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COMPONENTS OF THE ACTUAL POPULATION  
INCREASE IN THE TRI-CITY AGGLOMERATION  
IN THE YEARS 1980–2000

**ABSTRACT.** The paper concentrates on the spatial structure of the Tri-City agglomeration's population which is a resultant of the natural growth of the population and its migration balance. In the years 1980–2000 the agglomeration showed a positive balance of the natural growth and migration. However, the population size increased not as fast as it was the case in neighbouring areas (the former Gdańskie Voivodeship). The natural increase became less important in the formation of the population numbers in the analysed area. It comes as a result of the slackening demographical dynamics in the whole country. Although the general mobility of the population dropped noticeably in Poland in the 90ties, the importance of migration in shaping the population size steadily rose. The balances of the population growth and migration were highly differentiated within the agglomeration. In the 80ties the agglomeration centre – Tri-City – was characterised by both natural population and migration growth. In contrast, in the 90ties the Tri-City's area showed strong depopulation trends. Additionally, the peripheral areas of the agglomeration, which were marked by outflow processes in the 80ties, became an attractive place to live in the following decade.

**KEY WORDS:** demographic changes, actual increase, natural increase, net migration, Tri-City agglomeration

INTRODUCTION

The demographic situation of a particular society depends on a variety of socio-economic factors. According to van de Kaa (quoted by Kotowska, 1998) there are three groups of factors which have contributed to the development of

relatively advanced post-industrial countries. The same groups of factors shape the demographic situation of the population in these countries. The first group of factors is called structural changes. It includes, first of all, urbanisation, development of the industry as well as the service sector and, most importantly, structural and organisational changes within a country. The second group of factors includes cultural, political and moral factors which affect democracy, social egalitarianism, autonomy of individuals and reorienting consumption habits towards satisfying the growing social needs. The third group of factors affecting a demographic situation is related to technological changes of which contraception, development of medicine and telecommunications are the most important.

After 1989 Poland underwent profound socio-economic changes which referred to all three groups of factors influencing the demographic situation of the country. In the 90ties Poland suffered from untoward demographic phenomena of which a fall in the demographic dynamics was the most spectacular. Socio-economic changes also led to substantial re-shaping of the spatial mobility of the population. There was a fall in the spatial mobility caused by housing shortage and a high unemployment rate (Szymańska and Matczak, 1998). Unfavourable trends decreasing the demographic dynamics and spatial mobility date back much earlier than the year 1989. They began in the mid 70ties and mid 80ties (Kędelski, 1993; Szymańska and Matczak, 1998).

The above mentioned circumstances set the framework for this paper with the time span from 1980 to 2000. In this period, apart from the most important systemic changes which started in 1989, there were a lot of events exerting impact on the demographic situation in Poland. It is worth noticing such events as putting the whole country under martial law, a sweeping economic crisis of the socialist state, the first years of economic transformation as well as the first 5-year period of economic growth in the newly established open-market economy.

The demographic changes in Poland in the analysed period were of varied intensity in different cities and rural areas. For that reason the author of this paper chose a comprehensive example of an urban agglomeration, namely the Tri-City agglomeration, as it comprises both urbanised areas (urban areas) and areas being just urbanised (suburban areas – formally speaking rural areas). The Tri-City agglomeration borders are defined quite differently depending on assumed research methods. Thus the term 'agglomeration' covers from eight cities and rural communes (Borkowska, Szydarowski, Zaucha, 2001) to the areas of whole districts adjoining Tri-City (Kołodziejwski, 2001). In this paper the Tri-City agglomeration is understood as a daily urban system, i.e. an area in which most of the inhabitants accomplish their daily routines within the limits of a defined urban space (Rykiel, 2002).

As there is no possibility to define directly such an area on the level of communes (lack of credible data referring to commuting habits), the paper introduces indirect indicators to describe transport links used by local inhabitants.

The indirect indicators include: the unemployment rate, the number of newly built flats per one thousand already existing flats, the number of newcomers from other cities as a proportion of the total population inflow and the communes' income as a share of the state tax revenue per capita. An additional criterion connected with the location of a given commune in relation to the agglomeration centre (Sopot) was also taken into account. If the distance from a given commune was not bigger than 30 km (Gorzelak, 2002), then the analysed area was included into the agglomeration. By applying the above mentioned criteria the area under the process of urbanisation consisting of two zones, suburban and pre-suburban, was delimited (Fig. 1).

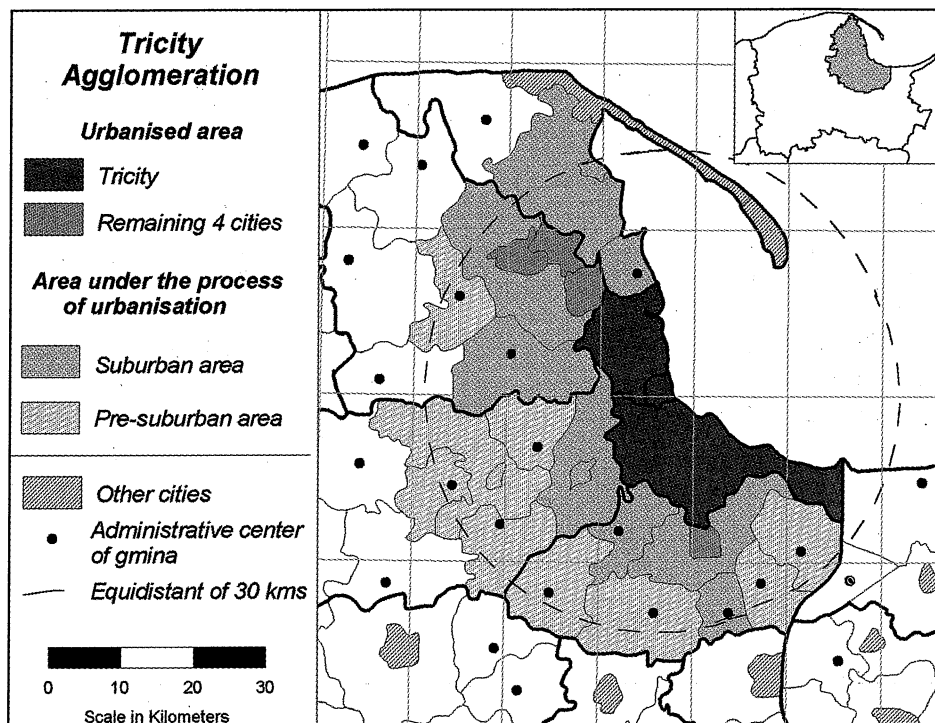


Fig. 1. Tri-City Agglomeration

Source: Author's own material

The urbanised area also consists of two zones – the Tri-City, whose particular parts make up a functionally unified urban organism, and the remaining four cities (Pruszcz Gdański, Reda, Rumia and Wejherowo) which are also regarded as part of the node area of the agglomeration. The Tri-City agglomeration area delimited in this way is inhabited by approximately 1.1 million people of whom 70% live in the Tri-City, 12% in the remaining cities, 10% in the suburban area and 8% in the pre-suburban area (Fig. 2).

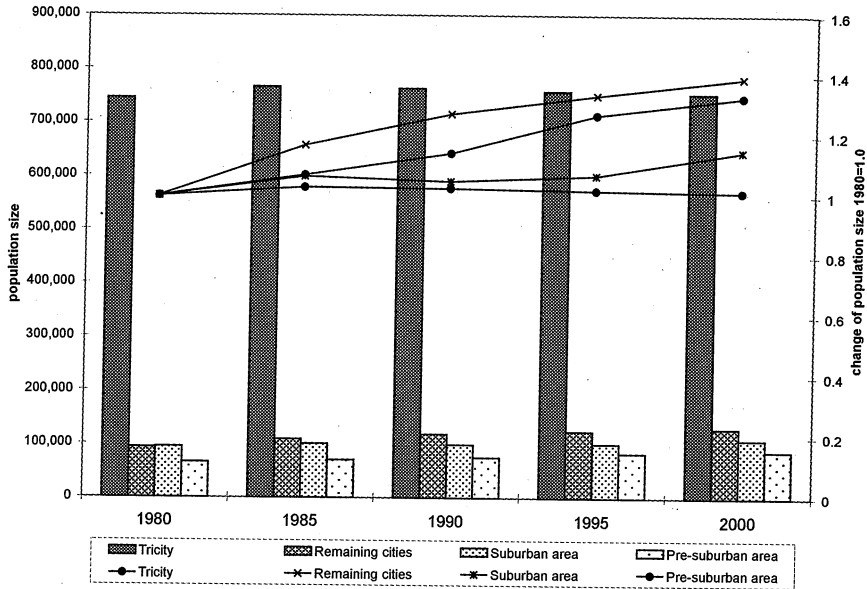


Fig. 2. Distribution of the population in the Tri-City agglomeration in the years 1980–2000  
 Source: Author's own material based on data of Statistical Office in Gdańsk

This paper focuses mainly on presenting basic demographic changes taking place in the Tri-City agglomeration. Changes in population figures in the analysed zones as well as directions and intensity of natural increase and migration of the population are shown. The two variables and their impact on the size of the population are also presented.

## CHANGES IN THE POPULATION NUMBER

In the years 1980–2000 the population of the Tri-City agglomeration rose from 997.9 thousand to about 1,079.2 thousand persons. The agglomeration reached 1 million inhabitants in the 1980–1985 period. The growing trend was not common to all areas and showed varied dynamics. A slight but stable decrease in the population of Tri-City size began in 1985. In 2000 the population of this area fell by 2% comparing with 1985. However, it was still bigger than in 1980 (Fig. 2). In the remaining four cities the population figures rose considerably. Within the period of 20 years the number of inhabitants of the four cities increased by almost 40% in comparison with 1980. It is worth remembering that the dynamics of the outlined process was higher in the 80ties, particularly in the years 1980–1985.

Slight changes in the population number of the suburban zone were observed in the years 1980–1995. They were very similar to changes noted in the

Tri-City's case. In the successive five years the agglomeration showed the highest rate of population growth which contributed to the 15% increase in the population size of the suburban zone. The suburban zone in the years 1980–1995 enjoyed a stable and high increase in the population figures. Its intensity was the highest in the years 1990–1995. The described process resulted in the number of inhabitants of the suburban zone rising by approximately 33%.

In the analysed period changes in the population size in particular zones of the agglomeration slightly differed. However, one may notice certain regularities referring to the distribution of stagnating areas or areas of slight population growth and areas of high population growth. The core of the agglomeration – Tri-City – was marked by a stable number of inhabitants, whereas the four other cities showed a high increase in the population figures. A small increase in the number of inhabitants took place in the suburban area close to its neighbouring seven cities. The external agglomeration belt, i. e. pre-suburban area, noted a high population growth.

### NATURAL INCREASE

A positive balance of natural increase was observed in the years 1980–2000 in the Tri-City agglomeration. Its overall value dropped from the level of 10.4 to 0.9 births per one thousand inhabitants. All analysed areas of the agglomeration showed the same falling trend, although its pace varied depending on an area (Fig. 3).

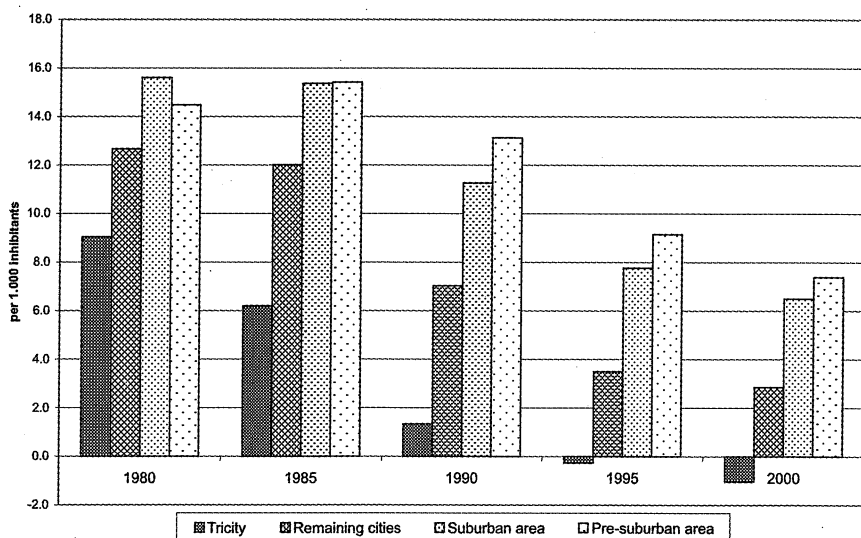


Fig. 3. Balance of natural increase in Tri-City in the years 1980–2000

Source: Author's own material based on data of Statistical Office in Gdańsk

In the Tri-City in the 80ties the decrease was 4 times as big as in the other areas. In the next decade the fall in the birth rate was not as significant as previously but still big enough to begin a new process – a natural decrease in the population figures which reached 1.0 per mille.

The fall in the natural increase in the four cities was the biggest in the years 1985–1995 when its value was four times smaller than in the previous period. However, at the beginning and at the end of the analysed period the regress was inconsiderable. The overall drop in the population growth was 77% comparing with 1980.

The fall in the population growth in the suburban area was similar to that of the neighbouring area consisting of the four above mentioned cities. The main difference consists in the fact that the regress in the suburban area's case was not so big.

The natural population growth in those areas fell by nearly 58% compared with 1980. The least decrease in the population growth referred to the pre-suburban zone. It started later than in the remaining areas as there still was an increase in the population figures in 1985. This number decreased by 49% in 2000 comparing with 1980.

The analysis shows that the farther a given area was from the core of the Tri-City agglomeration, the higher the balance of natural increase was. The dynamics of natural increase showed a reversed relationship – the farther a given area was from the core of the agglomeration, the smaller the population growth was.

## BALANCE OF MIGRATION

In the years 1980–2000 the Tri-City agglomeration noted a positive balance of migration varying from 0.8 to 3.0 per mille. Cities lying within the agglomeration showed a sharp decrease in the migration increment whereas rural areas (formally speaking) assigned to the agglomeration were marked by a reverse trend – an increase in the balance of migration.

In the 80ties the Tri-City enjoyed not only positive but also high values of the balance of migration. In the 90-ties the situation changed dramatically as the migration loss exceeded the population inflow bringing about a slight negative balance of migration (Fig. 4). During the decade of the 90-ties the remaining four cities felt a favourable situation because the difference between the inflow and the outflow of the population rose. As a result the balance of migration in 2000 was higher by 76% compared with 1980.

Suburban and pre-suburban areas were also in an advantageous situation. Both zones were characterised by a high negative balance of migration till the late 80-ties and in 1990. This state of affairs changed later when the population inflow exceeded the outflow. The difference between the balance of migration

in 1980 and 2000 referring to the suburban area was as big as 17.3 per mille. It was a bit smaller for the pre-suburban area as it reached 12.7 per mille. The same difference referring to the four cities neighbouring Tri-City was only 1.3 per mille. The directions and intensity of the migration processes presented above show a change in the course of urbanisation which took place in particular zones of the Tri-City agglomeration in the analysed period. During the 90ties the process of migration towards the core of the agglomeration was stopped. The reverse trend was intensified. It consisted in migration growth taking place in external zones of the agglomeration.

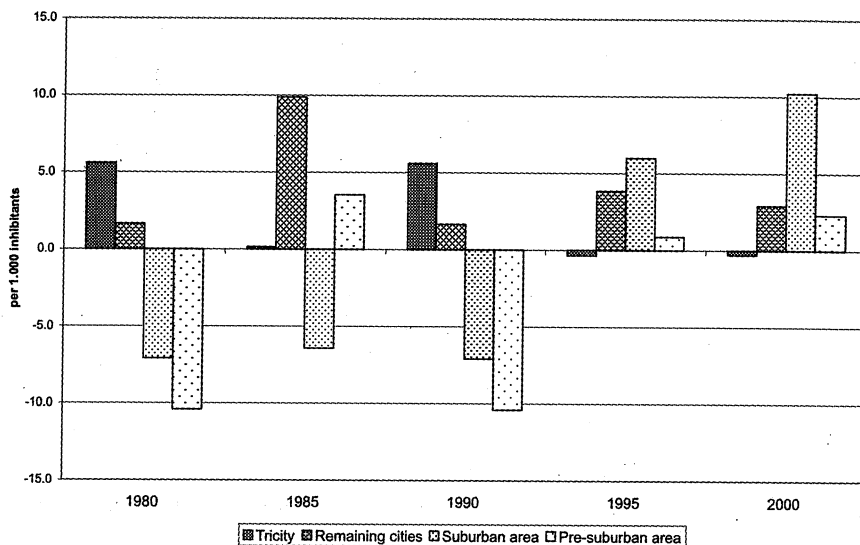


Fig. 4. Balance of migration in the Tri-City agglomeration in the years 1980–2000

Source: Author's own material based on data of Statistical Office in Gdańsk

### THE ROLE OF NATURAL INCREASE AND MIGRATION IN SHAPING THE POPULATION SIZE

The directions and intensity of the natural increase and migration were subject to considerable changes in the Tri-City agglomeration in the years 1980–2000. The proportions of the importance of natural increase and migration as factors shaping the population size of the analysed area also changed. The Tri-City agglomeration revealed a positive balance of migration and even a greater positive value of the balance of natural increase in 1980 (Fig. 4). All four zones of the agglomeration showed positive balance of natural increase and two of them (urbanised) also noted a positive balance of migration. In the two zones mentioned above the increase of the population was caused by changes in the

natural increase rather than migration. In the other two zones which are currently being urbanised the balance of the natural increase exceeded the migration loss. As a result the population figured rose.

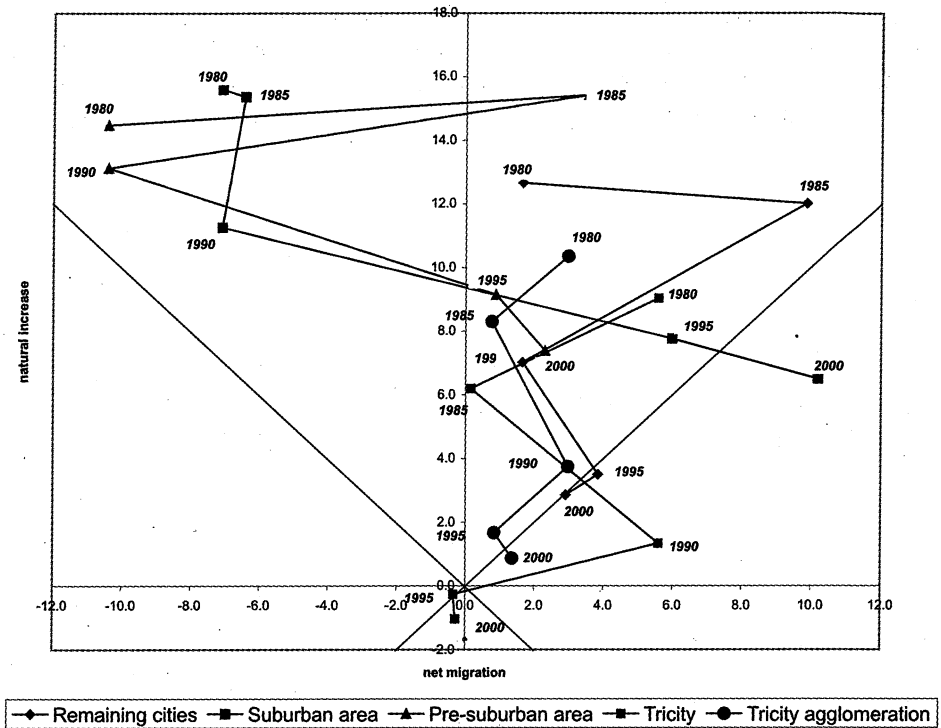


Fig. 5. Components of the actual increase of the population in the Tri-City agglomeration in the years 1980–2000

Source: Author's own material based on data of Statistical Office in Gdańsk

In 2000 the Tri-City agglomeration had a positive balance of natural increase and migration. In both cases the positive numbers were far lower than in 1980. Besides, the role of migration as a factor affecting the population growth considerably rose. In 2000 the Tri-City suffered from both natural and migration losses. The natural loss played a greater role in the decrease of the population. The four cities had the two positive variables, as they did in 1980, but both of them had the same importance with regard to the population growth.

In 2000 the areas which are being urbanised showed natural increase in the population as well as increase in migration. In the suburban area the balance of migration exceeded the natural population growth and in the pre-suburban area a reversed relationship was noted – the natural population growth exceeded the migration inflow.



In the analysed period natural increase as a factor affecting population figures lost much of its importance in reference to all zones of the Tri-City agglomeration. This factor once more regained its importance only in the Tri-City's case – as a dominant component responsible for the decrease in population figures. The intensity of migration in the urbanised areas was subject to big fluctuation and the increase of its importance was relative and resulted mainly from the decrease in population growth.

In contrast, the areas which are being urbanised, showed increasing importance of migration as far as the population size is concerned. Migration was the predominant factor in shaping the population size in suburban areas.

### FINAL REMARKS

The demographic changes which took place in the Tri-City agglomeration in the years 1980–2000 led to an increase in the population figures by nearly 8% compared with the year 1980. This increase was not high. The remaining area of the former Gdańskie Voivodeship in the same period gained more and its population rose by 19%. In general terms, the Tri-City agglomeration's share of the total population size of the former Gdańskie Voivodeship dropped from 75% to 73%.

In the analysed period the Tri-City agglomeration showed a positive balance of natural increase and migration. In four out of five analysed time cross-sections in the years 1980–1995 the natural population growth exceeded the migration inflow. However, the importance of the natural population growth in shaping the population size showed a falling tendency.

The balance of natural increase and migration revealed relatively low values in 2000. In the same year the migration increment started to play a more important role in shaping population figures.

The basic demographic processes were quite different within the agglomeration. The balance of natural increase was falling much faster in the urbanised zone than in the zone which was being urbanised reaching negative values in the mid 90ties. Far reaching changes affected also directions and intensity of migration. Once an area with a constant inflow of people, Tri-City finally turned into an area suffering from an outflow of its inhabitants. In the remaining four cities no substantial changes were noticed – the number of immigrants continued to exceed the number of emigrants. The areas which were under the process of urbanisation became increasingly attractive for those inhabitants of Tri-City who were better off and more mobile.

Considering Tri-City as the whole, the outlined changes did not have much importance. In 2000 the inhabitants of Tri-City constituted 70% of the whole population of the agglomeration. The percentage dropped by 5% comparing with

1980. The proportion of the inhabitants of the four cities rose from 9% to 12%, whereas the population of the remaining two zones rose in each case by 1%.

Changes in the population distribution have little importance for the whole Tri-City agglomeration, but mean a lot to the two zones and remaining four cities. These areas took in a great inflow of new inhabitants and had to face the necessity of developing their housing potential. This, in turn, caused the social infrastructure and communications to lag behind. A disorganised lotting out of land and chaotic building of new houses in rural communes of the Tri-City agglomeration still continues and may lead to landscape degradation and a loss of settlement and investment attractiveness of the described areas. Additionally, these areas become a stage for local conflicts between the newcomers and settled inhabitants over attractive local resources.

The described outflow of population from Tri-City, in the short term, may lead to the degradation of some parts of districts. In the long term, consequences might be more serious. A decline in the number of inhabitants makes the local budgets smaller leading to a crisis in local housing, shrinking urban investments and increasing crime. The result of such negative prospects is further decline in the area's settlement and investment attractiveness. To reverse negative consequences of falling population size metropolitan functions should be developed. The beginning of such a process is noticeable in Tri-City as well as in a few other big Polish cities (Jałowiecki, 2000).

Changes in the distribution of the population in the Tri-City agglomeration lead to the increase in the number of commuters. In this way an additional burden is put on the local communications network. The agglomeration's close proximity to the Baltic coast accounts for its southern transport routes being more developed.

The development of transport routes running evenly with a parallel of latitude is hindered by the edge zone of Kaszubska Wysoczyzna (Upland) with its changes of level (reaching up to 200 metres). A large part of this area is covered with forests of the Tri-City Landscape Park. Changes in the spatial distribution of the agglomeration's population pose a direct threat to the landscape and forests as the antropopressure becomes more and more intense.

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