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The Socio-Economics Factors in Family Farms with Different Economic Sustainability Levels from Central and Eastern Europe

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Abstract: Economic sustainability plays an important role in shaping conditions for economic growth and social development. The importance of answering the question about the level of sustainability of family farms results from the fact that the countries of Central and Eastern Europe, apart from exceptions (e.g., the Czech Republic and Slovakia), are characterized by a fragmented agrarian structure. Hence, the main goal of this article was to answer two questions: (1) whether the countries of Central and Eastern Europe differ in the level of economic sustainability of small family farms; and (2) whether the same socioeconomic factors impact similarly on the level of economic sustainability of small family farms from countries of Central and Eastern Europe. The study was based on surveys conducted in small family farms: in 2018 from Poland (672 farms) and in 2019 in four other countries (Lithuania; 999 farms, Romania; 834 farms, Serbia; 523 farms, Moldova; 530 farms). The publication includes a critical analysis of the literature, structure analysis and correlation analysis. The results show the occurrence of large differences between the economic sustainability of small family farms from the countries of Central and Eastern Europe. The research indicates that the larger the area of a small-scale family farm, the greater its economic sustainability. The productivity of these farms increases with their economic sustainability. The results also prove a negative relationship between the age of the farmer and the economic sustainability of their farm in all analysed countries. These trends were found in all analysed countries of Central and Eastern Europe. The results of the analyses support the conclusion that agricultural policy instruments aimed at increasing the economic sustainability of small family farms should lead to: land consolidation, a decrease in the age of farm owners through generational changes, and a decrease in employment in agriculture, which would lead to a reduction in labour input in the agricultural sector.

Keywords: economic sustainability; agriculture; Central and Eastern Europe; socioeconomic factors of sustainability; small scale family farms

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1. Introduction

The primary and most frequently used measures of the economic effect are the quantitative indicators of the increase in the produced output. On the macroeconomic level, they take the form of gross domestic product (alternatively gross national product or national income) [1]. On the microeconomic scale, economists usually use the amount of income per person within a household, the amount of the holding's expenses, and, less often, wages level. Among other measures of economic order, the following are most often used: employment and professional activity indicators, workforce productivity, fixed asset capital intensity and energy intensity indicators, investment level, outlays on research, and development activity [1,2]. The economic pillar of sustainable development can be seen

too in terms of the income gap between agricultural and nonagricultural sectors [3]. It was found that the economic pillar of sustainability of family farms is determined by the ratio of agricultural income to nonagricultural income [4–6]. Increasing agricultural income is the most important factor for increasing the economic sustainability of the agricultural sector [7–9]. The reduction in income disparities within the agricultural sector is, in turn, an element of social sustainability. The achievable, disposable income is, in many cases, crucial for the possibility of achieving social well-being [10]. The wealth determines the quality of life, by which we mean, among others, access to social services and infrastructure (health, education and culture), housing conditions and demographic issues (birth rate and migration) [11,12]. These factors are indicated by many authors as measures of social sustainability [13–15]. The distribution of income in society is therefore at the heart of the creation of social sustainability levels. The income deprivation of the agricultural sector in relation to nonagricultural sectors influences the relative level of sustainability of this sector in relation to other sectors. This paper focuses on the sustainability of small family farms in economic order. The authors agree with other authors that the sustainability of the analysed farms also affects the level of their social pillar of sustainability. In turn, in the article, we neglected the problem of the sustainability of small family farms in the environmental order, focusing on the economic pillar of sustainability. It should be added, however, that if the farmer improves their social and economic situation, they will probably automatically invest in better inputs and on their own developments, and, consequently, they will improve the environmental pillar of sustainability on their farm.

The article focuses on the economic pillar of sustainability of small family farms from countries of Central and Eastern Europe (Poland, Lithuania, Romania, Serbia and Moldova). Small farms are the backbone of the European agricultural model [16]. Overall, they correspond to 67% of all farms in the EU [17]. The countries of Central and Eastern Europe, apart from exceptions (e.g., the Czech Republic and Slovakia), are characterized by a fragmented agrarian structure and a large share of small family farms in agricultural structure. Small farms play a special role from an economic, social and environmental point of view [18]. Small farms provide social capital, local knowledge and cultural heritage [19]. Small farms also support high levels of biodiversity and play a key role in fire and soil erosion prevention by maintaining meadows and pastures [19,20]. In order to be able to perform these functions, small farms must achieve an appropriate level of income from agricultural activity that translates into their economic sustainability. In the work, in line with other authors, the ratio of agricultural income to nonagricultural income was used as an indicator of the economic sustainability of these farms [3–6].

2. Literature Review

Although there is a vast range of studies in the literature dealing with agricultural incomes in the EU Member States [21,22], the link between the relative farmers' income gap and factors influencing this phenomenon is less documented. Therefore, the main goal of the article was to answer two questions: (1) whether countries of Central and Eastern Europe differ in level of economic sustainability of small family farms, and (2) whether the same socioeconomic factors impact similarly on the level of economic sustainability of small family farms from countries of Central and Eastern Europe.

In the literature, there is some information on the influence of various factors on the level of economic sustainability of farms. According to the studies of various authors, the land, capital and labour endowment are determinants of the sustainability of farms [3–5,22–25]. For example, Guth et al. [3] and Smędzik-Ambroży et al. [4,5], based on research on a sample of farms from EU countries, have shown that the larger the area, the higher the probability of obtaining economically, environmentally and socially sustainable production. The research results of these auhors [3–5], as well as the conclusions of the studies by Wrzaszcz and Zegar [22], Aznar-Sánchez et al. [14] and Novelli [26], emphasize the importance of the land factor for the functioning and development of sustainable forms of agriculture. According to them, the larger the farm area, the easier it is to reconcile

ecological and economic objectives [3–5,22,26]. The age structure and qualifications of the labour factor proved to also be very important for the sustainable development of agriculture. In a study by Wrzaszcz and Zegar [22], it was found out that there is an increase in the sustainability of farms with an increase in the qualifications of their managers. They claim that young farmers more often manage medium and large farms, while a significant proportion of managers in retirement age manage small-area farms [22]. On the other hand, according to Ninh [23], Kiełbasa [24], Novelli [26] and Sponte [27], a higher age of farm managers is associated with the repetition of unfavourable production patterns and a lack of knowledge on modern production methods and techniques. This prevents them from protecting the natural environment and obtaining appropriate economic effects to meet the requirements of sustainable agricultural development, understood as an integrated order. According to the research results of these authors, it can be said that a real threat to the measures for sustainable agricultural development is the deteriorating demographic structure of the agricultural population, as well as its low level of education. If we look at the results of the research of Matthews [28] based on EUROSTAT data, in 2005–2016 in the EU, it can be said that there was a decline in the share of younger farmers (those under the age of 35) and an increase in the share of older farmers (those over 54 years of age). In year 2005, the share of younger farmers in EU–28 (without Croatia) was 6.9%, and in 2013, it was 6.0%. The share of older farmers (those over 54 years of age) amounted to 54.1% in 2005 and 55.8% in 2016. The Farm Structure Survey data confirm that the increase in the age of farmers in the EU is a fact. However, this process does not differ from the general age trend found in the EU economy. It should also be added that there are significant differences in the age structure of farmers between EU countries. Countries with smaller farm sizes tend to have older farmers [28].

In terms of labour input, using the example of agriculture in China, Cheng et al. [29] found out that smaller farms utilize more labour and nonlabour inputs per UAA as compared to larger farms, while generating a higher yield than larger farms. This would suggest that the higher the labour inputs, the higher the economic sustainability of the farms. This would be consistent with one of the main assumptions of ecological economics that food production in the future will need to be based on smaller-scale and more labor-intensive farming systems [29]. In turn, Colnago and Dogliotti [30] stated that the key to increasing household income in agriculture and reducing the poverty of agriculture is increasing the productivity of both land and farmers' labour. Paresysa et al. [31] in their study also argued that agricultural land and labour productivity are needed to meet the growing food demand and reduce farmer poverty in sub-Saharan Africa. Therefore, the results of Colnago and Dogliotti [30] and Paresysa et al. [31] prove that in order to increase agricultural income and thus increase the economic sustainability of farms, it is essential to increase labour productivity rather than the amount of labour input.

The results of the cited studies apply to all farms regardless of their size. In the article, it was decided to determine whether the tendencies mentioned above also take place in small family farms from countries of Central and Eastern Europe. As the article focused on small farms, assessing the real role of small farms is limited by a lack of information, as small farms are frequently omitted from agricultural censuses and national statistics [32]. Hence, this is the added value of the present article. It also results from inferences based on primary research and not secondary data. In addition, research conclusions can be used to build recommendations for agricultural policy which will allow the achievement of increasing the economic sustainability of small family farms.

3. Material and Methods

The analyses included family farms from Poland, Lithuania, Romania, Serbia and Moldova. The selection of countries for the study was dictated by their similarity in the functioning of the agricultural sector. These countries are characterized by a fragmented agrarian structure, and small family farms are the basic element of this structure [17–19]. In the analysis, two criteria were adopted: the size of the land area—up to 20 hectares

of utilised agricultural area UAA, and the economic strength of a farm, defined by the standard output SO (The economic strengh of an agricultural farm is expressed in SO units, and it is the average value over five reference years of plant and livestock production obtained from 1 ha or from one animal, in conditions average for a specific region [33])—up to EUR 25 thousand. The use of these two criteria in the selection of the research sample meant that only family farms were included in it. The analysis was performed based on surveys conducted in Poland in 2018 and in 2019 in the rest of the countries on the samples of: 672 farms in Poland, 999 farms in Lithuania, 834 farms in Romania, 523 farms in Serbia and 530 farms in Moldova. Data were collected in the form of direct interviews.

To determine the economic sustainability of farms, we related the annual income gained by a fully employed family member to the annual minimum wages per employee in the national economy published by Eurostat (for Poland in 2018, and for Lithuania, Moldova, Serbia and Romania in 2019) (Eurostat) (Table 1). We assumed that the higher the ratio of annual income gained by a fully employed family member in relation to the annual minimum wages per employee in the national economy, the higher the economic sustainability of the farm. The respondents were reluctant to answer the questions about the value of farm income, avoiding the answer. They mainly said that they did not have accurate data on this subject. Therefore, we stopped asking questions regarding the value of farm income. To determine the value of farm income, the annual value of agricultural production of a farm was used. We reduced this value by the estimated value of costs incurred from agricultural activity, which we identified based on the Farm Accountancy Data Network (FADN) database. This database includes accounting data of representative farms from EU countries [33]. In the FADN statistics, the category that corresponds best to the costs of agricultural production is total intermediate consumption (inputs produced on the farm and overheads arising from production in the accounting year) [33]. On farms from the EU countries covered by the study, i.e., Poland, Lithuania and Romania, we calculated, using the FADN data, the percentage of revenues from agricultural production as the total intermediate consumption. For the calculations, we used data of farms ranging in size of standard output SO—up to EUR 25 thousand, i.e., farms with an adequate economic size as farms in the research sample. Then, the value of revenues from the agricultural production of the analysed farms was reduced by the percentage value of total intermediate consumption calculated in relation to revenues based on the FADN data of farms from a given country, in 2018 (the latest data of FADN are from 2018). In this way, we obtained an estimated value of income from the agricultural production of the analysed farms from Poland, Lithuania and Romania. As Serbia and Moldova do not belong to the EU, the FADN statistics do not provide information on the accounting data of farms from these countries. We assumed that the total intermediate consumption of farms from these countries will be similar to those of farms from the countries closest to Serbia and Moldova, located in the EU. That is, we calculated the total intermediate consumption-to-agricultural production ratio of farms from Croatia, Romania, Greece, Bulgaria and Hungary. Then, by the average value of intermediate consumption in relation to revenues for farms from these countries, we decreased the value of production of analysed farms from Serbia. The value of revenues from the agricultural production of the researched farms from Moldova was reduced by the percentage value of total intermediate consumption to revenues from production, calculated based on the data of FADN farms from Romania. In this way, we obtained the estimated value of farm income from each researched farm. Table 1 presents the annual minimum wages per employee and the total intermediate consumption in farms up to EUR 25 thousand from Poland, Lithuania, Moldova, Serbia and Romania.

Table 1. Annual minimum wages per employee and total intermediate consumption per farms up to EUR 25 thousand from Poland, Lithuania, Moldova, Serbia and Romania (in EUR).

Country	Annual Minimum Wages per Employee in EUR	Annual Total Intermediate Consumption per Farm up to EUR 25 Thousand (in EUR)
Poland	409.53	6295.5
Lithuania	300	7685.5
Romania	217.5	7499
Serbia	235.04	7560.5
Moldova	151	7499

Source: author's calculations based on EUROSTAT [16] and EUFADN [33].

In the next stage of research, we carried out a comparative analysis between farms with a different relationship between the annual incomes gained by a fully employed family member and the annual minimum wages per employee in the national economy. Let us recall that the relationship of annual income gained by a fully employed family member in relation to the annual minimum wages per employee in the national economy determined different levels of farm economic sustainability. We assumed that farms are economically unsustainable if their ratio of annual income gained by a fully employed family member to the annual minimum wage per employee in the national economy ranges from 0 to 100%, and they are economically sustainable if their ratio is above 100%. Thus, it can be said that the higher the annual income gained by a fully employed family member in relation to the annual minimum wages per employee in the national economy, the higher the economic sustainability of the farm. We compared the following measures between farms with different levels of economic sustainability from Moldova, Serbia, Romania, Lithuania and Poland:

- total value of annual production in EUR per farm,
- total farm area in ha of UAA,
- labour input in annual work units per farm,
- age of farm owner/manager.

In the analysis, we also compared the differences in the values of these measures in farms with the same level of economic sustainability. In order to identify differences in the level of sustainability of small family farms from the analysed countries, we compared the share of farms with the given level of economic sustainability in samples of farms from the given country (Moldova, Serbia, Romania, Lithuania and Poland).

Finally, to determine the influence of socioeconomics factors on economic sustainability, the correlation coefficients were calculated, separately for each country. Although the calculated indices did not have a normal distribution, which would support the use of the nonparametric Spearman's rank correlation coefficient, we used the Pearson correlation coefficient. Nonparametric methods are most appropriate for small sample sizes. In the case of large data sets (e.g., $n > 100$), which was typical for our analysis, the use of nonparametric statistics is not justified. This is due to the fact that when the sample size increases significantly, the sample means are normally distributed (the idea of the central limit theorem) [34]. All correlation coefficients were significant (with p-value < 0.001).

Table 2 presents the basic descriptive statistics for the effects and production inputs in the analysed farms.

In the case of average production, its value ranges from EUR 6.2 thousand in Lithuania to less than EUR 11 thousand in Poland (slightly lower values refer to the median). In turn, the area of agricultural land ranges from almost 6 ha in Serbia to 12 ha of UAA in Poland. We note lower differences between countries in terms of labour input—from 1.1 FWU/farm in Lithuania to 1.65 FWU/farm in Serbia—and the value of production assets—from EUR 23.5 thousand in Poland up to EUR 26 thousand in Serbia (the exception is Moldova, with assets worth EUR 18 thousand). It can be assumed that the degree of similarity of the analysed units in five countries is relatively strong, which entitles us to conduct a comparative analysis. At the same time, however, the data within a single

country vary considerably, as evidenced by high values of standard deviation in relation to the average.

Table 2. Basic descriptive statistics of the effects and production inputs for the analysed farms.

Country	Specification	Production (EUR/Year)	Total Area (ha UAA)	Labour Input (FWU*/Farm)	Production Assets Value (EUR/Farm)
Poland	average	10.937	12.0	1.61	23.492
	stand. dev.	5.050	5.3	0.70	9.515
	median	10.329	11.1	1.47	24.076
Lithuania	average	6.501	10.5	1.10	24.267
	stand. dev.	4.440	5.9	0.62	22.613
	median	5.365	9.6	1.00	18.000
Romania	average	8.408	6.7	1.46	24.690
	stand. dev.	6.025	6.4	0.67	21.225
	median	7.161	5.0	1.37	16.848
Serbia	average	6.715	5.9	1.65	25.978
	stand. dev.	3.637	2.4	0.84	15.301
	median	6.063	5.5	1.63	15.570
Moldova	average	6.189	6.1	1.54	17.979
	stand. dev.	5.067	3.0	0.87	16.455
	median	5.592	5.4	1.38	10.255

*FWU—Family Work Unit is the unit of measurement of the quantity of farm family members work supplied on each farm. This unit is equivalent to the work of one person, full time, for one year (e.g., 2, 120 h in Poland). Source: author's calculations based on the questionnaire survey.

4. Results and Discussion

Table 3 presents the basic descriptive statistics for the economic sustainability measured as a ratio of agricultural income to nonagricultural income in analysed farms. The economic sustainability of farms measured as a ratio of agricultural income to nonagricultural income differed between the analysed countries. This is evidenced by the high differences between the economic sustainability of farms from the analysed countries. It ranged from 38.30% in the case of farms from Lithuania to 203.64% in the case of farms from Poland. The most similar level of economic sustainability occurred in relation to farms from Romania and Moldova. At the same time, however, the data within Moldova and Romania vary considerably, as evidenced by high values of standard deviation in relation to the average. The smallest differences in economic sustainability occurred between farms located in Lithuania and Serbia.

Table 3. Basic descriptive statistics of the economic sustainability measured as a ratio of agricultural income to nonagricultural income for the analysed farms [in %].

Country	Average	Stand. Dev.	Numer of Farms
Poland	203.64	229.96	672
Lithuania	38.30	37.68	999
Romania	119.48	124.46	834
Serbia	82.77	83.87	523
Moldova	136.89	177.18	530

Source: author's calculations based on the questionnaire survey.

Notably, 24.2% of the analysed farms in Poland belonged to economically unbalanced farms (ratio of agricultural to nonagricultural income up to 100%). Along with the ratio of agricultural to nonagricultural income, the shares of the analysed agricultural holdings increased, which is a positive tendency. As many as 33% of the analysed small family farms in Poland reached an agricultural-to-nonagricultural income ratio above 200%. These were the largest farms (over 15 ha) among all analysed small farms in this country (Table 3). Thus, the conclusions of the study confirm the findings of Guth et al. [3], Smędzik-Ambroży et al. [4,5,17], Wrzaszcz and Zegar [22], Aznar-Sánchez et al. [14] and Novelli [26] that the larger the area of a farm, the greater its economic sustainability. On the other hand, labour inputs on these farms did not differ from farms with lower levels of economic sustainability, which is inconsistent with the findings of Cheng et al. [29] that the higher the labour inputs on a farm, the higher its level of economic sustainability. It should be kept in mind, however, that the study by Cheng et al. [29] concerned farms from China, whereas ours were from countries of Central and Eastern Europe, which may result in different conclusions. In addition, the labour input in small family farms from Lithuania, Romania, Serbia and Moldova was independent of the level of economic sustainability (Table 3), which confirms that there is no relationship between the labour input and the economic results achieved by the farm. At this point, it is worth noting that the increase in economic sustainability of small family farms from all the countries analysed was associated with an increase in the value of production in these farms. With similar labour input, it meant an increase in the productivity of these farms as their economic sustainability increased. This proves the validity of the views of Colnago and Dogliotti [31] and Paresys et al. [32] that to increase agricultural income, it is essential to increase labour productivity and not the amount of labour input. In contrast to the analysed small family farms from Poland in the case of small family farms from Lithuania, the shares of farms decreased with the increase in economic sustainability. The largest share of small family farms in these countries was in the range of 1–25% regarding the lowest ratio of agricultural income to nonagricultural income. It was as high as 48.5% of researched small family farms from Lithuania (Table 4). Such a high share of farms with the lowest level of economic sustainability was not recorded in any of the other countries (Poland, Romania, Serbia and Moldova). The example of small family farms from Lithuania again confirms the results of studies by Guth et al. [3], Smędzik-Ambroży et al. [4,5], Wrzaszcz and Zegar [22], Aznar-Sánchez et al. [14] and Novelli [26] that the larger the area of a farm, the higher its economic sustainability. Small family farms from Lithuania with the lowest economic sustainability were characterized by the smallest area, amounting to 8.25 UAA (Table 3).

After Lithuania, the highest share of economically unbalanced farms (with ratios of agricultural income to nonagricultural income up to 100%) among all investigated small family farms was in Serbia (74%), Moldova (60.3%) and, next, in Romania (54.6%) (Table 4). Thus, it can be concluded that small family farms from Poland are characterized by the highest degree of economic sustainability among all small family farms from the countries where the study was conducted. In Serbia, Romania and Moldova, as in Poland, a relatively large share of small family farms with the highest ratio of agricultural income to nonagricultural income, amounting to over 200%, was recorded (Table 5). However, in these countries, in contrast to Poland, there was not such a clear positive relationship between the area of farms and their level of economic sustainability.

The analysis of mean values did not show any relationship between the level of economic sustainability of the analysed small family farms and the age of their owners. It applied to all analysed countries from Central and Eastern Europe. The most favourable age structure, manifested by the lowest mean age of small family farm owners, was in Lithuania. It was only 42 years in Lithuania. Taking into account the lowest level of sustainability of small family farms from Lithuania in comparison with small family farms from other countries, it does not confirm the conclusions of the studies by Ninh [23], Kiełbasa [24], Novelli [26] and Sponte [27] that the higher age of farm managers does not contribute to the increase in economic sustainability of these farms. In Poland, Romania

and Moldova, the average age of the owners of the small family farms studied was similar and was 48, 46 and 45 years, respectively. It was highest in Serbia, amounting to 54 years.

Socioeconomics factors determine to economics sustainability in farms from countries of Central and Eastern Europe.

Table 4. Average values of socioeconomic factors in family farms with ratios of agricultural income to nonagricultural income up to 100% (economically unsustainable farms).

Class of Ratio of Agricultural Income to Nonagricultural Income	Country	Number of Farms/ Share in the Total Number of Surveyed Farms in the Country	Total Area (ha UAA)	Labour Input (FWU/Farm)	Age of Farmer (Owner of the Farm)	Production of Farm (EUR/Year)
1–25%	Poland	3/0.4%	11.41	2.34	46	2049.26
	Lithuania	485/48.5%	8.25	1.21	50	2517.87
	Romania	129/15.5%	3.43	1.70	50	1488.74
	Serbia	88/16.8%	3.35	2.36	56	2775.18
	Moldova	72/13.6%	4.85	2.12	51	1734.33
26–50%	Poland	4/0.6%	9.44	1.73	48	3535.96
	Lithuania	288/28.8%	12.23	1.15	46	6867.42
	Romania	125/15.0%	4.60	1.53	48	3761.26
	Serbia	143/27.3%	3.65	1.89	56	4267.27
	Moldova	109/20.6%	3.78	1.75	50	2939.71
51–75%	Poland	70/10.4%	10.75	2.13	49	6658.95
	Lithuania	104/10.4%	12.32	0.94	42	9402.88
	Romania	111/13.3%	6.78	1.61	47	6626.72
	Serbia	96/18.4%	4.45	1.67	51	6687.77
	Moldova	8315.7%	5.20	1.69	46	4824.86
76–100%	Poland	86/12.8%	11.91	1.83	52	7905.14
	Lithuania	58/5.8%	13.38	0.76	43	10,816.90
	Romania	90/10.8%	8.16	1.59	49	9252.26
	Serbia	60/11.5%	4.72	1.34	55	7284.63
	Moldova	55/10.4%	5.41	1.67	42	6519.94

Source: author's calculations based on the questionnaire survey.

Next, correlation analysis was performed. The aim of the correlation analysis was to determine whether each of examined countries had a similar relationship with regard to the influence of selected socioeconomic factors on the economic sustainability of small family farms (Table 6). The aim of this analysis was also to determine whether the conclusions from the observation of this influence in small family farms from countries of Central and Eastern Europe are the same as in the sample of farms in general, regardless of their size. The conclusions of our study showed that, irrespective of the country, there is a positive relationship between the size of the farm and its degree of economic sustainability. Thus, the correlation analysis confirmed again the results of Guth et al. [3], Smędzik-Ambroży et al. [4,5], Wrzaszcz and Zegar [22], Aznar-Sánchez et al. [14] and Novelli [26] that the larger the farm area, the higher its economic sustainability. A high positive correlation in each country was also obtained between the production value of the analysed farms and the level of their economic sustainability measured by the ratio of agricultural income to nonagricultural income. However, it is obvious, as it is an effect of the adopted research methodology, or more precisely, the method of determining the economic result of agricultural production in individual farms.

Table 5. Average values of socioeconomic factors in family farms with ratios of agricultural to nonagricultural income above 100% (economically sustainable farms).

Class of Ratio of Agricultural Income to Non-Agricultural Income	Country	Number of Farms/ Share in the Total Number of Surveyed Farms in the Country	Total Area (ha UAA)	Labour Input (FWU/farm)	Age of Farmer (Owner of the Farm)	Production of Farm (EUR/year)
101–125%	Poland	79/11.8%	12.49	1.69	49	9320.50
	Lithuania	37/3.7%	12.49	0.46	40	8183.78
	Romania	90/10.8%	9.54	1.61	45	11,872.52
	Serbia	51/9.8%	5.27	1.40	55	9974.48
	Moldova	38/7.2%	5.87	1.52	44	7653.54
126–150%	Poland	91/13.5%	12.32	1.76	50	11,935.70
	Lithuania	15/1.5%	15.01	0.69	43	14,635.73
	Romania	80/9.6%	13.36	1.54	48	13,784.81
	Serbia	224.2%	3.95	1.42	47	12,419.67
	Moldova	26/4.9%	6.11	1.13	43	6997.78
151–175%	Poland	58/8.6%	12.80	1.57	48	12,425.23
	Lithuania	4/0.4%	16.25	0.63	35	15,500.00
	Romania	47/5.6%	10.40	1.45	45	15,192.38
	Serbia	12/2.3%	5.33	1.20	62	12,418.53
	Moldova	22/4.2%	6.07	1.47	46	10,786.74
176–200%	Poland	38/5.7%	13.92	1.46	46	13,380.48
	Lithuania	4/0.4%	17.75	0.50	36	14,875.00
	Romania	31/3.72%	10.14	1.29	43	15,864.70
	Serbia	9/1.7%	5.00	1.00	55	12,254.79
	Moldova	21/4.0%	5.69	1.12	40	9453.99
>200%	Poland	226/33.6%	15.05	1.16	46	17,529.67
	Lithuania	4/0.4%	14.38	0.30	44	11,436.75
	Romania	132/15.8%	14.96	0.98	42	19,783.22
	Serbia	42/8.0%	4.90	0.54	52	10,199.92
	Moldova	103/19.4%	7.91	1.10	45	18,771.17

Source: author's calculations based on the questionnaire survey.

Table 6. Correlation coefficients between ratio of agricultural income to nonagricultural income and value of socioeconomic factors in family farms.

Country	Ratio of Agricultural Income to Nonagricultural Income and ...			
	Total Area (ha UAA)	Labour Input (FWU/Farm)	Age of Farmer (Owner of the Farm)	Production of Farm (EUR/Year)
Poland	0.21	−0.22	−0.12	0.57
Lithuania	0.27	−0.17	−0.11	0.69
Romania	0.24	−0.20	−0.12	0.67
Serbia	0.25	−0.19	−0.10	0.68
Moldova	0.23	−0.21	−0.11	0.63

Source: author's calculations based on the questionnaire survey.

Negative correlations of the ratio of agricultural income to nonagricultural income with similar values in each country were obtained for both labour input and age of farmer. In the case of labour input, the values of the Pearson correlation coefficient were higher and ranged from −0.17 in Lithuania to −0.22 in Poland. It proves that the economic sustainability of small family farms from Central and Eastern Europe decreased with the increase in labour input. Similarly, as the analysis of mean values, it contradicts the view of Cheng et al. [29] that the higher the labour input in a farm, the higher its level of economic sustainability. Therefore, we can say with certainty that the increase in labour input adversely affects the economic sustainability of small family farms from countries from Central and Eastern Europe. Our results also prove a negative relationship between the age of the farmer and the economic sustainability of their farm in all analysed countries.

In the case of the ratio of agricultural income to nonagricultural income and age of the farmer, the correlation coefficients reached values from −0.10 in Serbia to −0.12 in Romania and Poland. Thus, the correlation analysis allows us to conclude that the experience of small family farms from Central and Eastern Europe confirms the opinions of Wrzaszcz and Zegar [22], Ninh [23], Kiełbasa [24], Novelli [26] and Sponte [27] that the lower age of farm owners favours their economic sustainability. Thus, the results of the correlation analysis prove that, in small family farms from countries of Central and Eastern Europe, there are the same relationships between the level of their economic sustainability and socioeconomic factors as for all farms in Europe, regardless of their size and ownership structure.

5. Conclusions

In small family farms from Poland, Lithuania, Romania, Serbia and Moldova, a positive effect of farm size on the level of economic sustainability can be seen. The influence of labour input and age of the owner of small family farms from these countries on the level of economic sustainability is negative. The tendencies concerning the influence of socioeconomic factors on the level of economic sustainability in small family farms from countries of Central and Eastern Europe are the same as in agricultural holdings in general in Europe. Therefore, we may speak about their universal character regardless of the size and ownership structure of farms. On this basis, it should be stated that agricultural policy, the final effect of which is to increase the economic sustainability of farms, should have a universal character with respect to all farms. The ultimate aim of its instruments should be: changes in the area structure of farms through, for example, land consolidation leading to an increase in farm size, a decrease in the age of farm owners through generational changes, and a decrease in employment in agriculture, which would lead to a reduction in labour input in the agricultural sector. A diverse level of economic sustainability of small family farms from countries of Central and Eastern Europe, which was indicated in the research, allows us to note that the intensity of the impact of these instruments should be higher in countries with lower economic sustainability of farms. This would allow the triggering of convergence processes in the degree of economic sustainability of small family farms from countries of Central and Eastern Europe. The results of the study thus point to actions that are needed to increase the sustainability of small family farms in Europe in the economic pillar. In this sense, they can be useful for decision-makers designing the instruments of the Common Agricultural Policy of the European Union to increase the sustainability of European agriculture.

Limitations: The authors realize that the research was largely estimated (data about value of costs incurred from agricultural income from FADN database), which results from the lack of precise information on the income generated on farms. Information on this subject is sensitive; hence, it is not surprising that the hosts avoided answering this topic. The methodology adopted in the article for determining the degree of economic sustainability of a farm, despite the estimated character, made it possible to overcome the problem of the lack of accurate information on the income generated on a farm and to indicate the differences between farms on the degree of their economic sustainability, which was the aim of the research. It also allowed us to avoid the problem related to the possibility of giving incorrect answers by farm owners and contributed to the objectification of the research. Difficulties in conducting the research also resulted from the lack of data on the value of costs incurred from agricultural income from Serbia and Moldova in the FADN database. The FADN database applies to farms from countries belonging to the European Union. The data needed to calculate the value of costs incurred from agricultural income from Serbia and Moldova are not provided by EUROSTAT. Therefore, the method described in the research was adopted to calculate the economic sustainability of farms from Serbia and Moldova. The authors are aware that there may in fact be slight deviations in this respect, but in the absence of data, the adopted method was the only one that could be used in the article.

The authors are also aware that in the countries belonging to the European Union, farm incomes, in fact, increase with subsidies from the common agricultural policy of the EU. In the research, this allows farms from Romania, Poland and Lithuania. However, the research applied a method where the income of all farms, regardless of the country, resulted from the ratio of volume of production to costs. In this way, the estimation of the impact of subsidies on the incomes of farms from Poland, Lithuania and Romania was avoided, which would increase the estimated character of the research. In addition, the main goal of the research was to show the negative or positive influence of socioeconomic factors on the economic sustainability of small family farms from countries of Central and Eastern Europe, which was realized by the adopted research method. Adding the value of the subsidies to income would only increase the value, while the direction would be maintained. The application of annual minimum wages per employee in the national economy instead of the annual salary per employee in the national economy to determining the degree of economic sustainability of farms may also raise doubts. However, such a methodological approach was justified because no data were found on the annual salary per employee in Serbia and Moldova in databases OECD and Eurostat. On the other hand, the main goal of the research was to show the negative or positive influence of selected socioeconomic factors on the economic sustainability of small family farms from countries of Central and Eastern Europe, as mentioned earlier. The application of the minimum wages per employee instead of the annual salary per employee was not influenced enough to realize these purposes.

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