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POPULATION TYPES OF SMALL TOWNS IN SILESIAN PROVINCE

ABSTRACT. This paper shows demographic problems of small towns in the aspect of their economic structure. The analysis concerns population divided into three groups including preworking-age population, working-age population and postworking-age population. The proportions of individual age groups influence productive potential of towns, therefore an attempt was made to classify the towns studied using method of sign table and rank method. The first of these methods made it possible to distinguish 6 classes and finally 4 classes of population economic structure. They include the following groups: productive population, still productive population, productive ageing population and nonproductive population. Similar classification was obtained using the second method, where also 4 population groups were distinguished. Basing on the distinguished classes, three population types of small towns were distinguished. They include prodeveloping towns which show favourable percentage of individual age groups taking into account production potential; preservative type of intermediate structure; and nondeveloping type including centres of unfavourable age structure.

KEYWORDS: population age, small towns, Silesian region.

INTRODUCTION

In the view of economic transformations, it is very important to determine the age of given population, which makes it easy to identify population resources in towns. As it is commonly known, this feature changes incessantly. Population age structure, side by side with sex structure, is the most self-evident sign of population development trend. It is also the basis to evaluate demographic potential and, moreover, it shows economic possibilities of a given town in demographic sense.

Class VI represents the type on inactive towns. The class of "children" which will make future human resources has values below the mean. Working-age population is also smaller than the mean, but in the group of retired people there is a surplus as compared to the mean, which even reaches 12%. Relations of age groups are not prodevelopmental and the towns are included in *non-productive* class of age structure. This group includes 15 towns (48.4% of the towns studied), where towns up to 5 thousand (Pilica, Koziegłowy, Wilamowice, Ogrodzienic, Szczekociny, Żarki, Krzepice) and from 5 to 10 thousand dominate (Siewierz, Koniecpol, Łazy, Poręba, Kalety). Almost half of this group is represented by towns of Częstochowa region. Most of them are municipal-rural districts.

The analysis of individual combinations of features, i.e. ++–, –+–, +–+, etc. causes many difficulties in their interpretation. This method does not differentiate the sizes of towns' features. For example, the percentage of postworking-age population in Radlin is 12.8% and in Koziegłowy 24.0%. The comparison of these values with the mean for Poland (12.1%) shows that both towns have sign +, i.e. over the mean. The differences in the size of this feature are sometimes considerable and they are not taken into account. In case of Radlin (12.8%) this value is only slightly over the mean whereas in case of Koziegłowy (24.0%) this feature is almost 100% larger than the mean for Poland. Thus, border values are not included in this method, therefore it gives only fragmentary results and misses other essential facts. Therefore in the typology of small towns according to economical structure, the same data were verified using rank method.

CLASSIFICATION OF TOWNS ACCORDING TO RANK (POINT) METHOD

The algorithm of procedure in this method is as simple as it was in the method of sign table. The same features, i.e. population in preworking age, working age and postworking age was calculated into percent and each standardised value was given a rank (point) according to direct proportionality rule – the higher value the higher rank and inversely. The population percentages in individual age groups show that not all of them are positive for town development.

Inasmuch as large percentage of preworking-age population and working-age population is favourable in towns because it determines development canons, large percentage of older population (post-working-age) causes certain consequences such as health service, or relief measures. Therefore data concerning inhabitants in preworking and working age have been called "stimulants" (they stimulate development). In contrast, the postworking-age population is treated as negative feature and it is called "destimulant" (it disturbs development).

Basing on these rules each value was given a rank according to the rule: stimulants were given directly proportional ranks (the largest value is rank 1) and destimulants were given inversely proportional ranks (the smallest value is rank 1) (Table 3).

Table 3. Classification of small towns according to population economic structure in 1999 using rank method

Town	Subregion	Age of population			Total rank	Class
		Preworking	Working	Postworking		
		Rank				
		s1	s2	d3		
Kuźnia Raciborska	K	6	2	2	10	I
Lędziny	K	8	1	1	10	I
Imielin	K	2	10	4	16	I
Skoczów	B	12.5	4	5	21.5	I
Strumień	B	1	19	3	23	I
Pszów	K	10	8	6	24	I
Radlin	K	4.5	14	7	25.5	I
Miasteczko Śląskie	K	19	6	8	33	II
Orzesze	K	3	21	10.5	34.5	II
Radzionków	K	22	5	9	36	II
Szczekociny	Cz	11	17	10.5	38.5	II
Łazy	K	12.5	15	12	39.5	II
Kłobuck	Cz	21	11.5	13	45.5	III
Kalety	K	14	18	15	47	III
Sośnicowice	K	23.5	11.5	14	49	III
Wisła	B	8	25	16.5	49.5	III
Woźniki	Cz	26.5	8	16.5	51	III
Koniecpol	Cz	15	20	18	53	III
Szczyrk	B	4.5	29	19.5	53	III
Wojkowice	K	30	3	21.5	54.5	III
Żarki	Cz	8	27.5	19.5	55	III
Toszek	K	28	8	23	59	IV
Ustroń	B	25	13	21.5	59.5	IV
Siewierz	K	17.5	22	24	63.5	IV
Krzepice	Cz	17.5	25	25	67.5	IV
Wilamowice	B	16	27.5	26	69.5	IV
Poręba	K	29	16	28.5	73.5	IV
Ogrodzieniec	K	23.5	25	27	75.5	IV
Blachownia	Cz	26.5	23	28.5	78	IV
Pilica	K	20	31	30	81	IV
Koziegłowy	Cz	31	30	31	92	IV

Explanations: s – stimulant, d – destimulant, B – Bielsko-Biała subregion, Cz – Częstochowa subregion, K – Katowice subregion. Towns arranged according to rank totals.

Source: Author's elaboration.

This procedure made it possible to obtain a synthetic feature for each town. It is a total of ranks for the three age groups studied. Basing on this, the set of 31 towns was divided into 4 classes. The sections of towns were established basing on towns' clustering.

The most favourable population structure in preworking, working and postworking age was obtained by 7 towns – 22.6% of the whole set. These centres represent class 1 and they have the smallest total of ranks, i.e. in the range of 10–26 points. This means that these towns show optimal population potential and in future they will have chances to keep this potential at such level to generate economic development. These are usually towns of strongly developed economic base, mainly in form of one large industrial plant. The class II is represented by 5 towns, which obtained total of ranks in the range from 33 to 40 points. Two of them belong to the largest towns (Radzionków and Orzesze) and two others are in the group with population between 5 and 10 thousand (Łazy, Miasteczko Śląskie).

The next section is represented by towns of class III. They obtained total ranks in the range from 40 to 55 points. This class includes almost 1/3 of the small towns studied. These are towns of average economic potential of population.

The final class – IV, includes the largest group of the towns studied, i.e. 32.4%. These are usually centres with population up to 6 thousand, mostly the smallest among small towns and they are usually districts of municipal-rural character. The proportions of individual age groups are not favourable for town development, because postworking-age population includes 15–24% of the whole population, bringing closer to the percentage of preworking-age population. The algorithm used by this method is equally simple as in the case of sign table. The same characteristics, i.e. population in preworking, working and postworking age, counted in percentage, then a rank was given for each standardised value, i.e. points proportional with the values: the higher value the higher rank, and oppositely. Examining the percentage share of population in the separate classes we should notice that not all of them are positive for the development of the town.

TYPES OF TOWNS ACCORDING TO POPULATION ECONOMIC STRUCTURE (BASING ON THE METHODS OF SIGN TABLE AND RANKS)

By comparison of the both methods an attempt was made to distinguish three types of population development in small towns of Silesian Province in 1999. This comparison confirms the fact of spatial differentiation of population age structure. The following types of towns were distinguished: developing, preservative and nondeveloping (Fig. 1). The following assumptions were made:

1) Class I in rank method overlapped with towns of class I, II, III and IV in method of sign table and the towns of such classes were included into population developing type;

2) Class II and III in rank method overlapped with towns of class V and some towns of class VI in method of sign table. The towns of these classes were distinguished as preservative class;
3) Class IV in rank method overlapped with rest of the towns of class VI in method of sign table. Because these towns showed the worst parameters in population economic structure, they were classified as nondeveloping type. Of course the assumed classification may be controversial, but it seems to be the most logical.

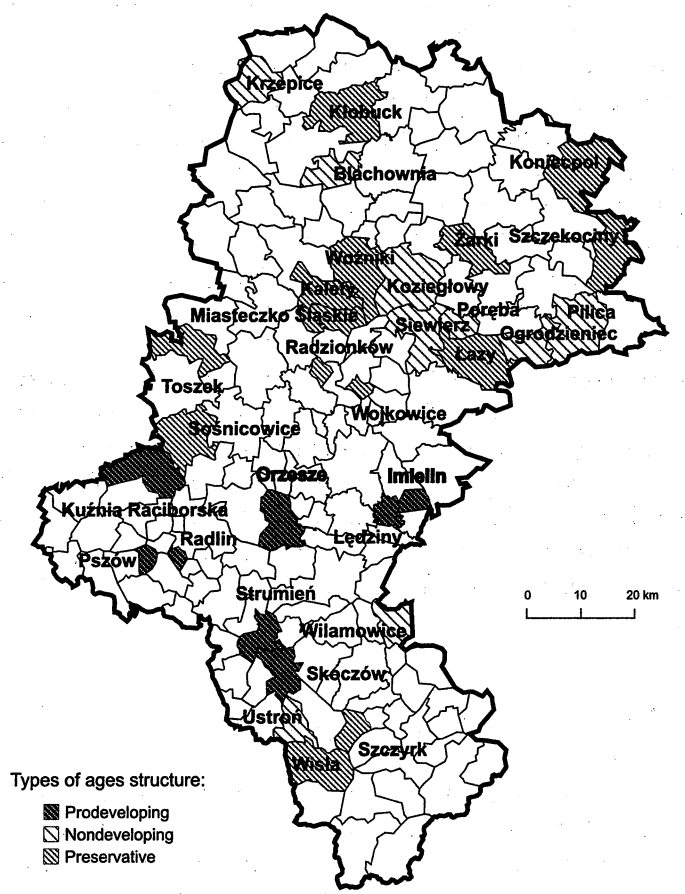

Fig. 1. Types of population development according to age structure in small towns of Śląskie voivodeship in 1999
Source: Author's elaboration.

Prodeveloping type represents the group of towns, which according to sign table belonged to class I, II (productive class) and III, IV (still productive class). At the same time, in rank method they obtained the best parameters representing

class I. The prodeveloping type is characterised by good and very good population age in economic structure. This type is represented by the following towns: Kuźnia Raciborska, Imielin, Strumień, Lędziny, Skoczów, Pszów, as well as Orzesze and Radlin. These centres developed mainly basing on strong town-creating functions based on industry. The only exception is Strumień and partially Skoczów. These towns represent units of central character, which play an important role for the surrounding rural areas. A typical feature of most of the towns of prodeveloping type is their size. These are usually large towns and the only exception is Strumień, which belongs to the group of the smallest towns in terms of their population (Fig. 1).

Preservating type is represented by the so called "towns of the centre" of partially disturbed economic structure. The towns included in this type represent according to sign table productive ageing towns; moreover Szczyrk, which represents still productive town and 5 towns from nonproductive class. All these towns belong to class II and III in rank method. This group includes 14 towns (Sośnicowice, Woźniki, Toszek, Miasteczko Śląskie, Wojkowice, Kłobuck, Radzionków, Szczekociny, Żarki, Koniecpol, Łazy, Kalety, Szczyrk, Wisła). These towns are much differentiated in terms of their size and hierarchy in settlement system and also in terms of their functions and development base (economic base).

Nondeveloping type is represented by towns which are included in the final, poorest class in both methods. Therefore it consists of considerably unfavourable towns according to analysed age parameters and show negative proportions of individual age groups. This type includes Koziegłowy, Pilica, Blachownia, Ogrodzienic, Poreba, Wilamowice, Krzepice, Siewierz, Ustroń. Most of these towns represent small units inhabited by 2–5.6 thousand people. They usually have character of municipal-rural districts and they are usually situated far from larger towns.

CONCLUSIONS

Relations of population in nonworking age (0–17 years old, 60 years old and more for women and 65 years old for men) to population in working age reveals that in future unfavourable demographic processes will occur. Age is directly associated with physical abilities of people, their activities and innovations in choosing schools, professions and ways of earning money like self-employment. The age structure influences also reproductiveness, which stimulates many other feature like running kindergartens, schools and other institutions, which give employment for local population.

The largest amount of "manpower" in working age have towns of Katowice subregion and most of them represent prodeveloping or preservative types of population economic structure (Fig. 1). These are usually larger centres which

gained independence in the 20th century due to industrial development. Working-age population in these towns exceeded 62% and even reached 65%. Towns of Czestochowa subregion show the smallest production potential in demographic terms, therefore half of the towns of this subregion represent nondeveloping type and the other half represents preservative type. Non of the towns of this subregion showed prodeveloping type. In some towns, like Koziegłowy, 70 people in nonworking age occur in 100 people in working age (0.8 people in nonworking age occur in 1 person in working age). This result is not very optimistic, because relation of working-age population to nonworking-age population should be as close as possible to 1:1. This phenomena represents derivative of changes in natural movement and results in ageing profile of population.

The towns of Bielsko-Biała subregion are very differentiated and they represent all three population types.

The studied set of towns shows proportionality in the number of towns of certain types. 14 towns shows preservative type. It should be underlined however that in future these towns will enter the group of towns of unfavourable parameters of population economic structure, i.e they will represent nondeveloping type.

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