CHAPTER 5

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CHANGES IN THE VALUE OF RURAL LAND PLOTS AS AN INDICATOR OF SOCIAL AND ECONOMIC TRANSFORMATIONS

Social and economic transformations in rural areas

Social and economic growth is defined as a series of "oriented and irreversible changes in the social structure and social and economic systems" (CHOJNICKI 1999). Those changes take place in the economic, political, institutional, cultural, biological, ecological and environmental realm (CHOJNICKI, CZYŻ 2006). Social and economic development is a process of positive change, quantitative growth and qualitative progress which aims to provide the local community with the highest possible living standards (WOJTASIEWICZ 1996). Economic development is often prioritized as it is of paramount importance for the remaining areas of human activity. For this reason, the concepts of economic development and social and economic development are used interchangeably (CHOJNICKI, CZYŻ 2006).

Published sources discuss a variety of factors that condition social and economic growth. As regards regional development, numerous determinants and factors conditioning growth are proposed on the assumption that "growth determinants reflect the existing environment, they are passive and weakly controllable in the short-term perspective, while growth factors are more active and controllable, and their implementation is a prerequisite for restructuring and regional development" (CHOJNICKI 1999). The above division is vague as growth determinants may turn into growth factors and vice versa. The key factors and determinants of regional development in Poland are: the state of the natural environment, demographic conditions, settlement structure, technical infrastructure, educational infrastructure, living standards, the financial status of territorial self-governments, economic structure, the development of free market institutions, capital investments in the region, commerce, business support services, social climate,
innovation, foreign investments and EU structural funds (CHURSKI 2004, 2005). The most frequently cited determinants of local growth include: geographic location, population, economic structure, technical and social infrastructure, natural resources and the condition of the natural environment (MOTEK 2007).

The spatial structure of the most rapidly developing rural areas comprises clearly separated parts – the original village settlement, the remnants of socialist State-owned farms, workshop districts dating back to the 1980s and the most recent developer projects completed at the turn of the 20th and the 21st centuries. In most cases, those areas do not form a homogenous structure. The number of private fenced estates is on the rise. The absence of planning cohesion and the isolation of newly zoned areas reflect and deepen the existing social divisions, and they prevent the mixing of the rural and the suburban worlds.

Sources of information on market change

This study relies on two predominant types of information concerning changes on the rural property market. The first is the data on changes in the social and economic structure of rural areas. The source of this information includes the author's own observations, the data supplied by the Central Statistical Office as well as the publications discussing changes in rural districts. The second type of information is the data on rural property transactions relating to undeveloped land plots, supplied by the Olsztyn branch of the Agricultural Property Agency and registers of transaction prices kept by district authorities.

The following methods were deployed to analyze the above data:
1. the first group of data – descriptive methods and indicators, in particular the dynamics of changes in the manner of farmland use; the relevant indicators were computed with the use of the Microsoft Excel XP application;
2. the second group of data – linear regression and descriptive statistical methods; the results were computed and presented with the use of the Statistica 8.0 software. Property transactions for 2004 - 2008, registered in the database of the Olsztyn branch of the Agricultural Property Agency (APA), have been described by a given set of attributes, including the date of the transaction, procedure of selecting the buyer (tender, pre-emption), location, area, transaction
price. The analysis of the prices of undeveloped land plots sold by APA in a tender leads to the following fundamental question: can trends be set on a market controlled by the State? The following sales priorities are determined by the APA: the quantity, the area and the location of land plots that are put up for sale first. Since such a market somehow escapes the definition of a free property market, this analysis focuses on the free market of undeveloped land plots in rural areas.

Based on the above attributes, in the first stage of the analysis, a sample characterized by an identical sales procedure (tender only) and an identical zoning designation (only undeveloped land plots zoned for agricultural use) was selected. For a better understanding of the changes taking place on the market of rural property, transactions were grouped according to months. Every transaction was allocated an integer from 1 to 60 to describe the transaction date on an interval scale. Prior to the analyses describing the time trend, the sample was additionally limited to the following unit price range: from PLN 0.50/ m² to PLN 1.20/ m² for 2004, from PLN 0.50/ m² to PLN 2.00/ m² for 2007 and from PLN 0.90/ m² to PLN 2.00/ m² for 2008. The above limits had to be introduced to eliminate transactions that differed significantly from the analyzed set, for example properties zoned for recreational or clearly non-agricultural purposes. The least squares method was used to fit a linear function into the dispersion diagram. The time trend was determined based on the linear function. The equation was described by the following formula:

\[ \text{Price of } 1\text{m}^2 = b + a \times x \]

where:
- \( x \) – transaction date expressed by an integer
- \( a \) and \( b \) are constants for an equation of a straight line.

Changes in social structure vs. rise of expectations regarding functional and spatial infrastructure

The new social structure of rural areas implies a long-term evolution of expectations towards functional and spatial structure. The drivers of change are the external connections formed by new residents: workplaces and schools found outside the village or even the municipality, changes in women's roles in the household, and organization of the village's social life. In reference to the sustainable development indicators generated by the XERES3 network, all of the
above factors pose a long-term threat for the quality of life in dynamically developing rural areas owing to growing traffic and, consequently, an increase in harmful emissions of gas, dust and noise, a higher incidence of traffic accidents, the loosening of social bonds, deterioration of security standards, progressing shrinkage of open areas which adversely affects the quality of suburban residential estates developed in areas that were formerly used for farming purposes.

Fig. 1. Share of arable land in 2004 – per voivodeship

Fig. 2. Share of arable land in 2007 – per voivodeship

Spatial development in rural areas is determined by the area's location, in particular the distance from a city, factors that support recreation (lakes, woods), the access to municipal, provincial and
national roads. The quality of arable land also affects the ultimate zoning solutions adopted in rural areas.

![Chart showing changes in the area of arable land used for various purposes in the Warmia and Mazury region in 2004-2007](image)

Fig. 3. Changes in the area of arable land used for various purposes in the Warmia and Mazury region in 2004-2007

The changes in farmland area illustrate the rate of transformations taking place in urban areas. Figure 1 presents three types of land management as well as land fallowing practices in 2004. As shown in Figure 2, a significant decrease in fallow land's share of farming areas was noted in comparison with 2007, and the average rate of change for Poland reached 0.28 in 2004-2007. The highest growth rate was noted in respect of long-term cropping systems at 1.43, while the growth indicator reported for grassland and arable land was below 1 in 2004-2007 (0.95 and 0.91, respectively). The decrease in fallow land acreage indicates that the profitability of agricultural production in Poland is on the rise due to the development of the economic environment of rural areas.

**Changes in the price of undeveloped agricultural land plots**

The most frequently traded types of property on the agricultural property market were land plots with an area of up to 5 ha (Fig. 4). The frequency of such transactions in each month of the analyzed period shows only seasonal changes without a clear growth trend. Most land plots were purchased by buyers who already reside in the area of the traded property. In many cases, the objective of the transaction was to increase the acreage of the proprietor's existing
farmland. There is no data suggesting that the buyers are persons who migrate from other areas, thus contributing to changes in the local social and economic environment.

From the point of view of economic profitability, the minimum area of the purchased property that guaranteed effective agricultural production was 5 ha. In this case, a clear increase in the number of transactions was noted outside periods marked by seasonal fluctuation. A higher level of trading suggests that this type of property attracts growing interest, and it points to changes taking place within rural areas.

![Histogram of transactions involving undeveloped farmland traded on the free market from January 2004 to December 2006](image)

Fig. 4. Histogram of transactions involving undeveloped farmland traded on the free market from January 2004 to December 2006

A systematic increase in transaction prices was noted in the analyzed period. A linear function fit into the dispersion diagram of transaction prices, with a division into the size of land plots traded in selected years, is presented in Figures 5 an 6. In 2004-2005, the prices of land plots with the area of up to 5 ha increased by around 1% per month, and the prices of property whose area exceeded 15 ha – around 2.4% per month. A growth trend was also maintained in 2007 and 2008.
Below is a list of algorithms of linear functions fitted into each price dispersion diagram in Figure 5. The algorithms were used to determine change trends in monthly prices from January 2004 to June 2005.

Area in ha: <= 0.5  Price per ha = 5 286.29+44.43*x;  Trend 0.80 %/month
Area in ha: (0.5;1)  Price per ha = 4 610.17+45.76*x;  Trend 0.94 %/month
Area in ha: (1;5)  Price per ha = 4 431.77+22.05*x;  Trend 0.48 %/month
Area in ha: (5;20)  Price per ha = 3 509.95+37.91*x;  Trend 1.01 %/month
Area in ha: >20  Price per ha = 3 058.21+85.43*x;  Trend 2.39 %/month

Fig. 5. Dispersion of transaction prices of undeveloped agricultural land plots between January 2004 and December 2005.
Area in ha: <= 5  Price per ha = 6212.31 + 110.26*x;  Trend 1.1%/month
Area in ha: (5;20)  Price per ha = -1553.27 + 280.95*x;  Trend 3.4%/month
Area in ha: (20;100)  Price per ha = 3616.61 + 157.27*x;  Trend 1.7%/month
Area in ha: > 100  Price per ha = -9122.81 + 572.43*x;  Trend 5.2%/month

Fig. 6. Dispersion of transaction prices of undeveloped agricultural land plots from January to December 2007

Changes in the average prices for 2008 were additionally analyzed. Figure 7 shows a continued growth trend but with a lower growth rate.

In the period that followed Poland accession to the European Union (2004 - 2006), a significant increase was noted in the prices of agricultural property, while the rate of that growth varied substantially subject to the land plot's area. Soil class was the key factor affecting
the transaction prices of undeveloped land plots. Contrary to expectations, a higher soil class does not increase the price of traded land. According to market data, the prices of land plots with varied soil types are similar.

Fig. 7. Average transaction prices of undeveloped agricultural land plots sold by the Agricultural Property Agency

The transformations on the market of agricultural property followed from changes in the local farming environment and that market's operating principles. Those changes affected both the legal and the economic aspects of market operations. EU grants for agricultural production contributed to the above. The noted fluctuations in the prices of undeveloped agricultural property accompanied by social and economic changes in rural areas lead to the following conclusions:

- the rate of changes in property prices reflects the rate of changes taking place in rural areas;
- higher trade in agricultural property reflects changes in the manner of farmland use (decreasing share of fallow land);
- the increase in property prices is indicative of the growing
profitability of investments in farmland;
• the growing profitability of agricultural production improves living standards in rural areas.

The price and the volume of transactions in land plots larger than 15 ha are the best indicators of social and economic changes in rural areas that remain outside of the sphere of influence of urban agglomerations.

The transformations in rural areas are spurred by changes in the farming market environment and, consequently, its operating principles. Those changes affect both the legal and the economic aspects of market operations. Based on the above assumption, the rate and the scope of changes in rural areas are reflected by the rise in the prices of agricultural property which varies subject to the analyzed property group.

To conclude, the changes in the structure of rural areas are determined by fluctuations in the quoted prices of agricultural property.

REFERENCES


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