

DEMOGRAPHIC TRANSFORMATIONS OF POLISH METROPOLISES (TRI-CITY CASE STUDY)

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Abstract: The article includes the brief of demographic transformations of Gdansk agglomeration since 1990 to 2009. Very intensive social and economical changes was the main characteristic of that period in Poland at all, but in the polish cities, particularly. The Tri-city agglomeration is the example of intensive demographic transformation comparing to the Pomerskie region and other potential polish metropolises. The case displays the vital statistic of the urban areas, that is: dinamic of the population changes, natural increase rate and migrations. The following chapters attached the comperiton of Gdansk agglomeration to other polish metropolises by using statistical classification methodology.

Key words: Poland, Tri-City, population, vital statistic

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INTRODUCTION

Analysis and evaluation of the demographic situation on the chosen area is very important e.g. for the spatial planning and social policy. The big changes of political system in Poland and in other countries of Middle-East Europe has highly influenced the changes in the structure but also in the actual increase of societies. In recent years, when Poland joined the European Union, the increase of migration contributed, among others, to conversion in social politics not only regionally but also locally (Cicharska, 2010). Together with the economic development and society modernization it is easy to observe the new demographic trends at the Pomeranian region and the whole Polish state, as well (Michalski, 2002). Particularly, these changes are the most variable at the urban areas (Tarkowski, 2008). This article contains the demographical analysis of the population changes in the Gdansk (Tri-City) agglomeration during the period of twenty years (1990-2009). The Gdansk agglomeration is composed of three cities: Gdansk, Gdynia and Sopot. There is description of the population changes dynamics and the components of the real movement (natural and migration) in those cities. The article contains also the statistical classification by those features of the potential polish metropolises.

DYNAMICS OF THE POPULATION AND MIGRATIONS

The amount of population in the Tri-city was equal around the 750,0 thousands since 1990 and it felt about 26,0 thousands at the end of analysis period. At the present, the population amount states above 33,0 % of the Pomeranian region. The amount of the agglomeration population is composed of 61,2 % of the Gdansk citisents, 33,6 % that is society of Gdynia and the least analyzed unit Sopot - 5,2 %.

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Gdansk is the capital of the Pomeranian region and it has the most developed population. At the end of 1990, the amount of population had reached 465,1 thousands, then years later - only 463,0 thousands and finally fell down to 451,6 thousands in 2009. Despite the decreasing population amount the dynamic of changes seems not bad. Taking into consideration the economic transformation and the social changes with the modernization of society (particularly in the biggest cities), the almost stable amount of population is positive phenomenon.

In the Gdynia, the amount of population had been almost stable, as well, mostly because of the good migration and natural movement rates. According to the data of the Central Statistical Office, there were 251,5 thousands of inhabitants in Gdynia in 1990, that amount had increased around 4,0 thousands till 2000 and the finally nine years later there were 247,7 thousands of Gdynia's inhabitants. That means that the dynamics of changes was 98,5 % according to 1990. That situation occurs similar to Gdansk one. Quite different changes are easy to observe in Sopot. There was systematical drop in amount of inhabitants from 46,6 thousands in 1990 to 42,3 thousands in 2000 and finally to 38,0 thousands in the end of analyzed period - 2009. That means almost 20,0 % declaim of Sopot population. Predictably, that phenomenon was caused by age structure of inhabitants and the high costs of living in Sopot city, which makes impossible for young people to settle there (figure 1).

The distinct changes are observed in population's migrations. The balance of migrations in the Tri-city amounted almost -4,0 ‰ in 2009, while that had been -3,0 ‰ nineteen years before. It is worth to notice that in the early 90s, the migration of agglomeration's inhabitants had just started. According to the data of National General List in 1988 the balance of migration was not more than 1,3 ‰ at all. At the beginning of the analyzed period, the highest balance of migrations was observed in Gdynia (0,8 ‰), while in Gdansk that was -0,5 ‰. Next years, brought visible fluctuations in migrations rates and for example in Gdynia that rate amounted 1,2 ‰ in 1993 and 0,7 ‰ then years later. At the same time in Gdansk the rate of migrations balance reached 1,4 ‰ and -0,9 ‰.

In Sopot, changes of migrations balance were shaping similar to the changes of real natural movement and was the most spectacular in the agglomeration. In Sopot, the migrations parameter had been oscillating from -9,3 ‰ in 1990, to -3,4 ‰ in 2003 and finally to -6,9 ‰ in 2009. The outflow of the inhabitants from Polish cities and other significant demographical changes in the recently years were caused by suburbanization process and the Polish access to the European Union, too.

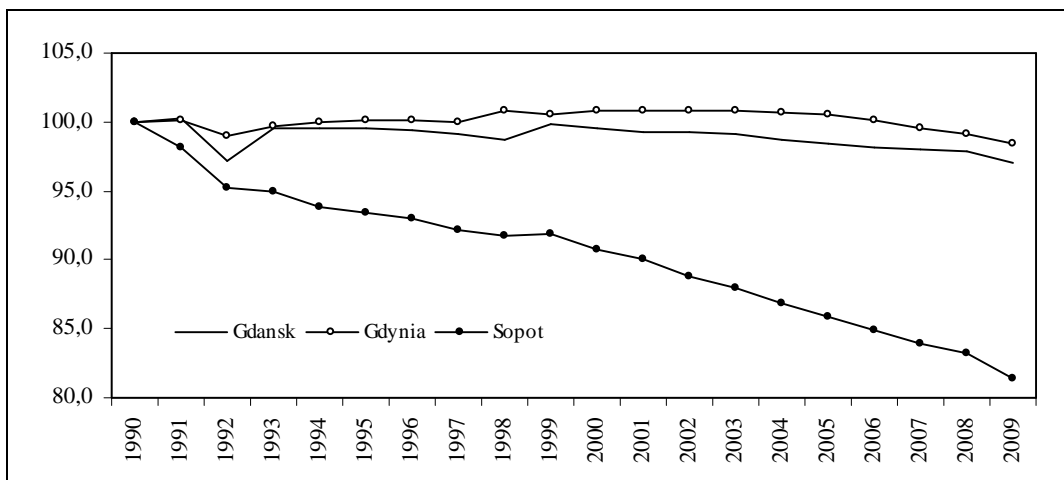


Figure 1. The dynamics of the population change in Tri-City (1990 = 100,0 %)

(Source: Author's own study based on: Gminy województwa gdańskiego 1990-1994;

Wojewódzki Biuletyn Statystyczny 4; www.stat.gov.pl)

VITAL STATISTIC

The analysis displays the most variable changes of live births and crude deaths rates in Sopot. The table 1 shows the comparison of Sopot to the other areas of Gdansk agglomeration. The live births parameter had been fluctuating from 10,0 ‰ in 1990, to 5,5 ‰ and 7,7 ‰ at the end of analyzed period. But the crude deaths rate maintains on high level in spite of decreasing at the end of 90s. In 2009 its dynamics amount 0,6 ‰ relatively to last 20 years - the research period (1994 - 13,4 ‰; 1999 - 11,9 ‰). In Gdansk as well as in Gdynia crude deaths rate was no higher than 10 ‰ in whole period of research. In Gdansk that was 9,8 ‰ in 1990, then a little lower during a next few years and the same 9,8 ‰ at the end of 2009. In Gdynia the death rate had been oscillating between 9,6 ‰ and 8,6 ‰.

According to the births rate in Gdansk, those were always higher than in Gdynia. The births rate in the capital of the region had reached 11,4 ‰ in the 1990, 8,5 ‰ in 1999 and 11,1 per 1000 habitants in 2009. In Gdynia live birth parameter was a little lower during all analyzed period. Very characteristic for Tri-city population have been death rate settled at relatively similar level and increasing births during a few last years in every city. In 2009 that grow was 1,5 ‰ comparing to the 2004. That tendency is strictly related to achieve the optimum procreative age of population descend from demographic upland of early 80s. XX c. Theoretically, we could expect the echo of demographic explosion, but the increased amount of live births is not enough to secure direct replacing of generations.

Table 1. Live births rate and crude death rate in Tri-City (per 1000 population)

(Source: Author's own study based on: Gminy województwa gdańskiego 1990-1994; www.stat.gov.pl)

City	Live births rate				
	1990	1994	1999	2004	2009
Gdansk	11,4	10,4	8,5	8,9	11,1
Gdynia	11,2	9,7	8,1	8,7	10,0
Sopot	10,0	8,5	5,5	6,7	7,7
Tri-City	10,9	9,5	7,4	8,1	9,6
City	Crude death rate				
	1990	1994	1999	2004	2009
Gdansk	9,8	9,1	9,3	9,7	9,8
Gdynia	9,6	9,4	8,6	8,8	9,6
Sopot	12,4	13,4	11,9	11,8	13,0
Tri-City	10,6	10,6	9,9	10,1	10,8

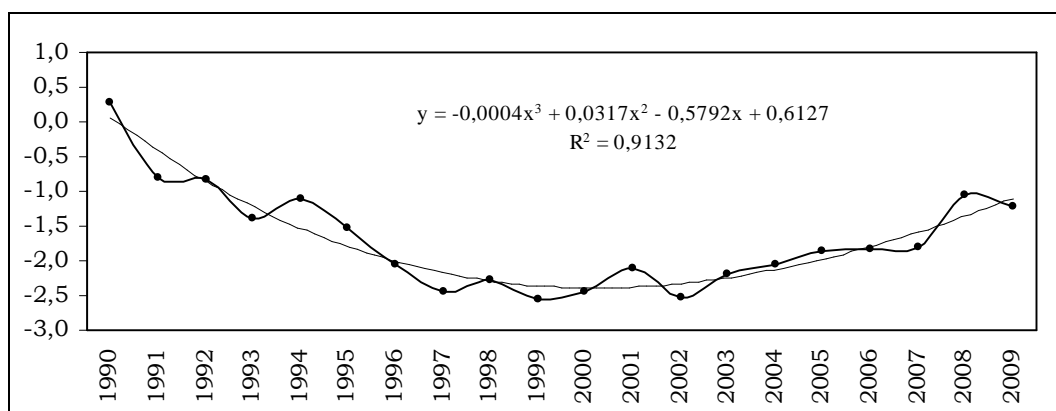


Figure 2. Natural increase rate in Tri-City in 1990-2009 [per 1000 population]

(Source: Author's own study based on: Gminy województwa gdańskiego 1990-1994; Rocznik statystyczny województwa gdańskiego 1994; www.stat.gov.pl)

Comparing the level of natural increase rate in Gdansk agglomeration during the whole analyzed period (despite of some fluctuations) there is a good fit to the trend's line. That is confirmed by determination coefficient above 0,91 (figure 2).

The highest level of the amount of live births comparing to the crude death rate level had been noticed in 1990, when the natural increase rate was equal 0,3 ‰ that time. Next years, the natural increase rate was falling down (-0,8 ‰ in 1991; -1,1 ‰ in 1994; -2,4 ‰ in 1997) at last -2,6 ‰ in 1999 and -2,5 ‰ six years later. In 2009 the natural increase rate amount -1,2 ‰.

That was a little better situation than in 2005, but comparing to the background of Pomeranian region (3,5 ‰) the demographical situation within Tri-city agglomeration is not easy at all. Quite advantage situation in the region is a result of conservative lifestyle of Kashubian and Kociewian population. Inside the agglomeration dominates high level of crude death rate in Sopot witch is the most reason of disadvantageous demographical situation. In Gdansk and Gdynia natural increase rate was equal 1,2 and 0,4 per 1000 inhabitants in 2008, not bad at all.

CLASSIFICATION OF POLISH METROPOLISES

The main aim of the analysis was to compare Gdansk agglomeration to the other potential metropolises in Poland (Dziemianowicz and Jałowiecki, 2004). To make statistical classification of Ward's methodology were used current demographical rates: live births rate, crude death rate and balance of migrations. Finally, all polish metropolises were devoted into two groups.

Table 2 displays those groups: A and B. Group A consists of cities with relatively good demographical condition. The live births rates oscillate around 10,0 ‰. Group B is composed of cities much more variable. The main features of B metropolises are adverse migration balances (particularly in Poznan -5,7 ‰). Most of those cities have natural decrease of population. The greater advantage of crude deaths over the live births have been noticed in Łodz (-5,5 ‰). Gdansk agglomeration is a part of group B, but on the background of other metropolises has quite good demographical condition and the migration of population balance, in particular (Cicharska, 2010).

Table 2. Classification of polish metropolises
(Source: Author's own study based on: Rocznik Demograficzny 2009)

Type of metropolis	Metropolis	Region
A	Cracow	Lesser Poland
	Wroclaw	Lower Silesian
	Warsaw	Masovian
B	Tri-City	Pomeranian
	Katowice	Silesian
	Poznan	Greater Poland
	Łodz	Łodz

CONCLUSIONS

The analysis demonstrated that inside the Tri-city agglomeration there are two demographical types of cities. First type include Gdansk and Gdynia and the second type is Sopot. The dynamic of inhabitants amount is not high, that is mean that the amount of agglomeration's population is stable. Sopot is the exception because it has had decline of inhabitants during the 20 years period – that was caused by disadvantaged of real population movement.

Natural increase rate in Gdansk agglomeration had dramatically felt down at the beginning of analyzed period and started growing up during a few last years. The migrations balance displays the outflow of cities inhabitants to the suburbs areas. Finally, comparing Tri-city to other polish metropolises the Gdansk agglomeration has good enough demographical situation, at all.

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