

Stanisława GÓRECKA and Romuald KOZIEŁ  
Wrocław University

## POPULATION AGEING IN LOWER SILESIA: TRENDS AND REGIONAL DIFFERENCES

One of the most significant social phenomena is the process of population ageing, *i.e.* the growing percentage of old people in societies. Many scientists study this phenomenon. In Poland, Z. Długosz, a representative of the so-called "Kraków School", analysed the process of population ageing in 1997 and 1998. He studied regional differences according to different types of the ageing process. S. Kurek, who also represented the Kraków School, investigated the problem in 1998 and 2001. He compared the results of his research with the data from different countries in Europe and south-eastern Poland. In 2000, J. Krupowicz studied the ageing process of Lower Silesian population. She adopted a few indicators, such as demographic age and age median. Moreover, she collected data from four provinces (Voivodeships) in the area, and took into account the former administrative divisions. In 1999, M. Cieślak edited a compilation of reports which were written between 1975 and 1999, and which were based on data provided by former Lower Silesian provinces. The writers compared the results of their research with the results from other regions in Poland, and from abroad.

The authors of this study decided to analyse the differences between ageing process in towns, communes ("gmina's"), and counties ("powiat's"). In our research, we considered the new administrative divisions which had been introduced in 1999. We analysed the parameters of dynamic changes in the ageing process from 1978 to 1998. The data for the twenty years came from towns and communes. The data for 2000, came from counties and were regarded as current. We considered the following indicators:

– demographic age indicator –  $W_s$  (percentage ratio of post-working citizens per population in general);

- indicator of young population's (0-14 years) liabilities towards the post-working population -  $W_0$ ;
- demographic age indicator -  $W_{sd}$ .

$$W_{sd} = \{U(0-14)_t - U(0-14)_{t+n}\} + \{U(>59/64)_{t+n} - U(>59/64)_t\}$$

where:

$U(0-14)_t$  - share of young people, age 0 to 14, at the beginning of the research;

$U(0-14)_{t+n}$  - share of young people from 0 to 14 years of age, at the end of the research;

$U(>59/64)_t$  - share of post-working people at the beginning of the research;

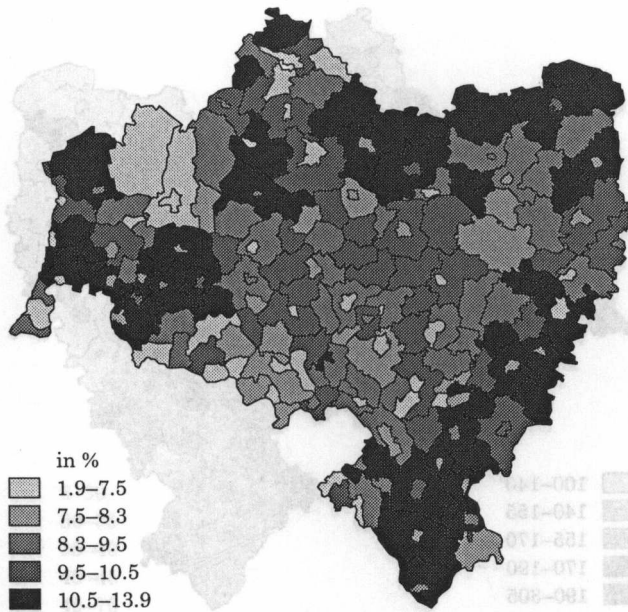
$U(>59/64)_{t+n}$  - share of post-working people at the end of the research.

The last mentioned indicator includes directions of changes in both the youngest and the oldest age groups. The ultimate direction of the change influenced by that indicator's balance means that the higher the number it shows, the more dynamic the ageing process is.

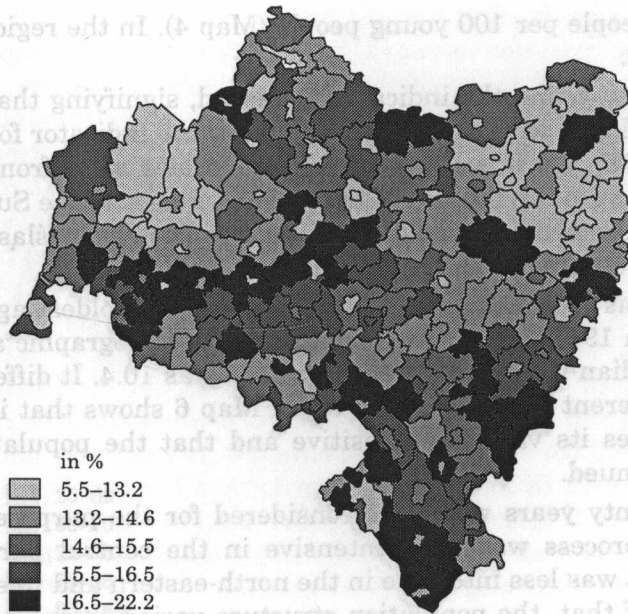
In 1978, the share of the post-working group in Lower Silesia was 8.3%, and was significantly below Poland's average (11.9%). The value of that indicator varied from 2% to almost 14% (Map 1). The highest values were recorded in the rural areas of Kłodzko Valley, eastern, northern, and western communes. In towns, the values were lower than in villages (8.1% and 9.1%, respectively).

In 1998, the demographic age indicator grew to the level of 14.6%. It was a 75% growth in twenty years. In Poland, the growth was only 20%. The indicator was the highest in towns (14.4%), and in rural communes (up to 14.9%). In different administrative areas, the differentiation of the post-working group ranged from 5.5% to 22%. The highest values were noticed in Kłodzko Valley, Jelenia Góra, and in Legnica-Głogów copper mining region. In the rural areas, the lowest values were in north-eastern communes (Map 2).

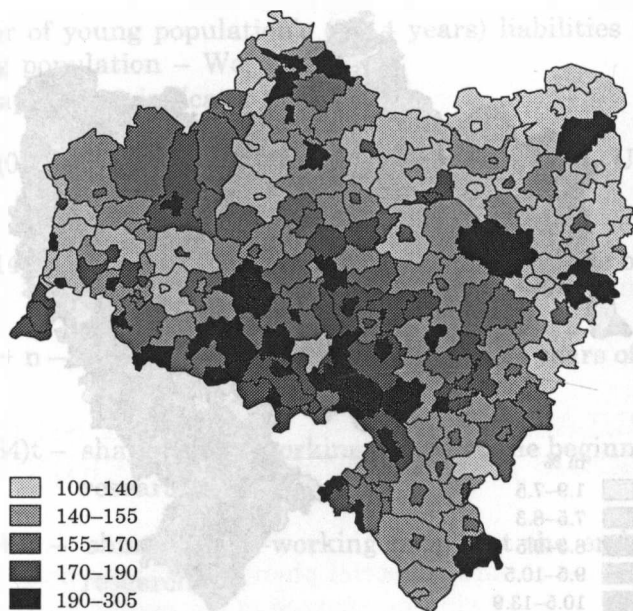
Map 3 illustrates the changeable situation from 1978 to 1998. The post-working population grew in all the towns and rural communes (in some areas, the indicators went even as much as three times up). The highest dynamics of the growth was in Wałbrzych-Jelenia Góra area and in Legnica-Głogów copper mining region. The proportion of the population of the oldest and the youngest shows that, in 1978, there were from



**Map 1.** The share of the post-working people in the population of Lower Silesian towns and communes in 1978



**Map 2.** The share of the post-working group in the population of Lower Silesian towns and communes (1998)



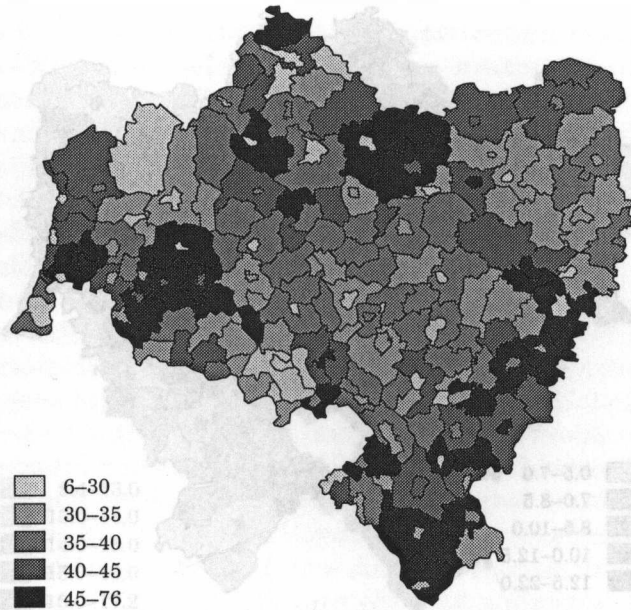
**Map 3.** Changes in the share of the post-working group in towns and in Lower Silesia from 1978 to 1998

6 to 76 old people per 100 young people (Map 4). In the region, the indicator was 36.

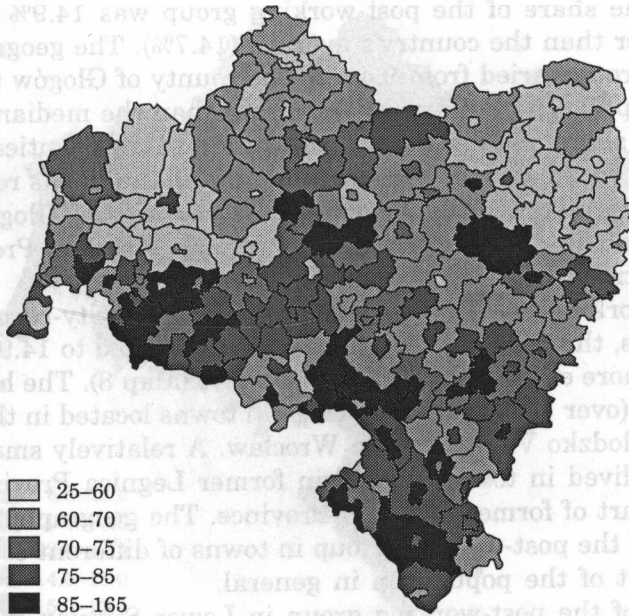
After twenty years, the indicator increased, signifying that the situation had markedly worsened. It was equal to the indicator for the entire province (1978), *i.e.* it was up twice. The values were from 25 to 165 (Map 5), and were the highest in towns and villages of the Sudeten area. In the north-eastern part of the region and in Bory Dolnośląskie, the situation was better, and the indicator was low.

The analysis of the changes in the youngest and oldest age groups of citizens (from 1978 to 1998) was based on  $W_{sd}$  demographic ageing indicator. Its median value for the entire region was 10.4. It differed considerably in different units, from 0.5 to 22. Map 6 shows that in all towns and communes its value was positive and that the population ageing process continued.

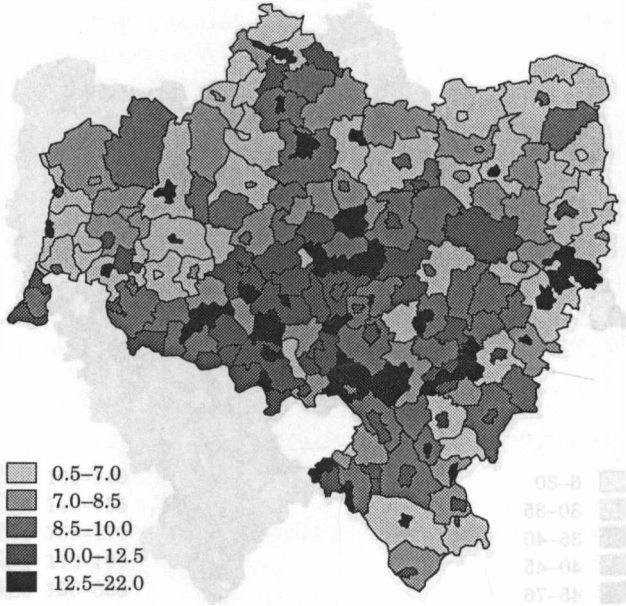
In the twenty years which we considered for the purpose of our research, the process was most intensive in the central part of Lower Silesia, and it was less intensive in the north-eastern and western areas. As a result of that, the population structure varied according to age. It was particularly evident in counties, which were established in 1999 according to the new administrative division rules.



**Map 4.** The number of the post-working people per 100 young people (age 0 to 14) in Lower Silesian towns and communes in 1978



**Map 5.** The number of the post-working people per 100 young people (age 0 to 14) in Lower Silesian towns and communes in 1998



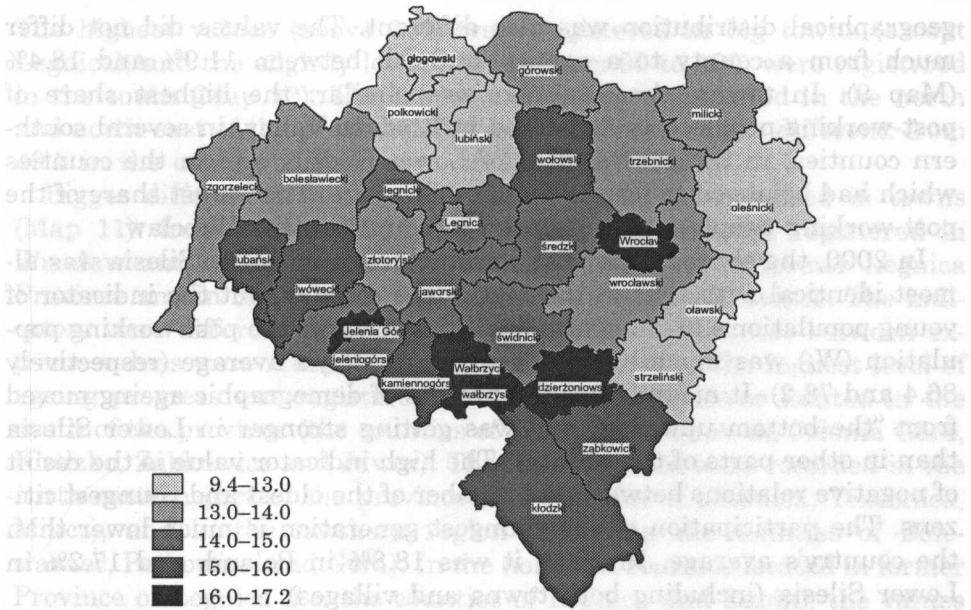
**Map 6.** The dynamics of the population ageing in Lower Silesian towns and communes from 1978 to 1998, according to  $W_{sd}$  indicator

In 2000, the share of the post-working group was 14.9% and it was slightly higher than the country's average (14.7%). The geographic location of that group varied from 9.4% in the county of Głogów to 17.2% in Wrocław (Map 7). The largest (by far larger than the median values for the province) share of old people was recorded in the counties located in the south and in the city of Wrocław. The lowest share was registered in the north of former Legnica Province (the counties of Głogów, Lubin, Polkowice), and in the eastern part of former Wrocław Province (the counties of Strzelin, Oława and Oleśnica).

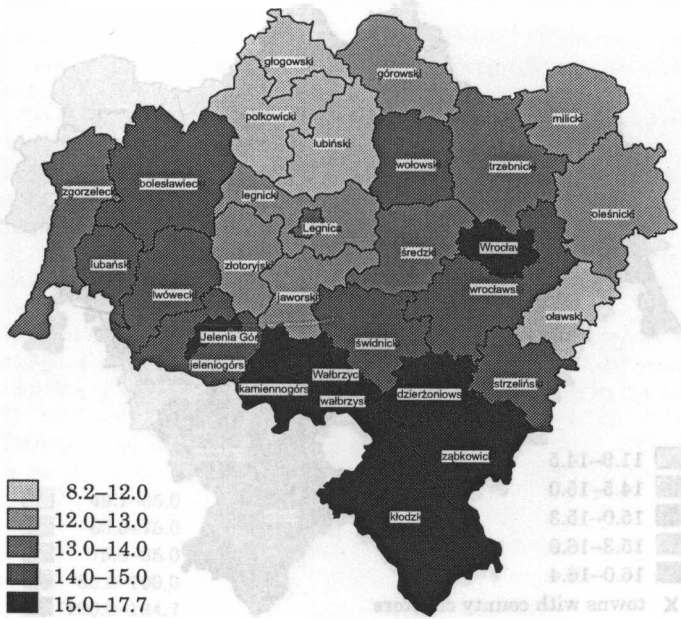
The post-working age group's share varied in the city-rural areas. In Silesian towns, the post-working population amounted to 14.9%, and the values were more extreme, from 8.2% to 17.7% (Map 8). The highest percentage rates (over 16%) were registered in towns located in the Sudeten Mountains, Kłodzko Valley, and in Wrocław. A relatively small number of old people lived in towns located in former Legnica Province and in the eastern part of former Wrocław Province. The geographical location of members of the post-working group in towns of different counties was similar to that of the population in general.

The share of the post-working group in Lower Silesian villages was recorded at 14.8% and was lower than the country's average (15.7%). The situation was diametrically different in towns and villages. The





**Map 7.** The share of the post-working population in Lower Silesia in 2000, according to counties – in general

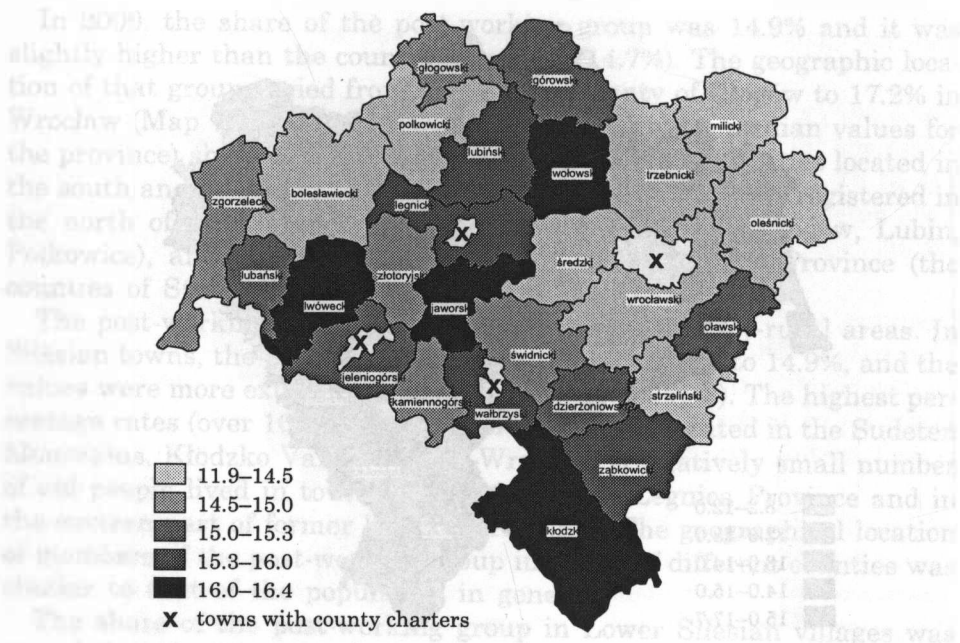


**Map 8.** The share of the post-working population in Lower Silesia in 2000, according to counties – towns

geographical distribution was also different. The values did not differ much from a county to a county, and fell between 11.9% and 18.4% (Map 9). In towns, the situation was similar: the highest share of post-working people was registered in Kłodzko Valley, in several southern counties, in the central part of Lower Silesia, and in the counties which had belonged to former Legnica Province. The lowest share of the post-working people was registered in counties near Wrocław.

In 2000, the share of the post-working group in Lower Silesia was almost identical with that in the rest of the country, but the indicator of young population's (0–14 years) liabilities towards the post-working population ( $W_0$ ) was much higher than the country's average (respectively 86.4 and 78.2). It means, that the process of demographic ageing moved from "the bottom upwards" and was getting stronger in Lower Silesia than in other parts of the country. The high indicator value is the result of negative relations between the number of the oldest and youngest citizens. The participation of the youngest generation is much lower than the country's average. In 2000, it was 18.8% in Poland, and 17.2% in Lower Silesia (including both towns and villages).

Regional differences between indicators  $W_0$  could be characterised in terms which are related to differences between groups of participation.



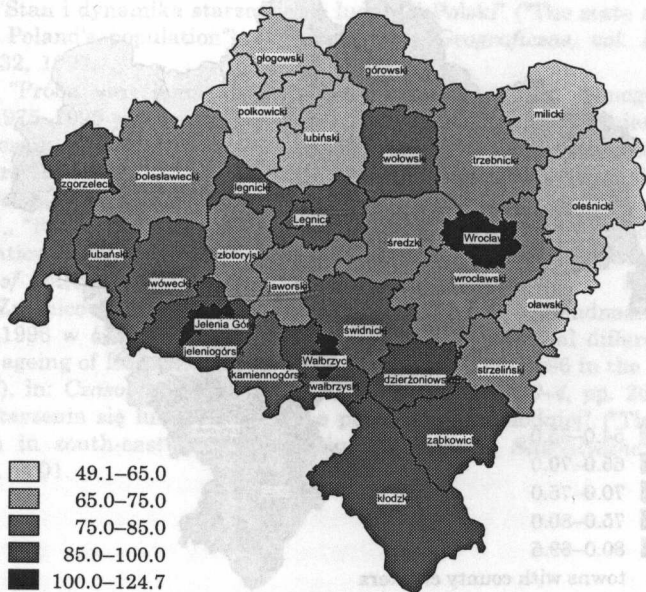
Map 9. The share of the post-working people in Lower Silesia in 2000 (according to counties) – rural areas



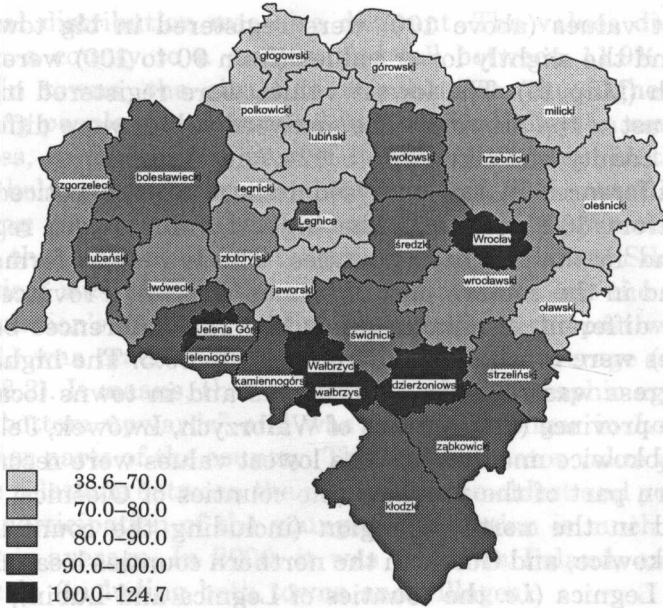
The highest values (above 100) were registered in big towns (except Legnica), and the slightly lower values (from 90 to 100) were registered in the south (Map 10). The lowest values were registered in the north and north-east of the province. The analysed values were different: from 49.1 in the county of Polkowice, to 124.7 in Wrocław.

Bigger differences in the analysed indicator were noticed in towns (Map 11): from 36.8 to 124.7. The highest values were registered in Wrocław and in the southern counties. The lowest in former Legnica Province and in the eastern part of former Wrocław Province. The indicators were different in villages (Map 12). The differences between extreme values were much smaller, from 54.0 to 89.5. The highest level of ageing progress was registered in villages and in towns located in the south of the province (the counties of Wałbrzych, Lwówek, Jelenia Góra, Kłodzko, Ząbkowice and Jawor). The lowest values were recorded in the north-eastern part of the province (the counties of Oleśnica, Trzebnica, Milicz), and in the northern region (including the counties of Bolesławiec, Polkowice, and Góra). In the northern counties located in former Province of Legnica (*i.e.* the counties of Legnica and Lubin), the values were not above the rural area average.

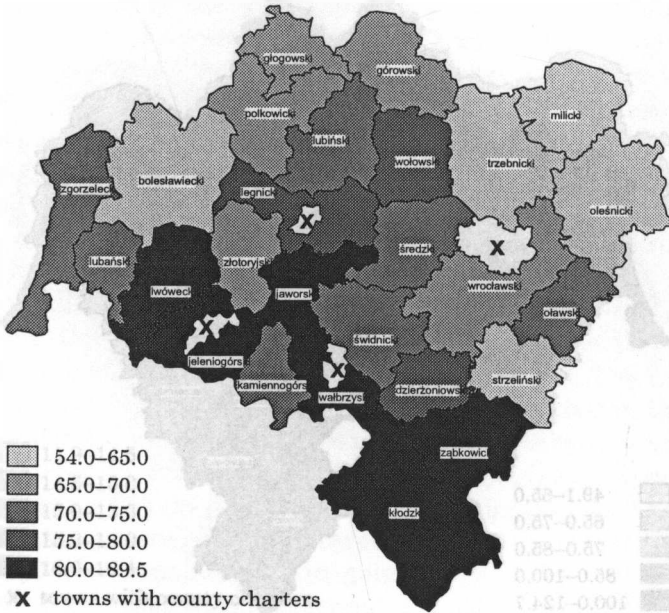
Demographic ageing, which is characterised in terms of the post-working group share, is more advanced in big towns (except Legnica), and in



**Map 10.** The number of people at the post-working age per 100 people ranging between 0 and 14 years of age in Lower Silesia in 2000 (according to counties) – in general



**Map 11.** The number of the post-working people per 100 people from group 0 to 14 years of age in Lower Silesia in 2000 (according to counties) – towns



**Map 12.** The number of people at the post-working age per 100 people from group 0 to 14 years of age in Lower Silesia in 2000 (according to counties) – villages

the southern counties. In the south, it is a result of several negative factors which can be observed both in towns and villages. The best situation is in the northern part of former Legnica Province (the counties of Głogów, Lubin, Polkowice), where the share of the post-working group is at the lowest level. In towns, the share is very low (9%), and it influences the situation in general. The second area of the share is in the counties lying east of Wrocław, and it is a result of a relatively positive situation both in towns and villages.

The analysis of the indicator of young population's liabilities towards the post-working population (Wo), presents a slightly different picture. The ageing process is more advanced when analysed from that point of view, *i.e.* when we analyse the situation without considering the share of the post-working group. The birth rate in the province is going down, and members of younger generations are less numerous, therefore the demographic ageing process is more advanced. It is more significant in big cities and in southern counties, where the birth rate is lowest.

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