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SOCIAL AND POPULATION-RELATED DETERMINANTS IN THE DEVELOPMENT OF SMALL TOWNS IN POLAND

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A b s t r a c t

The demographic changes that have been occurring in Poland for several decades concern all cities and towns, including those with the lowest population number – up to 20 thousand inhabitants. The article proposes a quantitative analysis of selected phenomena related to population and society in small Polish towns. The two most crucial demographic issues of Polish urban units, depopulation and population ageing, were analysed with the use of simple typological methods. The analysis was conducted on the basis of available statistical data. Additionally, a spatial perspective on the issue was presented.

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UWARUNKOWANIA SPOŁECZNO-LUDNOŚCIOWE ROZWOJU MAŁYCH MIAST W POLSCE

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S ł o w a k l u c z o w e: małe miasta, przemiany demograficzne, przyrost rzeczywisty, starzenie się ludności.

A b s t r a k t

Obserwowane od kilkudziesięciu lat przemiany demograficzne w Polsce dotyczą wszystkich miast, w tym także tych o najmniejszej liczbie ludności – do 20 tys. mieszkańców. W artykule zaproponowano ilościową analizę wybranych zjawisk ludnościowych i społecznych w małych miastach w Polsce. Przeanalizowano dwa najważniejsze problemy demograficzne występujące w polskich miastach, tj. depopulację i starzenie się ludności, wykorzystując proste metody typologiczne. Analizę prowadzono na podstawie dostępnych danych statystycznych. Dodatkowo zaproponowano ujęcie przestrzenne problemu.

Introduction

City and town inhabitants constitute more than 60% of the population of Poland. The Polish settlement system has a developed, multi-stage, hierarchical urban system and the capital city, when compared with other European countries, has only a minor advantage over other regional centres. Urban units, especially small and large towns are evenly arranged in space. These features of the settlement system indicate that it is a polycentric system which favours the fulfilment of the purposes of balanced development – the competitiveness of economy, social and territorial cohesion as well as eco-development (*Koncepcja przestrzennego zagospodarowania kraju*, 2014, p. 22).

The main components of the country's settlement system are the groups of cities and towns or conurbations aggregated according to their hierarchic level or size. The first group includes the centres that hold a crucial significance to the country's settlement system and its economy: Warszawa, Kraków, Gdańsk-Gdynia, Wrocław, Poznań, Katowice – the Katowice urban area, Łódź, Szczecin, Bydgoszcz with Toruń, and Lublin. In documents drawn up for the purposes of the spatial policy of the European Union, these cities (apart from Bydgoszcz, Toruń and Lublin) are classified as MEGA and are among 72 of the largest urban centres of the EU.

The next groups of cities are the remaining voivodeship centres that fulfil not only regional functions, but also a series of national ones: Białystok, Gorzów Wielkopolski, Kielce, Olsztyn, Opole, Rzeszów, Zielona Góra; regional centres (that are not voivodeship capitals and usually have 100 thousand to 300 thousand inhabitants): Częstochowa, Radom, Bielsko-Biała, Rybnik, Płock, Elbląg, Wałbrzych, Włocławek, Tarnów, Kalisz with Ostrów Wielkopolski, Koszalin, Legnica, Grudziądz, Słupsk and subregional centres with evident subgroups that comprise former voivodeship capitals and industrial centres. The remaining *powiat* (second level of local government in Poland) centres fulfil an important role in the scope of the functions of the public sector on a local level.

Urban units can be divided into small towns (up to 20 thousand inhabitants), large towns (20-100 thousand inhabitants) and cities – above 100 thousand inhabitants (*Miasta w liczbach 2012*, 2014, p. 31). The article proposes a quantitative analysis of selected phenomena related to population and society in small Polish towns. Attention has been paid to basic demographic issues (depopulation and ageing) which have been problematic in our country for many years.

The main objective of the study was to identify the size of two demographic phenomena in small cities in Poland, i.e. depopulation and aging of the population. They are also the most important demographic problems in these centers. A crucial goal carried out in the study was to illustrate the spatial diversification of these phenomena, as well. The article also achieved objectives such as determining the territorial diversity of the network of cities and urban population.

The analysis was conducted on the basis of the available statistical data. Additionally, a spatial perspective on the issue was presented. This approach made it possible to create a typology of the phenomenon which, in turn, could lead to the determination of the role and place of selected small towns in the Polish settlement network.

Regional differentiation of urban networks and population

The size and regional structures of the Polish urban network are largely determined by history, although slowly modified by administrative changes, in accordance with the processes of demographic and economic development. In 2016 in Poland, 919 settlement units, including 303 urban gminas (the principal units of the administrative division in Poland) and 616 towns or cities in the urban-rural gminas, had city or town rights. The urban-rural gminas took up 21,813 km^2, that is 7% of the country's area. In urban gminas, the majority of the county units (127) have a surface area of 20 to 50 km^2. More than half of cities and towns in urban-rural gminas (403 units) take up an area of 5 to 20 km^2, while the largest cities in terms of surface area (100 km^2 and more)

include solely the urban gminas. In 2016, on average one city or town took up 340.2 km^2 of the country's surface. The greatest density of the urban network is located in the Silesian Voivodeship, where each city, on average, took up an area of 173.7 km^2. The indicator of network density of less than 300 km^2 per 1 city/town was a feature of: the Lower Silesian Voivodeship (219.2 km^2), the Lesser Poland Voivodeship (248.9 km^2), the Opole Voivodeship (268.9 km^2)

Table 1

The density of the urban network and the structure of cities and towns according to size groups on the level of voivodeships in 2016

Voivodeships	Surface area of the voivodeship per single city/town expressed in km^2	Number of cities/towns					
		in general	with a population of				
			less than 20 thousand		20–100 thousand	100 thousand and more	
			in total	less than 5 thousand		in total	200 thousand and more
Poland	340.2	919	700	334	180	39	16
Lower Silesian Voivodeship	219.2	91	72	26	16	3	1
Kuyavian-Pomeranian Voivodeship	345.6	52	45	20	4	3	2
Lublin Voivodeship	546.1	46	36	19	9	1	1
Lubusz Voivodeship	333.0	42	36	18	4	2	-
Łódź Voivodeship	414.1	44	29	13	14	1	1
Lesser Poland Voivodeship	248.9	61	47	19	12	2	1
Masovian Voivodeship	413.5	86	61	27	22	3	2
Opole Voivodeship	268.9	35	29	11	5	1	-
Subcarpathian Voivodeship	349.9	51	41	20	9	1	-
Podlaskie Voivodeship	504.7	40	32	21	7	1	1
Pomeranian Voivodeship	436.0	42	27	8	13	2	2
Silesian Voivodeship	173.7	71	34	12	25	12	3
Świętokrzyskie Voivodeship	366.0	32	27	15	4	1	–
Warmian-Masurian Voivodeship	493.3	49	38	19	9	2	–
Greater Poland Voivodeship	266.3	112	92	53	18	2	1
West Pomeranian Voivodeship	352.2	65	54	33	9	2	1

Source: personal elaboration on the basis of Rocznik Demograficzny (2017).

and the Greater Poland Voivodeship (266.3 km^2). In 2016, the northern and eastern regions of the country had a lower network density, while the Lublin Voivodeship had the lowest network density – 546.1 km^2 (Tab. 1).

The most numerous group, more than 76% of all cities and towns, contained the smallest centres; the ones with less than 20 thousand inhabitants (Tab. 2). This group of small towns is diverse in terms of size – most of the towns it contains belong to class I, wherein the population does not exceed 5 thousand inhabitants. The percentage of the two remaining size classes of small towns, with 5-10 thousand inhabitants and 10-20 thousand inhabitants, was similar – both classes constituted approximately 26% of all small urban centres.

Table 2

Structure of cities and towns according to size in 2016

Groups and classes of size of cities/towns	Division by the number of inhabitants expressed in thousands	Number of cities/towns		
		in general	in percentages	
			in general = 100	group = 100
In general	–	919	100	–
Small towns	less than 20	700	76.2	100.0
Class I	less then 5	334	36.4	47.7
Class II	5-10	180	19.6	25.7
Class III	10-20	186	20.2	26.6
Large towns	20-100	180	19.6	100.0
Class IV	20-50	133	14.5	73.9
Class V	50-100	47	5.1	26.1
Cities	100 and more	39	4.2	100.0
Class VI	100-200	23	2.5	59.0
Class VII	200 and more	16	1.7	41.0

Source: personal elaboration on the basis of Rocznik Demograficzny (2017).

The number of cities and towns in Poland grows, 115 centres were granted city or town rights between the 1980s and the end of 2016 – the increase exceeded 14%. An upward trend similar to the one visible in all the cities and towns was demonstrated by small town centres, whose number increased by 80 in 1980–2016 – it was an increase of 13% (Fig. 1). In 1980, small towns were inhabited by nearly 4.5 million residents, while in 2016, it was almost 5 million.

Most urban units are located in the Greater Poland (112), Lower Silesian (91) and Masovian (86) Voivodeships. These three voivodeships contain almost $^1/_3$ of Polish cities and towns (Tab. 2). The lowest number of urban centres is located in the Świętokrzyskie (32) and Opole (35) Voivodeships. It has already been mentioned that Poland contains mostly small town units with less than 20 thousand inhabitants (including 60 towns with a number of inhabitants lower

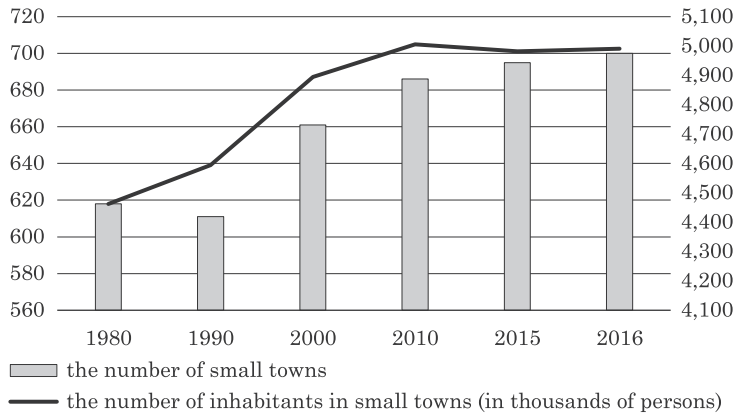

Fig. 1. Number of small towns and their inhabitants in Poland in 1980-2016
Source: personal elaboration of the basis of Rocznik Demograficzny (2017).

than 2 thousand). Approximately 53% of all 180 large towns were located in five voivodeships: Silesian (25), Masovian (22), Greater Poland (18), Lower Silesian (16) and Łódź (14) Voivodeships. The most urbanized Silesian Voivodeship holds almost one in three cities.

The size structure of cities and towns according to voivodeships is substantially diverse, although small towns predominate in all regions (Fig. 2). In as many as 12 voivodeships the percentage of the number of small towns against all cities and towns was higher than the national average – it exceeded 76%. Only in the Silesian Voivodeship, units where the number of inhabitants does not exceed 20 thousand constituted less than half of all towns and cities. The second size group contains large towns – in the Silesian, Łódź and Pomeranian Voivodeships more than 30% of all urban units are towns inhabited by 20–100 thousand people. The percentage of cities in all voivodeships is the smallest – ranging from 1.8% in the Greater Poland Voivodeship to 16.9% in the Silesian Voivodeship.

The structure of cities and towns when the number of their inhabitants is taken into account is slightly different (Fig. 3). In 2016, the inhabitants of cities constituted 46.8% of all urban population of the country. In four voivodeships (the Masovian, Silesian, Kuyavian-Pomeranian and Lesser Poland Voivodeships) more than half of the urban population are the residents of cities. This group, sorted by the number of inhabitants, contains all the main cities of voivodeships. In the structure of the population of Polish towns and cities, large towns take second place – nearly $^1/_3$ of the inhabitants of urban areas live in towns with 20–100 thousand residents. The highest percentage of population in large towns was the feature of the Subcarpathian (50.0%) and Łódź (40.9%) Voivodeships. In 2016, in Poland, every fifth resident of an urban area lived in a small town. The greatest number of people (more than 40%) in urban units with less than

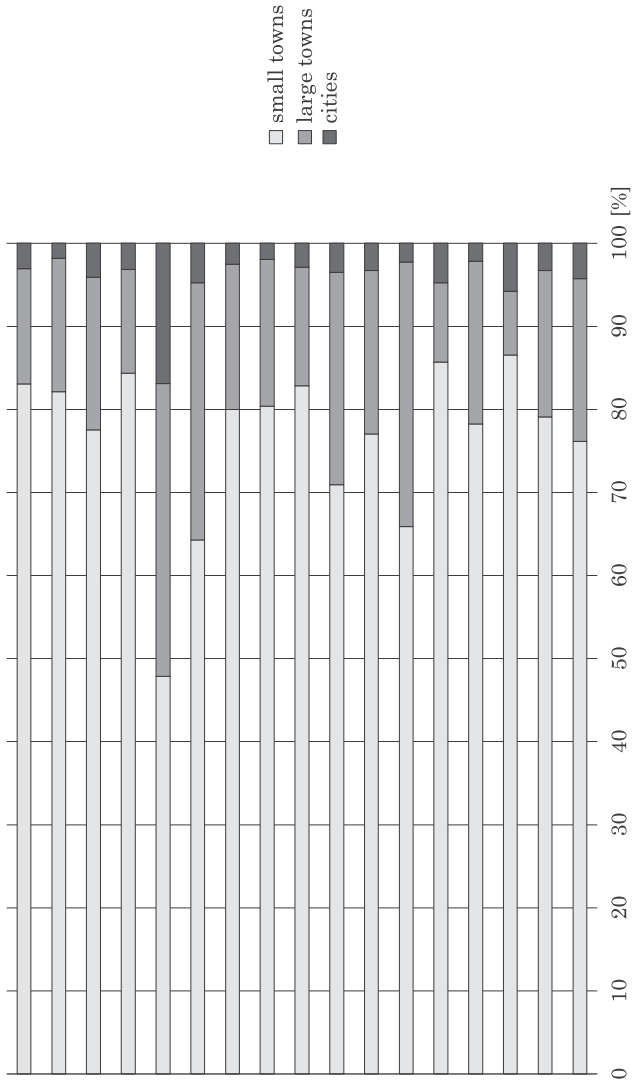

Fig. 2. Structure of urban units according to size groups in 2016
Source: personal elaboration on the basis of Rocznik Demograficzny (2017).

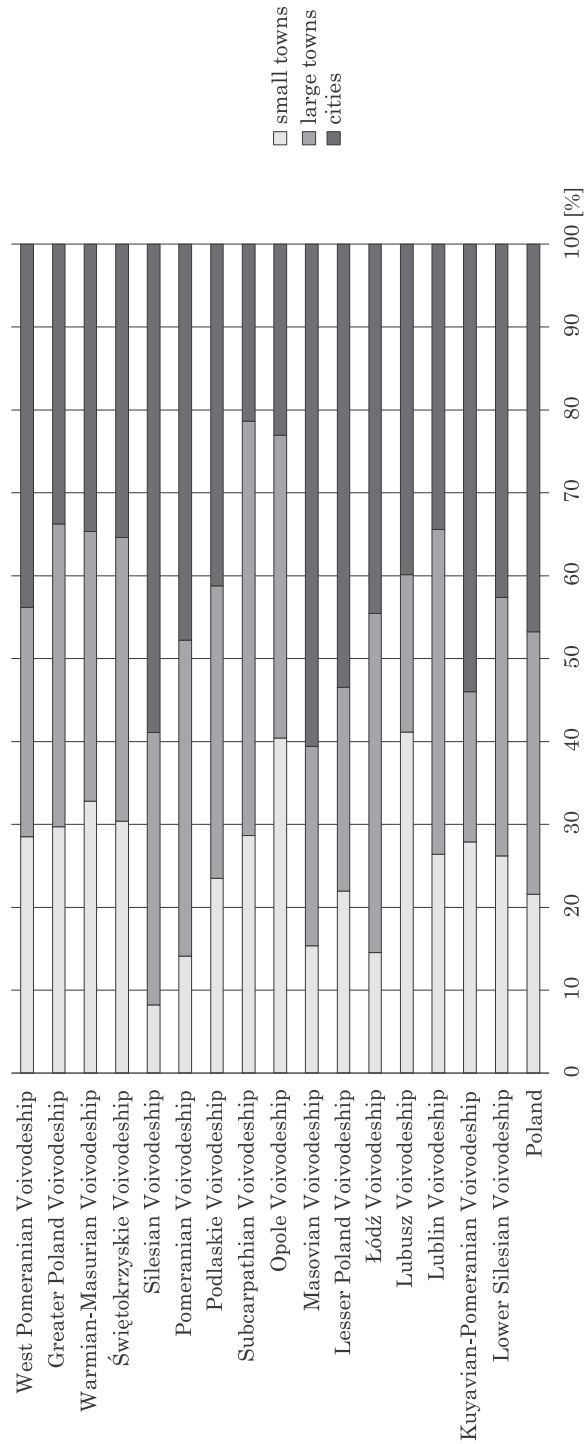

Fig. 3. Population of urban units in % of the whole of the urban population according to size groups in 2016
Source: personal elaboration on the basis of Rocznik Demograficzny (2017).

20 thousand inhabitants lived in the Lubusz and Opole Voivodeships; the smallest number of people in such units lived in the Silesian Voivodeship (8.2%).

In 2016, an average Polish urban unit had a surface area of 24 km^2 and 25.2 thousand inhabitants. The index of the average size of cities and towns on a voivodeship level spanned 41 km^2 according to the surface criterion and 33.9 thousand inhabitants according to the population criterion. The biggest urban unit, both in terms of surface and population number, was an average city/town in the Silesian Voivodeship – of almost twice the size of the average urban unit in the country. The smallest average urban unit in the country in terms of surface area was in the Warmian-Masurian Voivodeship (12 km^2), while the one with the lowest population number – in the Opole Voivodeship (14.8 thousand inhabitants) (cf. *Powierzchnia i ludność w przekroju terytorialnym w 2016 r.*, 2016).

Small towns in Poland – the selected aspects of demographic development

From the perspective of the country's economic development, urban centres play a crucial role. They hold the concentration of workplaces as well as services, both basic and advanced. It is there that the innovations that influence the economy of the whole country are created. Of course, the most significant role is performed by the metropolises, whose development spreads out to the rest of the country. However, the document entitled *Krajowa polityka miejska…* (2015) emphasizes that a country's economic development depends not only on the biggest urban centres, but also on the development potential of all, even the smallest, centres. Each kind of urban unit, even the tiniest town, is also a cultural phenomenon and a carrier of civilization. A balanced development of urban centres, which translates into a good condition of national economy, should result in Poland's competitiveness on the international level.

Krajowa polityka miejska (2015) addresses especially towns, both small and large, since the barrier hindering their introduction into modern developmental undertakings is much more pronounced in their case than in case of cities. This barrier is the result of financial possibilities, the institutional potential, etc. Additionally, towns are more exposed to the negative results of economic crises, demographic changes and other unfavourable phenomena.

The demographic changes that have been observed in Poland since the 1990s concern small urban centres to a great degree. Unfavourable demographic changes include depopulation processes and population ageing. As part of the analysis of population determinants in the development of small towns, the article examines selected demographic features such as total population growth and the selected aspects of the population's age structure (Janiszewska & Kikosicka, 2015).

The analysis of the total population growth was conducted using J. Webb's procedure, one of the typological methods based on the Cartesian coordinate system. It is also one of the most popular research tools, making it possible to determine the state of population development, in this case in small towns, taking into account the interdependencies between a positive or negative population growth and a positive or negative net migration rate. Depending on the development of both features, eight main classes can be distinguished (Runge, 2007):

– *A* – a positive population growth is larger than a negative net migration rate (+PG > –NMR),

– *B* – a positive population growth is larger than a positive net migration rate (+PG > +NMR),

– *C* – a positive net migration rate predominates over a positive population growth (+PG < + NMR),

– *D* – a positive net migration rate predominates over a negative population growth (–PG < + NMR),

– *E* – a negative population growth predominates over a positive net migration rate (–PG > + NMR),

– *F* – a negative population growth predominates over a negative net migration rate (–PG > – NMR),

– *G* – a negative net migration rate predominates over a negative population growth (–PG < – NMR),

– *H* – a negative net migration rate predominates over a positive population growth (+PG < – NMR).

The application of the typological procedure made it possible to obtain an image of the diversity of the total population growth in small towns in Poland. In the majority of units it was negative, and in sectors *E*, *F*, *G* and *H*, in 2016, there were as many as 490 towns, which constituted 70% of all small towns in Poland (Fig. 4). The largest negative total population growth, exceeding 20‰, occurred in 10 towns: Nowy Staw (Pomeranian Voivodeship), Karpacz (Lower Silesian Voivodeship), Błaszki (Łódź Voivodeship), Goniądz (Podlaskie Voivodeship), Zawichost (Świętokrzyskie Voivodeship), Frombork (Warmian-Masurian Voivodeship), Przedecz (Greater Poland Voivodeship) as well as Cedynia, Trzcińsko-Zdrój and Ińsko (West Pomeranian Voivodeship). Sector *G* predominated over the sectors with a negative total population growth; a negative net migration rate predominating over a negative population growth was observed in 205 towns. The opposite situation (a negative population growth predominating over a negative net migration rate) took place in 83 small towns in sector *F*. On this basis it has been calculated that in over 40% of analyzed towns, there was both a negative population growth and a negative net migration rate. A positive total population growth occurred in 2016 in 196 small towns (sectors *A*, *B*, *C*, *D*), and only 103 units had both positive population growth and net migration rates (sectors *B* and *C*).

In all voivodeships a significant majority of towns had a negative total population growth in 2016, although the percentage of such towns varied – from over 80% in the Świętokrzyskie Voivodeship to 55% in the Masovian Voivodeship. In the case of total population growth, sector *G* dominated in most voivodeships, only in the Greater Poland, Subcarpathian and Masovian Voivodeships most towns fell into sector *H*, while in the Silesian Voivodeship – into sector *E* (Annnex I).

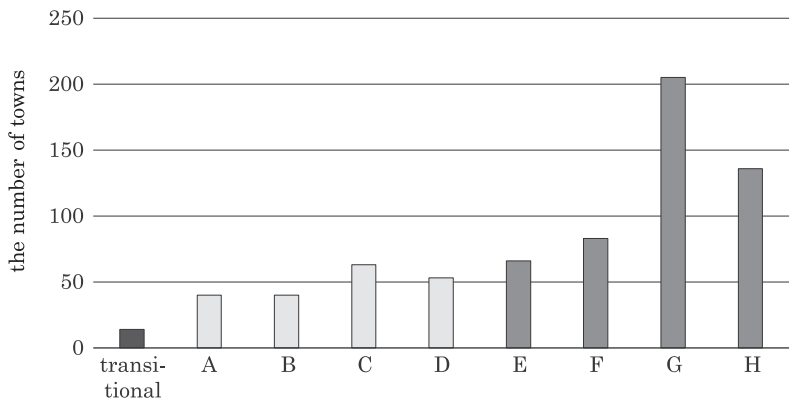

Fig. 4. Sectors of Webb's chart in Polish small towns in 2016
Source: personal elaboration on the basis of Rocznik Demograficzny (2017).

Apart from depopulation processes, changes in the structure of the population's age, especially associated with population ageing, are also observed in towns and cities. Population ageing is the result of the increase in the percentage of the elderly. The phenomenon of population ageing is determined by three factors. Those are both past and present tendencies in reproduction and mortality as well as migration flows (Preston *et al.*, 1989; Kurek, 2008). The first factor is inhibiting the population growth of the young, which is the result of the decrease in fertility and reproduction – it is known as the ageing of the population from the bottom of the age pyramid. A rapid increase in the number of the elderly can be the result of lower mortality rates among the elderly and these kinds of changes are associated with ageing from the tip of the pyramid (Grundy, 1996; Frątczak, 2002). Population ageing from the bottom and from the tip of the pyramid can also occur simultaneously. The third demographic factor of population ageing is migration, whose role increases in local systems. Research has shown that mostly young people migrate and areas with a high inflow of new residents have a lower average age. On the other hand, regions with high emigration levels have a higher index of population ageing, which often leads to depopulation. Inhibiting population inflow associated, for instance, with the saturation of the labour market, can, in time result in the increase

of the dynamics of ageing in the inflow area at an extreme scale, since the incomers will have reached post-working age. An additional element that influences population ageing is the increase in the migrations of the elderly. The inflow areas with attractive landscape or climate values become their destinations, thus increasing their percentage in the population of such areas (Grundy, 1996; King *et al.*, 1998; Avramov & Maskova, 2003; Eurostat, 2004; Kinsella & Philips, 2005). The significance of each of the factors may vary in time and space.

Small towns in Poland age to varying degrees, the advancement level of the ageing process is diverse. The old age standard calculated via the percentage of the elderly (aged 65+) was 8.6% in Łęczna (Lubusz Voivodeship) to 24.7% in Ciechocinek (Kuyavian-Pomeranian Voivodeship). Every fifth inhabitant in 16 small towns was a senior. Those towns, aside from the already-mentioned Ciechocinek, were: Niemcza, Duszniki-Zdrój, Polanica-Zdrój, Lądek-Zdrój, Szczawno-Zdrój, Bystrzyca Kłodzka, Ząbkowice Śląskie (Lower Silesian Voivodeship), Nałęczów (Lublin Voivodeship), Krynica-Zdrój (Lesser Poland Voivodeship), Iłża (Masovian Voivodeship), Ustka (Pomeranian Voivodeship), Ustroń (Silesian Voivodeship), Połczyn-Zdrój (West Pomeranian Voivodeship), Busko-Zdrój and Końskie (Świętokrzyskie Voivodeship) – Annex II. The level of population ageing in small towns is determined by the demographic dependency ratio[1]. In 2016, as many as 502 units (nearly 72% of all small towns) exceeded the demographic dependency ratio of 100. This value means that the percentage of the elderly exceeded the percentage of children aged 0–14, which is an unfavourable demographic phenomenon. Maximum values of the ratio were recorded in Działoszyce (228), Polanica-Zdrój (208), and Ciechocinek (205) – Annex III.

One of the procedures of the multivariate analysis, Ossan's triangle, was used to analyze the age structure according to economic groups (Runge, 2007). This specific tool finds its application in case of features whose numerical values can be grouped into three classes. It can serve to analyze economic age groups, where three groups are distinguished: the pre-working age (0–17), the working age (18–59 in women, 18–64 in men) and post-working age (60+ in women, 65+ in men). As a result, the nature of the age structure in a given town is expressed by the location of its corresponding point, which is located where three lines parallel to the three sides of the triangle meet. This triangle has been divided into six classes corresponding with various stages of the development of the population age structure. The arithmetic means of the share of individual age groups in all of the populations of Polish towns and cities (Tab. 3) were used

[1] Demographic dependency ratio (D_{DR}) expresses the relationship between the population aged 65+ and the population aged 0–14.

$$D_{\mathrm{DR}} = \frac{P_{65+}}{P_{0-14}} \cdot 100,$$

where:

P_{65+} – the percentage of the population aged 65+,

$P_{0\text{-}14}$ – the percentage of the population aged 0–14.

as a criterion for the division. Since this action has created a reference to the age structure of the inhabitants of all urban areas in the country, this method also makes it possible to determine the situation of small towns compared with all urban units, at least in this aspect. It should also be remembered that merely 20% of the inhabitants of urban areas in Poland reside in small towns.

As a result of the typological procedure conducted, it was proven that the structure of economic age in small towns is slightly more favourable than in the whole of the Polish urban population. In 403 small towns, the percentages of people in pre-working, working and post-working age, made it possible to count them among the demographic youth. The first class included 69 small towns, while the second one was much more numerous with as many as 334 small urban units (Tab. 3). More than 180 units were in the stabilization phase, although class structure was similar to the one in the youth phase. The phase of demographic ageing contained the lowest number of towns – 116 units.

Table 3

Classes describing the stages of development of the population's economic age structure (in %)

Classes	Pre-working age	Working age	Post-working age	Stage of population development	Number of small towns
YT1	>16.8	<61.1	<22.1	demographic youth	69
YT2	>16.8	>61.1	<22.1		334
SB1	>16.8	<61.1	>22.1	demographic stabilization	23
SB2	<16.8	>61.1	<22.1		158
AG1	<16.8	>61.1	>22.1	demographic ageing	60
AG2	<16.8	<61.1	>22.1		56

Source: personal elaboration on the basis of the Local Data Bank.

The level of ageing in small towns in Poland is spatially diverse – there are regions where the majority can be counted as part of the demographic youth phase (the Greater Poland, Pomeranian, Lesser Poland and Lubusz Voivodeships), but there are also some where units in the demographic ageing stage predominate – the Świętokrzyskie, Lower Silesian, Silesian, Podlaskie, Lublin and Łódź Voivodeships (Fig. 5, Annex IV).

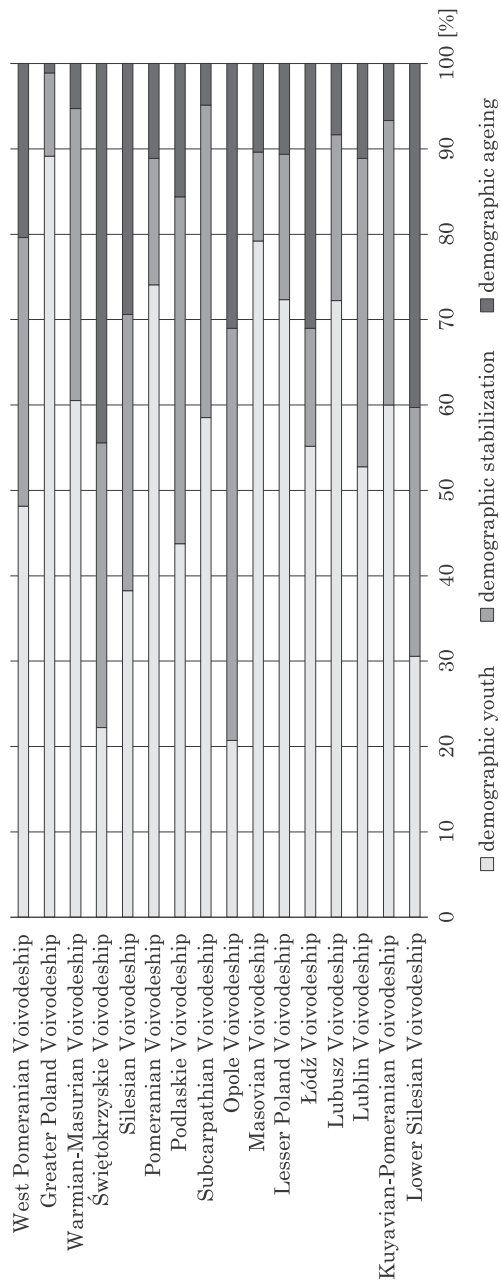

Fig. 5. Structure of the economic age among the inhabitants of small towns in Poland in 2016
Source: personal elaboration on the basis of the Local Data Bank.

Conclusions

In Poland, small towns predominate in terms of quantity; more than $^3/_4$ of all urban centres are settlement units with up to 20 thousand of inhabitants. At the same time small towns are home to merely 20% of all the urban population. The population structure in Polish towns and cities has changed both in terms of quantity and quality. Currently occurring demographic changes create two problems especially crucial for the urban units. The first one involves the decreasing general number of the urban population – which, in extreme cases, takes on the form of depopulation and shrinking cities. The second key issue is population ageing. The change in the age structure of the urban population is the result of three main causes: the increasing lifespan, the decreasing number of births and the migration processes.

The conducted analysis of population data has shown that small towns are subject to the above-mentioned demographic changes, which is proven by the results of the simple typological methods applied in this study. In 2016, the negative total population growth concerned 70% of the population of small towns and was mainly caused by the migration outflow. Apart from the negative net migration rate, the majority of small towns also had a negative population growth. Depopulation of small towns occurred in all regions of the country, although this phenomenon was spatially diversified, from 80% of small towns in the Świętokrzyskie Voivodeship to 55% in the Mazowieckie Voivodeship. The depopulation of small towns is a progressive process with varying intensity throughout the country.

The age structure of small town populations was also unfavourable, indicating a progressive ageing of the inhabitants. While this process is not yet as advanced as it is in large towns or cities, the values of the demographic dependency ratio suggest that this negative tendency will keep occurring in the future. The aging of the small town residents is spatially diversified. One can distinguish voivodships where most towns are included in the demographic youth phase (Wielkopolskie, Pomorskie, Małopolskie, Lubuskie), but also those where the units qualified for the demographic aging stage predominate – Świętokrzyskie Voivodeship, Lower Silesia, Silesia, Podlasie, Lublin and Lodz.

It should be emphasized that although many demographic issues and challenges are the challenges of horizontal policy that Poland has to face and a subject of national policies, some of them refer directly to cities and towns and require taking actions that would help them either adapt to or prevent the changes from occurring. One such solution may be to focus on developing a quality oriented approach, rather than one based on quantity. The actions undertaken, with the changing population structure, should take into account the possibilities of using the potential of various social groups, including the growing elderly population.

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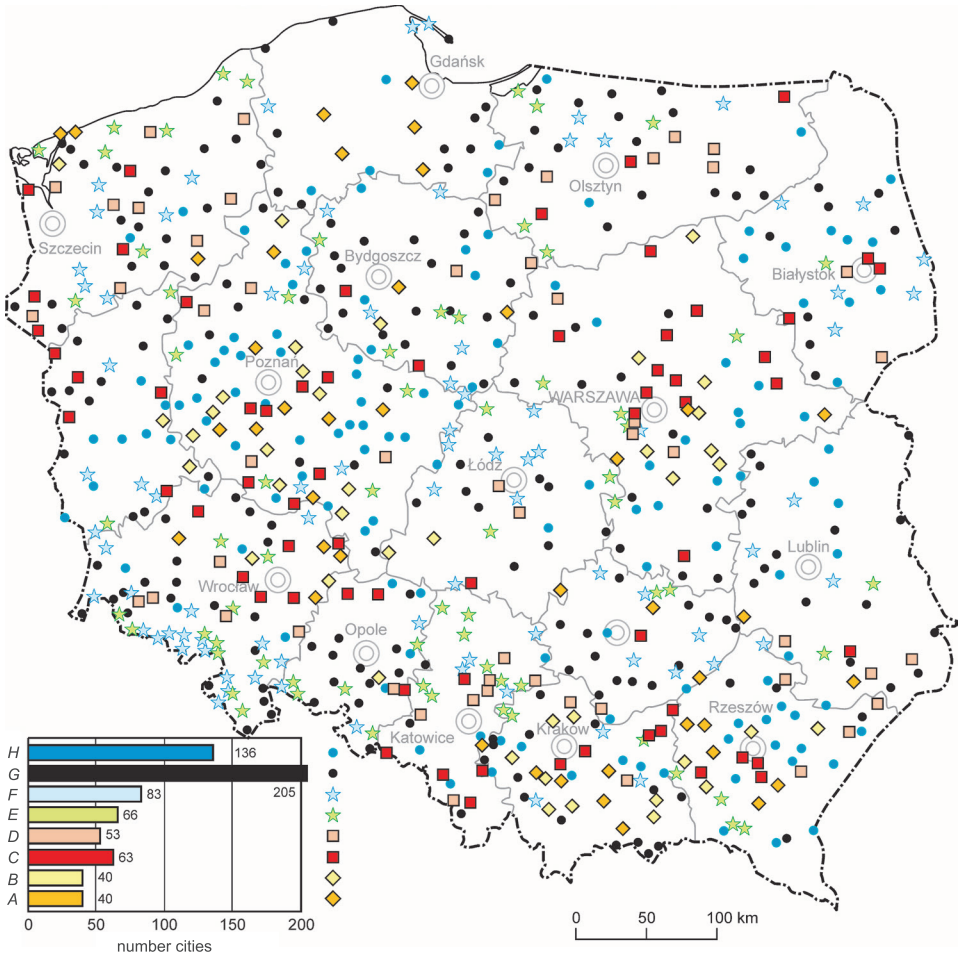
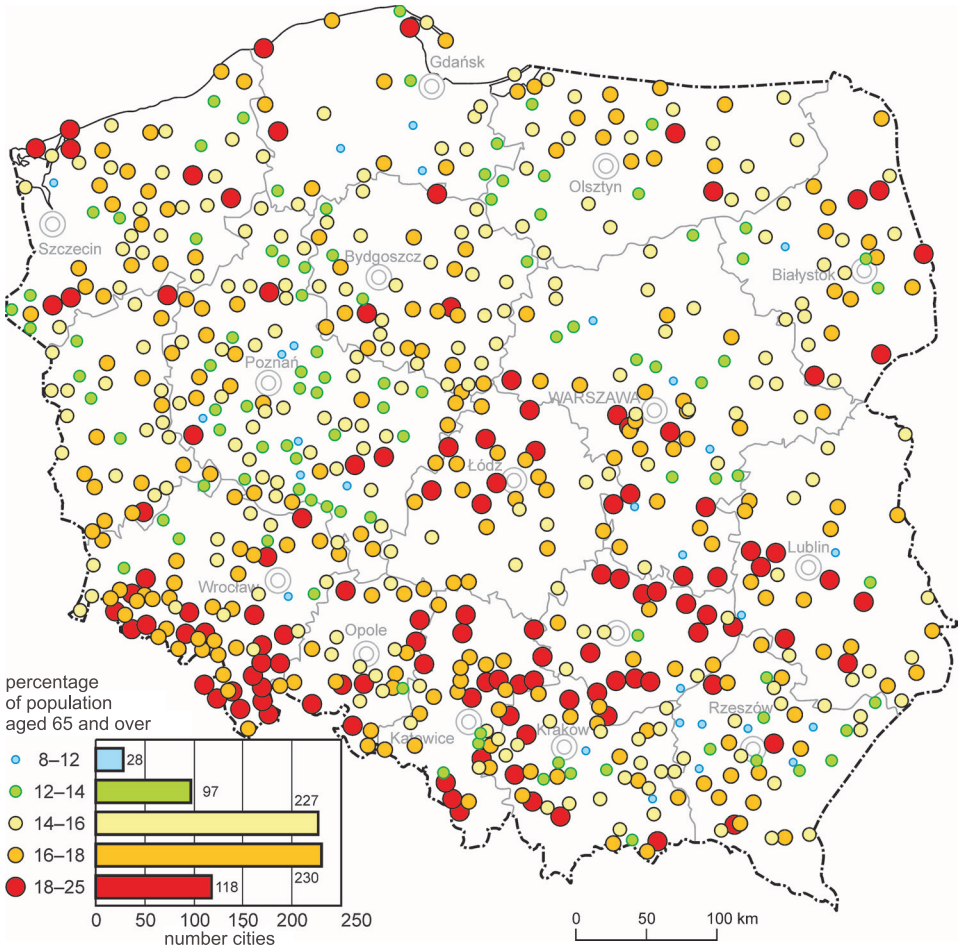
Annex I. Types of actual increase in small cities in 2016



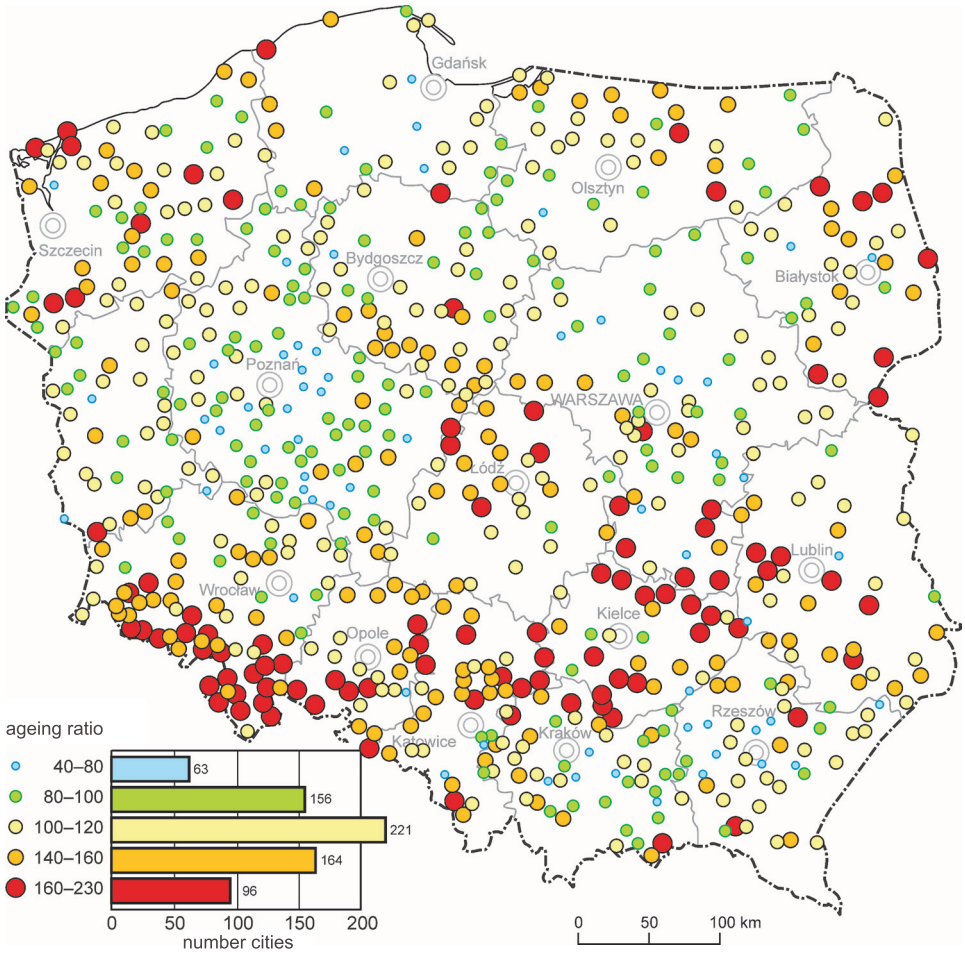
Source: personal elaboration on the basis of the Local Data Bank.

Annex II. Percentage of population aged 65 and over in small cities in 2016



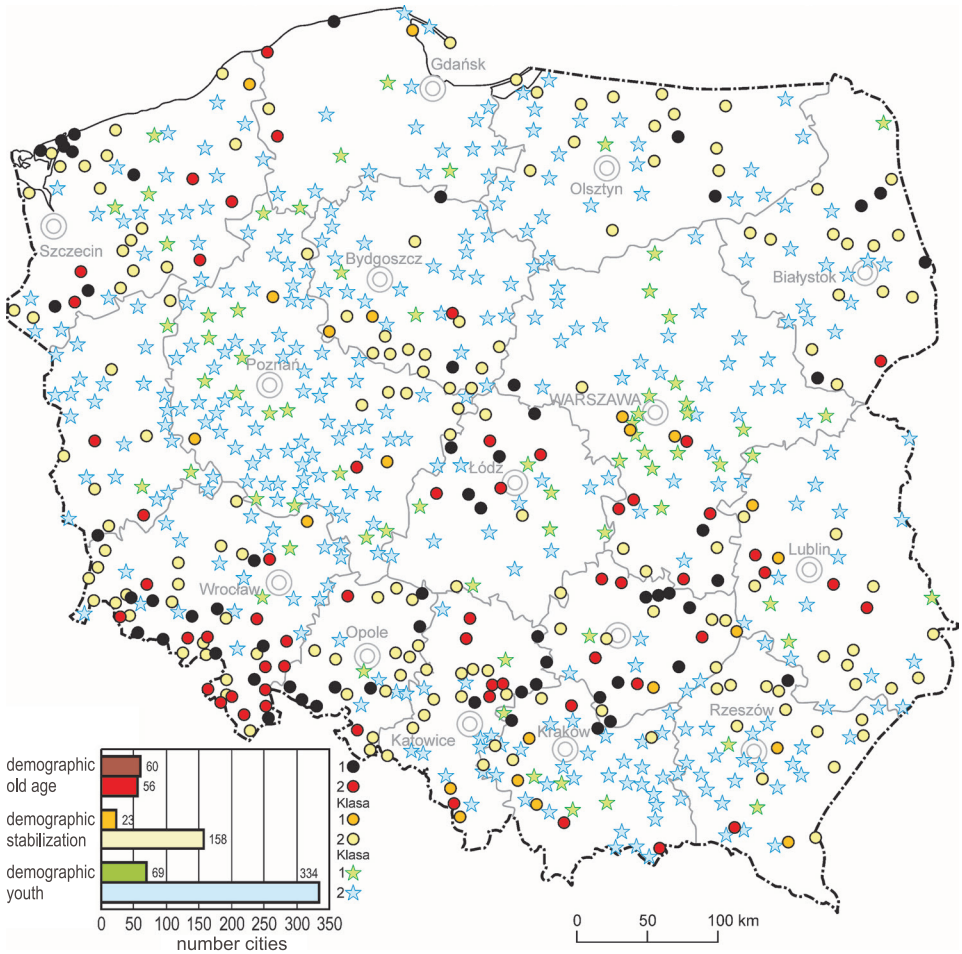
Source: personal elaboration on the basis of the Local Data Bank.

Annex III. Ageing ratio in small cities in 2016



Source: personal elaboration on the basis of the Local Data Bank.

Annex IV. Stages of demographic development in small cities in 2016



Source: personal elaboration on the basis of the Local Data Bank.