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The income-assets relationship for farms operating under selected models in Poland

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Abstract: The aim of this paper is to outline the relationship between income and assets when taking into account selected models of farms' functioning. The following farm models are examined: traditional, industrial, sustainable, and organic. Panel models were used that were based on the results of individual unpublished data for farms in Poland that undertook agricultural accounting according to the Farm Accounting Data Network (FADN) principles from 2004 to 2019. It was found that industrial farms had the clearest income-assets relationship, while traditional farms had the least clear relationship. The value of land, as a component of assets, was found to weaken the income-assets relationship. In consequence, the value of assets increased faster than income. Thus, the farmers are becoming wealthier in terms of the value of their assets, but this is not reflected in their income.

Keywords: agriculture; Common Agricultural Policy (CAP); economic situation; panel models; wealth effect

The role of capital accumulation is important in developing agricultural output potential (Haley 1991). Farms base their development on the resources that create income. From a neoclassical perspective, income is a function of resources. In this paper, both current and fixed assets were analysed. It is assumed that all assets generate income effects. Thus, the value of farm's assets have a significant impact on its income-generating activities (Winters et al. 2002). Therefore, the income-assets relationship might seem relatively obvious. However, the relationship is more complex, and this is not only due to investment, but it is also linked to the peculiarities of the land factor, including the intrinsic growth in its value resulting from the capitalisation of land price subsidies, the valorisation of non-productive land functions, and the relatively constant demand for land when there is a relatively fixed supply. This results in farmers becoming wealthier due to the intrinsic growth in the value of their land, yet they simultaneously find it increasingly difficult to create additional income. These circumstances weaken the relationship between farm income and assets, though this relationship depends on models of farm functioning. Therefore, the aim of this article is to outline these relationships by taking into account selected models of farms' functioning. This results from the Common Agricultural Policy (CAP) or other regulations, as well as is inspired by the literature (Czajanow 1966; Daly and Farley 2004; Roberts 2008; Hickel 2019; Bogoviz 2020). The following models of farms were used: traditional, industrial, sustainable, and organic. The analysis concerns the period from 2004 to 2019 for farms in Poland, which conducted agricultural accounting according to the Farm Accounting Data Network (FADN) system throughout this period.

The issues under analysis have a scientific dimension connected to the theory of economics, which involves recognising the nature of these relationships and determining the differences between the functioning models

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of farms. In turn, conclusions resulting from the analysis can be helpful at the practical level in the context of changes to or the maintenance of farm support due to the functions they perform in the economic, environmental, and social dimensions.

The following hypothesis was formulated:

H: There is a clearer income-assets relationship for industrial farms and a less clear relationship for traditional farms.

The theoretical justification of this hypothesis is related to the different economic and social regimes of a farm operation. In the case of industrial farms, their main objective is to maximise income, there are strong incentives for pro-efficiency measures (e.g. due to relatively higher indebtedness), as well as investment pressure associated with assets replacement (Tisdell 2007). In the case of traditional farms, on the other hand, the objective related to maximising agricultural income is not the primary one (Czajanow 1966). The point is that these farms gain income from other sources. Relatively low agricultural income mainly is used to meet the consumption needs of the farmer's household. These farms can operate for years in a situation of narrow reproduction of fixed assets (higher level of depreciation than the value of investment), and decapitalisation of assets (Makinen et al. 2009). Consequently, a small part of agricultural income is accumulated in the assets of farms. This is a quite different situation than in industrial farms where there is a higher propensity to invest and thus accumulate assets. The other two analysed models (sustainable and organic) are located between these two models, with a greater significance of environmental elements. It can somewhat weaken the links between income and assets. However, as can be assumed, not so much that they are weaker than in traditional farms. The existing studies sometimes refer to assessing agricultural income, assets, or the wellbeing of the farm household (El-Osta et al. 2007). On the one hand, assets alone cannot be used as a measure of one's financial situation (Jensen and Pope 2004). On the other hand, as Hill (2000) noted, changes in the value of farm assets are often left out since the analyses focus on income issues. Therefore, closing this research gap by recognising these relationships and simultaneously taking different models of farm performance into account were the motivations for this research. It is about better recognition of a farm development mechanism.

Theoretical references for these issues can be found in Solow's growth theory and the resulting accumulation of capital Solow (1955). The existence of marginal effects, in the context of the profit-assets relationship, is relatively universal in economic processes. However, in the case of agricultural holdings, the peculiarity of this process comes down to the fact that agriculture has a worse position in the market mechanism due to, for example, weaker negotiating positions on the market. As a result, the decreasing productivity of assets acts more restrictively, and this clearly weakens the income-assets relationship, which has consequences for development.

The neoclassical approach to capital accumulation points out that capital growth depends on the capital endowment, higher marginal returns, and access to the credit market (Dixit and Pindyck 1994). At this point, the capital endowment is a function of the farm's operating time. In the Keynesian view, on the other hand, in the context of capital accumulation, much attention is paid to the degree of capacity utilisation due to the business cycle. The process of assets accumulation occurs mainly through income, which is partly converted into investments and then into capital. There are also other channels through which the accumulation of assets occurs: the capitalisation of subsidies (Ciaian et al. 2017; Valenti et al. 2021). This complicates the relationship between income and assets. The direct CAP payments are deposited in fixed assets (especially land), depending on the support model. In turn, the higher the capitalisation rate, the less efficient the transformation of income into farm assets. The point is that an increase in the value of assets (due to the capitalisation of subsidies) does not contribute to increasing farm incomes These processes stimulate an increase in agricultural land prices and thus in the value of total farm assets. The research shows that, for farms covered by the FADN system, the median of the annual growth in agricultural income in the EU23 countries (excluding Cyprus and Malta) was 1.42% over the period 2004–2018, while for total assets it was 2.49%. This not only indicates the functioning of agriculture under conditions of decreasing marginal effects but also the loosening of links between assets and income. Also the results of individual farms in Poland conducting agricultural accounting according to the FADN principles, which were used in this article, confirm such processes. They show that while the value of Pearson's linear correlation coefficient between income and assets in the first years of the study period (2004–2008) was on average 0.68, for the later period (2015–2019) it was 0.56 on average.

There are many studies that confirm the capitalisation of subsidies in agriculture (Ciaian et al. 2017; Varacca et al. 2021). The importance of the capitali-

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sation of subsidies can be evidenced by the fact that after EU integration, agricultural land prices in the new member countries significantly increased e.g. Poland by more than sixfold between 2004 and 2019. It is worth noting here that the scale is due not only to the capitalisation of subsidies but also to the additional utility of land. This phenomenon may differ due to the model of functioning. Additionally, due to the need to meet environmental or animal welfare standards (cross-compliance), the importance of non-productive assets increases.

MATERIAL AND METHODS

The analysis used unpublished data for individual Polish farms conducting agricultural accounting according to the FADN principles throughout the period 2004–2019 (PL FADN 2020). In this group, there were 2 299 farms of individuals. The econometric models were estimated by the panel data. It was assumed that the development of a dependent variable, in addition to the explanatory variables, influences non-measurable, time-fixed, and object-specific factors called group effects (Wooldridge 2002). To choose an appropriate estimation method, the heteroskedasticity of the random component was assessed. In all the models analysed, based on the Breusch-Pagan test, the hypothesis on the existence of individual effects was verified ($P < 0.05$) or the least squares method (LSM) was used. In the case of individual effects, the Hausman test was used to verify the hypothesis of the model with fixed effects (FE) ($P < 0.05$) or random effects (RE). In turn, the Wald test was employed to verify the hypothesis of heteroscedasticity. In the panel analyses, the Beck-Katz panel corrected standard error (PCSE) procedure was used. This allowed us to reduce problems concerning the autocorrelation of the random component.

The preliminary analysis revealed that the most appropriate function for the panel regression, due to the model fit and statistical significance of the variables, was the exponential type [Equations (1, 2)]:

$$\hat{Y} = e^{\beta_0 + \beta_1 x_1 + \beta_2 x_2 + \ldots + \varepsilon} \quad (1)$$

where: $\hat{Y}$ – dependent variable; x_1, x_2 – independent variables; β_0 – intercept; β_1, β_2 – coefficients of the regression function; ε – random component.

After a bilateral logarithm [Equation (2)]:

$$\ln(\hat{Y}) = \beta_0 + \beta_1 x_1 + \beta_2 x_2 + \ldots + \varepsilon \quad (2)$$

The regression coefficients of this function were interpreted as the percentage change in assets caused by a unit change in a factor (income). The exponential function reduced the problems associated with the variance of the random component or the normality of the distribution. Lags were also tested in the analysis (the effect of income at t_0 on assets at t_1; where: t – year). However, it turned out that such models were less well fitted and the statistical significance of the variables were lower. For the whole population of farms in the study, the correlation coefficient between income and assets was statistically significant and amounted 0.57, while in terms of time shifts of one year (t_0 income, t_1 assets) the correlation coefficient decreased to 0.42. The robustness of the models was tested by evaluating the regression coefficients when introducing step by step successive explanatory variables into the models. The models proved to be stable.

The value of total assets and, alternatively, capital value, were used as dependent variables. The first results from the fact that total assets, both fixed and current, create and determine the level of income whether they are owned by the farmer or not. In addition, the value of capital in the classical sense (as a factor of production) was also used as a dependent variable. In this case, the value of land was subtracted from the value of assets. This approach resulted from the desire to possibly identify the impact (in a comparative sense) of the land factor on the relationships under study. The analysis of the relationship between income and assets is complicated by the fact that there is intrinsic growth in the value of land that is separate from the productivity of this factor and inflationary processes. This has been confirmed by many researchers (e.g. Czyżewski et al. 2019). In turn, the selection of explanatory variables for the panel models was dictated by considerations of merit. The idea was to include (in addition to the agricultural income variable) control variables that have a reasonable coherence with an economic theory on the relationships under study. Therefore, variables related to utilised agricultural area (UAA) acreage and debt (liabilities) were used.

In the panel models, the data were deflated based on the indexes of changes in income and the means of production. The explanatory variables in the models were verified by the variance inflation factor (VIF) test for collinearity. Test values higher than 10 indicate the presence of a collinearity problem. In all models included in the study, the values of the VIF test were under this cut-off value, which means that collinearity was not a problem in the models (Haan 2002).

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Different models for the farm were estimated because the focus was on highlighting in detail the differences in the operations of farms under different models, in terms of the links between income and assets. Delimiting units into a model of sustainable farms was done based on economic, environmental, and social dimensions. The economic dimension was determined by estimating farm income per full-time employed member of the farm family. If the level of these incomes exceeded the average level of net wages in the economy, then the farm met the condition of sustainability in the economic dimension.

Environmental sustainability was defined by two sub-measures: the proportion of cereals in the crop structure and livestock density per hectare of UAA. The choice of these measures was based on the fact that it was possible to determine the threshold values for them, which then set the critical values for the given sustainability areas (Wrzaszcz 2013). In the case of the proportion of cereals among crops sown, the measure should not exceed 66%, while for animal stocking density, values ranging from 0.5 'large livestock units' to 1.5 'large livestock units' per hectare of UAA are desirable, as it is conducive to maintaining correct fertiliser management on the farm. These two proposed metrics represent both agricultural production biodiversity and environmental pressure issues. Sustainability in the environmental dimension was assumed when the farm achieved it in each of these two sub-metrics.

Due to the microeconomic nature of the data and the level of analysis, social sustainability was determined by the education and age of the farm manager. If the farm manager had at least a secondary school education in agriculture and was under 40 years old during the year in question, then the social sustainability condition was met. Such choice resulted from the fact that in Poland, the age of 40 years was adopted in the definition of a young farmer. This designation enables potential beneficiaries to benefit from additional forms of support under the CAP, for example, the 'Young farmer premium.' In the case of education, having at least a secondary school agricultural education provides an adequate level of knowledge to enable the farm to develop. Younger farmers have a longer horizon in planning and are less averse to risk than older farmers; they adopt new technology more readily and purchase newer equipment more often (Gale 1994). Such an understanding of the social dimension, with some simplification, can also be applied to human capital.

The panel of organic farms was defined by whether the farm was certified as organic or was possibly in conversion. The latter refers to a period of transition from a conventional farming system to an organic one. During this period, the principles of organic farming are applied under the supervision of the certification body. At the same time, if a farm was included in this panel, it could not belong to any other panel.

The group of industrial farms was defined as those units that were not classified as sustainable farms but achieved sustainability in the economic dimension (income per full-time employed family member was at least at parity). Another criterion was the achievement of at least a simple reproduction of assets on average over the study period (2004–2019). This is a situation when the value of investments in depreciable fixed assets is equal to or higher than depreciation.

In the case of separating out the panel of so-called traditional farms, the following criteria were used: units that did not achieve income parity, that recorded a narrowed reproduction of assets (investment/depreciation < 1) on average in the examined period (2004–2019), and that used less than 20 ha of arable land. The point is that in the division of agricultural holdings according to UAA acreage (UAA6), six types of farm size are specified. The term 'small' refers to farms of < 5 ha (very small), 5–10 ha (small), and 10–20 ha (medium-small). The difference between traditional and industrial farms comes down to the fact that in the latter, own labour in the farm is paid at a level of at least parity income and there is expanded reproduction of assets (investment depreciation > 1). Additionally, traditional farms used less than 20 ha of arable land.

The use of panel models made it possible to confirm indirectly the existence of marginal effects, as well as to assess the relationship between income and assets. In the latter case, standardised regression coefficients were used due to different titres of explanatory variables. Comparing the relative strength (via the standardised regression coefficient) of the impact of individual explanatory variables on the dependent variable in a given model does not raise concern. However, doubts may appear if we compare the impact of individual explanatory variables between different panel models. Such a situation took place in this research because four models were built from the available data due to the models of farms operating. On the other hand, comparing the regression coefficients from panel models alone may be burdened with some error due to the differences in the goodness of fit with the empirical data. Therefore, Pearson's linear correlation coefficients were additionally evaluated to assess the relationship between income and assets.

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RESULTS AND DISCUSSION

The panel of industrial farms was distinguished by having the strongest units economically speaking (Table 1). It is about the higher value of assets, capital, income, debt, as well as the acreage of agricultural area. Slightly weaker were the units belonging to the panel of sustainable farms. On the other hand, the weakest was found in the group of traditional farms.

In this case, the values of the analysed variables were the lowest. In the case of panels with farms according to the selected models (Table 2), it was noted that for industrial farms, the income-assets relationship was the clearest (from the perspective of a standardised regression coefficient), while it was the least clear for traditional farms. These relationships were also confirmed by Pearson's linear regression coefficients. The strongest relationship between income and assets was recorded for industrial and sustainable farms (0.61). A slightly weaker relationship was found for organic farms (0.56); the weakest was for traditional farms (0.20). The first model was relatively strongly oriented toward development, these farms have extended reproduction of assets (the level of investment was higher than the value of depreciation), and income from agriculture is at least at parity. Thus, the transformation of income into assets is more effective. This is also indirectly confirmed by the results of the Hungarian pig farms (Ábel et al. 2017). It follows that farms having more than 150 units of pigs invested more than their value of depreciated assets. So industrial farms operate under stronger investment incentives. It is worth noting here, however, that despite all this, the impact of variable income was not strong (e.g. compared to the acreage variable). In turn, for traditional farms, income from agriculture is, to a relatively greater extent, allocated to satisfying consumer needs rather than investment activities. In addition, the low scale of production and income from non-agricultural activities are not without significance. To a similar extent, income affects the assets of sustainable and organic farms. In these cases, there is no doubt that these objectives (economic and environmental) coexist (Bonfiglio et al. 2017).

Table 1. Descriptive statistics of variables (average values) for distinguished models

Variables	Models	Mean	Minimum	Maximum	SD
Value of total assets (EUR)	A	273 863	7 244	2 205 211	245 975
	B	236 283	14 573	2 060 359	237 707
	C	81 083	2 976	553 865	51 364
	D	103 889	17 125	815 165	96 604
Capital (total assets – value of land) (EUR)	A	155 878	1 996	1 657 337	137 582
	B	124 049	7 129	1 072 275	128 366
	C	45 284	2 976	464 565	39 463
	D	50 712	6 146	470 719	48 955
Income (EUR)	A	27 140	1 902	296 588	23 781
	B	17 599	–92 710	230 097	20 380
	C	4 793	–39 979	73 522	5 043
	D	9 208	–21 098	127 105	11 499
Area of UAA (ha)	A	47	1	526	42
	B	42	1	352	40
	C	12	1	20	5
	D	23	1	110	19
Value of liabilities (EUR)	A	30 950	0	804 048	66 738
	B	23 478	0	864 612	63 286
	C	2 567	0	173 029	8 786
	D	3 987	0	139 900	12 806

A – industrial farms (n = 7 840); B – sustainable farms (n = 2 896); C – traditional farms (n = 2 448); D – organic farms (n = 496); UAA – utilised agricultural area; value of total assets (SE436) – fixed assets plus current assets; capital – value of total assets (SE436) minus value of land (SE446); income (SE420); area of UAA (SE025); value of liabilities (SE485)

Source: Own elaboration based on PL FADN (2020)

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Table 2. Panel analysis due to distinguished models (Beck-Katz robust standard errors)

Specification	Models			
	A	B	C	D
Dependent variable: ln*Assets*				
Method of estimation	RE	RE	RE	FE
Number of observations	7 840	2 896	2 448	496
Constant	12.99***	12.75***	11.77***	12.17***
Income (coefficient after standardisation)	2.29e–06*** **(0.29)**	1.28e–06*** **(0.13)**	2.7e–06*** **(0.09)**	2.52e–06*** **(0.12)**
Area of UAA (ha) (coefficient after standardisation)	0.006*** **(0.36)**	0.01*** **(0.43)**	0.05*** **(0.42)**	0.015*** **(0.38)**
Value of liabilities (coefficient after standardisation)	5.67e–07*** **(0.20)**	5.06e–07*** **(0.15)**	5.32e–06*** **(0.32)**	3.88e–06*** **(0.35)**
Fit assessment and statistical tests				
R^2-overall	0.48	0.54	0.30	0.40
P-value for Breusch-Pagan test	0.002	< 0.001	< 0.001	< 0.001
P-value for Hausman test	0.35	0.17	0.88	< 0.001
P-value for Wald test	< 0.001	< 0.001	< 0.001	< 0.001
Dependent variable: ln*Capital*				
Method of estimation	LSM	RE	RE	FE
Constant	12.45***	12.16***	11.14***	11.49***
Income (coefficient after standardisation)	3.1e–06*** **(0.38)**	2.23e–06*** **(0.21)**	6.78e–06*** **(0.19)**	3.59e–06*** **(0.21)**
Area of UAA (ha) (coefficient after standardisation)	0.004*** **(0.23)**	0.009*** **(0.41)**	0.043*** **(0.29)**	0.01*** **(0.26)**
Value of liabilities (coefficient after standardisation)	5.82e–07*** **(0.20)**	6.56e–07*** **(0.21)**	7.07e–06*** **(0.36)**	4.17–06*** **(0.35)**
Fit assessment and statistical tests				
R^2-overall	0.45	0.50	0.28	0.37
P-value for Breusch-Pagan test	0.14	< 0.001	< 0.001	< 0.001
P-value for Hausman test	0.27	0.91	0.49	< 0.001
P-value for Wald test	< 0.001	< 0.001	< 0.001	< 0.001

***, **, **P* < 0.01, *P* < 0.05, *P* < 0.1, respectively; A – industrial farms; B – sustainable farms; C – traditional farms; D – organic farms; RE – random effects; FE – fixed effects; LSM – least squares method; UAA – utilised agricultural area; ln*Assets* – natural logarithm of the value of total assets (SE436) minus fixed assets plus current assets; ln*Capital* – natural logarithm of the value of capital [total assets (SE436) minus value of land (SE446)]; income (SE420); area of UAA (SE025); value of liabilities (SE485); when the variable was statistically significant (< 0.05), then the coefficient values after standardisation are in bold

Source: Own elaboration based on PL FADN (2020)

The impact of the arable land area on the value of assets was clearer than for income (Table 2). This is related to area payments, which in the single area payment scheme (SAPS) in Poland are a function of UAA. In this way, there are potentially greater opportunities to discount benefits resulting from the intrinsic growth of the value of land, and thus of assets. A relatively strong impact on assets was observed in the case of debt. Debt in agriculture is not high compared to other sectors, especially in Europe, and the dominant source of assets creation is agricultural income. In this situation, a small increase in indebtedness may generate relatively high wealth effects (the importance of the base effect). As Kryszak et al. (2021) note on the basis of surveys of farms in regions of EU, farm managers should control the level of debt since

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the debt-to-assets ratio is a significant negative determinant of farm profitability in most of the groups of farms due to their size.

When the value of the capital was taken as the dependent variable, the examined relationships proved to be clearer (compared to the dependent variable for assets) for all examined groups from the perspective of the standardised regression coefficient (Table 2). The values of Pearson's linear correlation coefficients between income and capital proved statistically significant and were 0.66 for the industrial farm group, 0.62 for organic farms, 0.60 for sustainable farms, and 0.25 for traditional farms. So the relationship between income and assets was weakened by land value. This is related to the intrinsic growth in agricultural land prices and is a consequence of the capitalisation of subsidies, the valorisation of additional land amenities, the very nature of land market functioning (a small supply and few transactions), or institutional constraints in land trade favouring price increases (Nijhum et al. 2021). Therefore, there is a risk of a wealth effect, which can lead to a misallocation of resources. The increasing value of agricultural producers' assets can change their views regarding risk (as can the capitalisation of subsidies in the price of agricultural land). Being convinced of the rising value of their farm's assets, they make riskier decisions (Roche and Mcquinn 2004). As reported Olagunju et al. (2020) direct payments exert a 'wealth effect' on the agricultural production process by encouraging farmers to engage in 'riskier' production activities.

For analysed models, the relationships between income and assets were also clearest for the group of industrial farms, then for sustainable and organic farms, and the least clear for traditional farms. The obtained results are indirectly confirmed by the research of Hampl (2020) conducted on farms in the Czech Republic. It shows that conventional farmers have a better ability to use the assets efficiently to generate profit or sales in relation to organic farms. This may be a consequence, besides cost issues, of the additional functions that organic farms perform in environmental as well as social aspects. In turn, Haagsma and Koning (2005) indicate that increased integration of farmers into non-farming societies can diminish the income problem. This is particularly relevant for the group of traditional farms, where agricultural income is particularly low (Table 1). In consequence analysed processes, the value of assets increases faster than income. Part of this additional increase in assets does not generate income, because the intrinsic growth in the value of the land itself does not translate into increased income. Farmers are becoming wealthier in terms of assets, but this is not reflected in their income. This is also related to the decreasing marginal profitability of their capital and the need to meet environmental and animal welfare standards (higher value of non-productive assets).

The diminishing impact of the productivity of fixed assets on output in Polish agriculture was confirmed by Zwolak (2008). At this point, the question of whether the increase in the value of agricultural land can have a positive effect on income may arise. It may be assumed that the income will come from the sale of higher-value assets (land). However, in the situation when land prices, in the long run, increase faster than other assets on the market or productivity in agriculture, such action would be irrational. It should be noted, however, that the intrinsic growth in the value of assets increases the availability of credit for farmers by securing loans with their agricultural land. Furthermore, in a situation of rising agricultural land prices, its purchases can affect the growth of the relative age of tangible fixed assets, especially the obsolescence of buildings that are not sufficiently modernised by farms (Zdeněk and Lososová 2020). At the same time, according to the study by Calus et al. (2008) on the example of Belgian farms, lower value of total assets of the farm often result in farm discontinuation. So the group of traditional farms faces problems not only of low income but also of survival and succession. The above-mentioned processes were also confirmed in the author's research in a group of farms from EU countries. They show that the relationship between income and assets is more clear in the new EU member states, but at the same time, it is weakening. It is related to the non-productive functions of agriculture, additional land uses, capitalisation of subsidies in the price of agricultural land.

CONCLUSION

The agricultural holdings operating under the industrial model had relatively clear relationships between income and assets, the clearest among the four models. This is due to the high investment pressure associated with the need to reproduce assets. For sustainable farms, these relationships were not so clear and were characterised by a relatively strong impact from acreage. This was associated with a higher land intensity for production in these units. In the case of organic farms, these relationships were similar. In turn, the least clear relationships were found for traditional

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farms. The small scale of production, low investment activity, the domination of narrow reproduction, and low income determined such a state of affairs. Thus, the results of the study confirm the hypothesis that the clearest income-assets relationship exists for industrial farms and the weakest for traditional farms. There are differences in the development mechanisms of farms due to the different functioning models. This is one reason for diversifying the CAP support instruments to account for these differentiations.

The weaker relationship between income and assets contributes to a disconnect between resource productivity and land price values. Therefore, measures that support shortening the food supply chain and the non-agricultural development of rural areas to create opportunities for diversifying farm family income, and thus limiting the economic effects of declining marginal effects in the functioning of farms are important.

In light of the results, the CAP instruments should take into account the role played by the various farm models. This should be increasing the degressivity of decoupled payments depending on the UAA. The last measure would limit the capitalisation of land value subsidies and thus increase the link between income and assets. In turn, farms implementing above-standard environmental or animal welfare measures (organic and sustainable farms) should be provided with higher levels of payments to compensate for a decrease in income as a consequence of higher costs. However, these payments should be considered a form of payment to agricultural producers for providing public goods related to shaping the environment. Further research in this area could be developed in the context of identifying the wealth effect and taking into account the social context of farms' functioning.

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