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# DEMOGRAPHIC CONSEQUENCES OF SUBURBANIZATION IN SELECTED TOWNS IN THE EASTERN BORDERLANDS OF POLAND

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**ABSTRACT.** The aim of the article is to present some of the consequences of the suburbanization process in Poland, where said the process became relevant in the 1990s and continues to this day. The author focuses specifically on the demographic aspects of this phenomenon, i.e., the changes in population it has implied in urban and suburban areas, as well as the characteristics of the relevant demographic structures and natural increase that affect the territories in question.

The results of the research pertain to three of the largest cities in the Lubelskie voivodship: Lublin, Chełm, and Zamość, spanning the years 1995 to 2007. An analysis of available statistical data on this period allows us to note substantial differences in some demographic indicators for cities on the one hand and their respective communes (gminas) on the other. Additionally, the data suggests that the population shifts and changes that occur in the region are the result of an interaction between suburbanization processes and the ongoing Second Demographic Transition, which takes place simultaneously.

**KEY WORDS:** Poland, Lubelskie voivodship, suburbanization, suburban areas, population changes, demographic structure.

#### INTRODUCTION

One of the consequences of Poland's 1990s political transition from a planned to a market economy was the acceleration of Poland's advancement to the next stage of settlement-related transformation, that took place within the framework of general urbanization processes. This stage is suburbanization, defined here in line with Jakóbczyk-Gryszkiewicz (2005: 10) as 'the urbanization of areas located in the suburban zones of large cities' or with Liszewski, Maik (2000: 125) as 'the growth of population in city agglomerations, the most quick in their external

parts'. Apart from regional factors (political and economic transformation), universal trends influenced urbanization changes in Poland. That was mainly globalization, which led to metamorphosis of the largest cities' face (Parysek, 2005: 27–35).

Suburbanization is connected with the migration of city-dwellers to the city's immediate rural vicinity. A consequence of such movements is transfer of places of residence and work from the central parts of cities to the outskirts (Lorens, 2005: 35). Gradually, urban and rural forms of life and economic functions penetrate each other and the suburbs become transitional zones between city and the country (Słodczyk, 2001: 183).

As a phase of urbanization-derived changes, suburbanization first appeared in the opening years of the 20<sup>th</sup> century in the USA, subsequently transferring to Western Europe following World War II (Lorens, 2005: 35–36; Zuziak, 2005: 17–18). It was also observed in some of Poland's largest cities, the case in point being Kraków, where suburban neighbourhoods featuring single-family housing were already known to arise in the 1970s, characterized by 'demographic traits typical of suburbs' (Więcław, 1999: 54). However, as determined by numerous empirical studies conducted in several Polish cities, it was the final decade of the 20<sup>th</sup> century, with its newfound political and economic flexibility, that proved to be the 'boom period' of Polish suburbanization (Jakóbczyk-Gryszkiewicz, 2005; Michalski, Nowakowska, 2002; Parysek, Mierzejewska, 2005; Runge, Runge, 2002; Zathey, 2002).

Suburbanization just like urbanization as a whole, can be approached from four significant standpoints: demographic, social, territorial, and economic. This article tackles the subject of the effects of the suburbanization, as seen from the demographic viewpoint, in several sample cities in Eastern Poland, in the Lubelskie voivodship. We will focus on three of the largest cities in the voivodship, i.e., Lublin, Chełm, and Zamość, and the suburban areas adjoining them (Fig. 1). This decision was made based on recent and past observations and scientific researches, which indicate that suburbanization is always most intense in metropolitan areas (Parysek, 2005: 13).

The essential objective of the undertaken statistical analyses was to determine the current state and tendencies in such demographic domains as: population dynamics, natural increase, and the age structure of the inhabitants. The investigator's aim was to comprehend, recognize and compare demographic indicators in cities and their outlying suburbs in the context of suburbanization. Assuming that every stage in the urbanization process automatically prompts certain demographic changes, the author attempted to answer the question of whether the existent shifts in population trends, thought to have originated in the

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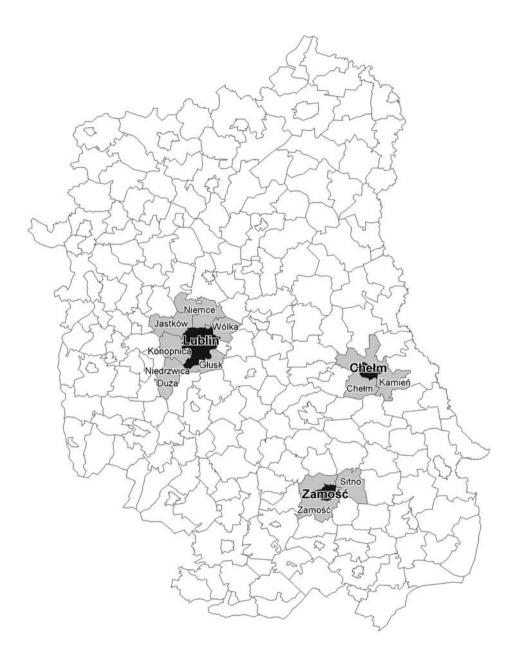


Fig. 1. Towns and rural areas under research in Lubelskie voivodship *Source*: Own elaboration based on data available at www.stat.gov.pl

1990s, are in any way connected to suburbanization and, if so, which specifically and to what extent. A second question is raised on whether these shifts conform to the changes typically anticipated and prognosticated in such processes, as one should keep in mind that the 1990s were the period in which Polish society abruptly entered the phase of the Second Demographic Transition, which itself brought about considerable changes, mainly in birth-rate variables (Kotowska, 1998: 21). Given the above, it could be proposed that the current demographic situation in both cities and suburban areas is a consequence of two interconnected processes: suburbanization and demographic transition.

## MIGRATIONS AS FACTOR OF SUBURBANIZATION

Aside from a number of different socio-economic determinants, large-scale migration is one of the crucial factors that directly initiate and manage the suburbanization process. The direction, extent, and durability of population flows allow us to state whether the process takes place and to assess its extent. This correlation was investigated by numerous experts in the field, such as A. Zborowski (2005: 65), who compared and contrasted the Zelinsky Model of Mobility Transition and the urban development cycle. Zborowski ascribed three phases of the urban cycle to the Zelinsky Model's Stage 4, typical of highly developed, modern societies, beginning with Phase 2 - suburbanization. He remarked, however, that Polish cities are significantly behind in terms of modernization, and consequently urbanization, with respect to western standards. And so, while the 1990s brought the West Phase 4 of the urban cycle (counterurbanization) in full-fledged, mature form, Polish cities were barely experiencing the previously mentioned Phase 2 (suburbanization). The nature of Polish migrations at the time was one of short-distance movement, generally from the city center in the direction of nearby towns and villages, which allows us to classify this phase of the urban cycle as residential suburbanization.

In the Lubelskie voivodship, this kind of migration has taken place in the vicinity of some of the province's largest cities, particularly Lublin, Zamość, and Chełm, and around other minor urban centers, though to a lesser extent. Their population relocated to areas that bordered directly with the respective city. In Lublin's case, this meant a movement towards all of the neighbouring rural communes: Jastków, Konopnica, Niedrzwica Duża, Głusk, Wólka, and Niemce, whereas in the surroundings of the other two cities, residential migration directed itself primarily towards the two rural communes that envelop them: Chełm and Zamość (see Table 1).

Administrative unit	Total inflow			Inflow from urban areas			Total outflow			Outflow to rural areas		
	1995	2000	2007	1995	2000	2007	1995	2000	2007	1995	2000	2007
Lublin	4,097	3,335	3,363	1,944	1,746	1,603	2,730	3,293	4,837	1,468	1,823	2,915
Głusk	98	169	321	63	115	252	70	78	122	18	39	47
Jastków	184	230	433	127	173	366	137	112	182	41	54	64
Konopnica	155	240	381	117	196	317	133	92	132	41	31	53
Niedrzwica Duża	109	147	164	67	74	94	128	77	82	58	36	39
Niemce	222	254	439	137	194	367	160	144	185	50	66	93
Wólka	103	298	483	63	232	387	94	86	110	28	26	30
Chełm – town	866	776	751	230	158	201	595	679	1,056	313	344	592
Chełm – rural commune	269	288	389	139	171	287	203	198	232	108	65	81
Kamień	104	51	73	37	15	36	82	58	51	42	17	28
Zamość – town	1,038	739	794	254	200	203	732	754	1,148	419	421	631
Zamość – rural commune	410	317	589	202	199	417	227	227	363	90	92	127
Sitno	79	93	88	34	58	49	76	76	95	42	24	46

Table 1. Migrations of inhabitants of Lublin, Chełm, Zamość, and surrounding rural communes in the years 1995, 2000, 2007

Source: Own elaboration based on data available at www.stat.gov.pl

Migration of city-dwelling citizens to non-urban zones was in effect since the mid-1990s, but underwent a significant surge after 2001. In 2007, over half of the migrant population from each of the cities in question headed towards the country, and in some communes, such as Jastków, Konopnica, and Wólka, the percentage of incoming migrants from the city in relation to the overall migrational influx exceeded 80% (Table 1).

The most conspicuous indication of the aforementioned migration was the development and expansion of residential construction in suburban areas and the increased business, industrial, and social service activity that took place there. As demonstrated in M. Wesołowska's dissertation (2006), areas of intensified construction activity and accumulation of personal residential buildings have been a mainstay of the Lublin region's largest cities since the 1990s. Lublin has the widest reach in this respect, with a field of influence totalling some 30 km, while the influence of other towns does not exceed 20 km.

# TENDENCIES OF NATURAL INCREASE

Changes in natural increase in the area under examination are not easy to grasp and unequivocally establish, as between 1995 and 2007 both urban zones and rural communes displayed a variety of related trends. These trends pertain to the direction and scale of the changes, and showed additional disparity within the region (see Table 2).

Administrative unit		Births			Deaths		Natural increase		
Administrative unit	1995	2000	2007	1995	2000	2007	1995	2000	2007
Lublin	3,314	3,125	3,341	3,006	3,116	3,225	308	9	116
Głusk	75	65	104	70	67	62	5	-2	42
Jastków	147	130	118	129	121	99	18	9	19
Konopnica	126	85	98	108	116	112	18	-31	-14
Niedrzwica Duża	142	129	134	112	120	107	30	9	27
Niemce	207	176	185	155	135	144	52	41	41
Wólka	76	75	118	74	96	83	2	-21	35
Chełm – town	640	577	624	516	568	575	124	9	49
Chełm – rural commune	155	147	149	141	171	146	14	-24	3
Kamień	77	53	41	42	43	43	35	10	-2
Zamość – town	757	635	608	464	454	486	293	181	122
Zamość- rural commune	273	210	190	192	198	194	81	12	-4
Sitno	87	74	72	76	66	75	11	8	-3

Table 2. Births, deaths and natural increase in Lublin, Chełm Zamość, and surrounding rural communes in the years 1995, 2000, 2007 (in persons)

Source: Own elaboration based on data available at www.stat.gov.pl

The late 1990s were characterized by a clear drop in birth number in Lublin, Chełm, and all neighbouring communes. This downward slope began to even out in 2000 and in 2007, the number of live births in these cities returned to the level they boasted at the beginning of the period in question. Admittedly, the birth number increased between 2000 and 2007 in several suburban communes, mainly those in the surroundings of Lublin (Jastków, Konopnica, Niemce), but it still remained inferior to figures registered in the 1990s. Another significant growth in births occurred in two communes near Lublin – Głusk and Wólka – where it meant a 140–150% increase throughout the entire 1995–2007 period.

The average death number was also subject to fluctuations. Nevertheless, while in the two cities in question it was on the rise, statistics register a concurrent decrease in most of the surrounding communes, either in the late 1990s or already into the next millenium. Several communes located not far from Lublin (Jastków, Niedrzwica Duża, Wólka) experienced a sharp drop ranging between 10 and 20%, while Chełm's death rate decreased by 14%.

As a result of the changes the region underwent with regard to birth and death number, natural increase was understandably affected, and the series of sharp rises and falls in growth attest to this. Between 1995 and 2000, natural increase in cities fell dramatically, whilst some rural communes (Głusk, Wólka, Konopnica, Chełm) registered natural decrease. In the 2000s, significant growth in births became in turn almost universal, in Lublin, Chełm, and most of the communes, in particular those which had previously suffered a large drop in birth number. The only commune where regression was felt even more severely was Kamień, which in 2007 shared with Konopnica the burden of registering negative natural increase.

Another tendency worth mentioning is that of the systematic fall in the number of births, a permanent fixture in the 1995–2007 period in Zamość and the outlying communes, which in conjunction with the relatively stable (rural communes) or slightly rising (city proper) death number, led to a drop in for the entire Zamość area. In fact, this long-term inclination had finally turned into negative natural increase by 2007 in the rural communes of the Zamość county.

Fig. 2, 3, and 4 includes additional data on the elements of natural increase in the communes in question.

Despite the instability and fluctuation that mark these elements, it can be safely stated that the situation of the suburban communes under examination in this study is much more favourable than that of the other rural communes in the voivodship. This is a fact to be considered especially with respect to the death rate, pronouncedly lower in suburban areas due to the age structure of the population. Rural zones additionally possess great territorial variation in natural increase rate, which reaches higher values in the vicinity of larger cities as a rule. However, as it can be inferred from Fig. 3 the greatest disparity in death rate between suburban and purely rural areas can be observed in the Chełm and Zamość counties, while the difference in natural increase is most felt by Lublin and Chełm. Finally, no discrepancies of note have been observed in birth rate statistics between the communes that border with cities and the majority of the region's rural communes (Fig. 2).

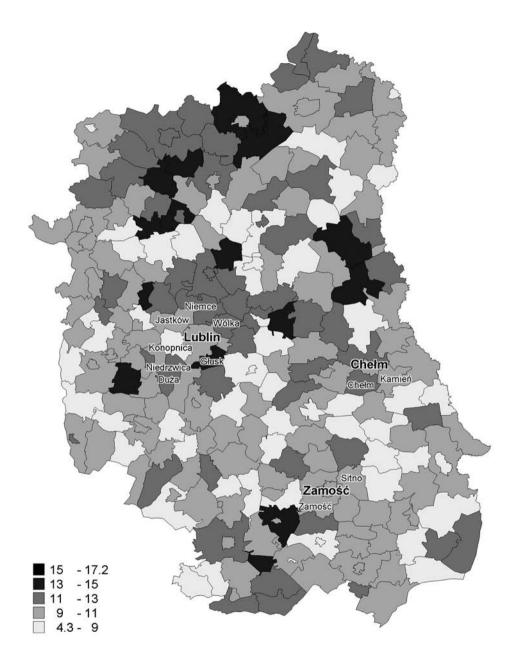


Fig. 2. Births per 1,000 population in Lubelskie voivodship in 2007 *Source:* Own elaboration based on data available at www.stat.gov.pl

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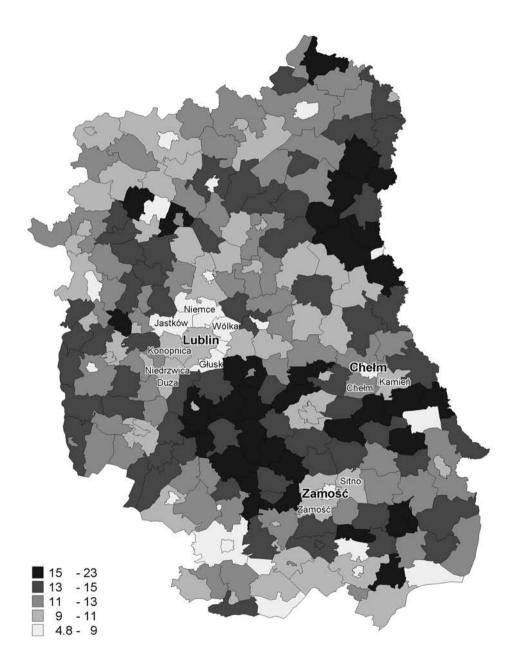


Fig. 3. Deaths per 1,000 population in Lubelskie voivodship in 2007 *Source:* Own elaboration based on data available at www.stat.gov.pl

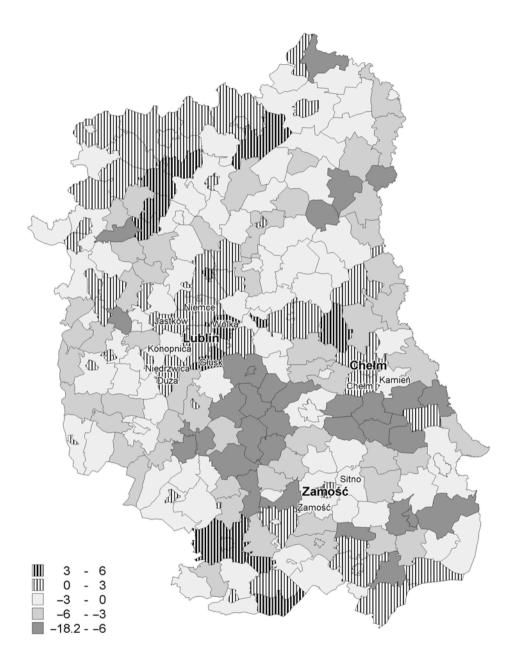


Fig. 4. Natural increase per 1,000 population in Lubelskie voivodship in 2007 *Source:* Own elaboration based on data available at www.stat.gov.pl

## DIFFERENCES IN DEMOGRAPHIC STRUCTURE

The population's demographic structure for the areas considered in this investigation was influenced by two factors. On the one hand, it was given a shape by the migrational flows, which primarily involved citizens in the working age, and in many cases in the lower ranges thereof.

Consequently, apart from the natural transfer of successive age groups to higher age categories, migration was the cause behind the increase in the number and percentage of adult citizens in the general population. Although this is the case both in cities and suburban zones, the intensity of this phenomenon is visibly greater in close proximity to large cities (Table 3).

	Children 0–14 years			Adults 15–64 years			Elders		
Adninistrative unit							$\geq$ 65 years		
	1995	2000	2007	1995	2000	2007	1995	2000	2007
Lublin	19.7	15.9	13.1	70.1	72.8	73.4	10.1	11.3	13.5
Głusk	23.9	20.9	18.3	63.7	67.0	71.1	12.4	12.2	10.6
Jastków	24.6	22.4	17.9	62.1	65.0	70.0	13.3	12.6	12.1
Konopnica	22.5	19.3	17.1	63.4	65.6	69.9	14.1	15.1	13.0
Niedrzwica Duża	23.6	21.5	18.6	62.2	64.4	68.1	14.2	14.1	13.3
Niemce	25.1	22.0	18.0	63.3	66.7	71.1	11.5	11.3	10.9
Wólka	23.7	22.1	19.9	63.3	65.8	69.9	13.0	12.1	10.2
Chełm – town	23.6	18.8	13.8	67.9	71.2	74.3	8.5	10.0	11.9
Chełm – rural commune	24.9	21.9	17.6	62.4	64.9	70.5	12.7	13.2	11.8
Kamień	25.1	23.6	18.5	60.6	62.5	68.3	14.3	14.0	13.1
Zamość – town	25.9	20.1	14.9	66.4	70.9	74.1	7.7	9.0	11.1
Zamość – rural commune	26.0	23.2	17.4	61.0	63.7	70.0	13.0	13.1	12.6
Sitno	25.7	22.8	16.4	59.2	61.8	69.5	15.1	15.4	14.1

Table 3. Demographic structure in Lublin, Chełm, Zamość, and surrounding rural communes in the years 1995, 2000, 2007 (in %)

Source: Own elaboration based on data available at www.stat.gov.pl

The smallest increase in adult population took place in Lublin and Chełm, remaining under 5 and 10%, respectively, as well as in the Niedrzwica Duża commune. Elsewhere, the figure exceeded 10%, with particularly vigorous growth occurring in the Zamość region. It is speculated, however, that this was due to the widely reported general ageing of the territory's population, commonly considered demographically aged, rather than any perceived influx of young adults.

The second determining factor in the age structure of the population in the administrative units in question were the Lubelskie voivodship's regional tendencies in natural increase, mainly concerning birth rates. The tendencies became apparent in the general decrease in the percentage of children in the total population (see Table 3). In 2007, both numeric and percentage values were lowest in the cities, with a particular scarcity in this age group in the city of Lublin. Rural communes as a whole registered a higher percentage of underage citizens in the general structure of the population; several of them, especially in the vicinity of Lublin, saw these values reach and surpass 18%, going as high as 20% in some cases. Additionally, in each of the three cities' suburbs, the fall in the part played by children in the general population was less significant than in the cities themselves. In this respect, the least advantageous position befell Zamość, closely followed by Chełm. The communes surrounding Zamość were also noted as having recorded a fall in the proportion of children much greater than that of other rural communes.

One change that undoubtedly deserves commenting on is the shift in the percentage of citizens over 65 (that is, in the retirement age) between 1995 and 2007. As demonstrated by Table 3, their part in the population as a whole increased by 30–40%. The increase had the largest scale in Zamość, but in spite of this, the elderly still comprised the smallest percentage of the city's total population with regard to the other two cities. Rural territories bordering with the cities experienced an opposite effect, that is to say, a decline by several per cent on average in the proportion of elderly citizens in the population. On the other hand, this fall was much more significant in some communes, especially those near Lublin, where values of 10 (Głusk) and even 20% (Wólka) were not out of the ordinary.

#### CHANGES IN POPULATION NUMBER

The combination of intense migration from cities to nearby suburban areas and the varied trends in natural increase in the cities and suburbs of the Lubelskie voivodship, resulted in corresponding changes to the population number (Fig. 5).

Regarding the region's cities, their population in the late 1990s was still on the rise, though admittedly at a very slow pace. The tide turned with the arrival of the new millenium; the year 2000 brought a consistent fall in population, momentarily halted by an interval of slight year-long population growth in 2001. Out of the three cities covered by this study, the smallest relative decrease in population took place in Lublin, falling by approximately 1.5% from 2000 (349,000 inhabitants) to 2007 (343,000 inhabitants). A more significant drop

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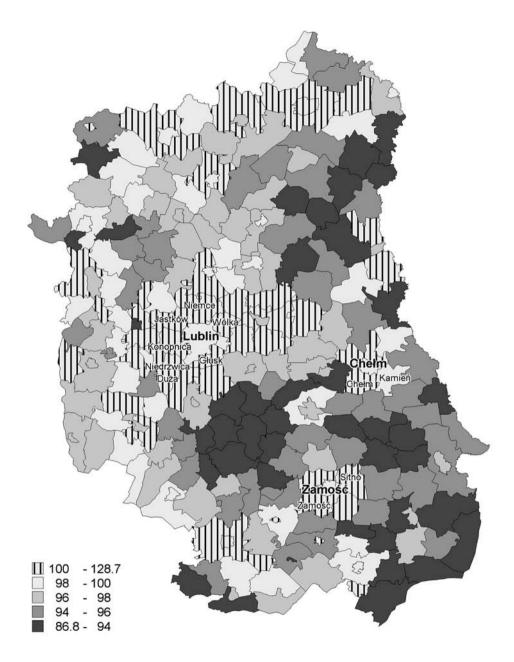
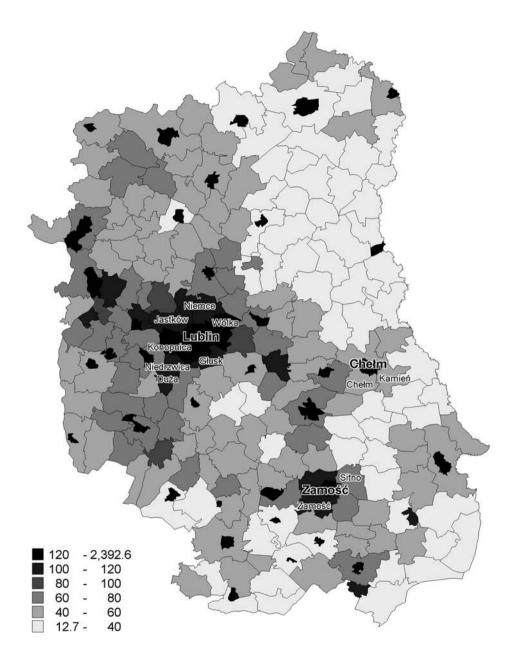


Fig. 5. Population changes in Lubelskie voivodship in the years 2000–2007 (in %) *Source:* Own elaboration based on data available at www.stat.gov.pl



# Fig. 6. Population density in Lubelskie voivodship in the years 2000–2007 (in persons/km<sup>2</sup>)

Source: Own elaboration based on data available at www.stat.gov.pl

was recorded in Zamość, where number of inhabitants fell from 68,700 in 1999 to 66,200 in 2007, or by about 4%. Chełm, however, suffered the most notable population slump, which reached a value of over 4%, from 71,000 to 67,800 inhabitants (www.stat.gov.pl).

Conversely, the suburban areas of all three cities experienced an increase in population (Fig. 5). In Lublin's case, a sustained rise had been documented since the mid-1990s in all rural communes bordering with the city. The scale of this rise, however, was clearly varied and, depending on the popularity and demand of settlement in the commune, ranged from 106% in Głusk to 149% in Wólka. Similarly, the area surrounding Zamość, which lies almost entirely within the rural commune of Zamość, saw a 113% increase in its population between 1995 and 2007. In another suburban commune, Sitno, the population retained a relatively stable numeric count, with a slightly rising pattern. Finally, in the Chełm region, a population increase of 108% was observed in but one of the neighbouring rural communes (Chełm), while another commune (Kamień) registered a fall in the same time period (own calculations based on www.stat.gov.pl).

Another consequence of the inflow of population and the consequent population rise was an alteration of the population density. The communes surrounding all three cities began to constitute clear-cut high-density zones, varied both externally and internally to a certain extent (Fig. 6). These variations derived from the course of the main road arteries leaving the cities and the general ease of access to the respective communes. At the same time, both cities and outlying communes turned into 'islands' that boasted the highest population density in the entire voivodship.

# CONCLUSIONS AND FINAL CONSIDERATIONS

The main trends in the demographic changes taking place in the three largest cities of the Lubelskie voivodship have been summarized in several concluding points, detailed below.

Starting from the turn of the millenium, the total population of the voivodship's largest urban centers has been decreasing steadily. The degree of this decrease depends, as it can be deduced, on the location of the city within the region and the functions and purposes it fulfills. Conversely, an increase in the population of suburban rural communes, sometimes extremely vigorous and dynamic, has been taking place, occasionally at the cost of a halt in urban development. As a result, it is precisely the formerly underpopulated low-density rural territories that are becoming the primary zones of high population density.

The situation outlined above is undoubtedly the result, more than anything else, of migration, specifically the outflow of city dwellers towards suburban areas. Though natural increase in the cities has remained positive, it suffered a considerable blow and decrease, which has also had an impact on real population growth. It is, however, impossible to draw a single, concise conclusion regarding any possible tendency in population growth inside the suburban communes, as they have experienced both surges and drops that, in some cases, have even yielded negative population growth. Similarly, no fixed trend can be identified in birth and death number, though it should be noted that the latter was characterized by a greater degree of stability, whereas the number of live births has undergone significant fluctuations.

Very specific changes, however, took place in the age structure of the population. In the designated period, the cities aged invariably, a repercussion of the simultaneous fall in the number of children and a rise in the number of elderly citizens. The suburban communes, in turn, saw a drop in the percentage of children in the population that was parallel to that of the elderly with respect to the total population. Spanning the entire area, a universal and steady increase in the number of adults accompanied these changes.

The analyses conducted corroborate the hypothesis that the current differences in figures and statistics between the cities and the suburban communes of the voivodship, as well as the observed demographic shifts, are only to a certain extent the result of suburbanization. Many of these divergences are the result of national or even pan-European demographic trends related to the Second Demographic Transition. Above all, this means new approaches to issues such as procreation, including a fall in the total fertility rate and the number of births, both of which are a feature of the Transition. Through city-to-country migration within the scope of suburbanization, these new attitudes on procreation are transposed onto rural areas, leading to long-term unification of city and country in this respect. Issues such as differences in age structure and death rate between cities and rural communes are much more closely tied to suburbanization, as they are directly affected by migration. The final result of the tendencies in natural increase overlapping with the opposite trends in migration are the completely separate directions of change between the general urban population and that of the voivodship's suburban communes.

A positive consequence of the communes' suburbanization of in the Lubelskie voivodship is their decidedly advantageous position in terms of several demographic indicators with respect to other rural areas in the region. Most importantly, they are communes characterized by a smaller percentage of elderly citizens, and consequently lower incidence of death and relatively high natural increase. This factor, in addition to the intense influx of urban population into suburban territory render these communes dynamic, progressive and most demographically active on a regional scale.

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