

FUNCTIONAL DIVERSITY OF KIELCE SUBURBAN MUNICIPALITIES VERSUS THE STANDARD OF LIVING OF THEIR INHABITANTS

Edyta Gašiorowska-Mącznik✉

Politechnika Świętokrzyska

Abstract. Urbanization processes of areas located within large cities entail a number of consequences, such as a change in employment structure of inhabitants in these areas. New housing developments attract a stream of well-educated and affluent urban dwellers, who move to the suburbs and contribute to the transformation of dominating functions in the areas located near the cities. Based on selected empirically measurable characteristics, synthetic measures were calculated for the phenomena analyzed with the use of the Hellwig method. The following functions have been included: agricultural, recreational, service, industrial, and residential. Based on the conducted analysis, it can be claimed that most of the examined municipalities are characterized by multi-functional development, with no dominant function apparent. Also, the analysis revealed the existence of three social classes in the studied areas, distinguished by a very high, high, or average standard of living of their members. The study found that the highest standard of living is typical for the municipalities where industrial and service-related functions dominate.

Key words: functional diversity, standard of living, suburban municipalities

INTRODUCTION

Urbanization processes of areas located within large cities entail a number of consequences. Employment

structure of inhabitants in these areas changes. With the creation of new, non-agricultural vacancies, the number of persons employed in services and industrial sector increases. At the same time, municipalities located near cities are dynamically developing thanks to their inhabitants' high economic activity and the increase of single-family house development, which attracts well-educated, affluent urban dwellers, the stream of whom causes the transformation of functions of areas located near cities. As a result, the new functions connected to service and production industry emerge, as well as a residential function, all of which join the traditional functions connected with agriculture and forestry.

This article aims at answering the following questions:

- What functions dominate in suburban municipalities of Kielce?
- What is the inhabitants' standard of life in suburban municipalities of the capital of the Świętokrzyskie voivodeship?
- Is there a relationship between dominant functions of the analysed municipalities and their inhabitants' standard of life?

In order to answer these questions, it is crucial to precisely define the following terms: function, suburban zone, and the standard of life.

By function, we mean every social and economic activity undertaken in a given area, regardless of its

✉ dr Edyta Gašiorowska-Mącznik, Katedra Zarządzania i Marketingu, Politechnika Świętokrzyska, Aleja Tysiąclecia Państwa Polskiego 7, 25-314 Kielce, Poland, e-mail: edytag@tu.kielce.pl

economic and spacial importance, an activity which ensures local development and satisfies everyday needs of local people (Duczowska-Małysz, 1998). Five basic functional groups can be distinguished (Bański, 2006):

- Municipalities with dominating agricultural functions;
- Municipalities with dominating non-agricultural functions: industrial, service, and residential ones;
- Municipalities with dominating touristic and recreational functions;
- Municipalities with a dominance of forestry;
- Municipalities with equal importance of all functions.

Secondary sources do not provide us with a precise definition of suburban zone. What is often emphasized is its changeability in time and space. Suburban zone is defined as an area of active, multilateral, and direct contacts with a city, a strip of land surrounding the main center, where both urban and country life intermingle, with the urban factor as a dominating one (Koter, 1985). Numerous authors indicate that suburban zones perform specific functions, without which a city could not continue developing. Currently, a slow decline of the nourishing function can be observed; however, the importance of the following functions is emphasized: residential, supply, service, and the so-called relieving functions related to industry, communication, and municipal services.

In this article it has been assumed that suburban zone is an area between a city and traditionally countryside locations, connected to this city in a complementary relation, constantly transformed under the city's influence, and performing specific functions that change over time and in space.

Another term that needs to be defined is the inhabitants' standard of living. According to Rutkowski (1984), it is: "a level of satisfaction of people's material needs." Another definition adds: "standard of living is a state of actual satisfaction of one's needs (...)" (Chojnicki and Czyż, 1991). Integral elements of the standard of life include satisfaction, to a certain extent, not only of existential needs (of nurture, clothes, place to live, material and service, health and ecological needs), but also of those needs that are connected with a widely defined human identity development – education, training, care, and social needs. The authors think that the indicators of the standard of life should be mostly the measurements of existential needs satisfaction, including the availability of widely defined services, accommodation

conditions, health care, the level of education and access to it, availability and level of culture, as well as the affluence of studies society.

STUDY METHOD AND AREA

This study included municipalities (communes) of the Kielce country district located near Kielce: Chęciny, Daleszyce, Górnio, Masłów, Miedziana Góra, Morawica, Piekoszów, Sitkówka-Nowiny, and Zagnańsk. These municipalities belong to the Kielce Metropolitan Area and are connected by the services of the Kielce Municipal Transport Company.

In the study on functional diversity of the Kielce suburban municipalities and their inhabitants' standard of living, we have used diagnostic variables obtained on the basis of a substantive evaluation, taking into account criteria for the selection of diagnostic variables such as their universality, measurability, availability, quality, and interpretativeness. On the basis of selected empirically measurable characteristics the synthetic measures were calculated for the issues analysed with the use of Hellwig method. The selection of characteristics is largely limited by the availability of statistical data. Considering the experience of functional classification of rural areas in Poland (Bański and Stola, 2002) and of the Świętokrzyskie voivodeship (Salomon, 2007; Kopacz and Mularczyk, 2011), for the purposes of this article the following characteristics have been taken into account:

- to identify agricultural functions:
 - X_1 – the percentage of agricultural land in the overall area of a municipality
 - X_2 – the number of persons living off agriculture per 1000 inhabitants
- to identify recreational functions:
 - X_3 – forestation rate as a percentage of the overall area of a municipality
 - X_4 – the number of agritourism farms per 100 km²
- to identify service functions:
 - X_5 – the number of service-related businesses per 1000 working age inhabitants
 - X_6 – the number of employed in services per 1000 working age inhabitants
- to identify industrial functions:
 - X_7 – the number of industrial businesses per 1000 working age inhabitants
 - X_8 – the number of employed in the industry per 1000 working age inhabitants



Fig. 1. Analysed municipalities in the district of Kielce

Source: own study based on Starostwo... (n.d.).

Rys. 1. Analizowane gminy w powiecie kieleckim

Źródło: opracowanie własne na podstawie Starostwo... (b.d.).

- to identify residential functions:

X_9 – the number of newly handed over singly-family houses per 1000 inhabitants.

The above indicators formed a basis that allowed to specify dominant functions of the Kielce suburban municipalities. Data was mostly relevant for 2013 and was obtained from GUS (Polish General Statistical Office) Local Data Bank.

As considered diagnostic characteristics are expressed by different measures, they have been normalized. The percentage share of individual synthetic measures that characterize agricultural, recreational, industrial, and residential functions has been calculated in a aggregated value. This allowed to identify a dominant function in the structure of each municipality. By dominant we considered these functions, for which the synthetic measure value exceeded the average by at least standard deviation value.

The standard of living in Kielce suburban zone municipalities has been expressed with a synthetic indicator formed with a standardized sums method, with the use of five diagnostic characteristics:

Y_1 – overall deaths per 1000 inhabitants

Y_2 – the percentage of apartments with bathrooms in all apartments

Y_3 – the percentage of those using water supply system in overall population

Y_4 – the percentage of those using sewage treatment plant in overall population

Y_5 – budget expenditure of municipalities (PLN per 1 inhabitant).

Their selection was performed with the use of figures available in GUS Local Data Bank for municipality model for 2013.

FUNCTIONS OF KIELCE SUBURBAN MUNICIPALITIES

Table 1 presents the percentage share of diagnostics characteristics in synthetic measure structure, allowing to specify dominant functions of Kielce suburban municipalities. In most cases there is only a slight standard deviation, which demonstrates a mutli-functional character of analyzed areas. However, it is still possible to

Table 1. Functions of Kielce suburban municipalities
Tabela 1. Funkcje gmin podmiejskich Kielce

Municipality Gmina	Percentage in synthetic measure structure Udział % cech w strukturze miernika syntetycznego						average wartość średnia	standard deviation odchylenie standardowe
	agricultural function funkcja rolnicza	recreational function funkcja rekreacyjna	service-relat- ed function funkcja usługowa	industrial function funkcja przemysłowa	residential function funkcja rezydencjalna			
Chęciny	21.53	29.66	22.69	12.54	20.63	21.41	5.45	
Daleszyce	25.21	33.42	12.43	15.36	20.24	21.33	7.44	
Górno	36.12	24.19	15.68	12.25	18.33	21.31	8.37	
Masłów	22.71	18.73	21.46	19.63	26.57	21.82	2.75	
Miedziana Góra	19.08	16.54	19.41	23.41	29.78	21.64	4.62	
Morawica	22.34	14.36	25.36	21.15	22.63	21.16	3.67	
Piekoszów	25.02	21.27	19.04	20.26	19.88	21.09	2.08	
Sitkówka-Nowiny	8.83	10.35	31.28	39.06	18.63	21.63	11.81	
Zagnańsk	13.41	30.09	20.65	24.81	19.05	21.60	5.60	

Source: own calculations based on data of the GUS data.
 Źródło: obliczenia własne na podstawie danych GUS.

determine the dominant function in every analyzed municipality (Table 1).

Agricultural function, in contrast, dominates in Górno. This municipality is characterized by the biggest number of persons living off agriculture, and the highest percentage of agricultural land as compared to the overall area. Another important function observed in this municipality is also a recreational one, visible in the largest number of agritourism farms per 100 km². Another municipality with dominant agricultural function is also Piekoszów; however, in this case the dominance is not as express. Values characterizing other functions in the structure of the synthetic measure are close to the average in Piekoszów, which classifies Piekoszów as a municipality with equal importance of functions.

Industrial function is the most significant in Sitkówka-Nowiny municipality characterized by the largest number of employed in the industry due to the location of lime-cement production plant in this area. Another well-developed function is also related to services.

Municipalities where recreational function dominates include: Chęciny, Daleszyce, and Zagnańsk. In case of Chęciny this dominant function is determined by the number of agritourism farms per 100 km², and in case of Daleszyce and Zagnańsk – by their forestation rate.

For Masłów and Miedziana Góra, a residential function dominates, as these areas are characterized by a high number of handed over private construction apartments.

ECONOMIC ACTIVITY OF KIELCE SUBURBAN MUNICIPALITIES

The Świętokrzyskie voivodeship (just as the rest of Poland) can be characterized by a phenomenon of accumulating economic activities near active economic centers, and the disappearance of business as the distance from these centers grow.

Kielce, similarly to other cities in the Świętokrzyskie voivodeship (Ostrowiec Świętokrzyski, Starachowice, Skarżysko-Kamienna, and Sandomierz) is a regional

center of development, around which economic activities are accumulated.

An average entrepreneurial activity rate¹ for the municipalities in Kielce impact zone amounted to 92.39 in 2013 and was higher than the average for the whole region by 20.82.

Municipalities around Kielce show a significantly higher level of entrepreneurial activity than those located near other cities in this region. At the same time, as needs to be emphasized, rural and urban-rural municipalities near the capital of the voivodeship² develop dynamically not only due to the high entrepreneurial activity among the inhabitants, but also as a result of single-family houses development. The stream of well-educated, affluent urban dwellers moves to the new housing developments, resulting in a suburbanization process³.

High rate of business activity among the inhabitants of zones near the city is connected with two mechanisms (Bański and Czapiewski, 2008). The first one is based on attracting small and large investments due to the close vicinity of customer market, qualified workforce, availability and good communication, well-developed technical facilities, especially road infrastructure. The second one results from the process of “pushing” investments outside the administrative limits of the city to the suburban zone due to lower costs of business operations there (lower land prices, rent, municipal services, tax reliefs). High values of analysed indicator in Kielce suburban municipalities also result from huge concentration of companies in the capital of the region, which directly stimulates the suburban business activity growth.

¹ Expressed by the number of physical persons conducting business operations (registered in the Business Registry (REGON system) per 1000 working age inhabitants.

² Together with the nearby municipalities, Kielce has created Kielce Metropolitan Area aiming at strict cooperation for local economic growth between signing parties. On August 26th 2005 the declaration of cooperation between the following municipalities has been signed: Kielce, Chęciny, Daleszyce, Górnio, Masłów, Miedziana Góra, Morawica, Piekoszów, Sitkówka-Nowiny, Zagnańsk, Strawczyn, Kije, see *Strategia Rozwoju Województwa Świętokrzyskiego do roku 2020* (2013). Kielce, Sejmik Województwa Świętokrzyskiego.

³ Suburbanization is one of the phases of city’s development. It is characterized by depopulation of a center and the growth of suburban zone.

DIVERSITY IN THE STANDARD OF LIVING IN THE KIELCE SUBURBAN MUNICIPALITIES

Synthetic indicator of the standard of living of Kielce suburban municipalities oscillated from –0.422 in Piekoszów to 1.213 in the Sitkówka-Nowiny municipality. In other municipalities: Chęciny: –0.06, Daleszyce: –0.18, Górnio: –0.20, Masłów: –0.304, Miedziana Góra: –0.193, Morawica: 0.391, Zagnańsk: –0.141, with the average value of –0.071. With a criterion set in the value of the highest indicator, three types of municipalities have been distinguished:

- Municipality with a very high standard of living, where a synthetic indicator exceeded 0.372. Two municipalities belong to this group: Morawica and Sitkówka-Nowiny, characterized by a very high percentage of population using water supply system and very high budget expenditures per 1 inhabitant. Moreover, in these municipalities a high percentage of apartments with bathrooms has been recorded. In the Sitkówka-Nowiny municipality these values were the highest in all analysed municipalities;
- Municipality with a high standard of living, where a synthetic indicator was in the range between –0.372 and 0.372. This group consists of five municipalities: Chęciny, Daleszyce, Górnio, Miedziana Góra, Masłów and Zagnańsk. These municipalities are characterized by a high percentage of population using water supply system. What is more, Chęciny municipality has the lowest number of students per 1 computer with Internet access (in all studied municipalities). However, listed municipalities show rather low budget expenditures per 1 inhabitant. They are also characterized by low percentage of population using sewage treatment plant services;
- Municipalities with an average standard of living, where a synthetic indicator was below –0.372. This group included Piekoszów. The analysis of the synthetic indicator revealed that in Piekoszów the percentage of population using water supply system and municipality expenditures per 1 inhabitant are low. Moreover, death rate was the highest in the analyzed municipalities.

Considering a limited study sample, it is difficult to clearly determine the relationship between the inhabitants’ standard of living and the functions dominating in the area. No strong correlation between dominant

functions and the inhabitants' standard of living in these areas has been found. However, the conducted study shows that the highest standard of living can be found in municipalities where industrial function and services dominate. Municipalities with these functions receive the highest income from taxes, which allows them for the biggest expenditure (per one inhabitant) and greater investment into technical facilities.

High standard of living also characterizes those municipalities where the recreational function dominates. Tourism and agritourism cause a multiplier effect and bring about positive phenomena for the local economy, contributing to the increase in the inhabitants' standard of life.

Average standard of living is typical for the communities where residential and agricultural functions dominate. In residential municipalities a dynamic growth of single-family development can be observed; however, it is not always accompanied by an equally dynamic development of technical infrastructure, especially in the areas where apart from the residential function, other functions that usually contribute to the higher municipality income do not develop.

CONCLUSION

On the basis of the presented analysis it can be claimed that most of the Kielce suburban municipalities develop in a multi-functional way. The most specialized municipality is Sitkówka-Nowiny with highly dominating industrial function. In the case of Piekoszów, the equal importance of functions can be observed. The remaining municipalities are characterized by one dominant function.

Conducted analysis allowed to observe the diversity in the standard of living in the analyzed area. Three classes of municipalities can be distinguished: municipality with a very high, high, or an average standard of living.

In conclusion, the best-developed municipalities are located near the capital of the region (Sitkówka-Nowiny, Morawica, Zagnańsk, Miedziana Góra, Masłów). In 2013 the highest development level was observed in the Sitkówka-Nowiny municipality, which had substantial income to its budget from real estate tax. In its territory a big and significant plant is located,

a Nowiny cement-mill. However, the conducted study shows that the highest standard of living can be found in municipalities where industrial function and services dominate.

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ZRÓŻNICOWANIE FUNKCJI GMIN PODMIEJSKICH KIELC A POZIOM ŻYCIA ICH MIESZKAŃCÓW

Streszczenie. Procesy urbanizacji obszarów zlokalizowanych w obrębie dużych miast pociągają za sobą wiele skutków. Zmienia się struktura zatrudnienia zamieszkującej tam ludności. Do nowych osiedli napływa strumień ludności miejskiej, dobrze wykształconej i zamożnej. Następstwem tego procesu jest przemiana funkcji obszarów położonych w sąsiedztwie miast. Badaniem objęto gminy podmiejskie Kielc. Na podstawie wybranych cech empirycznych obliczono syntetyczne miary dla analizowanych zagadnień przy zastosowaniu metody Hellwiga. Przyjęto następujące funkcje: rolnicze, rekreacyjne, usługowe, przemysłowe, rezydencjalne. Na podstawie przeprowadzonej analizy można skonstatować, że większość analizowanych gmin charakteryzuje się rozwojem wielofunkcyjnym, bez wyraźnie dominującej funkcji. Przeprowadzona analiza pozwoliła wyodrębnić trzy klasy: o bardzo wysokim, wysokim i średnim poziomie życia. Stwierdzono, że najwyższy poziom życia występuje w gminach, w których dominują funkcje przemysłowe i usługowe.

Słowa kluczowe: różnicowanie funkcjonalne, poziom życia, gminy podmiejskie

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