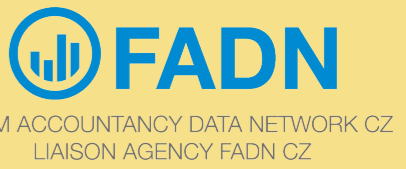


MULTIDIMENSIONAL SUSTAINABILITY ASSESSMENT IN THE CZECH REPUBLIC

– project development

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The aim is to extend the ability of farm-level databases to evaluate and design new agricultural strategies.

This method allows to designate the types of farms with the highest and lowest rate of sustainability, to investigate the structure of those farms, their efficiency, and their need for public support.

It is in the interest of researchers and policy decision-makers to know which dimensions are strong or weak within the different groups of farms.

Based on this knowledge the specific scheme differentiated by the type of farming can be designed to support weak dimensions without jeopardising the well-established dimensions and to maximise the value of total agricultural sustainability.

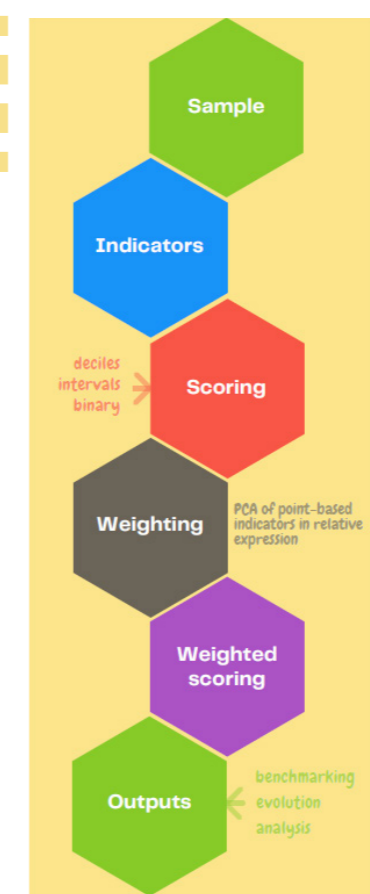
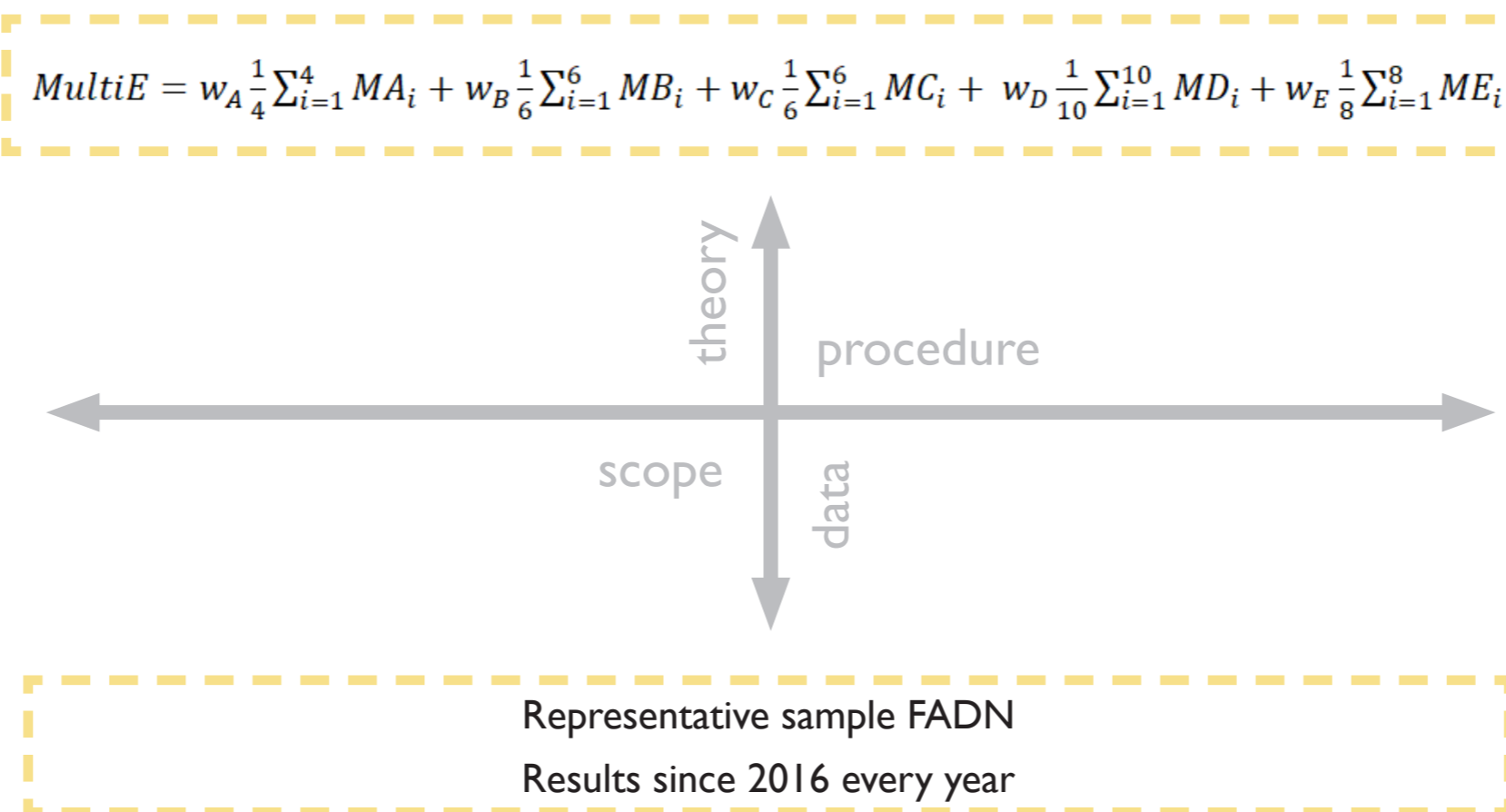
For the agricultural sustainability, it is important to achieve balanced production system providing sufficient amount of high-quality food, protecting nature and nature sources, minimizing economic risk for farmers and supporting social life in the rural area.

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Methodology

Gradual progress in indicators based on methodology development.
High expectations in FSDN information input for social and environmental data.

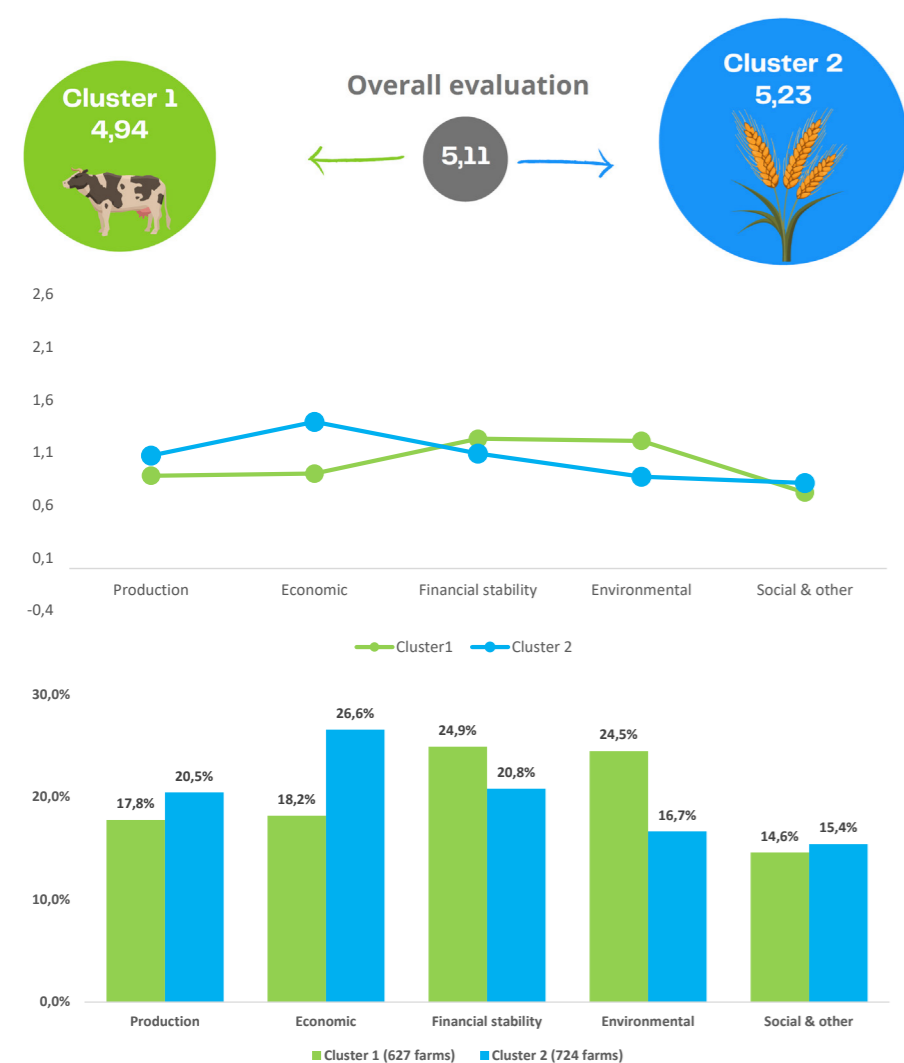


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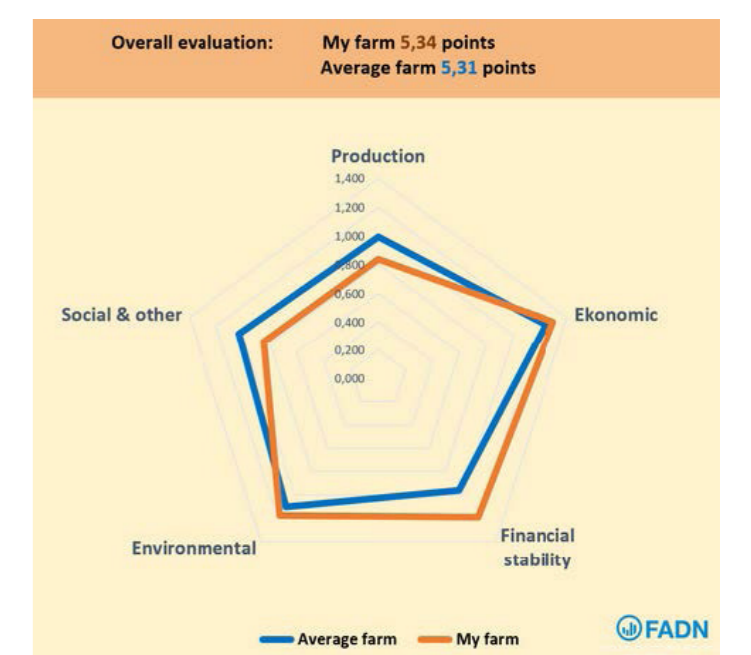
Results illustration – various kinds of analytical directions

DUAL STRUCTURE OF CZECH FARMS IN 2016 IN SUSTAINABILITY ASSESSMENT (2)



Abstract: The purpose of this paper is to examine the internal structure of Czech agricultural holdings based on a multicriteria evaluation of the five dimensions and cluster analysis. The first cluster consists of smaller holdings that specialize in livestock production and achieve poorer financial results. The first cluster exhibited better performance as regards environmental protection and financial stability. The second cluster achieved better scores regarding production and economic factors, and it includes numerous large holdings specializing in crop production. However, an evaluation of all dimensions showed that the second cluster of farms obtained slightly better ratings (2.7% above the overall average) than the first cluster (3.1% below the overall average score). It is up to policymakers to decide which group of farmers, is more approaching the aim of the new agricultural policy. (2)

MULTICRITERIA EVALUATION IN BENCHMARK



Example of benchmarking for an individual farm – a legal entity of the largest economic size with a production focus of mixed production. The comparison was made with the average results of a group of 169 enterprises of the same production focus and economic size from the FADN survey of the accounting year 2021. In this group, there are enterprises that reach 1 million euros of standard production and more.

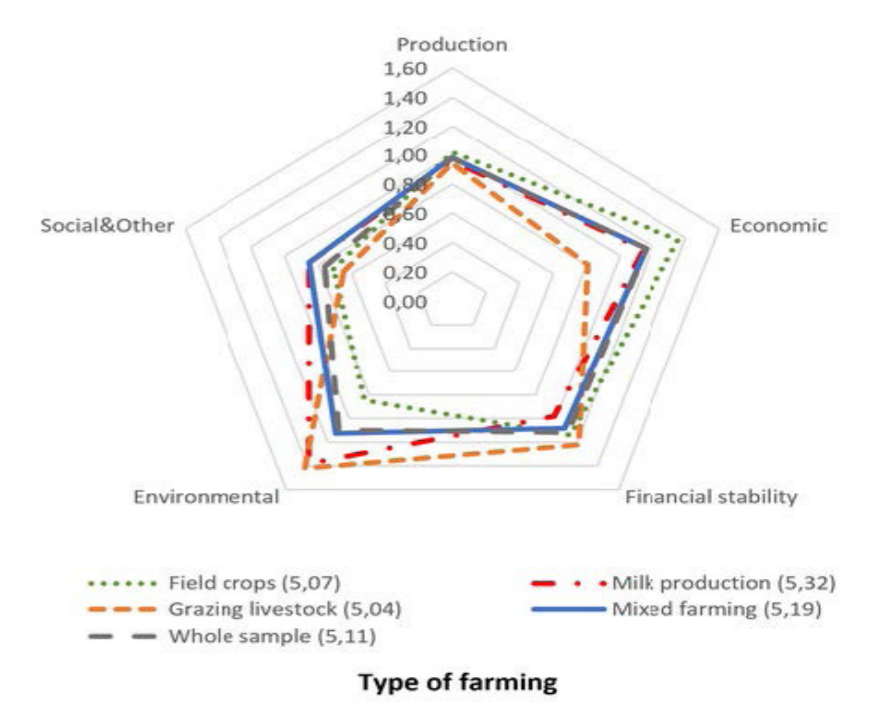
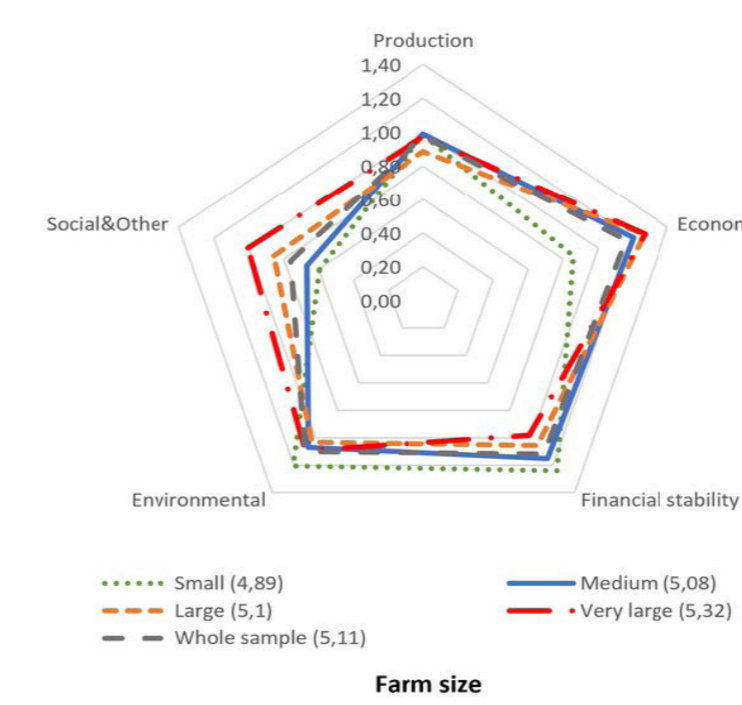
TRADE-OFF BETWEEN THE ECONOMIC AND ENVIRONMENTAL SUSTAINABILITY (3)

Farm group	Number of farms	Correlation coeff.	p-value
All farms	1189	-0.3482***	0.0000
Field crops	454	0.0018	0.9700
Milk production	140	0.2250***	0.0075
Grazing livestock	240	0.1047	0.1058
Mixed farming	355	-0.0906*	0.0883

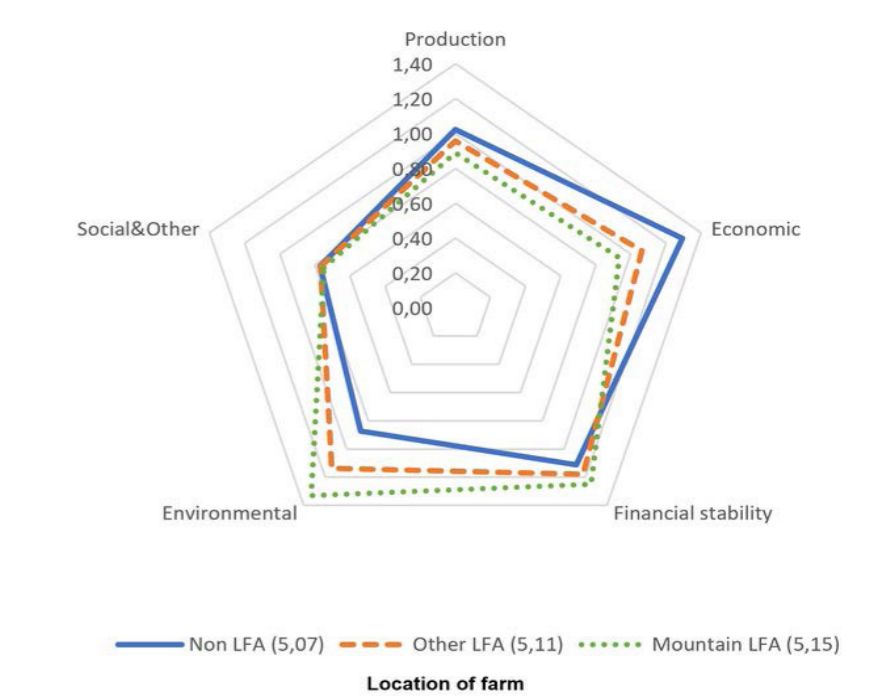
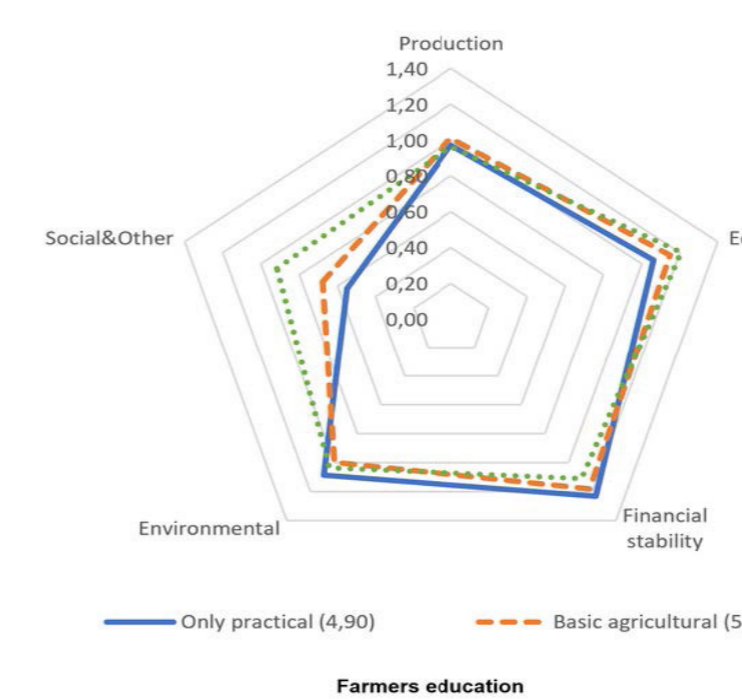
Note: Correlations marked * are statistically significant for p < 0.1. Correlations marked ** are significant for p < 0.05. Correlations marked *** are significant for p < 0.01.

Abstract: Agricultural holdings select goals in various areas when setting their strategic objectives. Economic objectives tend to be viewed as strategic because of the requirement to maximise economic profit for the owners. Since there is significant interaction between agricultural holdings and the environment, it is also important to monitor the environmental aspects of farming. The article seeks to draw on unique multicriteria assessment to compare the compatibility of economic and environmental objectives at 1189 agricultural holdings in the Czech Republic, broken down by farming specialisation and economic size on the basis of figures from the FADN. A trade-off between environmental sustainability and economic performance occurs primarily among farming specialisation categories, where we found two extremes – intensive field cropping with high economic performance and low environmental sustainability, and, at the other end of the scale, extensive cattle farming with lower economic performance and high environmental sustainability. Within the farming specialisation categories, however, there was no significant correlation, with the exception of milk production, where the use of soil organic matter, a higher proportion of soil improving crops (for fodder) and greening made a positive contribution to the higher economic performance of farms. (3)

LATEST RESULTS IN 2021 BY TYPE OF FARMING AND FARM SIZE

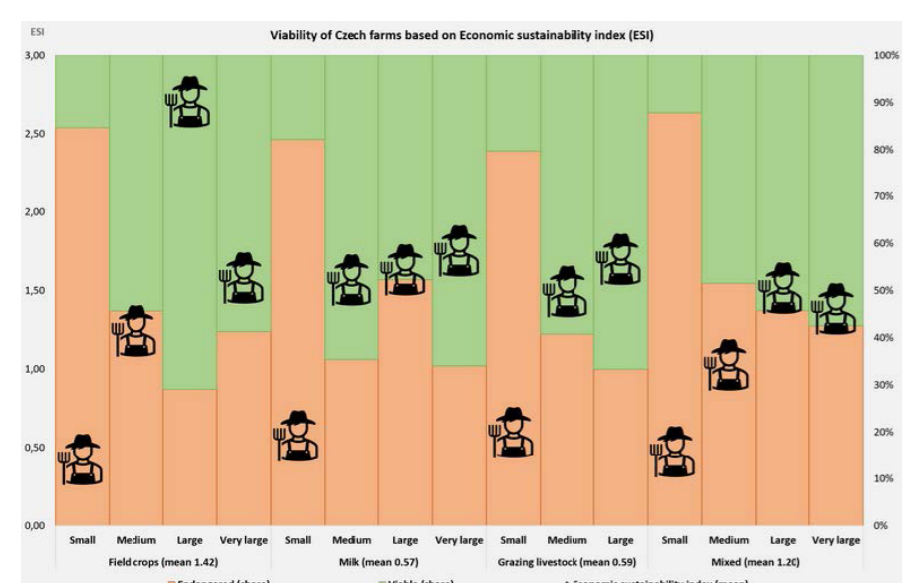


MULTICRITERIA ASSESSMENT OF CZECH FARMS IN 2016 (1)



Abstract: The overall assessment of the sample of farms in 2016 confirms significant differences when compared according to the production focus, economic size, FNVA/AWU, and the age and education of the managers. Less significant differences were between LFA areas and organic or conventional farms. The claim was confirmed that farms in LFAs and organic farms will have higher ratings in the environmental area and lower in the economic area. For farms in LFA areas or for organic farms, it may be noted that CAP tools for difficult farming conditions are worth it from a long-term sustainability standpoint. Based on our findings, applying these measures to small farms would benefit the overall country farm sustainability. Our results show that conventional farms, crop, and mixed farms have some capacity to increase overall sustainability by improving the approach to farming in terms of soil quality (use of organic manure, crop rotation, soil-improving crops), renewable energy consumption, or biodiversity (crop protection techniques). This recommendation is in line with current policy discussions and should be considered while designing new policy measures. (1)

OPPORTUNITY COSTS AS AN IMPORTANT FACTOR IN ASSESSING THE VIABILITY OF AGRICULTURAL HOLDINGS (5)



Abstract: A key area of sustainable agriculture is the economic sustainability of agricultural holdings. Agricultural holdings should achieve such an income that they can cover all costs. As part of this study, an indicator of entrepreneurial income and an indicator of economic profit were proposed. Economic profit, in contrast to entrepreneurial income, considers the costs of lost opportunities, so-called opportunity costs. For this purpose, three indicators of the opportunity costs of production factors of labor, land, and capital were defined and calculated. To assess economic profit between different groups of holdings, an economic sustainability index is established, which identifies a holding as sustainable or at risk.

This indicator is composed of the entrepreneurial income indicator and the difference between entrepreneurial income and economic profit. Based on FADN data of a five-year time series, it was confirmed that extensive holdings specializing in grazing livestock are among the most economically endangered subjects. The highest proportion of sustainable holdings was found in holdings specializing in milk production. From the size point of view, small holdings are the most endangered, which was confirmed for all production focuses. In contrast, more large and very large holdings were included in the group of viable holdings. (5)