

A VISION OF THE POLYCENTRIC DEVELOPMENT OF THE MAZOVIA REGION IN POLAND

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A vision of the polycentric development of the Mazovia region in Poland

Recent studies have demonstrated that many regions in Western Europe are experiencing a gradual transition from a monocentric model to one predicated on polycentrism, where a number of cities play the role of autonomous centres of development bound to one another by an intricate network of cooperation. In Poland, the polycentric model of settlement is a key component of regional development policy. The aim of this study is to define the level of polycentricity of the Mazovia region in Poland. Our approach focuses on assessing the importance of subregional centres in the spatial structure of the region including their contribution to the socio-economic development of Mazovia. We assume the hypothesis that despite the concept of increasing the level of polycentricity in the Mazovia region declared in strategic documents, the actual socio-economic development trends are not expected to enhance the role of five sub-regional centres and thus raising their rank in relation to Warsaw.

Key words: polycentrism, city, region, development, Mazovia

INTRODUCTION

Large metropolises create in their impact zone a monocentric system of spatial organization in which they assume the leading, dominant role. The theoretical underpinnings of this system were described by Alonso (1964), who tied his approach to the hierarchical model in Christaller's central place theory. Both the morphological and the functional monocentric models were composed of two essential elements – the city and the suburban zone – and their interactions took place mostly in relation to the labour market (Haggett and Cholery 1967 and Parr 1987).

Recent studies demonstrate that many regions of Western Europe are experiencing a gradual transition from the monocentric urban model to a polycentric one (Albrechts 1998, Kloosterman and Musterd 2001, Meijers 2007 and Burger et al. 2011). These studies feed into earlier theoretical attempts to devise a new model of spatial organization called the “network model”, which would constitute an alternative for the “central place model” (Campagni 1993 and Batten 1995).

Polycentrism is a feature of spatial structure in which several cities play the role of autonomous centres of development bound by a network of cooperation. The evolution of this type of system is propelled by the goal of coherent and balanced regional development, which includes the strengthening of multilateral relations among the primary urban centres (Batten 1995, Dieleman and Faludi 1998 and Ingram 1998). The modern-day model of spatial structure therefore distances itself from the notion of a monocentric region dominated by a single urban centre in favour of the polycentric region (Kloosterman and Musterd 2001). Consequently, researchers are transferring their main point of interest from the city to the region that surrounds it (Parr 2005 and Davoudi 2008).

The deconcentration of goods and people and the formation of a balanced settlement network result from the growing importance of the non-industrial sectors, and can also be framed as a response to increased environmental contamination, spatial conflict and high land prices (Burger et al. 2011). Additionally, some studies argue that a polycentric structure is more beneficial from an economic point of view. For instance, one analysis of daily commuting has shown that the development of polycentric structures contributes to reducing travel time and distance for people, which consequently curbs costs (Gordon and Richardson 1996). The importance of commuting within suburban areas is also growing in relation to movements between the suburbs and the city centre (Jansen 1993). These processes may directly impact the choice of location for both business and homeowners. However, according to Erwing (1997), the deconcentration of firms and homes may drive up commuting costs. This argument is based on an examination of commuting time, which is longer, on average, in suburban areas than in city centres. Conversely, research conducted in the Netherlands has not shown any connection between the development of a polycentric settlement structure and changes in the time it takes to commute to work (Schwanen et al. 2001). What was observed, though, was an increase in the use of private vehicles, which should be viewed in relation to the lack of appropriate public transport, even in the case of an integrated transport system.

The development of a balanced, polycentric settlement system is one of the principal goals of the European Union's current regional policy (see: ESDP European Spatial Development Perspective – EC 1999 and Territorial Agenda of the European Union – EU 2011), which has the goal of making optimal use of the territorial potential of the regions that comprise it. The objective of reaching a more balanced, polycentric urban system was established as early as 1994, during a meeting of the national ministers responsible for spatial planning. In 1999, a meeting in Potsdam passed a document establishing the ESDP, which became the foundation for designing a polycentric system of settlement. This primarily involves creating networks of local and regional centres of development that differ from one another by size and economic focus, which ensures a wider selection of locations for businesses while offering homeowners comparable living standards and open access to a wide range of services. The ideal of a polycentric settlement network assumes the existence of a number of interconnected, non-hierarchical settlement units that lack a dominant central one. It should be noted that the ESDP's understanding assumes a level of structural polycentrism that enables individual parts of a region to integrate their human capital and material resources into the development process; it does not aim for the maximum spatial deconcentration of settlement patterns (Korcelli 2004).

In practice, this model is rarely encountered, but its defining features are often incorporated into the current regional development policies. Concurrently, it bears mentioning that the concept of polycentric development is subject to criticism for being unsubstantiated, ambiguous, badly defined, described simultaneously from a morphological (urban pattern) and a functional (flows and effective networks) point of view, as well as for confusing geographical scales and for constituting more a normative than a scientific model (Davoudi 2003).

The concept of polycentrism in Poland

Kloosterman and Musterd (2001) point out that the polycentric urban region is not a new concept, referring back to the works of Friedmann and Miller (1965) and

Pred (1977) to ground their arguments. Polish researchers also first tackled this topic decades ago. Broadly, their research indicated excessive concentration in nodal points, causing environmental degradation and loss of complete control over technical infrastructure (Dziwowski 1977, Dziwowski and Malisz 1978 and Malisz 1978 and 1984). A number of studies formed the foundation for the National Plan for Spatial Development until 1990 – Plan przestrzennego zagospodarowania kraju do roku 1990 (KPZK PAN 1974), the strategic document that shaped Poland's spatial structure of the period it encompassed. It pitched the idea of a “moderate polycentric concentration system”, which assumed a differentiated pace of development for each urban centre, the sluggish development of already developed agglomerations and the rapid growth of developing ones as well as other nationally relevant population centres.

The principles of polycentrism were put into practice for a short time, but the economic crisis, subsequent collapse of the socialist economy and the administrative reform of 1999¹ weakened this process. The empowerment of local government and the growing mobility of capital, goods and people exacerbated inter-regional differences after 1990 (Bański 2005 and Rosner 2007). Another consequence was the dual tendency for metropolises to concentrate and become independent from their regional network (Gorzelać and Smętkowski 2005, Markowski and Marszał 2006 and Jałowiecki 2007). But this also explains the recent surge in studies conducted and/or published in Poland that focus on polarization theories (Gawlikowska-Hueckel 2002, Sobala-Gwosdz 2005 and Tarkowski 2008). This also results from the growing importance of regional politics and defining new directions for their development in the EU member states.

Despite these processes the polycentric settlement system has become a “fashionable expression” in Poland, and constitutes one of the most important elements of development policy. The development strategies created by the voivodeships (regions) envision the growing importance of subregional centres and their multilateral functional linkages as well as more bilateral relations between subregional centres and central urban units. In the Mazovian Voivodeship, for instance, a research and development project with the title “Development Trends of Mazovia Region”² is currently being carried out, and one of its core components is “The Polycentric Development of Mazovia”.

Research problem

Mazovia is a highly polarized region. Warsaw clearly dominates and overshadows the other cities of the region, both functionally and demographically. As Gorzelać and Smętkowski (2005) have noted, the outer zone of the region plays no significant part in the development of Warsaw and its suburbs, as they are neither an important supply base nor a market (the region as a whole has a paltry 5% share in supplying goods to and receiving goods from companies located in the metropolitan area of Warsaw). In addition, according to Smętkowski (2007), strong washout processes are underway in which development resources – particularly human capital – are transferred from the region to the metropolis. For this reason,

¹ An administrative reform took place in Poland in 1999, introducing a three-tiered administrative and territorial division. The number of *voivodeships* (regions) decreased from 49 to 16 and all the cities that were no longer regional capitals remained as county seats exclusively.

² For more details on this project, see: <http://www.trendyrozwojemazowsza.pl/>.

Mazovia is an interesting research site for challenges connected to contemporary regional policy and associated socio-economic trends. The region features the clash of two contradictory processes: on the one hand, there is a tendency for Warsaw to concentrate economic activity, dominate the regional economy and deepen the internal divide between itself and its vicinity, while on the other, both national and regional iterations of development policy assume an opposite process that results from the accepted polycentric development model, whose core tenet is to reduce regional disproportions or, at the very least, to keep them at a relatively low level.

The aim of this study is to present several development scenarios for Mazovia in the context of its contemporary development tendencies and directions indicated in the voivodeship's regional policy. The research in question pertains primarily to Warsaw and its suburban area as well as five subregional centres: Radom, Płock, Siedlce, Ostrołęka, and Ciechanów along with their respective suburban areas³ (Fig. 1). The primary research question is: Does the polycentric development of Mazovia, as envisioned by regional policy, fall in line with current socio-economic trends in the region? Our approach focuses on assessing the importance of subregional centres in the spatial structure of the region, including their contribution to the socio-economic development of Mazovia and to define the level of polycentricity of that region. We assume the hypothesis that despite the concept of increasing the level of polycentricity in Mazovia region declared in strategic documents, the actual socio-economic development trends are not expected to enhance the role of the five subregional centres and thus raising their rank in relation to Warsaw.

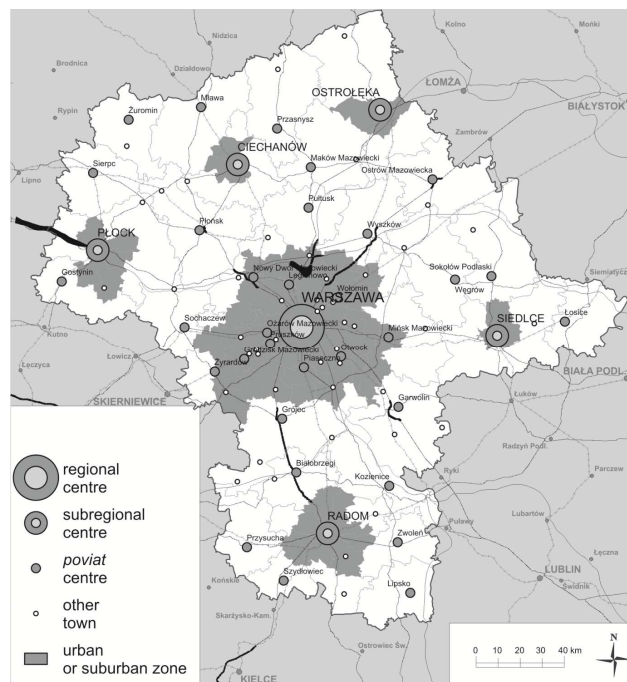


Fig. 1. Mazovia's urban network, including the suburban areas of Warsaw and subregional centres

³ Designation of suburban areas based on Śleszyński (2012).

THE RESEARCH

Polycentrism refers to three essential dimensions: 1) the rank and size of urban centres, 2) their distribution and location in the urban network, and 3) the socio-economic and functional connectivity of the cities (NORDREGIO 2005). In terms of size and range, the polycentric urban system is not dominated by a single urban centre, but rather formed by a group of two or more comparably populated cities with similar socio-economic roles in the region. Polycentrism is also characterized by a relatively balanced spatial distribution of cities in each functional and size category as well as good access to transportation and bilateral linkages between urban centres (Fig. 2).

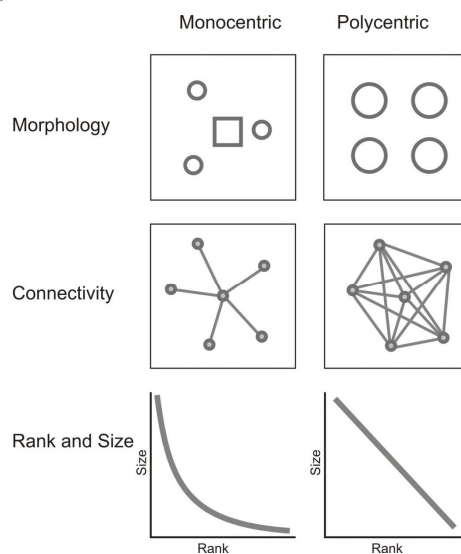


Fig. 2. The three dimensions of the polycentric system

Source: Own elaboration based on the ESPON studies (NORDREGIO 2005).

Rank and size

In 2012, there were 85 cities in the Mazovian Voivodeship, concentrating 64% of the region's inhabitants; however, over half of them were concentrated in Warsaw (Tab. 1). The primacy indicator (population of City 1 over the population of City 2) of Warsaw in relation to the region's second most populous city, Radom, is 7.8, which speaks volumes about the role of the capital in Mazovia. The other large urban centre (more than 100,000 inhabitants) is Płock (primacy indicator of Warsaw is 13.8), located in the western part of the region. There are no cities with such significant populations in the eastern and northern parts of the region, but numerous smaller towns are scattered around those areas.

The hierarchical and functional composition of the cities of the Mazovia region differs somewhat from their arrangement by size and results from the evolution of administrative reforms. Warsaw, as the capital of both the region and the country, retains the most important administrative, social, cultural and economic roles in the country. Radom, Płock, Siedlce, Ostrołęka and Ciechanów are subregional centres

as denoted by strategic documents⁴, although the first two occupy a higher rank in the functional structure and system of cities in the region due to the high demographical and economic potential they exhibit. Until the last administrative reform in 1999, all these cities were regional (voivodeship) capitals, but lost this status in the wake of the reform. The other county seats (aside from the subregional centres) provide services primarily to the local area, sometimes taking on additional roles (e.g. cultural, academic, tourism and services) that extend beyond the immediate vicinity. The final category in the settlement system is composed of very small towns or rural communes with the primarily local functions of providing basic services to the population of their communes.

Tab. 1. Comparison of city/town size ranks in Mazovia (2012)

Rank	No. of cities/towns	Population
> 100,000	3	2,058,847
50,000-100,000	4	242,814
20,000-50,000	17	554,384
10,000-20,000	25	387,376
5,000-10,000	11	77,585
< 5,000	25	81,551

Source: Own work based on data from Central Statistical Office of Poland (GUS).

The network of cities in Mazovia is dominated by Warsaw, a metropolitan centre that is significant on the European level. The capital is pre-eminent in all the components of the socio-economic structure: population, transport, tourism, business, foreign investment, higher education, specialized professional services, research, etc.⁵ This is confirmed by an examination of the effect of selected diagnostic indicators for Warsaw divided by the same indicators for five subregional centres, as expressed by the following equation:

$$W = \frac{K_w}{\sum_{i=1}^5 K_i},$$

where K_w – specified diagnostic indicator for Warsaw and its suburban area and K_i – specified diagnostic indicator for the i subregional centre and its suburban area.

⁴ The administrative division of Poland does not consider subregions. Subregional centres therefore do not have separate administrative functions; instead, they are the seat of the county government, much like in other, generally smaller cities. However, subregions are defined and identified in strategic documents, and their capitals are considered as regional growth poles.

⁵ Selected detailed indicators were: 1) number of population, 2) net migration rate, 3) total number of companies (entrepreneurships), 4) number of companies with foreign capital, 5) number of civil society companies (foundations, organizations and associations), 6) number of hotel bookings and 7) number of students at universities. All selected indicators are commonly used for measuring the wealth of the economy and hierarchical structure of regions and cities. They were chosen as examples to measure the level of polycentricity of Mazovia region which shows the directions of changes between Warsaw and five subregional centres.

A dynamic examination encompassing the last 12 years demonstrated beyond doubt that the advantage of Warsaw over the subregional centres is growing, which highlights the increasingly monocentric character of the Mazovian Voivodeship (Tab. 2). This is further corroborated by other authors who have tackled the spatial polarization of Mazovia (Wójcik 2008, Czapiewski 2010, Dziemianowicz et al. 2011 and Bański et al. 2012).

Tab. 2. Quotient (*W*) of selected diagnostic indicators for Warsaw divided by the same indicators for five subregional centres (including their suburban areas) in the 2000-2012 period

Indicator	2000	2002	2004	2006	2008	2010	2012
Population	3.8	3.9	3.9	3.9	4.0	4.0	4.1
Net migration rate	3.5	4.8	5.4	6.1	4.4	5.2	5.0
No. of companies, total	1.5	1.5	1.6	1.7	1.7	1.8	1.8
No. of companies with foreign capital per 1,000 inhabitants	8.5	8.7	9.3	9.8	10.5	10.7	11.4
Foundations, organizations and associations	1.6	1.7	1.8	1.8	1.8	1.8	1.9
No. of hotel bookings	5.0	3.8	5.1	5.8	5.4	5.0	5.2
Students in higher education	–	–	2.5	2.9	3.5	3.6	4.4

Source: own work.

The importance of Warsaw in the region was confirmed by a survey carried out in 2011 among members of local authorities, who were asked about the impact and importance of urban centres for the socio-economic development of the unit they represented. Among the representatives of 220 municipalities who responded to the survey, a notable 167 indicated that Warsaw plays an important or very important role in the socio-economic development of the municipality (Fig. 3). In subregional centres, the number of similar responses was much smaller and relatively consistent across the board.

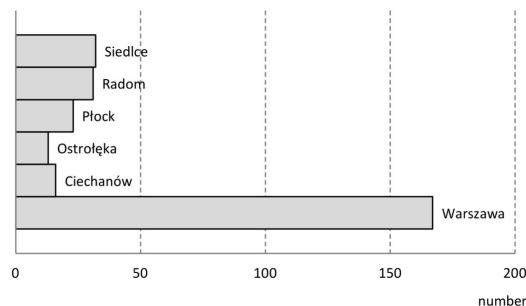


Fig. 3. Number of municipalities whose representatives assigned an important or very important role to selected urban centres in the socio-economic development of their municipalities

Source: Own elaboration.

The economic development and territorial expansion of the Warsaw agglomeration is contributing, among other things, to stagnation or even demographic decline in subregional cities (and other smaller towns). All five centres included in the study have, for the last 10 years, consistently exhibited a negative net migration rate. One of the main destinations for permanent outmigration is Warsaw and its immediate vicinity. Migrants also sporadically head for the capitals of other regions (mainly Olsztyn, Gdańsk, Poznań and Łódź), but this is relatively rare. This kind of migration weakens the potential of subregional centres, as the migrants are by and large young, active and educated individuals who sever linkages with their original place of residence. The population decline in subregional centres that resulted from this processes was compensated, until recently, by incoming migrants who had previously resided in smaller villages, but this process has currently slowed to a trickle as rural areas run out of the remnants of their demographic potential.

The second direction of outmigration from subregional centres is their suburban area. This process should be seen in a relatively positive light, as many investment opportunities are cropping up in the immediate vicinity of cities, and the incoming migrants retain social and economic bonds with their city. In 2009, almost 60% of the migrants who left Płock and Ostrołęka settled in their respective suburban areas, as did 40% of the migrating residents of Siedlce and Radom. Migrants from Ciechanów were much more likely to sever linkages with their place of origin than the former residents of the other cities; conversely, only a fourth of the migrants settled in the suburban area of Ciechanów itself.

The inflow of residents of cities into their suburban areas usually results from a combination of their demographic and economic potential and the influence they exert on surrounding areas. Several dozen municipalities in the vicinity of Warsaw experienced population growth in the period from 1995 to 2010, while only 10 municipalities in proximity to Radom, 5 near Płock and Ostrołęka and 1 near Ciechanów and Siedlce experienced the same. This example suggests enormous disparities between the socio-economic potential of Warsaw and that of its subregional centres.

Poland's most recent administrative reform weakened the role of Mazovia's subregional centres, which lost their status as seats of regional government. The 25 years each of these cities spent in the role of regional capital helped them develop strong cultural and service functions; each of the five saw the opening of new hospitals serving the region, theatres and cultural centres, centres of higher education and university campuses or branches. Thanks to this, although they remained in the shadow of the agglomeration that is Warsaw, these cities retained a number of regionally important functions. Moreover, they played an equally active role in the development of neighbouring regions (particularly Radom and Płock). We deliberately use past tense here, as presently the role of these centres has diminished rather noticeably.

Morphology

The lowlands that dominate the Mazovian countryside and the lack of significant geographical barriers have been conducive to a well-balanced settlement pattern and an even distribution of human settlement. As such, the cities usually exhibit a regular layout model. At the core and centre of the region is the city of War-

saw, which is surrounded by five subregional population centres (of which two – Radom and Płock – are large cities, and three – Siedlce, Ostrołęka, Ciechanów – are medium-sized) located close to the administrative borders of the region. This distribution of cities should have a positive effect on the balanced development of the region and its territorial coherence. However, the difference between the demographic and economic potential of Warsaw and that of the subregional cities is too vast. Furthermore, Warsaw is surrounded by a zone of rapid economic growth that is also multifunctional, whereas the peripheral areas of Mazovia are monofunctional (agricultural) and characterized by low population density. It can be concluded from the studies carried out by Wojnicka et al. (2005) that the regions that featured higher internal differentiation were the ones that were characterized by above-average GDP per capita and centres of growth that were more numerous, richer and more rapidly developing. These results can be generalized by stating that the higher the level of economic development in a region, the higher the probability of distinct differences forming between the “core” and the “peripheries”.

Medium-sized cities reveal certain differences in their spatial distribution. The majority of the population centres in this category can be found in the northern part of the region (Mława, Ciechanów, Ostrołęka, Płońsk, Wyszaków and Ostrów Mazowiecka), which can be explained by the lack of large cities (comparable in size to Radom or Płock) that could concentrate all subregional and some local functions. The southern parts of the region are home to smaller cities that surround Radom, a relatively well-populated subregional centre. Large, socio-economically robust urban centres in the neighbouring regions (e.g. Puławy, Lublin and Starachowice) also influence this kind of distribution of the smaller cities of southern Mazovia. The smaller centres include a relatively sizable number of towns that have fewer than 5,000 inhabitants.

Connectivity

The connections between the subregional centres and between the individual centres and Warsaw were analysed based on average commuting times and number of available connections. In-depth interviews with representatives of territorial self-governments rounded out the statistical analysis.

Each of the subregional centres possesses a direct rail connection with Warsaw, but there is a dearth of connections between the individual subregional capitals. Out of those, the greatest number of train routes run to and from Radom and Siedlce. Residents of Ostrołęka and Ciechanów have much more limited capabilities in terms of direct connections with their destination. There is only one train connection on the route between Płock and Warsaw. Connections between Siedlce and Warsaw have the shortest travel time (about 1.5 hours), while for Radom and Ciechanów, Ostrołęka, Płock, the average travel times are 2, 2.5 and 3 hours, respectively.

Bus connections exhibit trends that can be considered complementary to the state of affairs in rail transport. While admittedly Radom once again leads the group in number of buses travelling to and from the city, this is more related to the transit-heavy location of the city as many buses heading from Warsaw to the south of Poland also stop in Radom. Płock has a slightly smaller total number of connections, which in this case are by and large on the Płock-Warsaw route. It takes about two hours to complete this route by bus – an hour less than when travelling by train. The other three subregional centres are conspicuous in the limited number of

connections they offer. Overall, bus connections between the subregional centres in question are few and far between, and always make these cities transit locations rather than final travel destinations, B's to the travellers' A's (Fig. 4).

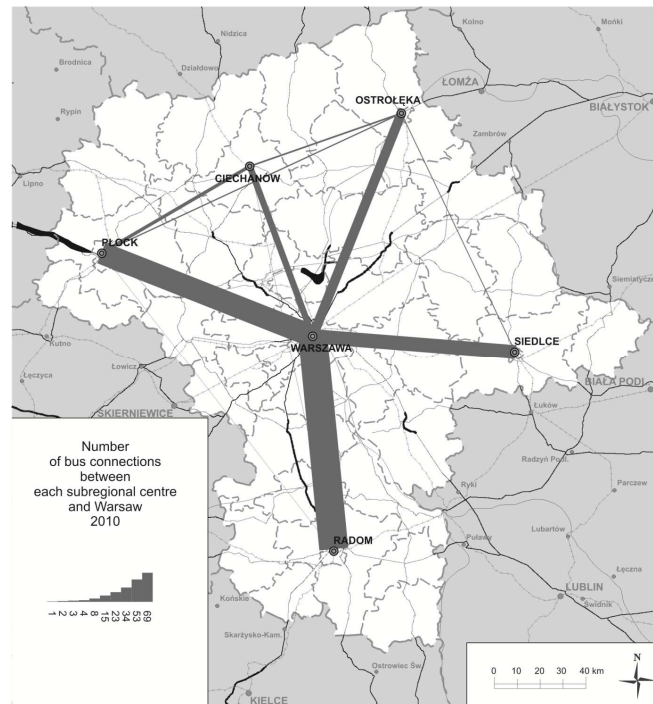


Fig. 4. Number of bus connections between each subregional centre and Warsaw, 2010

Source: Own elaboration based on data from the websites of bus operators and own research conducted in 2010.

One alternative for public transport is individual car transport. Research carried out on the main roads that enter Warsaw⁶ has shown that, between the morning hours of 6:00 and 11:00, 4,200 vehicles registered to individuals living in the subregional centres under consideration (i.e. an average of 8 vehicles per 1,000 inhabitants of these centres) entered Warsaw on one of these roads. Conversely, the same study carried out at the points of entry into the city of Płock registered 685 incoming vehicles from Warsaw (i.e. only 0.4 cars per 1,000 Warsaw inhabitants), while 870 vehicles travelling in the opposite direction (7.0 cars per 1000 citizens of Płock) were seen entering Warsaw. Thus, in this case, the previously mentioned quotient attained a value of $W = 17.5$.

Based on these empirical data, the hierarchical, unidirectional nature of the linkages between the subregional centres and Warsaw becomes apparent. This is supported by significant disparities in commuting figures. Data from 2006 suggests that almost 3,000 people commuted from one of the subregional centres to Warsaw

⁶ This study was conducted in autumn 2010.

while only 250 – 12 times fewer – made the trip in the opposite direction (Fig. 5). For residents of the subregional centres, Warsaw is an important hub of non-basic services and a highly attractive labour market, while the citizens of Warsaw rarely seek to satisfy their needs in the subregional centres. Another defining trait of the system is the almost complete lack of connections between the individual subregional centres. Each city maintains linkages with its immediate vicinity and Warsaw exclusively, and an interaction among them is an extreme rarity.

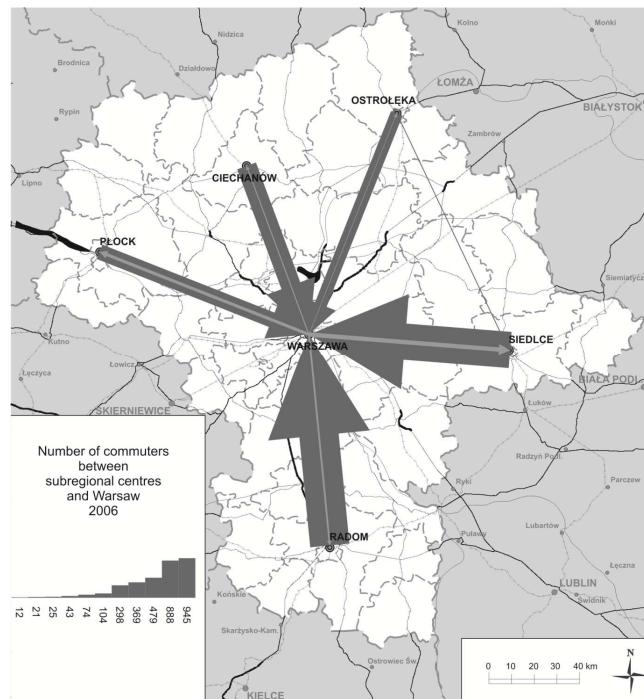


Fig. 5. Number of commuters between the subregional centres and Warsaw, 2006

Source: Own elaboration based on GUS (Central Statistical Office) data.

In-depth interviews with members of self-governments on the county level lead to similar conclusions. They were queried about the linkages between the counties on the one hand and either Warsaw or the subregional cities on the other. In most cases, respondents indicated extensive connections with Warsaw stemming from deep-rooted organizational and institutional collaboration (Marshal's Office, the Mazovian Unit of EU Programmes Implementation, regional governor). According to the county authorities, Warsaw constitutes a very important and dynamic labour market, and is a workplace for individuals from most of the counties of Mazovia that realize themselves professionally in services, industry, logistics and construction. Warsaw also offers a plethora of non-basic services, especially in higher education and specialized health care, not to mention a vibrant cultural life and much opportunity for leisure activities.

Representatives of the subregional centres' self-governments emphasize that the importance of the cities' functional linkages with Warsaw is growing, whereas linkages between neighbouring counties and other subregional cities are either becoming less important or remaining at the same level. For instance, the vice-governor of the county of Ciechanów has stated that the decisions of the central executive powers in Ciechanów have led to a new phase of shutdowns and dismissals among public office personnel, branches of public institutions and other representative powers. This is apparently eroding the existing linkages with Ciechanów and considerably strengthening linkages with Warsaw. The most recent institutions to suffer this fate were the treasury office and the economic division of the regional court (representative powers) as well as the army unit active in the area; as a result, Ciechanów is rapidly losing clout in the subregion. According to the vice-governor, the passages in the Strategy for the Development of Mazovia that deal specifically with Ciechanów as the capital of a subregion have "no grounding in reality". The secretary of the county authority of the city of Ostrołęka paints a similar picture in an interview. He points to the existing unidirectional linkages with Warsaw, primarily in the area of health care and culture, and the lack of similar bonds with the other subregional centres. He was also concerned about the unequitable treatment of different parts of the region, most notably the widespread channelling of investment to Warsaw, which increases the development gap between the capital and the rest of the region and simultaneously weakens the cohesion of the Mazovian Voivodeship as a whole.

POLYCENTRISM IN REGIONAL POLICY

The concept of polycentric development is present in the strategic discourse at practically all levels. ESDP assumed implicitly that the ultimate goal is to increase the polycentrism of settlement systems on all possible hierarchical levels, and that this multi-tiered objective does not contradict itself. To put this into perspective, it should be noted that the realization of certain other strategic goals of the European Union – becoming the most advanced and developed economy in the world, developing and expanding its transport network on a rolling basis – favours large urban centres. After all, it is there that the most respected centres of research and development and the headquarters of the most important industrial firms are located, and they are usually criss-crossed by an advanced network of highways and high-speed rail (Korcelli 2004). This reveals a certain duality in the strategic approach taken already at the broadest, pan-European level. This trend is equally clear in the national spatial policy of Poland. The previously promoted concept of spatial development did not place any emphasis on internal polycentrism, preferring rather to underline the importance of certain national centres (dubbed "europolises") in the European context and a rolling concept of spatial development along the main transport corridors. The National Spatial Development Concept 2030 (MRR 2011), the most recent and current spatial organization plan, reiterates the importance of polycentrism, conceived as both the arrangement of the largest metropolises in the form of a network and the development of subregional centres that are functionally tied to said metropolises. However, this document too follows the rule of developing strategically central cities on the one hand and balancing the development of peripheral areas on the other, the latter through diffusion of the impulses underlying development.

Finally, on a regional level, both past and current strategic documents emphasize, on the one hand, the need to boost the competitiveness of the region within the international framework, and on the other, the need for social, economic and territorial cohesion in Mazovia based on the principles of sustained development. When viewed from this angle, development is expected to take place based on a differentiated, hierarchical-horizontal order of goals. The goal of boosting the region's competitiveness through stimulating entrepreneurship and use of new technologies is to be carried out mostly in Warsaw and its suburban area; the goal of increasing accessibility and cohesion within the region is to be carried out largely in the non-metropolitan areas of Mazovia. The greatest challenges in these areas are: enhancing the accessibility and effectiveness of the transport system, bolstering the development potential of smaller urban centres, the multifunctional development of rural areas, and accelerating the diffusion of development impulses from the metropolitan area. A key element that defines this set of goals is reliance on a network of cities: a supraregional centre (Warsaw), regional centres (Radom, Płock) and subregional centres (Ciechanów, Ostrołęka and Siedlce) (ZWM 2006 and SWM 2013). Generally speaking, another praiseworthy aspect of the development framework of Mazovia is the complementarity of its socio-economic strategy with its spatial development strategy. All of the region's development goals are operationalized for four territorial dimensions: 1) the region, 2) the Warsaw metropolitan area, 3) the city (this refers particularly to the subregional cities and their surrounding area as well as some larger county capitals), and 4) rural areas (with smaller towns). Supplementary documents – sectoral strategies, spatial development plans and proposals for the distribution of financial resources – all refer to this formulation of the spatial development strategy. The voivodeship's regional policy therefore strongly emphasizes the need for a balanced development based on a polycentric network of subregional cities and smaller county capitals, running parallel to the dynamic development and expansion of the Warsaw metropolis.

DISCUSSION: SCENARIOS FOR THE POLYCENTRIC DEVELOPMENT OF MAZOVIA

The more polycentric development of Mazovia is one of the more important development challenges of the coming years. This process depends on a number of externalities (globalization, European policies, the state of the global economy, environmental changes, the development of large agglomerations and neighbouring regions, etc.) that are independent of the region's actions and have futures that are rather opaque and not easily predictable. Until now, the facts we have presented suggest that current socio-economic trends in the region are not conducive to polycentric development, as despite the general improvement in the economic situation of Mazovia, the domination of Warsaw over the subregional centres in most of the areas under consideration is becoming ever more noticeable. On the other hand, policy recommendations on all levels (from the EU to the regional) vigorously promote the idea of polycentric regional development. Given all the above, it is possible to envision three scenarios for the polycentric development of Mazovia: 1) balancing market-oriented development trends through regional policy, 2) the growing domination of Warsaw, and 3) full polycentric development.

Scenario 1: Balancing market-oriented development trends through regional policy

The development of Mazovia in the coming years will, for the most part, be a corollary of the demographic and economic development of Warsaw and its immediate vicinity as well as two of the largest subregional centres: Radom and Płock (Fig. 6). Mazovia regional policy will consistently attenuate the spatial polarization of the region by supporting investment initiatives in less developed areas. The modernization and expansion of the transport system will probably lead to the territorial expansion of urbanized areas and, concomitantly, of the metropolitan area of Warsaw. Jointly, these processes will strengthen the linkages between the subregional centres and the capital.

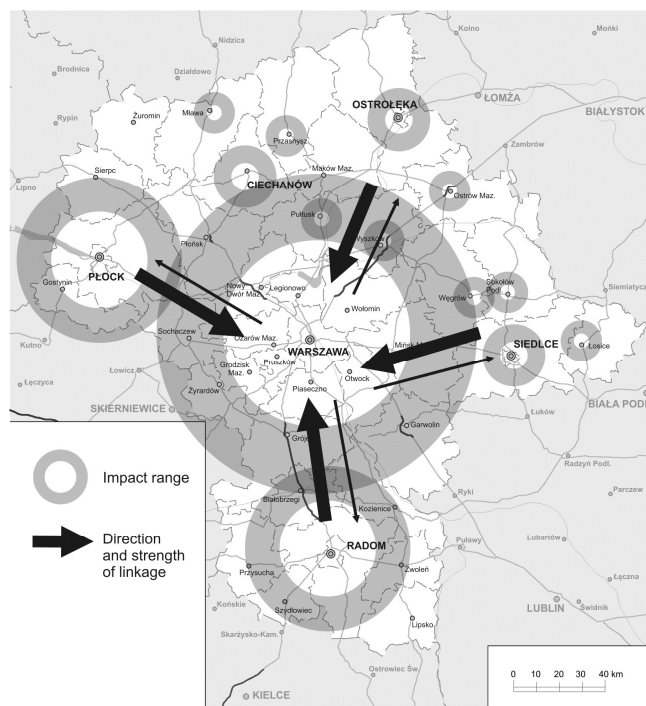


Fig. 6. Scenario 1: Balancing market-oriented development trends through regional policy

The development potential of Radom and Płock is great enough for them to be capable of strengthening their own role in their respective subregions. Other small urban centres remain in their shadow. A significant out-migration from these subregions is not expected; the demographic situation will be progressively stabilizing. However, a large number of rural neighbourhoods will spring up in the immediate vicinity of these centres, specializing in functions that will serve local needs (trade, services, education and culture).

The northern and eastern parts of the region will experience a different direction in the development of the settlement system. The overall potential of the subregional centres in those areas is undeniably smaller, and even pointed, intentional

action will not serve to reduce the development gap between the central and the peripheral areas of the region. Therefore, in the development of this part of the region, one can expect the role of Warsaw to continue increasing for the foreseeable future. With respect to the other cities, the role of smaller centres as county seats (Mława, Przasnysz, Pułtusk, Ostrów Mazowiecka, Węgrów, Sokołów Podlaski, Łosice) will probably become more prominent as well. These last population clusters will take over some of the roles traditionally assigned to subregional centres, which will develop and expand too slowly.

Scenario 2: The growing domination of Warsaw

Support for the process of polycentric development on the part of regional policy will be negligible. This may result from a lack of economic grounds on which to base such support or from new paradigms in the regional development of the EU member states. The development of the settlement system will be dominated by Warsaw. Two large subregional centres (Radom and Płock) will suffer a process of economic and demographic stagnation (Fig. 7). Their clout and influence over the development of their subregions will be limited, which in turn will trigger a negative demographic trend, with much of the outbound flow coming from the peripheral areas. Similar processes will take place in the other three subregional centres, but these will lose part of their socio-economic functions, which will essentially turn them into county capitals towns. Peripheral areas will still be characterized by negative population flows, which will drive up the number of small villages with a very unhealthy and unfavourable age structure.

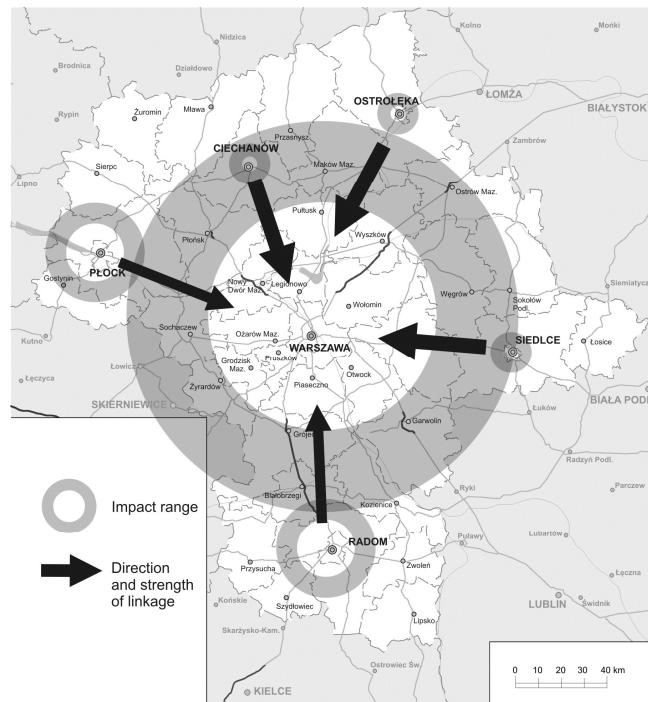


Fig. 7. Scenario 2: The growing domination of Warsaw

Scenario 3: Full polycentric development

Regional policy will intervene vigorously and decisively in support of polycentric development, which will halt negative socio-economic trends that excessively strengthened the role of Warsaw in the region (Fig. 8). The socio-economic development of the region is predicated on a combination of creating a functional, quick and effective transportation system (road and rail); modernizing the ICT network; and dedicating more attention to telecommuting. Steady progress will bring well-balanced development to the settlement system. Warsaw, with strong links to the subregional centres, will play a crucial role in this process. This will create subregions with specific economic functions such as production and services, agriculture, agriculture and recreation, that will form cohesive, tightly connected areas of social and economic links. County capitals will continue to have an important role, while the importance of smaller cities as centres of local development will also go up, as will their number. Good connections between the cities and the country will increase the number of commuters. The countryside will lose its exclusively agricultural character due to the expansion of housing projects. Peripheral areas will witness an increase in the importance of health care and recreation as well as the related services that typically come with them. All of these trends put together will rein in the out-migration of the rural population to the cities.

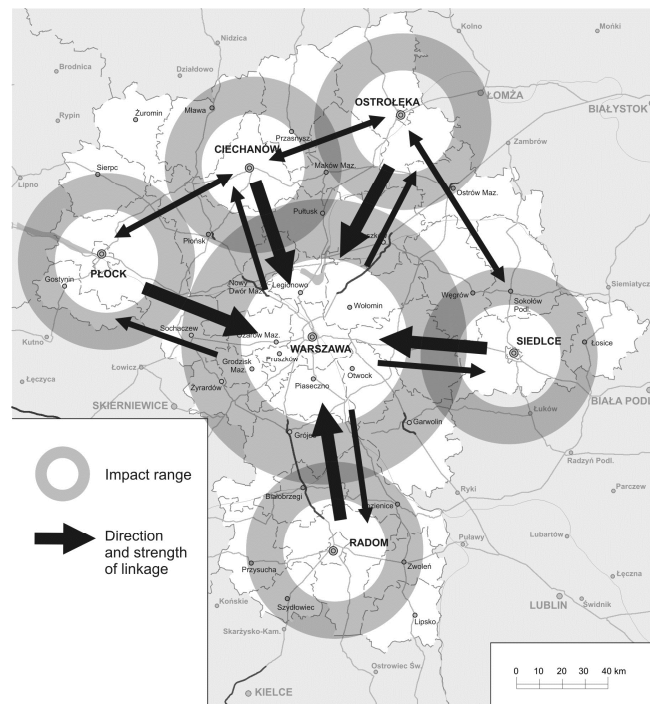


Fig. 8. Scenario 3: The polycentric development of Mazovia

CONCLUSION

Recent decades have brought a rise in the importance of Warsaw and the sway that it holds over the region; subregional centres, on the other hand, have become weaker. With this in mind, it can be said that the notion of polycentric regional development based on one central city and five subregional centres is a purely theoretical construct. The considerable differences between the economic and demographic potential of Warsaw and that of the subregional centres run counter to the assumptions of polycentric development. Even among the subregional centres, these differences seem to be too significant. Particularly the northern and north-eastern areas of the region should revamp their settlement structure, setting their sights on a system where the county capitals will inherit most of the functions that belonged to the subregional centres.

Polycentric development, as envisioned by regional policy, is incompatible with current social and economic trends. However, the appropriate steps taken to support subregional centres and their surrounding area might, in the long run, ease the process of polarization and bring about the cohesive and balanced development of all of Mazovia.

Casting a glance at the concepts and processes mentioned in the introductory part of this study that surround regional development in Western Europe, it must be noted that Mazovia is still dominated by a monocentric urban system. The region has not yet reached the phase in which it begins transforming into a polycentric system – the settlement and economic hierarchy does not indicate this, nor has a full network of linkages between individual urban nodes truly come into being yet. Intercity linkages are centrally directed towards Warsaw, but there is no reciprocity or linkages between individual subregional centres. In the case of Mazovia, the main kernel of development is the high concentration of non-industrial firms in Warsaw and the considerable supply of land in which to invest – both in the city itself and in its immediate vicinity.

REFERENCES

- ALBRECHTS, L. (1998). The flemish diamond: precious gem and virgin area. *European Planning Studies*, 6, 411-424.
- ALONSO, W. (1964). *Location and land use*. Cambridge (Harvard University Press).
- BĄŃSKI, J. (2005). *Przestrenny wymiarw społecznych procesów na wsi*. Warszawa (IGiPZ PAN, PTG).
- BĄŃSKI, J., CZAPIEWSKI, K., MAZUR, M. (2012). Policentryczność rozwoju Mazowsza. *Mazowsze Studia Regionalne*, 10, 71-88.
- BATTEN, D. F. (1995). Network cities: creative agglomerations for the 21th century. *Urban Studies*, 32, 313-327.
- BURGER, M. J., De GOEI, B., van der LAAN, L., HUISMAN, F. J. M. (2011). Heterogenous development of metropolitan spatial structure: evidence from commuting patterns in English and Welsh city-regions, 1981-2001. *Cities*, 28, 160-170.
- CAMAGNI, R. (1993). From city hierarchy to city networks: reflections about an emerging paradigm. In Lakshmanan, T. R., Nijkamp, P., eds. *Structure and change in the space economy: festschrift in honour of Martin Beckmann*. Berlin (Springer), pp. 66-87.
- CZAPIEWSKI, K. (2010). Koncepcja wiejskich obszarów sukcesu gospodarczego i ich rozpoznanie w województwie mazowieckim. Warszawa (IGiPZ PAN, PTG).
- DAVOUDI, S. (2003). Polycentricity in European spatial planning: from an analytical tool to a normative agenda. *European Planning Studies*, 11, 979-999.

- DAVOUDI, S. (2008). Conceptions of the city-region, a critical review. *Urban Design and Planning*, 16, 51-60.
- DIELEMEN, F. M., FALUDI, A. (1998). Polynucleated metropolitan regions in Northwest Europe: theme of the special issue. *European Planning Studies*, 6, 365-378.
- DZIEMIANOWICZ, W., SZLACHTA, J., SZMIGIEL-RAWSKA, K., eds. (2011). *Subregionalne bieguny wzrostu*. Warszawa (Uniwersytet Warszawski).
- DZIEWONSKI, K. (1977). *Rozmieszczenie i migracje ludności a system osadniczy w Polsce Ludowej*. Wrocław (IGiPZ PAN).
- DZIEWONSKI, K., MALISZ, B. (1978). *Przekształcenia przestrzenno-gospodarczej struktury kraju*. Warszawa (PWN).
- EC (1999). *ESDP European spatial development perspective. Towards balanced and sustainable development of the territory of the European Union*. Potsdam (European Commission).
- ERWING, R. (1997). Is Los Angeles – style sprawl desirable? *Journal of the American Planning Association*, 63, 107-126.
- EU (2011). *Territorial Agenda of the European Union*, [Online]. http://ec.europa.eu/regional_policy/sources/policy/what/territorial-cohesion/territorial_agenda_2020.pdf (European Commission).
- FRIEDMANN, J., MILLER, J. (1965). The urban field. *Journal of the American Institute of Planners*, 31, 312-320.
- GAWLIKOWSKA-HUECKEL, K. (2002). *Procesy rozwoju regionalnego w UE: konwergencja czy polaryzacja?* Gdańsk (Wydawnictwo Uniwersytetu Gdańskiego).
- GORDON, P., RICHARDSON, H. W. (1996). Beyond policentricity. The dispersed metropolis, Los Angeles. *Journal of the American Planning Association*, 62, 289-295.
- GORZELAK, G., SMĘTKOWSKI, M. (2005). *Metropolia i jej region w gospodarce informacyjnej*. Warszawa (Scholar).
- HAGGETT, P., CHORLEY, R. J. (1967). *Network analysis in geography*. London (Edward Arnold).
- INGRAM, G. K. (1998). Patterns of metropolitan development: what have we learned? *Urban Studies*, 35, 1019-1035.
- JĄŁOWIECKI, B. (2007). Metropolie jako bieguny rozwoju. In Gorzelak, G., ed. *Polska regionalna i lokalna w świetle badań EUROREG-u*. Warszawa (Scholar), pp. 143-162.
- JANSEN, G. R. M. (1993). Commuting: home sprawl, job sprawl, traffic jams. In Salomon, I., Bovy, P., Orfeuil, J., eds. *A billion trips a day: tradition and transition in European travel patterns*. Dordrecht (Kluwer Academic Publishers), pp. 101-128.
- KLOOSTERMAN, R. C., MUSTERD, S. (2001). The polycentric urban region: towards a research agenda. *Urban Studies*, 38, 623-633.
- KORCELLI, P. (2004). Koncepcja policentryczności systemów miejskich w ujęciu Europejskiej Perspektywy Rozwoju Przestrzennego. *Europa XXI*, 11, 37-43.
- KPZK PAN (1974). *Plan przestrzennego zagospodarowania kraju do roku 1990*. Biuletyn KPZK PAN, 85, Warszawa (KPZK PAN).
- MALISZ, B. (1984). Trzywizje polskiej przestrzeni. In Kukliński, A., ed. *Gospodarka przestrzenna Polski. Diagnoza – rekonstrukcja – prognoza*. Warszawa (KPZK PAN), pp. 6-45.
- MALISZ, B., ed. (1978). *40 lat planowania struktury przestrzennej Polski*. Warszawa (KPZK PAN).
- MARKOWSKI, T., MARSZAŁ, T. (2006). *Metropolie, obszary metropolitalne, metropolizacja. Problemy i pojęcia podstawowe*. Warszawa (KPZK PAN).
- MEIJERS, E. (2007). From a central place to a network model: theory and evidence of a paradigm change. *Tijdschrift voor Economische en Sociale Geografie*, 98, 245-259.
- MRR (2011). *Koncepcja Przestrzennego Zagospodarowania Kraju 2030*. Warszawa (Ministerstwo Rozwoju Regionalnego).

- NORDREGIO (2005). *Potentials for polycentric development in Europe – ESPON 111*. Stockholm (Nordergio).
- PARR, J. B. (1987). Interaction in an urban system, aspect of trade and commuting. *Economic Geography*, 63, 223-240.
- PARR, J. B. (2005). Perspectives on the city-region. *Regional Studies*, 39, 555-566.
- PRED, A. R. (1977). *City-systems in advanced economies: past growth, present processes and future development options*. London (Hutchinson).
- ROSNER, A., ed. (2007). *Zróźnicowanie poziomu rozwoju społeczno-gospodarczego obszarów wiejskich a zróźnicowanie dynamiki przemian*. Warszawa (IRWiR PAN).
- SCHWANEN, T., DIELEMAN, F. M., DIJST, M. (2001). Travel behaviour in Dutch monocentric and polycentric urban system. *Journal of Transport Geography*, 9, 173-186.
- ŚLESZYŃSKI, P. (2012). Klasyfikacja gmin województwa mazowieckiego. *Przegląd Geograficzny*, 84, 559-576.
- SMĘTKOWSKI, M. (2007). Nowe relacje metropolia-region w gospodarce informatycznej na przykładzie Warszawy i Mazowsza. In Gorzelak, G., ed. *Polska regionalna i lokalna w świetle badań EUROREG-u*. Warszawa (Scholar), pp. 163-188.
- SOBALA-GWOSDZ, A. (2005). *Ośrodki wzrostu i obszary stagnacji w województwie podkarpackim*. Kraków (Jagiellonian University).
- SWM (2013). *Strategia rozwoju województwa mazowieckiego do 2030 roku. Innowacyjne Mazowsze*. Warszawa (Samorząd Województwa Mazowieckiego).
- TARKOWSKI, M. (2008). *Centra i peryferie rozwoju społeczno-gospodarczego Polski w okresie transformacji ustrojowej*. Gdynia–Pelplin (Bernardinum).
- WÓJCIK, P. (2008). Dywergencja czy konwergencja: dynamika rozwoju polskich regionów. *Studia Regionalne i Lokalne*, 32(2), 41-60.
- WOJNICKA, E., TARKOWSKI, M., KLIMCZAK, P. (2005). *Przestrzenne i regionalne zróźnicowania ośrodków wzrostu. Polaryzacja a wyrównywanie szans rozwojowych. Przesłanki dla kształtowania polityki regionalnej państwa*. Gdynia–Rzeszów (Ministerstwo Rozwoju Regionalnego).
- ZWM (2006). *Strategia rozwoju województwa mazowieckiego do 2020 roku (aktualizacja)*. Warszawa (Zarząd Województwa Mazowieckiego).

Jerzy Bański, Konrad Czapiewski

VÍZIA POLYCENTRICKÉHO ROZVOJA MAZOVSKÉHO REGIÓNU V POĽSKU

Cieľom tejto práce je predstaviť niekoľko rozvojových štúdií pre Mazovský región v kontexte jeho súčasných vývojových trendov a smerov naznačených v regionálnej politike vojvodstva. Výskum sa v prvom rade sústredil na Varšavu a jej suburbánne územie, ako aj na päť subregionálnych centier: Radom, Plock, Siedlce, Ostrołęka a Ciechanów spolu s ich predmestským územím. Primárnou otázkou výskumu je, či polycentrický rozvoj Mazovského vojvodstva prebieha v súlade so sociálno-ekonomickými trendmi v regióne. Náš prístup sa sústredil na hodnotenie významu subregionálnych centier v priestorovej štruktúre regiónu a ich príspevok k sociálno-ekonomickému vývoju vojvodstva. Prijali sme hypotézu, že napriek konceptu narastajúceho polycentrizmu v Mazovskom regióne ako ho uvádzajú strategické dokumenty, existujúce sociálno-ekonomické trendy nenaznačujú nárast významu piatich subregionálnych centier, ktorý by zlepšil ich postavenie voči Varšave.

Polycentrický charakter súvisí s tromi základnými dimenziami: 1) postavenie a veľkosť mestských centier, 2) ich rozmiestnenie a miesto v sieti miest a 3) sociálno-ekonomická a funkčná konektivita miest (NORDREGIO 2005). Pokiaľ ide o veľkosť a rozsah, v polycentrickom urbánnom systéme nedominuje jediné mestské centrum. Je skôr tvorené skupinou dvoch alebo viacerých miest s podobnými počtom obyvateľov a podobnými rolami v regió-

ne. Polycentrizmus je charakterizovaný aj relatívne vyváženým priestorovým rozložením miest v každej funkčnej a veľkostnej kategórii, ako aj dobrým dopravným spojením s obojstrannými väzbami medzi mestskými centrami.

V roku 2012 bolo v Mazovskom vojvodstve 85 miest, kde sa sústredilo 64 % obyvateľov regiónu. Vyše polovica tohto obyvateľstva pripadla na Varšavu (tab. 1). Indikátor prvenstva Varšavy oproti druhému najväčšiemu mestu v regióne, čo je Radom, je 7,8, a to vypovedá o úlohe hlavného mesta v Mazovskom vojvodstve. Druhé veľké mestské centrum (vyše 100 000 obyvateľov) je Plock (indikátor prvenstva Varšavy je 13,8) v západnej časti regiónu. Vo východnej a severnej časti územného celku sa nenachádzajú mestá s takým veľkým počtom obyvateľov, naopak, sú tu roztrúsené malé mestá.

Hierarchická a funkčná štruktúra miest v Mazovskom vojvodstve sa líšia od ich poradia podľa veľkosti, čo je výsledkom administratívnych reforiem. Varšava ako hlavné mesto regiónu aj krajiny zaujima najdôležitejšie administratívne, spoločenské, kultúrne a hospodárske postavenie. Radom, Plock, Siedlce, Ostrołęka a Ciechanów sú subregionálne centrá, tak ako sa to uvádza v strategických dokumentoch, hoci prvé dve sú na vyššej úrovni pokiaľ ide o ich funkčnú štruktúru a hospodársky potenciál. Do poslednej administratívnej reformy roku 1999 boli všetky tieto mestá hlavnými mestami vojvodstiev a reformou toto postavenie stratili. Iné centrá okresov (powiatov), okrem subregionálnych centier, poskytujú služby predovšetkým miestnym obyvateľom a pritom niekedy prijímajú aj iné úlohy (napríklad kultúrne, vzdelávacie a turistické služby), ktoré presahujú miestny rámec. Poslednou kategóriou v sídelnom systéme sú veľmi malé mestá alebo vidiecke obce, ktorých funkcie sú miestne (poskytujú základné služby obyvateľom obce).

Ak vezmeme do úvahy sídelnú štruktúru Mazovského regiónu, najmä geografické rozmiestnenie subregionálnych centier, treba poznamenať, že okolnosti prajú takejto voľbe. Vedúca úloha v regióne patrí bezpochyby Varšave, okolo ktorej je päť subregionálnych centier (Radom, Plock, Ostrołęka, Ciechanów a Siedlce) s rozdielnym rozvojovým potenciálom a každé sa špecializuje v inej oblasti. Radom a Plock sú veľké centrá so značným rozvojovým potenciálom. V posledných dvoch desaťročiach však obe mestá zažili pretrvávajúce negatívne demografické trendy spôsobené odlivom obyvateľstva do predmestí alebo do iných miest (najmä Varšavy) a poklesom v raste obyvateľstva. V prípade Radomu sa rozvojových potenciál mesta nevyužíva dosť efektívne. Reštrukturalizácia priemyslu a zánik mnohých pracovných miest ihneď zvýšili emigráciu z mesta a prispeli k jeho ekonomickej stagnácii.

Ostrołęka a Ciechanów sú menej rozvinuté subregionálne centrá. Ich potenciál možno prirovnať k niektorým centráom okresov (powiatov), ktoré susedia s Varšavou. Keď tieto mestá stratili štatút hlavných miest regiónov, prišli aj o niektoré funkcie, čo následne viedlo k ich hospodárskej stagnácii. Situáciu zhoršovala aj ich periférna poloha voči Varšave a ostatným veľkým mestám, ako aj ich nedostatočne rozvinutý dopravný systém, s malým počtom spojení s Varšavou a ostatnými subregionálnymi centrami. Siedlce, ktoré majú dobré spojenie s Varšavou a relatívne širokú zónu vplyvu, sú v tomto ohľade na tom o niečo lepšie.

Stredne veľké centrá okresov (powiatov) a menšie mestá spolu tvoria relatívne rovnomerne rozloženú sieť. Tento druh priestorového rozmiestnenia môže pomôcť postupnému rozvoju miest, pretože spolu zabezpečujú rôzne miestne funkcie: správnu, obchodnú, službovú, prvý a druhý stupeň školstva, zdravotnú starostlivosť, kultúru atď.) a v severných častiach regiónu dokonca funkcie presahujúce miestnu úroveň (kde nie sú „slabé“ subregionálne centra schopné plniť svoj tradičný úlohu).

V posledných desaťročiach stúpol význam Varšavy a jej vplyv na celý región, pričom subregionálne centrá sa oslabili. Vzhľadom na to možno vyhlásiť, že predstava polycentrického regionálneho rozvoja, založená na jednom hlavnom meste a piatich subregionálnych centrách, je čisto teoretickým konštruktom. Významné rozdiely medzi hospodárskym a demografickým potenciálom Varšavy a subregionálnych centier protirečia predpokladu

polycentrického vývoja. Tieto rozdiely sú príliš veľké dokonca aj medzi subregionálnymi centrami. Konkrétne severné a severovýchodné oblasti regiónu by mali prehodnotiť svoju sídelnú štruktúru a uvažovať o systéme, v ktorom by centrá okresov (poviatov) získali väčšinu funkcií, ktoré vykonávali subregionálne centrá.

Polycentrický vývoj, tak ako k nemu pristupuje regionálna politika, je nezlučiteľný so súčasnými sociálnymi a hospodárskymi trendmi. Avšak vhodné kroky podniknuté na podporu subregionálnych centier a ich okolia by mohli v dlhodobom výhľade uľahčiť proces polarizácie a v konečnom dôsledku priniesť vyvážený a kohézny rozvoj celého Mazovského vojvodstva.

Pri pohľade na koncepty a procesy spomínané v úvodnej časti tejto štúdie prebiehajúce v regionálnom rozvoji západnej Európy je potrebné poznamenať, že v Mazovskom vojvodstve ešte vždy prevláda monocentrický urbánny systém. Región ešte nedospel ani do počiatočnej fázy premeny na polycentrický systém. Osídlenie a hospodárska hierarchia to nenažnačuje a neexistuje tu kompletná sieť väzieb medzi jednotlivými urbánnymi uzlami. Medzimestské väzby sú centrálné nasmerované na Varšavu, ale nie je tu reciprocita ani väzby medzi jednotlivými subregionálnymi centrami. V prípade Mazovského vojvodstva je hlavným faktorom rozvoja vysoká koncentrácia iných ako priemyselných podnikov vo Varšave a značná ponuka pozemkov pre investície – tak v samom meste, ako aj v jeho bezprostrednom okolí.

