
Agricultural and Tourist Functions in Rural Areas and the Level of Local Development: The Case of Poland

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Abstract:

Purpose: The aim of this article is to measure the diversity of rural areas through determining their potential for implementing the agricultural and tourist functions. This in terms of local development level of rural areas in Poland as illustrated by the Greater Poland Voivodeship.

Approach/Methodology/Design: The research procedure was conducted in three steps. In the first step, the agricultural and tourist functions were measured, and the relationship between them was identified. In a subsequent step, the social and economic development level of rural areas was identified. The last step involved defining the relationship between the potential of the analysed functions and local development level of the rural areas.

Findings: There is a relationship between the agricultural function and the tourist function in the analysed area. This relationship is statistically significant and negatively correlated, which means that the tourism potential of the area decreases as its potential for agricultural development increases.

Practical Implications: The result confirms that it is legitimate and necessary to implement development-related tasks which include a territorial approach that refers to all local potentials.

Originality/Value: Noticing this fact and taking it into account during the process of programming of local development seems to be of crucial importance for the success of the process of sustainable development of rural areas.

Keywords: Rural development, local level, JENKS method.

JEL classification: O21, Q15.

Paper Type: Research study.

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1. Introduction

The 1980s have witnessed a change in the perception of policy towards rural areas, as it was then that the territorial approach was developed (Bryden, 2004). This was dictated by the purpose of achieving economic and spatial cohesion with the introduction of the principles of subsidiarity, partnership and an integrated approach to territorial development. The introduced principles constituted an element of the policy decentralisation process at the regional and local level.

The change of approach to rural areas was spurred by changes in agriculture, increasing modernisation and intensification, and reduction of employment in the agricultural sector and its contribution to GDP. Agriculture ceased to be the only synonym for the countryside, therefore the perspective of sectoral approach had to be rejected, and a territorial perspective on rural areas was adopted instead. In planning development in terms of tasks implemented and processes occurring in rural areas, its territorial dimension related to the local potential of a particular area should be taken into account. These challenges pertain to the problems of the structure of rural areas which cannot be interpreted within a simple juxtaposition of the countryside with the city. Answers ought to be sought for in place-based policy and in a search for untapped potential whose unlocking will have a multidimensional impact on development; above all, on the quality of life of the inhabitants of rural areas.

Secondly, the juxtaposition of two categories, i.e. agricultural and non-agricultural, leaves a question to be answered - "If not agriculture, then what?". The question is becoming increasingly relevant, especially 30 years from implementing local development tasks in Poland's rural areas, while the implemented instruments have not always yielded the anticipated results. The answer is being sought in multifunctional agriculture on the one hand, and in the multifunctionality of rural areas on the other. An attempt was made at measuring the diversity of rural areas through determining their potential for implementing the agricultural and tourist functions with determining the relationship between them in terms of local development level of rural areas in Poland as illustrated by the Greater Poland voivodeship.

2. Research Background

Growing development differences between the Member States in Europe are considered in planning documents as the main barrier to development, which is reflected in the postulate of transforming territorial diversity into strength (Green Book, 2008; Barca, 2009; Fifth Report, 2007; Cohesion Policy 2010; Regional Policy, 2011). The correctness of development differentiation continues to be the area of interest for researchers (Barro and Sala-i-Martin, 2004; Begg *et al.*, 2008; Copus, 2001; Faludi, 2006; Churski, 2008; Bartkowiak-Bakun, 2017). An interesting search path is the functional approach to cohesion, according to which cohesion is

not tantamount to the elimination of differences, but it is replaced with a tendency to strive for achieving such a level of differences that is politically and socially acceptable (Faludi, 2006; Molle, 2007). This may be associated with an attempt to derive benefits from differences based on endogenous resources, this transition is observed in the policy for rural areas. Currently, there is no unanimity in Europe as to the place of agriculture, the policy for rural areas and the definition of their mutual relations (national states still see this challenge through their own priorities developed by national traditions or influenced by various lobbies). Nonetheless, countries are faced with a variety of needs and problems from which they try to make an attribute of development.

Diversity is further reflected in an endogenous approach to development. Its origin should be sought in 4 conditions; the success of the third Italy (searching for its causes), institutional initiatives aimed at launching bottom-up activities and entrepreneurial mindset, debate on sustainable rural development (perception of development while preserving the vitality of local towns and communities), promotion of autonomy by radical greens and people working with marginalised groups (Baldock *et al.*, 2001).

Depending on the location of the (external, internal) factors initiating the processes of development, two groups of theoretical concepts are distinguished: exogenous and endogenous. The authors of the article see the applicable value in the concepts of endogenous development. They assume that permanent and independent development is possible when internal factors are triggered. This enables avoidance of the negative factors of dependence on centres or external investors. Thus, according to the assumptions of this theory, development should be based on external supply with the use of endogenous resources. Of the strategies dedicated to borderland those suggested by Grosse (2007) are noteworthy: 1. The modernisation of endogenous resources. 2. The construction of new endogenous resources. From the point of view of the authors of the project, these ideas are particularly interesting, because they correspond to the concepts of multifunctional rural development. The first concept may have parallel reference to the diversification of business activity, whereas the other one is related with giving new functions to rural areas.

3. Method and Data Sources

The scope of the study concerns the rural areas of Poland, in this particular case - of Greater Poland. The subject of the study are rural and rural-urban communes (NUTS (Nomenclature of Territorial Units for Statistics)). The study covered 2017 rural and rural-urban communes (a rural area in a commune). The time range of the study is the year 2019. The study uses data obtained from the Local Data Bank of Statistics Poland.

The research procedure was conducted in three steps. In the first step, the agricultural and tourist functions were measured, and the relationship between them

was identified. In a subsequent step, the social and economic development level of rural areas was identified. The last step involved defining the relationship between the potential of the analysed functions and local development level of the rural areas.

The study used the synthetic method for measuring the potential of the agricultural and non-agricultural functions, as well as of the social and economic development of the rural areas. In line with the adopted research procedure, it was assumed that the analysed measurements are a resultant of simple features describing the phenomenon.

Variables used for determining the agricultural function included the quality index of agricultural production area, the percentage of households receiving income from agricultural activities [%], the density of agricultural farms with an area of more than 10 ha [number of farms/km²].

Variables for determining the tourist function include the index of valuable natural areas, the index of natural attractiveness, location in relation to water areas, the share of permanent grasslands in agricultural land, the index of woodland areas. Relationships in the study were determined with the use of a correlation coefficient.

The synthetic measurement was constructed in accordance with the methodology proposed by Wysocki and Lira (2005). The procedure consists of three stages: the selection of variables for the measurement of the phenomenon, taking into account the following criteria: formal, content-related and statistical, normalisation of simple feature values, measurement of the synthetic feature and normalisation. The next step was to involve normalisation of the values of simple features unitization (is proposed), which consists in unification of the character and making the feature values comparable by removing their nominals and unification of the lines of values. Normalisation of simple features means converting them according to the following formula:

Stimulants:

$$z_{ij} = \frac{x_{ij} - \min_i \{x_{ij}\}}{\max_i \{x_{ij}\} - \min_i \{x_{ij}\}}$$

Destimulants:

$$z_{ij} = \frac{\max_i \{x_{ij}\} - x_{ij}}{\max_i \{x_{ij}\} - \min_i \{x_{ij}\}}$$

Nominants:

$$z_{ij} = \frac{\min_i \{x_{ij}\} - x_{ij}}{\max_i \{x_{ij}\} - \min_i \{x_{ij}\}}, \quad x_{ij} \leq \text{nom}\{x_{ij}\}$$
$$z_{ij} = \frac{\max_i \{x_{ij}\} - x_{ij}}{\max_i \{x_{ij}\} - \text{nom}\{x_{ij}\}}, \quad x_{ij} > \text{nom}\{x_{ij}\}$$

The values of the synthetic feature were determined with the use of the non-model method (which is also known in the literature as the sum method (Młodak, 2006), which boils down to the averaging of the normalised values of simple features:

$$\bar{q}_i^{(1)} = \frac{\sum_{j=1}^m z_{ij}}{m}, \quad (i = 1, 2, \dots, n)$$

The level of rural area development in Greater Poland was defined as a result of the following conditions: spatial location, technical infrastructure, social infrastructure, human and social capital as well as local finances. In the case of socio-economic development, the Jenks method was used to classify municipalities with the same level of development (Jenks, 1967). Three classes were identified.

4. Results

The conducted study enabled the measurement of the potential of agricultural and tourist function, 4 classes were identified. Spatial distribution of the obtained results is presented in Figure 1 and Figure 2, respectively.

The potential of the agricultural function in Greater Poland is significantly diversified. In the group of 1st class municipalities with the highest potential of the agricultural function there were 27 units. The areas were characterised by very good conditions for the development of agriculture, both in terms of natural conditions and agricultural structures; the population in these areas is definitely associated with agriculture (income from agricultural activity was observed in 97% of households).

Nearly 40% (81) of the surveyed communes were grouped in class II with an average level of the agricultural function. All variables were determined at the average level. A variable close to the higher class was the variable pertaining to income on agricultural activities (94%).

Class III - includes 68 municipalities, the level of which can be described as below average. They were mostly rural municipalities with unfavourable natural conditions (primarily soils of lower quality from the perspective of agricultural land use), worse agricultural structure (lower density of farmstead above 10ha UR); it did not translate into a lack of income from the conducted activity.

The last group is represented by units with a low level of agricultural function. These are units with a large share of forest areas, characterised by a low level of natural conditions. This group is characterised by structural problems, expressed by high agricultural dispersion. Only 75% of farms declared that they obtained income from agricultural activity. Their situation is additionally made worse by their peripheral location which makes it more difficult to launch processes of multifunctional development of rural areas.

The natural environment is a basic condition also for the development of the tourist function in rural areas. A measure derived from the assessment of the condition of the natural environment (superficial forms of environmental protection, such as national and landscape parks, nature reserves and natural monuments, were taken into account) was used for the assessment of the attractiveness of rural areas. The measure includes an assessment of access to waters. The structure of the indicator includes flowing waters (rivers of at least 50 km in length) and standing waters (natural and artificial water reservoirs with a surface of above 1 km²). The obtained spatial distribution of the measure reflects the arrangement of post-glacial forms. Areas north of the border of glacial passage in the strip of lakelands are attractive for the development of the tourist function. The second end of the distribution spectrum is southern Greater Poland with a potential based solely in rivers.

Forests constitute another component of the tourist function. The measurement was conducted on the basis of the rate of forestation, according to which the largest forest complexes are found in the north and north-west of the region. The central and southern part of the voivodship is characterised by a significantly lower rate of forestation. The share of permanent grasslands, that is meadows and pastures in the area of agricultural land was also taken into account as an element of potential for the development towards the tourism function. The mean value of the indicator for rural areas in the Greater Poland voivodeship is 16%. In 20 of the surveyed entities, the level of this indicator was higher than 30%.

The discussed variables were used for measuring the potential of rural areas for developing the tourist function. In accordance with the results obtained and spatial distribution, areas located mainly in the north-eastern part of the voivodeship were included in class I. These communes were characterised by a high proportion of areas of great natural value, which was accompanied by a high index of woodland areas; the availability of lakes additionally strengthens the potential. Subsequent classes are characterised by lower and much lower values of the surveyed measurements, which points to limited potential for developing the tourist function, or at least one based exclusively on environmental conditions. Areas with low and very low potential constitute 55% of the region's area.

The assessment of the relationship between the potential for developing the agricultural and tourist functions was carried out with the use of the Pearson linear correlation coefficient, and in accordance with the obtained result ($r = -0.51$) this

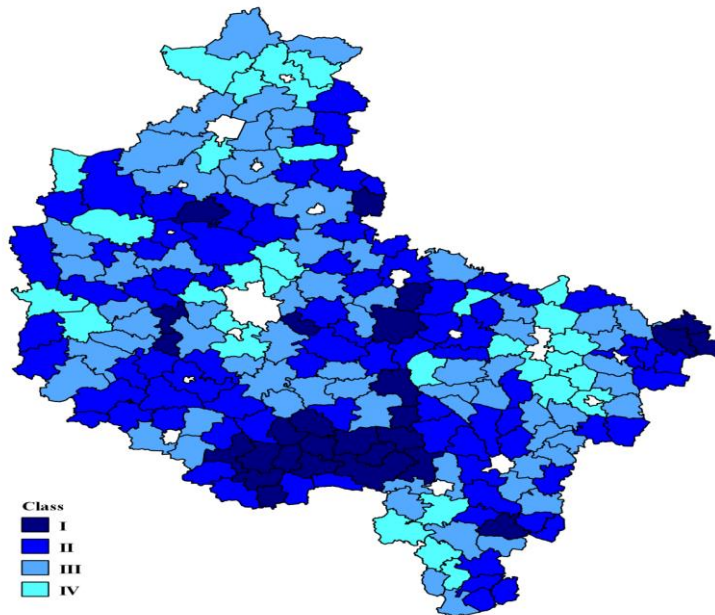
relationship is rather strong and negative. The result and the observed spatial distribution allows to interpret the relationship - the better the conditions for developing agriculture, the worse the conditions for developing tourism. In the case of the Greater Poland voivodeship, this means that the majority of communes with advantages for the development of tourism do not have a well-developed agricultural function.

Measuring the socio-economic development allowed to determine the relationship between the obtained result and potential for developing the studied functions. The results of the measurement are presented in Fig. 3, in this case, the results obtained constituted the basis for grouping the studied entities with the use of the Jenks optimization method which allowed to form three groups of communes maintaining spatial continuity. According to the obtained distribution, group I with the highest level of development is located in the area of influence of the city of Poznań. It confirms that the functional relationship between the city and rural areas surrounding it is high. These areas are characterised by a high level of local development. No development-related problems, typical for rural areas, are observed here. Group II constitutes a natural spatial continuation of class I. It clusters together municipalities with an average level of development. These units are located mainly around subregional cities, i.e. Leszno, Konin, Piła, Kalisz, as well as leading communication routes.

Despite their average level of development, the units can successfully meet the needs reported by their residents. The nature of the observed deficits is not complex, therefore well-targeted actions of local and regional authorities enable investments in technical or social infrastructure, where shortages are mainly observed. The last group includes municipalities at a low level of development. These units are mainly located peripherally, although they form numerous clusters outside of the center of the region, i.e. approximately 1h away from the city of Poznań. Internally, the group is quite diverse, therefore deficits occur with varying intensity. Leading problems include: demographic problems, infrastructural gaps, low potential of human and social capital.

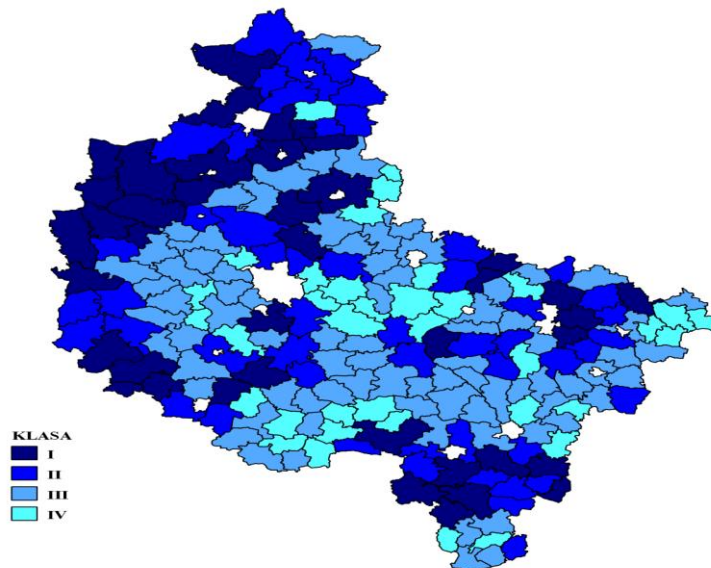
The final step consisted in determining the relationship between the level of the agricultural and tourist function as well as the level of local development. The obtained correlation coefficients (0.21 and 0.1, respectively) indicate that there is no significant correlation between the studied functions and local development. The result indicates the significance of other conditions in the shaping of the local development of Greater Poland's rural areas.

Figure 1. Spatial distribution of the potential of the agricultural function of Greater Poland's rural areas in 2019.



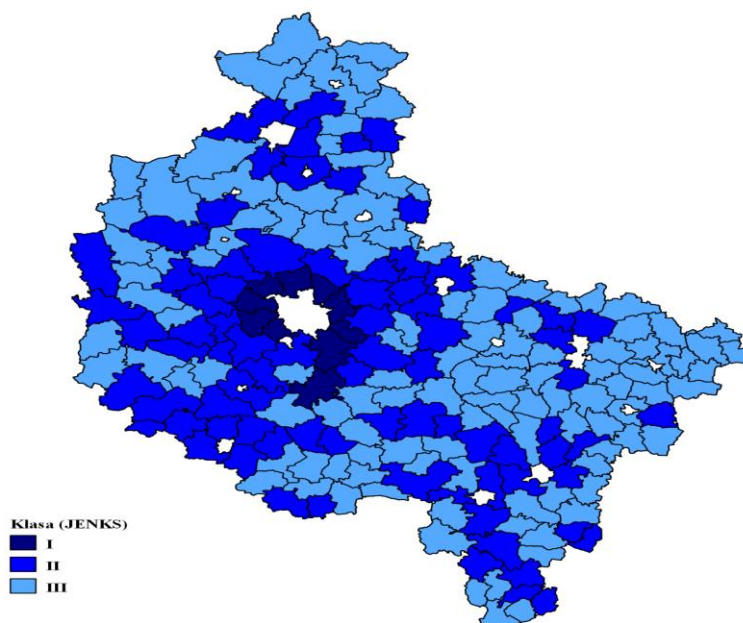
Source: Own.

Figure 2. Spatial distribution of the potential of the tourist function of Greater Poland's rural areas in 2019.



Source: Own.

Figure 3. Spatial diversity of the development of Greater Poland's rural areas in 2019.



Source: Own.

5. Concluding

Rural areas of Wielkopolskie Voivodeship are characterised by a diversified level of the analysed functions. Areas with high potential for agricultural development are mainly located in the southern part of the region and they are characterised by favourable natural conditions and agricultural structures. Despite its historical and traditional agricultural nature, most of the region has average and poor natural conditions. On the other hand, the environment determines the development of the tourist function mainly in the northern part of the region, but 55% of the areas can be described as devoid of tourist values. There is a relationship between the agricultural function and the tourist function in the analysed area. This relationship is statistically significant and negatively correlated, which means that the tourism potential of the area decreases as its potential for agricultural development increases.

No relationship was observed between the level of local development and the potential of the agricultural function and tourism potential. Therefore, the occurrence of very good conditions for the development of the functions in question is definitely not sufficient for the creation of successful local development. The result confirms that it is legitimate and necessary to implement development-related tasks which include a territorial approach that refers to all local potentials. Noticing this fact and taking it into account during the process of programming of local development

seems to be of key importance for the success of the process of sustainable development of rural areas.

In principle, the use of blockchain technology makes it possible to counter three major weaknesses of the current model on which the recording industry is based:

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