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*SPATIAL DIVERSIFICATION OF FARMERS' ACTIVITY
IN ABSORPTION OF EU FUNDS IN WIELKOPOLSKA PROVINCE
IN 2004-2006*

**ZRÓŻNICOWANIE PRZESTRZENNE AKTYWNOŚCI GOSPODARSTW
WOJEWÓDZTWA WIELKOPOLSKIEGO W POZYSKIWIANIU
ŚRODKÓW Z FUNDUSZY UNIJNYCH W LATACH 2004-2006**

Key words: farmers, common agricultural policy, Sectoral Operational Programm „Restructuring and Modernisation of the Food Sector and Rural Development”, Rural Development Plan (RDP)

Słowa kluczowe: gospodarstwa rolne, Wspólna Polityka Rolna, Sektorowy Program Operacyjny „Restrukturyzacja i Modernizacja Sektora Żywnościowego oraz Rozwój Obszarów Wiejskich”, Plan Rozwoju Obszarów Wiejskich

Synopsis. This article deals with an analysis of the spatial diversification of farmers with respect to obtaining EU funds in Wielkopolska province. The research encompasses the absorption's level and structure as well as an evaluation of the process' influence upon transformations in the agriculture's spatial structure.

Background information

The development of Polish agriculture is to a large extent related to farmers' activity in obtaining external funds which at present are predominantly European Union's funds. This article's goal is to demonstrate a spatial diversification of farmers' activity in obtaining funds in Greater Poland voivodeship. This region, enjoying a long farming tradition, at the same time remains internally heterogeneous. This article takes into consideration two operational programmes devised by the Ministry of Agriculture and Rural Development and co-financed by the European Agriculture Guidance and Guarantee Funds (EAGGF) i.e. the Rural Development Plan (2004-2006) and the Sectoral Operational Programm „Restructuring and Modernisation of the Food Sector and Rural Development” [PROW 2004, Sektorowy...2004]. With all the above mentioned aids in mind, this article pertains exclusively to activities to be undertaken by the Agency for Restructuring and Modernisation of Agriculture (ARMA) for the benefit of individual farmers. The research disregards direct farming subsidies (due to its prevalence, this subsidy does not offer the value of spatial diversification) as well as the Rural Development Plan – Support for farming in the less favoured areas (LFA – the criterion of farmers' equal access to EU funds has not been satisfied). The area under scrutiny is Greater Poland voivodeship while the adopted basic research units have been territorial ranges of 31 County Branches of the Agency for Restructuring and Modernisation of Agriculture (ARMA). It is worth noting that according to the Agency's register, townships have been considered together with respective country districts. In the case of Greater Poland voivodeship, this situation holds true for 4 cities – townships (Kalisz, Konin, Leszno, Poznań). The analysis pertains to 2004-2006 i.e. Poland's first financial stage of EU membership. It relies upon unpublished data collected by ARMA's Management Information System (as of December 2008) and the 2002 National Population Census.

Activity characteristics

The analysis includes five National Development Plan activities (1). Structural pensions, (2) Support for semi-subsistence farms, (3) Support for agri-environment activities, (4) Farmland forestation, (5) Adjusting farms to EU standards and four Sector Operational Programme activities (A)

Investment in farms, (B) Setting up of young farmers, (C0 Diversifying farming and related activities in order to ensure diversity of activities or alternative sources of income (D) Improvement and development of infrastructure related to agriculture).

Activities within both programmes have been divided by attributing them to specific elements of agriculture's spatial structure expected to be affected by these programmes. Group one (I) included agriculture's social and proprietary characteristics affected by two activities:

- (a) Structural pensions (as part of the NDP) – this activity pertains to farmers at pre-retirement age and is aimed at accelerating the generation exchange among farmers as well as enhancing the structure of farms' sizes,
- (b) Setting up of young farmers (as part of the Sector Operational Programme) – financial support was granted to young farmers (not older than 40). As part of this measure, new owners, better prepared for the profession were aided in taking over farms. The support included purchase of fixed and current assets related to production start-up.

Group two (II) encompassed soil quality and usage factors affected by two activities of the Rural Development Plan:

- (a) Support for agri-environment activities and enhancement of animal welfare – intended to encourage farmers to undertake environmental activities; available as seven national or priority zones packages,
- (b) Afforestation of agricultural land – aimed at foresting agricultural land of low agricultural value.

Group three (III) included agriculture's infrastructure affected by three activities:

- (a) Adjusting Polish farms to EU standards (as part of the NDP) – activities aimed at adjusting Polish farms to EU standards with respect to environmental protection, hygiene, animal welfare and food safety,
- (b) Investment in farms (as part of the Sectoral Operational Programme) – this activity is aimed at supporting projects related to farms' modernization,
- (c) Improvement and development of infrastructure related to agriculture (as part of the Sector Operational Programme) – this activity is aimed at enhancing agricultural infrastructure of special importance from the point of view of environmental protection.

Group four (IV) consisted of agriculture's production-related and economic characteristics aligned with the following activities:

- (a) Support for semi-subsistence farms (as part of the NDP) – related to financial support necessary to maintain financial liquidity of small-scale production farms (up to do 4 ESUs),
- (b) Diversifying farming and related activities in order to ensure diversity of activities or alternative sources of income (as part of the SOP) – aimed at supporting projects related to investment in farmers' extra economic activity, e.g. agri-tourism, services for agriculture and small-scale food processing.

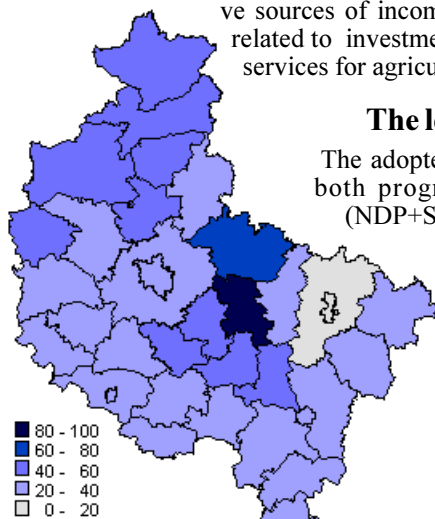


Figure 1. The share of executed applications in the total number of individual farms in Wielkopolska province

Source: Authors' own based on ARMA data.

The level and structure of funds absorption

The adopted measure of farmers' activity in obtaining funds from both programmes was the number of executed applications (NDP+SOP). The absorption level was surveyed primarily by means of a ratio of the number of applications and the total number of individual farms in counties (Table 1, the voivodeship's average of nearly 48%). In Wielkopolska province the most active counties included Wrzesnia (over 80%) and Gniezno (over 60%). On the other hand, the least active county was Konin (below 20%). One can clearly see two territorial focuses of medium-active counties, located in the south-east of Poznań and in the voivodeship's northern part (cf. 40-60% – Figure 1).

On top of an evaluation of farmers' activity in obtaining funds from selected activities within NDP and SOP, the analysis includes a diversification of funds absorption with respect to agriculture's spatial structure

Table 1. NDP and SOP programmes - absorption level and trends according to the number of executed applications

Nr	District	Number of executed applications						Structure	
		total	% of farms	incl. agriculture's internal characteristics [%]				successive quotients	leading element
				I	II	III	IV		
1.	chodzieski	884	52.46	5.3	65.5	22.3	6.9	II-5, III-1	II
2.	czarnkowsko-trzcianecki	1991	40.75	8.3	52.3	26.7	12.7	II-4, III-2	II
3.	gnieźniński	2768	63.93	9.3	39.6	38.4	12.7	II-3, III-3	III
4.	gostyński	1326	34.65	14.3	14.3	57.2	14.3	I-1, II-1, III-4	III
5.	grodziski	901	30.29	6.4	26.2	46.3	21.1	II-2, III-3, IV-1	III
6.	jarociński	1471	49.78	15.0	23.2	48.4	13.4	I-1, II-1, III-3, IV-1	III
7.	kaliski	3066	26.80	13.9	9.3	35.9	41.0	I-1, III-2, IV-3	IV
8.	kępiński	1255	34.81	19.7	34.3	28.7	17.4	I-1, II-2, III-2, IV-1	no i.e.
9.	kolski	2875	35.20	15.7	11.5	35.8	37.0	I-1, III-2, IV-3	IV
10.	koniński	2521	18.40	17.3	14.8	31.4	36.6	I-1, II-1, III-2, IV-2	no i.e.
11.	kościański	907	29.76	16.9	14.3	50.1	18.7	I-1, II-1, III-3, IV-1	III
12.	krotoszyński	1490	36.96	17.9	14.3	56.4	11.4	I-1, II-1, III-4	III
13.	leszczyński	1094	31.02	18.0	28.2	39.9	14.0	I-1, II-2, III-2, IV-1	no i.e.
14.	międzychodzki	692	47.49	14.7	35.3	36.4	13.6	I-1, II-2, III-2, IV-1	no i.e.
15.	nowotomyski	1304	33.81	10.7	32.3	31.6	25.5	II-2, III-2, IV-2	no i.e.
16.	obornicki	719	40.69	16.7	37.8	37.6	7.9	I-1, II-3, III-2	II
17.	ostrowski	2067	28.61	16.8	14.5	37.5	31.2	I-1, II-1, III-2, IV-2	no i.e.
18.	ostrzeszowski	1731	35.72	14.3	16.2	30.2	39.3	I-1, II-1, III-2, IV-2	no i.e.
19.	piłski	1961	51.76	10.0	52.4	30.4	7.2	II-3, III-3	no i.e.
20.	pleszewski	2105	49.17	14.2	12.0	38.1	35.7	I-1, II-1, III-2, IV-2	no i.e.
21.	poznański	1811	22.98	17.7	35.5	39.0	7.8	I-1, II-2, III-3	III
22.	rawicki	798	23.2	19.9	12.4	45.9	21.8	I-1, II-1, III-3, IV-1	III
23.	słupecki	1881	37.81	13.0	31.2	21.7	34.2	I-1, II-2, III-1, IV-2	no i.e.
24.	szamotulski	1271	39.44	14.9	29.7	46.4	9.00	I-1, II-2, III-3	III
25.	średzki	1094	50.3	19.4	34.5	32.2	14.0	I-1, II-2, III-2, IV-1	no i.e.
26.	śremski	1022	50.69	12.1	26.4	41.2	20.3	II-2, III-3, IV-1	III
27.	turecki	1903	24.99	14.5	14.5	27.0	44.0	I-1, II-1, III-1, IV-3	IV
28.	wągrowiecki	1105	37.02	12.7	36.2	41.4	9.7	I-1, II-2, III-3	III
29.	wolsztyński	1165	32.97	10.4	37.2	41.2	11.2	II-3, III-3	no i.e.
30.	wrzesiński	2533	87.56	7.1	55.3	26.5	11.1	II-4, III-2	II
31.	złotowski	1337	47.63	9.3	65.7	19.7	5.4	II-5, III-1	II

I – agriculture's social and proprietary aspects, II – land quality and usage characteristics, III – agriculture's technical equipment characteristics, IV – agriculture's production and economic characteristics, no i.e. – no leading element.
Source: Authors' own calculations based on ARMA data.

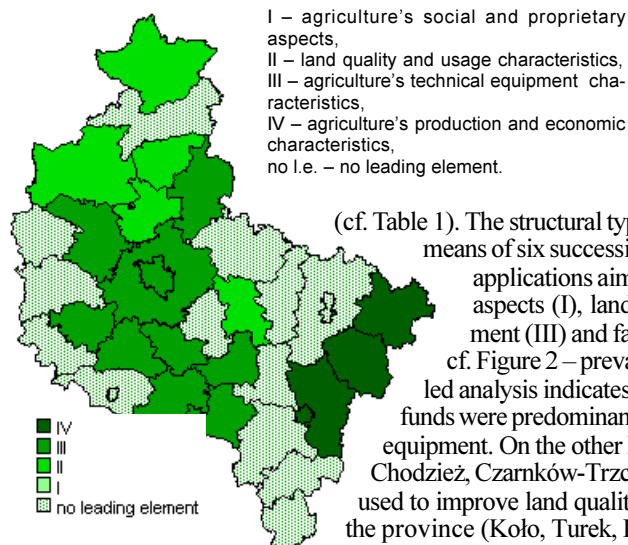


Figure 2. NDP and SOP programmes funds absorption. Agriculture by the predominant number of applications in specific groups of agriculture's spatial structure
 Source: Authors' own calculations based on ARMA data.

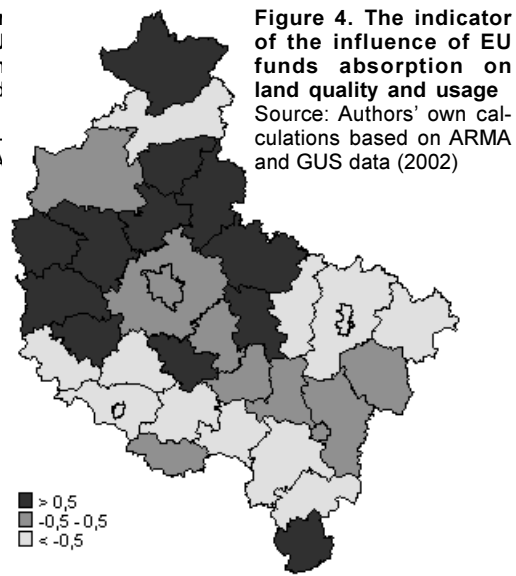
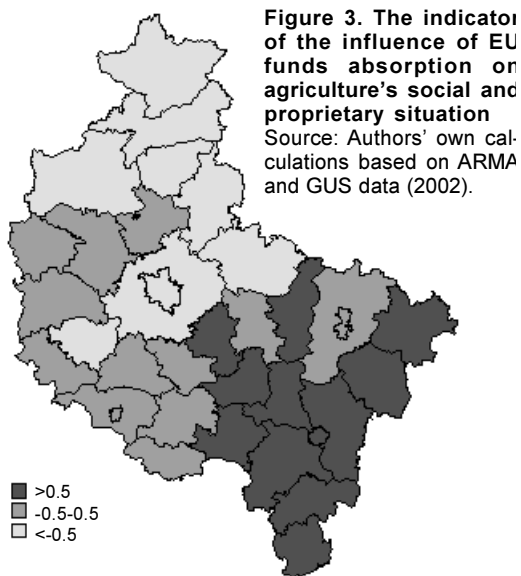
(cf. Table 1). The structural types of absorption have been identified by means of six successive quotients based on the total number of applications aimed at modernizing social and proprietary aspects (I), land usage and quality (II), technical equipment (III) and farms' production and economic level (IV; cf. Figure 2 – prevailing absorption trends). Such a channelled analysis indicates that in 11 centrally located districts, EU funds were predominantly employed to enhance farms' technical equipment. On the other hand, in 5 districts (Września, Oborniki, Chodzież, Czarnków-Trzcianka and Złotów) EU funds were chiefly used to improve land quality and usage. In three eastern districts of the province (Koło, Turek, Kalisz) EU funds from both programmes were dedicated mainly to improve agriculture's production and economic conditions (cf. Figure 2). The analysis has also indicated counties with a single prevailing absorption trend. Three groups of counties share the same absorption structure: in Piła, Gniezno and Wolsztyn districts the EU funds were employed predominantly to enhance land quality and usage as well as upgrading the agricultural infrastructure (structural type: II-3, III-3). A similar situation was recorded in Kępno, Leszno, Międzychód and Środa districts where the absorbed funds were dedicated to enhance land quality and usage as well as upgrading agricultural infrastructure and, to a lesser extent, in the realm of social and proprietary as well as production and economic aspects (type I-1, II-2, III-2, IV-1).

In four other counties in the south east of the region (Konin, Ostrów, Ostrzeszów and Pleszew) the funds were of greatest importance to enhance agricultural infrastructure and agriculture's production and economic aspects.

The influence of EU funds absorption on agriculture's spatial structure

The adopted methodical basis for the analysis of the influence of EU funds use the changes of agriculture's spatial structure and apply the standardisation procedure (the average of statistical distributions equals zero while variances and standard deviations equal one) [Racine, Raymond 1977]. The research was conducted with respect to four formerly identified agriculture's characteristics; their level was determined by means of a number of diagnostic features and presented as a single synthetic indicator (standardised average). A similar procedure related to an identified segment of agriculture's spatial structure was applied in determining the degree of farmers' activity in obtaining EU funds (presenting the share of farms attending specific activities in the form of a standardized value). By doing so, we were able to adopt as the basis for inference the difference between standardized activity levels and agriculture development in the above mentioned structural groups referred to as the indicators of the influence of EU funds absorption on social and proprietary aspects, land quality and usage, agriculture's technical infrastructure and the production and economic aspects.

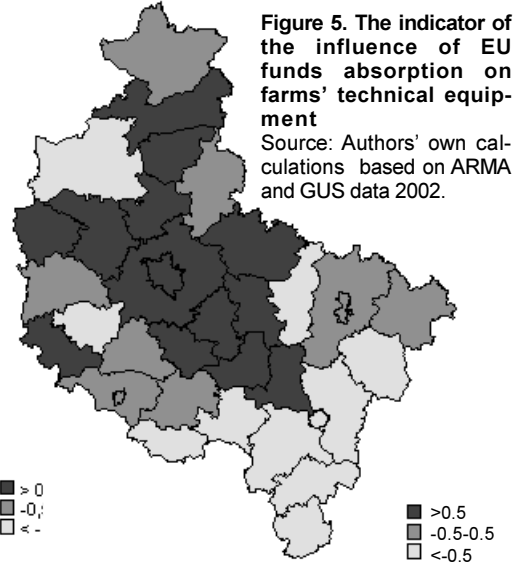
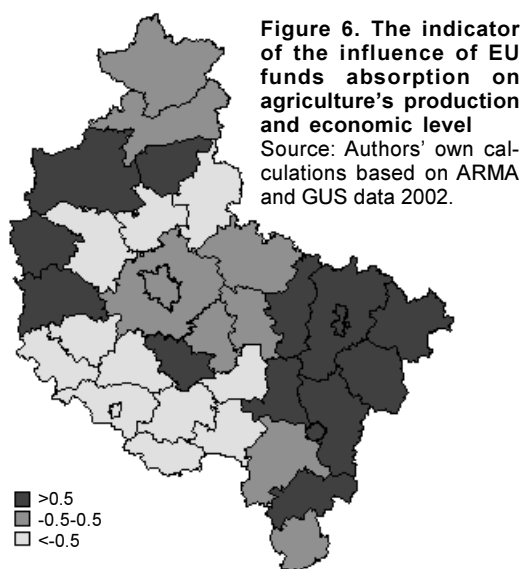
The level of agriculture's social and proprietary features was determined with respect to three measures i.e. the average area of agricultural land in a farm of over 1 ha AL, the area of agricultural land per 1 individual employed chiefly or solely on his/her farm (ha) and the share of managers with agricultural education in the total number of individual farms managers (%). A spatial analysis of the influence of the indicator of EU funds absorption (structural pensions and setting up of young farmers) on agriculture's social and proprietary features leads to a conclusion that counties located in the north of the voivodeship are in a most unfavourable situation (cf. Figure 3). The respective indicator tends to be negative there which indicates a deterioration in the social and proprietary structures. The same holds true for Poznań, Gniezno and Grodzisk districts. A good situation enjoyed in the south east of the region is worth noting. Owing to EU funds absorption, agriculture's social and proprietary structure in this area is improving.



As for land quality and usage, an evaluation of agriculture's spatial structure was conducted with respect to a synthetic indicator of area's usefulness in environmental production devised at the Institute of Soil Science and Plant Cultivation in Puławy; the indicator includes the agricultural production environment quality ratio, the marginal soils ratio, the grassland ratio, the protected area ratio, the soil contamination ratio, the soil acidity ratio and the soil humification ratio.

An analysis of the influence of EU funds (supporting agri-environmental activities and farmland afforestation) on the enhancement of land quality and usage structure leads to a conclusion that, unlike in the case of the former feature, counties located in the north of the province enjoy a good situation (with the exclusion of Piła district; cf. Figure 4). With this respect, districts located in the south and east of the province are in a less favourable situation. On the one hand, they enjoy a far better land quality and land usage structure while the local farmers remain inactive in undertaking environmental activities as part of the common agricultural policy.

In evaluating agriculture's technical equipment the adopted basis was the number of combine harvesters (grain, beetroots, potatoes – total) per 100 ha of sowing. Bearing in mind the influence of



activities aimed at modernizing technical infrastructure of agriculture in Wielkopolska (investments in farms, adjusting farms to EU standards, development and upgrading of agriculture's technical infrastructure) one can see a distinct positive influence of this absorption in the central and northern counties (cf. Figure 5). On the other hand, the respective disproportions between the province's eastern and western parts are highly unsatisfactory.

The analysis has also included agriculture's production and economic aspects determined with respect to three diagnostic features (the share of industrial crops in the total sowing area, livestock head in livestock units per 100 ha of agricultural land and the share of farms producing chiefly for the market in the total number of farms) and referred to the level of farmers' activity in obtaining relevant EU funds (activities: support for semi-subsistence farms and agricultural activity diversification...).

It has been concluded that the positive influence of EU funds on farms' production and economic aspects has been most prominent in the eastern part of the voivodeship. Formerly annexed by the Russian empire, its level of agriculture has remained lower. The fact that farmers from better developed southern counties tend to be less active in obtaining EU funds leads to a conclusion that the related absorption contributes to equalization of historical differences in Wielkopolska agriculture.

Conclusions

The analysis in question has proved that the influence of the Rural Development Plan 2004-2006 and the Sector Operational Program „Restructuring and Modernisation of the Food Sector and Rural Development” on farms in Wielkopolska province in 2004-2006 tended to be spatially diversified both in a holistic approach (executed applications as a percentage of the total number of farms) as well as with respect to identified elements of agriculture's spatial structure.

EU funds have been recognized as favourably affecting the social and proprietary structure as well as the economic and production level in the voivodeship's eastern part. Continued in 2007-2013, the process may contribute to eliminating the historical disproportions in Wielkopolska agriculture. However, in order to achieve that, EU funds absorption needs to be redirected to the remaining elements of agriculture's spatial structure related to land quality and usage and, most of all, improvement in agriculture's technical infrastructure.

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Streszczenie

Artykuł dotyczy różnicowania aktywności gospodarstw rolnych w zakresie pozyskiwania funduszy UE w województwie wielkopolskim. Badaniem objęto poziom i strukturę absorpcji oraz ocenę tego procesu z perspektywy wpływu tych funduszy na przemiany struktury przestrzennej rolnictwa polskiego.

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