Development of Selected Aspects of Small Farms in Chosen EU Countries

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Abstract
Despite the opinions of many politicians or economists, it seems that there is some renaissance in finding the importance of small farms for the rural areas. There are many classification systems to identify small and large farms. In the EU this was a difficult task compared to the US since there are many differences in member states. Eventually, it was agreed that economic output should be used to measure small farms. The following article aims at observing the differences between small and large farms in selected EU member states. The difficulties in the complex analysis of all member states lie in the different approaches in collecting the data on small farms. Over half of them does not collect or publish these data. The analytical part of the article focuses on the total utilized agricultural area, the total output of farms, gross farm income and total labour input. The results show us that while the number of small farms is decreasing their economic viability is slowly rising.

Keywords: small farms, large farms, utilized agricultural area, gross farm income, labour input in agriculture

JEL Classification: Q01, Q12, Q18

1. Introduction (First-level heading, Times New Roman 12pt, Bold)
Small farms are an important part of the agricultural sections. Defining its properties is quite difficult, considering there are different classification criteria around the world. For example, in the United States, these can be with gross income less than 250,000 USD (224,000 EUR). But there are calculated both, commercial as non-commercial farms. There is a decreasing trend of small commercial farms with output within 10,000 to 250,000 USD. Whereas, noncommercial farms with output less than 1,000 USD is rising. In the US, small farms cover 91% of the total farm number. On the other hand, large farms take an 85% share of the market (USDA, 2021). Although many economists labelled these farms as inefficient and unproductive in contrast to large farms with easier access to capital and better technological assets, people are starting to realize their true role in defining the rural areas and biodiversity due to cultivating more than one type of crop. In contrast, large farms are focusing on maximizing their yields and profits which leads to cultivating monocultures dangerous to the biodiversity of regions and excessive use of pesticides to protect it. Hence the favour of multiple roles of agriculture is in the hands of small farmers (Rosset, 1999, Konvicka et al., 2016). Similar results were found when The Ecological Land Co-operative conducted a case study in 2011 and summarized that areas smaller than 10 acres can provide viable and sustainable livelihoods that can also increase the productivity of marginal land.

In Europe, defining the small farm is a difficult task, resulting from differences among all the member states. Since Sicco Mansholt presented his plan, to decrease the number of small farms in favour of larger, more resource-efficient and competitive enterprises, passed almost sixty years. And the important role of smaller holdings is increasing. There are political debates on
their roles in rural development and positive impact on local social and economical conditions. Therefore it is important to accurately define them (FAO, 2011). There are many indicators you can use such as the number of hectares of utilized agricultural area (UAA) or the number of employees which was later defined with the annual working unit, representing 1,800 hours per worker per year (although there are different values in some member states). Categorization of farms started in the late sixties with the first farm structure survey, aimed at creating a common classification system. Several Commission Decisions were forming its final design starting with 78/463/EEC, 85/337/EEC, Decision 96/393/EEC, Regulation (EC) No. 1166/2008 or Commission Decision No. 1242/2008. Based on these decisions an economic size equivalent was agreed. Since 1996, there was a standard gross margin to measure the production of a holding (Commission Decision (EEC) No 377/1985). Later, there were some modifications made and a new measurement was introduced, the standard output introduced by Commission Regulation (EC) No 1242/2008. The basic idea of these measurements is the same. Both try to measure the value of the output per holding, per hectare or a livestock unit. The differences are following:

![Fig. 1 – Differences between SGM and SO methodology](source: Eurostat, 2022)

The EU is conducting approximately every decade a Farm structure survey (FSS) which aimed at collecting important statistical data from all member states to ease their comparison as well as designing the Common agricultural policy measures. The latest was carried out in 2020 and the results are to be expected by the second half of 2022. Therefore some comparison can be done based on FSS from 2010. Over 12 million farms participated in this census. These farms cultivated and used over 174 million hectares of UAA, app. 40% of the total European land fund. This census also showed that despite the decreasing trend of smallholdings (since Manholt’s plan) almost half of the farms utilized less than 2 ha of UAA, in total less than 3% of the total 174 million ha of UAA. On the other hand, less than 3% of farms used over 100 ha of UAA. The extremes were seen mainly between later member states compared to older ones. The highest number of small farms was in Romania over 2.5 million of them used less than 2 ha of UAA. On the other hand, countries like France, the United Kingdom, Spain and Germany had from 35,000 to 97,000 farms using more than 100 ha. In the European Union (EU) small...
farms are located particularly in peripheral regions, such as Northern Scandinavia, Scotland and Ireland, South-eastern Europe and in all the Mediterranean countries (Claros, 2014)

Based on crude data census carried out in 167 countries indicate that there are some 570 million farms in the world (FAO, 2013; Lowder et al., 2016). Contrary, Ritchie and Roser (2021) see that number as crude and inaccurate for two main reasons. Firstly, that census represented estimates of roughly 97% of the population active in agricultural production. But some smaller countries did not have even these estimates and therefore were not calculated, therefore the actual number could be higher. And secondly, as we mentioned previously, many agricultural censuses are outdated, in extreme cases even 60 years old (mainly in African states) and the number of small farms could be even higher. Even in Europe, there exist several organizations trying to improve the situation of small farms. All of these organizations agree, that since the late 1950s-60s in the western part of the EU, there is a decrease not only in the number of small farms but also in their know-how for diverse and multifunctional farming. But they stress out, that in eastern member states, this know-how is still preserved and actively used. Despite the negative trends, still, 2/3 of all farms in Europe use less than 5 ha and their SO is less than 1,000 EUR, or even less than 350 EUR per month. These organizations agree that small farms are beneficial for communities and societies as a whole. (Kania et al., 2014; Fienitz et al, 2017; Guiomar et al, 2018).

Considering the labour force, small farms can be holdings employing less than 1.5 annual agricultural annual work units (AWU). However, there is a problem with collecting the data on the regional level in all member states. From the economic size point of view, farms with less than 8 Economic Size Units (ESU) of Standard Gross Margin (SGM) or 8,000 EUR of Standard Output are considered as small farms. Definitions involving the use of additional criteria to farm size are more comprehensive, particularly those including indicators of the farm economic output, but data availability is often a limitation (Petit et al, 2006; Hubbard, 2009; Ruane, 2016)

To support the smallholdings, the farmers can apply for the Small Farmer Scheme, a simplified income support scheme granting a one-off payment replacing all other forms of the income support payment. The maximum level of the payment is decided at the national level but may not exceed €1,250 (EC, 2021).

2. Data and Methods

This article aims to compare the differences between small farms and mediums and large farms. During the data collection, we found and can confirm the different approaches to agricultural data collecting and publishing among EU member states. Since we wanted to compare differences in both size groups we were able to work with aggregated data from 13 member states. But even then, not all member states provided all the data during the whole period from 2004 to 2019. The data was collected from statistical databases of FADN. First of all, we focused on the development of the total utilized agricultural area, the total output of farms, total outputs/inputs ratio, gross farm income and total labour input expressed in AWU.

These data were compared between small farms, those with standard output less than 8,000 EUR and the medium and large farms with standard output over 8,000 EUR.
3. Results and Discussion

Based on our research we can confirm that the number of small farms is constantly decreasing. The aggregated data suggests a 20% loss from 2014 to 2019. The highest number of small farms in 2014 was in Poland over 300,000. Later, after entering the EU this position fell to Romania with almost 1.2 million farms in 2007. The highest decrease from 2007 occurred in Bulgaria and Romania where the number of smallholdings decreased by 81% and 70% respectively. On the other hand, the number of smallholdings increased in Hungary by almost 5% and in Malta by over 40%.

The median value of the total utilized agricultural area decreased from 7,69 ha in 2004 to 5,73 ha in 2019. The highest average area in 2004 was used in Latvia, almost 27 ha, which decreased by 2019 almost 36%. in 2019, the highest UAA was observed in Estonia (18,22 ha), Latvia (17,28 ha) and Lithuania (12,32 ha). As a result of the total land fund and area, the smallest UAA in 2019 was observed in Malta (1,97 ha) and Cyprus (2,77 ha). Otherwise, the smallest area was between 4 to 7,5 ha.

The economical improvements can be seen with rising in total output per farm. The median value shows a 10% increase from 2004 to 2019. The highest output, over 10,000 EUR was observed in Estonia and Latvia. In other countries, it was on average almost 8,000 EUR. More intriguing is the calculation per ha of UAA. There was observed a 35% increase from 2004 to 2019. Contrary to previous observations, Estonia and Latvia, along with Lithuania had the lowest farm output of less than 700 EUR per ha of UAA, even despite their highest over 100% increase. On average, the other member countries had double the total output per ha of UAA. In general, the total output/input ratio decreased from 1.14 to 1.12 but in the case of „after 2004“ members, it increased.

![Fig. 2 – Total output per farm per ha in EUR](Source: FADN, 2022)

The positive economic development could be seen also in the gross farm income per ha of UAA that increased by almost 8% from 2004 to 2019. In accordance, also the total labour input in AWU per ha of UAA increased from 0.16 in 2004 to 0.18 in 2019.

Observation of statistics on large farms in the selected countries indicates an increase of 6% from 2004 to 2019. Their number is almost four times higher than the number of small farms. Overall in EU-28, this might be deceiving a bit, since half of the member states did not share their statistical data on small farms. The highest number of large farms in 2004 was observed in Poland, with over 400,000 of them, followed by Greece with over 230,000 farms. The
The median value of the number of farms is a bit over 77,000. In 2019, Poland kept its first place in the number of large farms, but when considering the change, it increased by 11% while in Latvia the number of large farms increased by almost 24% followed by Lithuania with almost 22% respectively. Of all the 13 observed countries, in two of them, Cyprus and Greece the number decreased by almost 30% and 6% respectively.

The median value of the total UAA increased by 80% from 259 ha/farm in 2004 to 468 ha/farm in 2019. This is the result of an increase of UAA in Lithuania by over 100%, followed by Greece with 56%, Slovenia with 46%, Portugal with 22% and Malta with 17%. In the rest of the countries, there was a decrease of UAA from 39% in Hungary to 2,2% in Estonia. Total output per farm increased by 87% during the observed period. The highest increase was observed in Lithuania by over 500%, Poland by over 400% and Malta by over 200%. Only in Cyprus and Greece, did the total output decrease by 64% and 5% respectively. The total output per ha increased by over 60% during the 2004-2019 period. The highest increase of total output per ha was in Portugal by 310% and Lithuania by 200%. We can sum up that over half of the observed countries doubled their output per ha of UAA.

Gross farm income increased by 114% from 2004 to 2019 to over 771,000 EUR per farm. The highest increase was in Lithuania (+369%) and Portugal (+390%). Overall in Bulgaria, Estonia, Latvia, Lithuania, Hungary and Romania, it was over 1 million EUR per farm. But, observations per hectare show lower incomes per ha, less than 1,000 EUR.
The output/input ratio increased only slightly from 1.15 to 1.16. The labour input in large farms of these countries decreased slightly from 0.05 to 0.04 which can indicate higher technological inputs than the human labour force.

We can summarize our observations as follows:
- Continuous decrease of small farms (-20%) and increase of large farms (+6%)
- Continuous decrease of UAA of small farms (-25%) and increase of UAA of large farms (+80%)
- Increase of Total farm output of small farms (+10%; +35% per ha of UAA) and increase of Total farm output of large farms by (+87%; +66% per ha of UAA)
- Increase of gross farm income of small farms (+3%; +7% per ha of UAA) and increase of gross farm income of large farms (+114%; +33% per ha of UAA)
- Increase of total labour input in AWU per ha of small farms (+0,02) and decrease of labour input in AWU per ha of large farms (-0,01).

4. Conclusion

Despite the support and rising importance of small farms, we can see a decrease in small farms in favour of medium and large farms. This decrease also meant a shift of utilized agricultural areas to larger farms. Economically we can see that both groups of farms could be considered viable with increasing total output of farms. Although larger farms have almost five times higher gross income, in both groups can be seen continuous increase which may indicate good economic conditions. But larger farms have better conditions, their incomes and profits are higher and they are also more technologically advanced which can be seen in the decrease of labour input. Small farms are still depending on the labour force. Considering this statement and the previously mentioned advantages of small farms we can state that their importance for rural areas is higher than it was originally thought.

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