunities in the EU-27 (53.6% of agricultural workforce), large farms dominate employment in the Czech Republic. There are statistically significant differences between the CR and EU-27 structure across all measured parameters.

The findings can have policy implications. The Czech agricultural structure may be economically efficient (the concentration in large farms may provide competitive advantages in global markets while supporting technological advancement and innovation) but potentially vulnerable to market volatility and less resilient to external shocks due to reduced diversity. The limited role of small farms also raises questions about rural vitality, food system resilience, and environmental sustainability.

The trends suggest that small farms will potentially face marginalization unless targeted support measures address their challenges. We can therefore agree with the conclusion of von Braun, Mirzabaev (2015) who suggested that policies should primarily focus on people's income opportunities in the rural economy, where small farmers often hold multiple farm and non-farm jobs, rather than be narrowly concerned with viability of the small-scale farm.

Acknowledgment

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