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# Farmland Agricultural Exploitation in the Rural Areas of the Polish Carpathians

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## ABSTRACT

There is still an inappropriate agrarian structure in Poland as compared to the majority of EU countries, which is bound up with the high spatial differentiation of size structure of farms. This might result from the different policy in the period of the Partitions of Poland, land reforms and the period of centrally planned economy. In recent years, the spatial structure of farms has varied under the influence of the Common Agricultural Policy (CAP). The largest share of small farms is observed in south-eastern part of Poland, including the Carpathian Mountains area, where in 2010 the average agricultural area per farm was 2.31 hectares for Malopolska province and 2.67 hectares for the Podkarpackie province, with the national average of 6.85 hectares (values refer to the farms and parcels of the private sector). The discussed area is characterized by low growth rate of farms area as well. It amounted to 6.4% in the years 2002 - 2010 with an increase of 18.8% for the entire country. There are also observed the major changes in agricultural exploitation the farmland in the studied provinces in the discussed years. The greatest growth is observed for the meadows area that increased on average by 36.2%, with 20% growth for the entire country (in terms of agricultural area).

## 1. INTRODUCTION

The analysis of changes that have occurred in land resources used by farmers involved using data acquired by the Agricultural Census (AC) carried out in 2002 and 2010. However, precise identification of changes, particularly the changes in the use structure of agricultural land is hampered by the introduction of the notion of agricultural land in good agricultural practice, which was not present during the presentation of PSR results in 2002. Therefore, the data will not be fully comparable, but will present the nature of the issues in question, particularly in the context of the spatial analyses in each year.

In this paper, I aim to determine the spatial differentiation of farms size structure and the agricultural exploitation the farmland in the Carpathian districts against a background of

Malopolska and Podkarpackie provinces. The additional purpose of the analysis is to determine (on the basis of the agricultural censuses conducted in the years 2002 and 2010) the changes that have occurred in land use in the pre-accession period and after the Polish accession to the European Union.

## 2. THEORY AND METHODOLOGY

Compared with most countries in the EU, Poland still has unfavourable agrarian structure. This is combined with a large spatial diversity in the size structure of farms, resulting primarily from different policies pursued during the Partitions of Poland, land reforms carried out and a period of centrally controlled economy [1, 2, 6]. Over the last years, the spatial structure of farms has been changing, mainly under the effect of the Common Agricultural Policy

(CAP). The largest share of small farms is observed in the south-eastern part of Poland, including the Carpathian area, where the average of agricultural land per household in 2010 was 2.31 ha in Lesser Poland and 2.67 ha in Podkarpackie, with a national average of 6.85 ha. The area in question is also characterized by small dynamics of farm growth, which was 6.4% in the years 2002 – 2010 against a national average of 18.8%.

### 3. RESULTS AND DISCUSSION

#### 3.1. Spatial differentiation of farms size structure

During the analyzed period, when agricultural censuses were carried out, i.e. between 2002 and 2010, there have been major changes in the structure of farms in the area concerned (table 1, fig. 1). The total number of farms in Lesser Poland and Podkarpackie decreased from 685 thousand to 545 thousand, which makes 140

thousand (20.5%). This decrease regarded both parcels (farms up to 1 ha of agricultural land), whose number decreased by 12.1%, and farms over 1 ha of agricultural land (AL) by 39.9% (from 511 thousand to 307 thousand farms, which makes a decrease of 204 thousands farms). The rate of decrease in the number of farms in these provinces was comparable to the changes taking place in the whole country, where the decrease was slightly higher of about 22%.

In the context of the country and the provinces of Lesser Poland and Podkarpackie, the individual farms located in the Carpathians generally showed a lower rate of decrease in their numbers. Their number decreased from 326.2 thousand in 2002 to 275.2 thousand in 2010, which makes 51.6 thousand farms (15.8%). This is the result of the small increase in the number of parcels, whose number increased from 116.6 thousand to 119.5 thousand, which makes 2.9 thousand (2.5%). Whereas a higher decrease has been observed in farms over 1 ha of agricultural land 26.2%, from 209.8 thousand to 154.5 thousand farms.

Table 1. Structure of farms in the area concerned in the Carpathian districts in 2002 – 2010.

Reach	Years	Individual farms area groups (%)					
		Total (%)	including area in hectares				
			< 1	1 - 5	5 - 10	10 - 15	15 <
Poland	2002	100	33.00	39.37	14.65	6.27	6.70
	2010	100	31.10	38.11	15.55	6.73	8.60
Malopolska and Podkarpackie provinces	2002	100	39.41	51.23	7.85	0.99	0.52
	2010	100	43.30	47.20	7.30	1.20	1.00
Carpathian districts	2002	100	35.69	56.19	6.99	0.73	0.31
	2010	100	43.43	49.26	5.51	0.73	0.63

Source: based on Agricultural Census 2002 and 2002.

Structural changes have significantly differentiated the various area groups of farms over 1 ha AL in Lesser Poland and Podkarpackie. The highest decrease, of around 27%, has been observed in farms within the range of 1-5 and 5-10 ha AL. In the national context, this is a stronger decrease among small farms, making around 21%. The number of farms in the Carpathians within the ranges in question has decreased even more. Farms with the area of agricultural land between 1 and 5 hectares showed a loss of 26.2% (almost 7,000), whereas in the range between 5 and 10 hectares by 33.7% (almost 1.5 thousand). An increase in the number of farms is visible, both in the Carpathians and in the entire area in question, within the group over 15 ha of agricultural land. In the Carpathians, their number has increased by 73%, from 1006 to 1740, which makes 734 farms. In the context of the entire country, we can observe that the boundary between a decrease and an increase in the number of farms occurs between different area groups of farms. In Poland, the number of farms of up

to 30 ha AL has decreased, whereas farms in area groups above that value show an increase in number. A different situation can be observed in the Carpathians, Lesser Poland and Podkarpackie, where the increase in number is already observed in case of farms of over 15 ha agricultural land.

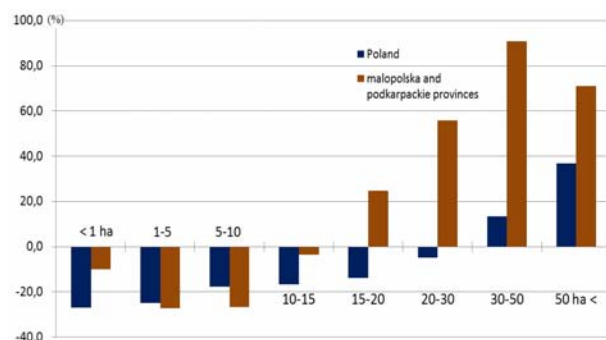


Fig. 1. Change in the number of farms by area groups in 2002-2010 (source: based on Agricultural Census 2002 and 2002).

Up to present there is spatial differentiation in the size of farms in Lesser Poland and Podkarpackie, the index of average agricultural land farms and parcels (fig. 2). The values of average agricultural land area per farm in each district of the area under study show very large spans, from 0.54 ha to 12.9 ha per farm. The lowest values of the index up to 1.5 ha are found near the region's large cities i.e. Cracow, Rzeszow, Krosno

and in the districts located west of Cracow, towards the province's border. The areas referred to are characterized by the highest fragmentation of agriculture within the region. This is associated with a major density of parcels of up to 1 ha of agricultural land, which are not included in farms category. Parcels are characteristic of highly-urbanized areas, mostly inhabited by working population.

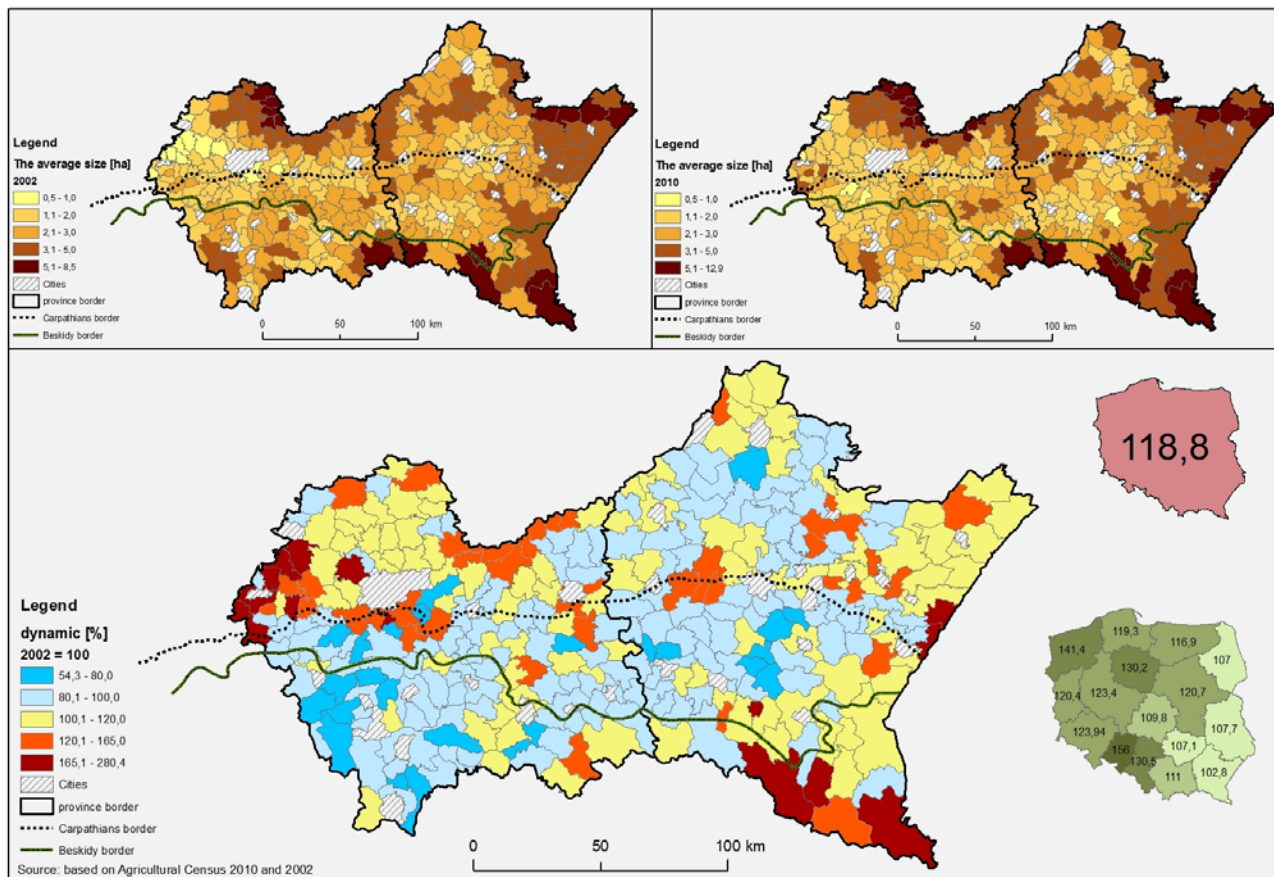


Fig. 2. The average size of private agricultural land of the farms in Małopolska and Podkarpackie provinces in 2002 – 2010.

Another group includes districts with the average area of agricultural land from 1.5 to 2.5 ha. Their share in districts in general is 35.3% (121 districts) and they are the dominant type of farms. Farms with such area are primarily characteristic of the area of Carpathian Foothills. They therefore include areas predisposed to intensive horticultural crops and efficient breeding of cattle and pigs. The group of farms between 2.5 ha and 4 ha AL per farm includes 89 districts (26%) located mainly in the northern part of the area in question, as well as Podhale or the Island Beskids. The last group consists of farms with the area of 4-12.9 ha. They contribute to less than 14% (48 districts) of the entire discussed area. In the northern part of the provinces, they primarily focus in areas with very good natural conditions for agriculture which include Proszowicki Plateau, Miechowska Upland and Rzeszow Foothills [5]. Whereas in the Carpathian districts in the

southern part of the region the index reaches its highest values mainly in areas where State Agricultural Farms were once located, after their elimination increasing the area of individual farms has become possible.

The changes that took place in the period between 2002 and 2010 show further fragmentation of farms and parcels, mainly in the western part of the Polish Carpathians (except for Sądecka Valley and Rożnów Foothills). A different tendency is observed in the south-eastern part of the Polish Carpathians, where a dynamic consolidation of agricultural land is self-evident.

### 3.2. Spatial differentiation of agricultural exploitation the farmland

The area of agricultural land in Poland has been decreasing systematically since the 1950s. From

1946 to 2010, the total area of agricultural land decreased from 20,440 thousand ha to 15,503 thousand ha (24%). The greatest decrease in agricultural land has been observed after 1995 [4]. In the analyzed period, the provinces of Lesser Poland and Podkarpackie showed a visible decrease in the ownership of land resources in farms. In 2002 it was 1,958 thousand ha and in 2010 only 1,699 thousand ha, which makes a decrease of 259 thousand ha (13.2%).

In the same period, the dynamics of the reduction of agricultural land area in the whole country was of 6.5%, more than two times lower. The general decrease only covered agricultural land, since the area of forests and forest land held by the agricultural sector and other land has increased. The agricultural area was reduced from 1,602 thousand ha

in 2002 to 1,360, which makes 242 thousand ha (15.1%). This decrease of 8.3% was registered in the entire country. This large disparity between changes in the region in relation to all provinces in the country results primarily from a significant reduction in arable land and pastures in Lesser Poland and Podkarpackie. Arable land was reduced by 37.3%, from 1.102 thousand ha in 2002 to 691 thousand ha in 2010, which makes 412 thousand ha. Most of it was of poor quality with low-grade land capability, which has been afforested or where sowing had been abandoned, maintaining it under good agricultural practice, primarily as grasslands. Out of the land groups whose area has increased, orchards had the major share.

Their area has increased from 22.8 thousand ha in 2002 to 29.0 thousand ha in 2010, which makes 6.2 thousand ha (27.4%).

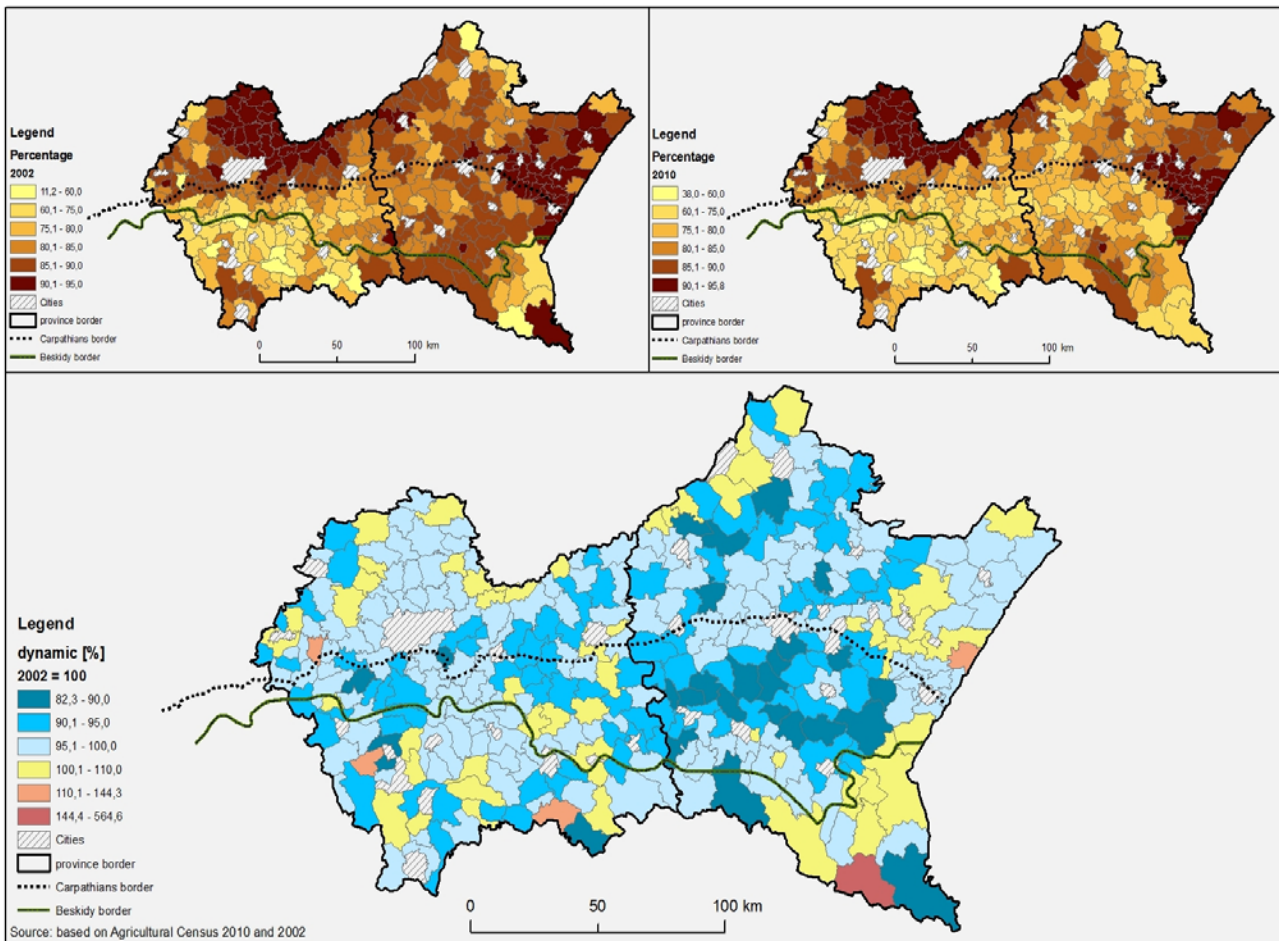


Fig. 3. Share of agricultural land in total area in Małopolska and Podkarpackie provinces in 2002 – 2010.

The spatial diversity of agricultural land use in the provinces of Lesser Poland and Podkarpackie, including the Carpathians (fig. 3), shows a major decrease in agricultural land in the Carpathian Foothills, particularly in their eastern part in Podkarpackie (Foothills Strzyżowskie, Dynowskie, Przemyskie). In that area, the share of agricultural land has decreased by 10-18% in as many as 15

districts. An increase in agricultural land in the years 2002 – 2010 has been observed in 63 districts (18.3%) and its average value was almost 11%. Whereas analyzing the spatial changes in the share of orchards, we can observe two areas of land concentration with orchard farms. In Lesser Poland, these include the provinces of Island Beskids, Sądecka Valley, Wiśnickie and Rożnowskie Foothills, whereas in Podkarpackie,

these cover a wide belt of districts from Rzeszów to the country's eastern border. The increase in orchard area in areas where fruit picking has been traditional for years provides evidence.

#### 4. CONCLUSION

An analysis of the area structure of farms indicates a positive direction of change, since the significance of large-area farms is growing and these cover an increasing percentage of agricultural land. Unfortunately, these changes are still very slow and in some areas of the Polish Carpathians the process of farm fragmentation goes further (mainly in the western part). This is due to the large agrarian overpopulation, which results in an ongoing fragmentation of farms [3], primarily through inheritance, but also due to switching them to non-agricultural use (e.g. recreational), or as capital investment. The changes in the size and use structures of agricultural areas seem to be dictated by the terms of the functioning of Polish agriculture in the Common Agricultural Policy. This is shown by the dynamic reduction in the number of farms with 1-2 ha of agricultural land, which might face problems with documenting agricultural activities in an area of at least 1 ha agricultural land, and not be covered with direct payments.

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