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MEASURING THE ECONOMIC VIABILITY OF FARMS IN SERBIA USING THE OPPORTUNITY COST APPROACH

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SUMMARY

The purpose of this paper is to observe and evaluate the economic viability of Serbian farms engaged in different types of farming on the basis of data obtained from the Serbian Farm Accountancy Data Network of 2021. Farm economic viability was assessed using the opportunity costs of the main factors of production in agriculture (namely labour, land, and capital). The share of unpaid labour was found highest in the livestock farms specialising in milk production and grazing livestock. The farms specialising in permanent crops and horticulture had the largest share of their own utilized agricultural land, representing a very intensive type of farming usually organized on small acreages. The highest share of economically viable farms was recorded in the field crop farming system, followed by horticulture and permanent crops. In the viable group, the field crop farms were dominant with the largest coefficients of short- and long-term viability, which increased with the economic size of the farm. In general, the farms engaged in plant production exhibited much higher economic viability levels than the livestock farms (excluding the granivore farms). The most endangered were the farms specialising in grazing livestock, with the largest proportion of non-viable farms and the lowest coefficients of economic viability. A notable number of these farms lack economic justification for agriculture. However, ceasing agricultural production may not be the best solution for them, particularly as farms in remote rural areas are managed by elderly and low-skilled farmers.

Key words:
economic viability, farms, FADN, opportunity costs, type of farming

Abbreviations:
FADN – Farm Accountancy Data Network; SO – Standard output; NUTS – Nomenclature of territorial units for statistics; UAA – utilised agricultural area; STEV – Short-term economic viability; LTEV – Long-term economic viability; FNI – Farm net income; OCLb – Opportunity cost of labour; OCC – Opportunity cost of capital (excl. land), OCL – Opportunity cost of land

INTRODUCTION

The economic viability of farms represents their ability to "survive, live and develop by using the available resources" (Savickienė et al., 2015). In terms of time, the ability of a farm to survive is observed as short-term viability, whereas the ability to develop is considered long-term viability (Poczta-Wajda, 2020). Different approaches of measuring economic viability can be found in the literature. Latruffe et al. (2016) identified four most frequently used indicators of economic viability: profitability, stability, liquidity, and productivity. The main

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deficiency of the first three indicators refers to their accounting perspective which does not take into consideration the opportunity costs of the farm's own labour, land, and capital (Spicka et al., 2019). Consequently, these indicators are usually used in the financial statement analysis of agricultural enterprises. The assessment of economic viability of family farms is based on the productivity of the main factors of production in agriculture (labour, land, and capital), owing to the fact that they are characterised by a large share of unpaid labour, a high proportion of the farm's own utilized land, and the total assets predominantly financed from the farm's own sources (own equity) (Hloušková et al., 2022). Therefore, O'Donoghue et al. (2016) distinguish between two basic approaches in measuring the economic viability of farms/households: (1) an opportunity cost approach, mostly used by European authors, and (2) a household welfare approach, usually used by researchers in the USA and Canada.

Both approaches, basically, focus on the economic viability of a farm/household by comparing income provided by unpaid labour with reference income. The main difference lies in the subject matter of the study. Namely, European authors focus their research on the achieved results of agricultural production and other gainful agricultural activities on farm. On the other hand, American authors consider household income a whole by including both income from agricultural activities and income that household members earn by doing jobs that are not exclusively related to agriculture (working in a bank, factory, administrative work, etc.). The approaches to evaluating economic viability are in line with the available databases. European authors usually use the FADN database for their research, which is not sufficient for the calculation of household income as a whole because of the lack of data on off-farm employment (Poczta-Wajda, 2020).

In the Republic of Serbia (RS), three types of business entities are engaged in agricultural production: family farms, agricultural enterprises and cooperatives, and entrepreneurs. Family farms (hereinafter farms) are the dominant entities in our country, according to their basic capacities and value of production. They occupy approximately 2.8 million hectares of utilised agricultural area (UAA), which represents 82.2% of the total UAA in RS (SORS, 2023). Family farms are often the only source of income for the population in rural areas. They greatly contribute to the standard of living, employment, and socialisation of the rural population, as well as the overall development of rural areas where agriculture represents the predominant activity. Family farms heavily rely on their own labor, equity, and land. Therefore, it is essential to determine whether these resources, owned by the farmer and their family, are utilized effectively. This involves assessing the economic viability of farms, which is the focus of this study. The main objective is to observe and evaluate the economic viability of farms engaged in various types of farming in RS.

MATERIAL AND METHODS

The study is based on the Serbian FADN[1] dataset of 2021. The sample is systematically assessed according to three primary criteria: the type of production, economic size, and region. According to the type of production, farms are classified into 7 categories: (1) field crops, (2) horticulture, (3) permanent crops, (4) milk production, (5) grazing livestock, (6) granivores, and (7) mixed. In the official FADN methodology, farms are grouped into 14 classes of economic size according to the standard output[2] (SO) value. For the purpose of this study, farms in RS were classified by their specificities as follows: I class – $4{,}000 \leq X < 8{,}000$ euros SO; II class – $8{,}000 \leq X < 25{,}000$ euros SO; III class – $25{,}000 \leq X < 50{,}000$ euros SO; IV class – $50{,}000 \leq X < 100{,}000$ euros SO; and V class – $X \geq 100{,}000$ euros SO. At the regional level, farms are divided into two regions corresponding to the nomenclature of territorial units for statistics (NUTS): NUTS 1 – Serbia North, including the Belgrade region and the Autonomous Province of Vojvodina, and NUTS 2 – Serbia South, including Šumadija and Western, Southern and Eastern Serbia.

Economic viability was assessed by comparing the farm net income (FNI) to the opportunity costs of factors owned by the farmer and their family. This comparison helps determine whether engaging in agricultural activity is justified, i.e., whether the farm is viable in terms of the appropriate utilization of its own factors of production.

The farm net income in FADN methodology is defined as the "remuneration to fixed factors of production of the farm (work, land, and capital) and remuneration to the entrepreneur's risks (loss/profit) in the accounting year" (EC, 2015). The formula for calculating FNI is as follows:

$$FNI = TO - IC + BCST - D + BSTI - EF$$

where:

[1] FADN (Farm Accountancy Data Network) is a system for collecting accountancy data from agricultural holdings (farms).

[2] The Standard output is the average monetary value of the agricultural output at the farm-gate price of each agricultural product (crop or livestock) in a given region (EC, 2015).

TO - the total output
IC - the total intermediate consumption
BCTS - the balance of current subsidies and taxes
D - depreciation
BSTI - the balance of subsidies and taxes on investment
EF - the total external factors (which are not the property of the farm: wages paid, rent paid, interest paid).

Farm economic viability can be observed in the short and long term. In the short-term economic viability (STEV), farm net income is compared to the opportunity cost of labour (OCLb) using the following formula:

$$\text{STEV} = \frac{\text{FNI}}{\text{OCLb}}$$

where STEV ≥ 1 for economically viable farms.

The opportunity cost of labour is calculated as follows:

$$\text{OCLb} = \text{RI x ULI}$$

where:

RI - the reference income (per hour)
ULI - the unpaid labour input (in hours).

Reference income basically represents the economic viability threshold, which is the reference value representing the living standard for unpaid labour on a farm. Economic literature recognizes different opinions about the value that should be taken as the reference income. The most frequently used are the following: (1) the minimum wage, (2) the average wage in agriculture, and (3) the average wage in the national economy. The first two approaches are based on the attitude that elderly and low-skilled labourers who cannot easily find another better paid job are predominant in agriculture. Here, the economic viability threshold is very low, which can easily lead to the misinterpretation of the obtained results, i.e. to an overestimation of economically viable farms. Further, the question is whether such a low defined threshold in reality provides an appropriate living standard to the household members (Spicka et al., 2019). Here, the average wage in the national economy which enables a more realistic evaluation of farm economic viability is used as a reference income. For that purpose, a statistical database and the average wage in the specific region were used (SORS, 2023).
The long-term economic viability (LTEV) of farms is calculated as follows:

$$\text{LTEV} = \frac{\text{FNI} - \text{OCC} - \text{OCL}}{\text{OCLb}}$$

where LTEV ≥ 1 for economically viable farms.

The opportunity cost of capital (OCC) is estimated by multiplying the total equity value (minus the value of the farm's own land) by the 5% rate of return on non-land assets (Frawley & Commins, 1996; Hennessy et al., 2008; Hennessy & Moran, 2015). Land value is excluded from the calculation due to its unique characteristics compared to other assets, and the opportunity cost of the farm's own land (OCL) is separately evaluated by multiplying the farm's own utilised agricultural area by the average rental price for the specific region.
Based on the calculated coefficients of short- and long-term economic viability, farms can be divided into the following categories:

I category: economically viable farms – farms with STEV ≥ 1 and LTEV ≥ 1;
II category: short-term viable farms – farms with STEV ≥ 1, but LTEV < 1;
III category: non-viable farms – farms with STEV < 1 and LTEV < 1, but FNI > 0;
IV category: farms dependent on off-farm income – farms with FNI ≤ 0.

The FADN 2021 sample included 1,729 farms. Two farms were excluded from the total number as they belong to a group of agricultural enterprises not relevant to the study. Subsequently, nine more farms were eliminated because

they lacked unpaid labour input, making it impossible to calculate the coefficients of economic viability. Furthermore, the farms with extreme values of short- and long-term economic viability coefficients were excluded from the sample. The Tukey Fence rule was used to identify outliers, which requires excluding all values below Q_1 – 1.5IQR or above Q_3 + 1.5IQR, where Q_1 represents the first quartile, Q_3 the third quartile, and *IQR* the interquartile difference (Schwertman & de Silva, 2007; Hlavsa et al., 2020). Specifically, the farms with values of both coefficients above Q_3 + 1.5IQR were excluded from the sample. After removing the extreme values, a total of 1,594 farms remained in the sample (Tab. 1).

Table 1. The sample structure

Type of farming	Economic size					Region		Total
	I class	II class	III class	IV class	V class	NUTS 1	NUTS 2	
Field crops	49	186	122	81	62	322	178	**500**
Horticulture	5	29	14	5	2	18	37	**55**
Permanent crops	21	134	56	12	1	52	172	**224**
Milk production	23	226	81	26	1	42	315	**357**
Grazing livestock	19	91	31	3	n.f.	11	133	**144**
Granivores	1	9	7	9	54	28	52	**80**
Mixed	14	148	48	17	7	48	186	**234**
Total	**132**	**823**	**359**	**153**	**127**	**521**	**1,073**	**1,594**

Source: FADN RS; n.f. – no farms

RESULTS AND DISCUSSION

The economic viability of farms is evaluated by the opportunity costs of the farm's own labour, land, and capital as the three main factors of production in agriculture. The share of unpaid labour was the highest in the farms engaged in milk production (97.0%) (Tab. 2). These farms mostly rely on the labour of their own household members, which is particularly noticeable in the case of smaller farms. Specifically, the farms classified in the first and second economic size categories had shares of 98.6% and 98.2%, respectively. The milk production farms were followed by the grazing livestock farms (with a share of 94.2%) and mixed farms (with a share of 92.7%). On balance, livestock farms are characterised by the high labour input of household members. Unlike plant production, where demand for imputed work varies based on the production process, in livestock farming, labor requirements remain relatively constant throughout the year. However, as the economic size increases, the proportion of unpaid labor decreases. The granivore and field crop farming systems represent exceptions to this trend, with very high shares of unpaid labor in the fifth economic size class (89.3% and 84.6%, respectively). This is primarily due to technical advancements in production processes and the relatively low intensity of these production types.

Table 2. Share of unpaid labour and farm's own land

Type of farming	Economic size					Region		Total
	I class	II class	III class	IV class	V class	NUTS 1	NUTS 2	
Share of unpaid labour								
Field crops	95.8	92.3	88.1	88.5	84.6	90.2	89.9	**90.1**
Horticulture	83.3	76.3	62.4	64.5	47.4	64.9	74.4	**71.3**
Permanent crops	71.1	73.5	63.1	49.4	15.0	54.4	73.6	**69.2**
Milk production	98.6	98.2	95.7	89.2	75.0	93.8	97.4	**97.0**
Grazing livestock	97.5	94.4	92.7	83.8	n.f.	79.9	95.4	**94.2**
Granivores	100.0	91.6	90.8	84.8	89.3	89.0	89.5	**89.3**
Mixed	98.7	94.2	91.2	84.6	76.8	90.9	93.1	**92.7**
Share of the farm's own land								
Field crops	86.9	75.7	57.8	43.6	32.1	54.6	74.9	**61.8**
Horticulture	100.0	89.8	93.4	76.4	74.3	92.0	88.8	**89.9**
Permanent crops	87.2	93.3	94.1	75.6	100.0	95.7	90.9	**92.0**
Milk production	98.4	78.1	61.8	46.0	21.1	66.3	74.1	**73.2**
Grazing livestock	75.6	75.4	61.3	45.8	n.f.	68.0	72.1	**71.8**
Granivores	100.0	83.7	92.9	64.6	90.5	87.1	87.1	**87.1**
Mixed	78.2	81.9	73.8	44.7	47.9	61.9	80.0	**76.3**

Source: FADN RS; n.f. – no farms

The farms engaged in horticulture production and permanent crops had the smallest shares of unpaid labour of 71.3% and 69.2%, respectively. They are characterised by highly intensive production, with certain phases of the production

process requiring significant labour inputs (e.g. fruit picking). Consequently, relying solely on the labour of household members is not feasible due to the large volume of work that needs to be completed within a relatively short period. As a result, seasonal workers are typically engaged to varying extents, depending on the economic size of the farm or the volume of production (Miljatović & Vukoje, 2022). Therefore, the largest farms (V class) have a share of unpaid labour of 47.4% in the horticulture farming system and just 15.0% in permanent crops. At the regional level, a significant difference in the share of unpaid labour is noticeable in the permanent crops farming system (54.4% NUTS 1 compared to 73.6% NUTS 2) and in grazing livestock farming (79.9% NUTS 1 compared to 95.4% NUTS 2).

The farms specializing exclusively in permanent crop production had the highest share of their own land in the total UAA (92.0%). Following closely, the horticulture and granivore farms heavily rely on their own land, with shares of 89.9% and 87.1%, respectively. All of the listed farms have a relatively small acreage relative to the total UAA. On average, the permanent crop farms have 5.76 ha of UAA, the horticulture farms have 5.16 ha of UAA, and the granivore farms have 6.99 ha of UAA. This is considerably less than the field crop farms (4.58 ha UAA), the mixed farms (17.20 ha), and the milk production farms (15.20 ha). The field crop farms are characterised by the lowest share of their own land of 61.8%, indicating a very high share of rented land (Tab. 2). Similarly to the share of unpaid labour, the share of the farm's own land decreases as the economic size of the farm increases. The farms classified in the first economic size class have an 86.9% share of their own land, whereas the farms in the fifth economic size class only have a 32.1% share.

The short-term economic viability of farms can be defined as the ability of a farm to sustain itself using available resources (Savickienė et al., 2015). According to the STEV coefficient, farms are categorized as follows: (1) short-term viable farms (STEV ≥ 1) and (2) non-viable farms in the short term (STEV < 1). Therefore, the negative impact of non-viable farms on the interpretation of the results achieved is excluded. Within the first group of viable farms, the field crop farming system stands out with the highest average STEV coefficient of 5.84, followed by the granivore farms (with a coefficient of 3.83) and the horticulture farms (with a coefficient of 2.78) (Tab. 3). Evidently, larger field crop farms tend to have better coefficients, indicating a positive correlation between the economic size of these farms and short-term viability. This trend is consistent across other types of farming, as demonstrated by Nurmet & Omel (2020) in their study of family farms in Estonia. There is a significant disparity in coefficients between the field crop farms and granivore farms at the regional level. Specifically, the field crop farms in the NUTS 1 region exhibited markedly better coefficients than those in the NUTS 2 region (6.87 versus 3.28), whereas the granivore farms performed better in the NUTS 2 region (4.69 versus 2.54). Field crop farming dominates in the northern region of RS (NUTS 1), characterised by favourable climate conditions, superior land quality, and more modern machinery and equipment, all of which positively impact the economic viability of these farms. Conversely, the granivore farms necessitate strictly controlled conditions and significantly smaller acreages, where climatic and other natural conditions exert less influence on their output.

Table 3. Short-term economic viability of the farms considered

Type of farming	Economic size					Region		Total
	I class	II class	III class	IV class	V class	NUTS 1	NUTS 2	
Viable farms (STEV ≥ 1)								
Field crops	1.89	3.41	5.98	8.04	9.54	6.87	3.28	**5.84**
Horticulture	2.01	2.41	3.30	4.19	1.31	3.58	2.41	**2.78**
Permanent crops	2.43	2.33	2.88	3.66	13.53	3.38	2.41	**2.64**
Milk production	1.41	1.72	2.56	3.45	2.49	2.67	2.11	**2.20**
Grazing livestock	2.33	1.85	2.19	2.53	n.f.	2.13	1.99	**2.01**
Granivores	n.f.	1.78	2.67	3.38	4.48	2.54	4.69	**3.83**
Mixed	2.11	1.99	2.76	3.54	4.12	2.80	2.30	**2.45**
Non-viable farms (STEV < 1)								
Field crops	0.47	0.35	-0.20	-4.39	0.47	0.15	0.38	**0.31**
Horticulture	0.04	0.12	0.65	0.62	-0.13	-0.27	0.47	**0.21**
Permanent crops	0.31	0.41	0.04	0.30	n.f.	0.25	0.34	**0.32**
Milk production	0.46	0.57	0.55	0.63	n.f.	0.45	0.57	**0.56**
Grazing livestock	0.47	0.56	0.29	n.f.	n.f.	0.57	0.51	**0.52**
Granivores	0.28	0.56	0.72	-3.47	0.39	0.28	0.26	**0.26**
Mixed	0.55	0.56	0.75	0.10	-0.89	-0.06	0.58	**0.54**

Source: FADN RS; n.f. – no farms

The grazing livestock farms exhibit the smallest STEV coefficient of 2.01, with a range of 1.85 to 2.53 when the economic size of the farm is factored in. These farms in the NUTS 1 region achieved a slightly higher STEV

coefficient (2.13 compared to 1.99), suggesting that the region did not significantly impact the short-term viability. Milk production ranks second lowest in the group of short-term viable farms with a coefficient of 2.20. Additionally, they display the smallest STEV coefficient in the first economic size class (1.41). The results obtained show that milk production has a very low short-term economic viability level, which is especially noticeable in smaller farms. This aligns with Kołoszycz's (2020) observation on milk production in the selected EU countries, highlighting significant economic viability challenges for smaller farms. Analyzing the group of non-viable (endangered) farms (STEV < 1) reveals substantial viability issues for the horticulture farms with a coefficient of 0.21, and the granivore farms with a coefficient of 0.26 (Tab. 3). Generally, any farm with a STEV coefficient below one is considered endangered, especially if this persists over multiple years. Consequently, such farms lack economic justification for agricultural activities, with household income predominantly stemming from off-farm pursuits.

The long-term economic viability of farms is contingent upon their development capability over time, which involves ensuring adequate remuneration for the farm's own factors of production: labor, land, and capital (Poczta-Wajda, 2020). Farms are categorized into two groups based on their performance: (1) long-term viable farms (LTEV ≥ 1) and (2) non-viable farms in the long term (LTEV < 1). Among the first group, the field crop farms exhibit the highest LTEV coefficient of 5.01, followed by the granivore farms with a coefficient of 3.81, and the horticulture farms with 2.70 (Tab. 4). On the other end of the spectrum, the grazing livestock farms (with a coefficient of 1.83) and the milk production farms (with a coefficient of 2.03) stand out as particularly disadvantaged. Hloušková et al. (2022), in their study of Czech farms, similarly highlight these two types of farming as the least economically viable, with coefficients of 2.37 and 2.73, respectively.

Table 4. Long-term economic viability of the farms considered

Type of farming	Economic size					Region		Total
	I class	II class	III class	IV class	V class	NUTS 1	NUTS 2	
Viable farms (LTEV ≥ 1)								
Field crops	1.67	2.96	4.97	6.30	7.95	5.72	3.18	**5.01**
Horticulture	1.95	2.43	3.13	3.74	1.10	3.53	2.32	**2.70**
Permanent crops	2.37	2.25	2.58	3.06	n.f.	2.85	2.28	**2.40**
Milk production	n.f.	1.63	2.23	2.93	1.88	2.43	1.96	**2.03**
Grazing livestock	1.78	1.73	1.93	2.40	n.f.	1.83	1.83	**1.83**
Granivores	n.f.	1.56	2.44	3.14	4.50	2.71	4.38	**3.81**
Mixed	2.01	1.99	2.48	2.94	2.92	2.47	2.24	**2.31**
Non-viable farms (LTEV < 1)								
Field crops	0.34	0.28	-0.28	-1.86	-0.12	0.03	0.29	**0.18**
Horticulture	-0.02	0.16	0.46	0.54	-2.28	-0.52	0.41	**0.06**
Permanent crops	0.14	0.30	-0.25	-0.16	-1.76	0.02	0.17	**0.13**
Milk production	0.34	0.46	0.48	0.30	n.f.	0.36	0.45	**0.44**
Grazing livestock	0.32	0.45	0.27	0.09	n.f.	0.47	0.39	**0.40**
Granivores	0.22	0.37	0.72	-1.87	0.12	0.48	-0.13	**0.09**
Mixed	0.44	0.49	0.60	-0.06	-3.61	0.04	0.48	**0.43**

Source: FADN RS; n.f. – no farms

To better illustrate economic viability, farms are categorised according to the achieved coefficients of short- and long-term economic viability. Vrolijk et al. (2010) examined the impact of abolishing decoupled payments on the economic viability of various farming systems in the EU. After the abolition of decoupled payments, the authors grouped farms into five categories: (1) farms with a family farm income higher than the opportunity costs of the farm's own labour and own assets; (2) farms with a family farm income above zero; (3) farms with a negative family farm income, but a positive cash flow; (4) farms with both a negative family farm income and cash flow; (5) farms that already had a negative family farm income before the change. Barnes et al. (2015) divided farms into three groups: (1) short-term and long-term viable farms – STEV ≥ 1 and LTEV ≥ 1; (2) short-term viable but long-term non-viable farms – STEV ≥ 1, but LTEV < 1; and (3) short- and long-term non-viable farms –STEV < 1 and LTEV < 1.

Consistent with this approach and considering the specifics of the study, farms were categorized into the following four groups: (I) economically viable farms – STEV ≥ 1 and LTEV ≥ 1; (II) short-term viable farms – STEV ≥ 1, but LTEV < 1; (III) economically non-viable (endangered) farms – STEV < 1 and LTEV < 1, but FNI > 0; (IV) farms dependent on off-farm income – FNI ≤ 0. The largest number of the field crop farms falls into the first category, accounting for as much as 73.4% (Fig. 1). These farms also boast the highest long-term viability coefficient of 5.01 (Tab. 4), indicating their significant potential for development. Following closely are the horticulture farms, representing 70.9% of the economically viable farms, and the permanent crop farms with a share of 59.8%. These

two types of farming exhibit notably higher levels of production intensity, making them viable in the long term under local conditions. However, horticulture experiences a substantial proportion of farms with a net loss, reaching as high as 7.3%. Due to the considerable number of farms in the fourth category, the average LTEV coefficient for horticulture within the endangered group of farms is merely 0.06, the lowest among all farming systems (Tab. 4). It can be inferred that this group of farms is heavily reliant on off-farm income.

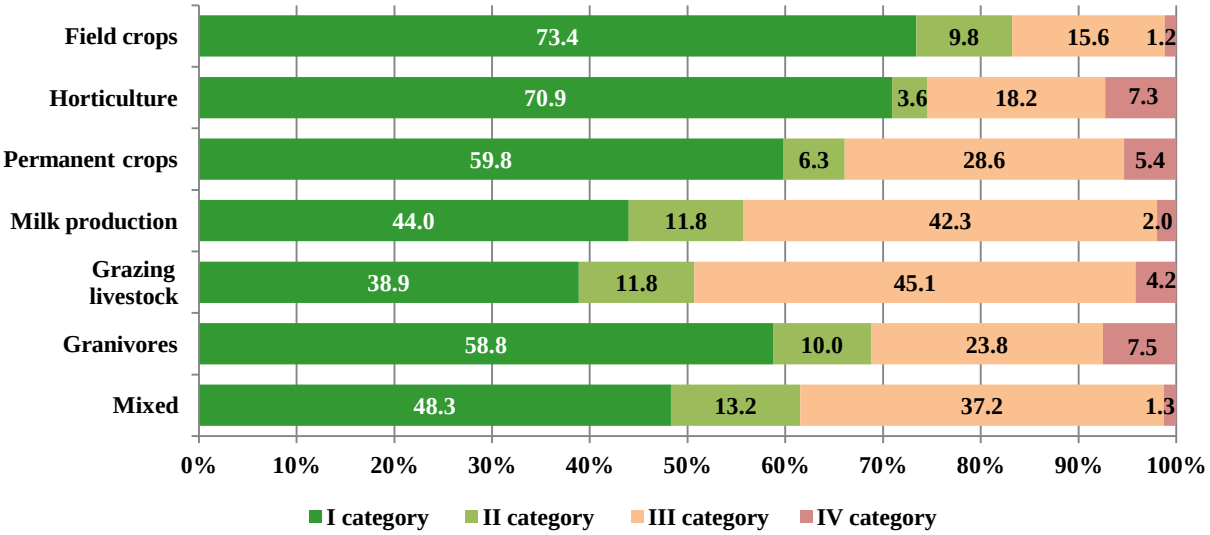


Figure 1. Share of economically viable farms by the type of farming (Source: FADN RS)

The farms specializing in grazing livestock are particularly notable for their low percentage in the first category, standing at just 38.9%. In terms of short-term viability, only 50.7% of these farms are deemed viable (38.9% plus 11.8%), indicating that 49.3% are non-viable (endangered). These farms heavily rely on state aid, evident from the substantial share of subsidies in their total income, reaching as high as 12.9%, the largest among all the farming systems considered. Coppola et al. (2020) observed that the proportion of long-term viable farms specializing in grazing livestock decreased from 47.1% to 33.1% when farm income is measured net of subsidy payments.

Based on the coefficients and the proportion of economically viable farms, it is evident that the farms specializing in grazing livestock have the least potential for development in our country. These farms are predominantly located in the NUTS 2 region (Tab. 1), often in mountainous and less favored areas where alternative job opportunities are scarce (Hlavsa et al., 2020; Hloušková et al., 2022). Despite being economically non-viable, these farms hold significant importance, particularly in preserving and revitalizing remote rural areas.

CONCLUSION

Economic viability, as discussed in European literature, is typically assessed through productivity indicators, representing the ratio of achieved results to inputs (factors) in production. Family farms constitute the predominant business entities in agriculture in RS and most EU countries. These farms are characterised by a significant share of their own factors of production (labour, land, and capital), necessitating an understanding of their justification for use in agricultural production. By comparing the farm net income generated from the utilization of these factors of production with the opportunity costs associated with their alternative use, one can determine whether the farm is economically viable or not.

The highest share of unpaid labour was recorded in the farms specializing in milk production and grazing livestock. These farms are characterised by uniform labour input throughout the entire production process, unlike other farming systems, particularly those specializing in plant production. Horticulture farms and permanent crop farms, as highly intensive farming types, require significant labour input for tasks that must be completed within a relatively short timeframe (e.g. fruit picking). During these periods, farms often need to hire additional (paid) labor, leading to a noticeable difference in the labor structure and resulting in a significantly lower proportion of unpaid labor compared to the livestock farms. The share of the farm's own land was the highest among the farms specializing in horticulture and permanent crops. This was expected, bearing in mind that the aforementioned farms have relatively small

acreages, i.e. significantly smaller in comparison with the other types of farming. Conversely, the field crop farms have extensive acreage but exhibit the lowest proportion of their own land compared to other farming systems.

The field crop farming system in our country stands out as a type of production with great development potential. This is evidenced by the highest proportion of economically viable farms (73.4%) and the largest coefficient of long-term viability. Generally, the farms with plant production tend to achieve higher levels of economic viability than the livestock farms, with the exception of the granivore farms. The grazing livestock farming system, on the other hand, dominates in terms of the proportion of non-viable (endangered) farms, reaching 49.3%. These extensive farms, although classified as viable, exhibit the lowest coefficients of short- and long-term economic viability. Clearly, they face challenges in economic viability, which could potentially influence decisions regarding continued agricultural activity. However, the deterrent is the limited alternative employment opportunities, particularly in remote rural areas where these farms are typically situated and managed by elderly individuals with low qualifications.

Undoubtedly, achieving a satisfactory level of farm economic viability heavily relies on livestock development. Encouraging extensive livestock production is particularly significant due to its role in the sustenance and advancement of remote rural areas. It is imperative to elevate this production to a higher qualitative standard, especially on smaller family farms, through appropriate agrarian policy measures. Therefore, it is not merely a matter of subsidies and financial support, although these are undoubtedly crucial state aids. There is also a necessity for systemic solutions, including the provision of adequate infrastructure in these areas, support for rural tourism, promotion of direct sales of agricultural products on farms, and more. Creating favorable conditions for organizing production will undoubtedly have a positive impact on the economic viability of extensive livestock farms.

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