

## ABSTRAKT

### **"Spatial and functional transformations of the suburban zone of the conurbation of Katowice, with the example of selected rural communes"**

The subject of research in the doctoral dissertation are the spatial and functional changes in rural areas located in the suburban area of the conurbation of Katowice. The main objective of the work is to show spatial and functional transformations of rural areas, as well as to determine the course of contemporary urbanization processes. In order to implement the adopted methodological assumptions, three research hypotheses were formulated:

1. Spatial and functional changes of the rural areas located in the suburban area of the conurbation of Katowice indicate the creation of new zones of urban influence, and thus testify to the qualitative development of urbanization processes from the point of view of demographic, economic, spatial and functional changes.
2. Rural areas are an important resource for the residents of the conurbation of Katowice in terms of the residential function associated with single-family housing, which indicates growing, strong spatial connections with large and medium-sized cities. In the analysed period, the role of rural areas as a back-up for the residential function increased. The derivative of spatial changes that testify to the course of modern urbanization processes in the suburban area of the conurbation of Katowice are functional changes.
3. New housing investments create various types of buildings, both concentrated and dispersed, as well as affect the local space, contributing to the intensification of suburbanization processes with varying pace and direction of change.

The spatial scope of the doctoral dissertation covered eight rural communes of the Śląskie Province. These are units located in the vicinity of the 13 largest cities in the region, which form the conurbation of Katowice, and are currently administratively located in the Górnośląsko-Zagłębiowska Metropolis. The conurbation of Katowice is a complex settlement structure and belongs to the largest and most populous settlement

forms in Europe. The selection of the research area was made on the basis of the observed changes occurring at the interface of cities and villages, i.e. in the suburban area. The time scope of the dissertation focused mainly on the period of market changes in the years 2002 – 2017. The analysis during such a research period allowed observation of changes and determination of directions and trends of changes taking place in the spatial and functional structure of the research area.

The research goals were implemented using a variety of source materials, both published and unpublished, as well as field data was used. The research objectives were achieved through the use of various research methods and indicators commonly used in geographical literature.

The research procedure included an analysis of population, spatial and functional changes. The analysis made it possible to identify several important research findings. Internal migrations played the most important role in population changes. They launched and accelerated spatial and functional changes.

In the entire study area, the migration balance during the research period remained positive and showed upward trends. This contributed to an increase in the total population, and thus to an increase in population density in the suburban area, while compensating for the natural loss. However, the pace of change varied, as far as rural areas increased the number of people in the north mainly due to migration, and south of the conurbation of Katowice due to migration and natural increase. New residents came mainly from large cities and provincial cities. Spatial relations emerging in the course of the research showed clear connections between the suburban area and the cities of the core of the conurbation of Katowice. They were the direct cause of the changes. Directions of migration have highlighted clear zones of the influence of cities. Each surveyed rural commune, taking into account the migration criterion, was in the zone of coverage of one or several cities. However, a group of centres with a greater impact on the suburban area was clearly marked, and they were not all core cities. The zones of influence overlapped each other, which was conditioned by the polycentricity of the conurbation system. Based on the accumulated population material, it appears that the examined communes were subject to the suburbanization phase, i.e. they entered the second stage of urbanization of the urban life cycle. It is characterized by the depopulation of the centre, in this case the core cities of the conurbation of Katowice and the outflow of their inhabitants to the suburban area.

Then, the degree of land use transformation was determined in the research area.

It resulted primarily from the increased construction movement and economic changes towards multifunctional development.

The results of land use research obtained indicate significant spatial and functional changes. The analysis shows that in the entire study area there was an increase in built-up and urbanized land, including the largest changes in the category of residential land, which contributed to the development of the residential function and ongoing suburbanization. An increase in forest, wooded and shrubland lands, as well as recreational and leisure areas, was also observed. An important element of spatial and functional changes was the increase in communication areas, mainly roads. In the case of the examined rural communes, these were areas designated for motorways, junctions and motorway exits, as well as new local roads.

The tests also show increased construction traffic. The construction of new buildings is closely related to the layout of plots – their size, shape and arrangement. The results show the relationship: the more fragmented the land, the less likely it is to develop housing. Regular arrangement of plots favours the emergence of new construction. Parcels with a band system affect large dispersion, the formation of linear systems along roads or the development of buildings deep into the expanse of arable land. Taking into account the internal structure of the examined communes, the most intensive new construction developed in village councils located at the borders with cities, near areas of attractive nature (presence of forest, water reservoirs, meadow areas) and with a convenient communication location. First of all, detached single-family housing was built in the studied area, while there were few terraced houses. The construction investors are primarily individuals from the surrounding cities, which accounted for 56% to 82% in individual communes surveyed. Development investments occurred in a small area. On this basis, it is concluded that the real estate market in rural areas surrounded by the conurbation of Katowice is just beginning to develop.

In terms of spatial and functional changes in rural areas in land use, they were found to be very intense. They lead to the development of spatial urbanization, whereas the development of construction, mainly individual, shows suburbanization, including urban sprawl. This concept refers to the change of space in terms of uncontrolled spatial transformations under the influence of new construction, which leads to the chaotic growth of the urban region. Consequently, the role of the housing function in rural areas increases, at the expense of the agricultural function. It should be assumed that in the future rural areas in the future there will be further expansion of residential areas,

perhaps to a greater extent in development buildings – terraced or multi-family buildings.

In turn, the development of the local labour market affects the economic development of the surveyed rural communes which become competitive on the supra-local market. People working in small businesses play an important role in the economic development of the rural communes surveyed. As a result of the influx of new residents, companies with a diversified economic profile, including services, are created. They meet the needs of the local community, but are also provided to city dwellers. This increases the local labour market, as well as its multi-functionality. Rural areas are usually characterized by poor diversity of the labour market, which results from the role they play in relation to the surrounding area. Hence, their economic base potential is small. There are specialized enterprises that provide services to residents of the conurbation of Katowice, especially cities. Due to limited development opportunities in urban areas, the plants are moved to the suburban area, where it is possible to locate large-scale enterprises. Thus, municipalities located in the vicinity of cities play an important role in the economic development of the region. People commuting from other cities to rural areas are also components of the labour market. Based on the analysis of those arriving to work in 2016 in the rural areas under study, it is concluded that they complement the local labour market in various sectors, often in the deficit ones. Considering the flow rate understood as the ratio of the number of people arriving to work to the number of people going to work, it is assumed that the analysed rural areas play a small economic role in the labour market in the conurbation of Katowice, and the small share of arrivals prompts the reflection that they have local functions. Therefore, it is concluded that rural areas constitute a complementary base of the conurbation of Katowice. Functional specialization is a consequence of the impact of various factors and results from the favourable communication position and the zone of influence of the surrounding cities.

In the light of the analyses carried out, rural areas were strongly associated with many cities of the conurbation of Katowice. Analysing the functional connections based on trips to work, the key importance of the city of Katowice as the main centre of work was noticed. In this respect, the capital of the Śląskie Province definitely dominated over other cities. For four out of the eight communes surveyed, this was the largest labour market, while in others it was a complementary market. The analysis of employee mobility showed an increase in the intensity of trips to work and a greater

diversity of directions of circular migration. The reasons for this should be seen in the development of urban labour markets, as well as rural markets, but located in the suburban area.

From the analysis it is possible to draw general conclusions, i.e. population, spatial and functional transformations occur in the research area, but it is difficult to determine which of them are the largest. Spatial and functional changes in the suburban area of the conurbation of Katowice are related to the proximity of cities. The suburban area is divided into various impact zones in the areas of migration, new construction and commuting. Changes overlap and urbanization processes are influenced by migration and new construction investments. Spatial and functional changes are multidirectional and diversified in terms of their pace. Greater transformations are observed in communes neighbouring with a larger number of large and medium-sized cities.