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The Evaluation of Negative Factors of Direct Payments Under Common Agricultural Policy from A Viewpoint of Sustainability of Rural Regions of the New EU Member States: Evidence from Lithuania

Mangirdas Morkunas [1,*] and Povilas Labukas [2]

[1] Faculty of Economics and Business Administration, Vilnius University, Sauletekio av. 9,
    10222 Vilnius, Lithuania

[2] Alytus City Municipal Council, Rotuses sq. 4, 62504 Alytus, Lithuania; povilaslabukas@gmail.com

* Correspondence: morkunas.mangirdas@gmail.com

Abstract: The present study aims to determine and evaluate the negative consequences of the implementation of the direct payments financial support mechanism under the Common Agricultural Policy on the rural sustainability of Lithuania. Interviews of experts and a combination of the analytic hierarchy process with three different measurement scales and the analytic hierarchy process with triangular fuzzy numbers were employed in order to evaluate and rank the negative effects of the direct payments mechanism of the Common Agricultural Policy. It was revealed that high land prices, decreasing diversification of cultivated crops, land degradation, and financial indebtedness of farmers can be attributed to direct payments and these consequences have a significant negative impact on the rural sustainability of Lithuania. The necessity of using a combination of different evaluation scales and techniques was confirmed.

1. Introduction

The Common Agricultural Policy (CAP) consumes the biggest part of the European Commission (EU) budget. Among other objectives, it aims to increase and assure the sustainability of rural regions of EU Member States [1]. The positive impacts of CAP on rural sustainability have been widely documented [2], especially in older Member States [3]. Although there are documented insights about the impact of CAP, and in particular of direct payments (DP), these are mostly focused on the economic viability of rural regions in older Member States [4], which may lead to new Member States being neglected and even increase the divergence between old and new EU Member States [5]. This was contradicted by Pierangeli et al. [6], who documented the positive impact of direct payments on rural sustainability, especially on its social dimension, in all EU Member States. These discrepancies in the scientific literature suggest the necessity of additional research on the effectiveness of the implementation of CAP goals in new EU Member States, and also motivated us to investigate the possible negative impact of CAP measures, in particular, direct payments on rural sustainability in one of the new EU Member States, Lithuania. Thus, the aim of this research paper is to determine the factors that contribute to the results of the implementation of the CAP DP measures and that have a negative impact on the sustainability of rural regions of Lithuania, and if possible, to rank them according to the negative impact they induce.

The paper is structured as follows: first, a literature review provides insights on the impact of CAP direct payments on the sustainability of rural regions of EU Member States, highlighting both

the positive and negative aspects. The literature review also provides an overview of the negative outcomes of CAP in Lithuanian rural regions and serves as a base for selecting negative factors for empirical research. The methodology section provides a detailed description of the method employed and the rationale for its selection. The results and discussion section provides insights and interpretation of the research outcomes and juxtaposes the acquired results with the results of previous studies. In the concluding remarks, the authors generalize the results and discuss the limitations of this study and future research directions. This study complements the existing research on the impact of the Common Agricultural Policy on rural sustainability [7–11] and enriches it with insights about the negative outcomes of the implementation of CAP measures on rural sustainability in Lithuania, a new EU Member State.

2. Previous Research and Theoretical Foundation

2.1. The Pros and Cons of the CAP Direct Payments from the Viewpoint of Rural Sustainability

2.1.1. Review of the Positive Impact of CAP Direct Payments on Rural Sustainability in EU Member States

Promoting and enhancing the sustainability of rural regions through assuring the economic viability of farms is one of the key objectives of the Common Agriculture Policy [12]. The positive effects of the implementation of CAP were documented by Guth et al. [13], who showed the importance of direct payments in assuring the economic sustainability of farms by maintaining the income of farmers at a level comparable to other industries. Daugbjerg and Swinbank [14] tried to asses a rationale of Government actions by implementing CAP principles into action. They also analyzed CAP through the dimensions of rural sustainability and focused on how it affects the quality of life of rural citizens. The link between direct payments and the quality of life confirmed the positive impact of DP on the socioeconomic sustainability of rural regions.

Harris et al. [15] found that the CAP has a positive impact on farmers' decisions to stay in organic farming, which helps to increase the environmental sustainability of rural regions. These results were confirmed by Czyżewski et al. [16] who extrapolated them to all agricultural activities in all European Union Member States. Darnhofer et al. [17] also found that CAP has a positive impact on the adaptiveness of agricultural entities, which contributes to the economic dimension of rural sustainability.

Some scholars [18] have suggested that a positive impact of DP is that it provides a means of resilience, which contributes to a farm's sustainability. This assumes that farmers' ability to resist changes, turbulence, and external shocks in their environment allows them to achieve sustainability and maintain development in order to provide necessary commodities such as food. Resilience from the perspective of farming continuity is also one of the main concepts in Ripoll-Bosch et al. [19] assessment, which shows that CAP measures have a direct role in assuring sustainability. Therefore, flexibility and adaptability are different aspects of resilience that allow perturbations in the external environment to be used in a farm's favor [20,21]. Although these authors also stress the importance of favorable conditions in the external environment, which may facilitate new paths for development or vice versa, i.e., make the development impossible, they also show how additional financial stabilizing mechanisms (such as DP) help farms to stay in business in the event of unfavorable conditions. The diversification in farming activities that allows to react to new opportunities more quickly and flexibly is emphasized in Paracchini et al.'s [22], research which documents how CAP implementation measures and, in particular, DP helped to increase adaptive capabilities of EU farms and thus, in turn increased the economic sustainability dimension.

2.1.2. The Negative Outcomes of CAP Direct Payments onto Rural Sustainability

The failure to confirm the positive impact of Direct Payments under CAP onto rural sustainability of rural regions of EU Members States was also documented. Even the negative outcomes of CAP implementation measures were observed. The technical and technological

effectiveness enhanced by Direct Payments financial mechanisms under the CAP umbrella is a focal point of Latruffe et al.'s [23] study. The findings show that the traditional and the most widely researched Common Agriculture Policy mechanisms (direct payments, decoupled subsidies, and subsidies provided to farms located in less favored areas) do not substantially increase technological effectiveness of farming, as well as technological dimension of rural sustainability. Cvik and Pelikanova [24] questions the essence of CAP by underlining its fragmentizing and almost destructive role in the small farm agricultural sector of European Union. Depperman et al. [25] found that even the modifications of CAP and its liberalization do not increase sustainability of farming, as liberalization increased income redistribution and inequality in rural regions, which further had decreased the sustainability. These results mismatch with the CAP goals and its implementation strategies, aimed at redistributing wealth with the aim of decreasing social stratification [26]. Pechrova [27], by analyzing the impact of various subsidies of Rural Development Programs onto farm efficiency and economic sustainability indicators, proved that there is no direct link between the financial intensity of subsidies and the level of efficiency of farms as well as the economic dimension of sustainability. The CAP lead to overexploitation of land [28]. This negative trend which was augmented by the usage of cutting-edge technology [29] and intensification of land use, through intensive use of fertilizers and other supplements [30–32], leads to increased urbanization due to growing unemployment and depopulation in rural regions, thus decreasing the socioeconomic sustainability there.

Ragkos et al. [33] documented how changes in CAP legislative disrupt the long-established sociodemographical landscape of rural communities, warping traditional economic relations negatively affecting both social and economic dimensions of rural sustainability. These contradicting results once again substantiate the rationale of our research being aimed at not only revealing the negative consequences that DP provokes onto sustainability but also contributing to broader discussions on the overall effectiveness of CAP.

2.2. The Negative Outcomes of CAP Direct Payments onto Rural Sustainability in Lithuania

Literature shows that CAP has a lot of positive effects onto rural regions of EU Member States. It contributes to employment levels in rural regions [34], facilitates gross value added, labor productivity, investment growth [35], and assures food availability [14]. Nonetheless, it also has some drawbacks, especially in the environments it was not designed for. In post-Soviet countries (most of which, including Lithuania, joined EU in 2004), the substantial influx of financial capital in a form of DP to rural regions, where the transformation processes from planned economy to a market-driven economic environment were not fully absorbed leaving the former employers not operable and a mass of population unemployed, led to the initial land grab that resulted in accumulation of agricultural land in hands of big agricultural entities [36], which became power centers on which local citizens economic welfare depended, and even aspirations for partial substituting of legitimate authorities have been observed [37]. This was later converted to a political power as local population tend to vote for the people (in particular case, owners and managers of agricultural entities) who they consider responsible for their personal wellbeing [38]. This phenomenon creates additional barriers for investment opportunities in these rural regions where municipal councils are being dominated by owners of big agricultural entities. As new investors may be seen as a threat to their dominant positions by becoming a competing employer, this may force them to pay bigger salaries and to allocate more attention to the rights of employees, which sometimes are being diminished in agricultural sector. This situation leads to a lowered motivation of municipal councils to facilitate investment procedures in their respective rural districts. The manifestation of this negative factor negatively affects the economic dimension of sustainability of Lithuanian rural regions.

The influx of additional significant amounts of financial capital to rural regions of Lithuania in a form of DP has another drawback. Land prices skyrocketed which consequently made almost impossible to enter the agricultural business for young people [39,40]. This factor contributed to the increasing emigration trends from rural regions both abroad and to the biggest economic centers of the country [41]. This sharpened another socioeconomic issue—generational change in agriculture,

as average age of farmers' increases, which lead to such drawbacks as reluctance to implement innovations, to take risks, to contribute to the needs of local society, degradation of local culture, etc. [42]. This negative factor can be attributed to social dimension of rural sustainability. The disparities in price levels for production factors and productivity levels led to a high financial indebtedness of farming entities. The increased overall costs of farming induced by DP coupled with Rural Development Programs led to lower intentions of farmers to change their farming trajectories or exit farming as they become locked in an asset structure which leads to a high exit costs [43]. It should be noted that in general terms, farms debt–asset ratio may look quite healthy, but due to specifics of activity and low liquidity of its long-term assets, the desired debt–asset ratio of farms is much lower compared to ordinary firms in other economic sectors.

The DP have maintained a focal role in reshaping the portfolio of agricultural activities in some New Member States of EU. Initially, a milk- and pork-producing country [44] Lithuania after entering EU gradually shifted towards growing grain and canola as the main agricultural goods. Now, these two types of crops cover about 55% of all Lithuanian land allocated for agricultural activities (in 2004 this accounted to 30%). This decrease of diversification has not only implications to economic resilience of rural regions [45] but also affects socioeconomic sustainability, in particular its economic facet. Big agricultural entities mentioned above, occupied with growing wheat and canola, tend to employ many seasonal workers in two short periods of time: April and beginning of May (land preparation and planting) and August and the beginning of September (harvesting). In other periods of time, a big portion of rural population become unemployed, which contributes to unpredictable crime situation, as people become prone to some addictive and personality disordering factors (alcohol abuse, etc.). The outcomes of this factor negatively affect the social component of rural sustainability. This situation also narrows the abilities of local population of middle age to strengthen their education, as possibility of enrolling to universities or other professional schools is being compromised by the fact that these people must be prepared to work intensively in April, May, and September. Therefore, such people are left with almost no possibilities to attend lectures. It leads to a situation where rural regions start experiencing the deficit of highly educated, skilled workforce, which acts as another barrier for investment in rural regions because potential investors face difficulties in acquiring suitable labor force for their manufacturing facilities. Therefore, this also negatively affects the economic aspect of the sustainability.

Another negative factor from the standpoint of economic dimension of sustainability of rural regions that sharpens the deficit of versatile educated labor force in rural regions of Lithuania can also be attributed to CAP. As agriculture became the main employer in rural regions, high school graduates in rural regions tend to choose to study subjects related to agriculture when they enter universities, as it creates an illicit assumption of better employment possibilities after graduation. It not only creates an oversupply of young specialists in fields related to agriculture, which subsequently makes them compete between each other for a limited number of suitable working places in agriculture and creates the ground for the unemployment or at least being determinants to take lower positions than the qualification level of theirs allow, but also sharpens the deficit of specialists of other fields, thus acting as a barrier for investment into these rural regions.

The decrease in landscape diversity of New Member States is also directly linked to Direct Payments under Common Agricultural Policy as a reverse dependence between amounts of DP and Landscape Diversity Index is being observed [46]. This view is also supported by Leventon et al. [47] arguing that land use mismanagement is almost encrypted in the essence of CAP. We attribute this negative outcome to the forces diminishing the environmental facet of sustainability.

The decreasing level of diversification in Lithuanian agriculture, which was determined by the current system of DP under CAP [48], resulting in 80% of export in agricultural goods such as wheat and canola, and agricultural sector being the main employer in rural regions [49], makes the whole economic sustainability very vulnerable, as it is very susceptible to changes in a World's turbulent international trade environment, shifts in consumption habits, and technology adjustments (as canola is also used in the production of biofuel) and requires additional preventive measures in a case of manifestation of abovementioned risks [45].

Intensification of agricultural land use, which gained momentum after entering EU and was enabled by CAP support for investment in machinery, also has a negative side. Although it increased productivity and generated significant financial sources to rural regions, helping to maintain living standards there [50], it also led to a substantial land degradation [51], which in near future may significantly diminish yields [52]. The occurrence of this risk will have a significant negative effect on environmental part of Lithuanian rural sustainability.

3. Methodology

In order to ensure robustness of results, an AHP (*Analytic Hierarchy Process*) method with three different scales, i.e., classical [53], balanced [54], and Koczkodaj [55], AHP with fuzzy numbers were chosen. After Eigenvectors were computed using each of scales, the results were normalized. AHP is a suitable technique for evaluating phenomena, that cannot be assessed using purely quantitative method [56]. It is appropriate for solving complex socioeconomic problems, providing possibility to evaluate mutually interconnected factors [57]. The fuzzy numbers were introduced into AHP in order to offset possible uncertainties and inaccuracies arising from the experts' evaluation [58]. The negative factors of CAP researched were limited to 10 (the maximal amount of alternatives that AHP method is capable to process adequately). Both direct and indirect negative aspects were researched as all of them cause negative impact to sustainability of rural regions. The researched factors were: emergence of polarizing power centers in rural regions; dominant position of big agricultural land owners in local municipal councils; high land prices; financial indebtedness of farmers; decreasing diversification of crops cultivated; increasing deficit of skilled labor force in rural regions; decrease in landscape diversity; land degradation, decreasing rate of generational change in agriculture; and barriers for diversified investment. In total, 14 experts were interviewed, representing academia, investment, and agricultural departments of four Lithuanian rural municipal councils and Ministry of Agriculture. To ensure sufficient expertise of interviewed experts, they had to meet following requirements. For academicians: to hold a PhD degree; to have a scientific interest in economy of rural regions and/or agriculture; and to have no less than 5 scientific papers on agriculture/rural/sustainability/rural economics published in scientific journals included in WoS and/or Scopus DB and also have citation indicators. For experts from MoA and municipal councils: to hold a Master (or equivalent) degree and to be involved in a policy making/execution process of an agricultural or/and rural development for no less than 5 years.

We also provided quantitative expressions of some researched factors in order to make its trends more visible. In order to reveal more clearly the dynamics of land prices growth and its discrepancies with the overall price growth in a country, we compared it with the Consumer Price Index (please, see Table 1)

Table 1. The quantitative expression of some researched factors.

	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Agricultural land prices, EUR/ha	406	536	734	831	1075	971	1150	1212	1527	2009	2330	3089	3516	3571	3890
Agricultural Land Prices Index, %	100%	132%	181%	205%	265%	239%	283%	299%	376%	495 %	574 %	761 %	866 %	880 %	958 %
Consumer Price Index, %	100%	103%	108%	116%	126%	128%	133%	137%	141%	142 %	141 %	141 %	144 %	149 %	152 %
Share of 2 main crops in a crop mix, %	30%	37%	35%	40%	43%	48%	53%	53%	55%	56%	54%	56%	55%	54%	51%
Share of agriculture-related students (F08) in tertiary education	no data	no data	no data	no data	no data	no data	no data	no data	no data	2.28 %	2.50 %	2.74 %	3.04 %	3.18 %	3.28 %
Debt/assets ratio	0.07	0.08	0.11	0.16	0.15	0.15	0.13	0.13	0.15	0.15	0.16	0.16	0.19	0.17	0.19 *

*—estimation. Source: own work.

3.1. Analytic Hierarchy Process Method

AHP offers a set of measurement scales consisting of 11 different options [59]. Although the results vary not very significantly, if the alternatives ranked are of similar importance, due to different measurement scales the significant changes in ranks may occur [60], so it is recommended to use a combination of measurement scales. We have chosen three different scales, which mathematically can be expressed as follows:

Classical scale: $c = x$; Balanced scale: $c = \frac{0.45+0.05x}{1-0.45+0.05x}$; and Koczkodaj scale: $c = 1 + \frac{x-1}{9-1}$;

here: x—value on the integer judging scale for pairwise comparisons from 1 to 9, c—ratio used as entry into the decision matrix [59] p.3.

The standard data processing process in AHP can be described as follows. First, experts are presented with pair-wise comparison matrices. After all of the experts have evaluated the negative factors of Direct payments under Common Agricultural Policy by using a prepared pair-wise questionnaire form, consistency checks of each filled questionnaire have to be performed. Matrix is considered consistent if $p_{ik} = p_{ij}p_{jk}, \forall i,j,k$, and a priority vector w exists, then $w = (\omega_1, \ldots, \omega_n)$, where $p_{ij} = {\omega_i}/{\omega_j}, \forall i,j$. In order to calculate Consistency Index of experts, λ_{max} is being calculated for every matrix:

$$\lambda_{max} = \sum_{j=1}^{n} \frac{(P \cdot v)_j}{n \cdot v_j};$$
(1)

here: λ_{max}—largest eigenvector of each standardized matrix;

　　n—number of independent rows in matrix;

　　v_j—eigenvector of matrix.

An expert comparison matrix A is considered consistent when, $\lambda_{max} = n$, although in real world, it happens very rarely. In the case of marginal p_{ij} changes, matrix A satisfies the preselected compatibility threshold (0.2 was selected) and λ_{max} becomes close to n. After calculating the eigenvalue λ_{max} r, the Consistency Index CI is being calculated:

$$CI = \frac{\lambda_{max} - n}{n - 1};$$
(2)

here: *CI*—Consistency Index;

　　n—number of possible alternatives.

Consistency Index is being used for calculation the whole Consistency Ratio:

$$CR = \frac{CI}{RI};$$
(3)

here: *CR*—Consistency Ratio;

　　RI—Random Index.

If matrices show *CI* < 0.2, the aggregated experts evaluation figure is being calculated:

$$p_{ij}^{P} = \sqrt[n]{p_{ij}^{1} \times p_{ij}^{2} \times \ldots \times p_{ij}^{n}};$$
(4)

here: p_{ij}^{A} —aggregated evaluation of element, belonging to *i* row and *j* column;

　　n—number of matrices of the pair-wise comparison of each expert.

When new aggregated matrixes are being calculated, consistency validation procedure must be performed again. If a matrix is found consistent, then preferred ranks of alternatives are being calculated using formula:

$$\omega_j = \frac{\sqrt[i]{\prod_{j=1}^{i} p_{ij}^{P}}}{\sum_{j=1}^{i} \sqrt[i]{\prod_{j=1}^{i} p_{ij}^{P}}};$$
(5)

here: ω_j—weight of *j* alternative.

In case the matrices are consistent, but expert evaluations are significantly dispersed, index of expert mutual agreement (S*) is being calculated [59]:

$$S^* = \frac{{}^{1}/_{\exp{(H_\beta)}} - {}^{-\exp{(H_{\alpha\min})}}/_{\exp{(H_{\gamma\max})}}}{1 - {}^{\exp{(H_{\alpha\min})}}/_{\exp{(H_{\gamma\max})}}}; \tag{6}$$

here: H_α—Shannon alpha diversity;

H_β—Shannon beta diversity;

H_γ—Shannon gamma diversity.

Experts' evaluations are sometimes characterized by uncertainties or inaccuracies, so fuzzy numbers were introduced to offset these drawbacks.

3.2. Fuzzy Analytic Hierarchy Process Method

Triangular fuzzy numbers were selected for experts' evaluations. According to Lee, Chen, and Chang [61], triangular fuzzy number $\tilde{A}$ is being defined by three real numbers l, m, and u, which are being characterized by triangular membership function:

$$\mu\tilde{A}(x) = \begin{cases} \dfrac{x - l}{m - l}, & if\ x \in [l; m]; \\ \dfrac{u - x}{u - m}, & if\ x \in [m; u]; \\ 0, & if\ x \ni [l; u]; \end{cases} \tag{7}$$

here: $\mu\tilde{A}(x)$—triangular membership function;

m—most probable value;

l—lower boundary;

u—upper boundary.

Each expert must perform n (n−1)/2 assessments, from which a pair-wise comparison matrix is being composed:

$$\tilde{A} = \tilde{a}_{ij} = \left(l_{ij}, m_{ij}, u_{ij} \right) = \begin{pmatrix} \tilde{1} & \tilde{a}_{12} & \cdots & \tilde{a}_{1n} \\ \tilde{a}_{21} & \tilde{1} & \dots & \tilde{a}_{2n} \\ \vdots & \vdots & \ddots & \vdots \\ \tilde{a}_{n1} & \tilde{a}_{n2} & \cdots & \tilde{1} \end{pmatrix}; \tag{8}$$

here: $m_{ij} = \frac{\sum_{t=1}^{T} a_{ij}^t}{T}$;

$l_{ij} = min_t a_{ij}^t$;

$u_{ij} = max_t a_{ij}^t$;

T—number of experts;

t = 1, 2, …., T;

$\tilde{1} = (1, 1, 1)$;

$\tilde{a}_{ji} = \dfrac{1}{\tilde{a}_{ij}}, \forall\ i, j = 1, 2, …, n.$

After constructing a fuzzy matrix, aggregated weights of criteria are being calculated based on input data of all experts. Calculations are being conducted using a geometrical mean formula [62].

$$\tilde{a}_{ij}^A = (\tilde{a}_{i1} \otimes \tilde{a}_{i2} \otimes \dots \otimes \tilde{a}_{in})^{1/n}; \tag{9}$$

here: $\tilde{a}_{ij}^A$ aggregated fuzzy evaluation of criteria of i row, j column;

n—number of pair-wise comparison matrices filed by each expert.

The newly constructed matrix undergoes Consistency Index calculation procedures, and if it meets predetermined consistency level, the ranks are being calculated using geometrical mean formula. After this procedure, the fuzzy eigenvectors for each criterion are being calculated:

$$\tilde{w}_i = \tilde{a}_{ij}^A \otimes (\tilde{a}_{i1}^A \oplus \tilde{a}_{i2}^A \oplus \dots \oplus \tilde{a}_{in}^A)^{-1}; \tag{10}$$

here: $\tilde{w}_i = (Lw_i, Mw_i, Uw_i)$ is a fuzzy weight of i criterion, when Lw_i, Mw_i, and Uw_i are, respectively, the lowest, middle, and the highest values of fuzzy weights of i criterion.

After experts complete their assessment, all evaluations are being written in a form of normalized matrices. Then, an arithmetical mean of every row is being calculated and a most important factor according every expert is being computed.

4. Results and Discussion

The detailed results of experts' evaluations of negative factors of CAP are presented in Table 2.

Table 2. Detailed results of experts' evaluation.

Reliability Indicators				
Method	AHP			FAHP
Scale	Classical	Balanced	Koczkodaj	
Lambda, λ	7.112	7.036	7.045	7.112
Consistency Ratio, CR	0.021	0.014	0.016	0.021
Consensus Index, CI, %	56.1	84.2	79.4	56.1
Normalized Eigenvector				
Method	AHP			FAHP
Scale	Classical	Balanced	Koczkodaj	
Emergence of power centers	0.012	0.011	0.009	0.000
Dominant position of land's owners	0.016	0.025	0.008	0.000
High land prices	0.221	0.203	0.216	0.283
Financial indebtedness of farmers	0.143	0.168	0.158	0.144
Decreasing diversification of crops cultivated	0.182	0.178	0.184	0.210
Deficit of skilled labor force	0.091	0.080	0.094	0.061
Decrease in landscape diversity	0.093	0.087	0.084	0.074
Land degradation	0.144	0.147	0.152	0.187
Decreasing rate of generational change	0.067	0.063	0.066	0.041
Barriers for diversified investment	0.031	0.038	0.029	0.000
Rank				
Method	AHP			FAHP
Scale	Classical	Balanced	Koczkodaj	
Emergence of power centers	10	10	9	8 - 10
Dominant position of land's owners	9	9	10	8 - 10
High land prices	1	1	1	1
Financial indebtedness of farmers	4	3	3	4
Decreasing diversification of crops cultivated	2	2	2	2
Deficit of skilled labor force	6	6	5	6
Decrease in landscape diversity	5	5	6	5
Land degradation	3	4	4	3
Decreasing rate of generational change	7	7	7	7
Barriers for diversified investment	8	8	8	8 - 10

Source: own calculations.

As it is shown in Table 2, CAP factors that have the negative impact onto rural sustainability can be grouped into two big groups: having strong impact (high land prices, decreasing diversification of crops cultivated, land degradation, and financial indebtedness of farmers) and others, whose impact is marginal and can be considered to be of more theoretical nature. High land prices and decreasing diversification of crops cultivated are being placed to the first and second place, respectively, by all scales, indicating the importance of these factors in having negative impact on rural sustainability. Even though the high prices of land as one of the production means is being praised in some literature as providing bigger assets values, enabling higher borrowing [63], it is obvious that this benefit does not offset the negative consequences of high land prices, especially when they act as a barrier for starting agricultural activities. Therefore, higher impact of decreasing crop diversification, which in turn, decreases the agricultural resilience, can be explained by the recency bias effect, as the expert interview took place at the start of the COVID-19 pandemic, and a shortage of some sorts of agricultural products (especially buckwheat and fruit/vegetables) in Lithuania appeared to be of a real risk. Despite this fact, the congruous high evaluation of this factor

allows to place it among the most important negative factors. The emergence of negative consequences of this factor may be attributed to decoupling of direct payments [64]. Land degradation as a side effect of CAP was partly acknowledged by the European Commission [65], thus additional payments for crop rotation was introduced, though it is obvious, that these measures are not sufficient to stop land degradation and prevent negative future consequences (Pacheco et al., 2018). Financial indebtedness of farmers has the same roots as high land prices and are caused by a high influx of substantial financial resources into unprepared countries. In our opinion, it occurs so high in the ranking position due to specific context in which research was being conducted—new EU Member State. As sectoral productivity and managerial qualities of farmers are not parallel with the increasing prices for production means (machinery, buildings, environmental standards, etc.), it creates tensions and start to have a negative effect on sustainability level of rural regions. When convergence process in EU will achieve its initial goals [5], the importance of the negative side of this factor should diminished.

Analyzing a group of factors, which have lesser negative impact onto rural sustainability of Lithuania, we can see a bigger deviation in evaluations, and different research techniques start showing their differences in final results. This fact confirms the necessity to use different measurement scales and even different methods (AHP + fuzzy AHP).

Quite a low assessment of decrease in landscape diversity, compared to high importance of land degradation, may be attributed to the strict regulation on agricultural land expansion in Lithuania [66] preventing habitat loss and ensuring an ex ante predetermined level of landscape diversity. The low position of the deficit of skilled labor force may be explained by the fact that Lithuanian rural regions historically are associated with agriculture [67] and no considerations about changing the economic structure of regions of Lithuania exist. This illicit reconciliation with the dominant position of agriculture in rural regions may have negative socioeconomic effects in the future [68]. The substantial negative effects of decreasing generational change in Lithuania are documented by Balezentis et al. [42]. The low position of this factor in our rankings may be attributed to the fact that experts do not associate this problem with implementation mechanisms of CAP, but attribute it to overall population aging.

By analyzing the three least important CAP factors that have negative effect on rural sustainability of Lithuania, we faced discrepancies in calculations. All AHP scales put these factors (barriers for diversified investment, dominant position of land owners, and emergence of power centers) at the end of list, assigning it with, although marginal, some eigenvector, and by that confirming its minor negative effect. FAHP, which reflects experts' opinion better and is capable of eliminating some inaccuracies and uncertainties in expert evaluation, award no eigenvector to these three factors. Based on these results, we do not take into analysis abovementioned CAP negative factors which, in our opinion, have the right to circulate in a scientific literature, but their negative impact and links with Common Agricultural Policy should be documented more widely. Thus, we compute the final ranks of negative factors of CAP comprising only seven entries (Table 3).

Table 3. Final ranks of factors according to their negative impact.

Factor Researched	Rank
High land prices	1
Decreasing diversification of crops cultivated	2
Financial indebtedness of farmers	3–4
Land degradation	3–4
Decrease in landscape diversity	5
Deficit of skilled labor force	6
Decreasing rate of generational change	7

Source: own calculations.

Taking into account the values of calculated eigenvectors, we state that first four factors undoubtedly can be attributed to negative consequences of CAP and should be among the first ones

to be considered in making adjustments to Common Agricultural Policy implementation measures. The last three have a much lesser impact (eigenvectors computed by different techniques do not reach a 0.1 threshold) and should be a subject of additional research before being taken into account by policy makers.

5. Concluding Remarks

The necessity to combine different evaluation techniques was documented. We observed different rank positions of researched factors between different measurement scales of AHP as well as significant differences both in ranks and eigenvectors between FAHP and AHP with different measurement scales.

We found that four of the biggest negative factors with regard to rural sustainability caused by CAP Direct Payments implementation measures are high land prices, decreasing diversification of crops cultivated, land degradation, and financial indebtedness of farmers. Two of them (high land prices and financial indebtedness of farmers) can be attributed to significant financial influx into unprepared economies, decreasing diversification of crops cultivated may be a direct cause of DP system, and land degradation is a result of agricultural intensification, which also should be regulated by Common Agricultural Policy. The limitations of our research do not allow us to robustly associate more than four factors that have a negative impact on rural sustainability to Common Agricultural Policy measures. The insignificance of eigenvectors of other researched factors (decrease in landscape diversity, deficit of skilled labor force, and decreasing rate of generational change) may indicate an unsubstantial negative impact onto rural sustainability in Lithuania in order to be taken into account the consideration on adjusting a CAP implementation measures, although review of literature clearly indicates its negative impact on rural sustainability of EU Member States. The barriers for diversified investment, emergence of power centers, and dominant position of big landowners received the smallest eigenvectors in AHP with three different measurement scales evaluation, although received 0 score when fuzzy AHP was employed. We do not question the negative influence of these factors to sustainability of rural regions, although their linkage with CAP and, in particular, DP should be investigated more thoroughly. This ambiguity in our results juxtaposed to existing scientific literature indicates the space for a future research—it would be scientifically important to investigate the minor negative consequences of Common Agricultural Policy in order to provide recommendations for CAP implementation measures to decrease its negative impact.

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