

Diversification of the dynamics of population size and the number of the employed in small and medium-sized Polish towns from 1995 to 2010

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Abstract. This paper presents partial outcomes of the project called ‘The Diversity of the Development Processes of Small and Medium-Sized Towns and its Influence on the Polycentric Development of Poland’. The research conducted within that project has been based on the identification of two basic groups of Polish towns, regarding their locations either within the functional area boundaries of the regional capital cities (functional areas of voivodship centre), or outside. The goal of our research is to determine whether small and medium-sized towns maintain their roles as stable elements of the settlement network and their development is diverse, depending on their neighbourhood in respect of the regional capitals. The population and the employment fluctuation rates constitute some of a dozen of development indicators under examination. The changes in those indicators’ values were identified in the period of 1995–2010, and additionally, two more sub-periods were identified: 1995–2003 and 2003–2010.

Our research discovered essential differences in the population rates of small and medium-sized towns located in the functional areas of regional capital cities (Group I) and outside (Group II). In 1995–2010, we observed an increase of population in Group I and it was the only Group of towns with growing population nationwide.

In view of the generally non-beneficial changes in the number of the employed nationwide in 1995–2010, a better situation occurred in the towns belonging to Group I. In some of the Polish regions, we found an increase of the number of the employed in that group of towns. An essential national increase of the number of the employed, identified in the sub-period of 2003–2010, was larger in the towns of Group I than Group II.

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Contents:

1. Introduction	106
2. Methodology	108
3. Changes in the population and the number of the employed.....	108
4. The spatial distribution of cities of different dynamics of population and employment	111
5. Conclusion	112
Note.....	113
References	113

1. Introduction

This paper discusses the issue of the diversification of the fluctuations occurring in the population and employment in Polish small and medium-sized towns in 1995-2010, depending on town location in respect of regional capital cities.

In the past twenty years, the structure of the settlement system in Poland that had been historically shaped as a polycentric system, with many large cities and an extensive network of small and medium-sized towns, was subjected to transformation processes controlled by various factors. The influence of globalization and metropolisation occurred concurrently with the influence of socio-economic transformations, followed by the integration of Poland with the European Union. The diversification of urban development processes affected, to a large extent, the transformations of economic structures, demographic factors, transportation access, human potential, and management quality. After Poland had joined the EU, the development processes were modified owing to the access to the community funds.

The polycentric network of Polish towns consisted of 903 towns and cities in 2010. The largest cities were the administrative capitals of the Polish 16 regions (voivodships), established at the NUTS 2 level. Besides Warsaw, with the population of nearly 1.7 million, four cities: Kraków, Łódź, Wrocław, and Poznań count more than 500,000 residents each. The remaining regional capitals are smaller. However, the Silesian agglomeration is especially distinguished within the country's structure. Besides Katowice, with the population of ca. 177,000, the entity is composed of large, medium-sized and small towns. The total urban population of that agglomeration is estimated at more than 2.6 mil-

lion. The Triple-City agglomeration (Gdańsk, Gdynia, and Sopot) counts ca. 750,000 people in total. The twin capital of the Kujawsko-Pomorskie Region (Toruń and Bydgoszcz) has the total population of 570,000.

Within the settlement structure of Poland, National Spatial Development Concept 2030 specifies eight functional areas of metropolitan nature: Warsaw, Kraków, Łódź, Gdańsk, Poznań, Lublin, Szczecin, and Bydgoszcz/Toruń, as well as seven functional areas of regional capitals of national significance. Each of those areas is characterised by different spatial structures and development processes.

In the central cities of the regions and their functional areas 37.7% of the national population and 49.4% of jobs in 2010 were concentrated, with a growing trend recognised since 1995, and considerable differences between the regions. The highest population density occurred in the Śląskie Region (62%), with a decreasing trend since 1995, and the Mazowieckie Region (54%), with a growing trend. 73% of the jobs in the Region were concentrated in Warsaw and the proportion has been increasing since 1995. 4.4% of the Polish population lived in Warsaw in 2010, and 9.4% of all jobs were available there. The lowest population density of a regional capital city and its functional area amounted to about a dozen percent. The share of regional capital cities and their functional areas in the distribution of population and jobs was increasing in the majority of regions. However, it was decreasing in the Śląskie and two other Regions showing similar deterioration of traditional industrial functions: the Łódzkie and the Pomorskie.

The urban depopulation problems, relating to both large cities and small towns, have recently become important research issues. Shrinking cities are presently important elements of the settlement net-

work of Poland. That issue is also emphasised as being crucial for small and medium-sized towns (Szymańska, Matczak 2002; Szymańska, Grzelak-Kostulska, 2005a, b; Szymańska 2008; Parysek, Mierzejewska, 2009; Kantor-Pietraga et al., 2012). In 1995–2010, urban population decreased in Poland by ca. 550,000, and the proportion of urban population in the total national population decreased from 62.1% to 60.8%, despite the fact that town privileges were granted to about a dozen of rural units. The problem of depopulation affected certain large cities, including regional capitals, and medium-sized and small towns as well. Among the largest regional capitals, the strongest of them suffered 10% population drops in 1995–2010, in particular in the old industrial centres of Łódź and Katowice. In the same period, the population of Warsaw increased by 4%. It is also underlined that industrial centres still constitute durable components of the settlement structure of Poland (Morawski, Zawistowski, 2008). Depopulation and population ageing, as well as unemployment, are considered to be some of the major present-day social problems in towns (Parysek, Mierzejewska, 2009).

Small and medium-sized towns were characterised by considerable differences in the rates of population and employment changes in 1995–2010. The largest population increase in that group of towns amounted to 80% of the 1995 level, with decreases exceeding 30%. Job losses reached 60%, although certain towns enjoyed 200% increase in employment.

The purpose of this paper is to discuss the diversification processes occurring in population and employment in small and medium-sized towns in Poland in 1995–2010, depending on the towns' locations in respect of their regional capitals. The relevant analytical studies are supplementary to a number of research projects conducted presently on the development of the national urban networks, in the context of the metropolisation processes occurring in Poland, as well as the associated polycentric development. The determination of the role of metropolitan cities as the poles of the increase and the degree of their influence exerted on their surroundings is said to be one of about a dozen of important research fields relating to metropolitan areas (Markowski, Marszał, 2006).

Polycentric development of European space, as a development conception in the programme doc-

ument on the European Spatial Development Perspective (ESDP), is the object of numerous research projects, with a special role played by the ESPON Programme. The research activities conducted under the Programme were initiated by ESPON 1.1.1 'Potentials for Polycentric Development in Europe'. The Functional Urban Areas (FUA) of various ranks, determined under the research on the European Spatial Structures, also take into account medium-sized towns which constitute local centres. In particular, ESPON 1.4.1 'The Role of Small and Medium-Sized Towns (SMESTO)' was dedicated to small and medium-sized towns. Small urban centres, being the centres of Functional Urban Areas (FUA), as well as sub-regional and local labour centres, were the objects of analysis conducted under the REPUS Strategy for a Regional Polycentric Urban System in Central Eastern Europe Economic Integrating Zone.

Next to the consideration of the regional systems polycentricity, research issues also include the shaping of internal polycentric structures of metropolitan areas by the processes of residential and employment deconcentration (Vasanen, 2012). The operation of urban polycentric regions as a stage of urban area development is characterised by the synergy phenomenon founded on co-operation and complementarity (Meijers, 2008). Those phenomena are considered to be the factors that strengthen the potentials of metropolitan areas (García-López, Muñiz, 2010).

The research on polycentricity, as an important research object, focuses particularly on interdependence of polycentricity and economic efficiency of regions (Burger, Meijers, 2012; Vasanen 2012; ESPON 1.4.3).

Owing to the role of small and medium-sized towns in the building of the polycentric structure of Polish towns' regional networks, the processes occurring in the towns belonging to that group became the objects of research in the past twenty years. The related studies concerned, among others, urban changes in the period of post-Communist transformations, including the processes of population migrations (Szymańska, Grzelak-Kostulska, 2005; Chądzyńska, Iwaszko, 2012); and metropolitan conditions of development (Heffner, Marszał, 2007). The role of those towns in the national and regional development is considered to be essential

despite the towns' potential which is disproportionately lower than that of large cities (Heffner, 2008).

The report prepared by the Polish Ministry of Regional Development in 2010, for the needs of the OECD review of urban policy in Poland (Polish Background Report, 2010) emphasised the ongoing process of population concentration in metropolitan areas, as well as in medium-sized towns fulfilling regional functions for their surrounding rural and small-town areas. The regional polarisation processes, with a dynamic development of capital-city areas and large urban complexes (agglomerations), are considered to be characteristic for the new EU member countries (Smętkowski, Wójcik, 2009). However, the observed small increase of polycentric development processes on a national scale at each spatial level in 2000–2009, determined on the basis of the population size and the number of residents in the production age, is associated rather with small towns (Churski, Hauke, 2012).

Research conducted in Poland indicated that the range of the beneficial influence of large centres did not exceed 20–30 km, or 40–50 km in the case of Warsaw. Small and medium-sized towns situated outside such zones are subjected to the processes of business function washout (Lendzion, 2004).

Regardless of the expansion of the polycentricity conception towards inclusion of functional relations, the distribution of population clusters and business activities remain basic issues concerning the problem of polycentric development (Kloosterman, Lambregts, 2001; Kloosterman, Musterd, 2001). Population and the number of jobs are the basic factors determining the centres of functional areas of towns (ESPON 1.1.1, ESPON 1.1.3, and REPUS).

2. Methodology

The main object of the study are small (<20,000) and medium-sized towns (20,000–100,000). Large cities are taken into account for comparative purposes. The basic research period for which the changes in population and in the number of the employed were determined was 1995–2010. In addition, the sub-periods of 1995–2003 and 2003–2010 were separated, and 2003 was assumed to be distinctive for those

sub-periods, being the last full year before Poland joined the EU. Our analysis was conducted in urban gminas and urban-rural gminas that held the town status in 2010. The published statistics of the Local Data Bank of the Central Office of Statistics (BDL GUS) were the basis of our analysis. In the case of the towns which were not urban administrative units in 1995 or 2003, the data were assigned to those towns on the basis of later years.

The set of Polish towns was subdivided into groups, identified from the viewpoint of location either in the functional areas of regional capitals (functional areas of voivodship centre) or outside. The ranges of those functional areas, determined for the needs of this project as metropolitan areas, were assumed in accordance with the National Spatial Development Concept 2030.

The changes in the population and in the number of the employed rates were determined to be relative single-base increases.

3. Changes in the population and the number of the employed

In 1995–2010, the population of Poland decreased slightly (by -0.2%), from 38,609,399 to 38,529,866, and by -1.1% in the sub-period of 1995–2003, and increased by 0.9% in the sub-period of 2003–2010. The population changes in particular Polish voivodships were considerably diverse, from the highest increase in the Małopolskie (4.6%) and the Mazowieckie (4.1%) to the strongest drops in the Opolskie (-6.9%) and Śląskie (-6.5%).

The increase of the number of the employed was very poor nationwide in 1995–2010. In the whole period, the number of the employed dropped from 9,141,001 to 8,611,367 in Poland, with a drastic decrease in the sub-period of 1995–2003 (-17.2%), which was not compensated by a considerable increase (13.7%) in the sub-period of 2003–2010. The changes in the number of the employed were diverse in particular regions, as well as town groups.

In 1995–2010, the changes of population rates in that group towns were characterised by the following (Fig. 1, Table 1): (a) decrease of population in metropolitan cities and large cities in metropolitan areas by ca. 270,000, or 2.5%; (b) decrease of popu-

lation in the remaining large cities by ca. 88,000, or 4.9%; (c) increase of population in small and medium-sized towns located within metropolitan areas by ca. 45,000, or 1.6%; (d) decrease of population in small and medium-sized towns located outside metropolitan areas by ca. 240,000, or 2.7%.

Thus, small and medium-sized towns located within metropolitan areas were distinguished as the

only group in Poland with an increase of population in 1995–2010, for which the sub-period of 2003–2010 was decisive. The situation in those towns was much better than that in regional capital cities. The group of ten towns with the largest population increase included nine small towns located in metropolitan areas and one located outside. The opposite situation occurred in respect of population drops.

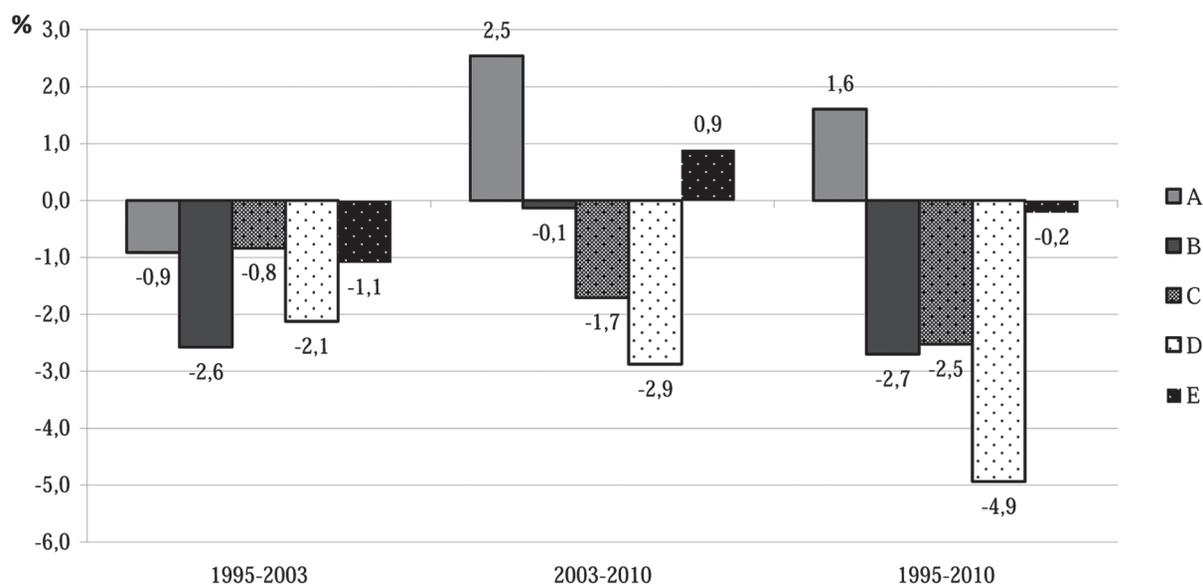


Fig. 1. Population changes in groups of towns in 1995–2010

Explanation: A – population changes in small and medium-sized towns in metropolitan areas %; B – population changes in small and medium-sized towns outside metropolitan areas%; C – population changes in large cities in metropolitan areas %; D – population changes in large cities outside metropolitan areas%; E – population changes in Poland %

Source: Own studies on the basis of Local Data Bank (BDL) data

In 1995–2010, the dynamics of the number of the employed in specific town groups was characterised by the following (Fig. 2, Table 1): (a) decrease of the number of the employed in metropolitan cities and large cities in metropolitan areas by ca. 130,000, or 3.8%; (b) decrease of population in the remaining large cities by ca. 65,000, or 4.9%; (c) decrease of the number of the employed in small and medium-sized towns located within metropolitan areas by ca. 85,000, or 10.9%; (d) decrease of the number of the employed in small and medium-sized towns located outside metropolitan areas by 373,111, or 12.2%.

The decrease of the number of the employed nationwide was suffered by all town groups, includ-

ing metropolitan cities. The differences between particular towns and cities were in fact very large. The largest absolute loss of jobs occurred in small and medium-sized towns located outside metropolitan areas. Also there occurred the largest proportional drops. However, the labour market dynamics was quite diverse in that group of towns. Those towns also enjoyed a strong increase of the number of jobs. The situation was even more beneficial in the group of small and medium-sized towns within metropolitan areas, where a considerable large number of towns with a growing number of jobs occurred.

Table 1. The dynamics of changes in population and the number of the employed in small and medium-sized towns in metropolitan areas and outside

Voivodship	A	B	C	D
Dolnośląskie	7.2	5.8	-6.4	-18.2
Kujawsko-Pomorskie	2.4	8.3	-1.2	-9.3
Lubelskie	-1.8	-16.8	-3.1	-14.1
Lubuskie	-2.6	-1.7	-2.6	-9.5
Łódzkie	-3.0	-12.1	-3.6	-12.3
Małopolskie	10.4	23.1	-1.4	-11.8
Mazowieckie	13.8	2.8	0.0	-1.1
Opolskie	-9.9	-11.1	-7.7	-25.2
Podkarpackie	7.2	-6.1	-2.8	-11.1
Podlaskie	5.7	-31.5	-1.1	-9.0
Pomorskie	10.3	-5.7	-1.7	-5.7
Śląskie	-7.6	-25.9	-4.5	-22.1
Świętokrzyskie	5.9	-40.2	-5.9	-18.9
Warmińsko-Mazurskie	-3.2	-14.6	-1.3	-5.9
Wielkopolskie	15.8	10.2	0.7	-6.3
Zachodniopomorskie	-1.0	-13.1	-2.0	-19.3
POLAND	1.6	-10.9	-2.7	-12.2

Explanation: A – population changes in small and medium-sized towns in metropolitan areas, 1995-2010 (%); B – changes of the numbers of the employed in small and medium-sized towns in metropolitan areas, 1995-2010 %; C – population changes in small and medium-sized towns outside metropolitan areas, 1995-2010 %; D – changes of the numbers of the employed in small and medium-sized towns outside metropolitan areas, 1995-2010

Source: Own studies on the basis of Local Data Bank (BDL) data

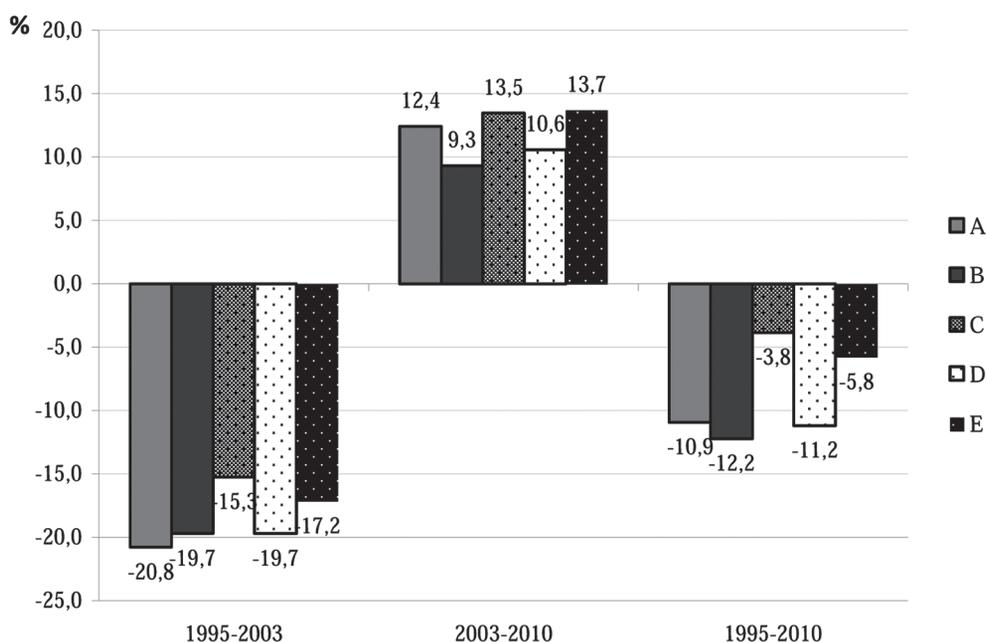


Fig. 2. Changes in the number of the employed in groups of towns in 1995-2010

Explanation: A – changes of the numbers of the employed in small and medium-sized towns in metropolitan areas %; B – changes of the numbers of the employed in small and medium-sized towns outside metropolitan areas %; C – changes of the numbers of the employed in large cities in metropolitan areas %; D – changes of the numbers of the employed in large cities outside metropolitan areas %.

Source: Own studies on the basis of Local Data Bank (BDL) data

4. The spatial distribution of cities of different dynamics of population and employment

Among 864 small and medium-sized towns in Poland, the towns with decreasing populations and decreasing employment dominated in 1995-2010. Such towns constituted 47% of the whole group of the towns of that size.

Among the towns with increasing population and increasing employment, 43 towns were situated in metropolitan areas. They constituted 31% of the total number of such towns. Outside the metropolitan areas, only 19% of small and medium-sized towns were characterized by positive rates, while 54% of towns suffered decrease of both population and employment. In the metropolitan areas, however, 37 towns, or 27% of them, were characterized by a decrease of their population and employment; 15 of those towns were situated in the Śląskie Region.

59% of towns suffered population decrease and 66% of towns suffered employment decrease. In 104 towns, only employment was increasing and in 187 towns, only population was increasing.

The spatial layout of towns, from the viewpoint of the changes in population and the number of the employed, is characterised by a concentration of urban centres with beneficial indicators in the Polish regions of Mazowieckie, Wielkopolskie, and Małopolskie. Those are also the areas of good access to public transportation (Narzędzie..., 2012). In those regions within metropolitan areas, the towns with both positive indicators dominate. At the same time, also a considerable number of the

towns situated outside metropolitan areas was characterised by positive rates of both indicators. Each of such regions had the capital city with population exceeding 500,000, and their functional areas represented a metropolitan type. Among the remaining Regions of similar nature, positive rates of both indicators (population and employment) across the whole Region was found in the Kujawsko-Pomorskie and the Pomorskie. In those Regions, the towns showing positive rates were situated mainly outside metropolitan areas, including also the areas which were not easily accessible.

A very small proportion of towns with increasing population and employment in metropolitan areas and outside occurred in the Śląskie Region, despite the fact that transport accessibility was the highest in Poland there. A very small number of small and medium-sized towns showing both positive indicators also occurred in the Dolnośląskie and Lubelskie Regions. In the Dolnośląskie, that concerned less the local metropolitan area (Wrocław).

The Mazowieckie Region is distinguished in Poland by a considerable number of towns with growing populations, and all the towns of the Region in which only employment increased are situated outside the metropolitan area of Warsaw.

In the Regions with smaller capital cities and functional areas of national importance, the general significance of small and medium-sized towns located on the outskirts was high in respect of the labour market development and it did not depend on accessibility. In several of such Regions, such towns were the only ones in which employment increased, without population increase (Fig. 3).

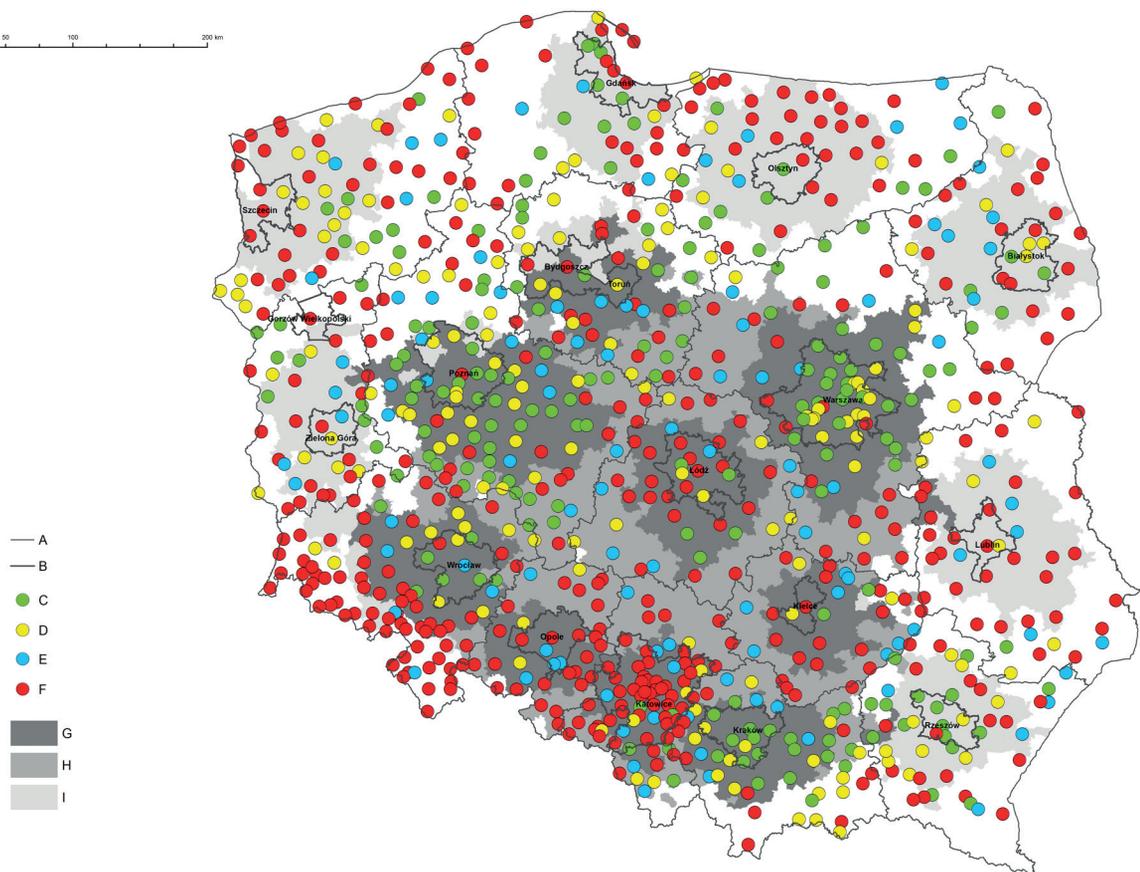


Fig. 3. Spatial distribution of the towns with diverse changes in population and the number of the employed in 1995-2010, against the background of access to public transportation

Explanation: A – regional boundaries; B – functional areas of the regional capital cities; C – towns with growing population and number of the employed; D – towns with growing population and decreasing number of the employed; E – towns with decreasing population and growing number of the employed; F – towns with decreasing population and decreasing number of the employed; G – national and regional accessibility above average; H – national accessibility above average; I – regional accessibility above average

Source: Own studies on the basis of Local Data Bank (BDL) data and Narzędzie ewaluacyjno-badawcze dostępności transportowej gmin. Raport końcowy 2012. Instytut Geografii i Przestrzennego Zagospodarowania Polskiej Akademii Nauk

5. Conclusion

The completed research on the diversity of changes in the population and the number of the employed rates in small and medium-sized towns located in metropolitan areas and outside indicated a beneficial nationwide dynamics in Group I of towns, with considerable regional differences.

The only group distinguished nationwide by increasing population in 1995-2010 were small and medium-sized towns located in metropolitan areas. However, the decrease of population in the group

of small and medium-sized towns located outside metropolitan areas, next to the drop of population in some metropolitan cities had a larger influence on the decrease of population in the whole country.

The changes of the number of the employed nationwide in 1995-2010 were very non-beneficial, and they occurred mainly in the sub-period of 1995-2003. The drop of the number of the employed in 1995-2010 touched all the groups of towns, with the strongest absolute and proportional decrease of the numbers of jobs in small and medium-sized towns located outside metropolitan areas. Metropolitan cities and small and medium-sized towns located in

their functional areas showed a dominating significance nationwide compensating for the loss of jobs in labour markets in 2003-2010. However, some of the small and medium-sized towns outside metropolitan areas also contributed to the increase of the number of jobs. In several Regions, such towns were the only ones in which employment increased, without population increase.

The differences between the population changes in and outside metropolitan areas were marked strongly in comparison to the differences in the number of the employed, which probably resulted from the residential functions of small towns in metropolitan areas.

The concentration of urban centres with positive population and job growth is characteristic mainly for the areas of good access to public transport. However, the Silesian region is an exception here. The concentration of towns that show indicator growth is found in some of the metropolitan areas, although it is not typical for all the regions. The urban centres with positive indicators also occur in the zones of limited accessibility, outside metropolitan areas.

In 1995-2010, small and medium-sized towns participated in the development of polycentric structures of metropolitan areas, as well as the transformation of the regional structures outside such areas. All small and medium-sized towns with growing populations and employment should be recognized as durable components of regional settlement structures. Even when their population is dropping, the towns with increasing employment should be treated as development centres in regional development policies.

In the case of the areas on which there are complexes of many towns with negative development indicators, spatial development policies should consider the need to implement economic intervention policies that should always take into account the characteristics of the local areas, including the significance of the area in natural spatial structures.

The results of completed analytical studies represent partial results of a more comprehensive research on development processes, conducted at the Institute of Urban Development (IRM). Such research also takes into account other development indicators of such processes, especially those relating to demography, business entities, municipal fi-

nances, capital investments processes, and living conditions. The research results will be presented in a separate publication.

Note

- (1) This paper presents partial outcomes of the project called 'The Diversity of the Development Processes of Small and Medium-Sized Towns and its Influence on the Polycentric Development of Poland', performed under Agreement No. UMO-2011/01/B/HS4/02227, signed between the National Centre of Science and the Institute of Urban Development.
- (2) BDL GUS – Local Data Bank of the Central Office of Statistics
- (3) Voivodship – administrative region of the 1st order
- (4) Gmina – administrative region of the 3rd order
- (5) National Spatial Development Concept 2030 – the spatial development plan approved by the Polish Council of Ministers on 13 December 2011.

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