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SIGNIFICANCE OF THE COMMON AGRICULTURAL POLICY FOR ORGANIC FARMS ECONOMICS IN POLAND

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ABSTRACT

Accession of Poland to the European Union (EU) has been connected with a number of benefits, but at the same time, the obligations have been imposed on the agricultural producers. Farmers are active economic units, that operate on the common european market, as well as they are beneficiaries of governmental support. Governmental programmes allowed to take part in measures directed to agricultural farms development. Farmers have been obliged to comply with European law and implementation of the desired production standards.Both regulations and governmental programs have determined the direction of agricultural holdings development. Especially in the last decade, organic farms make demanded and fast-growing form of environmental friendly agriculture. Organic methods use of agricultural production in accordance with soil, plants and animals requirements, taking care of the other environmental components. Organic farms fit in with the concept of sustainable development. According to this, organic production should at least not affect the ecosystems‘ sustainability and meet the economic purposes. The purpose of the article is evaluation of organic farms economics in Poland, taking into consideration influence of the Common Agricultural Policy (CAP). There were analysed production and economic condition of organic farms in comparison to all Farm Accountancy Data Network (FADN) farms. The research were conducted on the basis of indicator analysis, considering calculation reflected cost, production, economics and subsidies connected with the Common Agricultural Policy directed to farms. The analysis was based on FADN 2004 and 2013.

Keywords: *organic farms, farms` economics, sustainability, CAP, FADN, Poland.*

INTRODUCTION

A rapid development of an organic system of agricultural production, which was reflected in the number of organic farms, following Poland’s accession to the EU, has slowed down in recent years. The number of (certified) organic farms in Poland in 2004 amounted to only 1.7 thousand and the area of organic crops – to 47 thousand hectares, and in 2013 – 26.6 thousand and 662 thousand ha, respectively, while at the end of 2015 – the number of organic farms decreased to 22.3 thousand

and the area – to 581 thousand ha[1]. This is primarily due to the fact that organic production became less profitable, despite higher prices of organic products. This situation is undesirable, as demand for organic products in the world, including Europe, is growing rapidly[2].

Leaving aside non-economic motives, the development of organic farming is determined primarily by demand and governmental support (subsidies). The former is driven by consumers' growing interest in healthy food and hampered by higher prices of organic products, while the latter depends on policy solutions (Wrzaszcz and Zegar, 2015; Zegar, 2007). Following Poland's accession to the EU, the organic production system received significant support under the Common Agricultural Policy. However, despite higher prices of organic products and subsidies from the budget, organic farms derive smaller economic benefits than conventional farms.

The purpose of the article is to evaluate the economics of organic farms in Poland, taking into consideration influence of the CAP.

MATERIALS AND METHODS

The study is based on a panel of farms covered by the FADN and keeping agricultural accounting on a continued basis in the years 2004-2013. This group consisted of more than 4.5 thousand farms. The period covered by the analysis is dictated by the objective of the study and the data availability. The first year of this period presents a situation in which the effects of the implemented CAP mechanisms were insignificant, while in the final year we may believe that those effects have already manifested themselves all their glory. The article focuses on the production and economic results of organic farms compared to all individual (private) farms covered by FADN.

Organic farms included also those which have an organic production certificate or are under reorganisation. The rules of functioning of farms in this system are fixed by law. The guiding principle in the organic system is to cultivate plants in compliance with the standards of the *Good agrienvironmental practices* with due attention to the phytosanitary condition of plants and soil protection.Agricultural production in these farms is based on the use of natural ecosystem processes and is conducted with the minimal use of industrial means of agricultural production. Such farms are obliged to keep an area of permanent grasslands and landscape elements not used for agricultural purposes[3].

[1] According to Agricultural and Food Quality Inspection reports (www.ijhar-s.gov.pl/index.php/raporty-o-ekologii.html).

[2] According to IFOAM EU Group data, retail sales in the EU Member States in 2014 increased by 7.4% to EUR 24 billion (www.ifoam-eu.org/en/news/2016/04/05/new-publication-organic-europe-increased-demand-organic-food-production-not-moving).

[3] The list of legal regulations in the field of organic farming system can be found on the website of the Ministry of Agriculture and Rural Development: (http://www.minrol.gov.pl).

There are also analysed organic farms, that conducted this production system simultaneously in 2004 and in 2013. It allowed observed changes in the group of farms that were conducted according organic rules at least a few years.

The distinguished groups of farms have been assessed in terms of their economic sustainability, using indicators of productivity and profitability of the production factors. The productivity of the production factors is a basic element of the farm's economic efficiency. It is defined as a ratio of a single output and a single input. It may refer to the individual factors of agricultural production (land, labour and capital) and also to those factors in general. Its level may result from increasing production (maximising outputs) or reducing costs (minimising inputs). The profitability of the production factors, on the other hand, is the basic output indicator of the agricultural activity, indicating the size of income earned from a unit of a given input. Farm income is a basic economic objective of the farmer's activity and is an important determinant of the standard of life of a farming family, hence it may be an important indicator of the economic sustainability (Wrzaszcz, Zegar, 2014). The size of income illustrates the level of remuneration for involving own factors of production in the farm's operations and for risk taken by the farm holder during the accounting year.

In order to examine the productivity and profitability of the factors of production in the selected groups of farms, the following selected indicators have been used[4]: Land Productivity (Total Output (TO)/Agricultural Land; Gross Farm Income (GFI) /Agricultural Land); Labour Productivity (Total Output (TO) /Annual Work Unit (AWU); Gross Farm Income (GFI)/Annual Work Unit (AWU); Land

[4] The Total Output of a farm represents the basic economic and production category that indicates the economic result of farming. It is the outcome of the sum of the value of crop and livestock production and other activities.

Gross Farm Income is the result of difference of Total Output and the Total Intermediate Consumption (Total specific costs – including inputs produced on the holding – and overheads arising from production in the accounting year), adjusted for the outcome of the balance of current subsidies and taxes (Goraj, 2009). This value indirectly makes it possible to verify the impact of farming efficiency measured by the level of costs and subsidies. Net value added adjusted for the cost of total external factors and the balance of subsidies and taxes on investments indicates the level of Family Farm Income (Bocian and Malanowska, 2014). Family Farm Income is the primary economic goal of farmer's agricultural activity and it is an essential determinant of a farmer family living standard, and hence it may be an important indicator of farm efficiency in agriculture. The issue of factor productivity is especially significant in the context of food security, thus profitability factor has particular importance in the evaluation of labour remuneration and farmer's family general income. The volume of income illustrates the level of compensation for the involvement of their own factors of production in the farm's operations and for the risk taken by a farm manager in a given financial year.

1 AWU (Annual Work Unit) is equivalent to full-time own and paid labour, i.e. 2,120 hours of work a year.

1 FWU (Family Work Unit) is the equivalent of a full-time labour of a farming family member.

Profitability:Family Farm Income (FFI)/Agricultural Land; Labour Profitability: Family Farm Income (FFI)/Family Work Unit (FWU).

RESULTS AND DISCUSSION

Values of characteristics of total farms, total organic farms and a panel of organic farms are presented in Table 1. In the analysed period, the area of total farms increased significantly, so did – even more – the value of their assets[5]. A change in the production potential of farms was also reflected in production and economic results as well as the economic investments made.

The table 1 indicates that the number of organic farms was small both in 2004 (accounting for only 1.3% of total FADN farms) and 2013 (3%), although the number of organic farms in this period grew 2.2-fold. The growth in the population of organic farms should be interpreted as the direction of positive changes in agricultural production, predictive of an improvement in the natural environment.

Table 1. Farms' characteristic (average per farm)

No.	Specification	Total(T)			Organic Total (O)			OrganicPanel (OP)		
		2004	2013	C_%[1]	2004	2013	C_%[1]	2004	2013	C_%[1]
1	Farms' number	4 579	4 579	0.0	60	133	121.7	42	42	0.0
2	Agricultural Land (ha)	30.38	36.02	18.6	19.58	29.87	52.5	19.88	22.54	13.4
3	Labour Input (AWU)	2.04	2.08	2.1	2.06	1.84	-10.5	1.97	1.99	1.0
4	Livestock Unit (LU)[2]	27.72	30.20	9.0	10.90	12.59	15.5	9.44	10.94	16.0
5	Assets[3]	123.34	326.46	164.7	79.64	190.02	138.6	76.99	153.48	99.4
6	Total Output[3]	40.89	72.33	76.9	17.82	29.62	66.2	14.43	20.76	43.8
7	Gross Farm Income[3]	18.81	36.77	95.5	9.72	25.05	157.6	9.76	20.76	112.7
8	Family Farm Income[3]	11.81	25.28	114.1	4.63	17.88	286.1	4.75	13.79	190.3
9	Gross investment[3]	5.38	14.03	160.7	3.88	5.45	40.5	3.10	4.74	52.7

*[1] C_% - change in percentage (2013/2004*100-100); [2] 1 LU (Livestock Unit) is a standard unit of farm animals weighing 500 kg; [3] Value in thousand euro.Source: Prepared on the basis of2004-2013 FADN data.*

The average area of organic farms reached nearly 20 hectares in 2004 and 30 hectares in 2013. Total organic farms in 2004 and 2013 significantly differed also with regard to other elements of production potential as well as production and economic results. Most values for this group of farms in 2013 were much higher than those for 2004, except for labour inputs.

Both in 2004 and 2013, the average organic farm was characterised by lower production potential (livestock population, utilised agricultural area, the value of assets) and results (the value of production, gross farm income, family farm

[5] All value categories were presented in current prices. The EUR/PLN exchange rate of EUR 1=PLN 3.90916 was used. This exchange rate is applied in the FADN system to determine the standard values in EUR.

income) than the average FADN farm. These differences were also evident in organic farms' smaller investment activity.

Total farms are superior to total organic farms as indicated by the difference in the value of production results for 2004 and 2013, but the situation is reversed as far as economic results are concerned. The productivity of agricultural production factors in organic farms is lower – which is determined by the volume and, to a lesser extent, value of agricultural production, the farms incur lower costs, including costs related to payment for external factors (*inter alia*, labour remuneration) and depreciation which is a derivative of a lower value of assets and a lower rate of their reconstruction. These relations were affected mostly by cash transfers, because organic farms are beneficiaries of numerous subsidies of different kinds, primarily area payments and agri-environmental payments, including organic subsidies, which significantly increased the income of an organic producer in 2013.

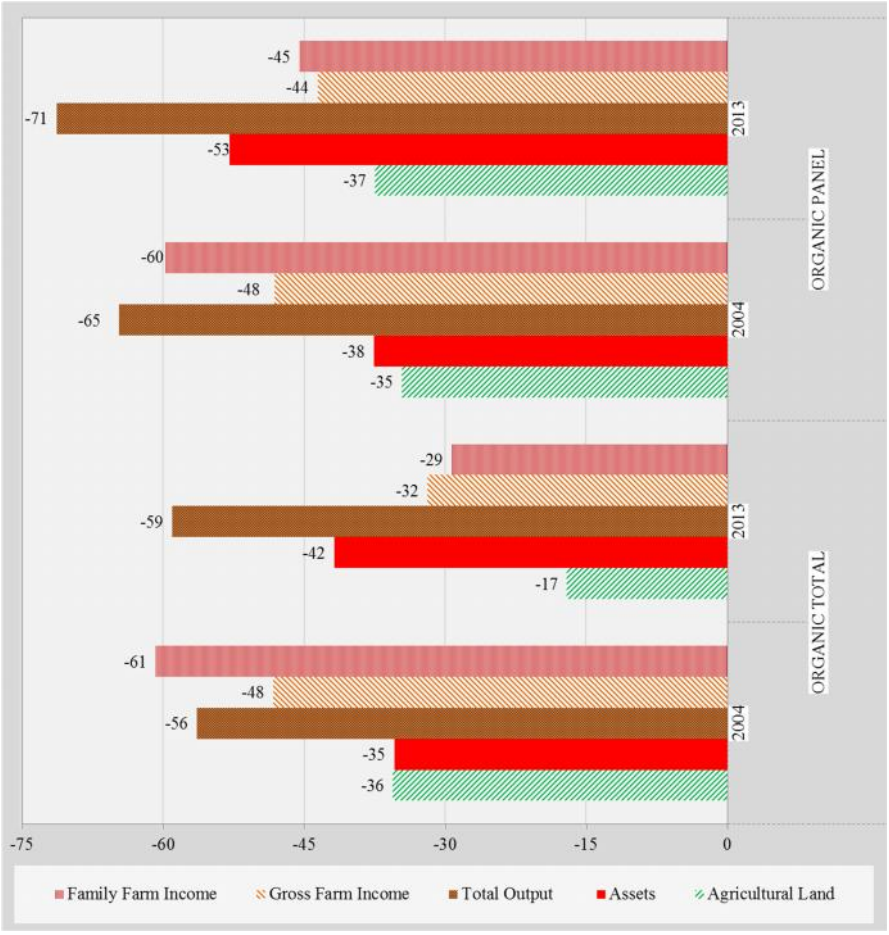

Figure 1. The relative difference (%) between organic farms (total and panel) and average FADN ones.

**Source: Prepared on the basis of 2004-2013 FADN data.*

However, the production and economic gap between organic farms and total FADN farms is very wide, as indicated by negative values in Figure 1. In the analysed period, the production gap between these groups of farms slightly widened, but the income gap nearly halved. This was undoubtedly due to subsidies for organic production. In the considered period, the gap in the value of assets between organic farms and total farms widened significantly. The level of economic results of organic farms makes it impossible to increase assets at a rate proportional to total farms.

Most **organic farms** covered by FADN in 2004 were operated in accordance with these principles in 2013. This indicates a strong motivation to further follow the organic system of agricultural production.

When comparing results of panel organic farms and total organic farms in 2004 and 2013, it may be concluded that, although the former increase production potential, the gap between them and total organic farms is widening. This indicates that organic farms, which have been operated in accordance with the principles of the system for a short period of time, are characterised by much larger area, smaller labour inputs, lower livestock density and they also hold far more assets compared to the average level for the panel of organic farms, i.e. the farms which have been covered by this production system for many years. In other words, "new" organic farms are basically large, more mechanised farms which are often oriented only towards crop production or which choose livestock production as their supplementary activity. Therefore, differences in production potential between the panel of organic farms and total organic farms became reflected in their production and economic results.

As indicated in Figure 1, the gap between panel organic farms and total FADN farms is even wider compared to that between panel organic farms and total organic farms. In the considered period, differences in production potential (measured by utilised agricultural area and the value of assets) and production results between these groups of farms deepened. However, the difference in the level of income shrank as a result of growing subsidies for organic production in 2004-2013. Nevertheless, the income of the average panel organic farm in 2013 was lower than that of the average farm keeping agricultural accounts by as much as 45%. The farms‘ economic sustainability includes productivity and profitability of factors production. The data presented in table 2 indicate the large gap with regard to the land productivity (based on Total Output) among average farms and organic ones, that increased in analysed period. In the case of panel organic farms, land productivity was the lowest,and it increased in smaller scope compared to the total farms between 2004-2013. It can be concluded that organic production brings lower benefits (described by land productivity), than conventional one. Organic farms (total and panel) achieved the lower economic results (described by land profitabilty) when compared to average farms, although the negative difference decreased. These relations were significantly affected by subsidies to the farm’s operations (used to a larger extent by organic farms), as well as by the costs, *inter alia*, related to payment for external factors.

Table 2. Productivity and profitability of land and labour

No.	Specification	Total (T)			Organic Total (O)			Organic Panel (OP)		
		2004	2013	C_%[1]	2004	2013	C_%[1]	2004	2013	C_%[1]
I	Land productivity and profitability in thousand €/ha									
1	Total Output	1.35	2.01	49.2	0.91	0.99	9.0	0.73	0.92	26.8
2	Gross Farm Income	0.62	1.02	64.9	0.50	0.84	68.9	0.49	0.92	87.6
3	Family Farm Income	0.39	0.70	80.6	0.24	0.60	153.1	0.24	0.61	156.0
II	Labour productivity and profitability in thousand €/AWU									
1	Total Output	20.09	34.79	73.2	8.66	16.08	85.7	7.34	10.45	42.4
2	Gross Farm Income	9.24	17.69	91.4	4.73	13.60	187.7	4.96	10.46	110.7
3	Family Farm Income	6.78	14.44	112.9	2.63	11.36	332.3	2.82	8.10	187.1

[1] *C_% - change in percentage (2013/2004*100-100). Source: Prepared on the basis of 2004-2013 FADN data.*

Just like in case of the land productivity, organic farms (total) were inferior to average farms in the case of labour productivity. However, the labour productivity of panel organic farms was lower than that of total organic farms and total FADN farms – as it was the case with land productivity. These results confirmed that farms, which deliver benefits to the social and natural environment, are characterised by lower land and labour productivity as well as slower productivity growth than total farms keeping agricultural accounts.

The situation is somewhat different for the profitability of factors of production, as the role of subsidies in shaping the economic result is significant and largely determines the growth rate of income and, to a lesser extent, land and labour profitability – primarily as regards organic farms. In the period considered, total and panel organic farms enjoyed the highest growth rate of profitability indicators. However, this does not undermine the fact that organic farms are hardly profitable and uncompetitive – in the classic point of view – compared to conventional farms.

In 2004, the average farm received subsidies in the amount of EUR 1.4 thousand which were in whole associated with its operations (at that time, subsidies supporting the investment activity have not been launched yet; table 3). They included mainly direct subsidies, while the rest accounted for transfers within the framework of the Rural Development Programme's measures (RDP). In 2004, some packages of the agri-environmental programme, addressed to organic farms, were introduced. The implementation of the CAP has significantly changed that situation – in 2013, the average farm received almost 8.5 times more than in 2004. In 2013, support for rural development covered various measures proposed to farmers. Farmers showed interest in taking environmentally-friendly measures – as evidenced by the high share of subsidies provided to farmers for agri-environmental projects – 24% of rural development subsidies.The indicators of the ratio of subsidies to the production and economic results illustrate their increasing role in shaping the farms'economic results. Linking subsidies with the observance

of the environmental protection principles in agricultural production also affected the environmental sustainability of farms.

Table 3. Subsidies (average per farm, thousand €) and their relations to farms' outcomes (%)

No.	Specification*	Total		Organic_Total		Organic_Panel	
		2004	2013	2004	2013	2004	2013
1	Total subsidies (TS)	1.44	12.13	1.09	13.54	1.35	11.09
2	- to operational activities (OA)	1.44	10.94	1.09	13.00	1.35	10.61
3	- to investment activities (OI)	0.00	1.18	0.00	0.55	0.00	0.48
4	Direct payments	1.05	7.92	0.43	6.70	0.50	5.54
5	Subsidies to rural development	0.39	4.21	0.66	6.84	0.85	5.56
6	- agrienvironmental	0.01	1.03	0.37	4.62	0.51	3.62
7	- less favoured areas	0.05	0.77	0.04	1.15	0.05	0.99
8	Total subsidies /TO	3.52	16.77	6.13	45.73	9.32	53.44
9	Balance of OA and T*/GFI	6.92	27.17	8.46	49.35	11.80	48.74
10	Balance of TS and T*/FFI	7.95	35.99	7.33	66.84	11.39	70.79

*TO-Total Output; T-taxes; GFI-Gross Farm Income; FFI-Family Farm Income.
**Source: Prepared on the basis of 2004-2013 FADN data.*

The structure of subsidies in organic farms (total and panel) definitely differed from the same structure in average farms as over the analysed period organic farms received a greater part of the funds from the RDP – they were covered by the agri-environmental programme. Organic farms acquired relatively small subsidies for their investment activity, which may also indirectly indicate limited investments.The indicators of the ratio of subsidies to the results of organic farms show a definitely greater role of external transfers in shaping their economic situation in relation to average farms.

When comparing the situation of the panel of organic farms and total organic farms, it may be concluded that they differed significantly in terms of the amount of support in the form of subsidies. Panel organic farms had it higher in 2004 (by as much as 23%) and, being organised according to the principles of the organic production system, were better prepared to effectively use funds offered as part of government programmes and already met criteria for obtaining subsidies. Given that most subsidies are related to farm area, panel organic farms started becoming inferior over time to total organic farms which also covered conventional units under reorganisation, including those with large utilised agricultural area. The structure of subsidies by type did not contrast total organic and panel farms, while differences in their production potential as well as production and economic results were reflected in the value of ratios. Ratios of subsidies to the value of production and income revealed that subsidies were more significant in shaping results of panel organic farms than those of total organic farms and, all the more, total FADN

farms. In other words, the economic situation of panel organic farms is the most dependent on external support.

CONCLUSION

Instruments of the Common Agricultural Policy contributed to dynamic growth in the number of organic farms – thus contributing to an increase in organic production in Poland. In the period considered, the group of total organic farms was enlarged to include new farms with relatively large area, a small livestock population, low labour inputs and a low value of agricultural production.

In subsequent years, most organic farms (2004) were operated in accordance with the principles of the agricultural production system. The panel organic farms were characterised by lower production potential as well as significantly less favourable production, economic and investment results than total farms of FADN.

In the period under analysis, panel organic farms improved their production potential as well as production and economic results. Utilised agricultural area, the value of assets, production and investment results changed to a lesser extent in the case of panel organic farms compared to the dynamics of changes observed in the entire population of FADN farms, while the farms achieved an advantage in the rate of changes in the livestock population, gross farm income and family farm income. Organic farms achieve particularly low results of factor productivity and profitability, which, although slightly improved, but the gap between them and average farms increased in the case of factor productivity. Reduction of differences in factor profitability was the result of subsidies, particularly connected with operational activity of farms.

The indicators of the ratio of subsidies to the production and economic results illustrate their increasing role in shaping the economic situation of farms (all analysed groups). Linking subsidies with the environmental protection principles in agricultural production also affected the environmental sustainability of farms.

Support for organic farms seems reasonable due to hardly intensive and specialised production (which determines their less favourable competitive position) and primarily non-marketable environmental and social benefits generated by them. The production of non-market goods requires proper commitment from various state institutions, as they are not covered by market transactions.

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