OLSZTYN ECONOMIC JOURNAL
2019, 14(1), 47–62
ISSN 1897-2721 e-ISSN 2083-4675 DOI: 10.31648/oej.3644

ORIGINAL PAPER

Received: 13.02.2018
Revised: 10.07.2018
Published: 31.03.2019

RESILIENCE AND HYBRIDIZATION OF DEVELOPMENT OF SMALL AND MEDIUM TOWNS IN POLAND

Adam Drobniak
Faculty of Economics
University of Economics in Katowice
ORCID: https://orcid.org/0000-0002-1421-2923
e-mail: adam.drobniak@ue.katowice.pl

JEL Classification: R1, R11.

K e y w o r d s: resilience, hybridization of development, small and medium towns, Poland.

A b s t r a c t

This paper aims to initially evaluate the socio and economic resilience of small and medium sized town in Poland made in the context of hybridization of development. The article refers to the issues of development of small and medium sized towns as well as to the urban resilience concept recognized in the attributes approach.

Empirically, an initial assessment of resilience was carried out for all towns up to 100,000 residents in Poland using quantitative methods based on indicators of dynamics. Then, using cluster analysis along with the Euclidean distance the paper presents its findings in spatial dimension.

The results indicate a very high level of differentiation in socio and economic urban resilience of the surveyed towns. The dynamics of their development is highly unbalanced, while the overall picture of resilience of the examined towns indicates a hybrid pattern of their development.

REZYLIENCJA I HYBRYDYZACJA ROZWOJU MAŁYCH I ŚREDNICH MIAST W POLSCE

Adam Drobniak
Wydział Ekonomii
Uniwersytet Ekonomiczny w Katowicach

S ł o w a k l u c z o w e: rezyliencja, hybrydyzacja rozwoju, małe i średnie miasta, Polska.

How to cite: Drobniak, A. (2019). Resilience and Hybridization of Development of Small and Medium Towns in Poland. *Olsztyn Economic Journal, 14*(1), 47-62. https://doi.org/10.31648/oej.3644.

Abstrakt

Celem artykułu jest wstępna ocena rezyliencji społecznej i gospodarczej małych oraz średnich miast w Polsce dokonana w kontekście hybrydyzacji rozwoju. Artykuł odwołuje się do problematyki rozwoju małych i średnich miast oraz do czynnikowego ujęcia koncepcji rezyliencji miejskiej.

Empirycznie wstępną ocenę rezyliencji przeprowadzono dla wszystkich miast do 100 tys. mieszkańców w Polsce wykorzystując metody ilościowe oparte na wskaźnikach dynamiki. Następnie na podstawie analizy grupowania (*cluster analysis*) bazującej na odległości euklidesowej zaprezentowano otrzymane wyniki w układzie przestrzennym.

Uzyskane wyniki wskazują na bardzo wysoki poziom zróżnicowania rezyliencji społecznej i gospodarczej badanych ośrodków miejskich. Dynamika ich rozwoju jest wysoce niezrównoważona, natomiast całościowy obraz rezyliencji badanych miast wskazuje hybrydowy wzorzec ich rozwoju.

Introduction

The development level of the network of small and medium towns determines to a large extent the scale of urbanization in a particular country, including the distribution of socio-economic functions. In Poland, the distribution of this type of city is characterized by a high degree of uniformity, which indicates polycentricity and fosters the implementation of sustainable development objectives, and prevents polarization of socio-economic processes in the country (*Koncepcja przestrzennego zagospodarowania kraju 2030*, 2011, p. 22). However, the level and dynamics of the development of smaller cities in Poland are actually varied. This is probably a consequence of interactions between at least two groups of factors.

Firstly, small and medium towns function in a complex environment. On a micro scale, these cities are adjacent to rural areas, for which they serve as operating centers. Contemporary urbanization processes in rural areas, however, foster takeovers of some functions previously located in small and medium towns. On the macro scale, the neighbors of small and medium towns are large urban centers, often with metropolitan functions. Their influence determines not only changes in the economic base of small and medium towns, but also reflects the broader impact of globalization (considered in the cultural, demographic, information and technology aspects).

Secondly, small and medium towns represent a great diversity in regard to current development paths. For example, among these kinds of cities at least several functionally specialized centers can be distinguished and their functions – in relation to the population scale – do not occur with such intensity in large cities. The dominant functions may include such specializations as: industrial, commercial, administrative, tourist and leisure, housing, services, transport, and service for the agricultural sector (Słodczyk, 2001, p. 59; Konecka-Szydłowska & Perdał, 2017, p. 29).

Interactions between outlined groups of factors can be various. For example, the peculiarity of the neighborhood (rural areas – a large regional center) combined with the current path of urban development, including its functional specialization (leisure – industrial – housing), in connection with the impact of global changes (financial capital mobility- human capital mobility) may result in multiple development trajectories. Therefore, finding an answer to the question: what are the development dynamics of small and medium towns in Poland, or more broadly – what is the social and economic resilience in this kind of a city? This seems to be an interesting first research problem. The second research problem is related to the extent to which various development dynamics of these towns can be considered in the categories of hybridization of development. The main goal of the article is, hence, the initial assessment of the social and economic resilience of small and medium towns in Poland along with reference to the dynamics of development of these urban centers within the category of development hybridization.

The issues concerning the development of small and medium towns

The issues concerning the development of small and medium urban centers are the subjects of many analyses. However, in the last decade, the existence of significant problems with the development of this kind of urban center has been emphasized in numerous studies, especially in comparison to fast developing big cities.

For instance, the National Spatial Development Concept (*Koncepcja przestrzennego zagospodarowania kraju 2030*, 2011, p. 8) emphasizes such developmental problems in smaller urban centers, including: intensification of population outflow, peripheralization, poor accessibility of public services, low economic potential, poor absorption of innovation from large cities, limited ability to create own specialization, and the concentration of negative social phenomena.

Nevertheless, the socio-economic image of small and medium towns in Poland seems to be much more complex. As emphasized by K. Heffner and A. Halama (2012, p. 7), small cities in the last few decades have clearly changed their positions in economic systems as a result of global changes. Due to the shift in their economic base, in terms of the central place theory (Maik, 1992), these centers create social and economic bonds with the environment in different ways.

One of the main problems in the development of small and medium towns in Poland is depopulation (Runge, 2011, p. 55; Stryjakiewicz, 2013, p. 127; Bartosiewicz, 2016, p. 23). The process of depopulation is the result of various reasons, among which both the historical past and contemporary socio-economic trends are mentioned (Kantor-Pietryga *et al.*, 2012, p. 14). The latter reasons are

associated with changes in the economic base, where the number and quality of jobs are particularly important. The scale of migration may be additionally strengthened by demographic and cultural factors as in the case of Upper Silesia, in particular of Opole in Silesia (Śląsk Opolski) – that area has an intense number of migrations to Germany (Kantor-Pietryga *et al.*, 2012, p. 14, 15).

The briefly outlined context of small and medium town development, due to a variety of problems, inclines research into the dynamics of their development in the context of social and economic resilience. The actual concept of resilience or urban resilience derives from the debate on sustainable development, including the adaptation to climate change (Simmie & Martin, 2010, p. 28). Initially, these categories were considered within the context of disasters (natural disasters, terrorist attacks). Resilience on the grounds of urban economics, eventually, began to be perceived in terms of an urban structures ability to:

– maintain a current city development path after disruption;

– quickly regain a current city development path after the disruption;

– quickly reorient current city development paths after experiencing disruption to achieve current or higher growth dynamics (Martin, 2016, p. 566).

The disruptions in economical terms are perceived in the following categories: economic crises, as well as technological and competitive changes that enforce a restructuring of the economic base of the city. These kind of urban development path disruptions are not only random in time, but can also be defined as long-term with incremental negative impacts of external factors that cause cumulative effects, violating the current development path.

According to T. Lang (2011, p. 16), most of the research on urban resilience uses the assumption related to the systemic approach to resilience evaluation. This means that the research subject (i.e. city, region) is perceived as a complex, multidimensional adaptive system. In terms of resilience, it is argued that urban systems should have appropriate attributes that enable them to cope with external interferences (Folke *et al.*, 2002, p. 438). According to A.J. Wardekker (Wardekker *et al.*, 2010, p. 988), the resilient system tolerates shocks through a set of attributes that limit the impact of adverse external influences, reducing 'damage and disruption, and allow[ing] the system to respond, recover, and adapt quickly to such disturbances'.

According to D.R. Godschalk (2003, p. 139), R.J.T. Klein (2003, p. 38), B. Walker and D. Salt (2006, p. 140-143), A. Drobniak (2014, p. 50) the attributes determining urban resilience include mainly: adaptability, connectivity, diversity, efficiency, redundancy, and interdependence. These attributes can be further described by factors of resilience, followed by their corresponding quantitative and qualitative indicators (Berkes, 2007, p. 287, 288; Drobniak, 2014, p. 50). An example of the decomposition of the urban resilient attribute related to the adaptability in the economic dimension onto the factors of resilience and corresponding indicators measuring their levels is presented in Table 1.

Table 1

An example of decomposition of the urban resilience attribute related to city adaptation in the economic dimension

Resilience attribute	Resilience factors (examples)	Indicators of resilience evaluation (examples)
Adaptability – a city's structures have the ability to change or fit into changed circumstances; they are flexible, adaptable	– high entrepreneurship spirit	– number of firms run by individuals per 1,000 inhabitants – number of economic entities per 1,000 inhabitants
	– high capacity for innovation	– number of patents per 1,000 privately-owned entities
	– significant local knowledge assets (knowledge base, research infrastructure)	– number of R&D units – employment in R&D units

Source: self-elaboration on the base of Drobniak (2014, p. 53, 59).

Briefly outlined backgrounds of urban resilience, in particular its attributes, including those related to adaptability, allow for the introduction of the hybridization of development concept. In general, the "hybrid" is perceived as a combination of elements belonging to different entities, cultures, technologies, and concepts. The justifications for introducing the hybrid solutions – in the context of resilience – can be sought in the pursuit of functional diversity based on combining different strategies, inputs, and products (Johnson & Scholes, 1993, p. 213), which in the case of enterprises, cities and regions leads to offering modifiable, flexible and more competitive solutions in relation to rapidly changing market needs. Hence, the hybrid solutions can lead to higher dynamics of development, and thus higher adaptability.

For the urban and regional economics, the category of development hybridization is particularly interesting, i.e. the effects that interactions, combinations of elements with a high degree of diversity generate in space (Drobniak, 2017b, p. 60). The hybridization notion can be particularly helpful in explaining the heterogeneous, non-linear and non-scale corresponding of a given set of cities to various dynamics of their development.

Research on this phenomenon in the territorial dimension was initiated by R. Boyer (1997), who drew attention to the hybridization of production models. According to him, the adaptation of production chains in terms of hybridization is carried out in various ways due to the heterogeneity of potentials in space (superiority and predominance of the local context) and the need to ensure the integration of elements forming the production chain (Boyer, 1997, p. 4). Consequently, various production models are created in space, adapting on the one hand to the local context (which in R. Boyer's concept determines access to specific resources for the production chain) and on the other hand is influenced by the global market and technological pressures.

In the era of global mobility and digitization, there is a shift away from the regional focus and integration of the links of production chains to the global orientation of production models (*Zarządzanie firmą…*, 2001, p. 198–203) and the disappearance of the benefits of geographical proximity (Micek, 2017, p. 258). In the territorial dimension, this results in re-locating individual links of production chains to places providing adequate access to tangible and intangible resources. Consequently, new places with high growth dynamics are created in space, while places previously perceived as growth centers (due to the re-localization of the production chain link) may enter into a phase of recession or stagnation. In this way, the space analyzed with the dynamics indicators shows features of uneven, patchwork growth creating a hybrid pattern of development.

The category of spatial hybridization of development can also be found in the works of O. Golubchikov (2014). According to him, the dynamics of city and regional development results from: "mutual embeddedness of the legacies of socialism and the workings of neoliberal capitalism that jointly produce what we define as the hybrid spatialities of transition—'strange' geographies that function according to the tune of capital but often conceal their capitalist nature with socialist-era 'legacies' " (Golubchikov *et al*., 2014, p. 618). In a similar convention, i.e. in the categories of hybridization of development, significant differences in the dynamics of the development of cities and regions are explained by L. Sýkora & S. Bouzarovsky (2012). In their approach, the specificity of a place (legacy) combined with universal economic or political change generates various social changes, and consequently leads to a multipath dynamic of development. The authors talk about the "hybrid nature of territorial development processes" which is the effect of merger, the specificity of the place (heritage) and capitalist elements in the continuous process of the adaptation of socio-economic systems (Sýkora & Bouzarovsky, 2012, p. 55).

Summing up, the hybridization of development is the effect of combining a wide variety of elements in the sense of inputs, products, strategies and the specificity of place. Hybrid solutions (for example: creating new city functions based on existing infrastructure, or integration of the production chain by re-locating its links in space ensuring a better return on investment) are ways to quickly adapt to the requirements of the global economy (i.e. strengthening resilience). In spatial terms, the hybridization of development means variety, non-linearity, and mosaic development dynamics. It is, therefore, an expression of uneven development and can be a category helpful in explaining the large variety of dynamics of development recorded in studies on the resilience of cities.

Research methodology

The purpose of empirical research was subordinated to the main objective of the article, i.e. the initial assessment of the socio-economic resilience level in small and medium towns in Poland along with the distinction of groups of cities with high and low resilience levels. There were also reflections on the results obtained in the context of hybridization.

The initial assessment of the resilience level of small and medium towns was carried out for selected, basic variables that describe the dynamics of their socio-economic situation. An attribute-based approach was used to study urban resilience (Drobniak, 2014, p. 49-65), whereas the application of the indicated approach to assessing the resilience of small and medium-sized cities in Poland was associated with difficulties. It should be emphasized that from the perspective of resilience evaluation, the availability of data for Polish towns up to 100,000 inhabitants is very limited. In particular, there is scarce information on: the employment rate, investment value and GDP which are usually used in analysing resilience (Drobniak, 2014, p. 59). Hence, it was necessary to assess resilience on the basis of a few indicators that described changes in demographic potential (social resilience attribute related to efficiency, indicator: the number of inhabitants) and economic potentials (economic resilience attribute related to adaptability, indicator: the number of business entities) taking into account aspects of tourism function development (economic resilience attribute related to diversity, indicator: the number of tourists), which is very distinctive for some types of urban centers.

The study covered all small and medium towns in Poland up to 100,000 inhabitants, i.e. 876 cities (as of 2016), which comprise 43% of the population, 39% of business entities and 40% of tourists in Poland. Small and medium towns were distinguished on the basis of the classification used by EUROSTAT (ec.europa.eu), i.e. defining only the upper limit of the population number at the level of 100,000 inhabitants, used to determine the set of territorial units under the study. This kind of limit can also be found in the works of P. Bury, T. Markowski, J. Regulski (1993, p. 28, 29) and M. Czornik (2004, p. 26-30). The inclusion of all small and medium-sized cities together is due to the following premises. First, it is cognitively interesting, in urban resilience studies, to show the extent to which the dynamics of development depends on the size of the city – in this case, the collection of small and medium-sized cities treated jointly is a condition for this type of inference. Secondly, in the context of hybridization of development, a diversified collection of all small and medium-sized cities in Poland is a condition for proving the highly unbalanced developmental dynamics that are recorded in the space of a given country, including their multipath and mosaic pattern. Finally the research methodology included the following tasks:

– an assessment of social resilience in the demographic dimension – based on a cluster analysis: the dynamics of the number of inhabitants in 2016

(2004 = 100) and the dynamics of the aging index[1] in 2016 (2004 = 100) in towns of up to 100,000 inhabitants;

– an assessment of economic resilience in terms of business entities – based on cluster analysis: the number of economic entities in 2016 and the dynamics of those economic entities in 2016 (2004 = 100) in towns of up to 100,000 inhabitants;

– an assessment of economic resilience in terms of tourists – based on cluster analysis: tourist dynamics in 2016 (2004 = 100) and the dynamics of the number of economic entities in 2016 (2004 = 100) in towns of up to 100,000 inhabitants.

Fixed baseline indexes were used to measure the dynamics (Hill *et al.*, 2010; Martin, 2016; Drobniak, 2017b). Groups of small and medium cities with a similar level of resilience were identified on the basis of cluster analysis (Heffner & Gibas, 2007) using the k-means method and Euclidian distance. Its results also served to infer about the hybridization of the development of small and medium-sized cities in Poland.

Research Results

The analysis of the social resilience of small and medium towns based on the relation between the population dynamics (dimension *A* on Fig. 1) and the dynamics of the aging index (dimension *B* on Fig. 1) allowed three groups of urban centers to be identified. The first group (cluster_0 on Fig. 1, 40 towns) was comprised of cities that indicated high dynamics of population growth and, at the same time, low dynamics in the aging index. This was a small group of cities with high social resilience. This group includes towns like: Kąty Wrocławskie, Siechnice, Aleksandrów Łódzki, Niepołomice, Wieliczka, and Serock – i.e. towns adjacent directly to a large urban center.

The second group (cluster_1 in Fig. 1, 563 towns) consists of cities with average and low dynamics of population growth and relatively low dynamics of the aging index. This is a large group of towns characterized by having an average social resilience. This group includes towns such as: Nekla, Oborniki Śląskie, Wejherowo, Grójec, Góra Kalwaria, Bursy. The location of these cities in relation to large urban centers is diverse. Some of them are located approximately 30 km from strong regional centers (Nekla – Poznań, Oborniki Śląskie – Wrocław), Wejherowo – Tricity, Grójec – Warsaw, Góra Kalwaria – Warsaw). Whereas some others are located further from the regional center, 60–100 km, for example, Bursa (100 km – Tricity).

[1] A number of people aged 65 and older per 100 people aged 0-14.

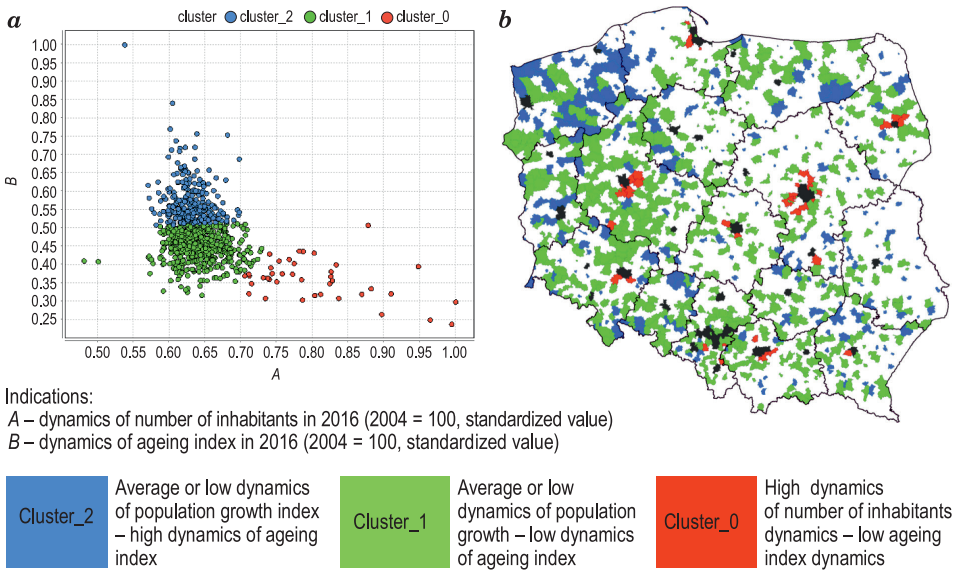

Fig. 1. Cluster analysis: dynamics of the number of inhabitants in 2016 (2004=100) and the dynamics of the ageing index in 2016 (2004=100) in cities with up to 100,000 inhabitants (standardized values): *a* – numeric layout, *b* – graphic layout

Source: own study based on data from the Central Statistical Office. Technical map preparation MSc K. Plac.

The third group of cities (cluster_2 on Fig. 1, 273 towns) was characterized by having average or low dynamics of population growth and high dynamics in the aging index. This is by far the most sensitive group of urban centers in terms of social resilience. This group comprises cities such as: Hel, Jastrzębie-Zdrój, Łęczna, Leżajsk, and Polkowice. Some of these cities pose a strong industrial heritage. Others are associated with a peripheral location (e.g. Leżajsk). There are also cities which, despite the relatively close location to a regional center (Łęczna) or tourist attractions (Hel), show a significant social sensitivity.

The evaluation of **economic resilience** carried out by comparing the number of business entities (dimension *A* on Fig. 2) and dynamics of their growth rate in the years 2004–2016 (dimension *B* on Fig. 2) indicates the existence of several differentiated groups of cities.

The first group (cluster_2 on Fig. 2, 64 towns) includes cities with a high or very high number of economic entities and most often had average or low dynamics of growth. This group comprises, for example, cities such as: Piaseczno, Słupsk, Jelenia Góra, Nowy Sącz and Pruszków. These towns usually have from 50,000 to 100,000 inhabitants. The economic resilience of this group can be described as average.

The second group (cluster_1 in Fig. 2, 168 towns) includes cities with an average number of economic entities and low or average dynamics for their

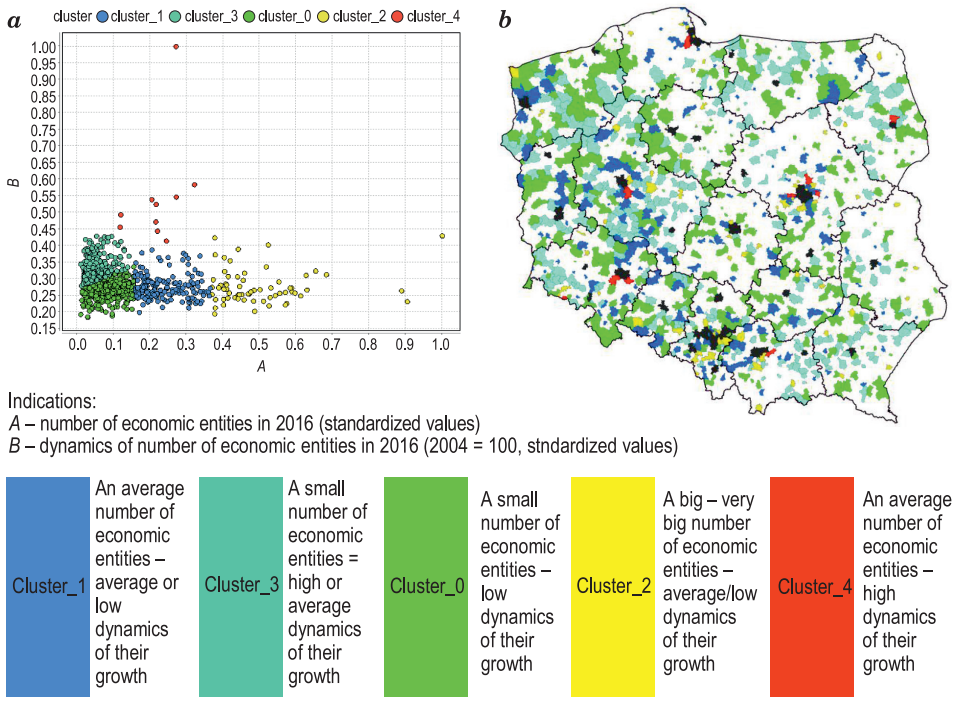

Fig. 2. Cluster analysis: number of economic entities in 2016 – economic entity dynamics in 2016 (2004=100) in cities with up to 100,000 inhabitants: *a* – numeric layout, *b* – graphic layout
Source: own study based on data from the Central Statistical Office. Technical map preparation MSc K. Plac

growth. This group comprised, among others, the following towns: Ełk, Szczecinek, Racibórz, Brzeg, Skierniewice, Mikołów. The resilience of this group can also be described as average.

The third group (cluster_0 on Fig. 2, 362 towns) consists of cities with a small number of economic entities and low dynamics of their growth. This group is undoubtedly the weakest in terms of economic resilience. Its representatives are e.g.: Kleszczele, Krynki, Nowe Warpno, Wyśmierzyce, and Obrzycko. Their common feature is having mostly a peripheral location in relation to large urban centers.

The group that differs in terms of economic resilience (cluster_3 on Fig. 2, 272 towns) consists of cities with a small number of economic entities (similarly to the previous group), but demonstrating average or even high dynamics of their growth. This group comprises, among others, the following cities: Szczucin, Choroszcz, Nowogrodziec, Ślesin, Skarszewy. High dynamics of economic entity growth is partially the result of so-called low notional value, although it is difficult to explain it only in terms of location near a large city or main road infrastructure.

The last group (cluster_4 on Fig. 2, 10 towns) consists of units with an average number of economic entities and high dynamics of their growth. They are characterised by high economic resilience. This group includes, among others: Karpacz, Kąty Wrocławskie, Siechnice, Niepołomice, and Halinów. The analyzed group is differentiated in terms of proximity to a large urban center, i.e. there are cities located near the center of the region (Kąty Wrocławskie, Siechnice, Niepołomice), but also Karpacz located at a considerable distance from Wrocław.

The evaluation of economic resilience in terms of tourism, based on the relationship between the dynamics of the number of tourists (dimension *A* on Fig. 3) and the dynamics of economic entities (dimension *B* on Fig. 3) verifies the theoretical assumption regarding the economic growth based on a tourism function. However, as the cluster analysis proves, this relation is not clear in the case of small and medium towns in Poland (see Fig. 3). On this basis, three groups of cities can be distinguished.

The first group (cluster_0 on the Fig. 3, 18 towns) comprises cities with up to 100,000 inhabitants characterized by average or high dynamics of an increase in the number of tourists and at the same time average or high dynamics in the number of economic entities. This is a small group of cities in which an increased inflow of tourists is reflected in the growth of economic activities (among them: Karpacz, Szczyrk, Międzyzdroje, Szklarska Poręba, Mikołajki). These are cities with a developed tourist function and obvious recreational values. However,

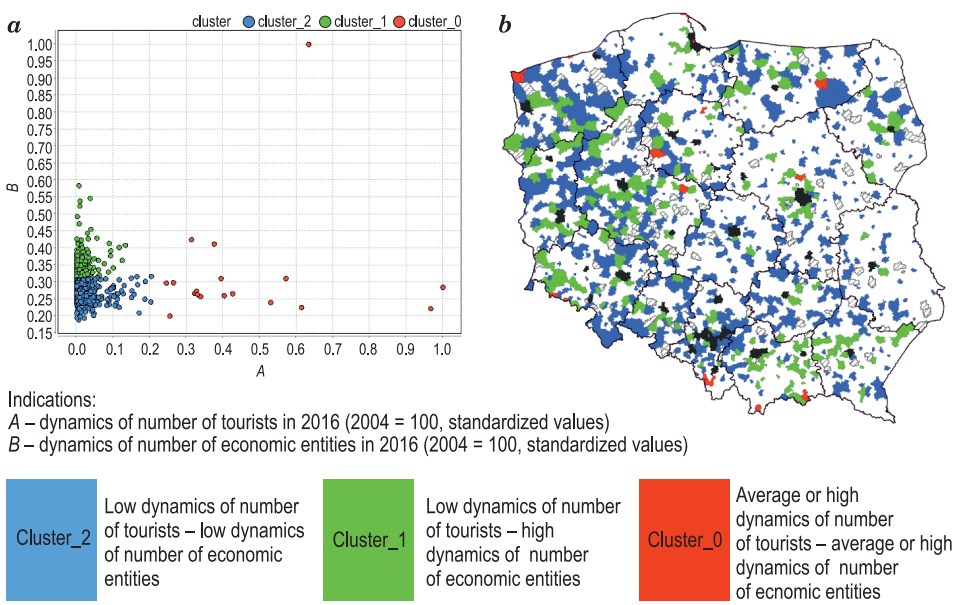

Fig. 3. Cluster analysis: tourists dynamics in 2016 (2004=100) – dynamics in the number of economic entities in 2016 (2004=100) in cities with up to 100,000 inhabitants: *a* – numeric layout, *b* – graphic layout

Source: own study based on data from the Central Statistical Office. Technical map preparation MSc K. Plac.

there are also such centers as: Serock, Żnin, Ślesin in this group, where tourism development involves rather a SPA development, business tourism, and weekend trips for nearby larger urban centers.

The second group (cluster_1 on Fig. 3, 209 towns) illustrates the cities in which low dynamics of growth in the number of tourists and, at the same time, high dynamics in the number of economic entities are recorded. These are centers whose economic growth is not directly related to the tourism industry. This group includes, among others: Wolbórz, Ryn, Józefów, Radzyń Chełmiński, Muszyna, and Piwniczna-Zdrój. What seems interesting, some of them are centers with a developed tourist function (e.g. Piwniczna-Zdrój, Rabka, Hel). However, in their case, an increase in the number of economic entities is probably a result of non-tourist factors.

The third group (cluster_2 on Fig. 3, 527 towns) consists of cities in which the dynamics in the number of tourists and the dynamics in the number of economic entities are low. This group comprises i.e.: Annopol, Knyszyn, Lubień Kujawski, Łazy, and Nowy Dwór Gdański. These are urban centers with an undeveloped tourist function and low economic growth.

Discussion and Conclusions

The initial assessment of the resilience of small and medium towns in Poland certainly has limitations, mainly due to limited access to statistical data. An attempt to formulate several general conclusions inclined the study to pay attention to: significant differences in the level of social and economic resilience, difficulties in formulating general relations between the dynamics of resilience indicators, and a mosaic character of development dynamics which creates a hybrid pattern of development of small and medium towns in Poland.

In terms of social and economic resilience, small and medium-sized cities form a very heterogeneous set of urban centers. Level differentiation of resilience refers to social resilience measured by an increase in the number of inhabitants and an increase in the aging rate. The level of economic resilience measured by the dynamics of the number of economic entities and an increase in the number of tourists is also very diversified.

Formulating general relationships between: the dynamics of the number of inhabitants and the dynamics of the aging index, the number of economic entities and the dynamics of the number of economic entities, or the dynamics of the number of tourists and the dynamics of the number of economic entities – despite seemingly obvious connections – is very limited. In the spatial dimension, there is a group (not numerous, though) of small and medium towns which poses some features determining their high level of resilience. For example, cities located in the immediate vicinity of large voivodship cities are characterized

by high social resilience, while cities with health and recreational advantages are usually characterized by a high level of economic resilience in terms of an increase in the number of economic entities combined with an increase in the number of tourists. Although there are also exceptions, for example, Skaryszew, Wilamowice, Orzesze, and Rydzyna, are characterized as having high social resilience in terms of demography, despite having a significant distance from regional centers.

On the spatial scale of Poland, the image of social and economic resilience of the examined cities is mosaic-like. This means that between groups of cities with polarized positions in terms of social and economic resilience (i.e.: high – high or low – low) there is a significant number of cities with different levels of resilience (i.e.: low – average, low – high; average – low, average – average, average – high). The cluster analyzes and their spatial interpretation for this group of cities show that it can be demonstrated to a limited extent that resilience is influenced by such conditions as the proximity of a large urban center, or the occurrence of spa and recreational values. This mosaic pattern of the development of small and medium towns can be compared to hybrid development, where the dynamics of changes in basic socio-economic values is to a limited extent directly related to the potential or location of a given center. The high or low development dynamics of this type of town is probably the result of the re-location of links in production chains or the location of links of new production chains, which in the era of progressive mobility of production factors and digitalization are less dependent on geographical proximity.

The hybrid pattern of territorial development processes can be explained both in the internal dimension, i.e. concerning a given urban unit, and the external dimension, i.e. regarding a distinguished group of spatial units (Drobniak, 2017a, p. 39). Internally, hybridization of development occurs in the form of co-occurring in the space of a particular city, stages of growth and regression which are determined by creating or closing production chains. Hybridization in the urban space takes the form of a collage of the past and the future. In the external approach, the hybrid pattern of development indicates the simultaneous occurrence of highly diverse groups of cities in terms of dynamics of growth, which adapt to changing conditions in a far different way (Drobniak, 2017a, p. 40). This is confirmed by the conducted research on the resilience of small and medium-sized cities in Poland. Their dynamics of development can be recognized in terms of a hybrid development pattern, i.e. uneven development, which simultaneously incorporates in space centers with very different growth dynamics, which leads to urbanization and de-urbanization processes, deindustrialization and industrialization, polarization in terms of income and availability of public services (Sýkora & Bouzarovsky, 2012, p. 51).

In conclusion, the complexity of the developmental problems of small and medium towns in Poland is reflected in a highly diversified level of their resilience. Small and medium towns have the potential for social and economic

development based on both the services of surrounding rural areas and the participation in "outsourcing" of economic activities by large urban centers. Moreover, endogenous development factors are also important in establishing the dynamics of their growth (Siekierska-Rosiak, 2016, p. 26). The ability to launch specific resources in small and medium towns, including leisure, housing, social, communication and specialized economic functions, indicates the usefulness of their endogenous potential and determines the dynamics of their development.

Translated by Urszula Bielec
Proofreading by Michael Thoene

References

Bartosiewicz, B. (2016). Polityka rozwoju lokalnego w kurczących się małych miastach. *Prace Naukowe Uniwersytetu Ekonomicznego we Wrocławiu*, *418*, 22-31. https://doi.org/10.15611/pn.2016.418.02.

Berkes, F. (2007). Understanding uncertainty and reducing vulnerability: lessons from resilience thinking. *Natural Hazards*, *41*(2), 283-295. https://doi.org/10.1007/s11069-006-9036-7.

Boyer, R. (1997). *Evolution des modeles productifs et hybridation: géographie, historie et théorie*. CEPREMAP Working Papers (Couverture Orange) 9804, CEPREMAP.

Bury, P., Markowski, T., & Regulski, J. (1993). *Podstawy ekonomiki miasta*. Łódź: Wyd. Fundacja Rozwoju Przedsiębiorczości.

Czornik, M. (2004). *Miasto. Ekonomiczne aspekty funkcjonowania*. Katowice: Wyd. Akademii Ekonomicznej.

Drobniak, A. (2014). *Method for assessing the resilience of city.* In A. Drobniak (Ed.). *Urban resilience concept and post-industrial cities in Europe*. Katowice: University of Economics in Katowice – HELION SA Publishing Group, p. 49-75.

Drobniak, A. (2017a). *Hybrydyzacja rozwoju – przypadkowość czy nowy wzorzec rozwoju?* In A. Drobniak (Ed.). *Nowe sektory gospodarki w rozwoju miasta – hybrydyzacja rozwoju*. Katowice: Wydawnictwo Uniwersytetu Ekonomicznego, p. 30-46. https://doi.org/10.15611/pn.2017.02.

Drobniak, A. (2017b). Economic resilience and hybridization of development – A case of the Central European Regions. *Regional Statistics*, *7*(1), 43-62, https://doi.org/10.15196/RS07103.

Eurostat. Your key to European Statistic. Retrieved from https://ec.europa.eu/eurostat/web/cities/statistics-illustrated.

Folke, C., Carpenter, S., Elmqvist, T., Gunderson, L., Holling, C.S., & Walker, B. (2002). Resilience and Sustainable Development: Building Adaptive Capacity in a World of Transformations. *Ambio*, *31*(5), 437-440.

Godschalk, D.R. (2003). Urban hazard mitigation: Creating resilient cities. *Natural Hazards Review*, *4*(3), 136-143.

Golubchikov, O., Badyina, A., & Makhrova, A. (2014). The Hybrid Spatialities of Transition: Capitalism, Legacy and Uneven Urban Economic Restructuring. *Urban Studies*, *51*(4), 617-633. https://doi/org/10.1177/0042098013493022.

Heffner, K., & Halama, A. (2012). *Wstęp*. In K. Heffner & A. Halama (Eds.). *Ewolucja funkcji małych miast w Polsce*. Studia Ekonomiczne. Zeszyty Naukowe Wydziałowe Uniwersytetu Ekonomicznego w Katowicach, p. 7-8.

Heffner, K., & Gibas, P. (2007). *Analiza ekonomiczno-przestrzenna*. Katowice: Wydawnictwo Akademii Ekonomicznej.

Hill, E., Clair, T., & Wial, H. (2010). *Economic Shocks and Regional Economic Resilience*. Washington DC: George Washington, Urban Institute. Building Resilience Region Project. Conference on Urban and Regional Policy and Its Effects, Building Resilience Regions, p. 1-69.

Johnson, G., & Scholes, K. (1993). *Exploring Corporate Strategy. Text and Cases*. New York: Prentice Hall.

Kantor-Pietryga, I., Krzysztofik, R., & Runge, J. (2012). *Kontekst geograficzny i funkcjonalny kurczenia się małych miast w Polsce Południowej*. In K. Heffner & A. Halama (Eds.). *Ewolucja funkcji małych miast w Polsce*. Studia Ekonomiczne. Zeszyty Naukowe Wydziałowe Uniwersytetu Ekonomicznego w Katowicach, p. 9-23.

Klein, R.J.T., Nicholls, R.J., & Thomalla, F. (2003). Resilience to natural hazards. How useful is the concept? *Environmental Hazards*, *5*(1/2), 35-45. https://doi.org/10.1016/j.hazards.2004.02.001.

Koncepcja przestrzennego zagospodarowania kraju 2030. 2011. MP Załącznik do uchwały nr 239 Rady Ministrów z 13 grudnia 2011 r. (poz. 252).

Konecka-Szydłowska, B., & Perdał, R. (2017). Rola nowych miast w rozwoju społeczno-gospodarczym. *Wiadomości Statystyczne*, LXII, *3*(670), 28-48.

Lang, T. (2011). *Urban Resilience and New Institutional Theory – A Happy Couple for Urban and Regional Studies?* In B. Müller (Ed.). *German Annual of Spatial Research and Policy 2010. Urban Regional Resilience: How Do Cities and Regions Deal with Change?* Berlin, Heidelberg: Springer-Verlag, p. 15-24. https://doi.org/10.1007/978-3-642-12785-4_2.

Maik, W. (1992). *Podstawy geografii miast*. Toruń: Uniwersytet Mikołaja Kopernika.

Martin, R. (2016). How Regions React to Recession: Resilience and the Role of Economic Structure. *Regional Studies*, *50*(4), 561-585. https://doi.org/10.1080/00343404.2015.1136410.

Micek, G. (2017). *Bliskość geograficzna przedsiębiorstw zaawansowanego przemysłu i usług a przepływ wiedzy*. Kraków: Uniwersytet Jagielloński.

Runge, J. (2011). Społeczno-gospodarcze oraz przestrzenne przejawy suburbanizacji w województwie śląskim. *Studia Miejskie*, *3*, 55-66.

Siekierska-Rosiak, I. (2016). Miasta w polityce regionalnej Polski w latach 2007–2013. *Studia KPZK PAN*, CLXXI.

Simmie, J., & Martin, R. (2010). The economic resilience of regions: towards an evolutionary approach. *Cambridge Journal of Regions, Economy and Society*, *3*(1): 27-43. https://doi.org/10.1093/cjres/rsp029.

Słodczyk, J. (2001). *Przestrzeń miasta i jej przeobrażenia*. Opole: Wydawnictwo Uniwersytetu Opolskiego.

Stryjakiewicz, T. (2013). *Proces kurczenia się miast (urban shrinkage) i jego konsekwencje*. In W.M. Gaczek (Ed.). *Dynamika, cele i polityka zintegrowanego rozwoju regionów. Aspekty teoretyczne i zarządzanie w przestrzeni*. Poznań: Bogucki Wydawnictwo Naukowe, p. 125-134.

Sýkora, L., & Bouzarovsky, S. (2012). Multiple transformations: Conteptualising the Post-communist Urban Transition. *Urban Studies*, *49*(1), 43-60. https://doi.org/10.1177/0042098010397402.

Walker, B., & Salt, D. (2006). *Resilience thinking: Sustaining ecosystems and people changing world*. Washington: Island Press.

Warddeker, A.J., de Jong, A., Knoop, J.M., & van der Sluijs, J.P. (2010). Operationalising a resilience approach to adapting an urban delta to uncertain climate changes. *Technological Forecasting & Social Change*, *77*(6), 987-998. https://doi.org/10.1016/j.techfore.2009.11.005.

Zarządzanie firmą. Strategie, struktury, decyzje, tożsamość. (2001). Tł. K. Bolesta-Kukułka. Warszawa: PWE.