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Received: 22.09.2021

Acceptance: 28.09.2021

Published: 30.09.2021

JEL codes: R00, R23, R53

Annals PAAAE • 2021 • Vol. XXIII • No. (3)

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DOI: 10.5604/01.3001.0015.2895

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MIGRATION PROCESSES TO RURAL AREAS IN POLISH METROPOLISES

Key words: suburban areas, rural areas, suburbanization, metropolises, Poland

ABSTRACT. The research problem addressed in this paper includes the progress of suburbanization in selected Polish metropolises. The following core question was formulated: when did today's suburbanization processes start, and what are the migration trends and targets of the population living at the dividing line between urban and suburban areas in Polish metropolises. Defined as such, the study field enabled to formulate the objective of this research, which is to present the formation of new suburbanization processes in the largest metropolises in Poland. Considering the research problem and the defined objective, the authors analyzed the differences in demographic changes across the territory and placed these findings in the context of suburbanization and its stages. This allowed to determine the dynamics and targets of migration in the metropolises surveyed. Also, the changes were compared between the units covered, providing a basis for further considerations on suburbanization and for concluding whether these processes are cyclical in nature. The analyses relied on descriptive statistics methods and on graphical data presentation methods. The selected metropolises were delimited using QGIS Desktop 2.4.0 and adequate geometry (centroid) and geoprocessing (buffer) tools. This paper relies on source data in the form of shapefile vector layers presenting the boundaries of the administrative units considered (<http://www.gugik.gov.pl/pzgik>). Source materials included public statistical data and program documents developed at a regional and sub-regional level. The study period is 1995-2018. In geographic terms, the study focuses on the selected metropolises of Poznań, Warsaw, Łódź, Wrocław, Kraków, Gdańsk and Szczecin.

INTRODUCTION

Urban-rural migrations are a major issue in today's socioeconomic processes. Characteristically, highly developed countries experience rapid changes in the flow of people between big cities (metropolises) and their surrounding (suburban) areas, which become more and more populated. Referred to as suburbanization, these developments are currently witnessed in medium and small cities, too [Kajdanek 2012].

Defined in the US, the term of suburbanization was transferred to Polish scientific literature to describe the processes of people moving from cities to suburbs. American research on suburbanization is believed to have started in the 1920s. Note, however, that already in the late 1800s/early 1900s, E. Howard proposed a residential model referred to as a “garden city” [Martyniuk-Pęczek et al. 2018], providing grounds for identifying the suburbanization process.

Conditions such as the peak growth of the urban population and the acceleration in the spatial development of cities resulted in what is called the “metropolitan explosion” as a consequence of which people started to settle in suburban areas [Lorenz 2015]. That process reached its peak intensity in the 1950s-1970s in the US. At that time, suburban development was driven by favorable economic and political factors, including: the development of the automotive industry, mass production and infrastructure (roads, highways); the reform of the mortgage loans scheme; and the technological revolution in civil engineering. The culmination of these processes took place in the golden era of the American economy, whereby consumption growth was driven by an increase in income [Martyniuk-Pęczek et al. 2018].

In Poland, suburbanization is believed to have started in the late 1980s/early 1990s. The political and economic shift had an impact on the transformation of land planning, and redefined both the urban and suburban landscape [Zborowski, Raźniak 2013, Kurek et al. 2014]. The demand for dwellings exceeded what was supplied by the housing industry. Changes in legislation played an important role in promoting suburbanization. This includes the Land Development Act of 1994 (which transferred the relevant rights to municipalities and abolished the obligation to establish local land development plans) and the Geodetic and Cartographical Law Act of 1989 (which enabled agricultural land to be split into smaller plots). These changes facilitated trade in suburban land, which, therefore, became a more attractive investment. The fiscal policy (the Act on Personal Income Tax of July 26, 1991) had a favorable impact on suburban development, too, as it stimulated the housing market and compensated for the weaknesses of the banking system (credit availability) [Martyniuk-Pęczek et al. 2018]. Growing living expenses, including the surge in house prices in cities in addition to an increase in rents, were an additional driver of suburbanization. These developments stopped the migration from rural to urban areas; as a consequence, the net migration figure for 2000 showed, for the first time, that the population out-migrates from the cities. Suburbanization considerably affected metropolises and large cities, resulting in a demographic shift [Zborowski, Raźniak 2013].

While suburbanization can be analyzed in the context of demographic changes identified above, it can also be considered as a process or a phase of the urban development cycle (urban life cycle). That model was described by researchers such as Leo H. Klaassen, Leo van den Berg, Tony Champion [Maleszka et al. 2016] or Nadja Kabisch and Dagmar Haase, who ordered the different stages of the cycle in a tabular form [Gołata 2015].

Research on changes in population concentration is believed to have been pioneered by Gibbs, who developed a five-stage model of urban development in 1963. However, the urbanization phase model (reduced to 4 stages), proposed by Leo H. Klaassen [1981] in early 1980s, gained greater popularity [Zasina 2015]. Accordingly, the following phases take place successively: urbanization, suburbanization, desurbanization and (in a closed-loop cycle, as a reproduction of the urbanization phase) reurbanization [Berg van den et al. 1982, Maleszka et al. 2016]. Metropolitization is an additional stage which, according to Waldemar Budner [2008], emerged as part of the diverse non-continuous transformations between the urban center and the units located in its immediate vicinity. However, it is identified as such in the case of big cities only.

The comparison between the urban life cycle and real processes taking place in urban systems fails to corroborate the model's assumptions [Degórska 2017]. Nevertheless, they are indirectly used in research on suburbanization as a transformation process of the existing urban landscape and in creating new urban systems.

Research carried out in this paper focuses on the largest Polish urban systems: agglomerations and metropolises.

The two concepts are strictly interrelated. Note that while each metropolis is an agglomeration (or an urban community), not every agglomeration (or urban community) meets the conditions to be qualified as a metropolitan area. Agglomerations must not necessarily become metropolises (metropolitan areas), which are the next development step for large urban centers. These transformations are based on qualitative rather than quantitative changes, such as globalization or functional and spatial integration processes [Markowski, Marszał 2006]. Demographic and territorial growth is not a sufficient condition for an agglomeration to become a metropolis or a metropolitan area. The basic distinguishing feature of a metropolis is the international importance of the settlement system. Suburbanization plays a major role in that process and can be considered either in relative terms (if the suburban zone develops more slowly than the urban core) or absolute terms (if the suburban zone develops while the urban core slightly declines). Consequently, people move from the city (or from outside the city) to the suburban zone [Liszewski 1987, Lisowski, Grochowski 2009].

The emergence and development of metropolises (urban agglomeration) are one of the characteristics of urbanization. As a result of that process, the big city and the neighboring smaller urban centers and villages form metropolises [Gawron 2014]. The term "agglomeration" came into use thanks to French geographic literature, which used it for the first time in the mid-1800s [Iwanicka-Lyra 1969]. As regards Poland, the concept of urban agglomeration emerged in the 1960s in a paper by Kazimierz Dziewoński and Leszek A. Kosiński, who defined it as a spatial concentration of people [Czyż 2009], which is a single functional and spatial system of a multifunctional nature [Zgliński 1994]. Elżbieta Iwanicka-Lyra extended the term of urban agglomeration by placing it

in the context of big cities. She defined it as an area composed of a core (city) and its surrounding administrative units which exhibit above-average values of socioeconomic characteristics (urbanization metrics) [Iwanicka-Lyra 1969]. When analyzing the issue of metropolises, it is crucial to consider its two main types: monocentric and polycentric areas. The essential differences between them are the number of major cities located within their territories. Hence, a polycentric metropolis (also referred to as a conurbation) exists, if it includes several important urban centers [Gawron 2014].

Przemysław Śleszyński [2015] claims that papers by Kazimierz Lier, Elżbieta Iwanicka-Lyrowska, Zbigniew Gontarski and Stanisław Leszczycki, Stanisław Herman and Piotr Eberhardt provided a basis for formulating the concept of agglomeration (metropolises) delimitation. Delimitations identified in the 1970s and 1980s focused on the largest Polish cities.

Delimitation [Smętkowski et al. 2008], which presents the classification of urban centers in the most extensive way, was developed in 2006 as part of the ESPON project. The classification of Functional Urban Areas was presented in a report from 29 European countries [ESPON 2007]. In Poland, based on the analysis of 151 largest cities, a demarcation was made between the urban core and external zone [Śleszyński 2013]. Based on a concept by Brian J.L. Berry (daily urban systems), the division considers the structural criteria (e.g., population density, population with a tertiary education and share of high-tech service enterprises) [Śleszyński 2016]. The downside of the above delimitation is that (due to data unavailability) it fails to take account of commuting time, one of the major criteria [Śleszyński 2015]. The first countrywide delimitation of urban agglomerations which takes commuting time into consideration was prepared in 2013 by Przemysław Śleszyński, whose analyses relied on the following three groups of indicators: functional, socioeconomic and morphological.

A metropolis is a term derived from Greek, where it means native town or capital city; it is defined in many ways based on different criteria of town classification. In accordance with Polish law, as provided for in the Notice of the Marshal of the Parliament of the Republic of Poland of September 14, 2018 on the publication of the unified text of the Land Planning and Development Act [Journal of Laws 2018.1945], a metropolis denotes an area which demonstrates the largest demographic and economic potential related to the functioning of a big city and its surroundings, and provides a basis for developing and implementing the land use policy regarding the operation of a metropolitan community (metropolitan area). Some authors [Szmytko 2013] use the population criterion to define a metropolis as a big city (usually with more than 500,000 residents), while others additionally consider functional criterion, i.e., the area of urban impacts and the functions the city has in the regional and cross-regional system (cf. [Jałowicki 1999, Markowski, Marszał 2006, Kudłacz 2011, Gaczek 2013, Szmytko 2013]). A metropolis forms a network of relationships within a large, extended and coherent urban community, where metropolitan functions are identified.

RESEARCH OBJECTIVES AND METHODOLOGY

The research problem addressed in this paper includes the progress of suburbanization in selected Polish metropolises. The following core question was formulated: when did today's suburbanization processes start, and what are the migration trends and targets of the population living at the dividing line between urban and suburban areas in Polish metropolises.

The authors of this paper selected 7 metropolises with the Polish largest population cities at the core: Warsaw, Kraków, Łódź, Wrocław, Poznań, Gdańsk and Szczecin. The selected areas were delimited in accordance with general principles and criteria, with the municipality being used as the basic delimitation unit [Śleszyński 2013]. The main criterion was defined as the distance from the center of the core, i.e., the town which is central to the process of assimilation of urban characteristics by its neighboring areas. The next steps consisted of identifying the areas located within two- and three times the radius of the core. This allowed to extract the spatial systems in the form of rings which are affected by suburbanization processes. The suburban zone is Ring 1 (urban fringe); the remote suburban zone is Ring 2 (urban-rural fringe) (Figure 1) [Cox 2011, Lisowski, Grochowski 2009].

SUBURBANIZATION IN POLISH METROPOLISES

When examining the changes in the population of selected towns, considerable fluctuations were found to have taken place in 1995-2018 in different metropolitan zones (Figure 1). Most metropolises surveyed, i.e., the Poznań, Szczecin, Łódź and Wrocław metropolises, experienced an important depopulation of their cores. The largest change in the number of downtown residents was recorded in Łódź (a decline by as much as 16.8% compared to 1995). A slightly smaller, though significant, decline in population is observed in Poznań and Szczecin (7.3% and 3.8%, respectively). In the study period, changes in the population of Wrocław were not as pronounced and fluctuated around 0%. From 1995 to 2018, the population of Wrocław declined by 0.2%, i.e., slightly over 1300 people. Conversely, the metropolises referred to above are witnessing an increase in the population of Ring 1 (Figure 1), with the highest growth being recorded in Poznań and Szczecin. In the Poznań metropolis, the population of Ring 1 grew by 84.4%, which means that the inner suburban ring nearly doubled the number of its residents in 23 years. A similar situation can be found in the Szczecin metropolis whereby the population of Ring 1 rose by 79%. The corresponding growth rates for Wrocław and Łódź are 63.8% and 15.9%, respectively. Things look similar in agglomerations also experiencing population growth in their cores. These are the highly specific areas of Warsaw, Kraków and Gdańsk which, compared to the rest of the country, enjoy a convenient location and a good climate for business and

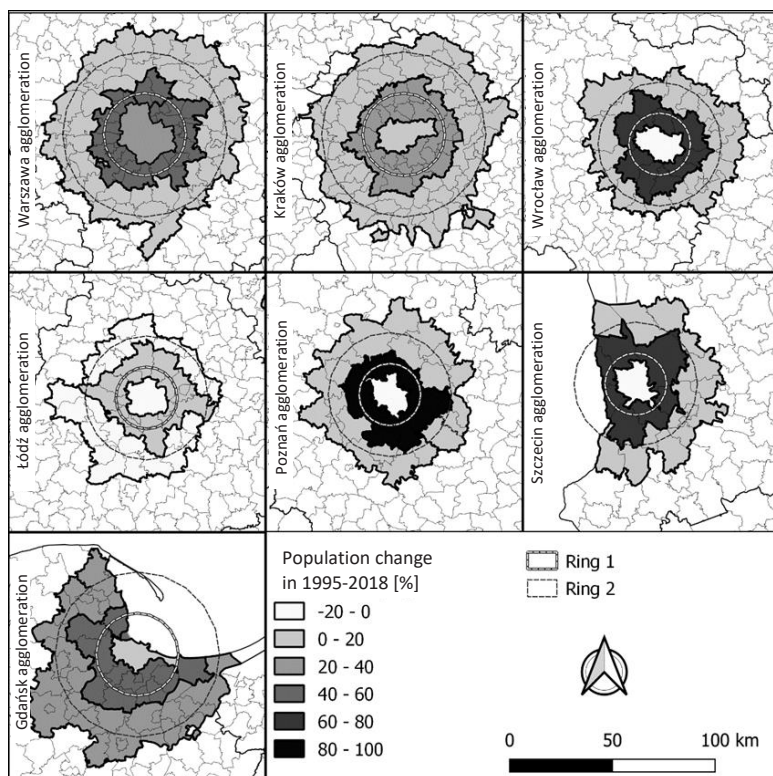


Figure 1. Population changes in the selected metropolises in 1995-2018

Source: own study based on Central Statistical Office data

investments. These cities have above-average metropolitan functions. A positive change in the population of the core (a growth rate of 5.3%) is observed in Warsaw. However, such an important increase needs to be considered in the context of administrative changes implemented in 2001 and of the redrawing of city limits. Nevertheless, the capital city's population continues to follow a positive growth trend. The corresponding rates for Kraków and Gdańsk are 3.5% and 0.8%, respectively (with 1995 as a baseline), which is similar to the situation of the core of the Lower Silesian agglomeration. Suburban areas of the metropolises listed above have become increasingly attractive as a place for living, too. Indeed, the internal ring experiences rapid population growth. In the Warsaw, Gdańsk and Kraków metropolises, the growth rates are 47.5%, 44.7% and 25.5%, respectively. A slightly slower population growth can be observed in the outer ring of the areas considered. The Łódź agglomeration is the only one to witness depopulation of that zone (a decline by 3.2% compared to 1995). In other areas, the number of residents is growing, which is particularly pronounced in the Gdańsk agglomeration (26%). However, this is a highly specific case; due to the proximity of two equally important cities (Sopot and Gdynia). This

should not be considered a standard situation. The growth rates of the Ring 2 population in other metropolises are as follows: 12% (Poznań), 13.8% (Warsaw), 4.4% (Wrocław), 4% (Kraków) and 1.66% (Szczecin).

When considering changes in the population of different parts of metropolises, it can be noted that only the outer ring follows a similar trend related to the change in the number of residents, i.e., a sharp increase in the number of suburban residents. Changes in Ring 2 also follow a certain trend. The outer ring of the metropolises delimited was found to be affected by depopulation in only one case. The changes observed can be referred to as “urban sprawl,” i.e., a process which accompanies suburbanization and denotes a situation in which the suburban zone experiences an intensive population inflow, while the center of the core follows a depopulation trend [Niechyba, Walash 2004]. When analyzing long-term changes in the population of core cities in the metropolises surveyed, a trend consistent with suburbanization phases can be noticed, too. From 1950 to 1985-1990 population growth was observed in all towns surveyed; this can be considered a late stage of urbanization (Figure 2). Since 1990-1995, the country has been witnessing urban depopulation accompanied by an increase in the number of suburban residents. At that time, the population of most cities started to decline. Simultaneously, a consistent and considerable growth of the suburban population has been observed since 1995 (as shown in Figure 2).

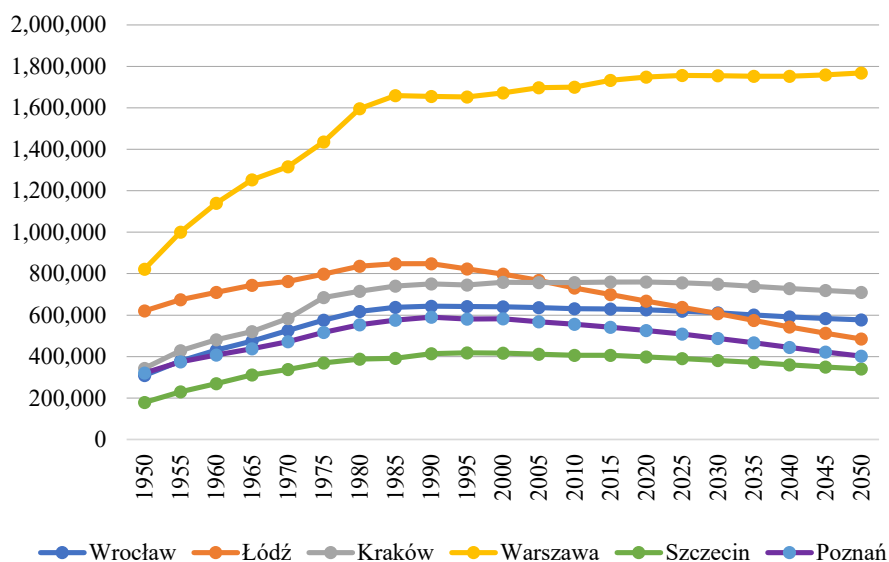


Figure 2. Population changes in selected cities in 1950-2050

Source: own study based on the Local Data Bank

Based on the analysis of changes in population of different spatial systems of metropolises, it can be assumed that metropolises are currently in the middle of a development stage referred to as suburbanization (Figure 3). That process started with the decline in the population of the core and an increase in the number of suburban residents and continues to this day. Having in mind the forecasted population change (Local Data Bank of the Central Statistical Office), that trend can be reasonably expected to persist in most cities in the years to come. The forecast does not suggest that the trend could reverse to repopulate the cities. It can be assumed that none of the Polish metropolises will enter the re-urbanization stage in the years to come. Only metropolises that grow up around specific big cities experience, and will continue to experience, a clear increase in the population of their cores. However, it will not be accompanied by a depopulation of the suburban zone, which could suggest that the agglomeration has entered the re-urbanization stage. The above can be observed in Warsaw, Kraków and Gdańsk, just as in the biggest cities around the world (e.g., New York). Other metropolises behave consistently with urbanization phases and urban development stages described in the literature (Figure 3).

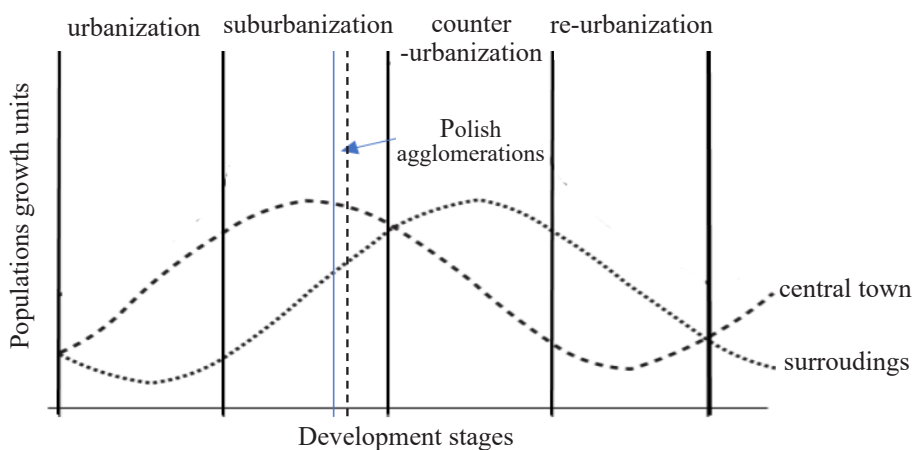


Figure 3. Total population of the central city and its surroundings at different development stages. Position of Polish metropolises with respect to urbanization phases.

Source: own study based on [Zasina 2015]

CONCLUSIONS

Suburbanization is a widespread process experienced on a global basis. While it generally affects large urban systems, it can also be observed in medium and small towns. These are diverse processes impacted by such aspects as demographic disproportions and cultural, economic and environmental differences.

In Poland, suburbanization has been observed since the 1990s. In the urban development cycle, Polish metropolises are in the suburbanization phase with a tendency to depopulate cities and an increase in the number of people living in the suburbs. The migration of people to suburban areas, often covering rural areas, involves urban pressures and results in a positive net migration rate in areas adjacent to cities.

Each of the metropolises analyzed is witnessing a considerable increase in Ring 1 population, i.e., in the suburban zone located next to the core. A positive net migration rate is also reported in the outer ring, which is more distant from the core. That development trend is characteristic and typical of urbanization phases; the trends observed suggest that Polish metropolises are currently going through the late suburbanization phase. Moreover, the development of most Polish metropolises is consistent with the classical theories, and the changes in population are just as described in the models proposed.

The general trend of people moving out of big cities presents some anomalies which can be found in towns with specific metropolitan functions, which can be described as supra-regional growth centers. Big cities (Warsaw, Kraków and, indirectly, Gdańsk) which have certain specific functions do not experience the depopulation of their agglomeration cores. Therefore, these findings do not corroborate the theory of urbanization phases and demographic shifts.

The forecast does not suggest that the trend could reverse to repopulate the cities. It can be assumed that none of the Polish metropolises will enter the re-urbanization stage in the years to come. Only the supra-regional growth centers that grow up around specific big cities experience, and will continue to experience, a clear increase in the population of their cores. However, it will not be accompanied by a depopulation of the suburban zone, which could suggest that the agglomeration has entered the re-urbanization stage.

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PROCESY MIGRACJI NA OBSZARY WIEJSKIE W POLSKICH
METROPOLIACH

Słowa kluczowe: obszary podmiejskie, obszary wiejskie, suburbanizacja, metropolie, Polska

ABSTRAKT

Problem badawczy podjęty w artykule obejmuje kwestie przebiegu suburbanizacji w wybranych metropoliach w Polsce. Postawiono zasadnicze pytanie: kiedy rozpoczęły się współczesne procesy suburbanizacji i jakie są trendy oraz kierunki migracji mieszkańców na styku miast i obszarów podmiejskich w polskich metropoliach. Określony obszar problemowy pozwolił na sformułowanie celu badań, a mianowicie przedstawienie kształtowania się nowych procesów suburbanizacji w największych metropoliach w Polsce. Odnosząc się do problemu badawczego i wyznaczonego celu, analizie poddano przestrzenne zróżnicowanie przemian demograficznych i odniesiono je do problematyki związanej z urbanizacją oraz jej etapami. W efekcie określono dynamikę i kierunki migracji na obszarze analizowanych metropolii i dokonano porównania tych zmian pomiędzy badanymi jednostkami, co stało się podstawą do dalszych rozważań na temat zjawiska suburbanizacji i formułowania wniosków w zakresie cykliczności tych procesów. W analizach wykorzystano metody statystyki opisowej i graficznej prezentacji danych. Delimitację wybranych metropolii przeprowadzono z wykorzystaniem programu QGIS Desktop 2.4.0, stosując odpowiednie narzędzia geometrii (centroid) i geoprocesingu (bufor). Wykorzystano dane źródłowe w postaci warstw wektorowych shapefile, przedstawiających granice omawianych jednostek administracyjnych. Materiały źródłowe obejmowały dane statystyki masowej oraz dokumenty programowe opracowane na poziomie regionalnym i subregionalnym. Badania dotyczyły danych za lata 1995-2018, a zakres przestrzenny stanowiły wybrane metropolie: poznańska, warszawska, łódzka, wrocławska, krakowska, gdańska i szczecińska.

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