

Regional Differences in the Absorption of Financial Support by Agricultural Holdings and Changes in the Level of Agriculture in Poland in the Years 2004–2009

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Abstract

The article offers an analysis of the volume of financial support absorbed by agricultural holdings in Poland against the background of changes in the level of farming during the country's EU membership (the years 2004–2009). The transfer of EUR 21 billion of assistance contributed to the development of Polish farming to a limited extent only. This was largely due to the structure of the funds being unfavourable from the point of view of the development of agriculture, in particular because of a large proportion of passive forms of EU support (area payments). Of no little importance was also the fact that some of the operational measures were intended to improve the natural environment and put farms on a non-agricultural development path rather than bring about an increase in the production level and competitiveness of agriculture.

Introduction

Poland's membership within the European Union and the consequent inclusion of Polish farms in a wide array of Common Agricultural Policy (CAP) instruments has given the country's agriculture great possibilities for development. To assess this influence, regional sums of assistance obtained by farmers in the years 2004–2009 were calculated (excluding CAP funds not directed to farms), and on the other hand an analysis was made of changes that occurred in Polish agriculture in that period.

The financial means obtained by agricultural holdings were understood as direct payments (granted per ha agricultural land, or AL) and those resulting from farm participation in several operational programmes involving the implementation of concrete modernisation measures. The time span analysed was the first financial period of Poland's EU membership (2004–2006) under the Rural Development Plan (RDP; see *Plan Rozwoju...* 2004) and the Sectoral Operational Programme "Restructuring and Modernisation of the Food Sector and Rural Development" (SOP_Agri; see *Sektorowy Program...* 2004), as well as the current period 2007–2013 of measures implemented under the Rural Development Programme, as of the end of 2009. In the article use was made of data from the Agency for Restructuring and Modernisation of Agriculture (AR&MA), complemented with data on payments coming from the Agricultural Market Agency (AMA; subsidies for seed and for producers of tobacco and starch potatoes).

The analysis employed several indices (diagnostic features) characterising the regionally diversified level of absorption of Community support in terms of both the total means obtained by agricultural holdings (calculated per ha AL and per farm), and exclusively modernisation measures implemented under the various operational programmes (share of operational measures in the total

funds obtained and the share of applications granted under those measures in the total number of farms). Assuming that the indices chosen for analysis were equal in their effect on the level of agriculture, they were presented in the form of a single synthetic index of financial support absorption by agricultural holdings (a normalised mean).

To analyse the rate and directions of changes in agriculture, several diagnostic features characterising its individual elements in the years 2004 and 2009 were employed, namely: the agrarian structure (mean area of a farm's agricultural land), labour inputs in agriculture (AL in ha per farm worker), technical equipment (investment outlays in euros/ha AL), land productivity (gross agricultural output in euros/ha AL), and the level of commercialisation of agriculture (per cent of commercial production in gross agricultural output; use was made of the Central Statistical Office (GUS) data: the Local Data Bank available on the Internet and Statistical Yearbooks of Agriculture). Those variables provided a basis for the construction of two synthetic indices of the level of agriculture in the two years 2004 and 2009 (normalised means again, as in the case of the absorption index), which made it possible to assess changes that occurred over that period in Polish agriculture against regional differences in the financial support of agricultural holdings.

The monetary data given in the original source materials at current prices in zlotys were converted into euros, assuming a mean exchange rate of 4 zlotys to the euro. It reflected the official exchange rate interval set by the European Central Bank, which varied from PLN 3,92⁽¹⁾ in 2005 to PLN 4,20 in 2009.

1 Financial support of agricultural holdings: its level and structure

In the years 2004–2009 Polish farms received nearly EUR 21,2 billion under the domestic and Community support policies. Such a substantial figure resulted from their inclusion within the EU system of direct payments and the implementation of several assistance programmes and measures for agriculture (tab. 1). The basic instrument supporting Polish agriculture after the country's accession to the EU has been direct payments. They involve financial support of a magnitude proportional to the area of farmland kept in good agricultural condition irrespective of the kind of agricultural activity conducted. The payment system, which is the chief segment of support, consists of two equal elements: a single area payment (SAP) and complementary area payments (CoAPs). The former is funded wholly from the EU budget. In the years 2004–2009, the payments granted under SAP amounted to EUR 6,490 million, which accounted for 30,6% of total financial support for agricultural holdings. The rate of this payment grew systematically, from EUR 52,6 per ha in 2004 to EUR 126,7 in 2009. Complementary area payments (CoAPs), which amounted to EUR 6,456 million (30,5% of all means obtained by agricultural holdings), were primarily funds paid by AR&MA under the following categories:

- a basic complementary payment (so-called “other crops”), covering a wide variety of crops—for example, cereals and oil plants, listed each year in a Council of Ministers' ordinance (the rate varying from EUR 73,2 per ha in 2004 to EUR 89,1 in 2009)
- a sugar payment, granted since 2006 as a financial recompense for farms owing to the restructuring of the sugar industry in the EU (the rates ranging from EUR 8,5 per tonne of sugar beets in 2006 to EUR 13,4 in 2009)
- an animal payment, for permanent grassland and grasses grown on farmland for fodder (granted since 2007; the rates ranging from EUR 109,5 per ha in 2007 to EUR 125,7 in 2009)
- payment for energy crops, which are a source of renewable energy and material for the production of biofuels (granted since 2005; initially at a rate of EUR 54,46 per hectare of plantation of energy willow and the thornless cultivar of dog rose only, later the list was extended to include other plants—for example, rye, rape and sugar beets, while the subsidy dropped to EUR 47,6 per ha of crops in 2009)

1. [In the journal (in both Polish and English texts) European practice of number notation is followed—for example, 36 333,33 (European style) = 36 333.33 (Canadian style) = 36,333.33 (US and British style). Furthermore in the International System of Units (SI units), fixed spaces rather than commas are used to mark off groups of three digits, both to the left and to the right of the decimal point.—Ed.]

Tab. 1. Payments under the EU assistance programmes for agricultural holdings in Poland in the years 2004–2009, in million euro

Forms of support	Years			
	2004–2006	2007–2009	2004–2009	
	EUR	EUR	EUR	%
Single area payments	2,473	4,016	6,49	30,6
Complementary area payments				
Payments for other plants	2,733	2,176	4,909	23,2
Payments for sugar	0,100	0,405	0,505	2,4
Payments for energy crop	0,001	0,007	0,008	0,0
Payments for hop	0,002	0,002	0,003	0,0
Animal payments	—	0,605	0,605	2,9
Payments for soft fruits	—	0,027	0,027	0,1
Payments for tomatoes	—	0,013	0,013	0,1
Payments to tobacco producers	0,087	0,230	0,316	1,5
Quotas for potato starch production	0,015	0,018	0,033	0,2
Payments for seed	—	0,037	0,037	0,2
Support of less-favoured areas (LFA under RDP)	0,970	1,133	2,103	9,9
<i>Direct payments and LFA (total)</i>	6,380	8,668	15,049	71,1
Measures/programmes	RDP SOP_Agri	RDP		
Investment on farms	0,610	—	0,610	2,9
Diversification into non-agricultural activities . .	0,071	0,059	0,130	0,6
Structural pensions	1,371	0,117	1,488	7,0
Setting-up of young farmers	0,177	0,300	0,477	2,3
Agri-environmental programme	0,775	0,145	0,921	4,3
Afforestation of land	0,142	0,041	0,183	0,9
Groups of agricultural producers	0,016	0,026	0,043	0,2
Support for semi-subsistence farms undergoing restructuring	0,766	—	0,766	3,6
Adjustment of farms to EU standards	0,609	—	0,609	2,9
Development and improvement of farming- related technical infrastructure	0,037	—	0,037	0,2
Modernisation of agricultural holdings	—	0,859	0,859	4,1
Restoring agricultural production potential damaged by natural disasters	—	0,000	0,000	0,0
Use by farmers of advisory services	—	0,001	0,001	0,0
Participation of farmers in food quality schemes	—	0,000	0,000	0,0
<i>Assistance measures (total)</i>	4,576	1,549	6,125	28,9
Total financial support for agricultural holdings	10,956	10,218	21,174	100,0

Source: own compilation on the basis of data of the Agency for Restructuring and Modernisation of Agriculture and the Agricultural Market Agency

- payment for hop cultivation, at a rate diminishing—as in the case of production-related payments—from EUR 253,4 per ha (2004) to EUR 126,9 (2009), but compensated by the introduction in 2008 of payments unconnected with production (called historical), intended for farms departing from this line of crop production (EUR 215,3 per ha in 2009)
- payment for fruits and vegetables, the so-called tomato payment (since 2008; EUR 33,4 per tonne, in 2009 increased to EUR 41,7)
- transitional payments for the production of soft fruits (since 2008; EUR 339,7 per ha, in 2009 EUR 422,9)

Complementary payments were also paid to farmers by the Agricultural Market Agency. Those were: payments to tobacco producers,² quotas for potato starch production,³ and financial support for the use of certified seed (of the basic or certified category⁴).

Apart from the direct payment system, the Community policy of support for agriculture has involved operational programmes. In the first financial period of Poland's EU membership (2004–2006) those were: the Rural Development Plan (RDP) and the Sectoral Operational Programme “Restructuring and Modernisation of the Food Sector and Rural Development” (SOP_Agri), in the years 2007–2010 followed by the Rural Development Programme (as part of the 2007–2013 perspective). Those programmes allowed agricultural holdings in Poland to receive financial support in the amount of EUR 8,228 million—nearly 39% of all subsidies. They consisted of 15 measures (see tab. 1), namely:

1. Support for agricultural activity in less-favoured areas (LFAs); this measure was implemented under RDP 2004–2006 and RDP 2007–2013, and by the end of 2009 it had totalled EUR 2,103 million; such a high payment was a result of a large area being qualified as LFA (9,2 million ha), relatively high rates per ha (e.g., in 2009 from EUR 45,9—lowland zone I, to EUR 81,9—mountain areas), and ready access to those means (together with a SAP application); in this measure the funds obtained by a farm depended on the area, hence it was a type of area payment.
2. Investment in agricultural holdings; this measure, implemented in the years 2004–2006 (under SOP_Agri—24,1 thousand applications, payment of EUR 610 million), largely involved refunds of part of the outlays for the construction or repair of buildings and for the purchase of machines and equipment.
3. Diversification into non-agricultural activities; the aim was to support investment projects designed to start an additional economic activity on farms (e.g., agro-tourism, or services for agriculture and small-scale processing of produce); those measures were implemented in the years 2004–2006 (“Diversification of agricultural and agriculture-related activity to ensure a diversity of ventures or alternative sources of income”—under SOP_Agri) and 2007–2009 (“Diversification into non-agricultural activities”—under RDP 2007–2013). A total of 7,1 thousand applications were granted in this field, which involved financial support of EUR 130 million.
4. Structural pensions; this measure covered farmers of pre-retirement age (from 55 years old to the retirement threshold) and was intended to accelerate the process of generational exchange among farm operators and improve the farm-size structure. Over the years 2004–2010 there were 67,7 thousand applications, which meant payment of EUR 1,488 million (under RDP 2004–2006 and RDP 2007–2013).
5. Setting-up of young farmers; this measure was intended to improve the age structure of farm operators; the targets of the financial assistance were young farmers, up to 40 years of age, who started running an agricultural holding of their own. Over the study period a total of 30,1 thousand such subsidies were granted to the amount of EUR 477 million (EUR 12,5 thousand per application under SOP_Agri in the years 2004–2006, and EUR 18,8 thousand per application under RDP 2007–2013).
6. Agri-environmental payments; amounting to EUR 921 million, intended to encourage farmers to introduce or continue agricultural production methods compatible with the protection and improvement of the environment. This measure was implemented under RDP 2004–2006 as “Support for agri-environmental ventures and improvement of animal welfare” (payments being granted in the form of seven packages encompassing the entire country or selected priority zones), and under RDP 2007–13 as “The agri-environmental programme” (in the form of nine packages encompassing the entire country). One holding could apply for assistance in up to 3 packages, which resulted in a record number of applications (405,9 thousand).

2. They ranged from EUR 1,25 per kg in 2004 to EUR 2,98 (for bright tobacco of the Virginia type) and EUR 2,38 (for Burley and other types) in 2009.

3. The sums obtained per tonne of starch varied from EUR 62,7 in the 2004/2005 season to EUR 56,3 in the economic year 2008/9.

4. In the years 2007–2009, EUR 36,6 million were spent as a refund for costs with reference to the area sown.

7. Land afforestation; the measure was intended to help extend forest resources on land used by agricultural holdings. It was implemented under RDP 2004–2006 (“Afforestation of agricultural land of low farming use”) and RDP 2007–2013 (when the measure was extended to the afforestation of land other than agricultural). In all, there were 15,3 thousand applications and payments to the amount of EUR 183 million.
8. Groups of agricultural producers; or support for agricultural producers in undertaking common market ventures; under RDP in the years 2004–2006 and 2007–2009, a total of 1 036 decisions were made granting payment of EUR 43 million.
9. Support for semi-subsistence farms undergoing restructuring; or financial assistance necessary to help preserve the financial liquidity of farms with a small production scale (up to 4 ESU). This measure was only established under RDP 2004–2006; it covered 157,7 thousand agricultural holdings and involved spending EUR 766 million.
10. Adjustment of agricultural holdings to EU standards; the aim was to adjust farms to Community standards in such fields as environmental protection, hygiene, animal welfare, and food safety. This measure was only implemented under RDP 2004–2006, when 69,7 thousand applications were granted amounting to EUR 609 million.
11. Development and improvement of farming-related physical infrastructure; the measure was intended to improve the equipment of farms with modern physical infrastructure, especially the kind important from an environmental point of view (e.g., water-and-sewage facilities). This measure was part of SOP_Agri in the years 2004–2006, when 3,4 thousand applications were granted and subsidised with EUR 37 million.
12. Modernisation of agricultural holdings; the measure, implemented under RDP 2007–2013, supports investment intended to improve the technical and infrastructural equipment of agricultural holdings; in the years 2007–2009, 29,1 thousand such applications were granted and a subsidy of EUR 859 million was paid.
13. Restoring agricultural production potential damaged by natural disasters and introducing appropriate prevention actions; this was financial support for farms that had lost their production potential as a result of a natural disaster. Over the years 2007–2010, 2,2 thousand such applications were implemented to the amount of EUR 0,2 million.
14. Use by farmers and forest holders of advisory services; the measure encouraged ventures helping agricultural and forest holdings to adjust to the principle of cross-compliance, boost their profitability and competitiveness, support their restructuring, development and innovation, enforce environmental protection, and improve safety at work. Under this measure 10,9 thousand applications had been granted by the end of 2010, which meant a subsidy of EUR 0,9 million.
15. Participation of farmers in food quality schemes intended to improve the quality of production and agricultural products meant for consumption. This type of financial assistance is implemented under RDP 2007–2013; by the end of 2009, 12 thousand decisions had been made granting payment of EUR 0,4 million.

The analysis conducted showed that in the years 2004–2009 there was a complex system of farm subsidies encompassing—apart from single area payments—10 categories of complementary area payments and 15 operational measures under RDP 2004–2006, SOP_Agri, and RDP 2007–2013.

The level and structure of absorption resulted from the implementation of the EU Common Agricultural Policy (e.g., under the European Agricultural Guidance and Guarantee Fund in the years 2004–2006 and the European Agricultural Fund for Rural Development in the years 2007–2013). However, the means obtained by farms were not exclusively EU subsidies (SAP, beet payments); they also came from the national budget (the remaining CoAPs), or were combinations of those two sources of funding (e.g., RDP: 80% of EU means and 20% of national budget means), with the exception of agri-environmental ventures—85% of EU support, or payments for soft fruits: 57,5% from the EU budget, 42,5% from the national budget. Besides, in some assistance measures, supporting agricultural holdings by public means (Community and national) involves engaging their private resources in a given investment. Those sums (e.g., under RDP 2007–2013) amounted to 50% in the case of diversification into non-agricultural activities, or 60% in the case of farm modernisation.

The funding obtained by agricultural holdings show wide differences by voivodship⁵: from EUR 457 million in Śląskie (2,2%) and EUR 539 million in Lubuskie (2,5%) to EUR 2,634 million in Wielkopolskie (12,4%) and EUR 2,946 million in Mazowieckie (13,9% of the total funds obtained over the years 2004–2009). The funds obtained by agricultural holdings listed in the AR&MA register in the years 2004–2009, considered in terms of their number (1 431 800) and area of agricultural land (13 944 700 ha—the mean for the years 2004–2009), made it possible to construct two absorption indices presenting subsidies granted per ha AL and per farm (see tab. 2).

Tab. 2. Indices of assistance absorption by agricultural holdings in Poland over the years 2004–2009

Voivodship	Absorption level		Funds obtained — total		Means under modernisation programmes		Absorption index (normalised mean)
	million euro	%	euro/ha AL	thousand euro per farm	in % of total funds obtained	number of applications in % of farms	
Dolnośląskie	1,160	5,5	1,333	19,1	22,7	44,0	−0,81
Kujawsko-pomorskie	1,642	7,8	1,598	24,0	30,8	86,6	0,83
Lubelskie	2,068	9,8	1,568	11,4	29,9	61,9	0,11
Lubuskie	0,539	2,5	1,399	25,9	26,0	83,8	0,15
Łódzkie	1,473	7,0	1,533	11,3	32,6	51,3	0,10
Małopolskie	0,776	3,7	1,539	5,7	30,1	35,4	−0,37
Mazowieckie	2,946	13,9	1,583	13,7	31,0	51,1	0,15
Opolskie	0,661	3,1	1,323	22,4	23,1	65,0	−0,48
Podkarpackie	0,816	3,9	1,546	6,5	28,0	38,0	−0,45
Podlaskie	1,689	8,0	1,676	20,4	28,1	68,6	0,52
Pomorskie	1,015	4,8	1,450	25,7	27,6	103,2	0,56
Śląskie	0,457	2,2	1,359	8,6	27,6	27,5	−0,90
Świętokrzyskie	0,867	4,1	1,763	9,3	38,3	70,3	1,07
Warmińsko-mazurskie	1,337	6,3	1,407	31,0	24,7	79,0	0,17
Wielkopolskie	2,634	12,4	1,545	21,3	29,0	68,5	0,35
Zachodniopomorskie	1,093	5,2	1,371	37,5	25,9	105,8	0,64
Total (Poland)	21,174	100,0	1,518	14,8	28,9	58,3	0,00

Source: own compilation on the basis of data of the Agency for Restructuring and Modernisation of Agriculture and the Agricultural Market Agency

Thus, the funds obtained by agricultural holdings in the years 2004–2009 calculated per ha AL averaged EUR 1 518. This absorption index varied from under EUR 1 400 in the voivodships of western Poland: Dolnośląskie, Lubuskie, Opolskie, Śląskie, and Zachodniopomorskie, to over EUR 1 650 in Podlaskie and Świętokrzyskie.

A low level of absorption defined in this way was recorded in voivodships with the largest mean farm sizes in the country. This factor ensured those farms an inflow of large sums in the form of area payments, which reduced their activity in seeking other assistance. The index was also found to be lower in regions with a high level of agriculture. This, in turn, was due to the fact that those voivodships as a rule have better natural conditions for farming, which limits access of their farms to Community subsidies for land situated in less-favoured areas (LFAs) as well as their participation in RDP measures under agri-environmental programmes and those dealing with the afforestation of farmland.

The funds obtained by agricultural holdings were also calculated in terms of the number of farms—AR&MA agricultural producers. It was shown that in the years 2004–2009 the support per farm amounted to nearly EUR 15 thousand. The lowest figures—under EUR 10 thousand per

5. Voivodship—Polish administration region on the NUTS 2 level. Poland is divided into 16 voivodships.

farm — were registered in south-eastern voivodships: Małopolskie (EUR 5,7 thousand), Podkarpackie (EUR 6,5 thousand), Śląskie (EUR 8,6 thousand) and Świętokrzyskie (EUR 9,3 thousand). In turn, high figures (in excess of EUR 20 thousand) could be found in northern and western regions of Poland, with records of EUR 31 thousand in Warmińsko-Mazurskie and EUR 37,5 thousand in Zachodniopomorskie voivodships. The amount of EU funds obtained by a farm depended primarily on its area (the effect of area payments, accounting for 61,1% of all the subsidies). That is why variations in the index depended mainly on the size structure of farms.

The financial assistance given to agricultural holdings was not uniform from the point of view of changes in agriculture (Rudnicki 2010). It covered two forms of support: passive and active.

Passive forms, not connected with a declaration of farm restructuring, had an indirect effect on the development of agriculture. They included: the single area payment (SAP), complementary area payments (CoAPs with their 10 categories), and funds for farming in less-favoured areas (LFAs, a measure under RDP). Over the period studied, the passive forms of support amounted to EUR 15 billion, or 71% of the total means obtained. Farmers applying for those payments filled in a single form (the application form for direct payments was also a form for payments under Support for agricultural activity in LFAs), and they could put the funds thus obtained to any use, whether to make an investment in agriculture (thus boosting the level of farming) or to provide education for their children, improve housing conditions, buy a car, etc. While this certainly ended up in better living conditions of the farming population (making up for years of neglect in this context), the improvement did not follow from the development of agricultural production.

Active forms of support (directly boosting the development of agriculture) involved the subsidising of concrete modernisation measures under RDP (without LFAs) and SOP_Agri (EUR 6 billion, or 29% of the total means granted). In this case the farmer had to prepare an application for a subsidy (often with the help of a consulting firm) explaining the purpose of the planned venture and presenting a schedule of steps to be taken (a business plan), and the spending of the funds obtained was controlled by an external body.

Because of the great influence of operational programmes on the development of agriculture, active forms of farm support are presented in the form of two indices illustrating the share of those subsidies in total assistance and the number of applications granted under those measures in the total number of agricultural holdings.

The proportion of funds directly involving the implementation of modernisation measures in the total means obtained by agricultural holdings over the years 2004–2009 ranged from 22,7% in Dolnośląskie to 38,3% in Świętokrzyskie. This relatively low share of active means (in comparison with the more readily accessible passive forms) should be regarded as unfavourable for the development of Polish agriculture, hardly accelerating the rate of its structural transformation. This remark concerns primarily small (non-commercial) farms, whose inclusion in the area payment scheme is as a rule a welfare measure which fossilises their presence in the size structure of agricultural holdings. However, there were also several large farms, mostly specialising in extensive crop production, which, satisfied with the relatively high area payments, made no effort to work out projects making them eligible for funding under the EU operational programmes.

As a rule, a high proportion of active forms of payment in the total assistance granted under the Common Agricultural Policy was characteristic of regions of intensive agriculture as defined by a substantial share of industrial crops and high stocking rates, and by the specialisation of farms in the production of fruits and vegetables. Those are areas where agricultural holdings are leaders in using EU funds to modernise and compete successfully on the Common Market.

In the years 2004–2009, under the various measures supporting the modernisation of agricultural holdings, a total of 835 thousand applications were granted under RDP (without LFAs) and SOP_Agri. The one enjoying the greatest popularity among farmers was the agri-environmental programme (48,6%) in which one farm could submit up to three applications for its various packages. Apart from this, three other measures had a high share (over 8%) in the structure of the applications granted: Support for semi-subsistence farms undergoing restructuring (18,9% — only RDP 2004–2006), Adjustment of agricultural holdings to EU standards (8,4% — only RDP 2004–2006), and Structural pensions (a total of 8,1% in the years 2004–2009).

Because of the great significance of the active forms of Community payments for the modernisation of Polish agriculture, their analysis was extended to include an index of the number of such applications per 100 agricultural holdings. The national average was 58,3%, but there were wide regional differences: from 27,5% in Śląskie to more than 100% (the number of applications granted was higher than the number of farms) in Pomorskie (103,2%) and Zachodniopomorskie (105,8%). High indices of farm activity were often recorded in less-favoured areas. This was largely due to the large share of agri-environmental subsidies in the structure of applications under analysis.

The analysis conducted showed that over the years 2004–2010 payments granted under the Common Agricultural Policy programmes were the most important factor of development in rural areas and of the modernisation of Polish agriculture because of the magnitude of the sums transferred, mass participation of agricultural holdings (834,500), and the variety of payment forms (a total of 15 measures).

The above variables describing both the total means obtained (per ha AL, per farm) and those aiming exclusively at modernisation of agriculture (in per cent of total funds, applications in per cent of farms), were presented jointly in the form of a normalised mean and defined as a synthetic index of absorption of financial support by agricultural holdings (an absorption index). This procedure made it possible to assign individual regions to five classes of the absorption level, namely:

- a very low level (standard deviation σ under $-0,75$) in Dolnośląskie and Śląskie voivodships
- a low level (from $-0,75$ to $-0,25$) in Małopolskie, Opolskie, and Podkarpackie
- an average level (from $-0,25$ to $0,25$) in Lubelskie, Lubuskie, Łódzkie, Mazowieckie, and Warmińsko-Mazurskie
- a high level (from $0,25$ to $0,75$) in Podlaskie, Pomorskie, Wielkopolskie, and Zachodniopomorskie
- a very high level (σ over $0,75$) in Kujawsko-Pomorskie and Świętokrzyskie (see fig. 1)

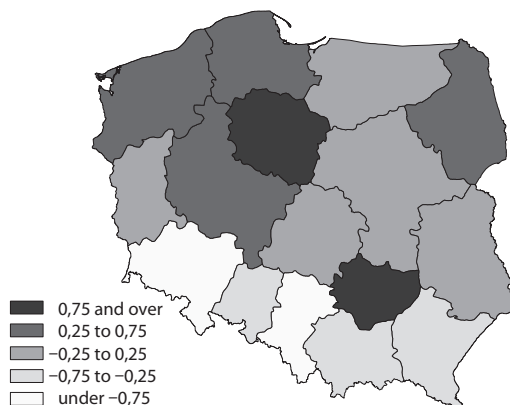


Fig. 1. Synthetic index of financial support absorption by agricultural holdings

That there are significant problems with the development of agriculture in Poland as an EU member is indicated by regions with negative values of the absorption index. This was the situation found in a belt of five voivodships in the south, from Dolnośląskie to Podkarpackie (fig. 1), which can be ascribed to the poor condition of agriculture there, largely owing to a great number of very small farms and a low level of education among their operators. In the rest of the country, the process of adaptation of agricultural holdings to the EU agricultural policy has been much more successful, as indicated by regions with positive values of the index. Outstanding here are voivodships with high and very high levels of the index, clustering mainly in the north-western part of Poland (Kujawsko-Pomorskie, Pomorskie, Wielkopolskie, and Zachodniopomorskie). Elsewhere such high figures were only recorded in Podlaskie and Świętokrzyskie. The high position of Świętokrzyskie is primarily the effect of its being the top-ranking region in the proportion of means from operational programmes in the total assistance funds obtained by its agricultural holdings.

2 The level of agriculture

In comparison to the West European states, Polish agriculture lags behind. This is largely due to a big proportion of small farms, agrarian overpopulation, and a low level of both technical facilities and education of farm operators (Bański 2007, Głębocki 2007). To determine changes in the general level of agriculture between 2004 and 2009, use was made of several diagnostic features (see tab. 3), namely:

- mean area of agricultural land on farms; on average, it increased from 5,7 ha (2004) to 6,4 ha (2009); the index of change equalled 112 points (2004 = 100), ranging from 102–104 points in Podkarpackie, Świętokrzyskie, and Wielkopolskie to 125–127 points in Opolskie and Śląskie
- area of agricultural land per farm worker; on average, no significant change was recorded (about 7,8 ha), and the index of change ranged from 90–93 points in Małopolskie, Świętokrzyskie, and Zachodniopomorskie to 107 points in Lubelskie and Opolskie
- investment outlays in agriculture and hunting in euro per ha agricultural land (at current prices); on average, an increase from EUR 33 (2004) to EUR 58 (2009) was recorded; the index of change averaged 174 points (2004 = 100), ranging from 100 points in Świętokrzyskie to 210–213 points in Dolnośląskie and Wielkopolskie
- gross output in euro per ha agricultural land (at current prices); on average, an increase in from EUR 919 (2004) to EUR 1242 (2009) was observed; the general national index of change amounted to 135 points (2004 = 100), ranging from 117 and 119 points in Podkarpackie and Małopolskie to 152 and 155 points in Pomorskie and Podlaskie
- procurement value of agricultural products (at current prices) in per cent of gross agricultural output; on average, a slight drop was recorded, from 50,6% (2004) to 46,4% (2009); the national average index of change was 92 points (2004 = 100), ranging from 71 points in Podlaskie and 78 in Łódzkie to 115–116 points in Małopolskie, Pomorskie, and Śląskie

As in the analysis of the absorption of the EU funds, those parameters were also standardised and presented in the form of a single synthetic index of the level of agriculture (a normalised mean), calculated for the years 2004 and 2009. A comparison of those indices showed regional differences in the general level of agriculture to have undergone no significant changes. A difference σ in excess of $\pm 0,25$ was only noted in the case of two voivodships: Pomorskie ($\sigma = +0,27$ —the biggest increase in the general level of agriculture) and Świętokrzyskie ($\sigma = -0,60$ —the sharpest drop). Still, an analysis of the directions of change in the absorption indices revealed spatial disproportions in Polish farming to have deepened over the years 2004–2009, especially between the voivodships of central and south-eastern Poland (a negative value of the difference, meaning a drop in the level of agriculture) and those situated in the north and west (with most regions showing a positive value of the difference—for example, an increase in the level of agriculture; here a drop was only recorded in Lubuskie and Warmińsko-Mazurskie; see tab. 3).

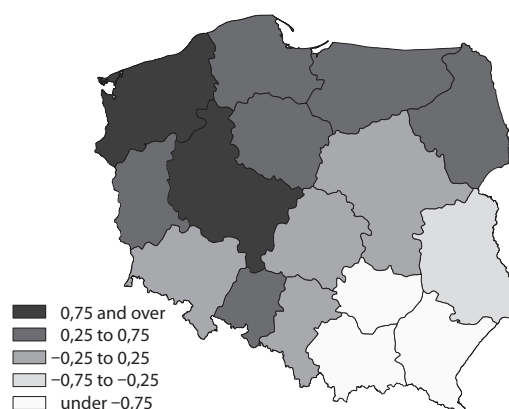


Fig. 2. Index of the general level of agriculture: 2009 (a normalised mean of the diagnostic variables adopted)

Source: Own compilation on the basis of GUS data

Tab. 3. Changes in selected assessment parameters of agriculture over the years 2004–2009

Voivodship	Mean AL area on farm in ha		AL area per farm worker in ha		Investment outlays in agriculture and hunting in euro per ha AL		Gross agricultural output in euro per ha AL		Procurement value of agricultural products in % of gross agricultural output		Index of level of agriculture (mean of normalised variables)	
	2009	Index of change*	2009	Index of change*	2009	Index of change*	2009	Index of change*	2009	Index of change*	2009	2009-2004 difference
Dolnośląskie	8,7	114	13,9	95	50	213	0,992	130	51,3	100	0,10	0,20
Kujawsko-Pomorskie	11,2	121	9,5	105	51	207	1,425	129	52,7	87	0,41	0,07
Lubelskie	5,9	116	5,7	107	48	173	1,070	128	39,8	84	-0,49	-0,12
Lubuskie	10,8	111	20,9	99	51	130	0,917	141	50,8	98	0,38	-0,15
Łódzkie	5,8	108	5,8	100	56	171	1,515	135	38,6	78	-0,08	-0,18
Mazowieckie	2,2	110	3,8	93	51	177	1,196	119	29,0	116	-0,80	-0,07
Mazowieckie	6,7	112	6,9	103	61	166	1,359	138	43,0	95	0,05	0,00
Opolskie	9,6	125	11,9	107	71	184	1,263	132	50,6	97	0,60	0,18
Podkarpackie	2,5	102	4,8	99	43	200	0,849	117	26,5	83	-1,17	-0,12
Podlaskie	10,5	109	8,4	104	60	203	1,219	155	47,9	71	0,25	0,01
Pomorskie	12,8	114	13,8	97	52	166	1,083	152	54,0	116	0,43	0,27
Śląskie	2,6	127	6,9	95	78	182	1,301	139	43,3	115	0,12	0,24
Świętokrzyskie	3,9	102	4,1	92	47	100	1,250	132	28,4	100	-0,76	-0,60
Warmińsko-Mazurskie	15,1	114	16,1	97	50	126	1,074	142	60,0	91	0,69	-0,21
Wielkopolskie	9,6	104	8,9	101	86	210	1,746	137	53,5	86	1,14	0,18
Zachodniopomorskie	16,9	110	24,5	90	46	164	0,938	142	53,3	103	0,75	0,05
Total (Poland)	6,4	112	7,8	100	58	174	1,242	135	46,4	92	0,00	0,00

* 2004 = 100%

Source: Own compilation on the basis of Central Statistical Office data (the on-line Local Data Bank)

The regional differences in the synthetic index of the level of agriculture in 2009 show the historically determined territorial division of Polish agriculture into two parts to have been preserved:

- the central and south-eastern part, encompassing voivodships situated in the former Russian sector (Lubelskie, Łódzkie, Świętokrzyskie) and the Austrian sector (Małopolskie, Podkarpackie), characterised by a low level of agriculture
- the northern and western part, largely the land of the former Prussian sector, marked by a high level of agriculture (mostly Opolskie, Warmińsko-Mazurskie, Wielkopolskie, and Zachodniopomorskie; see fig. 2)

3 The absorption index and changes in the level of agriculture

An important element of the analysis of the transfer of assistance funds intended for agricultural holdings is an assessment of this process from the point of view of its effect on the general level of agriculture in order to find to what extent those means have contributed to the development of agriculture and how this effect varies regionally. To this end, the difference was calculated between the normalised levels of indices of support absorption by farms (see the absorption index in tab. 2) and the general level of agriculture in 2009 (see tab. 3). This index of the effect of financial support on agriculture made it possible to identify voivodships where the use of the assistance funds was smaller than their level of agriculture (negative values of the index), which limited agricultural development. This situation was most conspicuous (the σ index under $-0,50$) in the agriculture of voivodships of northern and western Poland: Dolnośląskie ($-0,92$), Opolskie ($-1,08$), Śląskie ($-1,02$), Warmińsko-Mazurskie ($-0,54$), and Wielkopolskie ($-0,78$). There were also areas where the level of use of national and CAP means was higher than their level of agriculture (positive values of the index). The highest σ values (in excess of $0,50$) were recorded in the voivodships of south-eastern Poland: Lubelskie ($0,60$), Podkarpackie ($0,71$), and especially Świętokrzyskie ($1,84$; see fig. 3).

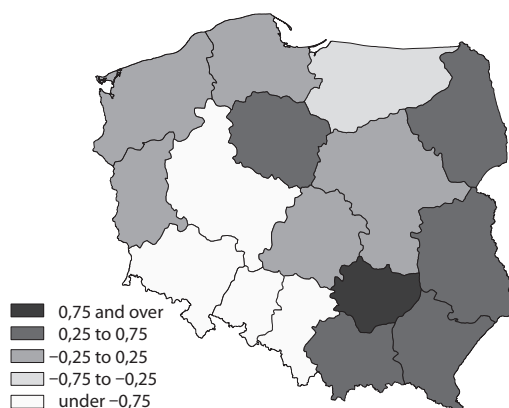


Fig. 3. Index of the effect of financial support on agriculture

An analysis of factors underlying spatial differences in the index of the effect of financial support on Polish agriculture showed that in the initial period of Poland's EU membership (the years 2004–2009) those means went to minimise territorial disproportions in farming. However, their effectiveness was very low, as proved by the comparative analysis of the absorption index in the form of normalised values and the index of change in the level of agriculture. It was only in three voivodships (Lubelskie, Mazowieckie, and Wielkopolskie) that the rate of change was close to the absorption level (the difference $\sigma = \pm 0,25$). In the remaining voivodships:

- their absorption indices were markedly lower than their rate of change in the level of agriculture: Małopolskie, Opolskie, Podkarpackie, and especially Dolnośląskie (an absorption index of $-0,82$ vs. an index of change in the level of agriculture of $0,20$) and Śląskie (the absorption index, $-0,89$, the index of change, $0,24$)
- their absorption indices were markedly higher than their rate of change in the level of agriculture: Lubuskie, Łódzkie, Podlaskie, Pomorskie, Warmińsko-Mazurskie, Zachodniopomorskie,

and especially Kujawsko-Pomorskie (the absorption index, 0,84, the index of change, 0,07), and Świętokrzyskie (1,08 and 0,60, respectively)

The unfavourable relations between the absorption indices and the rate of change in the level of agriculture were corroborated by regression analysis (tab. 4).

The revealed tendency for the rate of improvement in the level of agriculture to decline with an increase in the level of absorption shows that it is necessary to revise the policy of financial support for agriculture. The poor developmental effect of the funds expended so far is largely due to their unfavourable structure, namely due to a decided prevalence (71%) of area payments, which need not be used to restructure and modernise agricultural holdings and are often a welfare type of support.

Tab. 4. Results of regression analysis

Specification	Coefficient of correlation	Coefficient of regression	<i>p</i> (significance level)
Constant		-1,80841	0,363646
Mean AL area on farm, in ha	0,99	1,69128	0,000003
AL area per farm worker, in ha	0,90	0,42827	0,001585
Investment outlays in agriculture and hunting, in EUR per ha AL	-0,06	0,04864	0,238425
Gross agricultural output, in EUR per ha AL	-0,18	0,00108	0,593357
Procurement value of agricultural products in % of gross agricultural output	0,87	-0,05643	0,424731

Note: *y* in thousand euro per farm

Summing up

The analysis of regional differences in the use of EU assistance granted to agricultural holdings in Poland included an assessment of the rate and directions of change in agriculture as well as the summation of the funds obtained. It was shown that Polish agriculture displayed great, mostly historically determined, territorial heterogeneity. The EU assistance measures and programmes offered vast possibilities for improving several farming parameters and reducing the spatial disproportions, the more so as those were really very high sums (EUR 21,2 billion over the years 2004–2009), so far unmet in Polish agriculture. But the analysis revealed that the transfer of those funds to agricultural holdings could not be considered a factor of modernisation and development. On the contrary, an unfavourable tendency was observed: there was a readily visible drop in the rate of agricultural development as the level of absorption of farm-directed funds increased. This followed from the structure of the funding being unfavourable from the point of view of development, especially the low share (29%) of active forms of EU support inhibiting the rate of structural change in Polish agriculture. A substantial proportion of financial assistance going to Polish farms was spent on welfare rather than agriculture-modernising investments. Apart from the specific nature of area payments, the weak effect of the Community support funds on the level of Polish agriculture was also a result of a considerable proportion of operational measures designed to improve the natural environment (agri-environmental programmes, afforestation) and the non-agricultural development of farms (diversification), because those measures do not involve an increase in the production level of agriculture and its competitiveness. Besides, the CAP is worked out by West European states with their already high level of agriculture, so the CAP instruments adopted by them are not devised to raise the level of agriculture in East-Central Europe, including Poland.

It was shown that the funds granted to agricultural holdings should not be identified with the development of agriculture. This fact leads to the conclusion that over the years 2004–2009 the historical opportunity for reducing the distance between Polish agriculture and that of West Europe was not taken full advantage of. This task may be made much more difficult in the future because of the call for change in the Common Agricultural Policy advocating a reduction in the funding intended for agriculture.

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