



IV. Spatial and temporal differentiation of demographic development of Minsk

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Abstract

This chapter is devoted to the demographic development of Minsk in the late 20th and early 21st century. The state of Minsk in the demographic pattern of Belarus and the factors of population dynamics are analyzed. Spatial and structural shifts in population dynamics, fertility, mortality, age structure and migration are identified, characterized and typified in the various Minsk administrative districts for the period of 1990–2010 years. The complex geodemographic typology of Minsk is worked out and three types of districts are differentiated: progressive with natural increase and stationary age structure (Moskovskiy, Frunzenskiy), stable with natural increase and regressive age structure (Leninskiy, Oktyabrskiy, Partizanskiy, Pervomaiskiy), regressive with natural decrease and regressive age structure (Zavodskoy, Sovietskiy and Tsentralny).

Keywords: Minsk, Belarus, spatial and structural demographic dynamics, demographic balance, age structure, factors of demographic development, geodemographic typology

IV.1. Introduction

Under globalization conditions the sharp increase in the role of large cities in the socio–economic and cultural life of the society is one of the typical and distinctive features of modern urbanization. The growth and development of large cities is caused by newly established businesses and the extension of already working industrial units and service industry firms, the presence of administrative establishments, higher education institutions and colleges and other enterprises along with transport development.

The development of many large cities has its peculiarities. Scientific and technological advances, modernization and restricting of enterprises influence the rapid development of service and industry as main city forming factors. That is why such types of cities develop rather more quickly. However, the faster a city



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grows, the more problems and imbalances it will have in terms of its socio-economic development.

The state of Minsk in the demographic pattern of Belarus is unique and different from other cities due to:

- 1.) positive dynamics of the population size during the twentieth century, except for the years of the World War II;
- 2.) high annual growth rate of the population in contrast to all other urban settlements;
- 3.) predominance of the migration factor in the formation of the population size for a long time;
- 4.) active commuting and links to satellite towns;
- 5.) the highest level of concentration of the urban population;
- 6.) the spatial differentiation of demographic processes within administrative districts.

The spatial and structural dynamics of demographic and migration development of Minsk over the period of industrialization and the ‘Belarusian urban boom’ in 1960–1970 attract the scientific interest of Belarusian geographers. (POLSKIY, S. A. 1976) There was a gap in the research during the period of social and economic transformations caused by the collapse of the socialist economic system and the Soviet Union. New economic and social trends of the early 21st century during the stage of transition to the post-industrial development give rise to changes in the growth rate, structure, spatial distribution and function of the city, which required a detailed study to identify the factors and patterns of development and the new image of the capital city.

The main methods used in this research were: factor analysis and GIS mapping. (ANTIPOVA, E. et al. 2012) The information base of the research is the results of the population censuses of the USSR and Belarus and current demographic records of the National Statistical Committee of Belarus for the period of 1989–2011.



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IV.2. Dynamics and factors of demographic development of Minsk

The population increased by more than 5 times during the active period of industrialization of the capital from 1950 to 1985. Minsk contributes 30 percent of the total growth of the Belarusian urban population, accounts for 25 percent of all urban population and one-seventh of the total Belarusian population. The Minsk region increased its share in the country's population by up to 30 percent due to the capital city in the mid-1980s, and the city of Minsk has surpassed such regions as Vitebsk, Brest, Grodno and Mogilev in the number of its population. It is clearly defined as the major demographic centre with the densely populated environment of the city and its agglomeration. (POLSKIY, S. A. 1976, BELSTAT 2012)

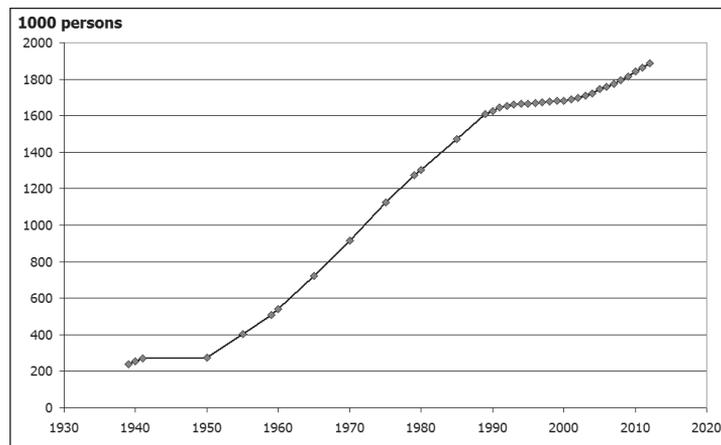


Figure 19: Minsk population dynamics within the period of 1939–2011
Source of data: BELSTAT 2011, BELSTAT 2012

As a result, one of the main features of the urbanization process in Belarus is the primate city effect – the dominant role of Minsk and the Minsk metropolitan area, where 27 percent of urban population is concentrated and weak agglomeration processes in other regions. The slow-down of the growth of large cities as a result of the socio-economic crisis in the second half of the 1990s led to a reduced share of cities from

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this group in the population relative to the extra large cities (Minsk) from 1.77 in 1999 to 1.65 in 2010. The share of the metropolitan area in the total population increased from 16.7 percent in 1999 up to 19.9 percent in 2010.

Minsk belongs to those European capitals which had the highest population growth rate in the second half of the 20th century. During the period from 1950 to 2010 the population size increased almost sevenfold and almost reached the level of 2 million – 1.883 thousand people. (*Figure 19*)

Minsk increased its demographic potential in the post-war period, primarily due to migration and natural increase with relatively small increase in population due to the integration of rural settlements to the city territory.

The industrialization development during the Soviet era, the rapid growth of new industrial branches (such as auto and tractor construction, machine-tool construction, radio-electronic industry, and electronic mechanical engineering) turned the Belarusian capital into the ‘assembly shop’ of the Soviet Union. A distinctive feature of Minsk is that it has retained the role of a major industrial centre even in the current transitional stage to post-industrial development.

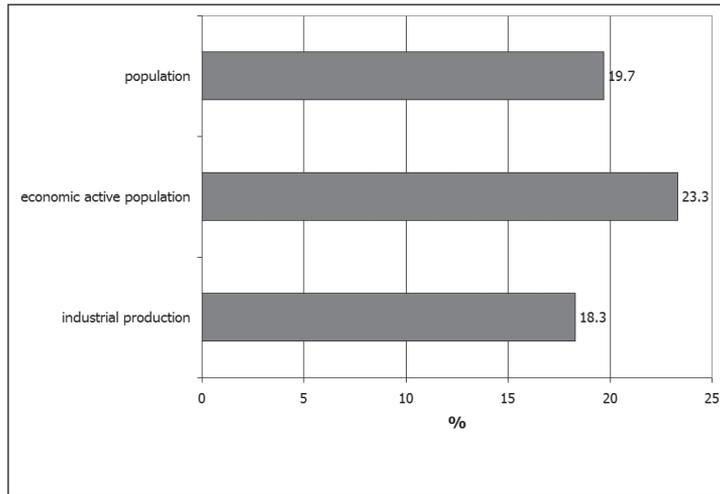


Figure 20: Industrial role of Minsk City in Belarus
Source of data: BELSTAT 2012

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Almost a quarter of the country's industrial output is produced in the capital at present. (*Figure 20*)

The territory of modern Minsk is divided into 9 administrative units/districts. The population of the city has an uneven distribution: Moskovskiy, Zavodskoy and Pervomaiskiy districts have the largest, while Parthizansky, Tsentralny and Oktyabrsky districts have the smallest shares in the population. (*Table 4*)

District	Population, thousand people			Share of district in population, %			Population dynamics index		
	1989	1999	2009	1989	1999	2009	1999/1989	2009/1999	2009/1989
Moskovskiy	169.2	224.8	261.9	10.5	13.5	14.4	1.33	1.17	1.55
Tsentralny	74.6	64.8	112.1	4.6	3.9	6.3	0.87	1.73	1.50
Frunzenskiy	297.2	346.8	353.8	18.4	20.6	19.5	1.17	1.02	1.19
Pervomayskiy	183.3	208.6	216.7	11.4	12.4	11.9	1.14	1.04	1.18
Leninskiy	189.2	180.8	210.3	11.7	10.7	11.5	0.96	1.16	1.11
Oktyabrskiy	159.6	150.4	155.5	9.9	8.9	8.6	0.94	1.03	0.97
Zavodskoy	251.6	248.5	236.8	15.6	14.8	13.0	0.99	0.95	0.94
Sovetskiy	181.2	160.5	168.4	11.2	9.6	9.3	0.89	1.05	0.93
Partizanskiy	108.8	94.6	99.3	6.7	5.6	5.5	0.87	1.05	0.91
Minsk total	1614.7	1679.8	1814.8	100	100	100	1.04	1.08	1.12

Table 4: Minsk population dynamics by administrative districts, 1989–2009

Source: calculation of the authors based on the data of BELSTAT 2011

Minsk, as a large geographical unit, is a complex system consisting of 9 administrative districts with different socio-economic functions and structure. The formation of the demographic spatial structure of the city is connected with the historical formation of administrative districts and their socio-economic role, in the Soviet (BSSR) era as well as at the present stage.

Moskovskiy and Tsentralny are the fastest growing districts, which have increased the size of their population by 50 percent



or more since 1989. Leninskiy, Pervomayskiy and Frunzenskiy districts also show a positive trend with an increase of 10–20 percent. In Sovetskiy, Partizanskiy and Zavodskoy districts the population has declined by 6–9 percent during the period of 1989–2009. The situation is relatively stable in the Oktyabrskiy district – its population has not changed significantly in 20 years.

In different periods of time migration and natural movements of population played various roles in forming the population of Minsk. Before 1994 the population growth was due to natural increase as well as migration, while from 1995 it was only because of migration growth and administrative territory changes. Since 2006 the tendency of population growth has been again partly attributed to natural growth.

IV.3. The natural increase in the population dynamics and spatial structure formation in Minsk

The nature of vital development of Minsk reflects European demographic tendencies, but has its local features and peculiarities. In 1989, the total fertility rate was 16 ‰, higher than in many European capitals. The subsequent period up to 2002 was characterized by the progressive trend of fertility decline to the level of 9 ‰, which is consistent with trends in most European cities.

The birth rate in the capital has been increasing since 2002 onwards and currently amounts to 11.3 ‰, which corresponds to the figure in 1992, i.e. the pre-crisis and pre-transformation period. The main causes of the increasing birth rate in the capital are institutional (an active state policy to support young families) and demographical (the large number of women born in the late 1980s are coming into childbearing age). (*Figure 21*)



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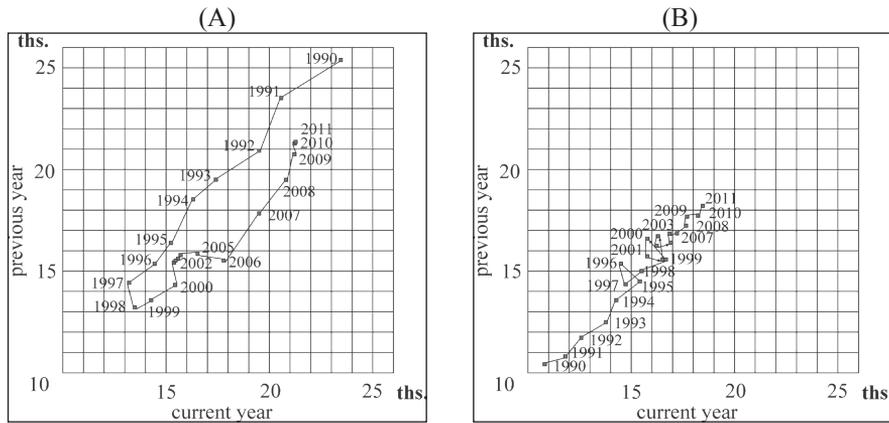


Figure 21: Demographic trajectories of fertility and mortality, 1989–2011

Source: compilation of the authors based on the data of BELSTAT 2011; PARYSEK, J. J. – MIERZEJEWSKA, L. 2012

There are differences in the character of natural movement between the administrative districts of Minsk. The highest birth rate is in the Frunzenskiy and Oktyabrskiy districts – 12.8 and 12.3 ‰, respectively. It increased by 1.5 times in the Frunzenskiy district, located in the western part of the capital, compared with 1999. There is a high proportion – 18.9 percent – of the female population at active reproductive age (20–29 years) in this district. The population can be considered as relatively young, with an average age of 34.5 years. It is the largest and most active residential development area of the capital. About 40 percent of urban housing in the capital was put into operation in this district, with sleeping areas under construction, such as ‘Zapad’, ‘Suharevo’, ‘Kuntsevshchina’, ‘Krasny Bor’, ‘Masyukovschina’.

There is a high proportion – 20.4 percent – of women at active reproductive age also in the Oktyabrskiy district, which is one of the oldest in the city, and a major industrial, transport, scientific and cultural centre, located in the southern part of the city. (Table 5)

The third highest level of fertility is in the Partizanskiy district. Over the last decade, this figure has increased by 1.4 times. Today the Partizanskiy district is one of the most important areas of the construction industry and housing development.

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Year	Minsk City	District									
		Zavodskoy	Leninskiy	Moskovskiy	Oktyabrskiy	Partizanskiy	Pervomayskiy	Sovetskiy	Frunzenskiy	Tsentralny	
persons											
1989	A	25639	4128	2900	2610	2599	2212	2771	2741	4469	1209
	B	10360	1489	1095	912	836	710	1152	1255	2274	637
	C	15279	2639	1805	1698	1763	1502	1619	1486	2195	572
1999	A	14288	1980	1743	1908	1365	831	1534	1293	2980	654
	B	16787	2591	1688	1841	1345	1092	1965	1720	3675	870
	C	-2499	-611	55	67	20	-261	-431	-427	-695	-216
2009	A	21190	2653	2401	3205	1991	1226	2115	1588	4737	1274
	B	17719	2755	2034	2147	1448	1206	2030	1777	3159	1163
	C	3471	-102	367	1058	543	20	85	-189	1578	111
2011	A	21123	2507	2364	3224	1912	1181	2151	1449	5047	1288
	B	18325	2811	2073	2135	1503	1227	2073	1770	3435	1178
	C	2798	-304	291	1089	409	-46	78	-321	1612	110
‰											
1989	A	15.9	16.4	15.3	15.4	16.3	20.3	15.1	15.1	15	16.2
	B	6.4	5.9	5.8	5.4	5.2	6.5	6.3	6.9	7.7	8.5
	C	9.5	10.5	9.5	10	11	13.8	8.8	8.2	7.4	7.7
1999	A	8.5	8	9.6	8.4	9.1	8.8	7.3	8.1	8.5	10.1
	B	10	10.5	9.3	8.1	8.9	11.6	9.4	10.7	10.5	13.4
	C	-1.5	-2.5	0.3	0.3	0.2	-2.8	-2.1	-2.7	-2	-3.3
2009	A	11.7	11.1	11.3	12.3	12.9	12.7	9.9	9.8	13	11.4
	B	9.8	11.5	9.5	8.3	9.4	12.5	9.5	11	8.7	10.4
	C	1.9	-0.4	1.7	4	3.5	0.2	0.4	-1.2	4.3	1
2011	A	11.3	10.5	10.9	11.8	12.3	12.0	10.0	9	12.8	11.7
	B	9.8	11.8	9.6	7.8	9.7	12.5	9.7	11.0	8.7	10.7
	C	1.5	-1.3	1.3	4.0	2.6	-0.5	0.4	-2.0	4.1	1.0

A. births, B. deaths, C. natural increase/decrease

Table 5: Components of pop. natural movement dynamics in Minsk, 1989–2011

Source: BELSTAT 2011



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A higher than average birth rate characterizes the population of the Moskovskiy district – 11.8 ‰. There is a high proportion of the female population at active reproductive age (20–29 years) with 21.3 percent. Active residential development is under way in this district, too. In the Tsentralny, Leninskiy, Zavodskoy, Sovietskiy and Pervomaiskiy districts a lower than average birth rate is typical. The population in these districts is characterized by demographic ageing. In the Tsentralny district more than 25 percent of the population is of retirement age, while 18.9 percent of the population is at reproductive age. In the Sovietskiy district up to 25 percent of people are of retirement age. Despite the fact that at the moment the lowest share of people in childbearing age (17.7 percent) live in the Leninskiy district, there is a tendency of changing this indicator. A new residential area called ‘Loshitsa’ is currently being built in the territory of the district that can lead to an increase in the birth rate in the long term. The birth rate in the Zavodskoy district is lower than the city average level, but this figure is increasing.

Thus, a high fertility rate characterizes the south–western areas in Minsk, i.e. the Moskovskiy, Oktyabrskiy and the Frunzenskiy districts, a low fertility rate is typical of the north–eastern zone of the Partizanskiy and Pervomayskiy districts, while the south–eastern zone including the Zavodskoy and Leninskiy districts show a medium birth rate.

The zone of high fertility comprises a residential area with intensive construction activities, whereas the zone of low fertility is formed by areas used by the rapidly developing industrial sector.

The main trend of mortality in Minsk is slow growth. In 1989, the overall mortality rate was 6.4 ‰. By 1999, it increased to 10 ‰, and it currently stands at 9.8 ‰. The main factor of mortality dynamics in the capital is demographic ageing, which is typical of all the economically developed countries.

Among the causes of death cardiovascular diseases have been the primary factor for a long period of time, which are dominated by ischemic heart disease. Cancer is the second most common fatal disease. The implementation of measures aimed at reducing the mortality rate in occupational accidents, poisoning, injuries



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and other external causes has reduced the share of mortality of this group, from 9.8 percent in 2008 to 9.6 percent in 2009. However, this figure is still high and takes the third place in the mortality structure.

There are differences in the mortality rates among the administrative districts of Minsk. The highest level of mortality is in the Partizanskiy district – 12.5 ‰. Over the last decade, this figure has increased by almost 1 ‰. Most workers live in the Partizanskiy district of Minsk and it takes the first place by the prevalence of alcoholism in the capital city. Liver diseases are three times more frequent in this district than the city average. Liver and gastro-intestinal diseases and cancer take joint 3rd and 4th places in the structure of causes of death among people of working age during the last two years.

The same situation can be observed in the Zavodskoy district. A higher than average mortality rate can be observed in the Tsentralny and Sovietskiy districts. In both districts about 25 percent of the population is of retirement age, and they are in the process of demographic ageing.

The areas with the lowest mortality rates are the Frunzenskiy and Moskovskiy districts with 7.8 and 8.7 ‰, respectively. This index has been declining over the last decade, which can be explained with the young age structure of the population.

Thus, in Minsk the south-western zone including the Moskovskiy and Frunzenskiy districts with a young population structure shows a low mortality rate, the south-eastern zone of the Zavodskoy and Partizanskiy districts with the highest share of industry shows a high mortality rate, while the southern and north-eastern zone formed by the Leninsky, Oktyabrskiy, Pervomayskiy districts shows average mortality rates.

There are some differences in natural movements between the various districts of Minsk. Three types of districts have been identified on the basis of the natural movement of the population:

- 1.) districts with progressive dynamics, where a consistent natural population growth is observable since 1999 (Moskovskiy, Leninsky and Oktyabrskiy districts),
- 2.) districts with a steady natural growth, where a natural

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- population growth has been observed since 2009 (Frunzenskiy, Partizanskiy, Pervomayskiy and Tsentralny districts),
- 3.) districts with regressive dynamics and natural decrease in population (Zavodskoy and Sovetskiy districts). (Figure 22)



Figure 22: Types of natural population movement in Minsk, 1995–2009
Source of data: BELSTAT 2011

The modern age population structure of Minsk is the result of its demographic development for the past 100 years. It was formed by wars and other political and social changes of the 21st century. The main tendency in the evolution of the population is its ageing. While in 1999 the share of people of employable age was 15.9 percent, in 2006 it was 17.6 percent, and at the beginning of 2009 it was 19.6 percent. As a result, every fourth citizen of the city is at the age of retirement. In 2009 the share of people in this category was 5.3 percentage points higher than the share of children under the age of 16. It is important to note that in 1999 the share of children was 4 percentage points higher than the share of the people older than working age. In spite of the ageing character of the demographic structure of Minsk, the share of people of employable age has increased in the past few years, now its share is over 67 percent. (Table 6)

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	1999	2000	2006	2007	2008	2009
Including the age						
0–4	4.1	4.1	4.4	4.5	4.7	5.2
5–9	6.0	5.5	4.0	4.0	4.4	4.2
10–14	8.1	7.8	4.9	4.5	4.2	3.9
15–19	9.6	9.7	9.0	8.4	7.8	7.7
20–24	8.7	9.1	10.8	10.9	11.0	10.7
25–29	7.3	7.4	9.2	9.5	9.7	9.5
30–34	7.1	6.9	7.4	7.5	7.7	7.9
35–39	8.9	8.7	6.6	6.6	6.7	6.8
40–44	8.9	8.9	7.8	7.3	6.9	6.3
45–49	7.8	7.9	8.5	8.4	8.3	7.8
50–54	5.6	6.1	7.4	7.6	7.6	7.8
55–59	4.4	4.0	6.1	6.4	6.5	6.6
60–64	4.8	5.1	3.2	3.3	3.6	4.8
65–69	3.4	3.4	4.4	4.3	3.8	3.1
70 and more	5.3	5.4	6.3	6.8	7.1	7.7
Age groups by working capacity						
0–15	19.8	19.1	14.6	14.2	14.0	14.3
15–55/60	64.2	64.8	71.9	67.8	67.4	66.1
55/60 and more	16	16.1	13.5	18	18.6	19.6

*Table 6: Distribution of Minsk population by age groups, %
Source of data: BELSTAT 2011*

At district level the youngest population structure is in the Frunzenskiy, Moskovskiy and Leninskiy districts. This is due to the fact that these are the newest districts with new territories being built in. The only district where the population is younger than employable age is the Moskovskiy district. There are inconspicuous differences in the shares of these population groups in the Frunzenskiy district. In the Sovetskiy district the share of people at the age of 65 and older is twice as high as the share of children as this area is originally the oldest in the capital. A similar tendency is observable in the Zavodskoy, Leninskiy, Oktyabrskiy, Partizanskiy and Pervomaiskiy districts. (*Table 7*)

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District	Share of age groups in total population, %		
	0–14	15–55/60	55/60 and more
Zavodskoy	13.7	65.8	20.5
Leninskiy	15.3	64.7	20.0
Moskovskiy	15.4	69.5	15.1
Oktyabrskiy	13.5	66.3	20.2
Partizanskiy	13.5	66.2	20.3
Pervomayskiy	12.5	67.3	20.2
Sovetskiy	12.7	62.7	24.6
Frunzenskiy	16.2	66.1	17.7
Tsentralny	13.0	63.6	23.4
Minsk City, total	14.3	66.1	19.6

Table 7: The age structure of the population of Minsk in 2009

Source of data: BELSTAT 2011

Generally speaking, the districts of Minsk show considerable differences as far as their age structure dynamics is concerned, outlining two types of districts: 1 – the districts with conventionally stable, aligned structure and low demographic load; 2 – the districts with regressive structure. The latter has three subtypes: 2a – regressive type with relatively aligned structure and low demographic load, 2b – regressive type with strained structure and medium demographic load, 2c – regressive–stagnating structure with high demographic load. (*Figure 23*)

Analyzing the spatial and temporal trends of natural movement and age structure the geodemographic typology of Minsk has been developed. A positive development can be observed in the two districts of Moskovskiy and Frunzenskiy, characterized by a progressive trend of natural growth and stationary age structure of the population. (*Figure 24, Table 8*)

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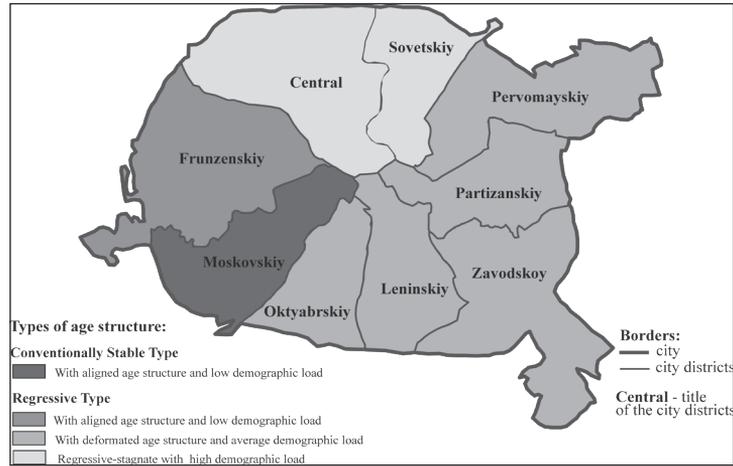


Figure 23: The typology of administrative districts of Minsk according to the character of population age structure

Source: compilation of the author based on the data of BELSTAT 2011

Types	Parameters of demographic development					
	A	B	C	D	F	G
<i>Type 1. Progressive with natural increase and stationary age structure</i>	4.3	16.4	1.03	24.3	Moskovskiy, Frunzenskiy	2/22
<i>Type 2. Stable with natural increase and regressive age structure</i>	1.5	20.2	1.5	30.6	Leninskiy, Oktyabrskiy, Partizanskiy, Pervomaikiy	4/44
<i>Type 3. Regressive with natural decrease and regressive age structure</i>	-0.3	22.8	1.7	35.7	Zavodskoy, Sovietskiy, Tsentralny	3/34

A. natural increase/decrease, ‰, B. share of persons aged 55/60 and more, ‰, C. index of age structure regression, D. demographic load, ‰, F. districts, G. number of districts, ‰

Table 8: Geodemographic typology of Minsk

Source: compilation of the author based on the data of BELSTAT 2011



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Figure 24: Geodemographic typology of Minsk

Source: compilation of the author based on the data of BELSTAT 2011

The most common is a stable type with natural growth and regressive age structure, which includes the Leninskiy, Oktyabrskiy, Partizanskiy, Pervomaiskiy districts. Three districts are characterized by negative trends that are relevant to the type of regression with the natural decrease and regressive age structure: Zavodskoy, Sovietskiy and Tsentralny.

IV.4. Migration factor in the population dynamics and spatial structure of Minsk

The intensive population growth in Minsk is still determined by the migration factor, however, its significance was decreasing during the post-Soviet period. The volume of migration in Minsk showed a positive trend in the last decade (from 121.8 thousand in 2001 to 146.1 in 2011), with an increase in the number of both arrivals and departures. Most incoming migrants come to the capital from small towns and villages in the Minsk region in order to find high-paid jobs as, at present, there is a shortage of employees in services and construction in the city.

At district level, there has been a substantial majority in the



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number of immigrants in the Moskovskiy and Frunzenskiy districts – the number of arrivals per year is more than 10 thousand people in each of these two districts. This phenomenon is due to the construction of new residential ('sleeping') areas, such as Malinovka, Kuntsevshchina or Kamennaya Gorka. In the Leninsky district the number of arrivals has been about 11 thousand people every year since 2002. This is also attributed to the development of entire microdistricts (Loshitsa). In the other administrative districts the annual number of people arriving does not exceed 6 thousand. (*Table 9*)

The Sovetskiy district shows the highest emigration figure, with more than 7 thousand people leaving this administrative district annually. The main reason for this is the fact that this district is one of the oldest in Minsk locating a significant share of the private sector. The residents of the district have been looking for improved housing facilities in other parts of Minsk since 2000.

The following regularities can be observed when analyzing the volume of migration in the various districts and net migration figures. The Frunzenskiy, Leninskiy and Moskovskiy districts have positive net migration figures with an excess of 3000 people annually. In contrast, the Zavodskoy district is characterized by significant negative net migration (–300 to –1800 people annually), showing positive indicators only in 2008, 2009 and 2011. Thus, the old central districts of the city (Leninskiy, Moskovskiy, Sovetskiy and Tsentralny) show negative migratory trends (the negative dynamics indices for the study period of 1989–2011 are –0.08; –0.26; –0.05 and –0.04 respectively). Positive migratory trends are observed in young districts with good infrastructure and active housing development. In 2011, the intensity of arrivals was the highest in the Frunzenskiy (58.7 ‰), Sovetskiy (53.6 ‰), Partizanskiy (50.8 ‰) and Oktyabrskiy (47.8 ‰) districts, while in the same year the intensity of departures showed the highest figures in the Sovetskiy (46.0 ‰), Tsentralny (43.5 ‰), Partizanskiy (43.0 ‰) and Oktyabrskiy (41.4 ‰) districts.

Thus, in 2010 net migration reached the highest value in the Frunzenskiy district (36.8 ‰) and the lowest in the Tsentralny district (–11.1 ‰). The latter is the oldest administrative unit in Minsk (it was founded in 1921), which is a push factor for migrants. Secondly, it is characterized by considerable social tensions. The increase in the

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migration activity in this district has indicated an improvement in the socio-economic welfare of the population in recent years. Relative cheapness of the secondary housing market also plays a role in the increasing migratory flows.

The role of the Moskovskiy district in the volume of migration considerably increased compared to the beginning of the studied period. The absolute value of migration in this district reached 21 thousand people, representing about 14 percent of the total migration in the city. The increase in migration in the Moskovskiy district is primarily due to socio-economic factors, as the functional role of this district was changed in the late 1990s. Today it is a cultural and educational centre of the capital, with many educational and research institutions, as well as cultural and recreation centres.

Year	Minsk City	District									
		Zavodskoy	Leninskiy	Moskovskiy	Oktyabrskiy	Partizanskiy	Pervomayskiy	Sovetskiy	Frunzenskiy	Tsentralny	
persons											
1989	A	109948	12859	10352	8767	12402	8811	19031	12759	20131	4836
	B	91173	11671	11798	9215	9498	7774	9610	14765	10996	5846
	C	18775	1188	-1446	-448	2904	1037	9421	-2006	9135	-1010
1999	A	58162	4736	5330	8469	5177	3380	7252	7128	13518	3172
	B	47340	5299	5650	5904	4771	3385	6097	6645	6755	2834
	C	10822	-563	-320	2565	406	-5	1155	483	6763	338
2009	A	92681	8335	10923	19520	6800	6382	8192	10044	18462	4023
	B	66834	8069	7947	9639	6946	4861	7845	8917	8055	4555
	C	25847	266	2976	9881	-146	1521	347	1127	10407	-532
2011	A	82142	7597	7140	11239	7416	4988	8343	8650	23192	3577
	B	63963	7459	7720	10157	6422	4218	7130	7415	8636	4806
	C	18179	138	-580	1082	994	770	1213	1235	14556	-1229
D	A	0.75	0.59	0.69	1.28	0.60	0.57	0.44	0.68	1.15	0.74
	B	0.70	0.64	0.65	1.10	0.68	0.54	0.74	0.50	0.79	0.82
	C	0.97	0.12	0.40	-2.42	0.34	0.74	0.13	-0.62	1.59	1.22

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Year	Minsk City	District									
		Zavodskoy	Leninskiy	Moskovskiy	Oktyabrskiy	Partizanskiy	Pervomayskiy	Sovetskiy	Frunzenskiy	Tsentralny	
‰											
1989	A	68.1	51.1	54.7	51.8	77.7	81	103.8	70.4	67.7	64.8
	B	56.5	46.4	62.4	54.5	59.5	71.5	52.4	81.5	37	78.4
	C	11.6	4.7	-7.6	-2.6	18.2	9.5	51.4	-11.1	30.7	-13.5
1999	A	34.5	19.1	29.5	37.5	34.4	35.8	34.7	44.4	38.6	49
	B	28.1	21.4	31.3	26.1	31.7	35.8	29.2	41.4	19.3	43.7
	C	6.4	-2.3	-1.8	11.3	2.7	-0.1	5.5	3	19.3	5.2
2009	A	51.1	34.9	51.3	75.1	44	66.3	38.3	62.2	50.7	35.9
	B	36.8	33.8	37.3	37.1	44.9	50.5	36.7	55.2	22.1	40.7
	C	14.2	1.1	14	38	-0.9	15.8	1.6	7	28.6	-4.8
2011	A	44.1	31.9	32.9	41	47.8	50.8	38.9	53.6	58.7	32.4
	B	34.3	31.3	35.6	37.1	41.4	43	33.2	46	21.8	43.5
	C	9.8	0.6	-2.7	3.9	6.4	7.8	5.6	7.7	36.8	-11.1
D	A	0.65	0.62	0.60	0.79	0.62	0.63	0.37	0.76	0.87	0.50
	B	0.61	0.67	0.57	0.68	0.70	0.60	0.63	0.56	0.59	0.55
	C	0.05	0.14	-0.08	-0.26	0.04	0.06	0.01	-0.05	0.02	-0.04

A. arrivals, B. departures, C. net migration, D. dynamics index 1989–2011

Table 9: Dynamics of main indicators of migration in Minsk, 1989–2011
Source of data: BELSTAT 2011

Intensive construction and infrastructural development in the early 2000s are key factors in the spatial changes in migration. Due to this factor the Frunzenskiy district has been a leader in the number of arrivals and departures for more than 10 years. In 2011, the volume of migration reached 32 thousand people (including 23 thousand arrivals) or 22 percent of the total migration in Minsk, which is primarily attributed to the commissioning of the new microdistrict Kamennaya Gorka.

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№	District	Pull factors	Push factors
1.	Zavodskoy	Cheap secondary housing market	Poor infrastructure, poor environmental conditions, crime situation
2.	Leninskiy	Intensive construction	Poor infrastructure
3.	Moskovskiy	Availability of education as a factor in the attraction of young people, infrastructure,	High traffic load
4.	Oktyabrskiy	Cheap secondary housing market	Crime situation
5.	Partizanskiy	Cheap secondary housing market	Poor infrastructure, poor environmental conditions, crime situation.
6.	Pervomayskiy	Favourable ecological conditions, rapidly developing infrastructure, availability of new residential 'bedroom communities'	High cost of housing
7.	Sovetskiy	High level of infrastructure development	High cost of housing
8.	Frunzenskiy	Cheap secondary housing market	Poor environmental conditions
9.	Tsentralny	The highest level of infrastructure development	High cost of housing

Table 10: Factors of spatial differentiation in migratory movement among administrative districts of Minsk

Source: compilation of the author

The highest intensity of migration during the post-Soviet period is observed in the Sovetskiy and Oktyabrskiy districts. It can be explained by the fact that the population which is concentrated here has been living in the capital for a relatively long time mostly in old-type residential buildings. The resettlement of the population from these two districts to other administrative units of Minsk started at the end of the 1990s. The lowest intensity of migration is typical of the Zavodskoy and Pervomayskiy districts. These are characterized by a relatively low

cost of housing (more than 10 percent below the average for the city of Minsk). Thus, the factors determining the spatial differentiation of migratory movements in Minsk show significant differences between the various districts. (Table 10)

Minsk, as the largest cultural and economic centre of Belarus, has an increasing role in the internal migratory movement of the population. It is characterized by a positive balance of migration, with a trend of annual increase and a significant diversification in the distribution of migration flows within the city. There are two distinctive periods in the formation of the demographic balance of the capital at the late 20th and the early 21st centuries in accordance with the role of demographic factors and migration. The first period between 1995–2005 was a period of positive contrast-factor dynamics, with dominance of the migratory factor (migratory inflow > natural decrease), while the second one – from 2006 to the present – has been a period of positive progressive dynamics with dominance of the migratory factor (migratory inflow > natural increase). (Table 11, Figure 25)

Period	Natural increase/decrease, persons	Migratory inflow, persons	Population dynamics, persons	Structure of demographic balance, %	
				Natural movement	Migratory movement
1995	-163	581	418	-38	138
2001	-541	14012	13471	-4	104
2002	-1447	15211	13764	-11	111
2003	-746	15782	15036	-5	105
2004	-475	15524	15049	-3	103
2005	-395	15320	14925	-3	103
2006	964	15836	16800	6	94
2007	2401	14923	12522	7	93
2008	3206	11056	14262	22	78
2009	2994	25800	28794	11	89
2010	3019	17386	14367	8	92
2011	2798	18179	15381	8	92

Table 11: Dynamics of Minsk demographic balance, 2001–2011
Source of data: BELSTAT 2011

IV. Spatial and temporal differentiation of demographic development of Minsk

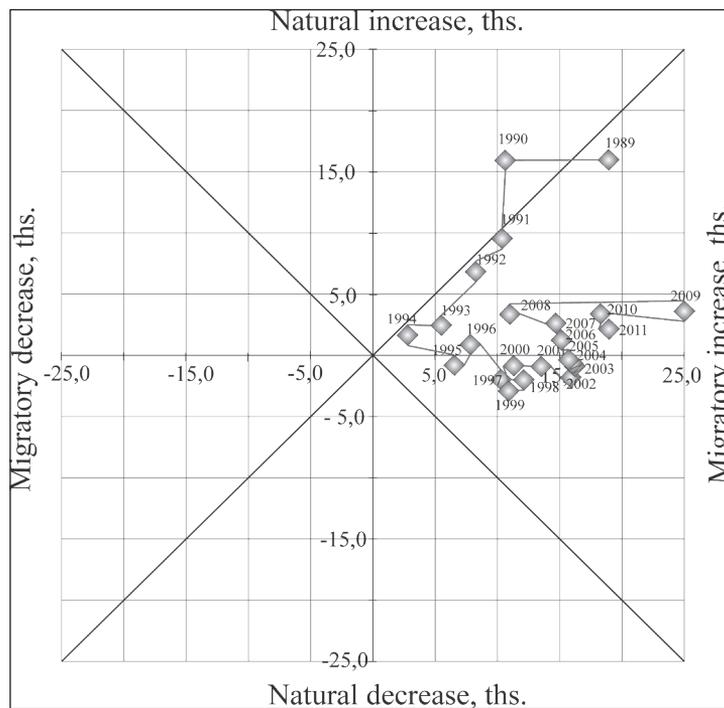


Figure 25: Trajectory of demographic balance of Minsk, 1989–2011
 Source: compilation of the author based on the data of BELSTAT 2011

The population dynamics varies significantly in the different administrative districts. (Table 12)

In the Moskovskiy, Oktyabrskiy and Frunzenskiy districts the population is growing due to the positive dynamics of the two components. These are the areas of modern active development with active migratory inflow, younger age structure of the population and stable natural growth. In the Sovetskiy and Partizanskiy districts the migration inflow exceeds the natural decline, and the population continues to grow. In the Zavodskoy, Leninskiy and Tsentralny districts the population is decreasing, in the first district due to natural decrease, while in the other two districts due to migration outflow.

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District	Natural increase/ decrease, persons	Migratory inflow/ outflow, persons	Type of demographic balance
Zavodskoy	-304	138	contrast-factor
Leninskiy	291	-580	contrast-factor
Moskovskiy	1089	1082	progressive
Oktyabrskiy	409	994	progressive
Partizanskiy	-46	770	contrast-factor
Pervomayskiy	78	1213	progressive
Sovetskiy	-321	1235	contrast-factor
Frunzenskiy	1612	14556	progressive
Tsentralny	110	-1229	contrast-factor

Table 12: Typology of administrative districts of Minsk by demographic balance, 2011

Source: compilation of the author based on the data of BELSTAT 2011

IV.5. Conclusion

Thus, the analysis of the demographic development of Minsk reveals a diversification in terms of time and space as for the formation of the demographic balance factors of the capital and the parameters of the natural movement and the age structure of the population at the level of administrative districts. As for the division in terms of time, the period up to 1994 is characterized by the active role of migration and natural increase in population dynamics, up to 2006 migration inflow dominates, while currently the progressive influence of two factors with dominance of migration prevails. The spatial differentiation is manifested in geodemographic types of districts, characterized by progressive demographic development in areas with intensive housing and regressive development in the industrial areas of the city. A distinctive feature of Minsk is that even during the transition to post-industrial development it has preserved its role as a major industrial centre.



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