



Roman Rudnicki✉, Łukasz Wiśniewski

Nicolaus Copernicus University in Toruń, Poland

SINGLE AREA PAYMENTS AS AN INSTRUMENT TO MONITOR AGRARIAN CHANGES IN POLAND (IN 2004–2013)

Abstract. This paper discusses the results of a spatial analysis of single area payments (SAP) in Poland. Using the changing payment rates per hectare of agricultural land (ranging from PLN 210.53 in 2004 to PLN 830.30 in 2013) as a basis, the research focused on assessing the changes in the number and area of agricultural holdings in 2004–2013, including the impact of natural, urban and historical conditions. It was concluded that the ongoing agrarian changes are characterized by the fact that the number of agricultural holdings decreases faster (at a rate of 8%) than their area (at a rate of 2%). Also, the average size of farms started to follow an upward trend, growing from 9.8 ha in 2004 to 10.2 ha in 2013. The elements of the agrarian structure covered by this study were found to differ strongly across regions, mostly due to identified historical factors. The SAP was confirmed to be a valuable instrument to monitor the agrarian changes.

Keywords: Single Area Payment (SAP), number of agricultural holdings, area of agricultural holdings, changes in agrarian structure, Poland

INTRODUCTION

The agrarian structure is an important part of research on spatial aspects of agriculture. It focuses mostly on the distribution of agricultural holdings by their numbers and area, and on changes in the average size of agricultural holdings. The latter aspect indirectly affects workforce expenses and delivery of technical production equipment to agricultural holdings. Also, it has an impact on agricultural productivity. This problem is particularly important for Polish agriculture which – compared to the average European Union (EU) standards – is characterized by strong fragmentation of agricultural land (Dugiel, 2007; Dzun and Józwiak, 2009).

The relevant studies are usually based on results of national agricultural censuses¹ (cf. Głębocki, 2005, 2014; Rudnicki, 2013a, 2013b, 2016a). As the censuses are conducted relatively rarely (most recently in 2010 and 2002), they are not suitable for an ongoing monitoring of agrarian changes: the key issue for the development of agriculture as a whole. In this regard, new research opportunities are brought by Poland's membership in the EU and the coverage of the Single Area Payment (SAP) which extends to Polish agricultural holdings.

¹ The authors of this paper have also made an attempt to analyze agrarian changes based on agricultural tax (Wiśniewski and Rudnicki, 2016).

✉PhD hab. Roman Rudnicki, Prof. UMK, Faculty of Earth Sciences, Nicolaus Copernicus University in Toruń, 11 Gagarina St., 87-100 Toruń, Poland, e-mail: rudnickir@umk.pl

SAPs are an important instrument supporting agriculture in Community countries (Krzyżanowski, 2004; Żmija, 2011). Owing to the payments, farmers enjoy higher incomes without the need to increase consumer prices of agricultural produce. The research conducted by a team headed by Zawadzka et al. (2013) indicates that direct payments considerably contribute to commercial farming income. In 2004–2011, the average ratio of these subsidies in the agricultural sector exceeded 50%². It should be noted that when submitting the appropriate SAP application, the farmers do not declare any specific purpose for the funds; once granted, the payment may be spent on anything they want, even if not related to farm modernization. For example, the research by Kisiel et al. (2008) showed that a large part (ca. 50%) of farmers surveyed used the funds to cover daily expenses, i.e. pay bills and purchase materials and consumption goods related neither to farming activities nor to agriculture itself. On the other hand, according to a study performed by Czubak and Jędrzejak (2011), direct payments were used mostly to finance the ongoing costs of production (most farmers allocated all or part of the subsidies to fertilizers).

Direct payments were introduced as a part the McSharry reform of the Common Agricultural Policy in 1992, and were maintained at the 1999 Berlin summit (Kołoszko-Chomentowska, 2006, p. 91). Milestones in the evolution of direct payments include the 2003 CAP reform (e.g. decoupling) and the 2008 Health Check (separation of all forms of direct support from production until 2012; Żmija, 2011). Pursuant to the Treaty of Accession of Poland to the European Union, and according to arrangements made at the 2002 Copenhagen summit, Polish farmers became covered by the simplified system of agricultural land payments (Single Area Payment Scheme, SAPS). It means that financial support is provided pro rata to agricultural land area. The support is intended for users of agricultural holdings, including land plots (no smaller than 10 ares) with a total area of no less than 1 ha, and applies to farmers registered as agricultural producers with the Agency for Restructuring and Modernization of Agriculture (ARMA), i.e. assigned with an identification number in the Integrated Administration and Control System (IACS) which is operational in all EU member states. The system collects annual data on SAPs disbursed and on the number of

projects implemented as per the relevant application. Combined with the payment rate per hectare of agricultural land effective in the year concerned, this information enables monitoring the agrarian changes.

The purpose of this paper is a spatial analysis of consistent area payments. This will enable determining the direction and pace of changes in the number and area of agricultural holdings in Poland. Also, this paper is intended to show the methods for the analysis of agrarian changes based on aforesaid data.

MATERIALS AND RESEARCH METHODS

The geographic scope of this research is the territory of Poland, considered at the level of voivodeships, and 314 district offices of the Agency for Restructuring and Modernization of Agriculture, the main organization in charge of the disbursement of European funds in Poland (cf. characteristics of the ARMA's organizational structure composed of regional branches and district offices: Rudnicki, 2016a, pp. 10–11).

The analysis was based on a spatial data matrix for 2004–2013 (two financial periods of the EU combined together: 2004–2006 – cf. Rudnicki, 2010, pp. 93–98 – and 2007–2013). For every ARMA district office across the country, a set of original (unpublished) features was defined to characterize the number of agricultural holdings (SAP beneficiaries) and the amount of SAPs disbursed (data was aggregated by registered address of the beneficiary), which, in turn, enabled defining the area of agricultural land covered by SAP (as the following ratio: SAP in the year considered/payment rate per hectare of agricultural land in the year considered) and the average size of agricultural holdings (as the following ratio: agricultural land covered by SAP in the year considered/number of agricultural holdings, i.e. SAP beneficiaries in the year considered). At this point, it should be emphasized that according to the terms and conditions of the Accession Treaty, the level of payments per hectare of agricultural land was steadily rising³ compared to 'old Union' member states.

³ In accordance with the accepted principle of phasing-in, there is steady progress towards an equal level of payments effective in the EU-15. In 2004, the level of payments was as follows: 25%, 30%, 35%, 40%, 50%, 60%, 70%, 80%, 90%. In 2013, for the first time, it amounted to 100% of payments disbursed to EU member states on April 30, 2004 (website of the Ministry of Agriculture and Rural Development).

² The percentage ranged from 15% in 2004 to 81% in 2009 (Zawadzka et al., 2013).

The research also addressed the problem of assessing the pace and direction of changes in the abovementioned agrarian features. For these purposes, scores were assigned to identify the changes (initial year = 100 points). The analysis was based on two approaches: for the biennial periods (2004–2005, 2006–2007, 2008–2009, 2010–2011, 2012–2013) and for the overall period of 2004–2013.

This paper also deals with the assessment of the spatial diversification of the indices proposed. For this purpose there was made the dichotomous division of data, completed in the system of ARMA poviats offices, taking into consideration undermentioned determinants:

- natural: based on the agricultural production area quality index (APAQI) developed by the Institute of Soil Science and Plant Cultivation, and the accepted LFA classification criterion (which is therefore the criterion of eligibility for support), including: 234 districts with unfavorable conditions (APAQI up to 72.5), and 80 districts with favorable conditions (APAQI above 72.5) (Waloryzacja..., 2000);
- urban: based on the administrative division into units with country districts (261) and townships (53);
- historical: based on a simplified classification of districts referring to the era of partitions (with the following milestones marking the boundaries between historical periods: 1815 – the political division of the Polish territory was upheld by the Congress of Vienna; and 1919 – the state of Poland was created by the Treaty of Versailles), i.e.: 149 districts located within the historical Prussian Partition (referred to as ‘Western Poland’) and 165 districts located within the historical Austrian and Russian Partitions (referred to as ‘Eastern Poland’).

In order to assess the impact of the abovementioned determinants, the standardization procedure was used which consists in replacing the original value with the difference between the value of the feature considered and its mean value divided by its standard deviation (Racine and Reymond, 1977, pp. 110–116). The features processed that way were set aside the bipartite division based on natural, urban and historical determinants. The absolute values of differences of these standardized values were used as a basis to define the index showing the impact of specific aspects on the condition of agricultural holdings and on changes in their numbers and area (cf. Rudnicki, 2016b, pp. 9–21).

RESULTS

In 2004–2013, Polish agricultural holdings were subsidized with a total of PLN 65.4 billion granted under the SAP scheme. The amount itself allows for concluding that these payments are an important income-generating factor for the Polish agriculture (Chečko and Grochowska, 2007, p. 77). However, the funds may contribute to agricultural development only if invested rather than spent on consumption. As shown by relevant studies, the impact of direct payments on the farms’ economic situation largely depends on acreage. As a rule, in small agricultural holdings, direct payments supplement the income spent on daily consumption and production, making the farm completely dependent on public aid. In turn, as regards larger farms, direct payments considerably improve the farmers’ investment capacity. However, it must be reinforced with funds obtained under other support measures of the Common Agricultural Policy, organizational changes in agricultural production and improved economic situation in agriculture (Bartkiewicz, 2005; Marcysiak, 2007; Wąs, 2004).

Based on the analysis of SAP data from 2004–2013, several changes were identified, including the number of SAP beneficiaries (rising from 1,384,300 to 1,347,800), the amounts of SAP disbursed (rising from PLN 2.9 billion to PLN 11.5 billion), annual SAP rates per hectare of agricultural land (rising from PLN 210.53 to PLN 830.3) and the area covered by SAP (rising from 13.5 million ha to 13.8 million ha). This resulted in an increased average size of agricultural holdings (SAP beneficiaries) (rising from 9.79 ha in 2004 to 10.24 ha in 2013; cf. Table 1).

The example of SAP shows that the process of integrating Polish agricultural holdings into the Common Agricultural Policy runs smoothly. As early as in the first year of EU membership (2004) 1,400,400 SAP applications were submitted, out of which 1,384,300 (98.9%) resulted in duly implemented projects covering 13,552,200 ha of agricultural land, which means a total support of PLN 2,853.1 million (cf. Table 1). The fact that within such a short time frame so many farms holding such a large area of land became covered by the aid scheme, and that such substantial amounts were disbursed, should be considered a success of the Polish agriculture in general and of ARMA, the authority in charge of the disbursement of funds, in particular.

However, the analysis of biennial periods demonstrated that in the initial stages of the Polish membership

Table 1. Single Area Payments (SAP) as a determinant of agrarian changes in Polish agriculture in 2004–2013: selected aspects of assessment, including the changes index for biennial periods (relative scores, initial year = 100)

Year	Number of SAP beneficiaries		Amount of SAP delivered		SAP rate		Area covered by SAP		Average size of agricultural holding (SAP beneficiary)	
	farms (thous.)	change index	PLN mln	change index	PLN/ha agricultural land	change index	thous.	change index	ha	change index
2004	1,384.3	106.0	2,853.1	110.7	210.53	106.9	13,552.2	103.6	9.79	97.7
2005	1,467.9		3,159.8		225.00		14,043.7		9.57	
2006	1,455.4	98.7	3,880.1	109.5	276.28	109.1	14,044.1	100.3	9.65	101.6
2007	1,437.1		4,247.4		301.54		14,085.7		9.80	
2008	1,407.3	98.3	4,766.5	148.3	339.31	149.4	14,047.6	99.2	9.98	101.0
2009	1,383.0		7,068.4		506.98		13,942.1		10.08	
2010	1,363.1	99.0	7,823.8	126.4	562.09	126.4	13,919.1	100.0	10.21	101.0
2011	1,349.1		9,889.0		710.57		13,917.0		10.32	
2012	1,351.8	99.7	10,222.6	126.4	732.06	113.4	13,964.1	98.8	10.33	99.1
2013	1,347.8		11,459.1		830.30		13,801.2		10.24	

Source: own elaboration based on data delivered by ARMA.

in the EU, problems emerged with SAP implementation. This can be deduced from the large difference in the number of agricultural holdings (SAP beneficiaries) between 2004 and 2005. In 2004 96.5% of payment from 2005 was realized (the least in Podkarpackie voivodeship – 90.7%). This is why the biennium of 2004–2005 demonstrates an outstanding increase in the number of SAP beneficiaries (by 6%), of payments disbursed (by 10.7%; 6.9% as a result of the increased payment rate) and of the area covered by SAP (by 3.6%; cf. Table 1).

Because of the problem related to the information on the SAP in the first year of the Polish membership in the EU, the period of 2005–2013 was covered by the analysis of SAP as an instrument used in agrarian studies. All in all, in this period, Polish agricultural holdings were subsidized with PLN 62.5 billion under the SAP scheme (from PLN 1.5 billion in the Śląskie voivodeship to PLN 8.3 billion in the Mazowieckie voivodeship). This means an average annual payment of PLN 5,0000 per farm. The sheer amount shows that SAPs are an important element of European support for agricultural holdings, intended both for modernization (e.g. purchase of operating assets) and for social life improvement (e.g. higher standards

of equipment); the amount also varied widely across regions (from PLN 1,900 in the Małopolskie voivodeship to PLN 14,400 per farm in the Zachodniopomorskie voivodeship; cf. Table 2) and, first and foremost, across districts (from PLN 1,200 in Sucha Beskidzka district, Małopolskie voivodeship to PLN 21,500 in Łobez district, Zachodniopomorskie voivodeship). The results presented in this paper corroborate the studies on regional diversification of direct payments (Teszbir and Gołaś, 2013; Zawadzka et al., 2013), according to which the amount of aid (per farm holding or application) is determined by the historically conditioned Polish agrarian structure.

The analysis of the number of SAP beneficiaries in 2005–2013 demonstrated a positive trend towards a decrease in the number of agricultural holdings (SAP beneficiaries) in Poland by 8.2% (index value = 92). This trend featured in all voivodeships and was most noticeable (an index value below 90) in the stretch of southern voivodeships: Dolnośląskie, Małopolskie, Podkarpackie, Śląskie and Świętokrzyskie (cf. Table 2). When it comes to district offices, an increase in the number of agricultural holdings was recorded in 20 cases only (6.4% of all ARMA's district offices).

Table 2. Single Area Payments (SAP) as an instrument used in agrarian studies: selected aspects of assessment by regions and specific determinants in Poland (2013 and changes between 2005 and 2013)

Specification	Total SAP in 2005–2013		Number of farms (SAP beneficiaries)		Agricultural land covered by SAP		Average farm area		
	PLN mln	average annual payment (PLN thous. per farm)	thous. per farm in 2013	change index (number of farms in 2005 = 100)	thousand ha of agricultural land in 2013	change index (agricultural land in 2005 = 100)	ha of agricultural land in 2013	change index (average in 2005 = 100)	
Poland	62,516.7	5.0	1,347.8	92	13,801.2	98	10.2	107	
Including the voivodeships									
Dolnośląskie	3,901.9	7.4	55.9	89	856.8	98	15.3	109	
Kujawsko-Pomorskie	4,572.5	7.6	64.8	93	1,007.2	98	15.5	105	
Lubelskie	5,967.3	3.7	175.5	95	1,324.7	100	7.5	105	
Lubuskie	1,722.0	9.4	19.7	93	380.8	100	19.3	108	
Łódzkie	4,260.8	3.7	121.3	91	936.9	96	7.7	106	
Małopolskie	2,205.2	1.9	120.0	85	485.4	94	4.0	110	
Mazowieckie	8,335.8	4.4	204.5	93	1,836.8	97	9.0	105	
Opolskie	2,220.9	8.7	27.3	90	490.5	98	17.9	109	
Podkarpackie	2,343.3	2.1	115.6	89	519.2	96	4.5	108	
Podlaskie	4,651.1	6.2	82.5	98	1,033.6	102	12.5	104	
Pomorskie	3,108.1	8.9	38.1	95	685.1	97	18.0	102	
Śląskie	1,497.6	3.3	46.8	84	333.2	97	7.1	115	
Świętokrzyskie	2,158.4	2.7	84.4	88	474.6	95	5.6	108	
Warmińsko-Mazurskie	4,257.3	11.0	42.8	98	935.5	98	21.8	99	
Wielkopolskie	7,638.0	7.0	120.3	96	1,686.8	99	14.0	103	
Zachodniopomorskie	3,676.4	14.4	28.3	95	814.0	103	28.8	108	
By determinants*									
Natural	LFA	46,537.3	5.1	984.2	92	10,266.1	98	10.4	107
	non-LFA	15,979.4	4.7	363.6	91	3,535.1	98	9.7	108
	difference**	x	0.09	x	0.18	x	0.01	0.09	0.23
Urban	T	15,017.5	4.5	358.0	93	3,341.6	101	9.3	109
	CD	47,499.3	5.1	989.8	91	10,459.5	97	10.6	107
	difference**	x	0.15	x	0.18	x	0.41	0.15	0.27
Historical	Eastern Poland	33,769.4	3.6	1,002.7	91	7,459.1	98	7.4	107
	Western Poland	28,747.4	9.1	345.1	94	6,342.1	99	18.4	105
	difference**	x	1.36	x	0.34	x	0.12	1.37	0.31

*Determinants:

- natural: LFA (unfavorable natural conditions) means districts meeting the natural criteria of LFA classification, with an APAQI below 72.5; favorable natural conditions means non-LFA districts (those which do not meet the natural criteria of LFA classification, with an APAQI above 72.5),
- urban: highly urbanized units – T (with townships); poorly urbanized units – CD (with country districts),
- historical: Eastern Poland – land located within the historical Russian and Austrian Partitions; Western Poland – land located within the historical Prussian Partition.

**Difference: absolute difference between indices expressed as standardized values.

Source: own elaboration.

The last year of this analysis (2013) saw the implementation of 1,347,800 projects covered by SAP applications. The number of agricultural holdings (agricultural producers registered with ARMA) ranged from 19,700 in the Lubuskie voivodeship to 204,500 in the Mazowieckie voivodeship (cf. Table 2). At the level of ARMA's district offices, a low number of agricultural holdings was characteristic of districts with a high percentage of large farms, usually located in northern and western Poland (e.g. 866 farms in the Łobez district, Zachodniopomorskie voivodeship, and 829 farms in the Słubice district, Lubuskie voivodeship). On the other hand, a high number of agricultural holdings was typical of districts with the highest fragmentation of agricultural land, usually located in southeast Poland (maximum value: 20,748 agricultural holdings in the Lublin district, Lubelskie voivodeship).

A much slower pace of changes was characteristic of agricultural holdings covered by SAP. In 2005–2014, their area decreased by 243,000 ha which is 1.7% of the acreage recorded in 2005 (a change index of 98). The most pronounced increase was recorded in the Podlaskie voivodeship (a change index of 102) and Zachodniopomorskie voivodeship (a change index of 103). An increase was also reported by 87 (27.7%) district offices of ARMA.

The analysis of changes in the number and area of agricultural holdings (SAP beneficiaries) showed that some highly urbanized areas are gaining in importance. This is exemplified by the ARMA's district office in Warsaw (township of Warsaw together with the West Warsaw district) where the period under analysis saw a growth in the number of SAP beneficiaries (by 937 agricultural holdings, reaching 8,054 agricultural holdings in 2013) and in the area covered by SAP (by 16,5000 ha, reaching 105,900 ha in 2013).

In 2013, the Polish territory covered by SAP was 13.8 million ha. Regionally, the figures ranged from 333,300 ha in the Śląskie voivodeship to 1,836,800 ha in the Mazowieckie voivodeship. According to ARMA's district offices, the smallest area covered by SAP was reported in the Skarżysko-Kamienna district, Świętokrzyskie voivodeship (2,400 ha). On the other hand, the largest areas, beyond the threshold of 140,000 ha, were registered in the Poznań district, Wielkopolskie voivodeship (144,100 ha) and in the Biała Podlaska district (145,100 ha), Lubelskie voivodeship.

The measurements described above (area of agricultural land and number of SAP applications) helped calculating the average acreage of agricultural holdings registered as agricultural producers with the ARMA. It was demonstrated that the changes in agrarian structure occurring in Poland between 2005 and 2013 were characterized by the following pattern: the number of agricultural holdings was declining faster than their area; thus, their average size grew (from 9.6 ha in 2005 to 10.2 ha in 2013; a change index of 107). The direction of these changes can be considered positive, though their pace is insufficient. Moreover, the analysis of data on SAPs proved these changes to be regionally highly differentiated, both at voivodeship level (a change index ranging from 99 in the Warmińsko-Mazurskie voivodeship to 115 in the Śląskie voivodeship, cf. Table 2) and at the level of ARMA's district offices (ranging from 42 units in districts reporting a reduction in the average farm size – with a change index below 100 – to 34 units in districts with a change index above 115; cf. Fig. 1).

As a result of the abovementioned changes in the number and area of agricultural holdings, their average size reached 10.2 ha in 2013. The index was regionally highly differentiated (mostly due to historical conditions)

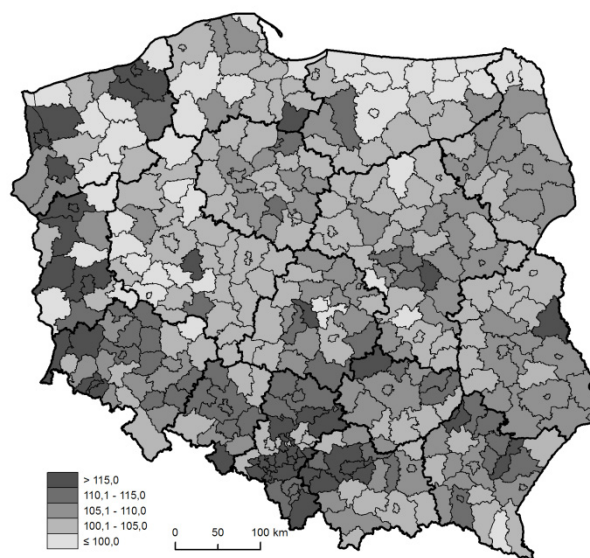


Fig. 1. Changes in the average area of agricultural holdings (agricultural producers) recorded by ARMA in 2005–2013 (area recorded in 2005 = 100)

Source: own elaboration based on data delivered by ARMA.

across both voivodeships (cf. Table 2) and districts (cf. Fig. 2), ranging from 4.0 ha in the Małopolskie voivodeship to 28.8 ha in the Zachodniopomorskie voivodeship and (according to data delivered by ARMA's district offices) from 2.3 ha in the Sucha Beskidzka district, Małopolskie voivodeship, to 41.2 ha in the Łobez district, Zachodniopomorskie voivodeship. As far as agricultural development is concerned, a particularly unfavorable situation was faced in areas where the average size of farms did not exceed 5 ha of agricultural land. It was the case in 49 districts, mostly concentrated in the two voivodeships of southeast Poland: Małopolskie (17 districts) and Podkarpackie (16 districts; cf. Fig. 2).

The analysis showed that the best development opportunities for agriculture – based on large, economically strong farms – exist in regions with an average farm size above 20 ha. Farms with an area comparable to that of their Western European counterparts may enjoy a sharper competitive edge in the European Union market. According to data delivered by ARMA, the threshold was exceeded only in 51 (16%) districts, located mostly in northern and western voivodeships, with the largest number (16) found in the Zachodniopomorskie voivodeship.

The SAPs and the concomitant agrarian changes were also analyzed from the perspective of regional diversification, as reported by ARMA's district offices,

based on the bipartite approach to natural, urban and historical conditions. The historical factor was demonstrated to have a particularly strong impact (impact assessment index = 1.37), as reflected by considerable differences in the average size of agricultural holdings between districts of Eastern Poland (7.4 ha) and Western Poland (18.4 ha). The evolution of this index over the period 2005–2013 shows that the progress in narrowing the gap is low. The spatial pattern of the agrarian structure was not so much affected by the urbanization context. As regards this issue, the highest value of the impact assessment index was 0.41. This resulted, on the one hand, from the growing area covered by SAP in units with townships (a score of 101 is the effect of the urban population's greater eagerness to take over agricultural land) and, on the other hand, from a decrease in the area covered by SAP in units with country districts (a score of 97). The spatial pattern of the agrarian structure in 2013 and the changes it underwent in 2005–2013 are by far the least affected by natural conditions. The peak value of the index was 0.23 and resulted from a higher level of the change index in areas with favorable natural conditions (a score of 108; 107 points in the group of districts subject to less favorable natural conditions; cf. Table 2).

CONCLUSIONS

As shown in this paper, 2005–2013 was a period characterized by a strong upward trend in the SAP, mostly due to a higher rate of payments per hectare of agricultural land. The above period saw a steady decrease in the number of agricultural holdings (SAP beneficiaries) which – in the context of negligible changes in the area covered by SAP – meant a growth trend in the average size of agricultural holdings.

It was demonstrated that of all the determinants of the Polish agrarian structure, a particularly important role is played by historical factors, which is reflected by the high average size of agricultural holdings located within the territory of the historical Prussian Partition.

The analysis of 2004–2013 data at the level of ARMA's district offices proves that SAPs are perfectly suited to monitor the agrarian changes. Since 2008, it has been possible to analyze this data at municipality, village or even farm level. This is because the Act of January 26, 2007 on payments to agricultural land and sugar payments (Journal of Laws No. 35, item 217, as amended) requires ARMA to establish and publish the list of

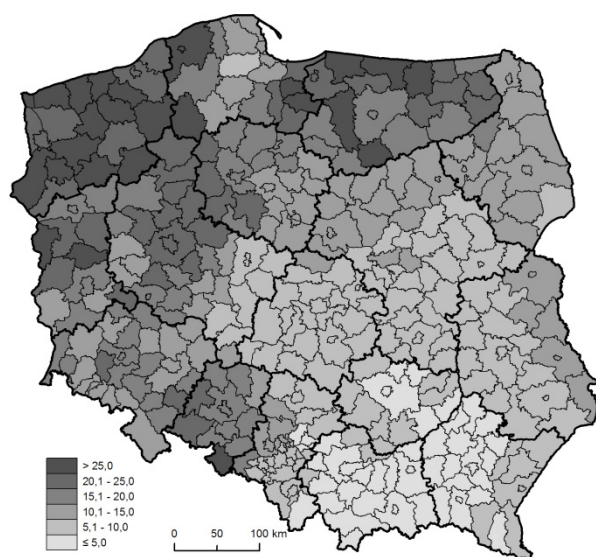


Fig. 2. Average area of agricultural holdings (agricultural producers) (in ha) recorded by ARMA, as of 2013
Source: own elaboration based on data delivered by ARMA.

farmers who received area payments. The list is available at the website of the Ministry of Agriculture and Rural Development; it specifies the farmers' full name or company name (in the case of legal persons), address of residence or registered address of the business, and the amount of payment granted based on applications submitted in the year concerned.

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JEDNOLITE PŁATNOŚCI OBSZAROWE JAKO NARZĘDZIE MONITORINGU PRZEMIAN AGRARNYCH W POLSCE (LATA 2004–2013)

Abstrakt. Artykuł dotyczy wyników analizy przestrzennej jednolitych płatności obszarowych (JPO) w Polsce. Uwzględniając zmieniającą się stawkę tych płatności za 1 ha użytków rolnych (od 210,53 zł w 2004 r. do 830,30 zł w 2013 r.), badania ukierunkowano na ocenę przemian liczby i powierzchni gospodarstw rolnych w latach 2004–2013, z uwzględnieniem oceny oddziaływania uwarunkowań przyrodniczych, urbanizacyjnych i historycznych. Stwierdzono, że zachodzące przemiany agrarne charakteryzują się wyższym tempem ubytku liczby gospodarstw rolnych (ubyło 8%) w porównaniu do ich powierzchni (ubyło 2%), co uruchomiło tendencję do wzrostu ich przeciętnej wielkości z 9,8 ha w 2004 r. do 10,2 ha w 2013 r. Wykazano, że badane elementy struktury agrarnej wyróżniają się dużym zróżnicowaniem przestrzennym, głównie uwarunkowanym historycznie. Potwierdzono duże walory JPO jako narzędzia monitoringu przemian agrarnych.

Słowa kluczowe: jednolita płatność obszarowa (JPO), liczba gospodarstw rolnych, powierzchnia gospodarstw rolnych, zmiany struktury agrarnej, Polska