

The level of the economic development of rural districts in the Małopolskie Voivodeship vs. the intensity of disagrarisation processes – a case study*

Poziom rozwoju gospodarczego gmin wiejskich Małopolski a nasilenie procesów dezagraryzacji – studium przypadku

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Abstract. The study aimed to assess the intensity of disagrarisation processes in rural districts in the Małopolskie Voivodeship. First, districts exhibiting a high level of economic development were identified, and then they were divided into two groups according to their location: “suburban” (located in the Krakow conurbation) and “peripheral” (situated on the outskirts of the Voivodeship). As shown by the research, the importance of agriculture in generating income for farm users in the first group of districts is markedly lower than the Voivodeship average. What is more, the division of farms into smaller units is accelerating, with a considerable portion of agricultural land (AL) belonging to farms with up to 1 ha AL. Despite very favourable environmental conditions for farming, almost 20% of AL is not used for production. In the economically well developed, but peripheral districts, the percentage of farms obtaining income mostly from agriculture is 1.5 p.p. higher than in suburban districts, and slightly exceeds the Voivodeship average. The peripheral districts, having very poor environmental conditions for agricultural production, display slower disagrarisation processes than the suburban ones. This is reflected in their better land structure and in less advanced processes of withdrawing land from agricultural production. To sum up, the results of the research demonstrated that the relatively high level of the districts’ economic advancement alone cannot cause radical transformation in agriculture. The vicinity of a large city, constituting a huge labour market, is much more important, and acts as a stimulus for disagrarisation.

Key words: rural districts • level of economic development • disagrarisation • agriculture • farms

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Streszczenie. W opracowaniu dokonano oceny nasilenia procesów dezagraryzacji w gminach wiejskich województwa małopolskiego. W ramach prac badawczych wytypowano gminy o wysokim poziomie rozwoju gospodarczego, a następnie podzielono je na dwie grupy: gminy położone w strefie podmiejskiej oraz gminy leżące na obrzeżach województwa. Prowadzone badania wykazały, że w gminach aglomeracji krakowskiej wyraźnie mniejsze niż średnio w województwie jest znaczenie rolnictwa pod względem tworzenia dochodów ludności użytkującej gospodarstwa rolne. W tych gminach nasilają się także procesy podziału gospodarstw, a znaczna część użytków rolnych przypada na jednostki o powierzchni do 1 ha UR. Mimo bardzo dobrych warunków przyrodniczych produkcji rolnej prawie 20% UR jest tu wyłączone z produkcji. W gminach o wysokim poziomie rozwoju gospodarczego, ale położonych na obrzeżach województwa, odsetek gospodarstw utrzymujących się głównie z rolnictwa jest o 1,5 p.p. wyższy niż w gminach podmiejskich i nieco wyższy niż średnio w województwie. Ponadto, mimo bardzo słabych warunków przyrodniczych produkcji rolnej, procesy dezagraryzacji są tu wolniejsze niż w gminach podmiejskich, co przejawia się w nieco lepszej strukturze obszarowej oraz w mniejszym zaawansowaniu procesów wyłączenia gruntów z produkcji rolnej. Wyniki badań wskazują zatem, że sam względnie wysoki poziom rozwoju gospodarczego gmin nie przyczynia się do wywołania wyraźnych zmian w rolnictwie. Znacznie większe znaczenie ma natomiast bliskość miasta – duży rynek pracy – dająca impuls do dezagraryzacji.

Słowa kluczowe: gminy wiejskie • poziom rozwoju gospodarczego • dezagraryzacja • rolnictwo • gospodarstwa rolne

Introduction

Globalisation and urbanisation processes, with progressing disagrarisation as their effect, contribute substantially to the changes in both agriculture and rural areas (Zegar 2012). Disagrarisation is reflected in a decrease in the economic importance of agriculture and agricultural production in the national economy (Musiał 2007). One of the factors behind the socio-economic development of districts, including the creation of new jobs, the construction of housing estates, or the creation of places for entertainment and relaxation, is the marginalisation of agriculture (Paluch 2012). In addition, following the intensification of urbanisation, the number of rural inhabitants is increasing who receive their income from non-agricultural sources and adopt the lifestyles of urban dwellers (Gutowski 2006). The literature on the subject draws attention to the fact that the processes of village disagrarisation are strongest in regions with the highest level of economic development (Czudec and Kata 2013). It is thus not without reason that the present research has been devoted to the Małopolskie Voivodeship, belonging to the highest developed voivodeships in Poland in economic terms. As indicated by the studies of Kutkowska et al. (2010), the dynamics of disagrarisation processes, considered in a socio-economic dimension, depends on many objectively existing factors, among them the location of rural areas in relation to larger cities. The proximity to a city, with a richer structure of the labour market on the demand side, precipitates the decline of the role of agriculture in the economy of a given unit of local government. In addition to this, an influx of city dwellers into districts located in suburban areas (suburbanisation) changes their previous

functionality profile in a socio-economic dimension. It can be hypothesised that the disagrarisation processes, reflected in the increasing proportion of holdings without agricultural activity and the relatively small importance of agriculture in generating income for rural inhabitants, are particularly intensive in districts with a high level of economic development, especially those situated close to urban centres.

The present study attempts at evaluating the intensity of the disagrarisation processes taking place in rural districts with a high level of economic development, either located in suburban zones, or distant from large cities.

Material and methods

The main source of information for evaluating the level of economic development of rural districts was the data taken from the Local Data Bank of the Central Statistical Office of Poland (GUS). The intensity of disagrarisation processes was assessed using the results of the 2010 National Agricultural Census and a survey conducted in 2012 based on a questionnaire. The questionnaire included both closed and open questions to obtain more precise and personal answers. The survey was targeted at persons working as secretaries or department heads of local governments, having sufficient knowledge about the state of their development and its specific determining factors, as well as about the local problems.

The data were analysed using research methods such as induction-and-deduction, comparative method (analogies), and quantitative methods (including multicriterial zero unitarisation).

A two-stage procedure was applied to select the area and objects of research. At the first stage, 121 rural districts of the Małopolskie Voivodeship were taken into account. The second stage consisted in identifying a group of districts with the highest level of economic development within the entire population of study districts, using a multicriterial zero unitarisation method. Each of the 121 rural districts was examined employing a set of diagnostic variables. The variables were chosen in such a manner as to gain a possibly comprehensive picture of the phenomenon under study.

At the beginning, a wide range of variables depicting the level of economic development of districts were considered. To reduce the number of variables, we used a formal criterion, which was an assumption that the diagnostic variables should only be weakly correlated with each other so as not to duplicate the information they carry. We also assumed that the variables should exhibit a relatively high level of variability (expressed as the coefficient of variation and the relative information value). An analysis of the diagnostic variables covered the years 2004–2010. In order to eliminate random variation, the values of the characteristics were averaged (Paluch 2013).

The level of economic development was described by the following indices (diagnostic variables, x_j):

x_1 – index of economic servicisation,

x_2 – number of business entities registered in the REGON register (National Official Business Register) per 1000 inhabitants,

- x_3 – personal income per inhabitant (PLN),
- x_4 – proportion of capital investment in total expenditure (%),
- x_5 – funding from the UE budget per 1000 inhabitants (PLN),
- x_6 – tax revenues per inhabitant (PLN).

Each of the diagnostic variables was normalised (to make them comparable) by using the following formula (Kukuła 2000):

$$z_{ij} = \frac{x_{ij} - \min x_{ij}}{\max x_{ij} - \min x_{ij}}, \quad x_j \in S$$

where:

- z_{ij} – normalised value of variable “ j ” for object “ i ”,
- x_{ij} – value of variable “ j ” for object “ i ”,
- $i = 1, \dots, n$ – number of objects (districts),
- $j = 1, \dots, m$ – number of variables.

The synthetic measure of economic development (q_i) for each district was calculated from the formula:

$$q_i = \frac{\sum_{j=1}^m z_{ij}}{m}$$

Basing on the values of synthetic measures (q_i) put in a non-increasing order, the districts were ranked according to the level of their economic development. Those showing a high level of development were identified by using two characteristics: arithmetic mean of the synthetic measures (\bar{q}) and standard deviation (SD), calculated for all districts (i.e., their synthetic measures, q_i , should have been higher than $\bar{q} + SD$). The resulting group of districts with highest levels of development comprised 13 objects, constituting 10.4% of the initial number of the rural districts in the Małopolskie Voivodeship, considered at the preliminary stage of the research (Fig. 1)

Then, the highest-developed districts were divided into two sub-groups: “suburban” and “peripheral”. The first group consisted of 7 districts located in the Krakow conurbation (Michałowice, Zabierzów, Wielka Wieś, Zielonki, Sułoszowa, Lanckorona, and Kłaj). The second group comprised 6 districts situated on the periphery of the Voivodeship, far from larger cities (Kościelisko, Poronin, Sękowa, Spytkowice, Szerzyny, and Wietrzychowice).

Results and discussion

The condition of agriculture and rural areas in the Małopolskie Voivodeship and the processes of their development have been shaped by complex historical, economic and socio-cultural determinants, hence the present differences between individual

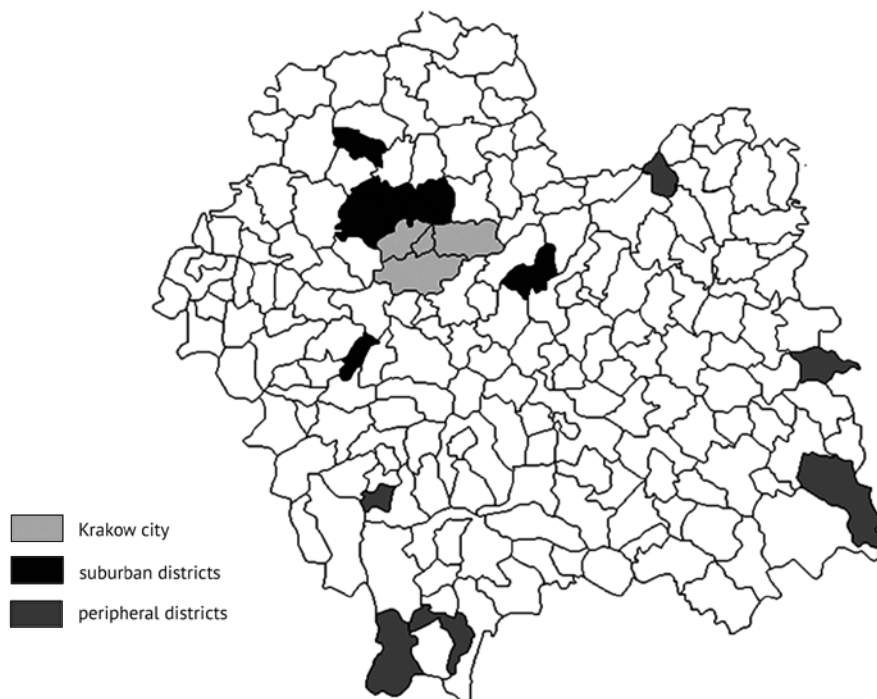


Fig. 1. Location of districts with a high level of economic development in the Małopolskie Voivodeship

Source: Authors' study based on the data from the Local Data Bank (Central Statistical Office, Poland)

districts. The analysis started from determining the impact of the location of a district (in relation to a city) on the land-use structure of this administrative unit. In the Voivodeship, agricultural land accounts for ca 58.7% of total land, on average. The percentage is somewhat smaller (ca 51.8%, on average) in districts with the highest level of economic development, with wide differences occurring between suburban and peripheral districts. The latter group includes 3 mountainous districts having unfavourable conditions for agricultural activity (average WWRPP¹ of 37.4 points). Being mostly covered with forests, these mountainous districts contribute to a considerably lower proportion of agricultural land in the whole "peripheral" group (ca 38%). For "suburban" districts, the share of agricultural land exceeds 70%, and the quality of the agricultural production environment is estimated at 88.7 points. Accordingly, the proportion of land not used for production in suburban areas is ca

¹ WWRPP – a synthetic index used for valuing the agricultural production environment, based on the indices describing soil quality, climate, surface features, and water conditions (developed at the Institute of Soil Science and Plant Cultivation in Puławy). Its maximum value is 125 points.

19.2%. Although this value is quite low and is close to the Voivodeship average, it is still higher than in other districts with similar, favourable environmental conditions (WWRPP above 80 points) where the share of such land is ca 11%. Supposedly, the local attractive labour market (Krakow city) has contributed to the excessive abandonment of the agricultural use of land. As indicated by the district officers surveyed, the inhabitants of those districts are also less attached to agricultural traditions and more inclined to abandon agricultural production (e.g. sell the land) than the people living in peripheral districts.

The proportion of land withdrawn from agricultural production in peripheral districts is 23.6%, and exceeds the average for the Małopolskie Voivodeship. This may be attributed to unfavourable environmental conditions, but also to a good development of the economic sphere, offering e.g. more attractive job opportunities outside of agriculture, especially in tourism (Table 1).

Table 1. Chosen characteristics of land use in districts with a high level of economic development in the Małopolskie Voivodeship

Item	Districts with high level of economic development			Małopolskie Voivodeship
	In total	Peripheral	Suburban	
Proportion of agricultural land in total area of districts (%)	51.8	37.8	71.8	58.7
WWRPP index (valuation of agricultural production environment) (points)	66.1	50.0	88.7	65.5
Proportion of agricultural land withdrawn from production* (%)	21.4	23.6	19.2	18.5
Proportion of agricultural land belonging to farms with up to 1 ha AL (%)	9.2	6.7	12.1	9.4

* Land not kept in a good agricultural culture and non-utilised meadows and pastures were assumed to be withdrawn from agricultural production.

Source: Authors' study based on the data from the Local Data Bank (Central Statistical Office, Poland)

Looking at the proportion of agricultural land belonging to farms below 1 ha AL, it may be seen that it is almost two-fold higher for suburban than peripheral districts. The same applies to farms smaller than 1 ha AL in the total number of farms, but the difference is slighter (Table 2). This may be connected with the specific functional profile of suburban districts, the intense division of farms into smaller units, and the change in the status of farmland to use it for building purposes or sell it for either housing industry or business activity.

Table 2. Chosen characteristics of agriculture in districts with a high level of economic development in the Małopolskie Voivodeship

Item	Districts with high level of economic development			Małopolskie Voivodeship
	In total	Peripheral	Suburban	
Proportion of farms with up to 1 ha AL (%)	46.9	42.3	51.5	43.2
Average AL area of farm (ha)	2.37	2.45	2.29	2.96
Average AL area of farm with over 1 ha AL (ha)	4.03	3.96	4.11	4.72
Proportion of farms with over EUR 8000 SO* (%)	18.7	12.8	24.6	20.8
Proportion of farms without agricultural production (%)	20.1	16.4	24.1	22.4
Proportion of farms without animals (%)	56.3	49.1	61.5	54.3

* The calculations were based on farms with over EUR 2000 SO.

Source: Authors' study based on the data from the Local Data Bank (Central Statistical Office, Poland)

As found by Sroka (2014), the pace of change in the proportion of farms with up to 1 ha AL in conurbations is over two times faster than in rural areas. In peripheral districts the price of land and the interest in purchasing land for non-agricultural purposes are much lower. Due to the lower population density, in such areas there is also a smaller demand for building plots. In addition, hasty and excessive divisions of agricultural holdings would deprive farmers of the possibility of getting insurance with the Agricultural Social Insurance Fund (KRUS) or obtaining payments under the Common Agricultural Policy. Thus, the capitalised economic rent from land used for agricultural purposes in these districts appears to be higher than in the case of abandoning agricultural production, dividing farms, or selling land.

The Małopolskie Voivodeship counts among voivodeships with highest levels of agrarian fragmentation in Poland; the size of an agricultural holding there averages less than 3 ha AL. This index is even smaller (2.37 ha) in districts with a high level of economic development, with the smallest farms being located in suburban zones. The latter phenomenon is due to a vast number of units with up to 1 ha AL, considered to be farms. Nevertheless, if we do not take such tiny units into account, it appears that suburban districts have a much larger average AL area per farm and a much higher proportion of farms with over EUR 8000 SO², compared to the averages for the Małopolskie Voivodeship and the peripheral districts, which may be attributed to their favourable environmental conditions of agricultural production and an easy access to

² SO – Standard Output

the market. Similar patterns have been noted in other studies concerning cities and their functional areas (Sroka 2013): the agricultural production there is more professional, and the degree of connection between the farm and the market is two times higher than in rural areas. It is evident, therefore, that the suburban agriculture is polarised: on the one hand, there is a group of economically and commercially sizeable farms, tightly linked with the market, and on the other hand, there are tiny units with no agricultural production.

As demonstrated by the present research, districts with a high level of economic development vary in the intensity of disagrarisation processes in the production sphere according to the location of a district in relation to a city. In suburban districts, almost 24.1% of all holdings are not involved in agricultural production, and over 61.5% of farms do not keep animals. In peripheral districts, having much worse environmental conditions than both suburban districts and the Małopolskie Voivodeship, the respective figures are 16.4% and 49.1%, which is below the Voivodeship average. The results clearly indicate that the location in the vicinity of a big city contributes to the intensification of disagrarisation.

The economic activity of rural inhabitants, including farming, is determined by a certain level of socio-economic development, environmental conditions, and historical and cultural reasons. The employment levels on farms are still very high both in the Małopolskie Voivodeship on average and in districts with a high level of economic development. Such districts have an index of 0.83 AWU³ per farm (2.5 ha AL), on average. The index is even higher for a group of peripheral districts (over 1.1 AWU per farm) (Table 3).

Table 3. Employment in agriculture in districts with a high level of economic development in the Małopolskie Voivodeship

Item	Districts with high level of economic development			Małopolskie Voivodeship
	In total	Peripheral	Suburban	
Average number of employed persons per farm (AWU)	0,83	1,10	0,65	0,79
Number of employed persons per 100 ha AL (AWU)	36,3	39,8	33,0	34,5

Source: Authors' study based on the data from the Local Data Bank (Central Statistical Office, Poland)

When the AWUs were related to the AL area, the index calculated for the Małopolskie Voivodeship (34.5 AWU/100 ha AL) appeared to be 2.5 times higher than in Poland on average. The index was even worse for peripheral districts with a high level of economic development (39.8 AWU/100 ha AL). The higher index value achieved by

³ AWU – Annual Work Unit (equivalent to the work of 1 person, full time, for 1 year)

suburban districts may be connected with the greater job opportunities they offer outside of agriculture. Seeking a possible explanation for such unfavourable employment indices in peripheral districts, which have a high level of economic development, one should think of the specificity of these districts (an evolving labour market). A part of them are focused on tourism, where a substantial portion of income is derived from the so-called “grey” or “black” economy. For example, some people who provide (agri) tourism services are farm owners and officially declare work in agriculture. In fact, a part of people earn their living from unofficial sources, such as the renting of rooms or working in the building sector. The local government officers (respondents) stressed that the proportion of inhabitants employed in the grey or black economy in peripheral districts may be as high as 24% of the economically active population. The rate for suburban districts is much lower, not exceeding 16%.

Polish rural inhabitants no longer earn their living from farming alone. In the case of small farms (up to 5 ha AL) in southeastern Poland, in the early 1990s, half of families running commercial farms (sale exceeding 90% of production) claimed that their main income came from agriculture (Kotala 1991). To compare, in 2010, ca 13.1% of farm users in the Małopolskie Voivodeship considered agriculture as their main source of income. The rate was even lower (11.9%) for districts with a high level of economic development. In addition, farm users there claimed more often than those in the Voivodeship on average that their main source of income was hired labour (37.6%) and non-agricultural activities (12.7%), and less often, that they earned their living from retirement or life pensions (Table 4).

Table 4. Main income sources (> 50% of total income) of households being users of private farms in districts with a high level of economic development in the Małopolskie Voivodeship

Item	Districts with high level of economic development			Małopolskie Voivodeship
	In total	Peripheral	Suburban	
Agricultural income (% of farms)	11.9	13.4	10.6	13.1
Income from hired labour (% of farms)	37.6	32.3	41.6	36.9
Retirement or life pension (% of farms)	24.3	24.4	24.1	26.2
Non-agricultural income (% of farms)	12.7	13.1	12.3	10.9

Source: Authors' study based on the data from the Local Data Bank (Central Statistical Office, Poland)

An analysis of the differences in income sources between rural districts as dependent on their distance from cities points to the great importance of non-agricultural sources of income in the districts situated in the close vicinity of a city. About 41.6%

of farm users earn their living from hired labour, and ca 12.3% run their own business. It can therefore be concluded that both the level of economic development of districts and their favourable location, close to huge labour markets, contribute to the marginalisation of income from agriculture and to the progress of disagrarisation processes.

Due to the limited opportunities for obtaining parity income from work in agriculture, the arduousness of such work, and the relatively low prestige of agriculture, young people now are rarely inclined to run a farm. In the Małopolskie Voivodeship, only ca 27.4% of farm managers are less than 44 years old, and 12.8% of them are aged less than 34 years (Table 5). The situation is worst in suburban districts, which have only 11.5% of farm managers younger than 34 years. The index for peripheral districts is 13.5%. Districts with a high level of economic development show also lower indices of farmers' vocational education than the Voivodeship on average: only 4.1% of farm managers have at least secondary agricultural education (Table 5).

Table 5. Structure of farms according to the age and education level of the manager in districts with a high level of economic development in the Małopolskie Voivodeship

Item	Districts with high level of economic development			Małopolskie Voivodeship
	In total	Peripheral	Suburban	
Manager age ≤ 34 years (% of farms)	12.4	13.5	11.5	12.8
Manager age > 65 years (% of farms)	13.8	12.9	14.5	15.4
At least secondary agricultural education (% of farms)	4.1	3.6	4.4	4.5

Source: Authors' study based on the data from the Local Data Bank (Central Statistical Office, Poland)

As follows from the above analysis, the inhabitants of the districts under study do not connect their own or their children's future with agriculture. According to the respondents (local government officers), young people rarely decide to become farmers, and if they do so, they usually take over relatively large farms with developmental potential. It may thus be expected that both the land structure of farms and the quality of farm management will improve in 10 or 20 years to follow.

Around 13.8% of farms in the study districts are managed by retired persons, which is slightly less than in the Małopolskie Voivodeship on average. The situation is more advantageous in peripheral districts, in which only 12.9% of farm managers are above 65 years of age. The processes of land transfer there are advancing faster, which may partly result from the better development prospects of farms. According

to the respondents, who are very knowledgeable about local conditions, ca 24% of the farms in peripheral districts are considered by their owners as having developmental potential (this index is considerably higher than in suburban districts), and 42% of them are thought to have no such potential. The owners of the remaining farms were unable to choose between the two options (Table 6).

Table 6. Development prospects of farms in districts with a high level of economic development in the Małopolskie Voivodeship in the respondents' opinion

Item	Districts with high level of economic development		
	In total	Peripheral	Suburban
Farms with developmental potential (%)	19.0	23.9	15.8
Farms without developmental potential (%)	50.4	42.1	56.0
Other* (%)	30.5	34.0	28.2

* respondents hesitant about the prospects of their farms

Source: Authors' study based on a survey questionnaire

The quite high appreciation of the developmental potential of farms in peripheral districts is in stark contrast with the data describing their real potential, such as the economic size of a farm. Only 12.8% of all the farms have the size (expressed as Standard Output; SO) exceeding EUR 8000. It should be noted here that smaller farms are not regarded as having the potential for growth (Sroka and Musiał 2013). On the one hand, the above figure may have resulted from an underestimation made in the 2010 National Agricultural Census (sometimes farms lease some land unofficially, so their actual economic size is larger), and on the other hand, from the farmers' overestimation of their developmental opportunities. Other reasons may be seen in limited job opportunities outside of agriculture, and a will to continue family traditions and develop the inherited farms.

By contrast, in suburban districts, where every fourth farm has an economic size of at least EUR 8000 SO, only 15.8% of the farms are regarded as having developmental potential. The respondents, however, pointed to the fact that their districts are faced with the migration of young people to more flourishing urban centres, and agriculture plays there only marginal role due to the dynamic changes in the functional profile of the districts (considering its socio-economic dimension), including the influx of urban dwellers to the suburban districts. Thus, both farmers and local government officers seem to be sceptical about the chances of agricultural development in the future. They rather tend to consider agriculture as an archaic and a non-developmental sector of the economy.

Conclusion

Urbanisation and globalisation belong to the main driving forces behind the constant evolution of agriculture and rural areas. The two processes contribute to the creation of an economic order which stimulates production, while reducing the economic importance of agriculture (disagrarisation). As observed by many authors, an increase in the level of the country's economic development is accompanied by a decrease in the share of agriculture in generating GDP and a drop in the percentage of the labour force employed in agriculture. Our research carried out at a district level in the Małopolskie Voivodeship only partially confirmed the greater advancement of disagrarisation processes in the entities with a high level of economic development. This was true only for suburban districts, but not for peripheral ones.

The proportion of land withdrawn from agricultural production in peripheral districts is relatively high and larger than in the Małopolskie Voivodeship on average, but this can be explained to a certain extent in terms of the much worse quality of their environment of agricultural production. Nevertheless, only 16.4% of farms are not engaged in agricultural activity, and 49% do not keep animals. These indices are lower compared to the Voivodeship average (by a few percentage points) and markedly lower than in suburban districts. In addition, the farm users point to agriculture as their main source of income more often than the average farmer in the Voivodeship, and almost every fourth farm is considered to be one with developmental potential.

The disagrarisation processes in suburban districts, especially those closely functionally linked with cities, are more advanced than in the Małopolskie Voivodeship on average. This is reflected in a minor significance of agriculture as a source of income for farm users, and in a high proportion of good-quality land withdrawn from agricultural production. The other characteristic feature of such districts is a substantial share of agricultural land belonging to farms with up to 1 ha AL. The competition for land and the possibility of using it for non-agricultural activities contribute to an excessive fragmentation of farms through their division into smaller units and the allocation of land for investment or building purposes. Obviously, the ongoing decrease in the resources of agricultural land is a process that cannot be stopped (due to the inability to multiply these resources). Nevertheless, this process can be seen as negative when it involves a loss of good-quality soils.

The present research, as a case study, provided the results that are not representative of the entire population of rural districts, but are valuable as indicators of some patterns. It was found that districts with a high level of economic development, but with different locations and functions, differ in the way of agricultural economy development. In peripheral districts, where tourism is of major importance, agriculture is seen as a complementary sector, which curbs the disagrarisation processes. The latter should be considered as positive since districts with prevailing tourism functions cannot develop without supporting the cultural landscape, local traditions and customs. What is more, possessing a farm brings a multitude of benefits, such as exemption from taxes on tourism (under certain conditions) or insurance privileges. By contrast, in suburban districts there is strong competition for land and much

greater opportunities for finding a job in non-agricultural sectors, which contributes to the redirection of production factors to more efficient activities.

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