

# POST-ACCESSION STRUCTURAL TRANSFORMATIONS IN AGRICULTURE IN ŚWIĘTOKRZYSKIE PROVINCE – SELECTED ASPECTS

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**Introduction/background:** The paper has considerable cognitive value for the increase of knowledge in one of the areas of structural transformations in agriculture and rural regions, namely in tendencies regarding the varying number of farms and the size of utilised agricultural areas.

**Aim of the paper:** The purpose of this paper is a synthetic evaluation of selected aspects of structural transformations observed in agriculture in Świętokrzyskie Province in the period 2005-2018.

**Materials and methods:** The study was conducted in a number of poviats, for which original data were presented as regards agriculture and farming in Świętokrzyskie Province, in the dynamic perspective, for the period 2005-2018. The actual data were obtained from the the Agency for Restructuring and Modernisation of Agriculture in Poland. The paper uses the basic measurements applicable in statistical analysis, dynamic analysis and cause-and-effect analysis.

**Results and conclusions:** Based on the conducted study, it was found that the area of farms was reduced by 2.53% in 2005-2018 in Świętokrzyskie Province; the largest reduction was observed in the following poviats: Skarżysko (15.93%) and Kielce (13.3%); However, much more serious changes were noted in the number of farms. These changes were observed in all poviats, and the reduction in the number of farms was 56.1% across the whole region. In 2005-2018, there was a marked increase in the average size of an individual farm, from 2.8 ha to 6.1 ha, which may be seen as a major change as compared to previous tendencies in the agrarian structure of farms in Poland.

**Keywords:** Świętokrzyskie province, farms, agrarian fragmentation, structural transformations.

## 1. Introduction

Polish agriculture differs considerably as compared to neighbouring countries. When compared to the Czech Republic, Slovakia, or Germany, there are considerable differences in agrarian structure. These differences have their source in history: They are related to the process and scope of the abolition of serfdom, which took place in most European countries in the 19th century (including Polish land under occupation). Furthermore, there were organised actions that led to the subdivision of land property in the 20th century. These actions were organised with different levels of intensity in various European countries and resulted in land fragmentation and a greater number of peasant farms. These farms were often passed along from generation to generation, when the law allowed it, and frequently divided up among heirs. Such farms were thus becoming smaller and smaller, less productive, technologically backwards, and outdated. This in turn generated economic, social, and political problems (Van Dijk, 2003; Demetriou, 2014; Harvigsen, 2014; Zegar, 2018).

According to traditional analysis, the dynamics of structural transformations in agriculture (if we assume the main reference is agricultural land) over long periods of time (even over centuries) was usually sinusoidal-shaped. After a period when land was concentrated in communities, feudal properties, or landowner's farms, there was a change in tendencies forced by economic, political, and social factors. Community land was gradually subdivided among families. Feudal lords also gave some land to be farmed by peasants, which created new peasant farms and reduced the area of large land properties (Musiał, 2019); as such, farms were fragmented in order to be enfranchised or parcelled (especially in the interwar period). Historically speaking, the current agrarian structure in Poland (as well as in Świętokrzyskie Province) is the product of enfranchisement reforms that came into effect after 1863, the large land subdivisions that occurred in the period 1923-1928, and the fragmentation of landowner estates after World War II (Zegar, 2018). Other phenomena that considerably affected the agrarian structure in Poland include the intense privatisation processes in the 1990s that were conducted on the land previously administered by the former State-Owned Farms and the Cooperative Society of Farming Circles (Dzun, 2016).

Economic collapse in Poland after 1989, resulting from the shift to the market economy, strengthened the role of agriculture and the food economy for a brief period of time and made them key elements in the food production chain. Amid soaring unemployment rates, some of the young people who lost their jobs returned to the countryside, often having no other choice, and turned to traditional agricultural production on their parents' farms. Owning land was an important social shield at that time, but, on the other hand, it was often used as a pretext to lay off farmers who also had another occupation. This tendency was accompanied by a dynamic economic depreciation of small farms, which was mainly due to the reduced profitability of agricultural production. There was also another phenomenon, unknown since World War II,

namely fallowing of the land; this was mainly done on the privatised areas that previously belonged to the State-Owned Farms, where considerable economic and organisational problems occurred. It also occurred on land abandoned by individual farmers – this was usually land of the poorest quality (Musiał, W., Musiał, K., 2016; Janus, Markuszewska, 2017).

The abovementioned phenomena observed in the 1990s, as well as social and economic transformations after 2004 when Poland joined the European Union, expressly affected the type and dynamics of changes to the agrarian structure of farms in Poland. The region that particularly stands out is Świętokrzyskie Province.

## 2. Goals, scope, and methodology

The purpose of this paper is a synthetic evaluation of selected aspects of structural transformations observed in agriculture in Świętokrzyskie Province in the period 2005-2018, i.e. after Poland joined the European Union.

The study was conducted in a number of poviats, for which original data were presented as regards agriculture and farming in Świętokrzyskie Province, using a dynamic approach, for the period 2005-2018. The data was obtained from the Ministry of Agriculture and Rural Affairs, whose statistical database was prepared by the Agency for Restructuring and Modernisation of Agriculture and the National Centre for Supporting Agriculture. These data concerns farms that receive direct payments and is related to an important area of structural transformations related to the observable tendency in the change of the number of farms and the size of agricultural land.

The studied farms, as per the data provided by the Statistical Office in Kielce, constitute 98.4% of all farms in Świętokrzyskie Province (Statystyczne Vademecum, 2018). The purpose of the analysis conducted for the paper is to define the tendencies related to the changes observed in the size of agricultural land that has benefited from direct payments from the European Union, as well as the size of farms in Świętokrzyskie Province more generally. The status of the farms, as well as changes in the number of farms, that receive area payments are also identified in this paper. This analysis is a fragmentary description of structural transformations with regard to the agriculture of the studied region and the agrarian structure of the farms. The appearance of new tendencies in this respect is underlined. The paper uses basic measurements applicable in statistical analysis, dynamic analysis, and cause-and-effect analysis, as well as references to the analogy method.

### 3. Research findings

Świętokrzyskie Province occupies a total area of 11,711 km<sup>2</sup>, i.e. 3.7% of the country, which makes it the 15th largest province in Poland (there is actually only one smaller province in Poland: Opolskie). The province has 1,241,500 inhabitants (i.e. the population is slightly higher than those of Podlaskie, Lubuskie, and Opolskie provinces), whereas the average population density is 106 people per square kilometre. As regards multiple indicators related to the regional characteristics of the country, Świętokrzyskie Province is below average, which is direct or indirect proof of its relatively poor development. This is reflected, for example, in the gross domestic product per inhabitant: Świętokrzyskie Province ranks 13th in the country overall, 14th as regards value-added production per inhabitant, 12th as regards the number of national economic entities per 10,000 inhabitants, and 14th as regards average monthly salary. Świętokrzyskie Province does have some better national standings, such as the condition of its road infrastructure per 100 km<sup>2</sup> – the province comes in third – and the effectiveness in obtaining funds for the financing and co-financing of projects co-funded by the European Union – where it ranks fourth (Statystyczne Vademecum, 2018). Nearly all the farmland in Świętokrzyskie Province belongs to individual farms (99%). Cultivated land belonging to the farms comprises 486,200 ha, which constitutes 86.1% of the total area of farms, while 98.9% of the cultivated land is regarded as being ‘in good agricultural condition’. The area of agricultural land in good agricultural condition, but lying fallow, is 8500 ha, i.e. 2.5% of the total area of arable land.

In 2017, the number of farms was 83,500, of which 70,600 (i.e. 84.6%) had cultivated and sown agricultural land. This proves that the area of farms where agricultural land is abandoned, lying fallow, and/or subject to forest succession is relatively large. This is true of ca. 13,000 farms with areas above 1 ha each. Out of the total number of farms, 61% were those sized 1-5 ha, 31.5% had 5-15 ha of agricultural land, 4.3% had 15-30 ha, and nearly 1.5% had an area of more than 30 ha. As per the data provided by the Statistical Office in Kielce, the average area of agricultural land per farm in 2017 was 5.9 ha, with the national average being 10.55 ha (Statystyczne Vademecum, 2018).

Proceeding to the analysis and evaluation of agricultural structural transformations in Świętokrzyskie Province, analysed with regard to individual poviats, one should first refer to a few variables describing the initial condition (Table 1). The areas of Świętokrzyskie Province that were analysed in this way display a series of considerable differences as regards the quality of agricultural production space (measured with the agricultural production space valuation ratio). Three poviats have very high values of ‘natural environment’ as regards agricultural production (as well as gardening, orchard production, and vegetable cultivation). These poviats are: Kazimierza Wielka, Sandomierz, and Opatów. The summary valuation ratios for these poviats are respectively 96.4 pts., 94.1 pts, and 86.6 pts. (Witek, 1993). This is why agriculture

in these poviats should be specially monitored, so as to prevent improper land management, including any abandonment and other changes in the use and purpose of the land, especially when it comes to non-agricultural land use.

**Table 1.**

*Selected characteristics of the poviats included in Świętokrzyskie Province as of 2018*

Poviats	General indicator of quality of the agricultural production space	Area of agricultural land in thousands of ha <sup>3)</sup>	Arable land in %*	Average area of a farm (in ha)	Afforestation rate in %	Population in thousands	Birth rate per 1000 inhabitants	Registered unemployment rate	National economic entities per 10,000 inhabitants
Busko-Zdrój	72.5	79.4	74.0	6.02	11.0	72.1	-4.5	3.9	1369
Jędrzejów	65.8	94.1	81.8	7.98	19.6	86.1	-2.9	7.1	1269
Kazimierza Wielka	96.4	39.0	78.5	7.20	2.9	33.8	-4.2	7.5	913
Kielce	54.1	128.8	69.7	5.06	34.4	210.7	0.6	10.7	1315
Końskie	49.4	49.3	59.1	6.41	49.1	80.6	-4.4	11.6	1393
Opatów	86.5	72.3	85.0	8.83	15.6	52.6	-7.5	13.6	1091
Ostrowiec Świętokrzyski	79.3	37.3	82.1	6.59	30.7	110.1	-5.7	11.7	1540
Pińczów	76.1	45.8	74.0	7.28	18.0	39.3	-4.6	6.6	1130
Sandomierz	94.1	55.4	49.0	5.04	7.0	77.8	-4.6	6.9	1381
Skarżysko	49.2	13.0	56.2	3.31	58.8	74.8	-6.0	15.7	1742
Starachowice	64.8	23.4	77.1	3.72	45.1	90.4	-3.7	8.0	1351
Staszów	62.6	60.6	72.1	4.79	27.9	72.2	-2.1	7.2	1196
Włoszczowa	57.1	48.0	68.0	6.90	42.6	45.3	-2.4	6.4	1314

Comments to the table: National Local Database in 2014 (these values do not overlap with the details from the National Agricultural Census from 2010).

Source: own study based on: Witek, T. (ed.), 1993; *Statystyczne Vademecum Samorządowca. Województwo świętokrzyskie*, 2019.

The other extreme of the natural environment are the poviats with the lowest agricultural production space valuation ratio. These are: the very small Skarżysko powiat (49.2 pts.) and the large Końskie powiat (49.4 pts), but also the most diverse and the largest powiat Kielce (54.1 pts). The analysed poviats are diverse as regards their size and their area of agricultural land. The smallest one in this respect is Skarżysko powiat – with 13,000 ha of agricultural land – followed by Starachowice and Ostrowiec powiat with 23,400 and 37,300 ha, respectively. The highest agricultural potential is observed in Kielce powiat, with its 128,800 ha of agricultural land, and in Jędrzejów powiat, which has 94,100 ha. Within nearly all the poviats of this area, we can observe the dominance of arable land, whose proportion varies from 49% in orchard-dominated Sandomierz powiat to more than 80% in Jędrzejów, Opatów, and Ostrowiec. Furthermore, the average size of farms varies in the analysed province from 3.31 ha in Skarżysko powiat and 3.72 in Starachowice powiat to 8.83 and 7.98 in Opatów and Jędrzejów, respectively.

In all the analysed poviats, i.e. the NUTS-4 subregions with high-quality agricultural land and favourable climate conditions, there is orchard production in addition to the typical agricultural production that focuses mainly on plant species. In Kielce powiat, orchards constitute a total of ca. 2,300 ha (1.8%), in Busko 2,000 ha (2.5%), and in Staszów ca. 1,200 ha (2.0%). Orchard production is of minor importance in Skarżysko (0.6%), Końskie (0.6%), and Włoszczowa (1.0%). The forestation rate is also important as regards landscape structure and environmental protection, including the protection of biodiversity. The forestation rate varies significantly in this province. In Kazimierza Wielka powiat, which can boast the best soil in the province, the forestation rate is only 2.9%, much lower than the province-wide average of 29.0% and country-wide average of 30.5%. Additionally, the proportion of forests in Sandomierz powiat is rather low (7.0%). The following poviats have forestation rates higher than the local average: Skarżysko (51.8%), Końskie (49.1%), Starachowice (45.1%), and Włoszczowa (42.6%) (Main Statistical Office, 2019).

Structural transformations in agriculture also depend on how easy it is to obtain employment outside of the agricultural sector as well as on the economic potential measured with regard to large and small national non-agricultural economic entities (Zuzek, 2018). The lowest unemployment rate, as well as the lowest potential labour reserves, were observed in Busko (3.9%) and Włoszczowa (6.4%) poviats (Main Statistical Office, 2019). These values are a few percentage points lower than in the poviats with large- or medium-sized cities, such as Kielce, where the unemployment rate is 11.6%, or Skarżysko (15.7%). However, in these two poviats with the lowest unemployment rates there has been a considerable degree of hidden rural unemployment because of the agricultural nature of these regions (this kind of unemployment is not reflected in any statistics). The number of national economic entities in the Świętokrzyskie poviats is relatively high, especially when compared to the national average, which is 1136 entities per 10,000 inhabitants, and to the provincial average of 916 entities. The most entrepreneurial poviats in this respect are: Skarżysko, with 1742 such entities per 10,000 inhabitants, Ostrowiec (1540), and Końskie (1393).

In order to evaluate and discuss changes in the agrarian structure as regards the de-agrarianisation observed in individual poviats, the figures pertaining to the status and changes in land use and in the farm structure have been analysed. The analysis includes figures from the Agency for the Restructuring and Modernisation of Agriculture for 2005-2018. The figures concern the farms that received area payments, i.e. those that have more than 1 ha of land in agricultural use or sustained in agriculture. Farms that pay the agricultural tax, but failed to conform to the abovementioned criteria, were omitted from the analysis. This means that the data do not include ca. 2.3% of agricultural land occupied by small farms (homesteads), agricultural property constituting a part of mixed agricultural, or construction plots, residue land, which used to belong to State Owned Farms and Cooperative Society of Farming Circles (and other institutions). Since they are no longer productive, these parcels of land were not declared for area payments in the year when Poland joined the EU or since. This land also

includes small plots abandoned for various reasons, for example due to being located between forests or being partly overgrown with forest or shrubbery. Such land can be regarded as 'lost for agriculture', especially for the agricultural production of goods (Dzun 2016). It should be stated, though, that this land is important in terms of environmental protection. These areas are and can remain beacons of local biodiversity (Musiał, 2011). The total area of farms that can be regarded as active and productive and that received area payments in 2005 was 520,770 ha. The area varied considerably from powiat to powiat (Table 2).

Over 14 years, i.e. from 2005 to 2018, the area was reduced by 18,292.42 ha, i.e. by 3.53%. It is possible to formulate various conclusions here because a superficial analysis could suggest the change is not very pronounced. The average pace at which land was dropped from agricultural use was only ca. 0.3%. However, more than 18,000 ha of agricultural land is an area corresponding to more than three of the statistically analysed municipalities in this region (the average size of a municipality is 5,105 ha). If this pace of transformation in the structure of land use were to continue, then in 20 years the area excluded from agricultural use would correspond to the size of six to seven municipalities. This statistic also includes municipalities that increased the size of agricultural land used by farms with at least 1 ha of land cultivated for area payments (and having agricultural land plots larger than 0.1 ha). These powiats are: Ostrowiec, with an increase in land receiving area payments of 4.07%, Opatów (2.93%), Kazimierza Wielka (0.82%), and Pińczów (0.52%).

**Table 2.**

*Land assigned to area payments and related changes in 2005 and 2018*

Powiat	2005	2018	Change in area (in ha)	Change in % (in 2018 as compared to 2005)
Busko-Zdrój	59590.51	56583.36	- 3007.15	-5.05
Jędrzejów	76322.44	75132.71	- 1189.73	-1.56
Kazimierza Wielka	32620.06	32888.35	268.29	0.82
Kielce	79114.31	68588.18	- 10526.13	-13.30
Końskie	23268.28	21496.30	1771.98	-7.62
Opatów	57043.70	58716.97	1673.27	2.93
Ostrowiec Świętokrzyski	24381.59	25372.73	991.14	4.07
Pińczów	36086.83	36274.02	187.19	0.52
Sandomierz	42958.54	42893.61	64.93	-0.15
Skarżysko	3182.33	2675.29	507.04	-15.93
Starachowice	13186.92	13514.89	327.97	2.49
Staszów	37413.26	34481.70	- 2931.56	-7.84
Włoszczowa	34762.40	33003.72	- 1758.68	-5.06
The city of Kielce	840.89	757.81	83.08	-9.88
<b>Total</b>	<b>520772.06</b>	<b>502379.64</b>	<b>18392.42</b>	<b>-3.53</b>

Source: own study based on: databases for 2005-2018, shared by the Agency for Restructuring and Modernisation of Agriculture in Warsaw, 2019.

This situation may be the result of the following: First of all, fragmented agricultural land plots not included in farms were leased or sold and attached to farms that receive area payments. Secondly, the land that used to be fallow is now qualified for area payments, and the size of agricultural land plots was amended through formal or informal consolidation of neighbouring

land plots. However, in the majority of the poviats, the area of agricultural land qualified for area payments was reduced. The leading powiat in this respect is Skarżysko, with a reduction of 15.93%. Kielce powiat comes second, with its less agrarian municipalities in the buffer zone of the Świętokrzyski National Park, as well as municipalities with low agricultural value situated to the south and east of Kielce.

The size of the land that qualified for area payments was reduced by 13.2% over a period of 13 years. For the city of Kielce (which is also a powiat), this ratio is also rather high: 9.88%. Końskie is another powiat that saw a considerable reduction in the size of agricultural land (by 7.62%). Maintaining agricultural land use in this powiat is important not only for the production and economics of the region, but also with regard to the high proportion of agricultural land covered with various forms of environmental protection (landscape parks, Natura 2000 areas, and areas of landscape protection). In Sandomierz powiat, with the highest agricultural value (in the province) as per the agricultural production space valuation ratio, the reduction in the size of the land qualified for area payments is relatively small – only 0.15%. More pronounced structural changes, including agrarian transformations, were noticed with regard to the number of farms (Table 3).

**Table 3.**

*Number of farms receiving area payments in 2005 and in 2018*

Powiat	2005	2018	Change in the number of farms	Change in % (in 2018 as compared to 2005)
Busko-Zdrój	20542	9406	-11136	-54.2
Jędrzejów	21020	9410	-11610	-55.2
Kazimierza Wielka	10167	4569	5598	-55.1
Kielce	34328	13550	-20778	-60.5
Końskie	9250	3356	-5894	-63.7
Opatów	14487	6650	-7837	-54.1
Ostrowiec Świętokrzyski	8890	3848	-5042	-56.7
Pińczów	10973	4980	-5993	-54.6
Sandomierz	16202	8512	-7690	-47.5
Skarżysko	2649	808	-1841	-69.5
Starachowice	7848	3630	-4218	-53.7
Staszów	16181	7196	-8985	-55.5
Włoszczowa	11006	4782	-6224	-56.6
The city of Kielce	3841	1616	-2225	-57.9
<b>Total</b>	<b>187384</b>	<b>82313</b>	<b>-105071</b>	<b>-56.1</b>

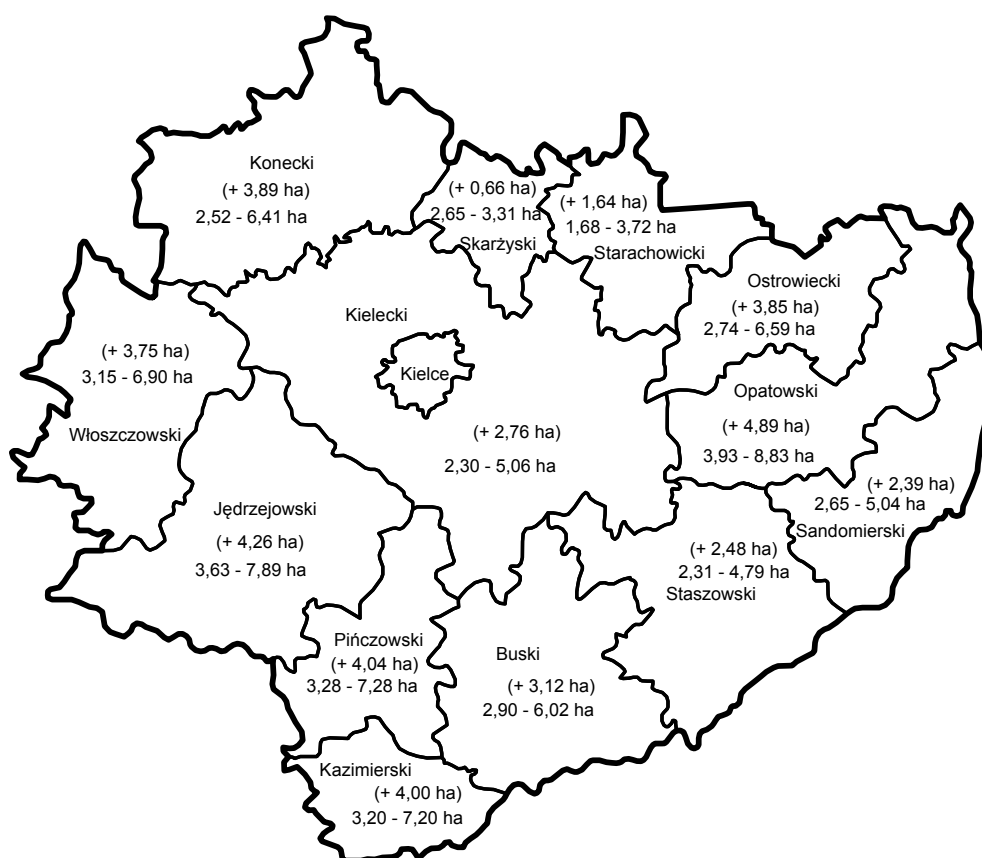
Source: own study based on: databases for 2005-2018, shared by the Agency for Restructuring and Modernisation of Agriculture in Warsaw, 2019.

In the analysed (and relatively short) 14-year period, as many as 56.1% of farms receiving area payments disappeared (this refers to the farms included in the common agricultural policy of the European Union). This means that past evaluations that pointed to the stagnation of agricultural structures, the lack of trade in land, and the specific agrarian standstill observed in rural areas of Poland after 1990 are no longer valid. We can also observe the express polarisation of farms in the analysed period, including those farms included in the area group (2-5 ha). Some of them have given up agricultural production (this is a one-off or gradual



phenomenon) and will only leave part of the land in agricultural use for their own purposes. Still, the small area of land in agricultural use no longer constitutes a farm and thus no longer qualifies for area payments. Therefore, the number and proportion of farms (homestead plots) is increasing, and agricultural land is transferred to farms interested in leasing it, or less often, purchasing it (Sroka and Paluch, 2014). The pace of such changes is ca. 4% per year, which may be regarded as very high. The highest pace of disappearing farms, which had qualified for area payments in 2005, was observed in Skarżysko powiat (69.5%), in Końskie powiat (63.7%), and in Kielce powiat (60,5%). The lowest (although still high) pace of such transformations in Świętokrzyskie province was observed in the poviats of Sandomierz (47.5%), Starachowice (53.7%), and Pińczów (54.6%).

Reducing the size of land included in area payments and the very high pace of reduction in the number of farms qualified for direct payments result in relatively high changes in the average area of such farms. The farmers who intend to continue agricultural production expect these changes, which are the initial prerequisites for maintaining or increasing profitability levels, as well as for increasing production scales and introducing the economically justified professionalisation and technologisation of farms (Wojewodzic, 2017). The average area of farms province-wide in the analysed period increased from 2.8 ha to 6.1 ha, which can be perceived as a success as regards formal structural transformations. These transformations, however, are not evenly distributed across all poviats (Figure 1).



**Figure 1.** Increase in the average size of farms larger than 1 ha in the poviats in 2005 and in 2018. Source: own work.

The highest absolute increase in the average size of farms was observed in the following poviats: Opatów (4.89 ha), Jędrzejów (4.26 ha), and Kazimierza Wielka (4.0 ha). The least noticeable changes in this respect were observed in the following poviats: Skarżysko (0.66 ha) and Starachowice (1.64 ha), i.e. in the subregions with advanced de-agrarianisation processes. These changes are also relatively less pronounced in the poviats of Sandomierz (2.39 ha) and Starachowice (2.48 ha). When analysed in relative terms, these two phenomena have slightly different progresses. When the poviats are broken down into two groups (i.e. those where the average size of the farms has at least doubled and those where the changes were less pronounced), it was observed that significant shifts in the size of farms took place in a large majority of the poviats. These transformations affected both the poviats that are generally regarded as agricultural (Jędrzejów, Pińczów and Busko) as well as those with relatively poorer natural conditions (especially with regard to soil quality) that are less favourable from the perspective of agricultural production, i.e. Kielce, Końskie, and Ostrowiec. Smaller increases in the average size of farms were observed in the poviats of Skarżysko, Starachowice, and Sandomierz. However, structural transformations related to changes in agrarian structure seem to be accelerating, which may mean that the agricultural structure in Świętokrzyskie Province is about to be gradually improved.

#### **4. Conclusions**

Regarding the key issues affecting structural transformations observed in Świętokrzyskie Province in the period 2005-2018, after Poland joined the European Union, one should first mention that the opinions and scientific evaluations that point to a freeze in agrarian changes are no longer valid. The abovementioned freeze especially affected the fragmented agricultural regions (after 1990), where hardly any land is owned by the State Treasury and intended for privatisation. Structural (as well as agrarian) transformations in such regions – as exemplified by Świętokrzyskie Province – are in a way internal or ‘inbred’, i.e. they take place within a sector of small individual farms. In the first years after Poland joined the European Union, even farmers who had only slightly more than 1 ha of land that qualified for area payments requested such subsidies. With time, and with growing administrative requirements, these farmers often stopped receiving this support, which often entailed ceasing farming activity on some or all of the land, which was subsequently leased or, less often, sold. In the following years, we saw a rapid reduction in the number of farms receiving payments under the Common Agricultural Policy of the European Union. Additionally, structural transformations accelerated: Large farms (comprising a few dozen hectares each), made up of mostly leased land, appeared. These transformations can be summarised as follows:

- In the analysed period, the area of agricultural land on farms in this province decreased by 2.53%; the greatest reduction was observed in Skarżysko powiat (15.93%) and in Kielce powiat (13.3%).
- More pronounced changes were observed in the number of farms: This was observed in all powiats of this province, and the total rate of reduction was 56.1%.
- In this period, there was also a dramatic increase in the average size of farms, from 2.8 ha to 6.1 ha, which may be seen as a serious accomplishment as regards agrarian transformations.

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