**Justyna Weltrowska, Barbara Konecka-Szydłowska**

# Population changes in the towns of Wielkopolskie voivodeship

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JUSTYNA WELTROWSKA, BARBARA KONECKA-SZYDŁOWSKA

ADAM MICKIEWICZ UNIVERSITY

# POPULATION CHANGES IN THE TOWNS OF WIELKOPOLSKIE VOIVODESHIP

**ABSTRACT.** An analysis is made of population changes in the towns of Wielkopolskie voivodeship over the years 1990-2003. The voivodeship stands out among the Polish regions as one with the greatest number of towns, but a relatively low proportion of the urban population. This is due to the numerical prevalence of small towns of up to 20,000, which make up about 80% of towns of the voivodeship. Interrelations between the natural increase and migration are discussed as well as the role each component plays in population change in the towns under study. The contribution of the components differs over time and largely depends on the size of the town, its administrative functions, and location in the voivodeship.

**KEY WORDS:** Wielkopolska towns, population dynamics, demographic types of towns, migration movement.

## INTRODUCTION

The aim of the article is to analyse the population situation in the towns of Wielkopolska voivodeship. The basic factors responsible for the demographic growth of towns are the natural increase and migration, which combine to produce population change. Interrelations between the components and the contribution of each to population change in the towns under study are discussed. The contribution of the components differed over time and largely depended on the size of the town, its administrative functions, and location in the voivodeship. The analysis covers the period 1990-2003, which is subdivided into subperiods of the old and the new administrative division of Poland.

The aim of the research can be defined as finding answers to the following detailed cognitive questions:

1. What are the characteristics of the urban settlement system of Wielkopolska in comparison with Poland's regional system?
2. Which size-functional categories of towns show a population increase, and which a decrease?
3. What is the demographic situation of Wielkopolska's small towns?
4. What is the role of the natural increase and migration in population change? and
5. Does the location of a town affect its demographic situation?

## CHARACTERISTICS OF THE URBAN SETTLEMENT SYSTEM OF WIELKOPOLSKA

Wielkopolskie voivodeship has the greatest number of towns among the sixteen Polish regions. In 2003 there were 109 towns, which amounted to 12.3% of the national total. Wielkopolska is a region with a high level of urbanization, but a relatively low proportion of the urban population (58%). This is due to the numerical prevalence of small towns of up to 20,000, which make up 82% of towns of the voivodeship and 13% of small towns in the country. In comparison with the regional system, Wielkopolska has the highest proportion of towns with up to 10,000 inhabitants, 66%, and a high percentage of the population of such towns. Its other distinctive features are a small mean size of a town (17,700) and a small mean voivodeship area per town (Table 1, Fig. 1).

Table 1. Selected indicators of the regional urban system in 2002

| Voivodeship | Number of towns | Proportion of urban population | Proportion of population of towns under 10 thous. | Proportion of towns up to 10 thous. | Mean town size in thous. | Mean area per town in $km^2$ | Dynamics index of urban population, 1999-2002 |
|---|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| Dolnośląskie | 90 | 71.3 | 13.6 | 58.8 | 23.0 | 222 | -0.91 |
| Kujawsko-pomorskie | 52 | 62.1 | 11.4 | 59.6 | 24.7 | 346 | -0.61 |
| Lubelskie | 41 | 46.6 | 8.3 | 48.7 | 25.0 | 613 | -0.57 |
| Lubuskie | 42 | 64.5 | 15.8 | 57.1 | 15.5 | 333 | -0.63 |
| Łódzkie | 42 | 64.9 | 5.8 | 45.2 | 40.3 | 434 | -0.58 |
| Małopolskie | 55 | 50.2 | 9.4 | 50.9 | 29.5 | 275 | 0.01 |
| Mazowieckie | 84 | 64.6 | 5.0 | 44.0 | 39.4 | 424 | 0.60 |
| Opolskie | 34 | 52.5 | 18.8 | 58.8 | 16.4 | 277 | -0.75 |
| Podkarpackie | 45 | 40.5 | 15.0 | 62.2 | 18.9 | 398 | -0.87 |
| Podlaskie | 36 | 58.9 | 12.5 | 63.8 | 19.8 | 561 | -0.09 |

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|
| Pomorskie | 42 | 68.0 | 7.1 | 45.2 | 35.4 | 436 | -0.37 |
| Śląskie | 71 | 79.0 | 3.5 | 33.8 | 52.7 | 174 | -1.10 |
| Świętokrzyskie | 30 | 45.8 | 13.7 | 63.3 | 19.8 | 390 | -3.74 |
| Warmińsko- mazurskie | 49 | 60.2 | 13.3 | 53.1 | 17.5 | 494 | -0.81 |
| *Wielkopolskie* | *109* | *57.6* | *15.3* | *66.0* | *17.7* | *274* | *0.05* |
| Zachodniopomorskie | 61 | 69.4 | 11.5 | 59.0 | 19.3 | 375 | -0.83 |

*Source:* Own compilation based on GUS data.

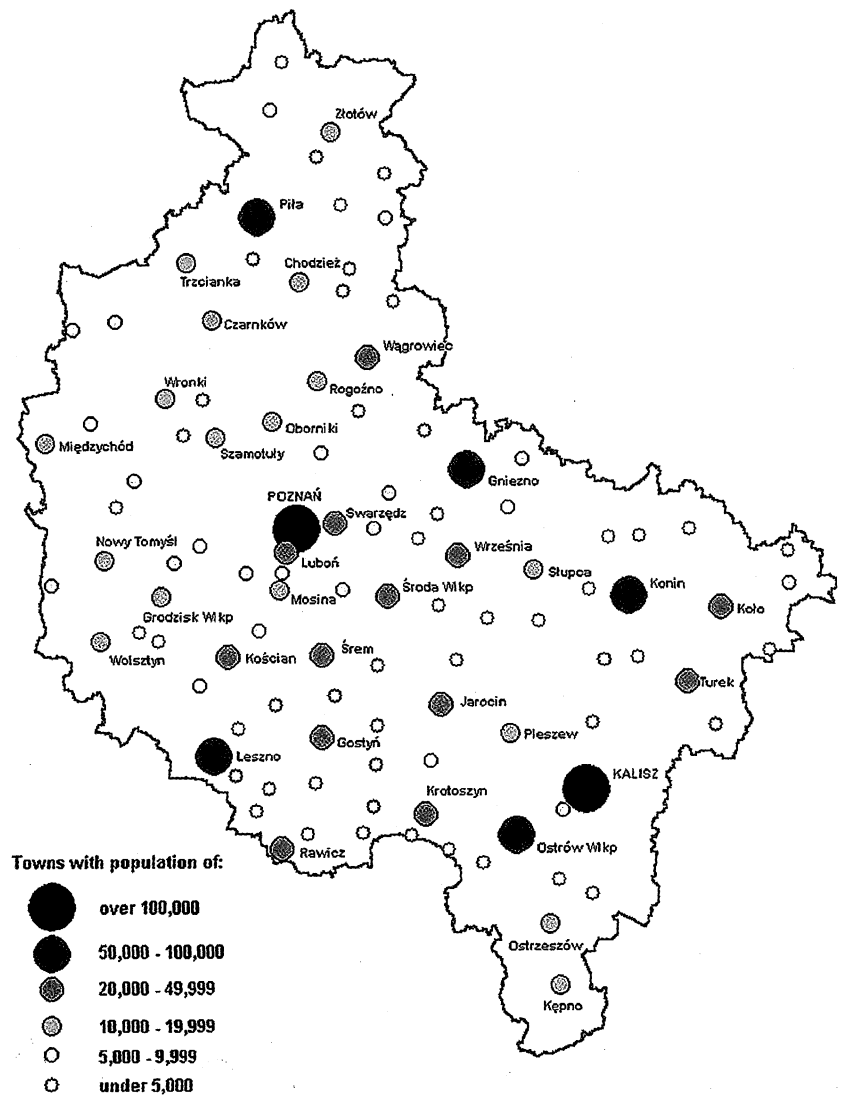


Fig. 1. The urban settlement system of Wielkopolska in 2003

Table 2. Population of towns in Wielkopolskie voivodeship by size group.

| Town size group | 1990 | | | 2003 | | |
|---|---|---|---|---|---|---|
| | Number of towns | Population | % urban population | Number of towns | Population | % urban population |
| up to 2 thous. | 13 | 21,843 | 1.2 | 11 | 19,317 | 1.0 |
| 2-5 thous. | 39 | 123,122 | 6.5 | 39 | 122,807 | 6.4 |
| 5-10 thous. | 19 | 131,487 | 7.0 | 22 | 154,288 | 8.0 |
| 10-20 thous. | 18 | 263,597 | 14.0 | 17 | 253,024 | 13.1 |
| 20-50 thous. | 12 | 292,973 | 15.5 | 13 | 334,127 | 17.3 |
| 50-100 thous. | 5 | 354,625 | 18.8 | 5 | 364,186 | 18.8 |
| over 100 thous. | 2 | 696,252 | 37.0 | 2 | 683,045 | 35.4 |
| Total | 108 | 1,883,899 | 100.0 | 109* | 1,930,757 | 100.0 |

* In 2000 Nekla received municipal rights.
*Source:* Own calculations on the basis of Poznań Statistical Office data.

Among the 109 units making up the urban settlement system of Wielkopolska, only two have more than 100,000 inhabitants and account for 35.4% of the voivodeship's urban population: Poznań with 574,100 residents and Kalisz with 108,900. The most numerous is the subclass of small towns, 2,000-5,000, with as many as 39 units but accounting for a little more than 6% of the urban population. Over the study period there were only slight changes in the number of units in each of the size classes, with the biggest recorded in that of 5,000-10,000, where the number of towns grew from 19 to 22 (Table 2).

What had changed was the size relation between the largest city of the voivodeship, Poznań, and the smallest one, Dolsk. As a result of Poznań's depopulation, the quotient expressing this relation dropped from 492 in 1990 to 388 in 2003.

## DYNAMICS OF DEMOGRAPHIC CHANGES IN THE TOWNS OF WIELKOPOLSKA

The analysis was carried out for the years 1990-2003 and in two subperiods, 1990-1998 (when the old administrative division was in force and the Wielkopolska towns were scattered among 8 voivodeships) and 1998-2003 (the introduction and operation of the new system). Use was made of the mean annual rate of change. The set of towns was divided into several size-functional groups (cf. Table 3).

In 1990 there were 1,883,900 people living in the towns of Wielkopolska (in its new 1999 boundaries), and in 2003 the figure rose to 1,930,800, which means a mean annual progressive rate of +0.19% over that period. Under the new administrative division, Wielkopolska was also among the three voivode-

ships, together with Mazowieckie and Małopolskie, which showed an increase in the rural population at a rate of +0.05% (Table 1).

Table 3. Mean annual rate of population change in the set of Wielkopolska towns and functional-size subsets over the years 1990-1998 and 1998-2003.

| SIZE CRITERION | ADMINISTRATIVE (FUNCTIONAL) CRITERION | TYPE OF CHANGE (IN BOTH SUBPERIODS) | COMMENTS |
|---|---|---|---|
| large towns (over 500 thous.) | Poznań (voivodeship capital) | D (-0.25%) – D (-0.14%) | depopulation of principal city |
| | Kalisz | S (+0.06) - I (+0.42) | |
| larger medium-sized towns (50-100 thous.) | capitals of old voivodeships (including Kalisz) | I (+0.47%) – S (+0.03%) | |
| | other | I (+0.21%) – D (-0.37%) | |
| medium-sized towns (20-50 thous.) | seats of poviats | I (+0.59%) – D (-0.21%) | rapid growth of towns in Poznań suburban zone in response to its depopulation |
| | with no poviat function | I (+1.67%) – I (+2.03%) | |
| larger small towns (10-20 thous.) | seats of poviats (total) | I (+0.54%) – D (-0.12%) | |
| | of which seats of poviats in former Poznań voivodeship | I (+0.79%) – I (+0.73%) | |
| | with no poviat function | I (+0.61%) – D (-0.21%) | |
| small towns (5-10 thous.) | total | I (+0.64%) – I (+0.16%) | persistence of upward tendency, but weaker than in very small towns |
| | of which located in Poznań suburban zone | I (+1.62%) – I (+0.61%) | rapid growth of towns in Poznań suburban zone in response to its depopulation |
| very small towns (up to 5 thous.) | with longer history of municipal rights | I (+0.52%) – I (+0.34%) | persistence of upward tendency, no crisis of very small towns |
| | with recently acquired municipal rights | for 2000-2003 S (+0.03%) | |

I - increase, D - decrease, S – stagnation
*Source:* Konecka-Szydłowska, Matykowski (2005)

A reverse population tendency was recorded in the voivodeship's largest city, Poznań, whose residents diminished by 16,000 between 1990 and 2003 (the mean annual rate over that period equalled -0.20%). In turn, in both subperiods an upward tendency was recorded, especially in medium-sized, non-poviat towns located in the Poznań suburban zone (Swarzędz, Luboń) and various categories of small and very small towns (i.e. under 10,000). In the years 1990--2003 an especially high mean annual rate of increase was observed in very small towns up to 5,000 (+0.49%). These changes disprove the thesis about a demographic crisis in very small towns.

Also visible are differences in urban population dynamics among the five Wielkopolska subregional systems when viewed in terms of the old administrative divi-

sion. In the period 1998-2003, changes were progressive in the towns of the former Poznań voivodeship (a periodic index of +0.60%) and Leszno voivodeship (+0.18%). Regression was recorded in the former Kalisz, Konin and Piła voivodeships.

## TYPES OF DEMOGRAPHIC DEVELOPMENT

The above demographic situation of Wielkopolska towns is the resultant of their varying natural increase and net migration. The typology of population growth proposed by Webb (1964) allows the towns to be classified into one of eight groups.

At the start of the study period, in 1992, most towns belonged to the growth classes A to D (84 towns, i.e. 78%). The largest class was C, with a net in-migration higher than the natural increase (52 towns). The depopulation types F to H (type E was absent) embraced 24 towns. Most belonged to type H with a net out-migration exceeding the natural increase. The voivodeship's principal city, Poznań, represented type F where the natural decrease is higher than net migration losses (Table 4). In many towns very high extreme values of both indices were recorded, especially the net migration. Net migration inflows in excess of +30.0% were recorded in Mikstat, Odolanów, Golina, Kleczew, Czempiń, Murowana Goślina, and Swarzędz.

In 2002 there was still a slight predominance of towns in the growth classes, 51%, and the sizes of types A to D were similar. There was a sharp rise in the number of depopulation units. Among the 53 towns registering a population decrease, the largest type was H with a net out-migration exceeding the natural increase (27 units). The city of Poznań represented an emigration type of units and belonged to type G (Table 5).

In 2002 no towns displayed such extreme values of the two indices as in 1992. High indices occurred in only a few cases. The highest figures for net in-migration were recorded in Luboń (+22.6%), Kórnik (+20.8%) and Osieczna (+12.3%), and for net out-migration in Książ Wielkopolski (-17.1%), Gołańcz (-14.0%) and Okonek (-13.3%). In 2002 the towns became similar in that both the natural increase and net migration rates declined. In the Webb diagram the points representing the towns tend to cluster around the point of intersection with the axis, and this is a tendency characteristic of the entire set of towns in Poland (cf. Marcinowicz 2000, Kwiatek-Sołtys 2004).

An analysis showed that between the two study periods 18 towns of Wielkopolska voivodeship (i.e. 16%) had not changed their demographic types. The biggest shifts were recorded from type C to H, i.e. from a migration gain to loss while preserving a natural increase (12 towns). In terms of the town-size criterion, it can be observed that the shift from a growth to a depopulation category in 2002 embraced especially the larger of small towns (10,000-20,000) and medium-sized ones (Tables 4, 5).

Table 4. Demographic types of Wielkopolska towns in 1992, after Webb.

| TYPE | SIZE CLASS (THOUS.) | | | | | | |
|---|---|---|---|---|---|---|---|
| | <2 | 2-5 | 5-10 | 10-20 | 20-50 | 50-200 | >200 |
| A (increase) +NI>-NM 11 | Ostroróg | Kobylin, Krajenka, Miejska Górka, Czerniejewo, Rakoniewice | Kłodawa, Śmigiel, Zbąszyń | - | - | Gniezno, Kalisz | - |
| B (increase) +NI>+NM 18 | Dobra | Zduny, Dąbie, Osieczna, Rydzyna, Margonin, Kłecko Szamocin, Wysoka, | Witkowo, Jastrowie, Wyrzysk, Kostrzyn | Złotów | Koło, Gostyń | Piła, Konin | - |
| C (increase) +NI<+NM 52 | Grabów, Mikstat, Raszków, Przedecz, Pogorzela, Żerków | Odolanów, Tuliszków, Golina, Obrzycko, Czempiń, Zagórów, Kleczew, Sompolno, Książ Wlkp., Stęszew, Ujście, Borek Wlkp. | Trzemeszno, Koźmin, Krobia, Buk, Opalenica, Murowana Goślina, Pniewy, Pobiedziska, Sieraków | Międzychód, Kępno, Ostrzeszów, Rogoźno, Pleszew, Słupca, Czarnków, Trzcianka, Oborniki, Nowy Tomyśl, Szamotuły, Wolsztyn, Grodzisk Wlkp., | Jarocin, Turek, Krotoszyn, Września, Rawicz, Luboń, Śrem, Wągrowiec, Swarzędz, Środa Wlkp., | Ostrów Wlkp., Leszno | - |
| D (increase) –NI<+NM 3 | - | Ślesin | Wieleń | | Chodzież | - | - |
| E (decrease) –NI>+NM 0 | - | - | - | - | - | - | - |
| F (decrease) –NI>-NM 3 | Rychwał, Krzywiń | - | - | - | - | - | Poznań |
| G (decrease) –NI<-NM 6 | Jutrosin, Wielichowo | Pyzdry, Poniec | Nowe Skalmierzyce, Puszczykowo | - | - | - | - |
| H (decrease) +NI<-NM 15 | Stawiszyn, Dolsk | Sulmierzyce, Skoki, Bojanowo, Gołańcz, Łobżenica, Okonek, Lwówek, Miłosław | Krzyż Wlkp., Kórnik | Wronki, Mosina | Kościan | - | - |

NI - natural increase, NM - net migration

*Source*: own compilation based on „Miasta w Polsce:, GUS, Warszawa, 1992

Table 5. Demographic types of Wielkopolska towns in 2002, after Webb.

| TYPE | SIZE CLASS (THOUS.) | | | | | | |
|---|---|---|---|---|---|---|---|
| | < 2 | 2-5 | 5-10 | 10-20 | 20-50 | 50-200 | > 200 |
| A (increase) +NI>-NM 14 | Ostroróg | Rakoniewice, Skoki, Szamocin, Wysoka | Buk, Jastrowie, Stęszew, Wyrzysk | Czarnków, Trzcianka | Śrem | Gniezno, Piła | - |
| B (increase) +NI>+NM 15 | Dolsk | Margonin, Pyzdry, Sompolno, Zduny, Sulmierzyce | Kłodawa, Sieraków, Murowana Goślina | Kępno, Oborniki | Środa Wlkp., Wągrowiec, Września | Leszno | - |
| C (increase) +NI<+NM 13 | Jutrosin | Golina, Kłecko, Krobia, Miłosław, Rydzyna, Tuliszków, Żerków | Kórnik, Śmigiel | Grodzisk Wlkp. | Luboń, Swarzędz | - | - |
| D (increase) –NI<+NM 14 | Dobra, Osieczna | Bojanowo, Kleczew, Krajenka, Lwówek, Poniec, Ślesin, Ujście | Kostrzyn, Puszczykowo, Zbąszyń | Mosina | Jarocin | - | - |
| E (decrease) –NI>+NM 6 | Pogorzela, Stawiszyn | - | Czempiń, Opalenica, Pniewy, Pobiedziska | - | - | - | - |
| F (decrease) –NI>-NM 10 | Mikstat, Wielichowo | Grabów, Koźmin, Obrzycko, Raszków Miejska Górka | Nowe Skalmierzyce, Wieleń | - | - | Kalisz | - |
| G (decrease) –NI<-NM 10 | Przedecz | Dąbie, Kobylin, Zagórów | Krzyż Wlkp., | Chodzież, Pleszew, Szamotuły | - | Ostrów Wlkp., | Poznań |
| H (decrease) +NI<-NM 27 | Krzywiń | Borek Wlkp., Gołańcz, Czerniejewo, Nekla, Książ Wlkp., Łobżenica, Odolanów, Okonek, Rychwał | Trzemeszno, Witkowo | Nowy Tomyśl, Międzychód, Słupca, Złotów Ostrzeszów, Rogoźno, Wolsztyn, Wronki | Gostyń, Koło, Kościan, Turek, Krotoszyn, Rawicz, | Konin | - |

NI - natural increase, NM - net migration

*Source*: own compilation based on „Miasta w liczbach", GUS, Warszawa, 2004

| TYPE | NUMBER OF TOWNS | |
|---|---|---|
| | 1992 | 2002 |
| A (increase) +NI>-NM | 11 | 14 |
| B (increase) +NI>+NM | 18 | 15 |
| C (increase) +NI<+NM | 52 | 13 |
| D (increase) –NI<+NM | 3 | 14 |
| E (decrease) –NI>+NM | - | 6 |
| F (decrease) –NI>-NM | 3 | 10 |
| G (decrease) –NI<-NM | 6 | 10 |
| H (decrease) +NI<-NM | 15 | 27 |

NI - natural increase, NM - net migration

## MIGRATION

In the period under study, migration was the predominant component shaping population change in Wielkopolska towns. Generally, migration figures were higher than those for the natural increase. At the beginning of the 1990s, the dominant migration tendency was a net population gain, but in 2002 the situation was reversed: net outflows started to predominate.

Still, there were towns which registered large population inflows over the years 1989-2002. In half of the towns in the voivodeship, the proportion of the population that had arrived after 1988 was more than 30% of the total number of immigrants, while in 19 towns this figure exceeded 40% (with a maximum of 59% in Kleczew). The units showing a high proportion of newcomers are usually small towns of less than 10,000 inhabitants, including 53% (29 towns) in the 2,000-5,000 group (cf. Table 6). Also important is the location of a town. The ones that proved strong immigration centres were almost all those situated in the Poznań suburban zone (The Poznań suburban zone is taken to be a belt of 17 communes surrounding the city of Poznań. Since 1999 they have been part of Poznań poviat). Those towns can be divided into three groups of population dynamics over the years 1990-2002 (cf. Table 7): low (up to 103%), average (104%-115%), and high (over 115%). The high net population gain in the last two groups was due to a high migration inflow: post-1998 immigrants constituted 13% to 30% of their total populations.

An analysis showed there to be a connection between the location of a unit and the origin of migrants, from town or the country. In 2002, the inflow of

urban migrants dominated in towns situated near a large unit, especially in the suburban zone of Poznań, but also in those of Piła, Ostrów Wielkopolski and Kalisz. That there was an outflow from Poznań to the city's suburban zone is corroborated by the proportion of former Poznań residents among people registering a new domicile in the sub-Poznań communes. In 1998, in six communes selected for examination, the percentage of people who had moved from the city among those registered in the given commune ranged from 50% to 67%. In 1997, in the urban commune of Luboń, people from Poznań made up nearly 58% of the newly registered immigrants to the town of Luboń (after Małuszyńska, 2000). In turn, towns lying farther away from large centres and performing service functions for their agricultural hinterland tended to receive immigrants largely from rural areas.

Table 6. Wielkopolska's immigration centres in the years 1989-2002.

| PROPORTION OF 1989-2002 IMMIGRANTS IN TOTAL INFLOW OF POPULATION | SIZE CLASS OF TOWN (THOUS.) | | | | |
|---|---|---|---|---|---|
| | UP TO 2 | 2-5 | 5-10 | 10-20 | 20-50 |
| 30%-39% | Dobra, Dolsk, Jutrosin, Osieczna, Sławiszyn, Przedecz | Czerniejewo, Dąbie, Gołańcz, Krobia, Kłecko, Kobylin Krajenka, Książ Wlkp., Łobżenica, Margonin, Miejska Górka, Obrzycko, Odolanów, Rakoniewice, Rychwał, Skoki, Ujście | *Kostrzyn*, Nowe Skalmierzyce, Pniewy, *Puszczykowo*, *Stęszew*, Wieleń, Wyrzysk | Grodzisk Wlkp. | |
| 40% and more | Mikstat, Krzywiń, Ostroróg, Pogorzela, Wielichowo | Borek Wlkp., Golina, Kleczew, Pyzdry, Raszków, Rydzyna, Ślesin, Sompolno, Tuliszków, Zagórów, Żerków | Czempiń, *Kórnik*, *Murowana Goślina*, *Pobiedziska*, Sulmierzyce | | *Luboń*, *Swarzędz* |

*Kostrzyn* - towns of Poznań suburban zone
*Source*: Statistical Office in Poznań

Table 7. Population situation of towns in the Poznań suburban zone

| TOWN | DYNAMICS INDEX (%) 1990-2002 | PROPORTION OF 1989-2002 IMMIGRANTS IN TOTAL POPULATION |
|---|---|---|
| Buk | 102.5 | 9.0 |
| Kostrzyn | 104.9 | 13.0 |
| Kórnik | 108.7 | 19.6 |
| Luboń | 123.2 | 25.3 |
| Mosina | 102.5 | 12.2 |
| Murowana Goślina | 125.8 | 30.4 |
| Pobiedziska | 122.6 | 20.4 |
| Puszczykowo | 108.9 | 22.1 |
| Stęszew | 112.3 | 15.7 |
| Swarzędz | 125.4 | 26.4 |

*Source*: Statistical Office in Poznań

## CONCLUSION

On the basis of the analysis of the population situation in the towns of Wielkopolska, it can be stated that the voivodeship's urban network is in the state of equilibrium. Population losses suffered by some town-size categories are made up by population gains in other categories.

A characteristic feature, also visible in other metropolitan areas in Poland, is the depopulation of the central city, Poznań, accompanied by an increase in the population of its suburban zone. An upward tendency also persists in small towns, up to 10,000. This proves that one cannot speak of a demographic crisis in this class of towns, which play an increasing role in the regional settlement system of Wielkopolskie voivodeship.

A point that should be made in conclusion is that no systemic interpretation has been attempted in the research because the institutionalised form of the new regional system only appeared in 1999. This is too short a period to assume that the Wielkopolska urban network has managed to develop any systemic aspects.

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**CORRESPONDENCE TO:**

Justyna Weltrowska
Institute of Socio-Economic Geography and Spatial Management,
Adam Mickiewicz University,
Dzięgielowa 27, 61-680 Poznań, Poland

Barbara Konecka-Szydłowska
Institute of Socio-Economic Geography and Spatial Management,
Adam Mickiewicz University,
ul. Dzięgielowa 27, 61-680 Poznań, Poland
[e-mail: bako@amu.edu.pl]