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AGRICULTURAL LAND AFFORESTATION IMPLEMENTED UNDER THE RURAL DEVELOPMENT PROGRAMME IN POLAND BETWEEN 2007-2013 AND 2014-2020

Key words: afforestation, agricultural land, RDP, regional differences, Poland

ABSTRACT. This article focuses on afforestation of agricultural land and reviews agricultural land afforestation changes in Poland implemented by beneficiaries (natural or legal persons) of the RDP, with special regard to regional differences. Furthermore, the study distinguished between trends in afforestation for separate EU budgetary periods: 2007-2013 and the current financing period 2014-2020. The study applies data published by the Central Statistical Office for 1995-2018, concerning the size of the forest cover by ownership type and spatial distribution, the forest area in the total land area of a farm, and the average price of arable land. Additionally, data concerning the afforestation of agricultural and non-agricultural land have been obtained from the Agency for the Restructuring and Modernisation of Agriculture for 2007-2018. Results show that the afforestation of privately-owned agricultural land was 33,053.53 ha in Poland between 2007-2013, whereas it was 6,742.06 ha between 2014-2018. In both periods, the largest land area was afforested in the Warmińsko-Mazurskie and Mazowieckie voivodships, while the smallest in the Śląskie and Małopolskie voivodships. Although the current financing period will expire in 2020, available data suggest that the total afforested area of agricultural land area in the current period will be smaller than in the previous period. The comparison of both afforestation periods shows that only in the case of the Warmińsko-Mazurskie and Opolskie voivodships, the average percentage share of forest cover in total land area owned by a farm slightly increased, but both voivodships, are of little significance in afforestation efforts. The most significant decrease in the newly afforested area was in the Małopolskie Voivodship, which is likely related to average farm size and land location as well as related natural conditions.

INTRODUCTION

The afforestation of new regions in Poland is promoted by the National Programme of Forest Cover Expansion (NPFC), whose main objective is to augment forest cover in the country, an objective consistent with European Union climate policies. The Council of Ministers voted on a resolution for comprehensive forest protection and rational forest management in 1996 and called on the government to achieve 30% of forest cover by 2010, ten years earlier than the goal set by the NPFC in 1995 [MŚ 2003]. Despite the resolution, the NPFC remained unchanged. Similarly, the cohesive structural policy for the development of rural areas and agriculture prepared in 1999 and adopted by the Council of Ministers [MRiGŻ 1999] planned the afforestation of 450,000 ha of agricultural land, an

area inconsistent with the afforestation plans of the NPFC. Later, on May 12, 2000, a law outlining the principles of regional development support [Journal of Laws, 2000.48.550] obligated institutions managing selected funds and agencies to assure the harmonization of their programmes with that of regional development strategy.

The implementation of the NPFC, which included the afforestation of Treasury and private land, involved several stages. The first stage covered the period 1995-2000, during which 111.3% of goals were realized. In the second stage (2001-2005), actual afforestation reached 79.5% of the assumed goal. In the third stage (that extended through 2013), afforestation reached 14% of the planned area, while afforested areas decreased every year. The extension through 2013 corresponded to the period of subsidized afforestation under the RDP programme financed with EU funds. According to Jan Kazak et al. [2016], the analysis conducted by the NPFC for afforestation in the period 2001-2013 and the forecast through 2020 showed that it would be impossible to afforest 680,000 ha. Analysis indicated that 184,000 ha could be afforested, corresponding to 27% of the goal. To reach the NPFC's original goal implied afforesting 520,700 ha in the fourth stage (2014-2020), or 74,000 ha annually. The forecasted scope of afforestation for the period 2014-2020 involved 4,355,000 ha of land owned by the Treasury and no more than 20,000 ha of private land.

The need to establish the new afforested area was also recognised in the "National Spatial Plan 2030" [Resolution no 239 of the Council of Ministers] and Spatial Planning and Management Act [Journal of Laws, 2018.0.1945 art. 10 paragraph 2, item 9]. In the period following accession, the afforestation of privately-owned area was implemented with the support of the EU distributed under the European Agricultural Fund for Rural Development (EAFRD) 2007-2013 and 2014-2020. In the period 2007-2013, an area of 36,846.96 ha was afforested, while in the period 2014-2017, 1,975.49 ha was afforested. A total of PLN 70.35 million and PLN 12.23 million of EAFRD funds were allocated for that purpose in each period, respectively [GUS 2018]. The afforestation of agricultural and non-agricultural land supported by the Rural Development Programme (RDP) was met with interest among land owners apart from operations conducted pursuant to the Forest Act of 28 September 1991 [Journal of Laws, 1991.101.444].

This article focuses on the afforestation of agricultural land and changes in the rate of afforestation in Poland implemented by beneficiaries (i.e., natural or legal persons) of the RDP, with special focus on spatial differences. Furthermore, the study distinguishes between trends in afforestation for separate periods corresponding to the two EU budgetary periods: 2007-2013 and the current financing period 2014-2020.

MATERIAL AND METHODS

The study uses data published by the Central Statistical Office for the period 1995-2018 concerning the size of the forest cover by ownership type and spatial distribution, the forest cover within the total area of agricultural holdings, and the average price of arable land. Data concerning the afforestation of agricultural and non-agricultural land have been obtained from the Agency for the Restructuring and Modernization of Agriculture for the period 2007-2018. Descriptive and comparative methods as well as elements of descriptive statistics including the calculation of trends for various types of afforestation have been applied. Results have been described and presented in tables and figures.

STUDY RESULTS

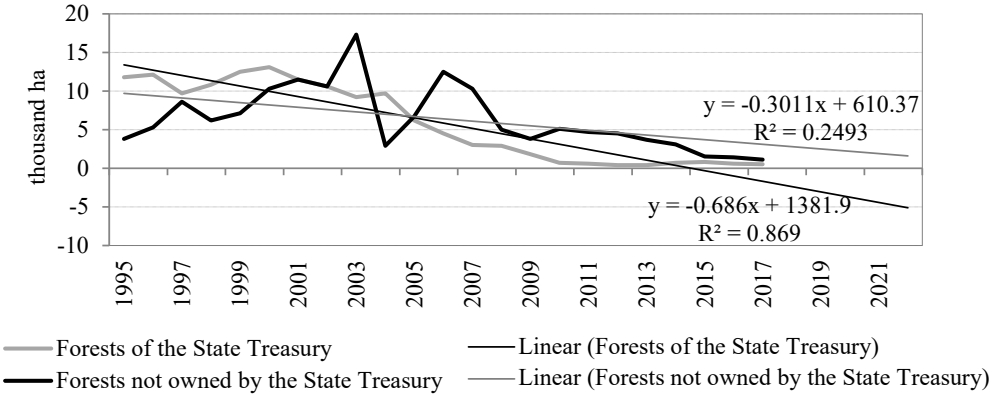
In 2017, the structure of forest ownership was 80.7% of public forests and 19.3% of private forests (it has fallen and risen by 2.2% accordingly in comparison with 1995). Over the period 1995-2017, publicly-owned forest cover increased by 2.7% (areas held by the Treasury increased by 2.4%) [GUS 2018]. Within a 22-year-period (1995-2017), under the implementation of the National Programme for Expanding Forest Cover, total forest cover constituted 280.3 thousand ha, including 52% (146.9 thousand ha) of privately-owned forest cover [GUS 2018]. During the period 1995-2017, the annual afforested area constituted 12.2 thousand ha, while the largest annual afforested area covered 26.5 thousand ha in 2003 regardless of ownership type [GUS 2018]. Figure 1 illustrates changes within the afforestation area owned privately and by the Treasury. Changes in forest cover in Poland have been tracked by means of a linear trend yielding the equation $y = -0.3011x + 610.37$ (value t-student $-2.018 < -0.417 < 2.018$ – see Table 1) for changes in the size of privately-owned forests. The R^2 coefficient for the calculated equation equals 0.2493 and its size reflects the variation in the afforestation rate carried out by private land owners. Although there was a growing tendency in the size of the annual afforested surface, the rate decreased after EU accession. The size of afforested areas that were privately-owned decreased annually by 0.3 thousand ha between 1995 and 2017. The slowing down of afforestation on privately-owned land, mainly owned by farmers (i.e., in legal terms legally natural persons), has largely been caused by the subsidies [ARiMR 2019] that farmers received under the Common Agricultural Policy (CAP). Therefore, the aims of the National Programme for Expanding Forest Cover clashed with the Common Agricultural Policy during the period under consideration.

Table 1. Test on the difference between the average area of the State Treasury and other than State Treasury forests for the period 1995-2017 under the assumption of unequal variance

Measure	Forests of the State Treasury	Forests not owned by the State Treasury
Mean	5.830434783	6.391304348
Variance	24.90766798	16.72537549
Observations	23	23
Hypothesized Mean Difference	0	
Df	42	
t Stat	-0.416875826	
P(T ≤ t) one-tail	0.339446146	
t Critical one-tail	1.681952357	
P(T≤ t) two-tail	0.678892292	
t Critical two-tail	2.018081703	

Source: own elaboration based on [GUS 2018]

The calculated trend of afforestation of Treasury-owned land ($y = -0.686x + 1381.9$) and the size of the correlation coefficient $R^2 = 0.8690$ have captured changes to a greater degree than the trend calculated for the size of private forests. The difference between the means of the private sector and state-owned forests (5.83-6.39) is not statistically significant, suggesting that the average size of annual afforested area owned by the Treasury and privately-owned land do not differ (Table 1). However, similarly to the tendency observed in the case of private afforestation, the rate of Treasury-owned afforested land decreased substantially after EU accession in 2004 (Figure 1). The annual decrease was 44% as compared to the decrease in land afforestation by the private sector, and the afforested area decreased by 0.67 thousand ha between 2007 and 2017.



Note: The calculated trend is a linear trend

Figure 1. Annual afforestation of state and privately-owned land and their trends in Poland in the period 1995-2017

Source: own elaboration based on [GUS 2018]

Changes in the size of the afforested area of Treasury-owned land may have been influenced by restrictions introduced by the Agricultural Property Agency concerning the transfer of land to be afforested to the State Forests National Forest Holding (PGL LP), resulting from the establishment of the Nature 2000 network in 2005, among others. Whereas the changes in privately-owned forest cover may have resulted from the introduction of the Rural Development Programme (RDP) in the periods 2007-2013 and 2014-2020, respectively. Past experience concerning the implementation of the National Programme for Expanding Forest Cover indicate that the existing plans, that is the Concept of the National Spatial Planning 2030, Voivodship Spatial Management Plans, and Local Spatial Development Plans do not allow for the control of afforestation. It is the availability of land available for afforestation (both privately- and state-owned) that is critical [Kaliszewski 2016].

Table 2 shows the changes in the afforested area by ownership type in each voivodship during the RDP programs in 2007-2013 and 2014-2020. The afforested area of land owned by State Forests was smaller in eight voivodships in the second RDP financing period as compared to the period 2007-2013. The smallest decrease in afforested area was in the Lubelskie (6.62%) and Lubuskie (8.09%) voivodships, while the largest decrease was reported in the Mazowieckie (30.31%), Zachodniopomorskie (26.65%), and Pomorskie (22%) voivodships. In the case of private land afforestation, the largest change as compared to the afforestation of land owned by State Forests, was an increase in area (funded through the RDP programme) in the Podlaskie (26.99%) and Małopolskie (20.80%) voivodships, while the smallest increases were reported in the Dolnośląskie (1.37%), Opolskie (1.92%), and Świętokrzyskie (2.51%) voivodships.

Comparing the changes in private forests to State Forests between the periods 2007-2013 and 2014-2020, respectively, the largest decreases were noted in the Zachodniopomorskie (38.05%) and Mazowieckie (30.57%) voivodships, while the relatively smallest decrease was observed in the Lubelskie (1.90%) and Lubuskie (2.94%) voivodships. The same voivodships were among those with the largest and smallest increases when the

Table 2. Afforestation changes in State Forests and private forests accounting for RDP in the period 2007-2013 and 2014-2020, by voivodship

Voivodship	Afforestation by voivodship										
	State Forests			private forests			private forests afforestation under RD			* in 2014-2018 to 2007-2013	** in 2014-2018 to 2007-2013
	2007-2013	2014-2018	in 2014-2018 to 2007-2013	2007-2013	2014-2018	in 2014-2018 to 2007-2013	2007-2013	2014-2018	in 2014-2018 to 2007-2013		
	ha		%	ha		%	ha		%		
Poland	9,514.60	2,899.70	30.48	36,688.84	7,866.36	21.44	33, 053.53	6,742.06	20,40	-9,04	-10,08
Dolnośląskie	1,055.30	1,39.50	13.22	1,747.02	369.44	21.15	1,608.13	234.57	14,59	7,93	1,37
Kujawsko-pomorskie	496.20	177.60	35.79	2,053.63	329.13	16.03	1,482.94	243.65	16,43	-19,77	-19,36
Lubelskie	111.70	40.50	36.26	2,503.44	860.16	34.36	2,806.16	831.62	29,64	-1,90	-6,62
Lubuskie	784.20	160.30	20.44	1,460.87	255.73	17.51	1,656.67	204.56	12,35	-2,94	-8,09
Łódzkie	350.60	87.50	24.96	1,922.63	547.47	28.48	1,855.23	587.06	31,64	3,52	6,69
Małopolskie	105.90	13.30	12.56	455.52	151.53	33.27	250.06	83.41	33,36	20,71	20,80
Mazowieckie	239.10	125.30	52.40	4,243.59	926.48	21.83	4,232.09	935.19	22,10	-30,57	-30,31
Opolskie	492.70	64.00	12.99	498.57	81.97	16.44	460.90	68.72	14,91	3,45	1,92
Podkarpackie	299.90	60.90	20.31	2,703.12	1,258.49	46.56	2,530.22	593.17	23,44	26,25	3,14
Podlaskie	360.00	44.00	12.22	2,440.96	779.61	31.94	2,012.03	788.97	39,21	19,72	26,99
Pomorskie	832.10	286.90	34.48	1,691.08	447.72	26.48	1,753.25	218.76	12,48	-8,00	-22,00
Śląskie	51.50	6.50	12.62	398.41	57.15	14.34	248.79	46.87	18,84	1,72	6,22
Świętokrzyskie	59.80	13.30	22.24	2,206.85	535.68	24.27	1,748.36	432.79	24,75	2,03	2,51
Warmińsko-mazurskie	1,615.30	402.40	24.91	8,564.96	785.60	9.17	6,360.92	596.77	9,38	-15,74	-15,53
Wielkopolskie	356.40	128.50	36.05	2,035.93	266.96	13.11	1,429.01	260.56	18,23	-22,94	-17,82
Zachodniopomorskie	2,303.80	1,155.40	50.15	1,762.26	213.34	12.11	2,618.77	615.39	23,50	-38,05	-26,65

* Private forests in relation to State Forests (increase (+)/decrease (-),
** Private forests under RDP in relation to State Forests (increase (+)/decrease (-)

Source: own elaboration based on [GUS 2008-2019, BDL 2019, ARiMR 2019]

afforested area of private land supported by the RDP programme was compared to the afforestation area of land owned by State Forests. The largest increases (table 2) in the area of privately owned afforested land in relation to the State Forest afforestation area was in the Podkarpackie Voivodship (26.25%), while the smallest increase was reported in the Śląskie Voivodship (1.72%), a result different than the relation between private land afforested with grants from the RDP programme when compared to afforestation reported for State Forests.

Apart from the ownership aspect, land afforestation is conditioned by spatial distribution. Forest cover distribution is unequal across regions in Poland. In 2017, the highest share of privately-owned forests was in the Mazowieckie Voivodship (44.8%), the Małopolskie (4.7%) and the Lubelskie (41.1%) voivodships, whereas the lowest was in the Lubuskie (1.8%), the Zachodniopomorskie (2.6%) and the Dolnośląskie (3.5%) afforested Voivodships. Figure 2 shows privately owned agricultural land area afforestated with grants from the RDP programme by voivodship in the period 2007-2013 and 2014-2020, respectively.

The afforested area of privately-owned land using grants from the RDP programme in Poland between 2007 and 2013 was 33,053.53 ha, whereas in 2014-2018, it was 6,742.06 ha [ARiMR 2019]. In the period 2007-2013, the largest afforested area was in Warmińsko-Mazurskie (6,742.06 ha) and Mazowieckie (4,232.09 ha) voivodships, as well as in Lubelskie, Zachodniopomorskie, Podkarpackie, and Podlaskie. In Mazowieckie, Podlaskie, and Podkarpackie voividships, the soil quality is generally poor, thus afforestation was the continuation of the tendency to afforest soils where cultivation meant high costs [Klepacka et al. 2017]. The smallest afforested area was in Śląskie (248.79 ha), Małopolskie (250.06 ha), and Opolskie (460.9 ha) voivodships. While Śląskie may lack areas to be afforested, in Małopolskie afforestation is limited by topography and soil quality. The climatic and social conditions of Opolskie Voivodship do not encourage afforestation as well. In the current period of EU subsidies (which covers the years 2014-2020), the largest afforested

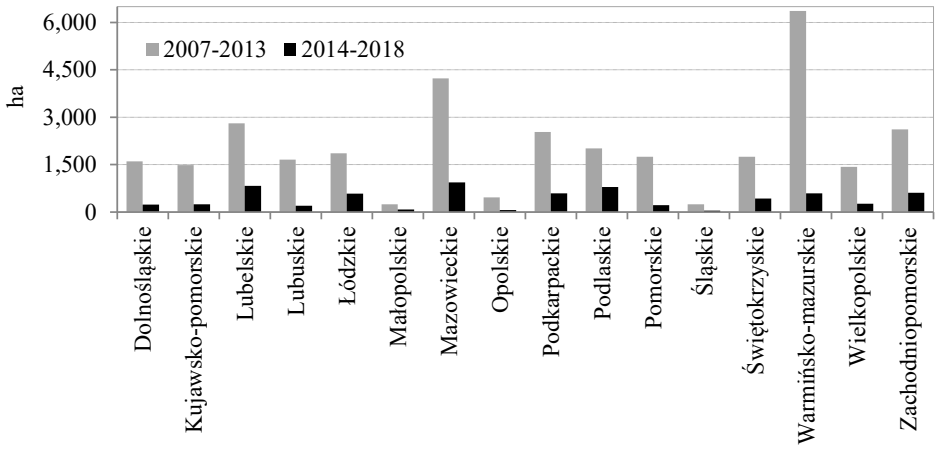


Figure 2. Total afforestation of privately-owned land under RDP by voivodship in the periods 2007-2013 and 2014-2018

Source: own elaboration based on [ARiMR 2019]

area has been in the same six voivodships as in the period 2007-2014, but the order changed somewhat. The largest number of afforested hectares was in Mazowieckie (935.19 ha) and Lubelskie (831.62 ha), followed by Podlaskie, Zachodniopomorskie, Warmińsko-mazurskie, and Podkarpackie. Śląskie (46.87 ha), Opolskie (68.72 ha), and Małopolskie (83.41 ha) voivodships had the smallest areas afforested. Although the current financing period for afforestation will end in 2020, the available data suggest that the afforested area in voivodships will be smaller than in 2007-2013. It seems that spatially, the shares of growth of forested areas will not be affected since regions characterised by high forest shares in total area have afforested relatively larger areas than voivodships with low shares of forested areas. The growth rate of the country's forest cover suggests that the objectives of the National Programme of Forest Cover Expansion will not be accomplished within the expected time period.

THE AVERAGE SHARE OF THE FOREST COVER IN THE FARMS TOTAL LAND AREA

Changes occurring in the spatial afforestation in privately-owned forests have been compared by calculating percentage share of forest cover in the total land area operated by farms. Share of forest cover in the total farm area has been calculated for the period 2010-20181. Changes in the average share of forest cover in the total land area operated by farms in Poland have been estimated by means of a linear trend. The trend, expressed by the function $y = -0.1842x + 376.8$, suggests that percentage share of forest area in total farm land area has decreased by 0.18 ha in the period 2010-2018 (Figure 3). The calculated correlation coefficient indicates that the equation explains about 72% of the observed changes ($R^2 = 0.7269$). If the trend continues for five successive years (from 2019 to 2023), the average share of forest cover in the total farm area will decrease from about 6.8% to about 4.2%.

Table 3 shows the average percentage share of the forest cover in the farm total area in each voivodship for two RDP periods, that is 2007-2013 and 2014-2020, but the figures are restricted to the period 2010-2018 because data for all years are unavailable. The comparison of both periods shows that the average percentage share of forest cover in total farm area increased only in Warmińsko-Mazurskie and Opolskie, yet as has been noted, the size of afforested area in Opolskie is insignificant. Interestingly, Warmińsko-Mazurskie maintains its position as a leader in land afforestation in Poland, whereas Opolskie is last. Both voivodships are classified in a group of voivodships with the lowest share of privately-owned forests in the total forest area in Poland (in Warmińsko-Mazurskie Voivodship privately-owned forests constitute 8.1%, and in Opolskie 5%). The most significant decrease in forest cover in the farm total area, however, was reported in Małopolskie, which can be explained by the location and limitations of natural conditions.

An important factor, that may affect the level of afforestation, is the sustained upward trend of average price of agricultural land (Figure 4). One of the causes of is demand

[1] Due to the availability of BDL (Local Data Bank) and GUS (Central Statistical Office) data, the analyzed time period is from 2010 to 2018.

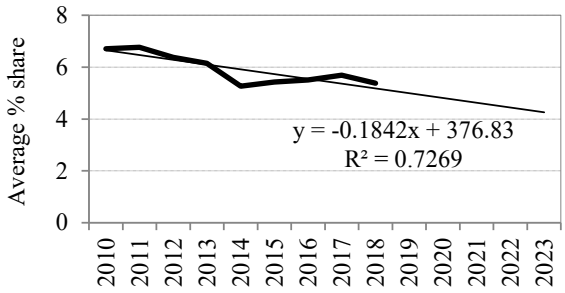


Figure 3. Average percentage share of forested area in the total farm area in Poland in the period 2010-2018 (the calculated trend is a linear trend)

Source: own elaboration based on [BDL 2019]

Table 3. Average percentage share of forested area in the total area on farms by voivodship in the periods 2010-2013 and 2014-2018

Voivodships	Average share of forested area in the total area on farms [%]		Change in the average area forested between 2014-2020 to 2010-2013
	2010-2013	2014-2018	
Dolnośląskie	2.29	1.78	-0.51
Kujawsko-pomorskie	4.47	2.20	-2.28
Lubelskie	8.53	7.21	-1.32
Lubuskie	4.08	2.19	-1.89
Łódzkie	6.94	6.71	-0.23
Małopolskie	13.68	10.54	-3.15
Mazowieckie	8.93	8.45	-0.48
Opolskie	1.61	1.82	0.21
Podkarpackie	9.29	7.79	-1.50
Podlaskie	11.40	10.47	-0.93
Pomorskie	6.85	6.27	-0.58
Śląskie	7.44	5.29	-2.15
Świętokrzyskie	8.29	7.19	-1.10
Warmińsko-mazurskie	3.85	4.17	0.32
Wielkopolskie	4.24	3.34	-0.90
Zachodniopomorskie	2.18	1.87	-0.31

Source: own elaboration based on [BDL 2019]

for investment of capital from outside agriculture. Investors from outside agriculture may constitute large institutions or other land owners treating agricultural land as a capital investment, without its cultivation [Franc-Dąbrowska 2019]. Furthermore, it is the needs of agricultural producers (the desire to expand the production capacity of the farm) that are among factors contributing to demand for land. The land market is also affected by "shrinking" availability arable land [Poławski 2009]. Along with the changes in agriculture, a part of the land was excluded from agricultural use and afforested. The calculated trend y = 1,661.7x + 3,642.7 reflects a growing tendency of average price of poor quality land. The linear trend has captured price changes in that category of land quality very well, as reflected in the value $R^2 = 0.9604$ (Figure 4).

Regional differences in land prices depend on supply-demand situation on the local market, location as well as individually targeted planned business activity and also opportunities of making use of agricultural real estate for non-agricultural purposes [Sikorska 2018]. Table 4 shows average prices of arable land, percentage price changes and the afforested land under the RDP 2007-2013 and the RDP 2014-2020. In the period of 2007-2013, the highest average price per hectare of low quality land was observed in two voivodships: Wielkopolskie and Kujawsko-Pomorskie, where the percentage price increase between 2007 and

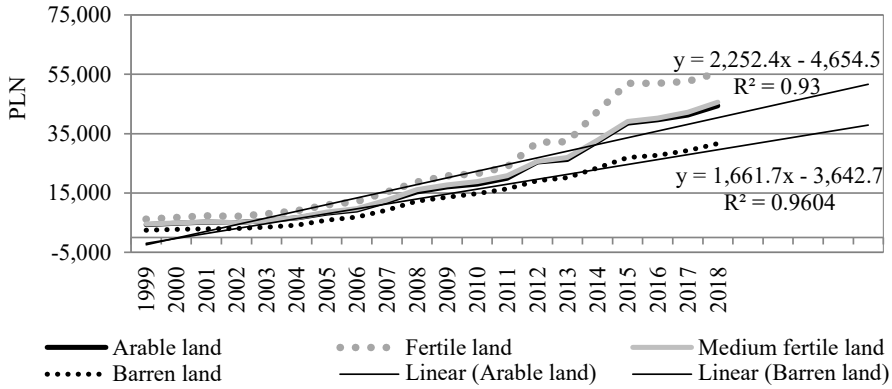


Figure 4. Average prices of hectare of arable land and the corresponding price trends in private transactions in Poland, 1999-2018 (the calculated trend is a linear trend)

Source: own elaboration based on [ARiMR 2019]

Table 4. Average prices per hectare of barren (unfertile) land in private transactions and afforested land by actual forest location by voivodship in 2007-2013 and 2014-2018

Voivodship	Average prices of hectare of barren land in private transactions 2007-2013	Price change 2013 to 2007	Area of afforested land RDP 2007-2013 by actual forest location	Average prices of hectare of barren land in private transactions 2014-2018	Price change 2018 to 2014	Area of afforested land RDP 2014-2020 by actual forest location
	PLN	%	ha	PLN	%	ha
Dolnośląskie	13,274	160	1,608	26,552	19	235
Kujawsko-pomorskie	21,397	86	1,483	36,925	24	244
Lubelskie	9,863	106	2,806	18,331	27	832
Lubuskie	9,278	185	1,657	22,601	37	205
Łódzkie	14,184	123	1,855	25,327	20	587
Małopolskie	13,323	91	250	21,574	14	83
Mazowieckie	15,849	124	4,232	27,081	39	935
Opolskie	14,424	184	461	28,640	19	69
Podkarpackie	9,242	177	2,530	16,931	9	593
Podlaskie	16,808	84	2,012	29,027	39	789
Pomorskie	19,109	80	1,753	30,491	20	219
Śląskie	14,857	83	249	21,920	10	47
Świętokrzyskie	8,088	171	1,748	16,901	30	433
Warmińsko-mazurskie	13,321	145	6,361	31,401	50	597
Wielkopolskie	21,830	97	1,429	37,593	36	261
Zachodniopomorskie	11,549	157	2,619	21,821	19	615

Source: own elaboration based on [BDL 2019, ARiMR 2019]

2013 was 97% and 86%, respectively. The lowest price was reported in the voivodships Świętokrzyskie, Podkarpackie, and Lubuskie, where the percentage price increase ranged from 171% to 185%. Those findings suggest that demand for land in areas of lower prices is probably related to the opportunity of treating the land as capital investment.

In the current period of 2014-2018, the highest and the lowest land price for low quality land was in Wielkopolskie and Świętokrzyskie, respectively, similarly to the period 2007-2013. Significant changes have been reported in the case of percentage price changes of low quality land in Warmińsko-Mazurskie (an increase of 50%), which could contribute to the largest afforested area in the period 2007-2013. Moreover, a considerable percentage change in the prices have been reported in Mazowieckie and Podlaskie voivodships, where a sizable afforested area was reported in the current period 2014-2018 as well. The Pearson correlation coefficient between the average land price of low quality land and the afforested area in both periods was low (R2, respectively -0.14 and -0.18). Nonetheless, the negative correlation indicates an inverse relationship compatible with expectations that rising land prices slow down the increase in afforestation.

CONCLUSIONS

The analysed changes in afforestation of arable land made by beneficiaries (i.e., natural and legal persons) supported by of the Rural Development Programme in the period 2007-2013 and 2014-2020 allow for the following conclusions:

1. After the EU accession, the afforestation rate in Poland decreased, both of the state- and privately-owned land. The annual decrease in the afforested land area owned by the Treasury was by 44% higher than the privately-owned land and the area decreased by 0.67 thousand ha per year in the period 2007-2017.
2. The afforested privately-owned area supported by the RDP program was 33,053.53 ha in Poland in the period 2007-2013, but only 6,742.06 ha in the period 2014-2018. In both periods the largest afforested area was in Warmińsko-Mazurskie and Mazowieckie voivodships, while the smallest in Śląskie and Małopolskie. Although the current financing period for afforestation will end in 2020, the available data suggest that the size of the afforested area in all voivodships will be smaller than in the period 2007-2013.
3. From the comparison of both RDP period, only Warmińsko-Mazurskie and Opolskie voivodships, the average percentage share of the forest area in the total area of the farm has increased, although slightly. However, the increase has also been reported in voivodships, where afforestation is of little significance because of the already large share of forests in the total area. The most significant decrease in the forest area in the total farm area was observed in Małopolskie, and can be explained by the location of land and limitations associated with the natural conditions.
4. The calculated trend, $y = 1{,}661.7x + 3{,}642.7$, of the average low quality land price, has captured price changes with great accuracy, as measured by the value $R^2 = 0.9604$. The increasing land prices seem to slow the afforestation of agricultural land. Furthermore, it appears that the conflicting aims of the Common Agriculture Policy (CAP) and the National Programme of Forest Cover Expansion also slow the transfer of agricultural land to afforestation.

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ZALESIANIE GRUNTÓW ROLNYCH W POLSCE REALIZOWANE W RAMACH PROGRAMU ROZWOJU OBSZARÓW WIEJSKICH W OKRESACH 2007-2013 I 2014-2020

Słowa kluczowe: zalesianie, grunty rolne, PROW, różnice regionalne, Polska

ABSTRAKT

Przedmiotem artykułu jest analiza zalesień gruntów rolnych realizowanych przez beneficjentów w ramach PROW, ze szczególnym uwzględnieniem różnic przestrzennych w Polsce. Ponadto rozróżniono tendencje zmian wielkości zalesień dla dwóch oddzielnych okresów, odpowiadających okresom finansowania budżetu UE, tj. dla lat 2007-2013 oraz bieżącego okresu finansowania obejmującego lata 2014-2020. Materiał źródłowy stanowiły upublicznione dane GUS za lata 1995-2018, dotyczące wielkości zalesień według własności i umiejscowienia przestrzennego, powierzchni zalesionej w powierzchni ogółem w gospodarstwach rolnych oraz średniej ceny gruntów ornych. Natomiast dane obejmujące zalesienia gruntów rolnych oraz gruntów innych niż rolne pozyskano z Agencji Restrukturyzacji i Modernizacji Rolnictwa za lata 2007-2018. W pracy wykorzystano metodę opisową i porównawczą oraz elementy statystki opisowej, w tym obliczenia trendów dla poszczególnych kategorii zalesień. Wyniki badań wskazały, że zalesienia w lasach prywatnych w Polsce w okresie 2007-2013 wyniosły 33 053,53 ha, natomiast w okresie 2014-2018 – 6742,06 ha. Ogółem w obu okresach największy obszar zalesiono w województwie warmińsko-mazurskim i mazowieckim, natomiast najmniejszy w województwach śląskim i małopolskim. Chociaż bieżący okres finansowania zalesień zakończy się dopiero w 2020 roku, dostępne dane sugerują, że wielkość zalesień we wszystkich województwach będzie mniejsza niż w latach 2007-2013. Z porównania obu okresów, w których dokonano zalesień, jedynie w przypadku województw warmińsko-mazurskiego i opolskiego, zwiększył się średni procentowy udział powierzchni zalesionej w powierzchni ogółem gospodarstwach rolnych, przy czym wysoki wzrost względny odnotowano również w województwach, w których zalesienia mają niewielkie znaczenie. Natomiast największy spadek powierzchni zalesionej w powierzchni ogółem odnotowano w województwie małopolskim, co można tłumaczyć ukształtowaniem terenu i ograniczeniami z nimi związanymi.

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