

CONVERSION OF AGRICULTURAL LAND TO NON-AGRICULTURAL PURPOSES IN SELECTED POLISH METROPOLITAN AREAS

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ABSTRACT

The aim of the paper is to determine the scale of agricultural land conversion in gmina (*municipalities*) located in selected metropolitan areas of Poland. Analyses were conducted taking into account the location of agricultural land in relation to the core of metropolitan area and its suitability for agricultural production. The research has shown that in the metropolitan areas selected for analysis, agricultural land conversion in the period 1996–2014 was over twice as fast as the average for Poland, with the most land converted in the core of a metropolitan area, little less in the first zone of gmina around the core, and the least in gmina located on the outskirts of a metropolitan area. The hypothesis saying that the distance of a gmina from the core of the metropolitan area is a significant factor in the differences in conversion processes, and high quality of environmental conditions of agricultural production does not limit (in a significant way) the process of farmland abandonment has been positively verified.

Key words: farmland conversion, metropolitan area, Poland

INTRODUCTION

Land, due to its unique qualities (i.e. it is multi-functional, limited, not expandable and immobile), is an area of interest for numerous economic entities [Szymańska 2015, Wilkin 2015]. This interest is particularly high in areas with large increase in urbanisation processes, where the competition for land and similarly the dynamics of changes are the biggest. Literature emphasises that particularly huge changes on the land market, including its conversion to non-agricultural purposes, occur in metropolitan areas of countries showing dynamic economic growth, as well as countries which are undergoing or have undergone transformation of the land management model (for example China and Vietnam and European post-socialist countries) [Baumann et al. 2011, Pierr et al. 2011, Su et al. 2011, Phuc et al. 2014, Deng et al. 2015, Huang et al. 2014].

There are at least two reasons why Polish metropolitan areas seem to be an interesting case for analysing the scale and mechanisms of agricultural land (AL) conversion. First, after 1990 the land ownership structure started to be shaped anew in Poland, with dynamic changes taking place in land uses [Poławski 2009]. The limitations on the number of owned flats were lifted, the wealth of residents was growing, and all that led to the development of the residential market. At the same time, there was a growing demand for land allocated to increasing individual entrepreneurship and technical infrastructure [Chmielewska 2015]. Second, in the early 1990s it was believed in Poland that the fact that agricultural land was being taken over by other sectors of the economy should be regarded as a natural consequence of socio-economic development, and the market mechanism would ensure optimal use of land and sustainable development [Szymańska 2015]. Some scholars think that also today the market mechanism in

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Poland is only slightly corrected by various legal instruments [Piorr et al. 2011, Krzyk et al. 2013, Kudłacz 2016], and the processes of agricultural land conversion take place too fast, resulting in the loss of land that is highly suitable for agricultural production.

A lot of analyses concerning land conversion mechanisms and their cause and effect can be found in literature, however, they are usually about chosen cities and peri-urban areas [Wasilewski and Prokopowicz 2004, Sawicka and Fogel 2016, Mastalska-Cetera and Akińcza 2017]. Moreover, researches conducted in Poland very rarely put an emphasis on the significance of economic rents in explaining diversification of the scale of land conversion. It should be noted that many scholars [Gellrich and Zimmermann 2007, Mazzocchi et al. 2013, Xie et al. 2014] stress the importance of economic rents in agricultural land conversion.

The main aim of the paper is to determine the scale of agricultural land conversion in gmina located in six selected metropolitan areas of Poland. Analyses were conducted taking into account the location of land in relation to the core of metropolitan area and its suitability for agricultural production. The hypothesis saying that the location of agricultural land in a metropolitan area is a significant factor in the differences in the scale of its conversion, and high quality of environmental conditions of agricultural production does not limit the processes of agricultural land conversion has been formulated.

DYNAMICS OF FARMLAND CONVERSION – CONCEPTUAL FRAMEWORK

Land conversion is widely defined as a process characterized by the transference of land from one type of use and user to another. However, in literature farmland/agricultural land conversion is measured and analysed in different ways. Most scholars, as this paper does, study this process in its broad sense, claiming that farmland conversion is a situation of permanent decrease in the area of agricultural land, i.e. transfer of agricultural land to other uses [Gaube et al. 2009, Huang et al. 2014, Liu et al. 2017]. Some scholars, especially when the analysis covers areas undergoing urbanisation, analyse the process of farmland conversion in terms of agricultural land transfer for urban

uses only [Phuc et al. 2014, Qiu et al. 2015] while others narrow down their analysis to conversion of farmland for built-up land [Skog and Steinnes 2016]. However, irrespective of the context of studies and how farmland conversion is measured, it is stressed that this process is increasing, and cities and their functional areas are particularly at risk of a dramatic loss of farmland [Piorr et al. 2011].

While discussing the subject of agricultural land conversion, it is necessary to address the issues of various legal regulations underpinning the land market. Many countries have implemented laws and planning instruments to preserve agricultural land [Perrin et al. 2018]. Also in Poland, there are a range of instruments in place to protect farmland. As they have been thoroughly covered in literature [Bielecka and Calka 2012, Sawicka and Fogel 2016], this paper will not describe them in detail. Huang et al. [2014] stress that prime farmland protection policy could be effective in saving agricultural land from development for non-agricultural uses. However, when the legal protection of farmland is not very effective, the dynamics and direction of transformations are increasingly determined by the market mechanism – landowner is the central decision-maker [Kristensen et al. 2016]. In microeconomic theory land use changes have been usually explained in terms of the maximisation of utility by a landowner [Lambin et al. 2000]. Therefore, there is a widespread view today that the key concept explaining the allocation of land among competing uses is land rent, i.e. the reward paid for the use of land to its owner [Diogo et al. 2015]. Alonso's bid rent theory explained the relationship between land prices and land use as follows: in a competitive land market, landusers/landowner seek to maximise their utility, land being purchased/rented by the bidder offering the highest bid, i.e. the potential land-user able to derive the highest rent from land. Therefore, land is expected to be used for the purpose which brings the greatest utility, taking into account the relative benefits of alternative land uses [Diogo et al. 2015].

Alonso's model [1964] inspired numerous researchers, and currently at least a dozen or so different models are used to present the problem of competition for urban land. However, Wegener [2004] stresses that overwhelming majority of these models rely on the assumption that the basis for decision-making is

maximisation of utility of the landowner. Based on these assumptions, many studies pointed out [Gellrich and Zimmermann 2007, Mazzocchi et al. 2013, Xie et al. 2014] that farmland conversion is especially intensive in areas where there is high demand for land from non-agricultural sector, i.e. close to urban centres (von Thunian ideas), and in areas which are not very suitable for agricultural production (low quality of soil, climate etc.), where income from agriculture is relatively low (Ricardian ideas).

Since this analysis focuses on the concept of economic rents and the assumption that the farmland owner seeks to maximise utility, verification of the significance of the rent resulting from location and the rent resulting from higher land productivity in the processes of agricultural land conversion have been put forward.

STUDY AREA, DATA AND RESEARCH METHODS

The analyses address the issues of agricultural land conversion to non-agricultural purposes, and the research was conducted in six monocentric metropolitan areas of Poland – large one Warsaw metropolitan area;

medium-sized ones: Kraków, Wrocław, Poznań and Trójmiasto metropolitan areas; and small one Lublin metropolitan area (the figure). They were selected in such a way to reflect large diversity of environmental and economic conditions in different parts of Poland. This refers both to conditions of agriculture development, because they represent economic-environmental conditions of four Polish macro-regions outlined for FADN goals [Skarzyńska et al. 2005], but they are also characterised by varied structure and size of regional economy [Smętkowski et al. 2009].

Delimitation of these areas was based on development documents and strategies adopted by regional authorities (the figure). The chosen metropolitan areas consist of 279 gmina, including six urban gmina constituting the cores of metropolises: Gdańsk, Gdynia and Sopot are treated as one city – Trójmiasto (ang. Tricity) and 273 gmina surrounding the cores.

The main data sources included, data from the Polish Central Statistical Office (GUS), the Head Office of Geodesy and Cartography (GUGiK) and findings of the author’s own research conducted using a survey, as well as the relevant literature. In the first case (data from GUS and GUGiK), processes of agri-

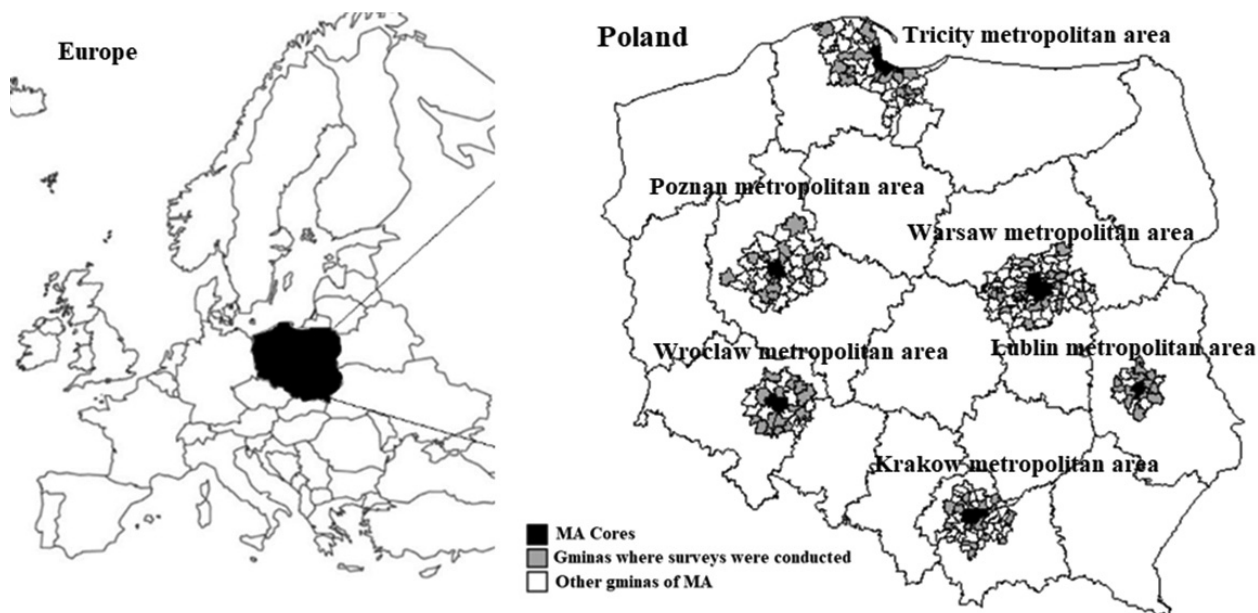


Fig. Metropolitan areas which qualified for the study

Source: Own elaboration.

cultural land conversion for all the outlined metropolitan areas (279 gmina) were analysed, and the surveys were conducted in the appropriately selected 94 gmina (98 surveys in total), which represented gmina located in a varied distance from the core of the metropolitan area and were characterised by a diverse environmental conditions of agricultural production. The respondents were experts familiar with the local conditions of the agricultural development, i.e. employees of poviats offices of Agricultural Advisory Centres (ODR), representatives of chambers of agriculture, and academics living in the gmina selected for analysis. Surveys were conducted in the second half of 2017.

Since the time range of research is limited by the availability of materials, the first stage of analyses was based on the data from GUS (years 1995–2005) concerning surface of agricultural land used by farms (in the administrative borders of gmina). The second stage encompasses the years 2010–2014 and is about geodetic surface of agricultural land (the data from GUGiK). In surveys, experts assessed changes in land market in the span of recent 20 years. Since various methodology concerning data collection was used, the presented results are not fully comparable with different periods. Nevertheless, the aim of the author was not a dynamic analysis, but rather an evaluation of the significance of land location in terms of the core of metropolitan area (MA) and the quality of agricultural surface production in conversion processes of agricultural land.

In accordance with the presented theoretical assumptions, research units (gmina) were selected based on their location in the metropolitan area and the agricultural production space valuation ratio (APSVR¹) reflecting the environmental conditions for agricultural production. In order to verify the significance of a gmina's location in relation to the core of metropolis and the significance of the quality of environmental conditions in agricultural land conversion processes,

the analysed gmina were divided into disjoint groups. In the first case, four groups of gmina were distinguished: cores of the metropolitan areas (MA core); towns located within the boundaries of the metropolitan area (towns in MA); gmina directly bordering the core² (I zone of MA gmina); and the other gmina of the metropolitan area (II zone of MA gmina). In order to divide gmina based on the quality of the environmental conditions of agricultural production, the standard deviation method was used, resulting in distinguishing gmina with very good environmental conditions (APSVR > 88 points), good conditions (70 points < APSVR < 88 points), average conditions (52 points < APSVR < 70 points) and poor conditions (APSVR < 52 points).

The paper uses general methods (deductive, inductive, comparisons and analogies), descriptive method, as well as quantitative methods, i.e. dynamics and structure analysis and one-way ANOVA. ANOVA and Tukey's HSD (honest significant difference) test were used for determining the significance of the differences in the scales of farmland conversion in the different groups of gmina.

Statistical analysis of received research results was conducted using the program Statistica 13.0.

RESEARCH FINDINGS

As early as in the years following the war, Poland started to record a systematic decrease in the surface area of agricultural land (AL), with particularly high intensity in the 1960. At that time, out of almost 20.4 million ha, as much as 830 thousand ha was converted to non-agricultural purposes [Dzun 2012]. In the decades that followed, the process of agricultural land conversion slowed down a little, but by 1990 around 1.6 million ha of agricultural land was converted [Szymańska 2015]. In the period of system transformation, agricultural land was still being taken

¹ Agricultural production space valuation ratio is a synthetic measure that takes into account the quality of: soil, climate, topography and water conditions. Its maximum value is 125 points. The average value for Poland calculated in this way was 66.6 points.

² In the case of Warsaw metropolitan area, due to the very large impact of the centre, the I zone of MA was extended to include gmina that do not border the core. It covered all the gmina belonging to the Warsaw functional area.

over by other sectors of the economy, and it wasn't until 2002 that this process slowed down for a few years, mainly due to Poland's accession to the European Union and expected direct payments for agricultural land [Dzun 2012, Szymańska 2015]. In the subsequent years (2005–2015), according to data from the Head Office of Geodesy and Cartography (GUGiK), around 2 thousand ha of agricultural land was converted on an annual average, with the highest intensity of this process recorded in areas undergoing urbanisation.

During assessment of the scale of agricultural land conversion in selected metropolitan areas, the first stage was analysis of data from the Polish Central Statistical Office (GUS) covering the period 1996–2005 (Table 1). Information about agricultural land refers to farmland and other land, including allotments, common land and gmina land in individual use, located within administrative boundaries of gmina. Due to (slight) changes over time in the surface area of the gmina analysed, the area of agricultural land was also presented in relation to the total surface area. By taking such approach, it is also possible to carry out a broader

assessment of the significance of agricultural land in the space of the analysed gmina, and to point out that metropolitan areas, often thought to be areas where agriculture and agricultural land are less important, in fact have an above-average share of agricultural land. This phenomenon has roots in history and results from the function that peri-urban areas fulfilled with respect to fast growing cities, which needed food, wood and communication routes, among other things, in order to develop [Hofmann 2001]. As for the impact of the distance from the core of MA on the percentage of agricultural land, it should be noted that in 1996 agricultural land made up 67.2% of land in total in both the zones (I and II) surrounding a city. Thus, it turns out that at the beginning of the system transformations in Poland even the biggest central cities (MA cores) had little impact not only on gmina located on the outskirts of their metropolitan areas, but also those bordering them. The reasons for that lie mainly in migration processes. Until 2001, migrations from the countryside to the city still prevailed in Poland [Zborowski and Raźniak 2013], so the demand for land in gmina

Table 1. Changes in the share of agricultural land in gmina of selected metropolitan areas in Poland in 1996–2005

Specification	Number of respondents	Share of AL in the overall surface area of gmina (%)		Change in the share of AL 1996–2005 (p.p.) ^a	Annual average change in the AL surface area 1996–2005 (%) ^a
		1996	2005		
By location within a metropolitan area					
MA core	6	36.2	30.4	-5.8 ^b	-1.55 ^b
Towns in MA	37	29.1	26.8	-2.3	-0.73
I zone of MA gmina	69	67.2	64.5	-2.8 ^b	-0.42 ^b
II zone of MA gmina	167	67.2	65.9	-1.3 ^b	-0.20 ^b
MA in total	279	64.1	62.1	-2.0	-0.31
By agricultural production space valuation ratio (APSVR)					
Gmina > 88 points	57	76.5	74.2	-2.3	0.28
Gmina 70– 88 points	77	69.5	66.6	-3.0 ^b	0.46 ^b
Gmina 52–70 points	92	58.9	57.8	-1.1 ^b	0.17 ^b
Gmina < 52 points	53	52.0	49.9	-2.1	0.27
Poland	2479	58.4	58.2	-0.1	0.03

^a For the variable, ANOVA was conducted.

^b Based on ANOVA and Tukey's HSD (honest significant difference) test it was found out that the average for the group being analysed differs significantly from at least one of the groups ($P < 0.05$).

Source: Own elaboration based on GUS data.

surrounding MA cores was relatively low. It is only later that we saw stronger urbanization and faster decrease in the agricultural land in gmina located in the I zone surrounding MA cores (in the span of 10 years decrease in the agricultural land area at 4.2%), and a slightly slower one in the remaining gmina. For comparison, in period 1996–2005 the surface of agricultural land in Poland decreased by only 0.3%. Until 2005, the largest decrease in agricultural land was observed in dynamically developing cities and towns, where in the span of 10 years the area of agricultural land decreased by as much as 15.5% in the cores and 7.3% in other towns respectively. Thus, based on ANOVA analysis, the formulated hypothesis about the significance of land location in relation to MA core in the processes of agricultural land conversion to non-agricultural purposes should be verified positively.

An important aspect in studies of agricultural land conversion is the quality of land, or more broadly – quality of agricultural production space. The research has shown that in gmina with very good conditions for agricultural production, the share of agricultural land oscillates in both the periods analysed around 75%, whereas in gmina with the worst conditions it is only around 50%. This means that these conditions, developed over hundreds of years, excellently reflect the bid rent theory. In areas with good conditions for agricultural production, agriculture was at first the winner in the competition for land. As the country developed and agriculture became less important in generation of income, the tendencies were reversed. Although it is widely held that land of very good quality should not be converted to non-agricultural purposes [Krzyk et al. 2013], in Polish metropolitan areas it is gmina with good environmental conditions for agricultural production (APSVR 70–88 points) that recorded the biggest loss of agricultural land. Thus, it turns out that neither legal instruments for protecting the best farmland nor a relatively high differential rent resulting from land fertility is able to stop farmland conversion. Economic rents generated by non-agricultural activities (e.g. house-building, commercial infrastructure etc.) are so high that they not only exceed land (differential) rent, but can pay the costs connected with agricultural land conversion to non-agricultural purposes (fees for agricultural

land designated for non-agricultural purposes), which in the case of I quality land may amount to around EUR 100 per 1 ha [Krzyk et al. 2013]. Also in this case, one-way analysis of variance has shown that the scale of agricultural land conversion significantly differs depending on the quality of the environmental conditions of agricultural production, but there is no substantive explanation why it happened that way. It should be thus concluded that the scale of conversion is determined by other factors than the quality of environmental conditions. Having said that, the second part of the research hypothesis should be verified positively.

Due to the lack of relatively up-to-date data on the surface area of agricultural land that is effectively used for agricultural purposes, further analysis will be conducted using geodetic data. Unlike the previously presented information from the Polish Central Statistical Office (GUS), which covers covering land that is used for agricultural purposes, the database of the Head Office of Geodesy and Cartography (GUGiK) is based on the official land register, which includes also agricultural built-up land and land that is no longer used for agricultural purposes [Górska and Michna 2010]. As a result of the changes in data compilation methodology implemented in 2002, the surface area of agricultural land in geodetic terms is larger by even a dozen or so percent compared to GUS's studies [Dzun 2012]. What is more, as the obligation to enter changes to land in an official register is not always fulfilled [Górska and Michna 2010], the presented scale of conversion processes will be lower than the actual one. Setting aside methodological issues, it should be noted that in the period 2010–2014 (Table 2) the patterns in agricultural land conversion are similar to those in the period 1996–2005. The largest decrease in agricultural land was recorded in MA core, a slightly smaller – in the I zone of gmina, and the smallest – in the II zone. However, comparing the results with the period 1996–2005, we can see an increase in the rate of agricultural land conversion, with the annual average decrease being higher in each case irrespective of the land location. Having said that, there was also a much faster growth in the dynamics of agricultural land converting in zones located further away from the core. In the period

1996–2005, in the II zone of MA, the annual average agricultural land conversion was 0.2%, whereas in the period 2010–2014, it was only 0.55%. This may result, among other things, from the reversal of migration trends, as in the period 2010–2014 gmina of the I zone saw 8.7% increase in population, whereas in MA cores the increase was only 0.1%.

During verification of the hypothesis concerning the impact of the quality of agricultural production space on the scale of agricultural land conversion, it has been found out that it is not significant also in the case of data covering the period 2010–2014. Although gmina with very goods and good environmental conditions of agricultural production (APSVR > 70 points) showed lower farmland conversion compared to gmina with average conditions (APSVR 52–70 points), gmina with very poor conditions of agricultural production also had relatively small areas of agricultural land converted. Thus, it should be regarded as coincidence and explained by other factors than the quality of environmental conditions.

In order to determine the scale of agricultural land conversion, local experts were also consulted to assess this phenomenon based on their own observations. The results of the survey research are consistent with the data from the Polish Central Statistical Office (GUS) and the Head Office of Geodesy and Cartography (GUGiK). The experts noted that the highest scale of agricultural land conversion was observed in the cores of metropolitan areas, and as the distance from the cores grew, the conversion scale decreased slightly. It was estimated that over the last 20 years, the area of agricultural land in the MA cores has decreased by one-fourth (Table 3). An overwhelming majority (41%) of the agricultural land was converted to land for multi-family houses, followed by 33% of agricultural land converted to land for single-family houses, whereas the least land, i.e. 12%, was allocated to other uses, including technical infrastructure and wasteland. In the I zone of gmina, the average decrease in the area of agricultural land in the period 1996–2017 was estimated at 18.3%, with the

Table 2. Changes in the share of agricultural land in gmina of selected metropolitan areas in Poland in 2010–2014 (geodetic data)

Specification	Number of respondents	Average share of AL in the overall surface area of gmina (%)			Change in the share of AL 2014–2010 (p.p.) ^a	Annual average change in the AL surface area of agricultural land in 2010–2011 (%) ^a
		2010	2012	2014		
By location within a metropolitan area						
MA core	6	34.8	33.5	32.4	–2.4 ^b	1.70 ^b
Towns in MA	37	27.5	26.7	26.2	–1.3	1.23
I zone of MA gmina	69	68.4	67.2	66.3	–2.1 ^b	0.75 ^b
II zone of MA gmina	167	69.2	68.7	68.3	–0.9	0.55
MA in total	279	65.3	64.7	64.1	–1.2	0.59
By agricultural production space valuation ratio (APSVR)						
Gmina > 88 points	57	78.0	77.6	77.3	–0.7 ^b	0.25 ^b
Gmina 70–88 points	77	71.5	70.9	70.4	–1.1	0.40
Gmina 52–70 points	92	60.3	59.2	58.2	–2.1 ^b	0.85 ^b
Gmina < 52 points	53	52.0	51.5	51.2	–0.8	0.38
Poland	2479	60.5	60.2	59.9	–0.6	0.28

^a For the variable, ANOVA was conducted.

^b Based on ANOVA and Tukey’s HSD (honest significant difference) test, it has been found out that the averages for the group being analysed differ significantly from at least one of the groups ($P < 0.05$).

Source: Own elaboration based on GUS data.

land being mostly converted to plots for single family houses. A relatively large area was also allocated to the development of economic activity. The experts noted that this phenomenon was a result of migration processes, as entrepreneurs comprise a relatively large group among migrants. In the II zone of gmina, according to the respondents, dynamic changes in the use of agricultural land started relatively recently, i.e. after Poland's joining the European structures, and are mainly connected with better access to MA cores. It has been noted that the further away from the city, the lesser its impact on the use of land. Over the last 20 years, around 10% of agricultural land has been converted in the II zone, with the overwhelming majority of the land converted to land for single family houses. A relatively large area of agricultural land was used for the development of technical infrastructure, including roads. The relatively large decrease in agricultural land due to conversion to such purposes

results mainly from more negligence in this respect compared to the urban zone and typically peri-urban zone (I zone of gmina).

Assessing the significance of agricultural land quality in processes of its conversion, the respondents claimed that as a rule higher quality agricultural land is less often converted to non-agricultural purposes, but they also stressed that if it is in a very good location, then the quality of land is unable to limit conversion. As in earlier analyses, statistically significant differences in the scale of agricultural land conversion were found, but from a substantive point of view the hypothesis saying that agricultural land highly suitable for agricultural production is less often converted cannot be confirmed. Similarly, analysis of the structure of agricultural land conversion in terms of the purpose for which it was converted gives no substantive grounds for claiming that this process is determined by the quality of environmental conditions.

Table 3. Changes in the area of agricultural land according to local experts in 1996–2017

Specification	Number of respondents	Average decrease in AL 1996–2017 (%) ^a	Agricultural land was converted to (%) ^c			
			land for single family houses	land for multi-family houses	land for the development of economic activity	Other, including technical and social infrastructure and wasteland
By location within the metropolitan area						
MA core	10	25.0 ^b	33.0	41.0	14.0	12.0
I zone of MA gmina	32	18.3 ^b	55.1	10.0	19.5	15.5
II zone of MA gmina	56	10.3 ^b	63.9	2.3	15.3	18.5
By agricultural production space valuation ratio (APSVR)						
Gmina > 88 points	33	12.9 ^b	61.2	7.5	14.7	16.6
Gmina 70–88 points	24	14.2 ^b	52.9	9.7	20.9	16.5
Gmina 52–70 points	21	24.7 ^b	52.8	8.6	20.6	17.9
Gmina < 52 points	20	13.3 ^b	63.3	7.5	12.1	17.1
In total	98	14.5	58.1	8.2	16.8	16.9

^a For the variable, ANOVA was conducted.

^b Based on ANOVA and Tukey's HSD (honest significant difference) test, it has been found out that the averages for the group being analysed differ significantly from at least one of the groups ($P < 0.05$).

^c Ten respondents did not give answers.

Source: Own elaboration.

CONCLUSIONS

With unique properties of land as a production factor, i.e. it is immobile and not expandable, agricultural land conversion is now regarded as a natural phenomenon accompanying urbanisation worldwide. Literature often emphasises that agricultural land decreases at the fastest rate in countries and areas with fast economic growth. They undoubtedly include Poland and Polish metropolitan areas, which for historical reasons constitute a very interesting unit for analyses. After 1990, the application of the principle of primacy of “private ownership” over social good, combined with insufficient legal protection of farmland, resulted in market principles being applied also to agricultural land market. Land, especially in areas undergoing urbanisation, was becoming an increasingly scarce resource, and its use was increasingly determined by economic rent.

The analyses have shown that in the metropolitan areas analysed, the process of agricultural land conversion was over twice as fast as the average for Poland, and the distance of a gmina from the core of the metropolitan area was a significant factor in the differences in the conversion scale. The closer to the core, the faster the process of conversion. Although at the beginning of the economic transformation (until 1996), agricultural land conversion took place mainly in urban areas, after the migration trends were reversed and the process of peri-urbanization increased, it became more intensive also in gmina located further away from economic centres (MA cores). The second important element of the analyses was assessment of the scale of agricultural land conversion depending on the quality of agricultural production space. In accordance with the bid rent theory, productive land, due to generating higher rent (I differential rent), is less likely to be transferred to other uses. Although in Poland the I differential rent is additionally supported by legal instruments in the form of high fees associated with taking plots of agricultural land out of agricultural production, it has been found out that the conversion scale of high quality agricultural land is not significantly lower compared to poor quality farmland. Thus it can be concluded that economic rents generated by

the non-agricultural sector are significantly higher, and in “good locations” even the best agricultural land is converted to non-agricultural purposes.

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KONWERSJA GRUNTÓW ROLNYCH NA CELE POZAROLNICZE W WYBRANYCH POLSKICH OBSZARACH METROPOLITALNYCH

STRESZCZENIE

Celem artykułu jest określenie skali konwersji użytków rolnych położonych w wybranych obszarach metropolitalnych Polski. Analizy prowadzono z uwzględnieniem położenia gruntów w stosunku do rdzenia obszaru metropolitalnego oraz ich przydatności do produkcji rolnej. Badania wykazały, że w latach 1996–2014 w wybranych do analizy obszarach metropolitalnych użytki rolne były przekształcane na cele nierolne ponad dwukrotnie szybciej od średniej krajowej, przy czym ten proces przebiegał najbardziej intensywnie w rdzeniu obszaru metropolitalnego, nieco słabiej w pierwszej strefie gmin otaczających rdzeń, a najslabiej w gminach leżących na obrzeżach obszaru metropolitalnego. Pozytywnie zweryfikowano hipotezę, że odległość gminy od rdzenia obszaru metropolitalnego istotnie różnicuje przebieg procesów konwersji, a wysoka jakość warunków przyrodniczych produkcji rolnej (w istotny sposób) nie ogranicza procesu wyłączenia ich z produkcji.

Słowa kluczowe: konwersja użytków rolnych, obszary metropolitalne, Polska

