

DEMOGRAPHIC DIMENSION OF SUBURBANIZATION IN UKRAINE IN THE LIGHT OF URBAN DEVELOPMENT THEORIES

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ABSTRACT

Suburbanization is the most typical process that defines the development of urbanized areas in Central and Eastern Europe. However, in Ukraine, except for the largest cities, suburbanization process seems to be underestimated. This paper is trying to estimate the actual extent of suburbanization in Ukraine, find out the relationship between the city size and the development of suburbanization, reveal regional peculiarities, and finally, evaluate successfulness of the common urban evolution theories in explanation of empirical evidence from one of the largest Eastern European countries. Analysis is based on the data on migration dynamics in urban cores, peri-urban areas and hinterlands of 65 cities with a population of over 40,000 located in 22 regions of Ukraine. It was found out that suburbanization processes in Ukraine are extremely widespread and define general course of current urban evolution. Migration growth of peri-urban area, comparing with main city and hinterland, is observed in more than half of studied cities (53%), including all cities with population over 100,000. Urban dynamics in Ukraine seems to be rather evolutionary than involutory and therefore similar to other Eastern European countries. However, large-scale restructuring of the economy in post-Soviet period had a critical role for the development of individual and regional differences in urban development and caused several biases from "normal" urban evolution: some patterns and stages are rather debatable and may essentially differ from their classical Western prototypes. Verification of these conclusions can be done through further in-depth research of certain cases.

Keywords: suburbanization, urban evolution, theories of urban development, migration dynamics, Ukraine

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1. Introduction

Contemporary human geography deservedly focuses on urban areas. Today, cities worldwide demonstrate extraordinary dynamism and play a defining role in shaping geospatial functional framework from local to global levels. Thus, question of the completeness and reliability of scientific knowledge on urban development is of particular importance.

Suburbanisation is the most typical process that defines the development of urbanized areas in Central and Eastern Europe. Evidences for this assertion may be found in wide scientific literature. Suburbanization processes have been identified and described in many post-socialist countries, including Post-Soviet; among them the Czech Republic (Sýkora 1994; Sýkora and Čermák 1998) Sýkora and Novák 2007; Ouředníček 2007), Slovakia (Matlovič and Sedláková 2007; Slavík et al. 2011); Slovenia (Ravbar 1997), Hungary (Brown and Shafft 1994; Kovács 1994; Kok and Kovács 1999; Timár and Váradi 2001), Estonia (Ruopilla 1998; Tammaru et al. 2004; Tammaru 2005; Kontuly and Tammaru 2006; Tammaru and Leetmaa 2007; Leetmaa et al. 2009), Latvia (Krisjane and Berzins 2012), Poland (Kupiszewski et al. 1998; Szymanska and Matzak 2002), Bulgaria (Valkanov 2006; Hirt 2007), Russia (Blinnikov et al. 2006; Makharova 2007), as well as in international perspective (Sailer-Fliege 1999; Brade et al.

2009; Phelps and Wu 2011; Stanilov and Sykora 2014). However, suburbanization in Ukraine remains, to a large extent, outside the field of view of researchers. The majority of urban studies focus on the cities within their administrative limits, while the development of peri-urban areas, constituting an integral functional unit with the city, remains beyond vision. However, such an approach will probably lead to erroneous output: e.g., Dotsenko (2010) in certain cases comes to deceiving conclusions of urban dynamics in Ukraine on these grounds.

As a rule, suburban areas of Ukrainian cities get attention of researchers only in end-to-end studies of urban systems and only in cases of the largest cities with relatively big satellites: the latter have too specific demographic dynamics, and this fact cannot go unnoticed. Suburbanization and metropolization around the largest Ukrainian cities have become subjects of close attention (Mezentsev and Mezentseva 2012; Mezentsev 2013; Nemets and Mazurova 2014; Manshylina 2015). Simultaneously, suburbia of smaller cities is constituted by small settlements officially not classified as urban, and therefore is largely ignored. When reading scientific literature (with few exceptions) one may have an impression that suburbanization processes do not exist at all around these cities. The only one detailed comprehensive study revealing the processes around medium-sized Ukrainian city deals with the suburban area of Ivano-Frankivsk (Zakutyynska and

Slyvka 2016). In-depth study on socio-spatial inequality and polarization of regional development in Ukraine (Mezentsev and al. 2014) contains no term “suburbanization” at all. Pylypenko (2010) emphasizes on intensive spatial redistribution of the rural population, in particular, its increased concentration in administrative districts around regional capitals during 1991–2011. However, this author considers these facts only as evidence of strengthening polarization of the rural population as a result of different speed of demographic decline, and does not associate them with suburbanization. The paper of Baranovsky (2011) also encloses conclusions on increasing disparities between rural settlements in peri-urban areas and hinterlands, but again, these processes are considered without any regard to suburbanization and urban evolution.

Comprehensive understanding of suburbanization in Ukraine is impossible without closer view on the more general scientific problem of urban evolution and its peculiarities in post-Soviet conditions. Therefore, taking into account listed above, this paper tries to answer the following questions. First, what is the actual extent of suburbanization in Ukraine, i.e. what cities are at suburbanization stage: only the largest or less populous too? Second, which is the relationship between the city size and the development of suburbanization? Third, in what way regional differences in economic and social development influence the trajectories of urban development? Finally, do suburbanization processes in Ukraine fit generally accepted urban evolution theories?

2. Theoretical background

The Western geographical literature since 1960s, starting from Gibbs (1963), Berry (1976), and Kasarda (1977), contains wide discussion on urban evolution. This discussion was marked by continuous search for consensual conceptualization of suburbanization. For many scholars, espousing the simplest and the most universal idea, suburbanisation is defined as an absolute or relative growth of peri-urban areas (Hall and Hay 1980; van den Berg et al. 1982; Cheshire and Hay 1989; Cheshire 1995; Valkanov 2006). Tammaru (2001) distinguishes between suburban growth (positive change of population in peri-urban areas) and actually suburbanisation (relatively quicker growth of suburban areas as compared to the central city).

While Gibbs (1963), Klaasen et al. (1981), van den Berg et al. (1982), Champion (2001) and others considered suburbanization as one of the consequent stage of urbanization process, some other scholars proposed to focus not at the development stages but rather processes dominating in certain urban system. E.g., Berry and Kasarda (1977) distinguished the processes of deconcentration (decrease in central city density), decentralisation (faster growth rate in the outer urban units)

and suburbanisation (movement of people from city to suburban area). Lindgren (2003) differentiated between suburbanisation, counter-urbanisation, population retention (within suburban areas), and centripetal migration (to suburban areas). Ouředníček (2007) suggests that not only urban core but the whole urban region including peri-urban area and rural hinterland is characterized by dominated process: urbanisation, suburbanisation, deurbanisation, or reurbanisation. Kliuiko (2013) proposes to differentiate between urbanization, suburbanization, re-urbanization, exurbanization (commuter settlements beyond suburbia), counter-urbanization and post-suburbanization.

Recently, great attention is paid to the process of post-suburbanization leading to combination of urban and rural lifestyle (Borsdorf 2004). Unlike suburbia, post-suburbanization settlements are less dependent from the main city because their inhabitants may find work without leaving own settlement (using, e.g., remote working). Another common recognized post-suburbanization feature is gentrification, especially in largest cities, implicating renovation and colonization of central urban areas by the new rich (Badyina and Golubchikov 2005; Golubchikov et al. 2009).

In this study we decided to focus on the most universal theories of staged urbanization, emphasising on the general urban development trend. First one was proposed by Gibbs (1963), who argued for the 4 basic stages of urban development. The first stage is characterized by rapid urban growth, caused by intensive migration of the rural population into cities due to the greater attractiveness of urban lifestyle. Then the stage of “urban saturation” comes, marked by a start of migrations to suburban area; however, the main cities continue to grow faster than the suburbs. The third stage of “suburbanization” is marked by faster demographic growth of suburban areas compared to the main city. Finally, the stage of urban de-concentration is characterized by migration outflow from both main city and suburbia to the rural hinterland. However, at this stage the rural way of life becomes completely similar to the urban one, so that urban and rural settlements differ, besides the size, only in the architectural and planning characteristics.

The second theory (Klaasen et al. 1981; van den Berg et al. 1982; Champion 2001) proposes to outline four stages of urban development according to the prevailing directions of migration and the processes occurring in the main city, suburbia, and hinterland. The first stage is marked by urbanization, conceptualized as the process of rapid growth of the main city population and extreme concentration of people, jobs, production, services in the cities with the simultaneous migration outflow from the surrounding rural communities. The second stage may be recognized by the outflow of population, searching for better living conditions and lower living cost, from the main city to suburbia, which begins to outpace the rate of main city growth. However, inhabitants of suburban area

maintain close relationship with the main city since they continue to work and receive most services there. Simultaneously, population of the main city continues to grow primarily through migration outflow from the hinterland. The third stage represents the process of centrifugal movement from the main city and sometimes suburbia to the small cities and rural settlements, resulting in absolute or relative demographic growth of hinterland. This stage, called des-urbanization or counter-urbanization, later was discussed by Vartianen (1989), Sjöberg (1992) and others. Finally, the fourth stage of the so-called re-urbanization represents renewed demographic growth of the main city explained by gentrification and revitalization of industrial areas; main city population starts growing once again or at least decline more slowly than population of suburbia.

The third one is a theory of differential urbanization, first proposed by Geyer and Kontuly (1993) and over the last two decades constituting a framework for debates on suburbanization. The corresponding models determine the stages of urban dynamics by the ratio of migration balance or overall population dynamics in the three categories of settlements: major cities, medium-size cities and small cities together with all other settlements. According to theoretical constructs, supported by empirical research from the various countries, urban development cycles are similar but differentiated in time in cities of different size. This suggests that not only the biggest, but also medium-size and small cities may reach the stage of suburbanization, but with some chronological delay. However, Ouredníček (2007) emphasises that such an approach is excessively quantitative and does not pay due attention to the composition of migration streams, people's motivations and regional peculiarities.

However, these theories may have some limitations in post-Socialist, especially post-Soviet, conditions. First, in Soviet times classical suburbanization did not occur due to the total absence of basic prerequisites, like wide scale social stratification, private land use, profit-seeking real estate sector, availability of individual means of transportation etc. Therefore, there is a possibility that after the end of Socialist system some cities (possibly largest and/or most economically vibrant) jumped very quickly to the stage of suburbanization (or even desurbanization and reurbanization, passing them in accelerated mode). On the other hand, economically depressive cities may have skipped the suburbanization phase and directly started to lose population; however, some of such cities may renew economic growth and return to urbanization or suburbanization stage. Taking into account extremely high spatial polarization in Ukraine, this possibility looks like very probable. Demographic statistics tells that the absolute majority of Ukrainian cities experienced demographic decline in 1990s, and even in 2016 more than 80% of them still lose population. Therefore, in many cases we may expect unusual sequence of urban development stages. Differential urbanization model was

tested on empirical material from Ukraine by Mezentsev and Havryliuk (2015). These authors confirmed the applicability of differential urbanization model to explain the development of urban regions in Ukraine. However, they conclude that classical urbanization stages hardly can be distinguished in the Post-Soviet period. These authors found out that after 2005 migration attractiveness of major Ukrainian cities went down, while small cities increased their attractiveness; however, after 2010 major cities once again restored their migration growth.

The other important question is the nature of peri-urban demographic change in case of post-socialist cities. The most defining characteristic of true suburbanization is an outflow of rich people from the urban core to periphery searching a higher-quality lifestyle (Jackson 1985; Fishman 1987; Vartianen 1989). However, rural migrants may also settle in peri-urban area in order to find economic opportunity and simultaneously to avoid high living expenses associated with life in urban core; this process also leads to the accelerate peri-urban grows, but differs from true suburbanization. Following this line of reasoning, Hirt (2007), based on in-depth literature analysis, makes conclusion about three possible forms of peri-urban growth: classical western suburbanization (when affluent households leave the city in search of a higher quality of life), urban ruralisation (survival strategy of poor households relocating from cities to peri-urban areas in order to work rural plots of land and produce their own food (e.g. Seeth et al. 1998; Smith 2000)), and rural urbanization (when fringe of the most economically vibrant cities may attract relatively poor migrants from the immediate hinterland as well as migrants from lower-order provincial towns, which is typical of developing countries). Krisjane and Berzins (2012) pointed out that suburbanisation in Post-Soviet space is a socially polarised process: people with both high and low social statuses are more likely to move to the suburbs than those from middle class. Nevertheless, people, living in Soviet prefabricated apartment buildings, widely use new opportunities to improve their living conditions by moving to suburban areas (Borén and Gentile 2007). The study of Sofia's suburbia, which included field survey of newcomers (Hirt 2007) proved the existence of Western-style suburbanization, but did not reject the possibility of rural urbanization and urban ruralisation. However, we should have in mind difference between the level of economic development and incomes between Bulgaria (even in 2007) and Ukraine, as well as the fact that the example of Sofia is not a good one for the majority of Ukrainian cities, except for the largest.

3. Ukraine as a case

The urban population is only one among factors influencing the potential for suburbanization: urban socio-economic development should play even more

decisive role. Ukrainian territory is characterized with considerable natural, economic, and socio-cultural diversity constituting the basis for regional differences in urban development trajectories. The complexity of urban studies in Ukraine is explained by extremely high topological, functional, and morphological diversity of 460 Ukrainian cities.

The current level of urbanization in Ukraine (69.5%) significantly exceeds the global average, but is inferior to the European average (73.4%). Over the last 20 years, the proportion of urban population in Ukraine grew by 3%. In the Western part of the country, rural population still dominates and constitutes a significant demographic reserve for the future urban growth. However, in Eastern Ukraine the level of urbanization reaches 80–90%, therefore rural demographic reserves for urban growth are almost depleted. Rural population density largely depends on natural conditions: extreme values (more than 100 people per km²) are typical for Subcarpathia and Transcarpathia, relatively high values (50–70 people per km²) are observed in the forest-steppe belt and Crimea, and low values (30–40 people per km²) are typical for Southern and Eastern Ukraine, as well as for the northern forest region of Polesia along the Belarusian border.

Hypothetically, the overall gradient of suburbanization intensity depends on the differences in the historical development. In Central and especially Western Ukraine, the majority of cities has a long lasting development tradition and grew based on continuous economic and social relationships with the surrounding countryside. Residential development in these cities largely consists of low-rise private buildings; moreover, local inhabitants has a strong tradition to live in own private estates and to have their own subsidiary husbandry in addition to the basic employment. From this perspective, urban residents in these regions have high psychological readiness to change their apartment blocks for private estates in the suburbs. In contrast, the majority of cities in Eastern and Southern Ukraine have relatively short history and from the very beginning developed as industrial centres relatively independent from the surrounding countryside. Thus, it can be assumed that historical and cultural background contributes to the larger spread of suburbanization in Western and Central Ukraine and hampers its development in the Southern and Eastern Ukraine, especially in industrial regions. Significant amounts of remittances from labour migrants working in the EU is an additional factor in favour of more rapid growth of suburban areas in Western Ukraine: the lion's share of these revenues are invested in private housing, which is possible mostly in suburbia.

However, adverse environmental conditions, typical for most industrial cities, especially those based on mining, chemistry, and metallurgy, progressively push the population to the suburbs in search for more favourable living conditions. This factor may mitigate to

some extent the disparity between the intensity of suburbanization around cities in industrial and agrarian environment.

Deep polarization of socio-economic development, including a sharp spatial differentiation in income rates between main urban cores and the rest of the territory, is another factor that should influence the spatial pattern of urban development in Ukraine. Although the agricultural sector now accounts for a substantial share of Ukraine's GDP, the real countryside is predominantly depressed. These circumstances stimulate intense migration from rural areas. The largest cities with high incomes and diversified structure of the economy are expected to be the main recipients of migrants. These cities include the capital (Kyiv) and also the main macro-regional centres: Kharkiv (North-East), Odessa (Black Sea Region), Lviv (Western Ukraine), Dnipro (Prydniproviya), and, before 2014, Donetsk (Donbas). Since the middle of XX century these urban cores have been already surrounded by constellations of satellite cities, and today constitute the nuclei of rapidly developing metropolitan regions with extremely high concentrations of population and economic activity. Almost all other regional capitals are smaller, but also important centres of economic activity. Some of them are undergoing rapid economic development as a result of successful local management and/or a good geospatial position relative to major cities, e.g., Vinnytsia, Lutsk and Chernivtsi, playing the role of informal regional capitals for Podolia, Volhynia, and Bukovina, respectively.

However, it is worth noting that demographic dynamics of the regional capitals is influenced not only by their own economic viability, but also by socio-economic development of the adjacent region. Low incomes, as well as large share and density of the rural population, should correspond to the more intense migration flows to the regional capitals, including the large proportion of migrants settling in the peri-urban area because of the lower living cost compared to the inner city.

The most of small towns in Ukraine undergo degradation of economic basis, erosion of the functional profile and demographic decline. These trends, in certain way, are apparent in all Ukrainian regions, while their intensity depends on the urban functional profile, its resilience, and flexibility. Simultaneously, Ukraine represents a number of successful urban adaptations to the new socio-economic conditions, including revitalization of previously existing branches and/or the emergence of new ones. Therefore, the spatial distribution of economically successful small towns does not have any clear regional pattern. However, other things being equal, more intense economic development have towns in Western Ukraine due to stronger traditions of entrepreneurship and, once again, financial support from EU migrants.

Since 2014, internally-displaced persons from annexed Crimea and conflict-stricken Donbas are an

important component of the overall picture of migration in Ukraine. According to official sources, the total number of internally-displaced persons varies from 1.0 to 1.7 million, the majority of them (98%) come from Donbas, and only 2% from Crimea. Besides the capital, most of internally displaced persons were registered in the Eastern regions adjacent to the military conflict. This suggests that a significant proportion of migrants intend to return to previous residential places; at the same time, a significant number of such persons register outside the occupied territory only to receive social benefits, actually living at home. Unfortunately, a detailed statistics on the distribution of internally-displaced persons between settlements is unavailable.

4. Data and methods

This study is focused exclusively on the demographic dimension of suburbanization and encompasses 65 cities with a population of over 40,000 located in 22 administrative regions of Ukraine. Cities in annexed Crimea, as well as in Donetsk and Luhansk regions, affected by on-going military conflict, were excluded from the analysis. Urban cores, peri-urban areas and hinterlands, constituting together integral urban regions, were defined to be spatial units for analysis. Urban core was considered as a main city within its administrative limits. In most cases, peri-urban area was considered within an administrative raion surrounding the respective city. If the main city has no own administrative raion, peri-urban area was determined within several administrative raions surrounding the main city from all sides. Satellite cities constituting separate administrative units (cities of regional subordination) were also included into peri-urban area. Furthermore, peri-urban areas of the major cities, where suburbanization processes have gone clearly beyond the limits of peri-urban administrative raions, were additionally expanded (adding Boryanka, Vasylkiv and Makariv raions for Kyiv; Chuhuyiv and Zmiyiv raions, as well as the city Chuhuyiv, for Kharkiv; Verhniodniprovskiy raion with the city of Vilnohirs'k and Novomoskovsk raion together with the city of Novomoskovsk, for Dnipro). In all cases, hinterland was considered in the limits of administrative raions adjacent to the external limits of the respective peri-urban area except for cities of regional subordination and administrative raions already included in the peri-urban areas of the other tested cities.

This approach make possible to reveal deviations of migration processes in peri-urban area compared to hinterland. Assumption is that significant differences in migration balance between peri-urban area and hinterland are caused by the influence of the main city. The coefficients of the migration dynamics for urban cores, peri-urban areas and hinterlands were calculated according to the formula:

$$K = \frac{\sum_{2007}^{2016} BM}{10 \times \sum_{2007}^{2016} Pop} \times 100\%$$

BM here is a balance of migrations in the corresponding year; Pop stays for a population in the corresponding year. The coefficients of migration dynamics in urban core, peri-urban area and hinterland were marked by the letters C, P, and H, respectively.

However, the actual size of suburbia may significantly differ. In particular, suburbia of small cities may be much smaller comparing with peri-urban administrative raion. This may lead to a systematic underestimation of suburbanisation processes around small cities and overestimation around major cities. Based on the assumption that the population of the peri-urban area should be roughly proportional to the population of the main city, we decided to use, in cases, when $P > 0$, adjusted coefficient P_{adj} , calculated as follows:

$$P_{adj} = \frac{P \times P_o \times Pop_p}{Pop_c}$$

P here is coefficient of migration dynamics in peri-urban area for given city; P_o is coefficient of migration dynamics in benchmark (etalon) city; Pop_c and Pop_p stay for 10 year average of population of the main city and the peri-urban area respectively. The city of Vinnytsia was chosen to be the benchmark city since the outer limits of its suburbia roughly coincide with the limits of respective administrative raion. Having intent not to overload the text, hereinafter P is written instead of P_{adj} .

In addition, an attempt was made to estimate the intensity of suburbanization using the following formula:

$$I = I_1 + I_2$$

$$I_1 = P - H$$

$$I_2 = \begin{cases} P - C, & \text{if } P - C \geq 0 \\ 0, & \text{if } P - C < 0 \end{cases}$$

The intensity of suburbanization I is a sum of two components. The first component I_1 shows the excess of migration dynamics in the peri-urban area over the respective value for the hinterland. Therefore, it reflects the impact of the city on its peri-urban area. The second component I_2 shows the excess of migration dynamics in the peri-urban area over the respective value for the main city. This component is meaningful only when such excess is actually observed.

Three methodological limitations of this study, proceeding from the above, should be preconditioned. First, although the coefficient P was adjusted, we still do not know the actual size of suburbia in different cities. Second, erroneous conclusions are possible in the case when

the differences in migration balance between the suburban area and hinterland are caused by other factors than the main city influence. Third, obtained results say little about the specific vectors of migration flows and their participants, which makes impossible an unambiguous conclusion about the nature of the dominant process: is it classical suburbanization, or urban ruralisation, or rural urbanization? Unfortunately, Ukrainian official statistics do not contain detailed information on specific migration flows (i.e. we know destinations of migrants but do not know from where exactly they come). Therefore, the real ratio of migration flows generated by classical suburbanization, urban ruralisation and rural urbanization remains unclear and requires further studies.

5. Results and discussion

Actually, there is no correlation between the main city population and migration dynamics in urban core (Figures 1a, 1b). Coefficient of migration dynamics in peri-urban area also has wide range of values even for cities with similar population. Nevertheless, general trend involves a clear linear dependence: cities with large populations have better migration dynamics in peri-urban areas. However, cities with population over 500.000 have abnormally low values of the coefficient P (Figures 1c, 1d). The same refers to the coefficient of suburbanization intensity (Figures 1e, 1f). These findings indicate that the rate of peri-urban growth depends on the city size, except for the largest cities.

The dependence between the components I_1 and I_2 is linear, moreover, $I_1 \approx I_2$ (Figure 1g). This suggests that the growth of migration attractiveness of suburbia in comparison with hinterland is roughly proportional to the growth of migration attractiveness of suburbia in comparison with the main city, which corresponds to the hypothesis of classical suburbanization.

The values and the ratios of the calculated coefficients of migration dynamics for urban core, peri-urban area and hinterland (Figure 2), as well as the coefficient of suburbanization intensity, made it possible to identify several groups of the studied cities / urban regions.

The first group (1) includes cities with rapid migration growth in the urban core ($C > 0$) on the background of negative demographic dynamics in the peri-urban area and hinterland ($P < 0$; $H < 0$), which indicates that the process of urbanization in its purest form. This group consists of small and medium-sized cities with a stable economic development, located in the regions with relatively high density of rural population. These cities are powerful attractors of migrants from their peri-urban areas and hinterlands.

Cities from the second group (2) have migration growth in both main city and peri-urban area amid hinterland ($C > 0$; $P > 0$; $C > H < P$). This group includes three subgroups:

The first subgroup (2.1) includes cities with rapid or moderate migration growth of the main city (0.15–0.90%), slow migration growth in peri-urban area (0.08–0.14%) and migration outflow from hinterland. Thus, the process of migration growth in urban core still dominates, but the growth of peri-urban areas is also visible. This subgroup consists of three regional capitals. Two of them, Chernivtsi and Ivano-Frankivsk, are located in Subcarpathia, region with an extremely high density of rural population and the lowest share of urban population. These cities are quite dynamic poles of economic development with the dominance of the service sector and high quality of life. All of these factors contribute to the rapid migration growth of these cities. The third regional capital, Mykolayiv, is located in the Black Sea region. This case is much more problematic to explain as the city nowadays has no sufficient number of working places even for the already living residents due to the shrinking industry, and is located in the region with quite low density of rural population. The only possibility that could be proposed is that this city is used by the migrants from hinterland as a springboard for further movement to other, larger and more prosperous cities.

The second subgroup (2.2) includes cities with rapid migration growth of peri-urban area (usually 0.7–1.2%) and relatively low migration growth of the main city (0.01–0.19%), while hinterland is losing population. This subgroup consists of regional capitals (Khmelnitskiy, Lutsk, Vinnytsia, Poltava, Chernihiv) and regional sub-centres (Kremenchuk, Bila Tserkva, Melitopol, Berdiansk, and Okhtyrka). Most of them are characterized by a dynamic and diversified economy, in particular rapid development of the service sector. Some of these cities such as Vinnytsia, Lutsk and Khmelnytsky traditionally are in the top of the Ukrainian city rankings for quality of life, therefore it is considered fashionable and prestigious to live in these cities. Therefore, these cities and their peri-urban areas are attractive destinations for migrants from hinterland. At the same time, wealthy and middle class people are seeking to move to suburbia. As a result, peri-urban area is experiencing a very intense migration growth, while the growth rate of the main city is slowing down, although remains positive.

The third subgroup (2.3) includes urban regions with positive migration dynamics in the all of structural elements ($C > 0$; $P > 0$; $H > 0$). Therefore, we may suggest in-migration of population from outside the urban region and large radius of the main city influence on the surrounding area. The rates of migration growth in the main cities are among the highest in the country (0.26–0.47%), however, the migration growth in peri-urban areas is even higher ($C < P$) and almost the same as in the previous group of cities (0.50–1.03%). At the same time, P values are abnormally low if they are considered from the perspective of the early identified dependence of the migration dynamics in peri-urban area on the main city population. This subgroup includes Kyiv, Kharkiv,

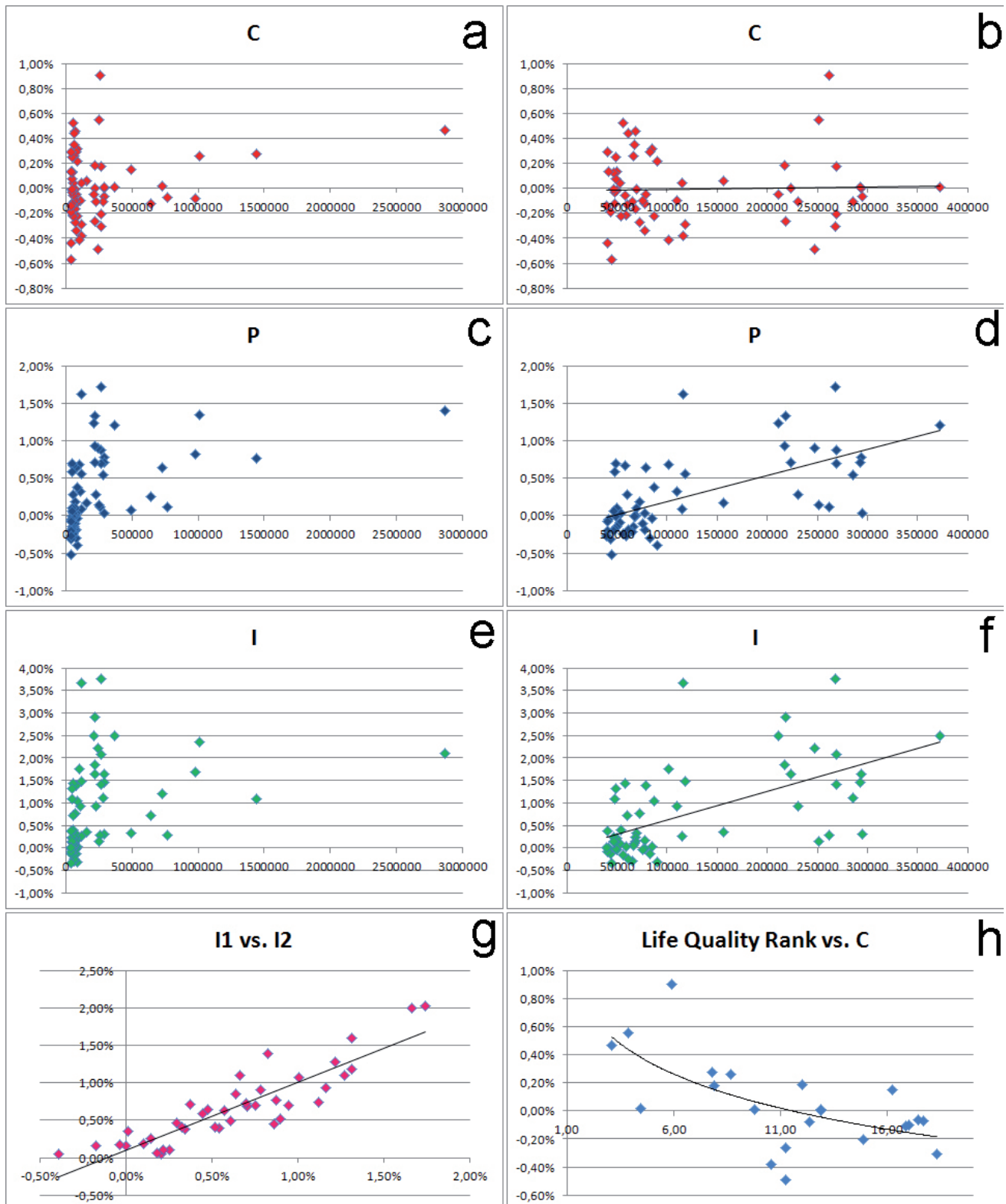


Fig. 1 Dependence of migration dynamics and intensity of suburbanization on the city population and quality of life.

Odessa, and Lviv, inter-regional functional cores with a diversified structure of the economy, rapid development of the service sector, the highest average per capita income among major cities, high quality of life, and great opportunities for professional fulfilment. Thus, these cities have the most favourable conditions for the development of the middle class constituting the demographic

basis for the classical suburbanization. Simultaneously, these cities are extremely attractive to migrants from all over the country. These factors lead to intensive growth of both main cities and peri-urban areas. It should be noted that the high demand for real estate in the suburbs leads to higher prices which sometimes may be compared with the prices in the main city; simultaneously, the main city

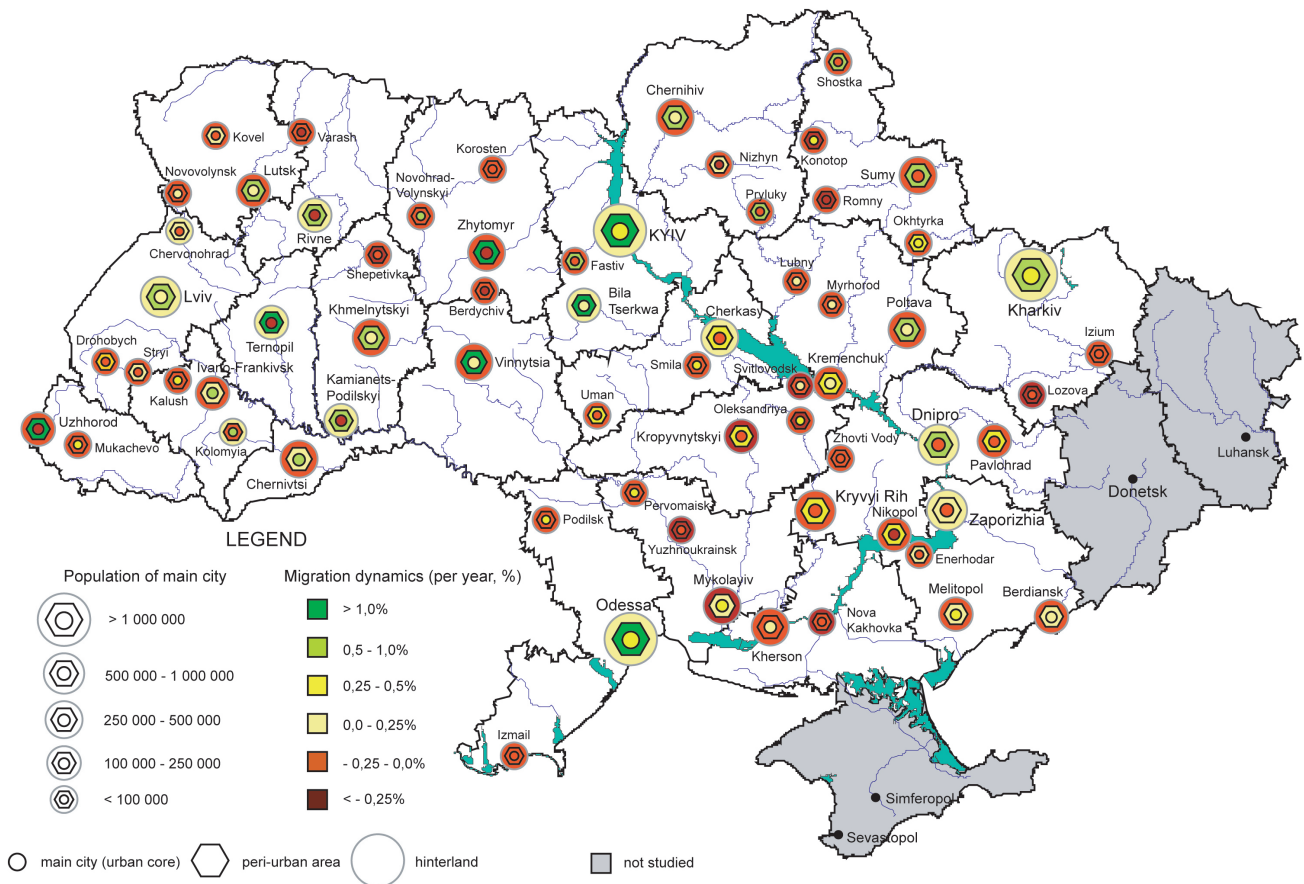


Fig. 2 Migration dynamics in urban cores, peri-urban areas, and hinterlands.

has difficult transport accessibility for residents living in peripheral parts of suburbia. Therefore, the main city may be even more attractive and accessible for migrants than suburban area. This indicates the possibility of reurbanization process, including new residential development inside the main city by revitalizing former industrial and warehouse areas.

Cities from the second group (3) have positive migration dynamics only in peri-urban area, while the main city loses population ($C < 0$; $P > 0$). These cities usually have moderate to high migration growth of peri-urban area and moderate rate of migration outflow from the main city at nearly zero migration balance in hinterland ($H \approx 0$). This group is sufficiently numerous and consists of 20 cities, including 10 regional capitals (Uzhhorod, Ternopil, Rivne, Zhytomyr, Cherkasy, Kropyvnytskyi, Kherson, Sumy, Dnipro, Zaporizhia) and 9 sub-regional centres (Stryi, Kovel, Kamianets-Podilskyi, Uman, Nizhyn, Pryluky, Shostka, Kryvyi Rih, Pavlograd, and Nikopol). Since the sub-group brings together cities with different population, specific values of C and P coefficients may differ substantially. E.g., coefficient P varies from 0.52% to 1.37% for big cities and from 0.03% to 0.49% for medium-sized and small cities; coefficient C varies from -0.49% to -0.07% for big cities from -0.41% to -0.01% for medium-sized and small cities. These figures point to the lack of migration flows from hinterland to the main

city. However, the urban core is losing population, and peri-urban area should be a recipient for at least part of these migrants. In general, these cities are similar to the cities of subgroup 2.2, but are characterized by lower level of economic development and/or less diversified economy. Therefore, these cities have relatively low attractiveness for migrants from hinterland. However, these cities, due to spatial concentration of people, constitute powerful markets for goods and services, and have much better infrastructure than the surrounding region. It stimulates the people from respective hinterlands to relocate to peri-urban areas. On the other hand, although middle class here should be much less powerful than in the cities from previous subgroups, motivation of such people to improve living conditions should be even greater, taking into account low quality of life, negative image of the city and, in many cases, environmental problems connected with industry. Also, we may assume the presence of urban ruralisation: impoverished middle-aged and elderly urban population may move to peri-urban area to have subsidiary plots there.

Urban regions from the fourth group (4) experience rapid migration from both the main cities and peri-urban areas compared to hinterland ($C < 0$; $P < 0$; $C < H > P$). The first subgroup (4.1) includes urban regions, where the main city is losing population while migration dynamics in peri-urban area and hinterland is much

better and about the same ($C < 0$; $P > C < H$; $P \approx H$) or much worse and around the same ($C < 0$; $P < C > H$; $P \approx H$). This means that the depressed state of the city has almost no effect on the surrounding area due to the lack of sustainable economic ties. This subgroup includes small and medium-size industrial cities dependent on a narrow range of activities: oil refinery, salt making, and heavy engineering in Drohobych; coal mining in Chervonohrad; enrichment of uranium ore in Zhovti Vody; nuclear energy in Energodar, Yuzhnoukrainsk and Varash; railway operation in Fastiv. The second subgroup (4.2) includes urban regions where both the main city and peri-urban area are losing population, but the migration dynamics in hinterland is significantly better ($C < 0$; $P < 0$; $C < H > P$). This subgroup includes medium-sized cities in the agricultural environment (Romny, Berdychiv, Korosten, Shepetivka, Izmail), formerly specialized in the processing of agricultural raw materials originated from the surrounding countryside. The third subgroup (4.3) includes urban regions entirely losing population, but the migration outflow is smallest in the main city and largest in the hinterland ($C < 0$; $C > P > H$). This means that the main city is depressive but it still has a positive effect on its surroundings and keeps them from deeper stagnation. This subgroup consists of Iziium, Lozova, and Nova Kakhovka, medium-sized industrial cities, located in agricultural environment far away from the regional capital.

Among all the studied urban regions, 37 (58%) have a positive migration dynamics in peri-urban area significantly exceeding the respective indicator for hinterland. In 34 urban regions (53%), migration inflow in peri-urban area is higher than in the main city; this number includes also those 20 urban regions (31%), where the main city is losing population, but the peri-urban area continues to grow. This once again proves the role of suburbanisation as the most typical characteristic of the spatial distribution of the population in Central and Eastern Europe (Krisjane 2002).

Also, we may conclude that regional economic specificity plays an important role, influencing the country-wide pattern of urban and peri-urban growth. Although peri-urban growth is typical for cities in all parts of Ukraine, peri-urban areas of economically dynamic cities probably receive migrants both from the urban cores and hinterlands, while peri-urban areas of cities in economic stagnation receive migrants mainly from the urban cores. On the other hand, more rapid growth of urban cores is associated, first, with high share of rural population in the hinterland, second, with high incomes and high quality of life and, third, well-shaped urban image. These circumstances lead to a paradoxical (at first glance) situation when the growth of main city rather than the growth of suburbia points on the economic prosperity of the city. In support of this, see also chart (Figure 1h) displaying dependence between average life quality ranking (2007–2017, by Journal “Focus”, Rating Sociology Group, and International Republican Institute)

and migration dynamics in the main city for 22 Ukrainian regional capitals. At the same time, mono-functional cities, especially those specialized in production of raw materials, energy sector, classical heavy industry or food material processing, have less opportunities to retain the demographic growth, in both urban core and peri-urban area.

Obtained empirical data indicate the dependence of suburbanization processes in Ukraine on the city size. First, as has been shown above, the average migration dynamics in peri-urban area and the intensity of suburbanization is directly proportional to the population of the city, although this pattern is violated for cities with a population of more than 500,000. Second, the migration growth of peri-urban areas is typical only for 8.3% of cities with population up to 50,000, while among cities with population from 50,000 to 100,000 this figure rises to 26%, and among cities with population over 100,000 is constitutes almost 100%. By contrast, rapid migration growth in the urban core on the background of negative demographic dynamics in the peri-urban area is observed in 33% of cities with a population up to 50,000, in 39% of cities with a population from 50,000 to 100,000, and in all cities with a population over 100,000.

The next step of analysis was aimed to access the correspondence of revealed empirical data to the common theories of urban evolution. It is logical to assume that described above groups and subgroups of cities (at least some of them) may correspond to specific stages of urban development.

Obviously, the cities from group 1 are on the stage of urbanization. Cities from subgroup 2 combine the processes of urbanization and suburbanization in different proportions. Cities from subgroup 2.1 demonstrate both urbanization and suburbanization process, but the first still prevails. This corresponds to urban saturation stage, proposed by Gibbs, or to the early phase of suburbanization according to Klaasen and van den Berg. Cities from subgroup 2.2 experience quick migration growth in peri-urban area and slow migration growth in the main city. This pattern corresponds to suburbanization stage according to both theories. Cities from subgroup 2.3 are among the largest in the country and differ from the previous subgroup by higher rate of migration growth in the urban core. Therefore, we may assume that they have advanced far ahead in their evolution and reached the stage of reurbanization. This suggestion is supported by cited above conclusions of Mezentzev and Havryliuk (2015).

Cities from group 3 demonstrate only suburbanization process. However, it is difficult to clearly interpret the cities from group 3 within the framework of urban development theories. On the one hand, it may be the next stage of urban evolution, which follows the stage, represented by subgroup 2.2 (deconcentration or desurbanization). However, as follows from the previous analysis, the cities from subgroup 2.2 and group 3 may

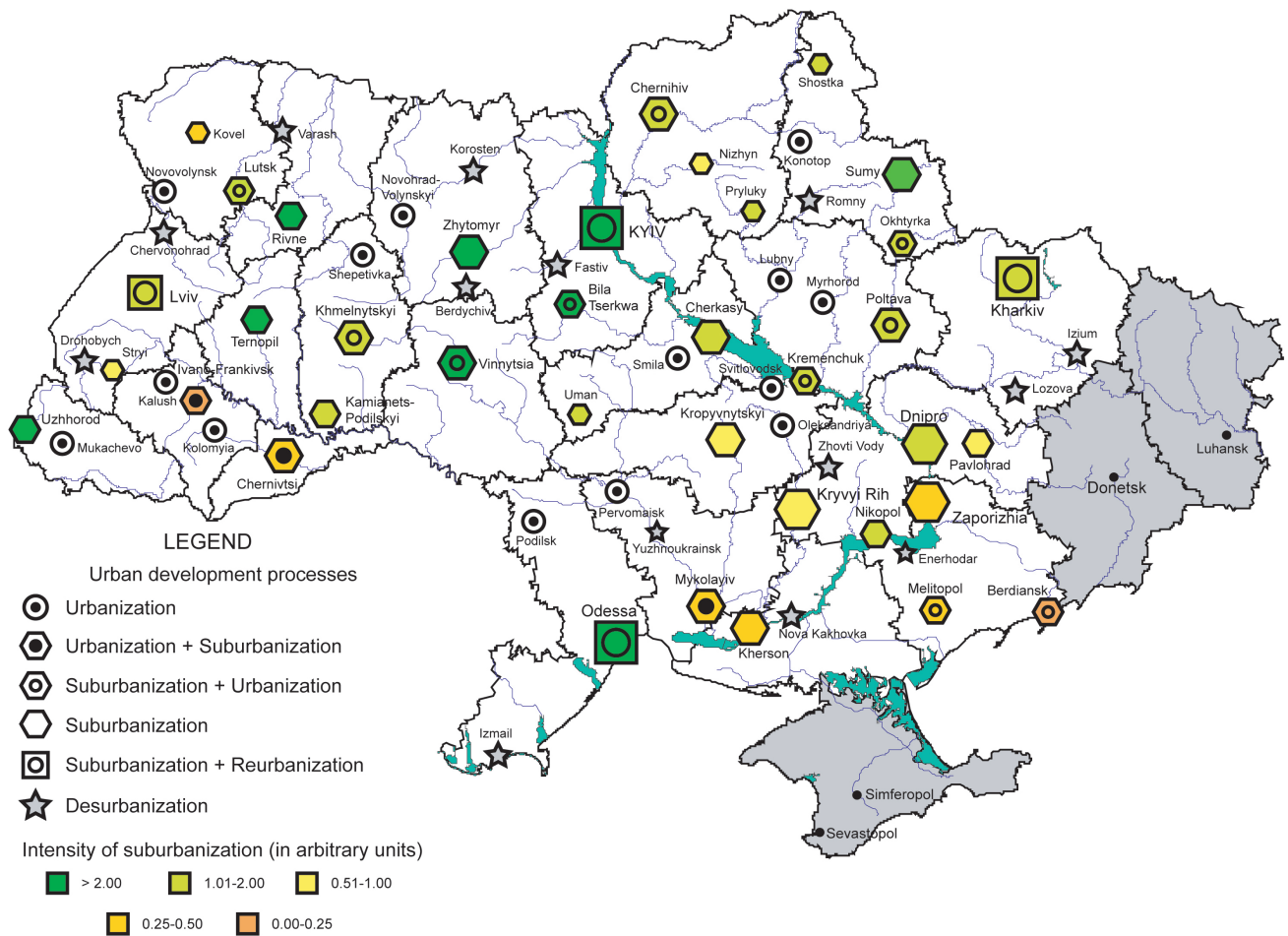


Fig. 3 Urban development processes and intensity of suburbanization.

Tab. 1 Correspondence between groups of cities and stages of urban evolution.

Group/subgroup	Processes	Stage of urban evolution (Gibbs 1963)	Stage of urban evolution (Klaasen et al. 1981; van den Berg et al. 1982)
1	Urbanization	Rapid urban growth	Urbanization
2.1	Urbanization + suburbanization	Urban saturation	
2.2	Suburbanization + urbanization	Suburbanization	Suburbanization
2.3	Suburbanization + reurbanization	Suburbanization	Reurbanization
3	Suburbanization	Suburbanization? Deconcentration?	Suburbanization? Desurbanization?
4	Desurbanization	Deconcentration	Desurbanization

be rather parallel variants of the urban evolution: the first option could be typical of cities with more intensive economic development, while the second may be typical for the less dynamic cities. Finally, it is possible that the cities from subgroup 2.2 are “activated” (due to the renovation of economic development) cities from group 3, and therefore over time and under favourable conditions, they may even move to subgroup 2.3.

From a theoretical point of view, suburbanization should be followed by desurbanization (or deconcentration), and desurbanization, in turn, should be followed by reurbanization. However, direct transition from suburbanization to reurbanization is also possible. Available

empirical data are insufficient for a clear conclusion; however, the last option is very probable for the cities from subgroup 2.3 as their suburbia obviously never stopped to grow since the collapse of Soviet Union.

Finally, cities from group 4 show typical pattern of absolute or relative desurbanization and, in some cases, deconcentration. Predominantly, these cities are small or medium-sized (maximal population recorded is around 78,000), therefore, taking into account established relationship between population and probability of peri-urban growth, it is very possible that they entered this phase directly from the stage of urbanization or, in some cases, from the stage of the early suburbanization.

Figure 3 shows main processes taking place in Ukrainian cities / urban regions, as well as intensity of suburbanization I.

Table 1 demonstrates the correspondence between groups and subgroups of Ukrainian cities, relevant processes, and stage of urban evolution.

Sufficiently high correlation between identified stages of urban evolution in Ukraine with common theoretical models indicates that urban dynamics in Ukraine is rather evolutionary than involutory and therefore similar to other Eastern European countries. However, in post-Soviet conditions, urban development stages and their sequences in urban regions may be different from those prescribed by theory: some stages may be skipped or repeated. The collapse of Soviet Union in 1991 launched the “natural” process of urban evolution, but simultaneously caused large-scale restructuring of the economy, having a critical role for the development of individual cities. Therefore, different urban development trajectories are possible depending on economic and social environment. In crisis conditions, the city at any stage of evolution may experience sudden migration outflow and over time possibly retrace to normal development. Cities may transit to reurbanization avoiding the stage of desurbanization. Kliuiko (2013) has a point when asserts that deurbanization and post-suburbanization are selective processes: some of the cities attract population, investment, jobs, and therefore progress further in their evolution, others, even neighbouring, fall behind. Consequently, Ukrainian experience supports for Ouředníček (2007): urban region do develop in certain stages and possibly cycles, but their set and sequence cannot be strictly determined. Also, this findings correspond to conclusions of Mezentsev and Havryliuk (2015) about the so-called “model gap” in urban dynamics in Ukraine, manifesting by inconsequent passing of stages due to the influence of political, socio-economic, and demographic factors.

6. Conclusions

Suburbanization process in Ukraine is far more widespread than one may imagine based on existing scientific literature. Migration growth of peri-urban area comparing with main city and hinterland is observed in the majority of studied cities, including all cities with population over 100,000. Simultaneously, some of the largest cities possibly entered the stage of postsuburban reurbanization. In general, larger population of the main city means greater probability of suburbanization and larger intensity of this process. However, in Ukraine, migration growth of the main city appears to be better marker of urban economic development than migration growth of suburbia. These findings put a question about the factual mechanisms of migration dynamics in peri-urban areas. The study revealed a high correlation between identified stages of urban evolution and common theoretical

models. However, some stages of urban evolution and migration patterns are rather debatable and may essentially differ from their classical Western prototypes. Individual and regional specifics and irregularities are also clearly visible.

Verification of these conclusions can be done through further in-depth researches of certain cases with special focus on differentiation between classical suburbanization, urban ruralization and rural urbanization, investigation of internal spatial structure of peri-urban areas and specification of qualitative differences of suburban areas in cities of different sizes and functional profiles. It seems yielding to compare Ukrainian cases with their equivalents from the other CEE countries and define in this manner common and individual aspects of urban evolution in total and suburbanization in particular.

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REFERENCES

- BADYINA, A., GOLUBCHIKOV, O. (2005): Gentrification in Central Moscow – a market process or a deliberate policy? Money, power and people in housing regeneration in Ostozhenka. *Geografiska Annaler B* 87(2), 113–129. <https://doi.org/10.1111/j.0435-3684.2005.00186.x>
- BARANOVSKY, M. (2011): Demohrafichni ta rozselens'ki zminy u rozvytku sil'skykh terytoriy Ukrayiny [Demographic and resettlement changes in the development of rural areas in Ukraine]. *Ekonomichna ta Sotsialna Geografiya* 62, 65–73. <https://doi.org/10.17721/2413-7154/2015.73.27-32>
- BERRY, B. (1976): *Urbanization and Counterurbanization*. Beverly Hills, Sage Publications.
- BERRY, B. J. L., KASARDA, J. D. (1977): *Contemporary Urban Ecology*. Macmillan Publishing, New York.
- BLINNIKOV, M., SHANNIN, A., SOBOLEV, N., VOLKOVA, L. (2006): Gated communities in the Moscow greenbelt: Newly segregated landscapes and the suburban Russian environment. *GeoJournal* 66, 1–2, 65–81. <https://doi.org/10.1007/s10708-006-9017-0>
- BORÉN, T., GENTILE, M. (2007): Metropolitan processes in post-communist states: an introduction. *Geografiska Annaler B* 89(2), 95–110. <https://doi.org/10.1111/j.1468-0467.2007.00242.x>
- BORSODORF, A. (2004): On the way to post-suburbia? Changing structures in the outskirts of European cities, *European cities; insights on outskirts* (Ed. by Borsdorf and Zembri), Report COST Action 10 Urban Civil Engineering, 2.

- BRADÉ, I., HERFERT, G., WIEST, K. (2009): Recent trends and future prospects of socio-spatial differentiation in urban regions of Central and Eastern Europe: a lull before the storm? *Cities* 26, 233–244. <https://doi.org/10.1016/j.cities.2009.05.001>
- BROWN, D., SCHAFFT, K. A. (2002): Population deconcentration in Hungary during the post-Socialist transition. *Journal of Rural Studies* 18, 233–244. [https://doi.org/10.1016/S0743-0167\(01\)00046-8](https://doi.org/10.1016/S0743-0167(01)00046-8)
- CHAMPION, T. (2001): Urbanization, Suburbanization, Counterurbanization and Reurbanization. *Handbook of Urban Studies* (Ed.: Ronan Paddison). SAGE Publications Ltd, 143–161. <https://doi.org/10.4135/9781848608375.n9>
- CHESHIRE, P., HAY, D. (1989): *Urban Problems in Western Europe: an Economic Analysis*. Unwin Hyman, London.
- DOTSENKO, A. (2010): Terytorial'na orhanizatsiya rozselennya (teoriya ta praktyka) [Spatial pattern of settlement (theory and practice)]. Kyiv, Feniks.
- FISHMAN, R. (1987): *Bourgeois Utopias: The Rise and Fall of Suburbia*. New York, Basic Books.
- GEYER, H. S., KONTULY, T. A. (1993): Theoretical foundation of the concept of differential urbanization. *International Regional Science Review* 15(3), 157–177.
- GIBBS, J. (1963): The evolution of population concentration. *Economic Geography* 2, 119–129. <https://doi.org/10.2307/142505>
- GOLUBCHIKOV, O., PHELPS, N. (2009): Post-socialist post-suburbia: growth machine and the emergence of “edge city” in the metropolitan context of Moscow. *Geography, environment, sustainability* 1(3), 44–55. https://doi.org/10.15356/2071-9388_01v03_2010_04
- HALL, P., HAY, D. (1980): *Growth centres in the European urban system*. Heinemann Educational, London.
- HIRT, S. (2007): Suburbanizing Sofia: characteristics of post-socialist peri-urban change. *Urban Geography* 28(8), 755–780. <https://doi.org/10.2747/0272-3638.28.8.755>
- JACKSON, J. (2002): Urban sprawl, Urbanismus a územní rozvoj 5, 21–28.
- KLAASSEN, L. H., MOLLE, W. T. M., PAELINCK, J. H. P. (Eds) (1981): *Dynamics of Urban Development*. New York: St Martin's Press.
- KLIUIKO, T. (2013): Suchasni osoblyvosti protsesiv suburbanizatsiyi [Modern features of suburbanization processes]. *Bulletin of Taras Shevchenko National University of Kyiv. Geography* 61(1), 63–66.
- KOK, H., KOVÁCS, Z. (1999): The process of suburbanization in the metropolitan area of Budapest, *Netherlands Journal of Housing and Built Environment* 14(2), 119–141. <https://doi.org/10.1007/BF02496818>
- KONTULY, T., TAMMARU, T. (2006): Population subgroups responsible for new urbanisation and suburbanisation in Estonia. *European Urban and Regional Studies* 13, 319–336. <https://doi.org/10.1177/0969776406065435>
- KORCELLI, P. (1990): Migration and residential mobility in the Warsaw region. *Residential Mobility from Poland to the Netherlands* (Eds: J. van Weesep and P. Korcelli). Amsterdam, Utrecht KNAG, 46–58.
- KOVACS, Z. (1994): A city at the crossroads: Social and economic transformation in Budapest. *Urban Studies* 31(7), 1081–1096. <https://doi.org/10.1080/00420989420080961>
- KRISJANE, Z., BERZINS, M. (2012): Post-socialist Urban Trends: New Patterns and Motivations for Migration in the Suburban Areas of Riga, Latvia. *Urban Studies* 49(2), 289–306. <https://doi.org/10.1177/0042098011402232>
- KUPISZEWSKI, M., DURHAM, H., REES, P. (1998): Internal migration and urban change in Poland. *European Journal of Population* 14, 265–290. <https://doi.org/10.1023/A:1006058712865>
- LEETMAA, K. (2008): *Residential suburbanisation in the Tallinn metropolitan area*. PhD thesis, Tartu University.
- LINDGREN, U. (2003): Who is the counter-urban mover? Evidence from the Swedish urban system, *International Journal of Population Geography* 9: 399–418. <https://doi.org/10.1002/ijpg.296>
- MAKHAROVA, A. (2007): Changing housing markets in Russian cities. *Geographische Rundschau* 3(1), 28–35.
- MANSHYLINA, T. (2015): *Suspil'no-heohrafichne doslidzhennya rozvytku mist-suputnykiv ta prymis'koyi zony Kyyeva* [Development of satellite cities and suburban area of Kyiv: human-geographical study]. PhD thesis, Kyiv University.
- MATLOVIČ, R., SEDLÁKOVÁ, A. (2007): The impact of suburbanisation in the hinterland of Prešov (Slovakia). *Moravian Geographical Reports*, 15(2), pp. 22–31.
- MEZENTSEV, K. (2013): Vzaymodeystvye 'horod – sel'skaya mestnost': ot urbanyzatsyi k post-suburbanyzatsyi [The “city – countryside” interaction: from urbanization to post-suburbanization]. *Human geography in the XXI century: challenges and possible responses*, 168–174.
- MEZENTSEV, K., HAVRYLIUK, O. (2015): Testuvannya modeli dyferentsial'noyi urbanizatsiyi v Ukraini [Testing of the differential urbanization model in Ukraine]. *Ekonomichna ta Sotsialna Geografiya*, 73, 15–26. <https://doi.org/10.17721/2413-7154/2015.73.15-26>
- MEZENTSEV, K., MEZENTSEVA, N. (2012): Urbanizovani terytoriyi Ukrainy: prychny ta naslidky transformatsiyi u postradyans'kyy period [Urban areas of Ukraine: causes and consequences of the post-Soviet transformation]. *Socio-geographic challenges in East-Central Europe in the early XXI century*, 1. 310–317.
- MEZENTSEV, K., PIDHRUSHNYI, G., MEZENTSEVA, N. (2014): Rehional'nyy rozvytok v Ukraini: suspil'no-prostorova nerivnist' i polyaryzatsiya [Regional development in Ukraine: socio-spatial inequality and polarization]. Kyiv: Print-Servis.
- NEMETS K., MAZUROVA A. (2014): Vplyv protsesu urbanizatsiyi na vynykennya suchasnykh form mis'kykh poselen' [Impact of urbanization on the emergence of modern urban settlement forms]. *Bulletin of Karazin Kharkiv National University. Series Geology, Geography, Ecology* 41 (1128), 116–119.
- OUŘEDNÍČEK, M. (2007): Differential suburban development in Prague urban region. *Geografiska Annaler B* 89 (2), 111–126. <https://doi.org/10.1111/j.1468-0467.2007.00243.x>
- PHELPS, N., WU, F. (eds). (2011): *International Perspectives on Suburbanization: A Post-Suburban World?* New York, Palgrave Macmillan.
- PYLYPENKO, I. O. (2010): *Metody ta pryomy rozpodilu heoprostoru za oznakamy «tsentr-peryferiya»* [Methods and techniques of geo-space spatial distribution in the center-periphery system]. *Ekonomichna ta sotsialna geografiya* 60, 29–37.
- RAVBAR, M. (1997): Slovene cities and suburbs in transformation. *Acta Geographica Slovenica* 37, 65–109.
- RUOPPILA, S. (1998): The changing urban landscape of Tallinn. *The Finnish Journal of Urban Studies* 35(3), 36–43.
- SAILER-FLIEGE, U. (1999): Characteristics of post-socialist urban transformation in east central Europe. *GeoJournal* 49(1), 7–16. <https://doi.org/10.1023/A:1006905405818>

- SEETH, H., CHACHNOV, S., SURIKOV, A., VON BRAUN, J. (1998): Russian poverty: Muddling through economic transition with garden plots. *World Development* 26(9), 1611–1623. [https://doi.org/10.1016/S0305-750X\(98\)00083-7](https://doi.org/10.1016/S0305-750X(98)00083-7)
- SJÖBERG, O. (1992): Underurbanisation and the zero urban growth hypotheses: diverted migration in Albania. *Geografiska Annaler B* 74, 3–19. <https://doi.org/10.2307/490782>
- SLAVÍK, V., GRÁC R., KLOBUČNÍK, M., KOHÚTOVÁ K. (2011): Development of suburbanization of Slovakia on the example of the Bratislava region. In: *Urban Regions as Engines of Development*, Polish Academy of Science, 35–58.
- SMITH, A. (2000): Employment restructuring and household survival in post-communist transition: Rethinking economic practices in Eastern Europe. *Environment and Planning A*, 32(10), 1759–1780. <https://doi.org/10.1068/a32101>
- STANILOV, K., SYKORA, L. (2014): *Confronting Suburbanization: Urban Decentralization in Postsocialist Central and Eastern Europe*. Hoboken: Wiley-Blackwell. <https://doi.org/10.1002/9781118295861>
- SÝKORA, L. (1994): Local urban restructuring as a mirror of globalization processes: Prague in the 1990s. *Urban Studies* 31(7), 1149–1166. <https://doi.org/10.1080/00420989420081001>
- SÝKORA, L., ČERMÁK, D. (1998): City growth and migration patterns in the context of ‘communist’ and ‘transitory’ periods in Prague’s urban development. *Espace, Population, Sociétés* 3, 405–416. <https://doi.org/10.3406/espos.1998.1856>
- SÝKORA, L., NOVÁK, J. (2007): A city in motion: time-space activity and mobility patterns of suburban inhabitants and the structuration of the spatial organization of Prague metropolitan area. *Geografiska Annaler B* 89 (2), 147–167. <https://doi.org/10.1111/j.1468-0467.2007.00245.x>
- SZYMANSKA, D., MATZAK, A. (2002): Urban system and urban population dynamics in Poland. *European Urban and Regional Studies* 9, 39–46. <https://doi.org/10.1177/096977640200900104>
- TAMMARU, T. (2001): Suburban growth and suburbanization under central planning: The case of Soviet Estonia. *Urban Studies* 38(8), 1341–1357. <https://doi.org/10.1080/00420980120061061>
- TAMMARU, T. (2005): Suburbanisation, employment change, and commuting in the Tallinn metropolitan area. *Environment and Planning A* 37, 1669–1687. <https://doi.org/10.1068/a37118>
- TAMMARU, T., KULU, H., KASK, I. (2004): Urbanization, suburbanization and counter-urbanization in Estonia. *Eurasian Geography and Economics* 45, 159–176. <https://doi.org/10.2747/1538-7216.45.3.212>
- TAMMARU, T., LEETMAA, K. (2007): Suburbanisation in relation to education in the Tallinn metropolitan area. *Population, Space and Place* 13, 279–292. <https://doi.org/10.1002/psp.444>
- TIMÁR, J., VÁRADY, D. (2001): The uneven development of suburbanisation during transition in Hungary. *European Urban and Regional Studies* 8, 349–360. <https://doi.org/10.1177/096977640100800407>
- VALKANOV, Y. (2006): Suburbanization in Sofia: Changing spatial structure of post-socialist city. *The European City in Transition*, Frankfurt Peter Lang, 175–194.
- VAN DEN BERG, L., DREWETT, R., KLAASSEN, L. H., ROSSI, A., VIJVERBERG, C. H. T. (1982): *A Study of Growth and Decline. Urban Europe 1*. Oxford, Pergamon Press.
- VARTIANEN, P. (1989): Counterurbanization: A challenge for socio-theoretical geography. *Journal of Rural Studies* 5, 123–136.
- ZAKUTYNSKA, I., SLYVKA, R. (2016): Suburbanizatsiya v prostorovomu vymiri: Ivano-Frankivs’k i yoho okolytsi [Spatial dimension of suburbanization: Ivano-Frankivsk and its hinterland]. Kyiv, Logos.