KITEKINTÉS / OUTLOOK

Competitiveness of small towns in Poland – an approach based on the Local Competitiveness Index

A kisvárosok versenyképessége Lengyelországban – Egy Helyi Versenyképességi Index-alapú megközelítés

KAROLINA JÓZEFOWICZ

Karolina JÓZEFOWICZ: Ph.D., associate professor, Faculty of Economics, Poznań University of Life Sciences; Wojska Polskiego 28, Poznań, Poland; karolina.jozefowicz@up.poznan.pl; https://orcid.org/0000-0003-0613-8572

KEYWORDS: small towns; urban competitiveness; small towns competitiveness; Local Competitiveness Index; Poland

ABSTRACT: Competitiveness is now considered one of the basic economic mechanisms. The phenomenon, which is originally associated with enterprises, has evolved beyond the initial research framework for many years. Currently, the competitiveness of regions or cities is considered a natural law of the modern economy. This phenomenon is primarily compared to the largest cities in terms of urban competitiveness. Competitiveness rankings identify the competitive position of capital cities, metropolises or global cities. It is less common for the scope of research to focus on the competitiveness of medium-sized and small towns. These entities also play a socioeconomic role in the local and regional systems, which should be considered in the context of competitiveness. The purpose of this study is to assess the level of general competitiveness of small towns. The territorial scope covered 112 small towns in Poland. The time scope of the research included three research periods: 2004-2006, 2011-2013 and 2017-2019. To achieve the research objective, an approach was proposed that is based on the constructed Local Competitiveness Index (LCI). The results presented in this article provide a general approach to small towns' competitiveness. It aims to identify the types of competitiveness of small towns based on sub-competitiveness scores. Based on the degree of integration of the social, economic and environmental aspects of competitiveness, eight types of competitiveness of small towns were identified. The results of the study indicated an improvement in the competitiveness of small towns and an increase in their integration. During the first adopted research period (2004–2006), there was a clear predominance of small towns in types representing partial or complete non-integration. In small urban centers, low integration was observed, regardless of their location in a particular part of the country. Between the years 2011–2013 and 2017–2019, favorable shifts were observed towards the types of partially integrated competitiveness (Types II, III, and IV) and integrated competitiveness (Type I).

Karolina JÓZEFOWICZ: *PhD., egyetemi docens, Élettudományok Poznani Egyeteme, Gazdaságtudományi Kar; Wojska Polskiego 28, Poznań, Poland; karolina.jozefowicz@up.poznan.pl; https://orcid.org/0000-0003-0613-8572*

KULCSSZAVAK: kisvárosok; városi versenyképesség; kisvárosok versenyképessége, helyi versenyképességi index; Lengyelország

ABSZTRAKT: A versenyképességet ma az alapvető gazdasági mechanizmusok egyikének tekintik. Ez a jelenség, amely eredetileg a vállalkozásokhoz kapcsolódott, az évek során túllépett a kezdeti kutatási kereteken. Jelenleg a régiók vagy városok versenyképességét a modern gazdaság természetes törvényének tekintik. Ezt a jelenséget elsősorban a legnagyobb városok városi versenyképességével hasonlítják össze. A versenyképességi rangsorok a fővárosok, metropoliszok vagy globális városok versenyképességi helyzetét mutatják be. Kevésbé gyakori, hogy a kutatások középpontjában a közepes és kisvárosok versenyképessége álljon. Ezek a települések is társadalmi-gazdasági szerepet játszanak a helyi és regionális rendszerekben, amelyet a versenyképesség összefüggésében figyelembe kell venni.

E tanulmány célja a kisvárosok általános versenyképességi szintjének értékelése, a kisvárosok versenyképességének típusainak azonosítása az alversenyképességi pontszámok alapján. A kutatás 112 lengyel kisvárost fed le és három időszakot foglal magában: 2004–2006, 2011–2013 és 2017–2019. A kutatás a már kidolgozott helyi versenyképességi indexre(LCI) alapozott megközelítést alkalmaz. A cikkben bemutatott eredmények általános megközelítést nyújtanak a kisvárosok versenyképességének tanulmányozásához. A versenyképesség társadalmi, gazdasági és környezeti aspektusainak integráltsági foka alapján nyolc típusú kisvárosi versenyképességet azonosítottunk. A tanulmány eredményei a kisvárosok versenyképességének javulását és integrációjuk növekedését mutatták. Az első elfogadott kutatási időszakban (2004–2006) egyértelműen a részleges vagy teljes integrációval nem rendelkező típusok domináltak a kisvárosok között. A kisvárosi központokban alacsony integráció volt megfigyelhető, függetlenül attól, hogy az ország melyik részén helyezkedtek el. A 2011–2013 és 2017–2019 közötti időszakban kedvező változások voltak megfigyelhetők a részleges integrációval rendelkező versenyképességi típusok (II., III. és IV. típus) és az integrált versenyképesség (I. típus) irányába.

Introduction

In the modern economy, the main development centers are metropolises (Smętkowski 2009; Koós 2020). Together with large cities, they are called, among others, international or regional urban centers. The largest, economically richest ones are also called "islands of development" (Kudłacz 2024). All of this is attributable to the categorization of these cities into regions with functions of global and regional significance. As resources permit, medium and small cities will function on the sidelines, in the shadow of the largest cities. In national literature and research, small towns are cities with a population of up to 20,000. According to Heffner (2016, 13–14.), among others, locally, small towns are "centers for the provision of public services, both market and non-market, and to some extent also for knowledge accumulation, innovation creation and infrastructure concentration." Small towns are diverse centers, influenced by several conditions. Nowadays, more often than the success of small towns, there is talk of shrinking small towns, marginalization, loss of small town functions, and social polarization (Heffner 2016; Koós 2020). Despite these unfavorable phenomena, small towns function in the local space, and carry out socio-economic functions for their residents, as well as for the local environment. Each

small town possesses a district degree of relationship to its surroundings. Small towns constitute the main link between major urban areas and rural areas. They serve the function of support infrastructure for rural areas. They form local centers serving the needs of both the rural population and the town inhabitants in terms of e.g. jobs, education, healthcare, culture and services (Rezvan et al. 2009; Visvaldis, Ainhoa, Ralfs 2013; Sharifinia 2013; Carter 2013; Wirth et al. 2016; Sztando 2017). This relationship and the importance of small towns should be the main signal for the constant idea of preserving the existence of the smallest cities. If unfavorable changes are observed in small towns, the effects will also be felt by the near and far surroundings. That is why in literature, small towns are also called local development centers. Any regional policy should strive to maintain this role.

Competitiveness is considered to be one of the basic economic mechanisms and a natural law of the contemporary economy (Martin, Simmie 2008). Indeed, cities associated with the phenomenon of globalization of the economy have become a space captured within the context of economic growth factors (Camacho 2020). As Szczech-Pietkiewicz (2019) contends, urban competitiveness has emerged as a consequence of the intensification of international economic interdependence. The extent and dimensions of competition have expanded due to the complexity of urban systems and the growth of urbanization.

The issue, which was originally identified with enterprises, gained prominence in the 1980s in the territorial context (Ketels 2016). Territorial competitiveness, which encompasses urban competitiveness, is defined as "the capacity of localities or regions to enhance the living conditions of residents and generate high and increasing incomes" (Mitrică et al. 2021, 2.). This concept is closely related to the competitiveness of businesses. Firms seek to be located in cities with good economic and financial structures (economic dimension), a skilled and productive labor force (sociodemographic dimension), good infrastructure (urban dimension), and strong institutions and favorable fiscal policies (fiscal/institutional dimension) (Porto, Rocha 2022). These segments are also significant for residents and the surrounding community. By creating conditions that allow companies to gain a competitive advantage, cities are fostering an environment that attracts new residents, tourists, and customers. This, in turn, enhances the quality of life for local residents (Sáez, Periáñez, Heras-Saizarbitoria 2017; Sobrino, Oriruela 2020).

Urban competitiveness has emerged as a key issue in planning for sustainable urban development (Komasi et al. 2022). Smaller territorial units, including small towns, play a vital role as they offer greater opportunities for both citizens and entrepreneurs. The competitiveness of these smaller units resembles market competition and can lead to improved outcomes (Nasi et al. 2022).

The competitiveness of small towns is a special and difficult issue due to its place in the urban competitiveness hierarchy. While large cities compete globally (Lorentzen, van Heur 2012), small urban centers must indicate importance in the

urban and rural hierarchy, defining roles in the local and regional economy. The competitiveness of small towns should therefore be seen as the ability to provide access to diverse services, education, healthcare, and growth in economic activity while respecting spatial order. For a small town to be considered competitive, it must be integrated into the entire socioeconomic system (Józefowicz 2024).

The socio-economic system includes not only the small towns themselves but also the surrounding environment, primarily consisting of rural areas and nearby larger cities. This environment plays a crucial role in determining the competitive position of small towns. A network of interdependencies, varying in intensity, can be observed between small towns and rural areas. For example, small towns guarantee jobs for rural residents, while rural areas, in turn, can realize a recreational and leisure function due to their natural assets. Under the linkages, both sides gain. The scenario may differ slightly when it comes to the relationship between small towns and large cities. For smaller towns, these relationships are of greater significance than for larger cities. This occurs due to the fact that small towns are less self-sufficient and, as a result, more reliant on other regions (Meijers, Burger 2022).

The purpose of this study is to assess the level of general competitiveness of small towns.

The main objective of this study served as the foundation for verifying the research hypotheses. These hypotheses suggest that in small towns, there is an increase in the integration of social, economic, and environmental factors that influence their competitiveness.

About the urban competitiveness indices

The city competitiveness indices are a popular group of models. According to Szczech-Pietkiewicz (2019), competitiveness indices and rankings for cities, regions or countries created with them simplify the mechanisms and dependencies that exist in their economies. Through selected indicators, they allow tracking of modification within the context of the analyzed phenomenon. (Kitchin, Lauriault, McArdle 2015). They are developed by independent organizations and specialized companies (e.g. A.T. Kearney 2024) with the objective of generating indices in a specific area of a division of territorial units or scientists.

The following objectives are cited as the basis for the development of the indices: to provide a comprehensive ranking of the world's most influential cities and monitor their adaptation to global trends (Global Cities Index), to evaluate the competitiveness of cities in the corporate, investment, and employee markets (Benchmarking Global City Competitiveness), and to contribute to the ongoing discussion regarding the role of city size in competitiveness (Porto, Rocha 2022).

Table 1.: Selected city rankings
Kiválasztott városok rangsorolása

Author	*Name*	*Period of analysis*	*Fields (areas of analysis)*	*Spatial scope*
		International city rankings		
Ni, Kresl (2010)	Global Urban Competitiveness Report	2010	Overall ranking (Human resource, Enterprise, Competitiveness, Industry structure, Living environment, Soft environment, Hard environment, Global connectivity)	500 world cities
Economist Intelligence Unit (2012)	Benchmarking global city competitiveness	2012	- Rankings by categories: economic strength, human capital, institutional effectiveness, financial maturity, global appeal, physical capital, environment and natural hazards, and social and cultural character - Overall competitiveness ranking	120 of the world's major cities
Sáez, Periáñez (2015)	Urban Competitiveness Index	2015	- Overall (Basic dimension, Efficiency dimension, Innovation dimension)	159 cities from European Union countries
European Commission - TNS Political & Social network (2016)	Quality of life in European cities	2016	- people's satisfaction with living in their city; - people's views about their city; - people's personal situation	79 cities (cities with over 50,000 population). Qualitative research (survey - 500 citizens from each country).

Author	*Name*	*Period of analysis*	*Fields (areas of analysis)*	*Spatial s*
		International city rankings		
The Mori Memorial Foundation, Yamato et al. (2018)	Global Power City Index (GPCI)	2018	- Function-Specific Ranking (Economy, R&D, Cultural Interaction, Livability, Environment, Accessibility), - Actor-Specific Ranking (Manager, Researcher, Artist, Visitor, Resident)	44 global cities
A.T. Kearney (2024)	Global Cities Index (GCI)	2024	• General index • Partial analysis (Business Activity, Human Capital, Information Exchange, Cultural Experience, Political Engagement)	156 global cities
Pengfei et al. (2024)	Global Urban Competitiveness Report	2024	- economic competitiveness, - sustainable competitiveness	1006 world citie 500,000 populati
		Nationa city rankings		
Cabrero Mendoza et al. (2009)	Mexico City Competitiveness Index	2009	Competitiveness by components: economic, socio-demographic, urban-environmental and institutional	60 cities with ov population (Me
Jiang and Shen (2010)	Urban Competitiveness Index	2000	- Overall urban competitiveness, Partial competitiveness (economic, social, environmental)	253 Chinese citi

Author	*Name*	*Period of analysis*	*Fields (areas of analysis)*	*Spatial scope*
Nationa city rankings				
Bruneckien, Guzavicius and Cincikaite (2010)	Lithuanian Urban Competitiveness Index (LUCI)	2007–2009	- Overall competitiveness, - Economic, social, environmental competitiveness	24 (core cities)
Bulu (2011)	City Competitiveness Index (CCI)	2007/2008, 2008/2009, 2009/2010	Overall competitiveness (human capital and life quality, branding capability and innovation, trade capability and production potential, accessibility)	81 Turkish cities
Hu (2015)	Urban Competitiveness Index	2015	Overall competitiveness (employment, population, income)	18 cities with over 100,000 population (Australia)
Patil and Sharma (2022)	Urban Quality of Life	2022	Overall ranking 1) Basic amenities index, 2) Economic development index, 3) Safety and security index, 4) Transportation access index, 5) Environmental impact index, 6) Infrastructure development index, 7) Gender role index	14 most populous cities (India)

Author	*Name*	*Period of analysis*	*Fields (areas of analysis)*	*Spatial scope*
		Nationa city rankings		
Porto and Rocha (2022)	Competitiveness Index (ICM-SP)	2011–2012	- overall competitiveness index; - each one of the five dimensions of competitiveness: urban/environmental, sociodemographic, fiscal/institutional, economic and innovation	645 cities (small: up to 50,000 inhabitants, medium: between 50,000 and 300,000 inhabitants, large: over 300,000 inhabitants) of the state of São Paulo (Brazil)
Huggins et al. (2023)	UK Competitiveness Index	2023	Overall competitiveness	Localities in England, Scotland and Wales at the local authority district level. The areas covered are a mix of English local authority districts, English and Welsh unitary authorities, Scottish Council Areas, and London Boroughs. The areas covered are those in operation in April 2021 (United Kingdom).

Source: Author's construction based on European Commission (2016); Yamato et al. (2018); Economist Intelligence Unit (2012); Pengfei et al. (2024); Huggins et al. (2023); Cabrero Mendoza et al. (2009); Hu (2015); Sáez, Periáñez (2015); Patil, Sharma (2022); Ni, Kresl (2010); A.T. Kearney (2024); Jiang, Shen (2010); Bruneckiene et al. (2010); Bulu (2011); Porto, Rocha (2022).

Most studies of urban competitiveness focus on the worldwide known core cities or large cities. These cities have been placed in international rankings. In contrast, there is a visible effort to include smaller cities in the studies of national indices (e.g., the Brazilian cities index). The rankings indicated in Table 1 analyze the general and specific approaches. The detailed method employs a weighted average or standardization (e.g., Global Cities Index), whereas the general method is based on the sum of the sub-categories or the average (Urban Competitiveness Index – China).

Indices that facilitate international comparisons are generated on a cyclical basis (e.g., annually – Global Cities Index), with some adjustments to the territorial scope (the cities in question) and indicator selection. Cyclicality is absent in the context of national-level city rankings and indices. The index that has been developed is the outcome of a singular endeavor. This is both a limitation and a vulnerability of national city indices. Cyclicity (even at intervals of several years) creates the potential for their applicability, such as in the development of strategies. In this way, national city indices could be permanently included as a synthetic source of information on cities.

Another aspect that was noted is that the country indices are based on the theory of sustainable development, which necessitates consideration of the social, economic, and environmental dimensions. This approach is justified. Cities ought to prioritize this aspect as nations and regions endeavor to achieve sustainable development. Cities, which are critical components of regional or national structures, have an impact on their efforts to achieve sustainability. An example is the urban competitiveness index of Chinese cities (Jiang and Shen 2010) and the Lithuanian Urban Competitiveness Index (LUCI; Bruneckiene, Guzavicius, Cincikaite 2010). Analyzing the competitiveness of cities separately for three aspects allows us to observe changes in the pursuit of balanced development. This facilitates the identification of development gaps. Cities are complex entities that should not be subjected to simple analysis. Therefore, any complex comparative form (extension of the method) provides more information and increases the usefulness (unitarity) of the index.

The limitations in the availability of quantitative data are evident in the analysis of the selected indices. Additionally, this serves as an obstacle and detriment to the development of national rankings in the context of index construction. In the context of global city rankings, the indices pertain to economic vitality, public transport efficiency, and business innovation. For instance, the average number of startups established in the target city, and the GDP per capita of the city (Global Power City Index). The index providers have a greater number of opportunities, and the fields in the individual rankings are significantly different as a result. There is a discernible disparity in this regard among the national rankings. The indicators that have been suggested are fundamental components of the socio-economic environments of cities, such as the unemployment rate, net migration (competitiveness indices of

cities in Lithuania or China). This is predicated on the accessibility of quantitative data in national databases. Therefore, the indicators may be arranged in the three dimensions of sustainability. To the extent that indicators are accessible, this is feasible. Isolating other domains is often not feasible.

According to Kresl (2012), rankings provide cities with an opportunity to gain promotion and publicity among actors. Additionally, they have also emerged as a crucial tool for comprehending urban change processes. (Moir, Clark 2014), and to support city planning (Visvizi, Wosiek, Mazik 2025). It should be noted that in global or national city rankings, the largest cities are mainly taken into account. To some extent, this is the result of imperfections in local statistics, which will prevent smaller cities from being included in the analysis. In this article, the author proposes an author's competitiveness index that focuses on the small towns.

Local Competitiveness Index (LCI)

The local competitiveness index (LCI) was developed to facilitate a more comprehensive understanding of small towns. This index addresses a research gap by analyzing small towns at the local level. Based on a review of the literature and urban development/competitiveness indices, it was evident that the analyses conducted in this field primarily concentrate on large cities, with the occasional consideration of medium-sized cities. Since the index is intended to be unitarian, the name of the LCI index intentionally omits small towns. It is therefore applicable for analyzing medium-sized towns, large cities, rural areas, or regions. Multidimensional analysis is a valuable aspect of the proposed index. The importance of small towns is not sufficiently represented when focusing on a single element (such as entrepreneurship) because urban competitiveness is complex. The Local Competitiveness Index (Figure 1) was developed to evaluate competitiveness on two different levels:

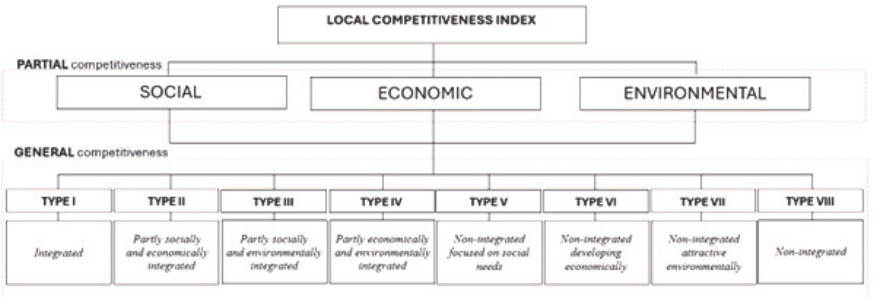
- partial: in terms of social, economic, and environmental aspects,
- general.

Urban competitiveness cannot simply be equated with economic categories, but also with non-economic aspects of urban life. Therefore, a partial approach is to assess the level of competitiveness of small towns, separately for social, economic and environmental aspects. Economic competitiveness is a basic condition to meeting material needs and improving the material quality of life. Social competitiveness is the term used to describe the accessibility of public services. Environmental competitiveness refers to the efficient development of resources and land use. Scientific literature identifies various determinants or groups of determinants of urban competitiveness (development). This encompasses groups that serve as a partial approach in the proposed model. The partial approach

therefore refers to theoretical considerations on the issue of urban competitiveness.

Focusing on the three core areas is a general approach within the grouping of the main determinants of competitiveness. It provides an opportunity to organize subcategories within the main aspects. This approach provides an opportunity to increase or reduce the range of variables depending on the availability of quantitative data. At this stage, it is possible to observe the unevenness in the context of the achieved levels of competitiveness, while making visible the aspects that represent the strengths or weaknesses of small urban centers.

Figure 1.: Local Competitiveness Index
Helyi versenyképességi index



Source: Author's construction.

The Local Competitiveness Index of small towns at the general level is an assessment of the competitive level of small towns based on the identified advantages within the aspects extracted on a sub-measure basis. The sub-values of the measure provide a starting point for classifying small towns. Based on the adopted classification, eight types of integration of small urban centers were identified (Figure 1). Further information regarding this topic is provided in the methodology. The level of integration depends on the configuration of the social, economic and environmental dimensions of small towns' competitiveness. The general approach identifies that small urban centers are diverse in terms of their socio-economic and environmental situation and do not develop evenly. Also at this stage, the strengths of small towns increasing their attractiveness are identified, as well as areas that require increased investment activity. The LCI's uniqueness is derived from the general approach and the types that are identified under this approach. The general approach underscores the significance of three competitive aspects.

The essence of competitiveness is significantly simplified by city competitiveness indices, if only because they are required to collect quantitative

data that is accessible for all cities under assessment (Szczech-Pietkiewicz 2019). The proposed index therefore contradicts global indices. In essence, it is intended to be a tool to help local governments create development strategies.

Methodology

Period and subject matter

The period covered by this study is 2004–2019. Three object years were created to enable comparing the changes over time, between 2004–2006, 2011–2013, 2017–2019. Empirical data from these three study periods was averaged. Since many phenomena undergo dynamic changes in each analyzed year, it is advantageous to average three years of data over three research periods. The first period (2004–2006) was identified in order to assess the levels of competitiveness from the moment Poland entered the European Union. The second period (2011–2013) corresponds to the end of the 2007–2013 RDP (Rural Development Program), which makes it reasonable to inspect the changes driven by the use of Union funds. The third period (2017–2019) provided an opportunity to observe the level of competitiveness of small towns in Poland before the economic shock of the COVID-19 pandemic. At the national level, the literature review of city competitiveness indices is distinguished by its absence of cyclicality. Therefore, it is impossible to monitor changes as they occur. In the empirical layer of the proposed LCI, this component is incorporated.

Quantitative data used in this study were obtained from the Local Data Bank (Polish: Bank Danych Lokalnych) of Statistics Poland (formerly the Central Statistical Office of Poland, referred to as BDL, GUS).

The subject scope of the research includes small towns in Poland, i.e. urban centers with a population of 20,000 or less. The present study did not cover all small urban centers in the country. Due to the lack of a considerable amount of empirical data for urban centers that are part of urban-rural municipalities, the empirical study of the level of competitiveness of small towns in Poland was limited to those with the status of urban municipalities. Finally, 112 small towns were included.

Research Methodology

This article focuses on the general presentation of competitiveness outcomes. Therefore, the methodology and description of the results were focused on this approach. The partial approach within the methodological layer has been briefly described.

The proposed Local Competitiveness Index (LCI) allows for the measurement of competitiveness in small towns both in specific areas and generally. This comprehensive approach first examines the social, economic, and environmental aspects of competitiveness separately (partial approach). The individual values measured in these three areas serve as the foundation for determining the general competitiveness of small towns.

In a partial approach to assessing the level of competitiveness of small towns in Poland, the TOPSIS (*Technique for Order Preference by Similarity to an Ideal Solution*) method was used to construct the value of the synthetic measure (Hwang, Yoon 1981). Within this framework, three synthetic measures were constructed, i.e., for the social, economic and environmental aspects. Table 2 shows the different stages of the procedure.

Measuring the partial level of competitiveness of small towns allowed us to determine the general level of competitiveness. The linearly ordered values of the synthetic measure for social, economic and environmental aspects formed the basis for ranking small towns in relation to the level of general competitiveness. The method proposed by Łuczak et al. (2018) provides an opportunity to determine the development position of the studied territorial units and determine the types of development. It was necessary to calculate the coordinates of the location of each surveyed monument – a small town in relation to the social (SiS), economic (SiE) and environmental (SiN) aspects, using to the following formula:

- for social aspect:

$$WS_i = S_i^S - IS$$

- for economic aspect:

$$WE_i = S_i^E - IE$$

- for environmental aspect:

$$WN_i = S_i^N - IN$$

where:

IS, IE, IN – the median (middle value) of the synthetic measures of the level of social, economic and environmental competitiveness of small towns.

S_i^S, S_i^E and S_i^N – means the reference values for the social, economic and environmental aspects, respectively – the values of synthetic measures of the level of social, economic and environmental competitiveness of small towns.

Based on the value of location coordinates, a specific type of competitiveness can be identified in small towns, ordering the cities based on the advantages of each aspect (tab. 3).

Table 2.: Stages of research procedure in the construction of a synthetic measure of the level of social, economic, and environmental competitiveness of small towns in Poland

A lengyel kisvárosok társadalmi, gazdasági és környezeti versenyképességének szintjét mérő szintetikus mutató kidolgozásának a kutatás során alkalmazott szakaszai

Stage of proceeding	*Description of stages*	*Details and calculating formulas*
I. Selection of simple features for research	Substantive selection of simple features for research and their verification in terms of statistical significance.[1]	coefficient of variation, inverse matrix to Pearson correlation matrix.
II. Normalization of simple characteristics	Utilization of the zeroed unitarization procedure.[2]	• for variables with a stimulating effect: $z_{ij} = \frac{x_{ij} - \min_i\{x_{ij}\}}{\max_i\{x_{ij}\} - \min_i\{x_{ij}\}}$ • for variables with an inhibiting effect: $z_{ij} = \frac{\max_i\{x_{ij}\} - x_{ij}}{\max_i\{x_{ij}\} - \min_i\{x_{ij}\}}$
III. Defining the system of weights for the characteristics	The importance of characteristics can be determined by assigning weight coefficients $W = (w_1, w_2, \ldots, w_K)$ to them based on the CRITIC method (*Criteria Importance Through Intercriteria Correlation).*	$w_j = \frac{c_j}{\sum_{j=1}^{n} c_j}$ where: $c_j = s_j(z)\sum_{k=1}^{n}(1 - r_{kj})$
IV. Creating a weighted normalized decision matrix.	The normalized values of characteristics were multiplied by weight coefficients of importance of simple characteristics.	$z_{ij}^* = z_{ij}\, w_j$

	Stage of proceeding	*Description of stages*	*Details and calculating formulas*
V.	Determination of the coordinates of model objects of the pattern and anti-pattern of development	The coordinates of the pattern (A+) and the anti-pattern of competitiveness (A-) are determined respectively as the maximum and minimum values from the set of normalized values.	$A^{+} = (\max_{i}(z_{i1}^{*}), \max_{i}(z_{i2}^{*}), \dots, \max_{i}(z_{iK}^{*})) = (z_1^{+}, z_2^{+}, \dots, z_K^{+})$ $A^{-} = (\min_{i}(z_{i1}^{*}), \min_{i}(z_{i2}^{*}), \dots, \min_{i}(z_{iK}^{*})) = (z_1^{-}, z_2^{-}, \dots, z_K^{-})$
VI.	Calculation of the distance of each object from the pattern and anti-pattern of development	Calculation of the distance of each evaluated i-th multifeature object from the pattern and anti-pattern of competitiveness using Euclidean distance	$d_i^{+} = \sqrt{\sum_{k=1}^{K}(z_{ik}^{*} - z_K^{+})^2}$ $d_i^{-} = \sqrt{\sum_{k=1}^{K}(z_{ik}^{*} - z_K^{-})^2},$ where: $i = 1, 2, \dots, N$.
VII.	Calculation of the value of the synthetic measure	Using Euclidean distances from the pattern ($di+$) and the anti-pattern of competitiveness (di^{-}) (TOPSIS method)	$S_i = \frac{d_i^{-}}{d_i^{+} + d_i^{-}}$, with $0 \leq S_i \leq 1$, where $i = 1, 2, \dots, N$.

Source: Author' construction based on Hwang, Yoon (1981), Wysocki (2010), Konopka (2021).

Table 3.: Types of general competitiveness of small towns
A kisvárosok általános versenyképességének típusai

Type	*Aspect*			*Small towns competitiveness*	*Level of competitiveness*
	S	*E*	*N*		
I	+	+	+	*integrated* (S+E+N+)	*high*
II	+	+	-	*partly socially and economically integrated* (S+E+N-)	
III	+	-	+	*partly socially and environmentally integrated* (S+E-N+)	*medium high*
IV	-	+	+	*partly economically and environmentally integrated* (S-E+N+)	
V	+	-	-	*non-integrated, focused on social needs* (S+E-N-)	
VI	-	+	-	*non-integrated, developing economically* (S-E+N-)	*medium low*
VII	-	-	+	*non-integrated, attractive environmentally* (S-E-N+)	
VIII	-	-	-	non-integrated (S-E-N-)	*low*

Source: Author's construction.

Type I included small integrated towns. This implies that the synthetic values of the measures of social, economic and environmental competitiveness levels were higher than the median (middle value).

Type II is the competitiveness of partially socially and economically integrated small towns. This type includes towns whose synthetic measures of social and economic competitiveness were higher than the median. In the case of environmental competitiveness, the value of the synthetic measure was lower than the median.

Type III is socially and environmentally partially integrated competitiveness. This type of measure encompassed small towns whose values of synthetic measures of social and environmental competitiveness were higher than the median. The level of economic competitiveness, however, displayed lower values than the median value.

Type IV is competitiveness that is partially integrated economically and environmentally. Small towns whose values of the synthetic measures of economic and environmental competitiveness were higher than the median were included in this type. Towns in this type were less competitive in the social aspect, as the values of the synthetic measure within this aspect were less than the median.

Type V includes small non-integrated towns. This is a type of general competitiveness in which the synthetic values of the measures of economic and environmental competitiveness were below the median (the coordinates of location for the economic and environmental aspects reached negative values). In the group of these towns, a favorable circumstance was observed in terms of social competitiveness. The values of the synthetic measure of social competitiveness in small towns exceeded the median.

Type VI pertains to small towns that are not integrated but are undergoing economic development. This type included small towns with a positive location coefficient for the economic aspect. This implies that the values of the synthetic measure of economic competitiveness were greater than the median. In the case of social and environmental competitiveness, small towns did not observe favorable synthetic measure values, which, when compared with the median, yielded negative location coordinates.

Type VII is the non-integrated competitiveness of environmentally attractive small towns. Within this type, the values of the synthetic measure of environmental competitiveness in small towns were higher than the middle value (median) of the measure for this aspect. In small towns ordered according to this type, the coordinates of the position reached negative values.

Type VIII is the non-integrated competitiveness of small towns. In these towns, the coordinates of the location of synthetic measures for the levels of social, economic and environmental competitiveness were negative. This means that the values of the synthetic measures of competitiveness in each aspect were lower than the median.

Results

In 2004–2006, more than 70% of small towns were partially or completely unintegrated. In contrast, integrated competitiveness was observed only in 3.6% of the surveyed entities (table 4). An inverted trend was observed between 2011–2013 and 2017–2019. Despite the observed increase in towns that are partially (Type II, III, IV) or fully integrated (Type I), the proportion of partially non-integrated (Type V, VI, VII) and non-integrated (Type VIII) small towns declined. In the second study period (2011-2013), there was a significant improvement in social and economic competitiveness. The percentage of small towns of Types II, V and VI increased significantly. In 2017–2019, this was particularly evident in Type II.

The type of integrated competitiveness (Type I) includes small towns that achieved positive coordinates of position in social, economic and environmental aspects during the studied periods. This implies that the values of the synthetic measures in each aspect were higher than the median. Therefore, we can speak of harmonized competitiveness in this instance, as there was an increase in the level of competitiveness of the small towns in question in all of the three studied aspects.

This type concentrates on small towns with a high level of competitiveness in general. In 2004-2006, integrated competitiveness was observed only in four small towns, which accounted for less than 4% of the total number of surveyed towns. In subsequent periods, there was a definite progression, where the group

in question formed 37.5% of the surveyed small urban centers in 2017–2019 (Table 4). Between 2011 and 2013, advancement to Type I was mainly observed in cities that had partial integration in the earlier period (Types III and IV). In contrast, in 2017–2019, half of small Type I towns were units ranked in Type V, VI, VII or VIII in 2004–2006. This type comprised a group of small towns that were mostly socially, economically, and environmentally competitive (Józefowicz 2024). Integrated competitiveness was observed in small towns with the character of local and supralocal centers. In the case of these cities, a surplus of central market services is often observed (e.g., Milanówek, Podkowa Leśna), including those offered to tourist destinations (e.g., Karpacz, Ustroń) (Sobala-Gwosdz et al. 2024). This type of arrangement groups several small towns that are popular tourist destinations, suggesting that the significance of these towns is established and reinforced by a specialized tourist function. In addition to the cases of cities with a clear integrated function, the competitiveness was characterized by small towns with multifunctional functions located in different parts of the country in 2017–2019. A manifestation of the efficiency and utilization of the opportunities available to small towns is the increase in competitiveness in the three aspects discussed.

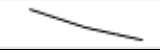
Partially integrated competitiveness encompasses small towns that showed harmonization, i.e. positive coordinates of location in two of the three aspects studied. The combination of advantages distinguished small urban centers that were partially integrated:

- socially and economically (Type II),
- socially and environmentally (Type III),
- economically and environmentally (Type IV).

Small towns clustered in Types II, III, and IV were characterized by a medium-high level of competitiveness, achieving advantages in two aspects in relation to the middle value of the measure (median). In 2004–2006, nearly 20% of small towns had a medium-higher level of competitiveness, whereas in 2017–2019, almost every second city had a medium-higher level of general competitiveness.

The type of competitiveness that is partially integrated socially and economically (Type II) was identified in only one town during the period of 2004-2006. However, in the subsequent periods, the percentage of towns classified as Type II increased to 11.6% and 30.4%, respectively (see Table 4). Partial Type II integration was observed in socially and economically competitive small towns. In turn, these cities were less environmentally competitive. Centers of local and supra-local importance (e.g., Rypin, Przeworsk) were sorted out in this type. Centers of this type were quite diverse in terms of access to market services. According to the research conducted by Sobala-Gwosdz et al. (2024), the small towns that were partially integrated socially and economically were concentrated in centers that experienced a shortage of market services (Pszów, Imielin, Radlin).

Table 4.: Typological classification of small towns according to the level of their general competitiveness in Poland
A kisvárosok tipológiai osztályozása általános versenyképességük szintje szerint Lengyelországban

Type	*Aspect*			*Type of competitiveness*	*Level of competitiveness*	*2004–2006*		*2011–2013*		*2017–2019*		*Graph of the progression of types over time*
	S	*E*	*N*			*N*	*%*	*N*	*%*	*N*	*%*	
I	+	+	+	integrated	high	4	3.6	15	13.4	42	37.5	
II	+	+	–	partly socially and economically integrated		1	0.9	13	11.6	34	30.4	
III	+	–	+	partly socially and environmentally integrated	medium high	8	7.1	12	10.7	11	9.8	
IV	–	+	+	partly economically and environmentally integrated		12	10.7	8	7.1	6	5.4	
V	+	–	–	non-integrated, focused on social needs		9	8.0	12	10.7	8	7.1	
VI	–	+	–	non-integrated, developing economically	medium low	12	10.7	14	12.5	7	6.3	
VII	–	–	+	non-integrated, attractive environmentally		26	23.2	21	18.8	3	2.7	
VIII	–	–	–	non-integrated	low	40	35.7	17	15.2	1	0.9	

Legend: S – social aspect, E – economic aspect, N – environmental aspect.
Source: Author's calculations and construction.

The type also included small towns that played a significant role in serving the surrounding area, such as Rawa Mazowiecka, Limonowa, and Ripin.

The medium-high level of competitiveness, characterized by partial social and environmental integration (Type III), included eight cities (7.1% of the surveyed entities) during the first analysis period (Table 4). Notably, the percentage of small towns of this type increased to 10.7% from 2011 to 2013, but then decreased to 9.8% in the 2017-2019 period (see Table 4).

The third type was mainly found in cities with a population of less than 10 000 inhabitants. Several small towns with a strong tourism function, such as Hel and Krynica Morska, and Duszniki-Zdrój, were included in this category. The primary economic activities in these towns are hotel and catering operations. In these cities, the natural advantages and location (forests, parks, locations by the sea, or in mountainous areas) were particularly prominent, which simultaneously posed a challenge to enhancing the economic dimension of competitiveness. Brzostkowski et al. (2019) emphasize the necessity of minimizing obstacles and capitalize on opportunities in small towns. Focusing on the tourism function is precisely the result of exploiting internal potential. Cities of this category in 2017–2019 were distinguished by a low population density (less than 200 people/km2), which was three times lower than the average for all cities examined. Additionally, they experienced unfavorable demographic changes. In these cities, cultural resources were identified, such as museums, which had a visitor count per 1,000 inhabitants that was significantly higher than the average for all cities analyzed.

Economic and environmental (Type IV) integration was indicated in 10.7% of the surveyed towns in 2004-2006 (table 4). However, this number decreased in subsequent periods (by half in 2017–2019). The classification ranked small towns that were economically and environmentally competitive, while the socially competitive position was not readily apparent. Economic and environmental competitiveness was identified mainly in small towns with a population of more than 10,000. Specifically, the economic aspect of competitiveness was the primary factor, as small towns at the upper size limit were the most competitive. The 2017–2019 type sorted out small towns, where the situation was the other way around, that is, the surveyed towns showed a better position in terms of environmental competitiveness than economic competitiveness. Nonetheless, this does not imply that these small towns were not significant centers of the local environment. This group included cities such as Sławków, Krasnystaw and Gostynin, which were identified as centers of supra-local importance (Sobala-Gwosdz et al. 2024). Landscape parks and nature reserves are situated in or near numerous cities, which has an impact on their environmental competitiveness (e.g. Pionki). On average, one in ten enterprises in these types of cities was classified as a medium or large enterprise, and economic agents were primarily involved in non-agricultural economic activities. The successful financial situation of these towns was a direct result of the favorable entrepreneurship environment.

Within the types of partially non-integrated competitiveness (Types V, VI and VII), the coordinates of location exhibit a positive direction in only one of the distinguished aspects. Thus, competitive small urban centers were separated:

- non-integrated socially oriented (type V),
- non-integrated economically developing (type VI),
- non-integrated environmentally attractive (type VII).

Small towns ordered in Types V, VI and VII were classified as cities with a medium-low level of general competitiveness, which accounted for 42% of the surveyed towns in 2004–2006 and 2011–2013. In the second period, half of the small towns with a medium-low level of general competitiveness were clustered with those ordered in the first period (52%) (table 4). The rest of the cities were moved to Type VIII. In 2017-2019, small towns of each partially non-integrated type declined, and only 16.1% of small towns reported this level of overall competitiveness.

The medium-low level of general competitiveness, indicated by non-integration oriented towards social needs (Type V), included nine small towns (8%) during the first period of the study (Table 4). By the third period, this situation had not changed significantly. All promotions from 2011–2013 and 2017–2019 involved small towns that had previously shown complete non-integration (Type VIII) in earlier periods. Type V cities were mostly characterized by lower levels of environmental and economic competitiveness. Primarily, they were the smallest cities, with populations of up to 5,000.

These small towns were dispersed throughout the country, with half of them situated in the eastern region. These areas are still classified as agricultural. In terms of regional analysis, they are classified as less developed at the province (Szczucka, Gostkowski 2023) and county (Malinowski, Wasiuta 2021). The social dimension of competitiveness of small towns was ranked higher in part due to the availability of cultural infrastructure. For example, in 2017–2019 in small towns of this type, participation in events was twice as high as the average for all surveyed cities (more than 3,000 participants/1,000 inhabitants). Likewise with the cultural centers located in their area (Józefowicz 2024).

Economically developing small towns (Type VI), despite their social and environmental non-integration, comprised less than 11% of the surveyed towns in 2004–2006 (Table 4). In subsequent periods, improvements in economic competitiveness resulted in the promotion of better integrated types. Only the city of Złotoryja invariably remained in Type VI in the periods adopted. It is important to acknowledge that these cities, despite their economic advantages over other types, were less competitive economically than, for instance, small towns of types I, II, or III. Simultaneously, these cities failed to demonstrate an adequate level of environmental and social competitiveness. Type VI occurred mainly in cities with a population of more than 10,000 inhabitants. The smallest cities, which have a population of less than 5,000, were not categorized into this

category during the periods under investigation. During the 2017-2019 period, Type VI cities exhibited a relatively favorable financial situation and a low density of tourist base. In cities such as Wojkowice and Pyskowice, which were classified as this type in 2017-2019, the study by Sobala-Gwosdz et al. (2024) showed a significant shortage of market services. The reason for this is the cities' inferior competitive status in the social sphere. These findings are therefore in accordance with the findings of the LCI, which classified small towns with a weaker competitive position in the social dimension into this category.

The arrangement of small towns into Types V and VI may also be the consequence of the environmental dimension of competitiveness, which serves as a complement or supplement to economic and social competitiveness. The environmental competitiveness of the small towns under investigation did not undergo a substantial transformation, resulting in a relatively stable situation for these communities. As an outcome, it was not feasible to establish an environmental competitiveness advantage in subsequent periods.

The last type representing a medium-low level of general competitiveness was Type VII, which included small towns that were not integrated but environmentally attractive. In Type VII towns, a mainly favorable level of environmental competitiveness was observed. Conversely, their competitiveness was evaluated unfavorably in terms of its social and economic components. In 2004–2006, almost every fourth city surveyed was sorted into Type VII. In 2017–2019, a significant decline was observed in relation to the preceding period, resulting in a decrease of less than 3% in three small towns (Table 4). Significantly, the advancement in many cities was towards Type I (complete integration).

This classification was assigned to small towns with a distinctive local character (Poręba, Kowary, and Boguszów-Gorce in 2017–2019). These centers present much more modest functional facilities. According to Sobala-Gwosdz et al. (2024), these cities frequently encounter a scarcity of market services. As a result, these cities were less competitive in terms of economic and social factors (Józefowicz 2024). From the perspective of the provision of basic central services, they are not fundamentally different from the majority of communal centers that are rural settlements. Some rural municipalities may be better developed than towns (Sobala-Gwosdz et al. 2024). The average half of the area of Type VII towns in 2017–2019 was covered by forests, as a result of their favorable position in the environmental competitiveness dimension. The economic activity was primarily concentrated in micro-enterprises; the average number of larger firms (entities with more than 49 employees) in these cities was three times lower than the average for all cities studied.

The non-integrated competitiveness of small towns (Type VIII), i.e., cities with a low level of general competitiveness, constituted an unfavorable classification, as the coordinates of location in all aspects indicated an unfavorable direction of change. In 2004–2006, 35.7% of the surveyed towns belonged to non-integrated

urban centers (Table 4), in which the deviation coefficient was significantly lower than the median for the surveyed cities. However, due to improvements in the synthetic measure of competitiveness across all examined aspects, the percentage of Type VIII towns decreased by more than half by the years 2011–2013. By the period of 2017–2019, only Piława Górna remained classified as Type VIII, consistently falling into this category throughout all assessment periods. The towns that were examined in Type VIII were primarily situated in Eastern Poland and the northern region of the country between 2004 and 2006. In rural areas that are characterized by both fragmented and large-scale agriculture (Stanny, Rosner, Komorowski 2023), these small towns are at risk of permanent marginalization (Dolińska, Jończy, Śleszyński 2020) and have a lower economic density than the rest of the country (Rosner 2012). These areas are characterized, among other things, by low levels of non-agricultural economic activity and lower rural financial wealth. As Sobala-Gwosdz (2023) observes, this region of the country is an outer periphery and an area of crisis transformation shock. Despite the unfavorable conditions, the data from 2017–2019 indicated that small towns are making an effort to enhance their competitiveness. Nevertheless, this does not imply that this part of the country's monitoring and assistance should be ceased.

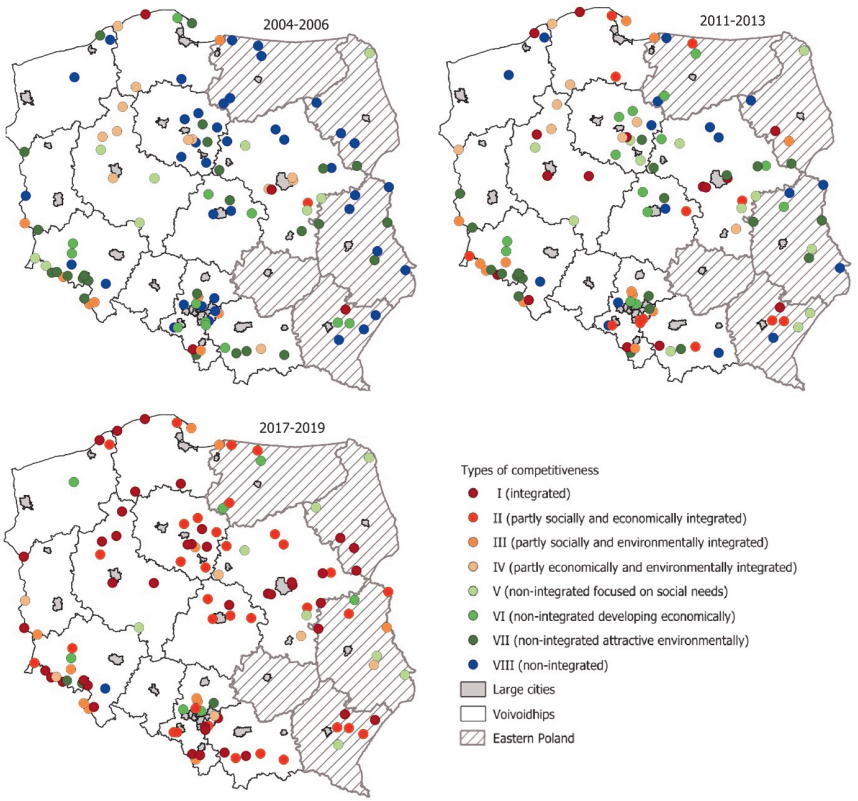
The regional differentiation of types of general competitiveness in the surveyed cities significantly changed in small urban centers. In 2004–2006, the dominance of Type VIII (non-integrated) and Type VII (non-integrated environmentally attractive) competitiveness was observed in Eastern Polish towns. During the same time frame in the western region of the country, a greater distinction between small towns was evident in this regard. In 2011–2013 and 2017–2019, significant in-plus changes were observed in the analyzed units. The progress made in the social and economic aspects of competitiveness during the last research period has influenced the concentration of many small towns in Types I and II. It is worth noting that the specialization of small towns (evident in the sphere of tourism) may have impacted the type of general competitiveness achieved. This connection was evident in the partial assessment of small towns' competitiveness. In terms of economic competitiveness, many well-known tourist destinations were highly competitive, as were they in social and environmental aspects. This thus translated into the general competitiveness of small towns. These included small coastal towns (in the north of the country) and winter centers (in the south of the country). A study conducted by Szmytke and Tomczak (2022) on the smallest towns (up to 5,000 inhabitants) indicates that these areas have a higher index of agricultural function.

Additionally, the small towns situated in the Katowice conurbation (southern region of the nation) were differentiated by the types of overall competitiveness they attained. Śleszyński (2017) posits that the cities in this region exhibit different investment attractiveness and a propensity to concentrate pro-development

factors in specific areas, such as Katowice. The morphological classification of small towns located in this voivodeship is distinguished by considerable diversity (Bański, Mazur, Mazurek 2024). In general, it is important to recognize that the region (both urban and rural) is characterized by a high level of economic density, a characteristic that is common in areas that are situated in close proximity to large cities (Rosner, 2012).

Small urban centers located near large cities were mainly concentrated in Type I and Type II. This indicates that socio-economic improvements in Poland's largest urban centers have taken place to the benefit of their neighboring environment. Therefore, these towns took advantage of their locational potential to improve their competitive position. It can also be pointed out that the development of large cities has led to the formation of links with the surrounding area, in this case with small towns. Large cities are recognized as growth poles. According to Sobala-Gwosdz (2023), above-average economic growth dynamics and a favorable influence on the development of nearby areas through multiplier effects and capital and innovation flows are two characteristics that should define these growth centers. In the morphological layer, small towns that are situated in close proximity to large cities and are frequently a component of agglomerations are typically classified as cities with an industrial character or towns of settlements (Bański, Mazur, Mazurek 2024). This, in turn, leads to the establishment of small urban centers situated near urban centers of a novel function that is in contrast to large cities. This unique role contributes to the observed level of competitiveness in these areas. The location of small towns is important for the level of social, economic and environmental competitiveness. This relationship has been defined in the literature through the concept of "borrowed size." The agglomeration benefits of larger cities are more accessible to small towns, which results in their superior performance (Meijers, Burger 2022). This correlation is not only observed in Poland, but it is also evident in other nations, including China (Han, Deng, Ni 2023), France (Baudelle, Buron 2021), and Romania (Horeczki et al. 2023). In contrast, Servillo et al. (2014) and Servillo, Atkinson, Hamdouch (2017), analyzing selected European cities, found a link between small towns located near central centers and the economic situation. According to Clerici (2022), among others, points out, suburban areas are dynamic areas with different evolutionary trajectories. Depending on their location, the functions of small towns in the settlement system can be strengthened or weakened. The operation of the location factor strengthens the competitive position of small towns adjacent to large cities. However, small urban centers located peripherally, functioning within available resources, strive to maintain their level of competitiveness.

Figure 2.: Regional differentiation of types of general competitiveness of small towns in Poland
A lengyel kisvárosok általános versenyképességi típusainak regionális különbségei



Source: Józefowicz (2024)

The general approach to the competitiveness of small towns indicates that there has been an increase in the integration of small urban centers. The improvement in competitiveness was apparent in each subsequent period. The favourable social and environmental conditions of the small towns of Eastern Poland have contributed to the progressive integration of the surveyed cities of this part of the country.

Summary and conclusions

In a general approach to assessing the competitiveness of small towns, eight types of integrated competitiveness were identified. They were intended to represent the degree of balance, or, in other words, the evenness of competitiveness, of small urban centers. The first type denotes complete integration, while the next three types refer to partial integration. The following three types indicate partial non-integration, and the final type represents complete non-integration. During the first adopted research period (2004–2006), there was a clear predominance of small towns in types representing partial or complete non-integration. More than 70% of the surveyed towns were in Types V, VI, VII, and VIII. In small urban centers, low integration was observed, regardless of their location in a particular part of the country. Between the years 2011–2013 and 2017–2019, favorable shifts were observed towards the types of partially integrated competitiveness (Types II, III, and IV) and integrated competitiveness (Type I). The evaluation of the general competitiveness of small towns enabled a positive validation of the hypothesis that small towns exhibit a rise in the integration of social, economic, and environmental conditions that influence their level of competitiveness.

Through the types identified, the general competitiveness of Poland's small towns highlighted aspects that play a key role in building their competitiveness. These aspects were also apparent in types representing partial non-integration (Types V, VI, and VIII). This is attributed to the fact that in such small towns, one aspect was characterized by a relatively favourable competitive situation, which may suggest the direction of development based on the identified advantage. Hence, it is imperative to bear in mind that solely small urban centers that are classified as Type VII (non-integrated competitiveness) are entities that exhibit unfavorable levels of general competitiveness. The general approach of the proposed Local Competitiveness Index has a dual purpose. In addition to determining the type of competitiveness of small towns, it also identifies key aspects of their development.

The Local Competitiveness Index, which was developed and utilized to accomplish the objective of the work, is universal and can be employed to assess the competitiveness of other territorial units. This index can also be utilized to periodically monitor the competitiveness levels of selected entities. Units may utilize it to assess their economic, social, and environmental competitiveness. However, the most valuable result may come from assessing the general level of competitiveness, which is determined by the types of integration. This approach will highlight the competitive advantages demonstrated by the level achieved, which can serve as the foundation for devising strategies for the advancement of territorial units. The results of such analyses, focused on small towns, are a key tool for creating regional policies, which should clearly highlight the importance of small towns.

Notes

1 A list of indicators proposed for assessing the competitiveness of small towns in social, economic, and environmental terms is provided in the Annex in Table 5. The x5 characteristic was eliminated during the statistical verification phase of the synthetic measure's construction to assess the social competitiveness of small towns.

2 The normalization of simple characteristics was performed for a total of three periods under analysis (referred to as object-years) based on average values of simple characteristics recorded in these periods. This was done in order to ensure the comparability of results between the periods and to capture the development trend affecting the phenomenon process under consideration.

Literature

A.T. Kearney (2024): *2024 Global Cities Report.* https://www.kearney.com/documents/291362523/303682378/Resurgent-in-a-world-at-risk-2024-Global-Cities-Report-PDF.pdf/fb2ee209-5540-1779-e306-4db9c20fbb47?t=1733340690000

Bank Danych Lokalnych, Główny Urząd Statystyczny https://bdl.stat.gov.pl/BDL/start

Bański, J., Mazur, M., Mazurek, D. (2024): Klasyfikacje małych miast w Polsce–ujęcia metodologiczne i ich rezultaty. *Przegląd Geograficzny,* 1., 51–73. https://doi.org/qst5

Baudelle, G., Buron, L.-T. (2021): Explaining the dynamics of small towns in western France by testing three possible factors. *Rozwój Regionalny i Polityka Regionalna*, 54., 35–58. https://doi.org/qst7

Bruneckiene, J., Guzavicius, A., Cincikaite, R. (2010): Measurement of urban competitiveness in Lithuania. *Inzinerine Ekonomika-Engineering Economics,* 5., 493–508.

Brzostowski, N., Dębkowska, K., Dmochowska-Dudek, K., Glińska, E., Kłosiewicz-Górecka, U., Szymańska, A., Waźniewski P., Wójcik M., Zybertowicz, K. (2019): *Scenariusz rozwoju małych miast.* Polski Instytut Ekonomiczny

Bulu, M. (2011): Measuring competitiveness of cities: Turkish experience. *International Journal of Knowledge-Based Development,* 3., 267–281. https://doi.org/c6ckbt

Cabrero Mendoza, E., Orihuela Jurado, I., Ziccardi Contigiani, A. (2009): Competitividad urbana en México: Una propuesta de medición. *Revista Eure,* 106., 79–99. https://doi.org/bz4f9s

Camacho, M. (2020): Competitividad Urbana: Importancia, modelos y bases para su medición. Hacia un consenso conceptual para los nuevos tiempos. *Revista Cultura Económica,* 100., 13–38. https://doi.org/qsvc

Carter, V. (2013): *The Importance of Small Towns.* ECOVAST, Cranbrook

Clerici, M.A. (2022): Moving towards repolarisation? The population trajectories of medium-sized towns in Lower Lombardy, Italy (2010–2020). *GeoScape,* 1., 22-38. https://doi.org/10.2478/geosc-2022-0003

Dolińska, A., Jończy, R., Śleszyński, P. (2020): *Migracje pomaturalne w województwie dolnośląskim wobec depopulacji regionu i wymogów zrównoważonego rozwoju społeczno-gospodarczego.* Wydawnictwo UE we Wrocławiu, Wrocław

Economist Intelligence Unit (2012): *Hot Spots. Benchmarking Global City Competitiveness.* The Economist Intelligence Unit Limited, London/New York/Hong Kong/Genewa

European Commission (2016): *Flash Eurobarometer "Quality of life in European cities".* Publications Office of the European Union, Luxembourg https://ec.europa.eu/regional_policy/policy/themes/urban-development/audit_en

Hajduga, P. (2014): Strategiczne kierunki rozwoju społeczno-gospodarczego Polski Wschodniej do roku 2020 w kontekście programowania polityki spójności na lata 2014–2020. *Barometr Regionalny,* 2., 65–72. https://doi.org/qsvf

Han, Y., Deng, Y., Ni, R. (2023): Why small towns are shrinking: The spatial heterogeneity of small towns shrinkage and the impact of it from the perspective of rural–urban interaction in China. *PLoS ONE* 11., e0293889. https://doi.org/qsvg

Heffner, K. (2016): Obszary wiejskie i małe miasta – czy lokalne centra są potrzebne współczesnej wsi? *Studia Ekonomiczne. Zeszyty Naukowe Uniwersytetu Ekonomicznego w Katowicach,* 279., 11–24.

Horeczki, R., Rácz, Sz., Bilasco, S., Szilágyi, F. (2023): Evolution of urbanisation and metropolitan development in Romania. *Deturope,* 2., 28–47. https://doi.org/qsvh

Hu, R. (2015): Sustainability and competitiveness in Australian cities. *Sustainability,* 2., 1840–1860. https://doi.org/gv76nn

Huggins, R., Prokop, D., Thompson, P. (2023): *UK Competitiveness Index 2023.* Cardiff University, Cardiff

Hwang, C., Yoon, K. (1981): *Multiple Attribute Decision Making: Methods and Applications A State-of-the-Art Survey.* Springer, Berlin, Heidelberg, New York

Jiang, Y., Shen, J. (2010): Measuring the urban competitiveness of Chinese cities in 2000. *Cities,* 5., 307–314. https://doi.org/dx64p7

Józefowicz, K. (2024): *Konkurencyjność małych miast w Polsce i jej uwarunkowania.* Difin, Warszawa

Ketels, C. (2016): *Competitiveness Frameworks Review. An Analysis Conducted for the National Competitiveness Council.* National Competitiveness Council, Dublin

Kitchin, R., Lauriault, T. P., McArdle, G. (2015): Knowing and governing cities through urban indicators, city benchmarking and real-time dashboards. *Regional Studies, Regional Science,* 1., 6–28. https://doi.org/gc92g7

Komasi, H., Hashemkhani Zolfani, S., Prentkovskis, O., Skačkauskas, P. (2022): Urban competitiveness: Identification and analysis of sustainable key drivers (A case study in Iran). *Sustainability,* 13., 7844. https://doi.org/gv37v2

Konopka, P. (2021): *Metody Wielokryterialnego podejmowania decyzji w badaniu ryzyka finansowania przedsiębiorstw.* Wydawnictwo Uniwersytetu w Białymstoku, Białystok

Koós, B. (2020): Urban shrinkage and residential segregation in Hungary. *Tér és Társadalom,* 1., 48–68. https://doi.org/g7d8q2

Kresl, P.K. (2012): Urban competitiveness and US metropolitan centres. *Urban Studies,* 2., 239–254. https://doi.org/dgk6s9

Kudłacz, M. (2024): *Miasto-idea. Nowe podejście do gospodarowania zasobami miasta.* CeDeWu, Warszawa

Lorentzen, A., van Heur, B. (2012): Introduction: *Cultural political economy of small cities.* In: Lorentzen, A., van Heur, B. (Eds.): Cultural Political Economy of Small Cities. Routledge, London, New York, Abingdon, 1–15.

Łuczak, A., Kurzawa, I., Wysocki, F. (2018): Ocena poziomu zrównoważonego rozwoju państw Unii Europejskiej z wykorzystaniem wielowymiarowej analizy porównawczej. *Prace Naukowe Uniwersytetu Ekonomicznego we Wrocławiu,* 508., 126–136. https://doi.org/qsvj

Malinowski, M., Wasiuta, A. (2021): *Stan środowiska a poziom życia ludności w Polsce.* Publishing House of the University of Life Sciences in Poznań, Poznań

Martin, R., Simmie, J. (2008): The theoretical bases of urban competitiveness: Does proximity matter? *Revue d'Économie Régionale & Urbaine,* 3., 333–351. https://doi.org/bg5dsj

Meijers, E., Burger, M. (2022): Small and medium-sized towns: Out of the dark agglomeration shadows and into the bright city lights?. In: Meijers, E., Burger, M. (Eds.): *A Research Agenda for Small and Medium-Sized Towns.* Edward Elgar Publishing, Cheltenham, 23–38. https://doi.org/qsvk

Mitrică, B., Dumitraşcu, M., Mocanu, I., Grigorescu, I., Şerban, P.-R. (2021): Territorial competitiveness, cohesion and sustainability in Romania's urban border areas. *Geografisk Tidsskrift-Danish Journal of Geography,* 1., 1–26, https://doi.org/qsvw.

Moir, E., Clark, G. (2014): *The Business of Cities.* UK Government's Foresight Future of Cities. https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/429139/business-of-cities.pdf

Nasi, G., Choi, H., Cucciniello, M., Christensen, RK (2022): A systematic literature review of city competitiveness: A 30-year assessment and future agenda for public administration, *Public Management Review,* 25., 1562–1586. https://doi.org/qsvx

Ni, P., Kresl, P.K. (2010): *The Global Urban Competitiveness Report-2010.* Edward Elgar Publishing, Cheltenham/ Northampton

Patil, G. R., Sharma, G. (2022): Urban quality of life: An assessment and ranking for Indian cities. *Transport Policy,* 124., 183–191. https://doi.org/gpfg3s

Pengfei N., Kamiya M., Jing J. et al. (2024): Global Urban Competitiveness Report (2020-2021) – *Global Urban Value Chain: Insight into Human Civilization over Time and Space.* Chinese Academy of Social Sciences (CASS), UN-Habitat, Beijing, Tokyo

Porto, P. C. D. S., Rocha, F. M. (2022): City size and competitiveness for the cities of São Paulo: A spatial statistics analysis. *Revista Brasileira de Inovação,* 17., 63–88. https://doi.org/qsvz

Rezvan, M., Shakoor, A., Ronizi, S., Roshan, G. (2009): The role and function of small towns in rural development using network analysis method case: Roniz rural district (Estahban city, province Fars, Iran). *Journal of Geography and Regional Planning,* 9., 214–223.

Rosner, A. (2012): *Rozwój wsi i rolnictwa w Polsce. Aspekty przestrzenne i regionalne.* IRWIR, Warszawa

Sáez, L., Periáñez, I. (2015): Benchmarking urban competitiveness in Europe to attract investment. *Cities,* 48., 76–85. https://doi.org/f7tdbf

Sáez, L., Periáñez, I., Heras-Saizarbitoria, I., (2017): Measuring urban competitiveness: Ranking European large urban zones. *Journal of Place Management and Development,* 5., 479–496. https://doi.org/gn3528

Servillo, L., Atkinson, R., Smith, I., Russo, A., Sýkora, L., Demazière, C., Hamdouch, A. (2014): *TOWN, small and medium sized towns in their functional territorial context. Final Report.* ESPON & KU Leuven, Luxembourg

Servillo, L., Atkinson, R., Hamdouch, A. (2017): Small and medium-sized towns in Europe: Conceptual, methodological and policy issues. *Tijdschrift voor Economische en Sociale Geografie,* 4., 365–379. https://doi.org/gjshhk

Sharifinia, Z. (2013): The role of small urban in rural development: a case study in Iran. *Middle-East Journal of Scientific Research,* 3., 432–439.

Smętkowski, M. (2009): Nowe relacje metropolia-region: Od terytorialnej do sieciowej organizacji przestrzeni. In: Jałowiecki, B. (Ed.): *Czy Metropolia Jest Miastem?* Wydawnictwo Naukowe Scholar, Warszawa, 26–49.

Sobala-Gwosdz, A., (2023): *Wyzwania, trendy i procesy rozwoju gospodarczego. Identyfikacja biegunów wzrostu i ośrodków równoważenia rozwoju w Polsce.* Badania Obserwatorium Polityki Miejskiej, Instytut Rozwoju Miast i Regionów, Warszawa–Kraków

Sobala-Gwosdz, A., Janas, K., Jarczewski, W., Czakon, P. (2024): *Hierarchia funkcjonalna miast w Polsce i jej przemiany w latach 1990–2020.* Badania Obserwatorium Polityki Miejskiej, Instytut Rozwoju Miast i Regionów, Warszawa–Kraków

Sobrino, J., Orihuela, I. (2020): Latin America and global economy, 2000–20. In: Kresl, P. K. (Ed.): *Urban Competitiveness in Developing Economies*. Routledge, London–New York, 116–142. https://doi.org/qsv3

Stanny, M., Rosner, A., Komorowski, Ł. (2023): *Monitoring rozwoju obszarów wiejskich. Etap IV. Dekada przemian społeczno-gospodarczych.* Fundacja Europejski Fundusz Rozwoju Wsi Polskiej, Instytut Rozwoju Wsi i Rolnictwa PAN, Warszawa

Szabela-Pasierbińska, E. (2018): Ocena Programu Operacyjnego Rozwój Polski Wschodniej 2007–2013. *Społeczeństwo i Ekonomia,* 10., 39–51. https://doi.org/qsv4

Szczech-Pietkiewicz, E. (2019): *Konkurencyjność miast w kontekście współczesnych koncepcji teoretycznych i zjawisk gospodarczych.* Oficyna Wydawnicza SGH, Warszawa

Szczucka, E., Gostkowski, M. (2023): The level of socio-economic development of Polish provinces in the period 2005–2020. *Metody Ilościowe W Badaniach Ekonomicznych,* 1., 27–46. https://doi.org/qsv5

Szmytkie, R., Tomczak, P. (2022): Funkcje rolnicze miast bardzo małych w Polsce. *Annales Universitatis Mariae Curie-Sklodowska, sectio B–Geographia, Geologia, Mineralogia et Petrographia,* 77., 21–44. https://doi.org/qsv6

Sztando, A. (2017): *Ponadlokalna perspektywa zarządzania strategicznego rozwojem lokalnym rozwojem na przykładzie małych miast.* Wydawnictwo Uniwersytetu Ekonomicznego we Wrocławiu, Wrocław

Śleszyński, P. (2017): Wyznaczenie i typologia miast średnich tracących funkcje społeczno-gospodarcze. Determination and typology of medium-size cities losing their socio-economic functions. *Przegląd Geograficzny,* 4., 565–593. https://doi.org/qsv7

Visvaldis, V., Ainhoa, G., Ralfs, P. (2013): Selecting indicators for sustainable development of small towns: The case of Valmiera municipality. *Procedia Computer Science,* 26., 21–32. https://doi.org/qsv9

Visvizi, A., Wosiek, R., Malik, R. (2025): The smart city competitiveness index (SMCI): Conceptualization, modelling, application – An evidence-based insight. *Land Use Policy,* 148., 107408. https://doi.org/qswb

Wirth, P., Elis, V., Müller, B., Yamamoto, K. (2016): Peripheralisation of small towns in Germany and Japan – Dealing with economic decline and population loss. *Journal of Rural Studies,* 47., A, 62–75. https://doi.org/f89nsg

Wysocki, F. (2010): *Taxonomic Methods in Recognizing Economic Types of Agriculture and Rural Areas*. Publishing House of the University of Life Sciences in Poznań, Poznań

Yamato, N., Hamada, Y., Matsuda, M., Dustan, P., Asano, N. (2018): *Global Power City Index 2018.* Institute for Urban Strategies, The Mori Memorial Foundation, Tokyo

Annex

Table 5.: Diagnostic variables proposed to be used in measuring the social, economic and environmental competitiveness of Polish small towns
A lengyel kisvárosok társadalmi, gazdasági és környezeti versenyképességének mérésére javasolt diagnosztikai változók

Social aspect of small towns competitiveness
x_1 – population density, x_2 – Natural increase per 1000 inhabitants, x_3 – total migration balance per 1000 population, x_4 – population of non-working age per 100 persons of working age, x_5 – Post-working age population per 100 people of working age, x_6 – clinics per 10 000 population, x_7 – population per community pharmacy, x_8 – number of primary healthcare consultations per capita, x_9 – pupils per 1 unit in elementary school, x_{10} – students per 1 unit in general secondary schools, x_{11} – children aged 3-5 years per one place in a kindergarten education institution, x_{12} – expenditure on education and upbringing per capita (PLN), x_{13} – average floor area of 1 apartment (m^2), x_{14} – dwellings per 1000 inhabitants, x_{15} – new residential buildings per 1000 population, x_{16} – foundations, associations and social organizations per 1000 inhabitants, x_{17} – social welfare spending per capita (PLN), x_{18} – population per 1 library facility, x_{19} – visitors to museums and branches per 1000 population, x_{20} – number of event participants per 1000 population, x_{21} – cultural centers, cultural centers, clubs and community centers per 10 thousand population, x_{22} – number of cinemas per 10000 residents, x_{23} – electricity consumption per capita (in kWh).
Economic aspect of small towns competitiveness
x_{24} – operators entered to the REGON register per 10,000 population, x_{25} – percentage of foreign-invested commercial companies in the total number of economic operators (%), x_{26} – economic operators with more than 49 employees per 10,000 population, x_{27} – share of economic operators active in the agriculture, forestry, hunting and fisheries sectors in the total number of economic operators (%), x_{28} – density of the accommodation network: number of beds per square km, x_{29} – accommodation facilities per 100 km^2, x_{30} – water distribution network per 100 km^2, x_{31} – sewerage network per 100 km^2, x_{32} – gas distribution network per 100 km^2, x_{33} – per-capita budgetary expenditure on transport at commune level (PLN), x_{34} – own income per capita (PLN), x_{35} – share of investment expenditure in total expenditure (%), x_{36} – personal and corporate income tax per PLN 1 of agricultural tax (PLN), x_{37} – per-capita budgetary revenue at commune level derived from personal and corporate income taxes (PLN), x_{38} – economic activity ratio: number of working people per 100 working-age population, x_{39} - registered unemployment rate (%).
Environmental aspect of small towns competitiveness
x_{40} – share of population using wastewater treatment plants (%), x_{41} – household water consumption per capita (m^3), x_{42} – users of water supply network (%), x_{43} – users of sewerage network (%), x_{44} – share of land under water in total area (%), x_{45} – share of forest cover (%), x_{46} – share of parks, greens and neighborhood green areas in total area (%), x_{47} – share of legally protected areas in total area (%), x_{48} – industrial and municipal wastewater requiring treatment discharged to water or to the ground during the year per capita (m^3), x_{49} – household waste per capita (kg).

Source: Author's construction based on the Local Data Bank of the Central Statistical Office