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Socio-economic potential of cities belonging to the Polish National Cittaslow Network

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Abstract

Research background: Modern cities often struggle with the problem of selecting an optimal model of development, which is adjusted to their needs and resources. A kind of response to this was the founding of the Cittaslow network, bringing together cities developing according to the *slow city* model. The Polish National Cittaslow Network was established in April 2007. The founders of the network were four cities from the Warmińsko-Mazurskie Province (Biskupiec, Bisztynek, Lidzbark Warmiński and Reszel). The aim of the Polish National Cittaslow Network is to promote and spread the idea of good life by implementing in the cities appropriate solutions in the field of environmental policy, infrastructure, quality of urban life, hospitality and social cohesion. Currently, 28 cities belong to the Polish National Cittaslow Network. These cities are joined by a common idea and common goals adopted to improve the quality of the residents' life. However, each city has a different history, tradition, natural values, and also has a different socio-economic potential.

Purpose of the article: The aim of the study was to assess the differentiation of the socio-economic potential of cities belonging to the Polish National Cittaslow Network.

Methods: The research covered all member cities of the network. The synthetic index was used to assess the socio-economic potential of cities. The grouping of cities was carried out using the hierarchical Ward method.

Findings & Value added: Differences in the socio-economic potential of the cities which belong to the Polish National Cittaslow Network are moderate. This is confirmed by the values of the

synthetic index of this potential in each of the cities as well as coefficient value of its variation. Differences between the member cities were also verified by the results of grouping. As many as 7 groups were distinguished, including 2 composed of single entities. The conclusions arising from this research are as follows. Firstly, the *slow city* development model should be individually adapted to the capabilities of each city or group of cities similar to each other in terms of the socio-economic potential level. Secondly, the recommendations proposed in this study can make a useful contribution to discussions on the possible implementation of the *slow city* model in Poland, and its adaptation by individual cities. Furthermore, the research outcome can serve as a set of recommendations for Cittaslow member cities in other countries.

Introduction

Modern cities struggle with many economic, social and spatial problems, in addition to which they function in a highly dynamic changeable environment, which forces them to search for an optimal development model. There are numerous models of urban development. For example, the following models are also known: *eco-city*, *green city*, *compact city*, *smart city*, *slow city*, *resilient city* or *XXQuality* (see Parysek, 2007, pp. 7–14; Mierzejewska, 2015, pp. 5–11; Stawasz & Sikora-Fernandez, 2016, pp. 29–54). Currently, the idea of a *smart city* is gaining popularity. It emphasises the improvement of the quality of life of city residents, sustainable development, and above all the application of IT solutions in the development of a city. A smart city needs to become an innovative and creative area, having a high learning capacity and a highly efficient management system (see Komninos, 2009, pp. 337–355; Stawasz, 2015, pp. 237–254). Cities can be said to be smart when the improvement in the quality of life is achieved via smart solutions.

Significantly, although the concept of a *smart city* is appealing, it needs to be mentioned that all cities are bound to turn smart in the contemporary world. This direction of change is more of a necessity rather than a way to attain a long-term competitive advantage. Building the brand of a city should rely on the specific DNA of each site (*Future of cities...* 2013, p. 80). A possible response to this challenge is the concept of a *slow city*, where attention is drawn to the improvement of the quality of life in a city and its sustainable development based on local resources. It is an alternative concept of urban development, promoting the culture of a good and slow life. It emphasises the need to protect unique products and services that are based on local culture and identity. A number of small cities in Poland have decided that the adaptation of this model creates an opportunity to attain sustainable development and improve their competitiveness.

The Polish National Cittaslow Network was founded in April 2007. It is currently the second largest Cittaslow network in the world, and is con-

stantly growing very dynamically. There are 28 member cities, of which 20 lie in the Warmińsko-Mazurskie Province. The supporting member of the network is the Marshal's Office of the Wamińsko-Mazurskie Province.

The purpose of the Polish National Cittaslow Network is to promote and spread the idea of a good, harmonious life, which is an alternative to urban rush and progressing globalisation. Actions undertaken by member cities concentrate on the improvement of the quality of residents' life, care for history, nature, tradition and hospitality. The cities which belong to the Cittaslow network focus on pro-social and pro-environmental measures, and on promoting and disseminating the culture of a good life, while making efforts to preserve the unique character of every member city. The networked cities highlight their historical urban roots, treasures of the local culture, handicrafts, cuisine as well as people's hospitality. They strive to employ innovative approaches to the organisation of their cities, so as to ensure that a slow pace of life does not contradict the continuous and thoughtful development.

The cities which have joined the Polish National Cittaslow Network share the same idea and goals, adopted in order to improve the quality of life of their inhabitants. Each of these cities, however, has different natural and cultural assets, a different history and tradition as well as a different socio-economic potential that influences their development.

The aim of this study has been to assess the differentiation of the socio-economic potential of cities belonging to the Polish National Cittaslow Network. An attempt has been made to resolve two questions: "What is the scale of this differentiation?" and "Which network member cities are similar to one another with respect to the internal structure of variables that describe this potential?"

The study covered all cities of the Polish National Cittaslow Network. An assessment of the socio-economic potential of the cities was accomplished with the help of several variables that described the potential of the cities in these areas. Values of the variables were obtained from the Local Data Bank. The analysis covered data from the year 2017.

The following research methods were used in the research: the literature analysis method, source analysis method, statistical methods of multidimensional comparative analysis (including the linear ordering method based on a synthetic index, and the hierarchical Ward method), and the induction method.

The article comprises the following sections: literature review, research methodology, results, discussion and conclusions. The literature review defines the idea of a *slow city* and describes the development of the Polish National Cittaslow Network. The subsequent section, concerning the re-

search methodology, defines the notion of the socio-economic potential of cities, and describes the statistical methods applied to evaluate that potential. The next section reports the research results pertaining to diversity in the socio-economic potential of Polish slow cities. The penultimate section is dedicated to a discussion of the research outcome in comparison with the results reported by other authors; it also indicates how the current results may be used. The last part of the article contains conclusions, including suggestions for future research.

Literature review

The Cittaslow movement (*città* means a city in Italian) was born in Italy in 1999, and its aim was to extend the concept of *slow food* to other areas of human life, and consequently to offer local communities a new concept of life — "good life". The Cittaslow movement is based on the philosophy of slowness, which opposes the excessive acceleration of the pace of life in the era of globalisation (Roma *et al.*, 2012, p. 28). The Cittaslow movement emerged as a reaction to the negative effects of globalization on small cities (Ozmen & Can, 2018a, p. 91).

The idea of Cittaslow is an alternative approach to urban development that focuses on local resources, economic and cultural strengths, and the unique historical context of a town. Slow cities are places where citizens and local leaders pay attention to local history and utilise the distinct local context to develop in better and more sustainable ways (Mayer & Knox, 2006, pp. 321–322). Cittaslow is a model of urban development that is an alternative to globalisation, or corporate-centered development (Kopeć, 2012, p. 55). It is an alternative vision of development, aimed towards preserving precious local values (Grzelak-Kostulska *et al.*, 2011, p. 191). It is a concept that promotes a slow and peaceful pace of life and a city development focusing on local diversity (see Radstrom, 2011, pp. 90–113; Semmens & Freeman, 2012, pp. 353–375).

The idea promoted by Cittaslow is to ensure the possibility of meeting those needs that may not be readily available in big cities. The slower and more attentive daily life creates space for strengthening and building real social bonds, giving rise to grassroots initiatives in order to improve the quality of life in a small city (Zawadzka, 2017, p. 97). The implementation of the model of a *slow city* guarantees small cities numerous benefits in the economic, social, spatial, environmental, organizational and image sphere. These benefits, in turn, contribute to the real development of cities (Zadęcka, 2018, p. 104).

The creation of the Cittaslow network was initiated by the authorities of 4 small Italian cities: Bra, Greve in Chianti, Orvieto and Positano. To formalise the network, an association called the “*Cittaslow — International Network of Cities of the Good Life*” (Cittaslow in short) was established in 1999. The association is a non-profit organisation focused on promoting and spreading the culture of good living through research, testing and the application of solutions for the city organisation (*International Cittaslow Charter*, 2014, p. 5).

The Cittaslow network may include small and medium-sized cities with a population of fewer than 50,000 inhabitants. A candidate city (in addition to the size criterion) must meet more than half of the 72 set criteria in the certification process. These criteria are grouped into 7 macro-areas (*International Cittaslow Charter*, 2014, pp. 27–29):

1. energy and environmental policy;
2. infrastructure policies;
3. quality of urban life policies;
4. agricultural, turistic and artisan policies;
5. policies for hospitality, awareness and training;
6. social cohesion;
7. partnership.

After joining the network, member cities are obliged to increase the level of fulfillment of the certification criteria. Verification of a city’s activities in this area (so-called recertification) is repeated every 5 years. Both the certification and recertification processes enable cities to recognise their endogenous potential, which will be the basis for their development.

The international Cittaslow network currently consists of 252 cities from around the world. The network is dominated by European cities, as around 190 member cities lie in Europe. In second place, in terms of the number of cities in the network, is Asia — with about 50 cities. The European leader in terms of the number of cities in the Cittaslow network is Italy with 84 cities. In second place is Poland with 28 cities, the third place is occupied by Germany with 19 cities. As for Asian countries, the majority of Cittaslow cities are in Turkey and South Korea (15 in each of them) (*Cittaslow List*, 2018, pp. 1–10).

The Polish National Cittaslow Network was established on 13 April 2007. The founders of the network were four cities from the Warmińsko-Mazurskie Province: Biskupiec, Bisztynek, Lidzbark Warmiński and Reszel. The Marshal's Office of the Warmińsko-Mazurskie Province became the supporting member of the network. The goal of the Polish National Cittaslow Network is to promote and spread the idea of a good life for city residents by implementing in cities certain solutions which belong

to the scope of environmental and infrastructural policy, urban space, hospitality, social cohesion and partnership (*Regulations of the Polish...* 2017, p. 1). In order to establish a formal network in Poland, an association called “Polish Cittaslow Cities” was founded on 18 March 2015. The association is a legal person and acts as a subject predisposed to acquire funds from external sources for the development and promotion of the entire network.

The Polish National Cittaslow Network currently (January 2019) encompasses 28 cities, of which 20 lie in the Warmińsko-Mazurskie Province. Two other cities, Braniewo and Wydminy, are in the process of joining the network. The complete list of member cities, including the year they accessed the network, is given in Table 1.

Most of the cities which belong to the Polish National Cittaslow Network are small, with a population of up to 20,000, and only 3 cities, such as Bartoszyce, Działdowo and Prudnik, are medium-sized, having over 20,000 inhabitants. The average size of a member city is 9,300 residents. As many as 20 cities in the Polish Cittaslow network are cities in rural-urban municipalities, and only 8 are urban municipalities.

The Polish National Cittaslow Network is developing dynamically and is the second largest Cittaslow network in the world. The rapid growth of this network in Poland, and especially in the Warmińsko-Mazurskie Province, is a consequence of numerous actions undertaken by the Province authorities to promote this idea. An example is the implementation of two projects by the Marshal’s Office in the Warmińsko-Mazurskie Province, namely: “Promoting the idea of Cittaslow in Warmia, Mazury and Powiśle”, and “Cittaslow — a network of cities in Warmia, Mazury and Powiśle promoting a good quality of life”. These projects were cofunded by the European Regional Development Fund, and performed under the framework of the Regional Operational Programme for Warmia and Mazury in 2007–2013. The dynamic development of the network in the Warmińsko-Mazurskie Province is also the effect of taking into account issues related to its development in two strategic documents of the Province: “Strategy of the Socio-economic Development of the Warmińsko-Mazurskie Province until the year 2025”, and “Strategy for the Development of Tourism in the Warmińsko-Mazurskie Province until the year 2025”.

The development of cities belonging to the Cittaslow network is based on the theory of endogenous development. The most important endogenous assets of Polish slow cities include: attractive geographical location, natural environmental values, a rich historical and cultural heritage, local traditions and products, and the strong sense of social identity. Therefore, the cities concentrate mostly on activities aimed at environmental protection,

improving the living conditions of residents, promoting the tourist attractiveness of the city and raising the pro-ecological awareness of residents. As noted by Hatipoglu (2015, p. 33), slow cities strive to maintain small-town distinctiveness by protecting the local heritage, slowing the pace of time and increasing livability, while supporting the principles of sustainable development. As noted by Rysz and Mazurek (2015, p. 41), slow cities lead a daily life differently than before, in a slower, less rapid way, not focused on productivity.

The functioning of cities in accordance with the idea of Cittaslow, however, does not mean their stagnation. On the contrary, it means their development by improving the resident's quality of life, and increasing the attractiveness of cities. It means calm and sustainable development by intensifying interdependency between the economy, environment and equity (three E's). The concept of Cittaslow does not exclude the innovativeness of cities, either. As noted by Strzelecka (2017, pp. 35–36), slow cities combine their cultural identity and tradition with innovative actions. Slow cities try to implement innovative ways of a city's organisation so as to ensure that a slow pace of life does not undermine a constant and well-planned development.

In summary, the cities belonging to the Polish National Cittaslow Network share the same idea, adopted in order to improve the quality of resident's lives. The cities collaborate with one another in the network, promote and spread the idea of a good life, while taking care to preserve their unique character. The development of the Polish slow cities is based on their local, endogenous potential. Significantly, each of the cities has a different, unique potential, in terms of natural and cultural values, as well as socio-economic assets. Thus, every city has different development capacities.

Research methodology

The socio-economic potential of a city is the state of resources owned by the city. It consists of natural, capital and labour resources, as well as the achieved level of economic development. The socio-economic potential of a city is its ability to meet the needs of residents and business enterprises located in its area (Myadzelets, 2009, p. 160). It is also a city's ability to take advantage of its geographical location as well as the existing and prospective infrastructure to improve the quality of life of its population (Cheymetova & Nazmutdinova, 2015, p. 75).

The socio-economic potential of a city can be described in four domains: development of economic infrastructure, development of social infrastructure, quality of human and social capital, and finally economic development. Potential as defined above is measured with the help of synthetic measures, which are determined on the basis of a set of variables applied to describe each of the four dimensions (Bogdański, 2012, p. 15; Bogdański & Wierzbicka, 2014, p. 295). An important step in such an assessment is to determine the rational structure of a city's potential, using to this aim an appropriate set of variables (Golejewska, 2016, p. 9). When selecting variables, their versatility, substantive value, measurability, completeness, availability, and informational value should be taken into account (see Zeliaś, 2002; Malina, 2004; Strahl, 2006; Balcerzak & Pietrzak, 2017).

The assessment of the socio-economic potential of the cities which belong to the Polish National Cittaslow Network was supported by multidimensional comparative statistical methods (including the linear ordering method based on a synthetic index, and the hierarchical Ward method). The variables were selected according to these criteria:

- subject-related matters and formal considerations: the author tried to select such variables which would best describe the socio-economic potential of cities, and which would matter from the point of view of a city's development concordant with the idea of the *slow city*. Other factors considered were the availability of statistical data and their completeness. The proposed variables describe both the infrastructural potential of cities (necessary for a city to build competitiveness) and the demographic potential (including the population structure and natural flows of the population), which is a driving engine of their development. Other suggested variables describe the economic potential of cities. Special attention was drawn to the level of entrepreneurial development in these sectors which are important for the development of the city in accordance with the idea of the slow city. Growth in these branches can contribute to the improved quality of life of the city's inhabitants and enhance the appeal of cities in the eyes of visitors. As a result, 17 potential variables were chosen;
- statistical (variations of the variables, and their degree of correlation with other variables) — variables whose coefficient of variation was less than the established threshold value, i.e. 0.06, were removed from the set of potential variables. Other discarded variables were the ones whose Pearson correlation coefficient was below the set threshold of 0.75. At this step, 3 variables were excluded.

Finally, the set of variables which served to build a synthetic index of the cities' socio-economic potential was composed of 14 variables (both stimulants — S, and destimulants — D):

- X_1 – number of population at the non-working age per 100 of working-age persons — D,
- X_2 – number of privately owned business enterprises per 1,000 residents — S,
- X_3 – share of enterprises in section C (industrial processing) in the total number of business entities — S,
- X_4 – share of enterprises in section G (wholesale and retail trade, car repair) in the total number of business entities — S,
- X_5 – share of enterprises in sections I and R (hospitality and catering, culture, entertainment and recreation) in the total number of business entities — S,
- X_6 – number of working persons per 1,000 residents — S,
- X_7 – population growth per 1,000 residents — S,
- X_8 – balance of internal migrations for permanent residence per 1,000 residents — S,
- X_9 – gross enrollment rate for post-primary school students — S,
- X_{10} – number of residents per 1 health centre — D,
- X_{11} – number of residents per 1 pharmacy — D,
- X_{12} – number of flats per 1,000 residents — S,
- X_{13} – average useful floorspace per 1 person — S,
- X_{14} – share of the population in households with access to waterworks and sewers — S.

The synthetic index of the socio-economic potential of cities was calculated after the variables had been stimulated and normalised. The stimulation of the variables considered to act as destimulants was performed according to the formula (Panek & Zwierzchowski, 2013, p. 34):

$$x_{ij}^S = \max_i\{x_{ij}^D\} - x_{ij}^D \quad i = 1, 2, \dots, n; j = 1, 2, \dots, m, \quad (1)$$

where:

x_{ij}^S – value of j^{th} variable in i^{th} object after stimulation,

$\max_i\{x_{ij}^D\}$ – maximum value of j^{th} destimulant variable in the set of objects,

x_{ij}^D – value of j^{th} destimulant variable in i^{th} object.

After stimulation, the variables were normalised. Normalisation was accomplished by applying the zeroed unitarisation procedure, which is recommended when linear ordering of objects is envisaged (see Jarocka, 2015,

pp. 113–126; Kukuła & Luty, 2015, pp. 219–231). Normalisation proceeded according to the formula (Panek & Zwierzchowski, 2013, p. 37):

$$z_{ij} = \frac{x_{ij} - \min_i \{x_{ij}\}}{\max_i \{x_{ij}\} - \min_i \{x_{ij}\}} \quad i = 1, 2, \dots, n; j = 1, 2, \dots, m, \quad (2)$$

where:

z_{ij} – normalised value of j^{th} variable in i^{th} object,

x_{ij} – value of j^{th} variable in i^{th} object,

$\min_i \{x_{ij}\}, \max_i \{x_{ij}\}$ – min and max values of j^{th} variable in the set of objects.

Normalised variables were submitted to the procedure of synthetisation. The synthetic index of the socio-economic potential of cities was determined using non-model methods, according to the following formula (Panek & Zwierzchowski, 2013, p. 63):

$$s_i = \frac{1}{m} \sum_{j=1}^m z_{ij} \quad i = 1, 2, \dots, n, \quad (3)$$

where:

s_i – value of a synthetic index in i^{th} object,

z_{ij} – normalised value of j^{th} variable in i^{th} object,

m – number of variables.

The synthetic index of the socio-economic potential of the cities gained values within the interval of [0; 1]. Based on the values of this index, the cities which belong to the Polish National Cittaslow Network were ordered linearly.

The subsequent step in our analysis was to arrange the cities in groups. This was accomplished with the aid of the hierarchical Ward method, where groups (clusters) of items similar to one another in terms of their internal structure relative to the variables are identified. Distances between clusters in this method are determined according to an analysis of variance, which aims to minimise the sum of squares within clusters. This approach ensures homogeneity within clusters and heterogeneity between clusters (see Ward, 1963, pp. 236–244). This approach is thought to be a reliable and successful tool to employ when arranging units in clusters. It is therefore often used in analyses concerning differences among territorial units regarding their socio-economic development or living standards (see Miłek, 2018, pp. 487–507; Nowak, 2018, pp. 381–401). Clustering was performed on the basis of the same variables which served to build the synthetic

measure mentioned above. Normalisation of data was carried out according to the classical standardisation procedure, which ensures that variation as the basis for differentiation between objects is eliminated (see Walesiak, 2014, pp. 363–372). Normalisation was conducted according to the formula (Panek & Zwierzchowski, 2013, p. 36):

$$z_{ij} = \frac{x_{ij} - \bar{x}_j}{s(x_j)}, \quad i = 1, 2, \dots, n; j = 1, 2, \dots, m, \quad (4)$$

where:

z_{ij} – normalised value of j^{th} variable in i^{th} object,

x_{ij} – value of j^{th} variable in i^{th} object,

\bar{x}_j – average mean of the value of j^{th} variable,

s_{x_j} – standard deviation of j^{th} variable.

Differences between clusters were expressed by the Euclidean distance, which is one of the basic and most popular metrics of a distance between objects. This distance was measured according to the formula (Panek & Zwierzchowski, 2013, p. 44):

$$d_{ii'} = \left[\sum_{j=1}^m (z_{ij} - z_{i'j})^2 \right]^{\frac{1}{2}} \quad i = 1, 2, \dots, n, \quad (5)$$

where:

$d_{ii'}$ – value of the Euclidean distance between i^{th} and i'^{th} objects,

z_{ij} – normalised value of j^{th} variable in i^{th} object,

$z_{i'j}$ – normalised value of j^{th} variable in i'^{th} object,

m – number of variables.

The clustering of cities was supported by a Statistica software package. The results were presented in a dendrogram. The number of clusters was determined in a subjective manner, based on a visual analysis of the diagram depicting the course of clustering. When determining the number of clusters, the author made every effort to ensure that their number was not excessively high, and that all clusters were quite distant from one another. The tree branches were cut at a site of the largest difference in the distance between the nodes (more in Panek & Zwierzchowski, 2013, pp. 128–129).

Results

Values of the synthetic index of the socio-economic potential of the cities which belong to the Polish National Cittaslow Network are presented in Table 2. The same table contains values of the following descriptive statistics: range, arithmetic mean, coefficient of variation and coefficient of skewness.

The highest socio-economic potential was determined for Rzgów, a city lying within the agglomeration of Łódź. The distinguishing asset of this city among all the 28 networked cities is the highest level of entrepreneurship. There are 212 privately owned business enterprises per 1,000 inhabitants of Rzgów, while the average for all cities of the network is 93. Rzgów is characterised by the highest number of working persons per 1,000 city inhabitants (745 versus the average of 246) and the highest percentage of companies from sections C and G in the total number of economic entities (their total share was 58%).

The second highest potential was in Lubawa (cf. Janusz, 2018, pp. 71–82; Konecka-Szydłowska, 2017, pp. 61–73), a city in the Warmińsko-Mazurskie Province. This city has a very high number of working persons per 1,000 of the population (539 versus the average of 246), a high positive population growth rate per 1,000 of the population (3.9 versus the average -1.4) and a high positive internal migration balance for permanent residence per 1,000 of the population (5.8 versus the average -2.4). Third place was assigned to Murowana Goślina, a city in the Wielkopolskie Province, lying within the agglomeration of Poznań. An asset of this city is its high level of entrepreneurship (there are 144 private business enterprises per 1,000 of the population). Murowana Goślina is also distinguished by the lowest demographic load, among all cities of the network, measured by the number of non-working age population per 100 working-age persons (49 versus the average of 61).

The lowest socio-economic potential was determined for Rejowiec Fabryczny, a city situated in the Lubelskie Province. The weakness of this city is that it has the lowest entrepreneurship level among all 28 member cities. There are only 52 private sector companies per 1,000 of the population, which is four-fold fewer than in Rzgów. Rejowiec Fabryczny is also characterised by a very small number of working persons per 1,000 residents (108 versus the average of 246). Other cities with low socio-economic potential are Kalety in the Śląskie Province and Górowo Iławeckie in the Warmińsko-Mazurskie Province. Significantly, in 18 member cities of the Polish National Cittaslow Network the value of the synthetic index of the socio-economic potential is below the average for all cities.

The differentiation in the socio-economic potential of the cities belonging to the Polish National Cittaslow Network is on a moderate level. This is confirmed by the value of the coefficient of variation, which equals 17.4%¹, and by the high value of the range, higher than the value of the arithmetic mean. Significantly, there is right-handed skewness in the assemblage of the cities that belong to the Polish National Cittaslow Network. This means that there are atypical cities among the members of the network, where the value of the synthetic index of socio-economic potential is much higher than the typical values for most of the cities. An example is Rzgów, which occupies the first place on the ranking list. Its 'atypical character' relative to the other slow cities is confirmed by the results of clustering carried out with the Ward's method (Figure 1).

Having completed an analysis of the clustering test, a division into seven clusters was proposed. One cluster (E) was composed of a single city, Rzgów, which very much deviated from the other cities, being distinguished by a uniquely high level of entrepreneurship. In the dendrogram, this city 'joined' the latest to the applied procedure of clustering. Another single-city cluster (B) contained Ryn, characterised by a uniquely high level of the development of entrepreneurship in the areas connected with tourism, catering, culture and recreation, which are spheres of particular importance for cities that function in agreement with the concept of Cittaslow. The share of business entities in sections I and R in the total number of economic entities registered in the REGON system was 10.7% in Ryn, compared to the average for all slow cities in Poland, which equaled 4.7%.

Another cluster (C) consisted of two cities: Kalety and Rejowiec Fabryczny. Both are characterised by the lowest number of working persons per 1,000 of the population and the lowest percentage of residents with access to waterworks and sewers in the total population. They are also distinguished by a low level of entrepreneurship. Interestingly, one cluster (A) contained such cities as: Barczewo (12th position on the ranking list), Gołdap (24th) and Lubawa (2nd). These cities proved to be very similar to one another with respect to the number of population at the non-working age per 100 working-age persons, number of flats per 1,000 of the population, and the average useful floorspace per 1 person. These cities are also similar in having a higher than average share of businesses in the sector of industrial processing in the total number of registered companies. Another group of similar cities, Górowo Iławeckie, Reszel and Sępólno, composed

¹ According to the interpretation proposed in the literature, it was assumed that a value of the coefficient below 10% means insignificant variation, a value in the range <10%, 40%> means moderate variation, and a value above 40% means high heterogeneity of characteristics in a sample.

cluster G. These cities have a high negative rate of population growth per 1,000 residents, and a high negative balance of internal migration for permanent residence. They are also distinguished by a much lower than average share of business entities in section C in the total number of companies, and a much lower than average area of the useful floorspace of a flat per 1 person.

The most numerous cluster, composed of as many as 12 cities (cluster F), encompassed: Bartoszyce, Biskupiec, Dobre Miasto, Działdowo, Głubczyce, Lidzbark, Lidzbark Warmiński, Nidzica, Nowe Miasto Lubawskie, Nowy Dwór Gdański, Orneta and Prudnik. The ranking list shows that these cities differ from one another in terms of the socio-economic potential they possess (e.g. Nowy Dwór Gdański — 4th place, Nowe Miasto Lubawskie — 23rd place). With respect to the internal structure of the variables that identify this potential, they were similar enough to be classified into a single cluster.

Discussion

Most of the research dedicated to the Cittaslow networks in various countries focuses on analysing the specific character of each network in comparison with other national networks. Such comparisons most often concern the number of networked cities, an average size of a slow city or the mean duration of the process of joining the network (see Roma *et al.*, 2012, pp. 91–103; Semmens & Freeman, 2012, pp. 1–23; Tayfun & Acuner, 2014, pp. 239–246). There are many case studies of one or several cities that are members of a Cittaslow network (see Salieva, 2016, pp. 55–99; Ozmen & Can, 2018b, pp. 13–23). In contrast, there are relatively few studies which analyse the internal diversity of national networks, and those that are available most frequently employ qualitative data (see Üstündagli *et al.*, 2015, pp. 125–154; Ada & Yener, 2017, pp. 66–78). This study therefore represents a relatively novel approach to the problem of differences in the potential of cities that belong to the Cittaslow network.

The research results obtained suggest that the socio-economic potential of member cities of the Polish National Cittaslow Network is quite varied. Consequently, every city has a slightly different set of development opportunities. Hence, the slow city development model should be adjusted to the specific capacity of each city or, possibly, a group of cities similar in at least the level of their socio-economic potential. A customised model of *slow city* development should agree with the philosophy of slow life and the concept of collaboration within the network. It should also favour the

best possible use of the endogenous potential of cities while enabling them to preserve their diversity and uniqueness.

In view of the above considerations, efforts pursued in the nearest future by the Polish Cittaslow network should address the elaboration of a strategy for the network's further development; a strategy that will arise from performing a detailed diagnosis of the social and economic potential of all member cities, including the potential rooted in their most proximate surroundings, and a strategy that will determine the main development directions for every city or for groups of cities.

Such activities should also be taken in other national networks, especially ones with a large number of members that are rather diverse. However, it is worth remembering that the process of adaptation of the *slow city* model depends on local, regional and national conditions. Every national Cittaslow network (e.g. Polish, Italian or Turkish) develops in its own, specific way. The process of implementing the slow city model will run differently in every country. Moreover, the model might evolve into a hybrid one during the process of its adaptation, for example into a *smart slow city* (see Farelnek & Stanowicka, 2016, pp. 359–370), where the development of a slow city is supported by innovative organisational or technological solutions.

Conclusions

The Polish National Cittaslow Network comprises 28 cities and is the second largest Cittaslow network in the world. The cities share a common idea, and a common development model adopted with a view to improving the quality of life in a small city. Member cities of the network are diverse. They differ in size, as well as in natural and cultural values. Every city has unique, valuable features. It has a different history, tradition and different socio-economic potential.

The differentiation in the socio-economic potential of the member cities of the network is moderate. This is confirmed by the value of the coefficient of variation, which equalled 17.4%, and by the relation between the maximum and minimum value of the synthetic index of the socio-economic potential of these cities, which equalled 2.5. The highest level of socio-economic potential was determined for Rzgów, a city which lies in the Łódź agglomeration. The lowest level of socio-economic potential is characteristic of Rejowiec Fabryczny.

Differences among the Polish cities belonging to the Cittaslow network are also verified by the results of clustering carried out with the hierarchical

Ward method. The member cities of the Polish National Cittaslow Network turned out to be so heterogeneous that they were divided into as many as 7 clusters, including two composed of single cities.

Summarizing, the member cities of the Polish National Cittaslow Network are characterised by different levels of the socio-economic potential, hence they have various development opportunities. The *slow city* development model should therefore be individually adapted to the capabilities of each city or group of cities. Among the cities of the Polish National Cittaslow Network, it is possible to distinguish groups of cities similar to one another with regard to the internal structure of variables characterising this potential. It should be borne in mind, however, that the individual development model of each of the cities cannot contradict the general philosophy of Cittaslow and the idea of cooperation within the network.

The research results and proposed recommendations can constitute a useful contribution to discussions about the possibilities of implementing the *slow city* model in Poland and its adaptability by Polish cities. The analysis carried out by the author may assist in elaborating a strategy for the development of the Polish National Cittaslow Network. It may also serve as a type of recommendation for member cities of the Cittaslow network in other countries.

This study needs to be continued. It would be worth performing an analysis to resolve the question of whether and to what extent the member cities of the Polish Cittaslow network adapt the *slow city* model to their needs. Another challenge would be to analyse whether the *slow city* model in Poland is evolving towards a hybrid one.

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Annex

Table 1. Member cities of the Polish National Cittaslow Networks

Year of admission	City	Province	Type of municipality ¹	Total population ²
2007	Biskupiec	Warmińsko-Mazurskie	r-u	10,539
	Bisztynek	Warmińsko-Mazurskie	r-u	2,417
	Lidzbark Warmiński	Warmińsko-Mazurskie	u	15,877
	Reszel	Warmińsko-Mazurskie	r-u	4,615
2010	Murowana Goślina	Wielkopolskie	r-u	10,391
	Nowe Miasto Lubawskie	Warmińsko-Mazurskie	u	10,997
2012	Lubawa	Warmińsko-Mazurskie	u	10,269
	Olsztynek	Warmińsko-Mazurskie	r-u	7,677
	Ryn	Warmińsko-Mazurskie	r-u	2,865
2013	Barczewo	Warmińsko-Mazurskie	r-u	7,472
	Dobre Miasto	Warmińsko-Mazurskie	r-u	10,293
	Gołdap	Warmińsko-Mazurskie	r-u	13,740
2014	Górowo Iławeckie	Warmińsko-Mazurskie	u	4,021
	Kalety	Śląskie	u	8,627
	Nidzica	Warmińsko-Mazurskie	r-u	13,872
	Nowy Dwór Gdański	Pomorskie	r-u	9,964
	Pasym	Warmińsko-Mazurskie	r-u	2,549
	Rejowiec Fabryczny	Lubelskie	u	4,396
2015	Bartoszyce	Warmińsko-Mazurskie	u	23,810
	Działdowo	Warmińsko-Mazurskie	u	21,370
	Lidzbark	Warmińsko-Mazurskie	r-u	7,900
	Orneta	Warmińsko-Mazurskie	r-u	8,924
	Prudnik	Opolskie	r-u	21,237
2016	Głubczyce	Opolskie	r-u	12,624
	Jeziorany	Warmińsko-Mazurskie	r-u	3,258
	Sępólno	Warmińsko-Mazurskie	r-u	1,970
2017	Rzgów	Łódzkie	r-u	3,385
	Sianów	Zachodniopomorskie	r-u	6,666

¹ a city in a rural-urban municipality (r-u), an urban municipality (u)

² date from 31 December 2017

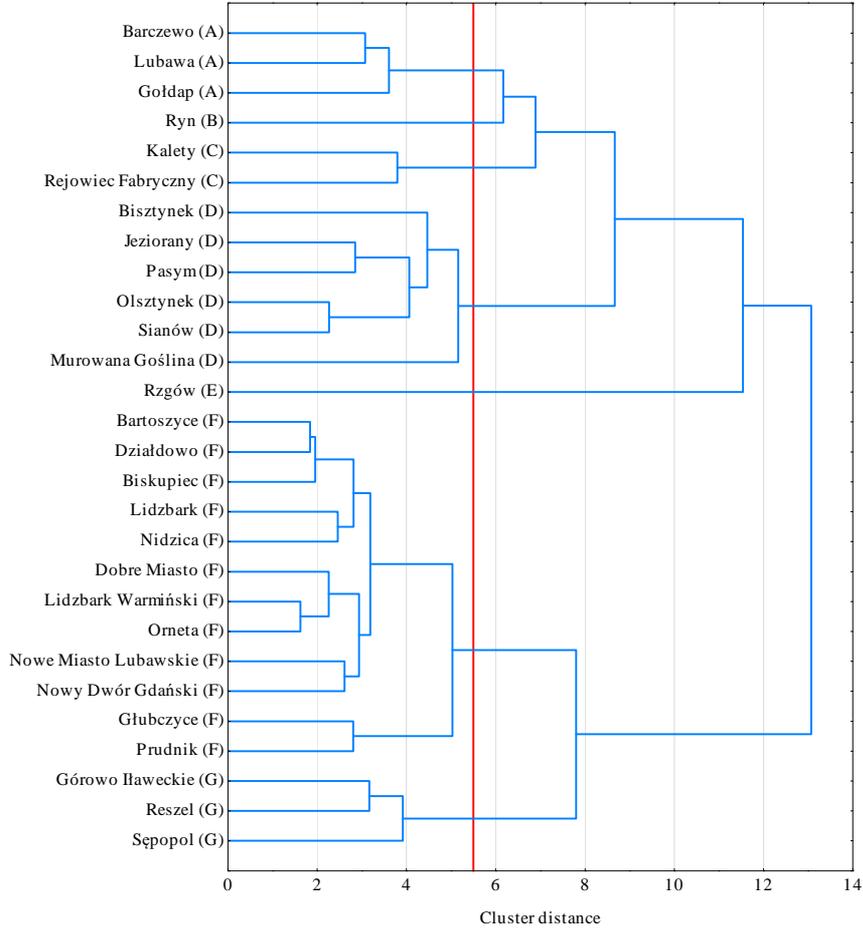
Source: own calculations based on Local Data Bank (2019).

Table 2. Linear ordering of cities belonging to the Polish National Cittaslow Network

Position in the ranking	City	Synthetic index of the socio-economic potential
1	Rzgów	0.718
2	Lubawa	0.482
3	Murowana Goślina	0.473
4	Nowy Dwór Gdański	0.468
5	Biskupiec	0.456
6	Nidzica	0.426
7	Działdowo	0.423
8	Pasym	0.423
9	Lidzbark	0.411
10	Lidzbark Warmiński	0.411
11	Olsztynek	0.403
12	Barczewo	0.402
13	Głubczyce	0.402
14	Sianów	0.401
15	Bisztynek	0.401
16	Ryn	0.401
17	Bartoszyce	0.393
18	Dobre Miasto	0.389
19	Jeziorany	0.389
20	Orneta	0.386
21	Prudnik	0.376
22	Reszel	0.374
23	Nowe Miasto Lubawskie	0.370
24	Gołdap	0.363
25	Sępól	0.363
26	Górowo Iławeckie	0.360
27	Kalety	0.337
28	Rejowiec Fabryczny	0.292
Range		0.426
Arithmetic mean		0.410
Coefficient of skewness		2.85
Coefficient of variation		17.4%

Source: own calculations based on Local Data Bank (2019).

Figure 1. The grouping of cities belonging to the Polish National Cittaslow Network



Source: own calculations based on Local Data Bank (2019).