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ANALYSIS OF POPULATION AGEING IN SLOVAKIA: TIME AND REGIONAL DIMENSIONS

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The population ageing process comprises the changes of age structure, which are indicated by the decrease in the number and proportion of children in the population and increase in the number and proportion of the higher age population categories.

The main aim of the article is to analyse the time and regional aspects of population ageing in the Slovak Republic. The changes of the population age structure in Slovakia over time are evaluated in the years 1900-2005. Regional analysis of this process is oriented to the population ageing in Slovak districts. Using the 2001 census data the regional types of ageing structure are identified by cluster analysis. The relative ageing intensity in Slovak districts between the 1991 and 2001 census is presented by using a hexagonal diagram.

Key words: population age structure, ageing from top, ageing from bottom, districts of the Slovak Republic, cluster analysis, hexagonal diagram

INTRODUCTION

The changes in the demographic behaviour, which have appeared in Slovakia at the end of the 20th and beginning of the 21st century, have been exceptionally intensive and they still attract attention of the academia as well as of the planning, governing and policy-making societal bodies. They are a part of the

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changes that have arisen in the countries of Northern and Western Europe in the second half of the 20th century and that are, with certain modifications, apparent in the countries of Southern, Central and Eastern Europe as well at the end of the century. They arguably stand for some of the most significant changes in the whole population history. This is why they have been justifiably labelled as "revolutionary" and the period of these characteristic changes is labelled as the second demographic revolution or as the second demographic transition. In a simplified way, we can understand the second demographic revolution as the complex of changes in the behaviour and value system of a population that overvalues individualism and personal freedom and at the same time these changes enfeeble the function of marriage and the family (Van de Kaa 1980 and 1987, Lesthage 1983, Pastor 1997 and 2002).

In Slovakia, the changes in demographic behaviour are visible most significantly in three interrelated areas – reproductive behaviour; the family behaviour; and ageing of the population.

The formation of a new model of reproductive behaviour is characterized by the sudden decline of the natural population growth and of the reproduction rates to levels that do not provide for the self-reproduction of the population. The intensity of fertility declines rapidly as well, while the youngest age categories of women record the highest decline. The average age of women at childbirth (particularly at the first childbirth) is rising, which can be judged as the consequence of deferment of childbirth for the higher age categories.

The changes in family behaviour are characterized by the transition from the model of early marriage to the model of late marriage. Apart from the decline of the intensity of marriage, the changes emerge through the rise of marriage age, the proliferation of cohabitating, and through the rise of the extra-marital fertility. The divorce rate shows a slight rise. A significant decline of the abortion rate is recorded, particularly of induced abortions.

The aging of the population of Slovakia appears both in the long term and over the period of the last 10 years. The recent period is characterized by ageing from bottom (i.e. the decline of the number and of the proportion of the youngest age categories) because of the decline of fertility. Ageing from top (i.e. the growth of the number and of the proportion of the oldest age categories) as a consequence of the average life-length rise is evident as well, although this does not give such a distinctive manifestation. The processes of a population ageing raise the need to deal with a whole range of serious social problems (of the economic and socio-medical character).

Two different approaches are often employed for the study of population ageing. The first approach is characterized by an effort to compare several regional population structures (the interregional analysis) focusing on the differences in the age structures of their respective populations. The latter approach focuses on the temporal changes in the age structures of just one regional population unit (the intertemporal analysis). However, the profitability and the need for the combined approach are apparent in geographical analyses. If ageing is to be understood as a process, its analysis must be grounded in its temporal progress, considerably spatially-differentiated.

TEMPORAL POPULATION AGEING

The age structure, as a fundamental and principal feature of any population (alongside the sex structure), is the result of the effects of the population processes in the last century and it will directly affect the course of these processes for the next century. The proportion of children in Slovak population has diminished from 37.0 % (1900) to 19.0 % (2001). The number of the population over 65 years has grown to 484.8 thousand citizens; the proportional growth means from the value of 4.7 % to 11.5 %. Applying the UN classification[1], we can say that Slovakia belongs to the old populations with the value of more than 7 % (since 1961).

The ageing of the Slovak population is evident and it is present in the sense of its basic definitions. Tab. 1 also confirms the total growth and the decline of the number of subject age groups – the processes of ageing from the bottom and from the top happens simultaneously.

The core of our evaluation focuses, however, on the population ageing in the time succession of the period 1950-2005 where we can address the changes in a more detailed way.

Tab. 1. Indicators of population age structure in SR

rok	0-14 (number in thousand)	0-14 (%)	65+ (number in thousand)	65+ (%)	80+ (number in thousand)	80+ (%)	Is (%)	Ms (%)
1900	1,033	37.0	131	4.7	15	0.5	12.8	44.70
1910	1,104	37.8	148	5.1	16	0.6	13.4	46.30
1921	980	32.7	160	5.3	16	0.5	16.8	30.70
1930	1,062	31.9	200	6.0	21	0.6	19.2	28.80
1950	995	28.9	230	6.7	30	0.9	23.2	18.60
1961	1,315	31.5	292	7.0	39	0.9	23.2	19.60
1970	1,233	27.2	418	9.2	50	1.1	33.6	9.50
1980	1,302	26.1	519	10.4	77	1.5	39.7	3.50
1991	1,314	24.9	543	10.3	104	2	42.4	0.70
2001	1,015	19.0	611	11.5	102	1.9	60.2	-14.30
2002	975	18.1	616	11.5	115	2.1	86.5	-17.59
2003	944	17.6	620	11.5	122	2.3	90.1	-17.02
2004	919	17.1	626	11.6	127	2.4	93.9	-21.98
2005	894	16.6	633	11.7	131	2.4	97.3	-24.11

Source : Verešík, J. (1974)., FEDERÁLNÍ STATISTICKÝ ÚŘAD (1985). Historická statistická ročenka ČSSR,
ŠÚ SR (1992). SĽDB 1991, ŠÚ SR (2002). SODB 2001.
ŠÚ SR (2003-2006).
Is (ageing index) = (Population 65 + / Population 0-14) * 100
Ms (Billeter´s index) = ((Population 0-14 – Population 50+) / Population 15-49)* 100

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[1] The UN classification – the ratio of the population over 65 years is the key:
  1st stage – a young population: less than 4 %,
  2nd stage – a mature population: 4-7 %,
  3rd stage – an old population: more than 7 %.

Ageing from bottom (Fig. 1)

The proportion of the child constituent of the population (0-14 years old) de-creased from 29 % in 1950 to 16.6 % in 2005. In the period 1961-1991, the child constituent made up more than a quarter of the whole population. In total numbers, the maximum of children is recorded in the years 1961-1964 and 1985-1988 with more than 1,300,000 children in the population. The absolute peaks of the number of children are direct consequences of the increased num-ber of births.

The first peak is a consequence of the improved socio-economic conditions immediately after the Second World War. We can thus identify a compensative period in the population course of Slovakia that is characterized by positive fea-tures in population reproduction (the increase of natality, fertility, the marriage rate and the natural population growth) and which lasted until the middle of the 50's. (Vaňo ed. 2000).

The second peak is related to the increased fertility in 1973-1979. This is a secondary increase, given by a high number of women in the age of the highest fertility and reinforced by pro-natal policies (Vaňo 2001).

In the last fifty years, the average annual decline of the proportion of chil-dren is 0.2 %. The average total decline was 2 108 children. The most signifi-cant decline is in the period of 1990-2005 when we register the decline of more than 2.6 % per year. The number of the child constituent reached the historical minimum in 2005 (894,0 thousand). This is a consequence of the radical decline of natality in the 1990s.
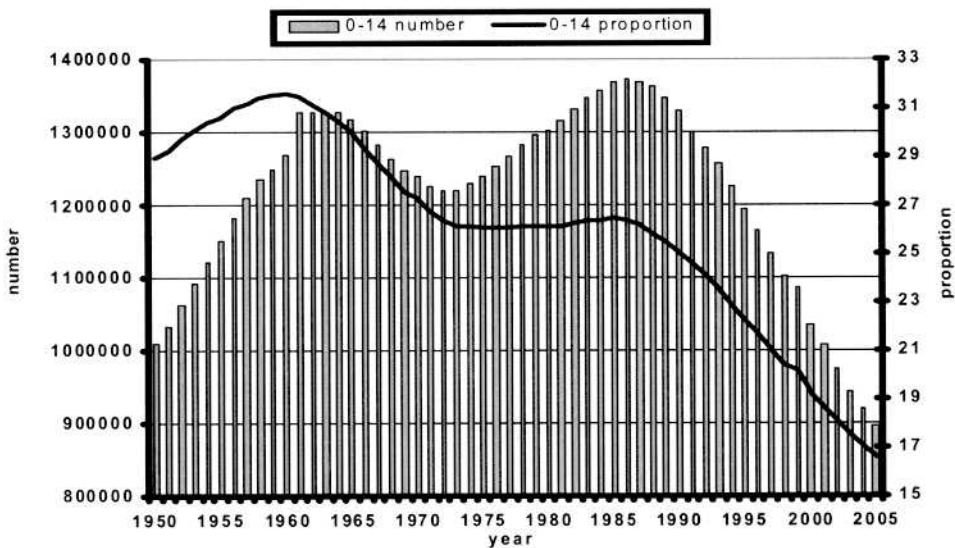

Fig. 1. Pre-productive age group in SR (1950-2005)

The productive age group of the population (Figs. 2 and 3)

The population of the age of 15-64 stands for the productive age group. Its size increased to almost 42% in the analysed period. The total number moved from 2,242 thousand in 1950 to 3,849 thousand in 2005.
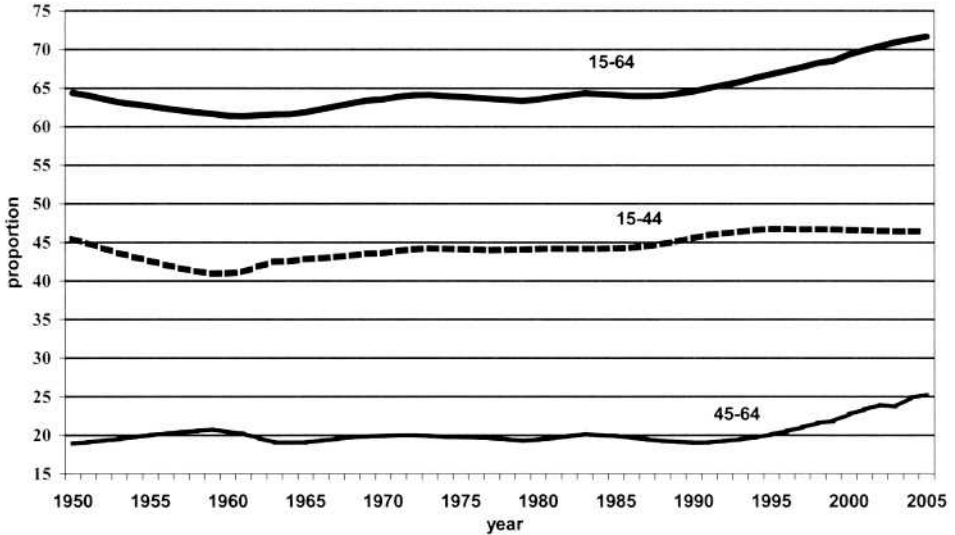

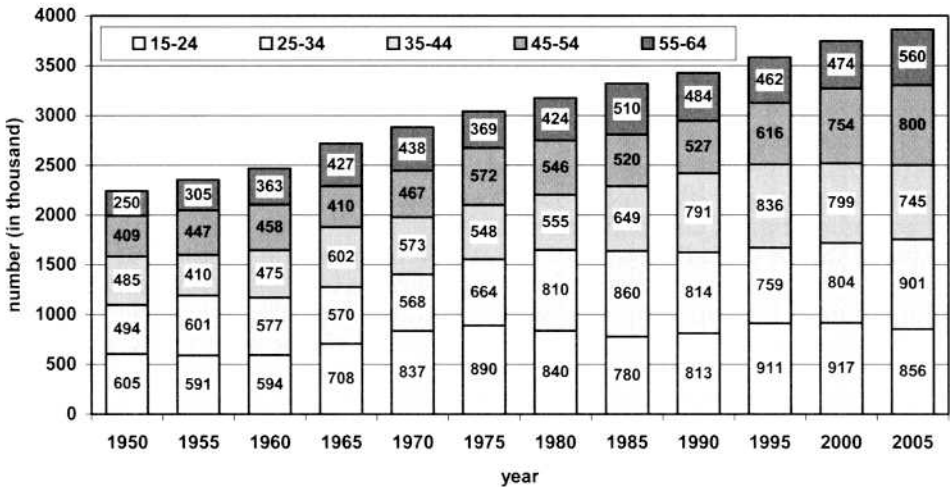
Fig. 2. Productive age groups in SR (1950-2005)

Fig. 3. Development of selected productive age categories in SR (1950-2005)

We can see the decline of the proportion of this age group in the course curve in the 60's, when the low number of people born during the Second World War progressed here. Since 1988, the ratio of this group has incessantly grown. There was a growth of more than 10 %, that is 479,000, in the number of people of working age in 1988-2005. The reason for this growth is based on the structural composition, as the two large "baby-boom" cohorts, born after the Second World War and in the 70's belonged to the age of labour activity. The average annual coefficient displays a continual growth of this age group as its level for the period of 1950-2005 was 1.0 % and the average annual total growth in this group was 28.9 thousand persons.

The proportion of the two age groups (the age of 15-44 and of 45-64) within the discussed group was roughly balanced at the 70:30 ratio until 1994. The age group of 15-44 is the part of the population with the highest reproductive potential and its proportion within the whole population was about 43-45 % with a continuously rising trend since the 70's. Later on, the decline of the proportion in the 15-44 years category is recorded, displaying the more rapid growth of the population aged over 45 years, as the age-groups born after the Second World War shifted into this category. These are the age groups of the population that will move to the post-productive age group in the following period and they will accelerate the process of ageing.

Ageing from top (Figs. 4 and 5)

To specify the old population contributes to the viewpoint on the up-to-date age of retirement. We have evaluated age groups of over 60 years, over 65 years and over 80 years. All selected categories register their maximum levels in 2005, which is caused by the improvement of mortality circumstances, by the prolongation of life expectancy and by the shift of the mentioned age groups (waves).

In total, the number of the population over 60 years had been increasing by an average of 0.7 % per year in 1950-2005.

The number and the proportion of the age group over 65 years bear a temporal progress similar to the previous age group. For the possibility to compare the rates internationally, this age group has a more substantial meaning. The curve of the proportion of this population declines in 1979-1984, as the result of the move of the very small number of persons born during the First World War into this age group. A lower share of these age groups is also distinctive due to the proportion of the category over 80 years, where a decline is evident in 1998. The average annual total growth is 7.3 thousand old persons in the period of 1979-1984, meaning that the number of old people (over 65 years) had increased by an average of 1.8 % per year. Since 1950, the number of old people in the population of Slovakia increased from 232.7 thousand (6.7 %) to 632.6 thousand (11.7 %); for which means growth by more than the 2.5 times.

The population of the age over 80 years records the proportional growth from 0.9 % (1950) to 2.4 % (2005). This age category records the fastest growth of all the already-evaluated categories in the period 1950-2005. Its total number had increased of more than 98 thousand; that means by an average of 2.7 % per year.
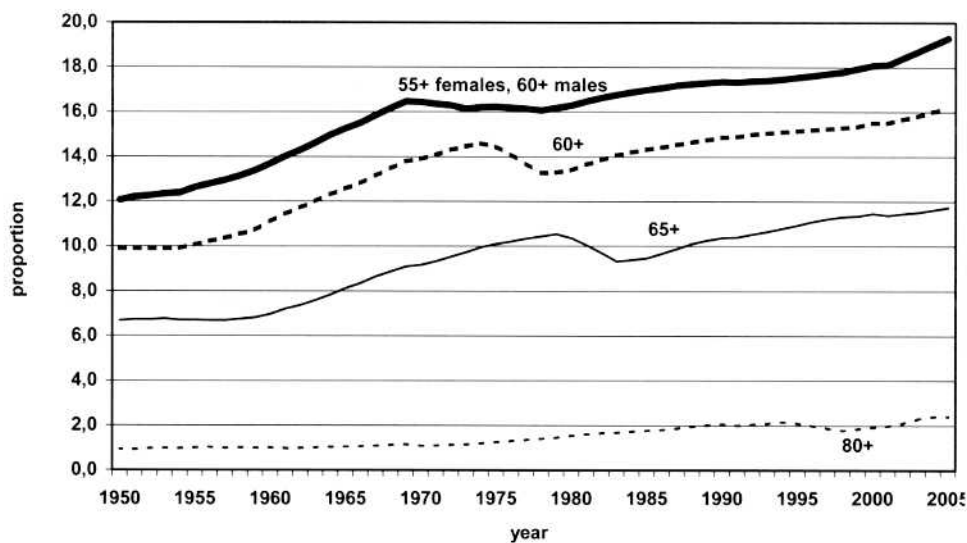
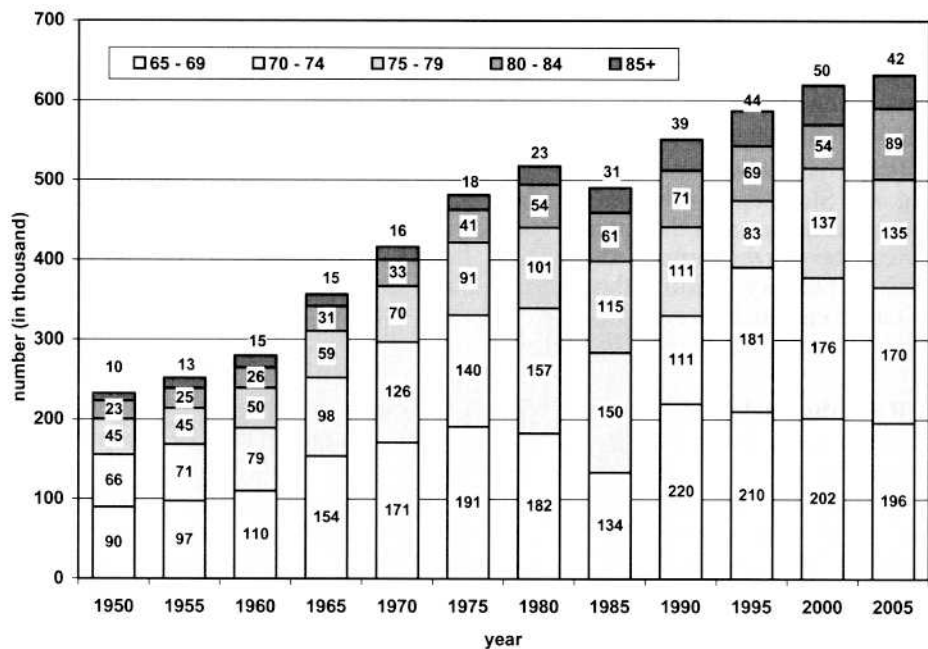Fig. 4. Post – productive age groups in SR (1950-2005)

Fig. 5. Development of selected post – productive age categories in SR (1950-2005)

Tab. 2. Average annual coefficient growth (in %) of selected age groups in SR

	0-14	15-64	60+	65+	80+
1950-1960	0.22	0.90	2.50	1.80	2.90
1960-1970	-0.21	1.50	3.50	4.00	2.10
1970-1980	0.48	0.90	0.58	2.10	3.60
1980-1990	0.20	0.80	1.66	0.50	3.80
1990-2005	-2.64	0.80	0.98	0.96	1.30
1950-2005	-0.20	1.00	0.70	1.80	2.69

Source: own calculation

THE POPULATION AGEING OF SLOVAKIA FROM A REGIONAL POINT OF VIEW

Any higher territorial unit can be characterized by the presence of different population structures in its particular sub-units. The difference is apparent in terms of different numbers of population, its dynamics, structure and migration. The level of the differentiation of demographic behaviour in particular territorial units of Slovakia is evident from the changes of age structures and from the different levels of ageing. Studies of regional differentiation employ mainly the information from the 2001 Census (and this is compared in some parts with the results from the 1991 Census).

Káčerová (2005) and Mládek et al. (2006) delineate the regional types of districts according to the level of ageing in 2001[2]. The results of both approaches to the evaluation of population ageing gave similar results.

Employing cluster analysis, the authors assign four regional types of districts (Fig. 6). Slovakia can be demarcated into two large regional units in terms of the age structure and the intensity of the ageing. In terms of typology, the border can be drawn through the line of the districts of Púchov, Žilina, Ružomberok, Liptovský Mikuláš through Brezno to Rožňava. To the north of this line, we can consider *the regional type of a young age structure;* to the south of the line (including these districts) we identify *the regional type of an old age structure.*

Regarding selected indicators of the age, national and religious structures of the population, we have derived the following characteristics of the particular regional types.

The regional type of a young age structure. It consists of two units. The first one is situated in the north of Slovakia – between Považská Bystrica and Tvrdošín. The second one covers the whole east of Slovakia apart from the districts of Medzilaborce and Sobrance (which have the oldest age structure in Slovakia). The young age structures of these units make a potential for their progressive reproduction (manifested in the values of natural increase). Such a character of the development is also supported by specificities of the national

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[2] Káčerová (2005) employed the Ball Method, Mládek et al. (2006) employed the cluster analysis method; we present its determination.

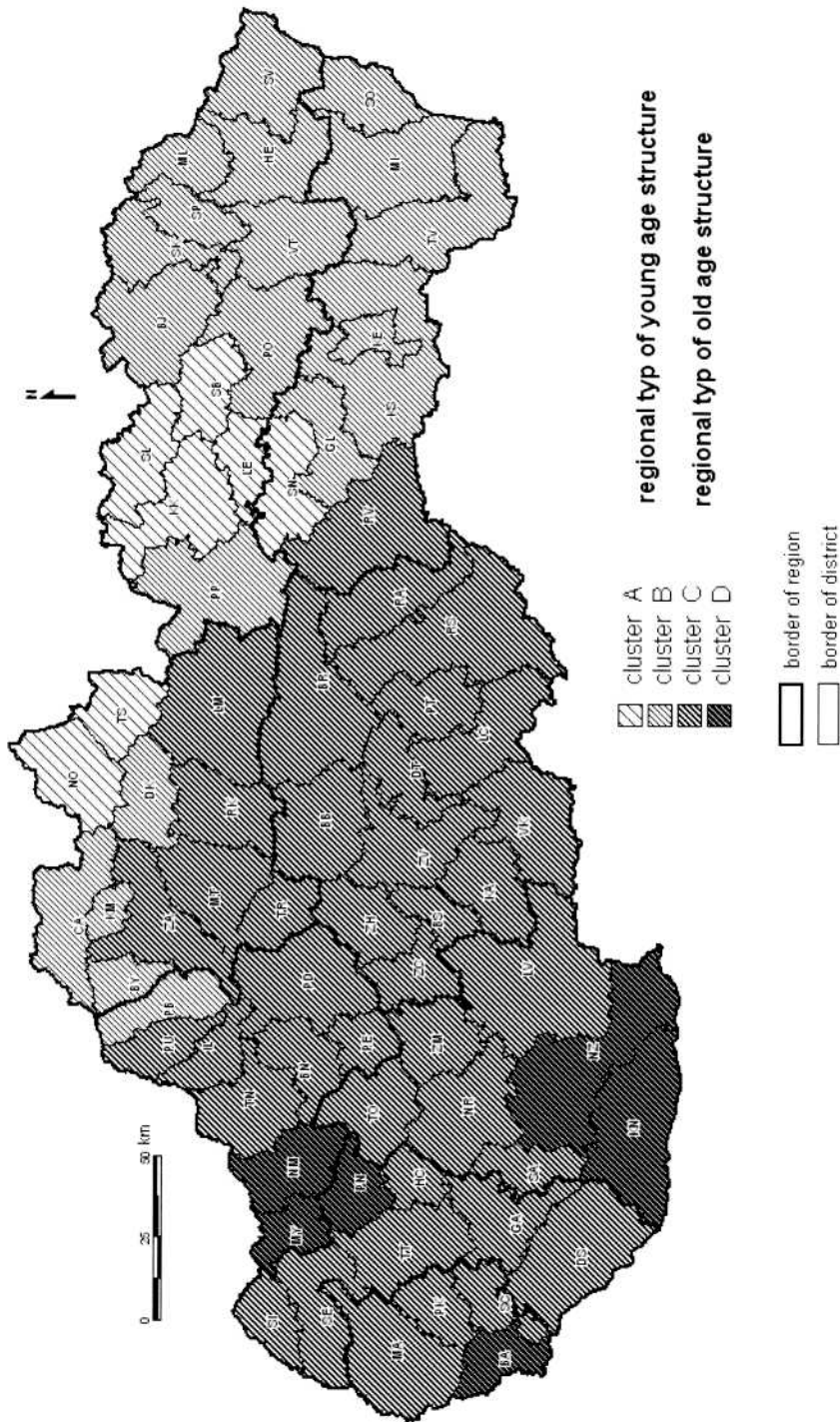Fig. 6. The districts typology according selected age structure indicators in the Slovak republic (2001)

regional typ of young age structure

regional typ of old age structure

cluster A
cluster B
cluster C
cluster D

border of region
border of district

and religious structure. An impact of the higher level of religiosity is present here (more than 90 % of the population in the regions of Orava and Kysuce are religious). These are mostly Roman Catholic and Greek Catholic populations with the typical higher level of natality and families with more children.

The regional type of an old age structure. The districts of this regional type are situated in the whole of Central, Southern and Western Slovakia. These regional types stand for comparatively older age structures. Similarly to the young regional types, we can talk about the influence of the age structure having a negative impact on the intensity of natality and natural increase. The evidence can be found in the negative values for the natural increase of the population of this regional type. Again, we can consider the impact of the religiosity and of the national structure on the population ageing. The populations of Hungarian nationality with a higher proportion in the southern districts mostly avow an affiliation with Reformed Christian churches preferring a lower intensity of natality and the model of a single-child family. The same attitude towards the extent of a family is shared by the Evangelical religion of Augsburg Confession believers, having a high average proportion in several districts. A similar character of the reproductive processes can be also seen in the population without any confession. The higher level of urbanization in Western Slovakia arguably contributes to the more intensive process of ageing. The parameters for migration imply, paradoxically, that the young regional type is losing due to migration, while the old regional type is achieving a positive increase by migration.

Changes in the proportions of particular age groups play a significant role in assessment of the process of ageing – both in absolute and relative terms. One of the methods[3] enabling the study of temporal and spatial differences in population ageing was employed by Sonis (1981). Podolák (1998) employed it for the cities in Slovakia with more than 10,000 citizens and Pavlíková, Mládek (2001) and Mládek (2004) used it for the set of European states.

We have processed the change of the proportion of the three vector groups in the set of districts of Slovakia, giving the following vectors: $p = 0\text{-}14$, $q = 15\text{-}64$, $r = 65+$ (share in %). We have used the data from the censuses in 1991 and 2001 (a recalculation of the data from 1991 was necessary, regarding the contemporary administrative organization, Bratislava and Košice have not been segmented in to districts, they have been evaluated as whole cities).

The interpretation of particular combinations of differences enables us to identify three main types of changes in vector structures (Tab. 3) as determined by Pavlíková and Mládek (2001).

The first type (A) is represented by districts that bear features of a significant ageing of the population. It is the most common feature of Slovak districts in the period 1991-2001. It is present in 67 districts, while in 65 districts this stands for the relative ageing from bottom and top and in 2 districts (Levice and Poltár), it is just ageing from the bottom.

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[3] This method is based on the characteristics of regions (states, districts) using a relative proportion of the three important population age categories (under 15 years, 15-64 years and over 65 years) and their changes in the course of one or more periods. It is based on the comparison of age structures in time as their changes characterize the process of ageing. Such a comparison results in the vector (Dp, Dq, Dr) characterized by the triad of values, giving information about a relative ageing of the population. In the case that (Dp < 0), we identify the ageing from the bottom, if (Dr > 0) it is ageing from the top.

The second type (B) is represented by districts where the population became younger. It is indicated by the increase of the proportion of children and by the decline of the proportion of the population over 65 years, or at least by one of these changes. There is no district belonging to this category.

Tab. 3. Type of districts by intensity of population ageing (younging) in SR (1991-2001)

Type of districts	class	process of ageing (younging)	vectors p, q, r *	number of districts
	I.	Ageing from bottom and top	- + +	65
A. Population with prevalence of ageing			- - +	0
			- 0 +	0
	II.	Ageing from top	0 + +	0
	III.	Ageing from bottom	- + 0	2
	IV.	Younging from bottom and top	+ + -	0
B. Population with prevalence of younging			+ - -	0
			+ 0 -	0
	V.	Younging from bottom	+ - 0	0
	VI.	Younging from top	0 + -	0
C. Mixed types of populations	VII.	Younging from bottom, ageing from top	+ - +	0
	VIII.	Ageing from bottom, younging from top	- + -	5
	IX.	Stable population	0 0 0	0

Source: Pavlíková, Mládek (2001), own calculation

* + increase of vector, - decrease of vector, 0 no change

The third group (C) is represented by districts with the mixed type of ageing of their populations. Stable populations and populations with a combination of antagonistic progress-changes of the proportion of age groups belong here. We register 5 districts where we identify ageing from the bottom and becoming-younger from top. These are: Banská Stiavnica, Krupina, Rimavská Sobota, Veľký Krtíš, Revúca. Fig. 7 – the hexagonal diagram displays the positions of the districts regarding the evaluated vectors.

Each of the 72 spatial units in the assessed decade manifests a decline in the proportion of the population aged 0-14. This is a consequence of an intensive decline of the natural reproduction in the 1990's. The intensity of this decline is different as the spatial image confirms (Fig. 8). The average value of the decline for the whole Slovak Republic is 5.9 percent. The areas of the Bratislava and Trnava regions (without the district of Galanta) and the series of districts from Nitra through Prievidza, Žilina, Dolný Kubín to Poprad record the most significant decline of the child constituent. We register the highest decline (in percentage) in Bratislava (-8.8 percent point) and in the districts of Banská Bystrica (-8,0 percent point), Ilava (-7,8 percent point), indicating the most intensive ageing from the botttom. In contrast, we see the lowest decline (less than 3 percent point) in the districts of Sabinov (-2,5 percent point), Gelnica (-2,4 percent point) and Sobrance (-2,3 percent point, meaning the least intensive ageing from
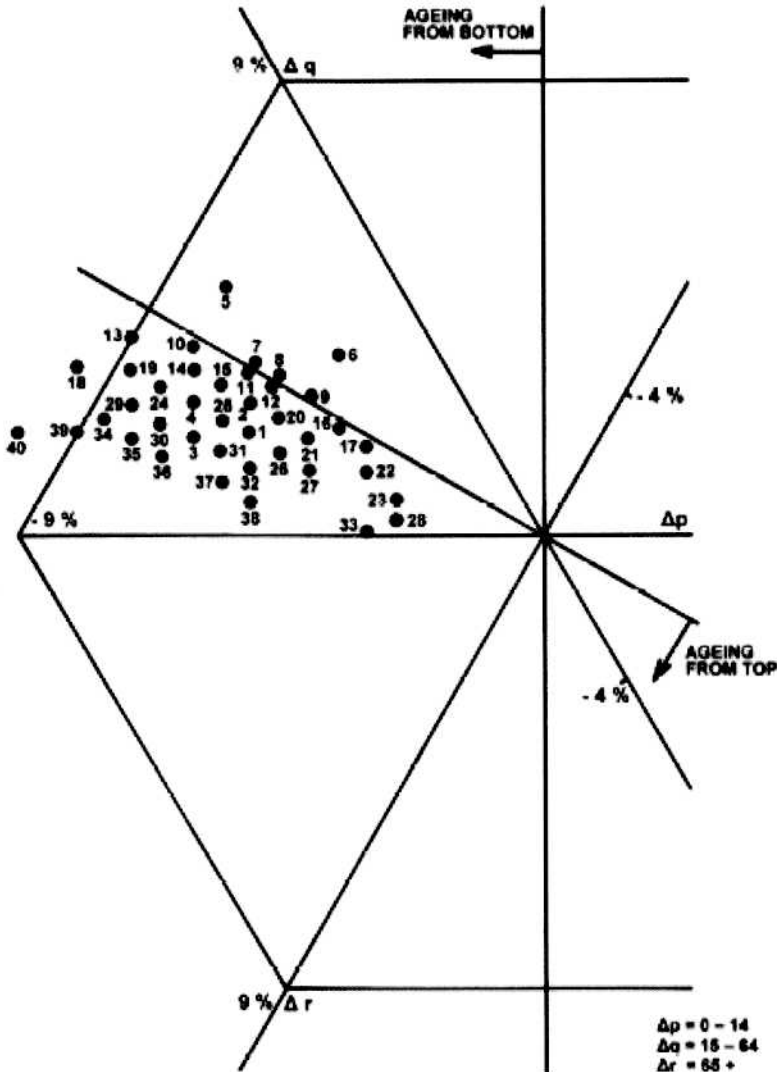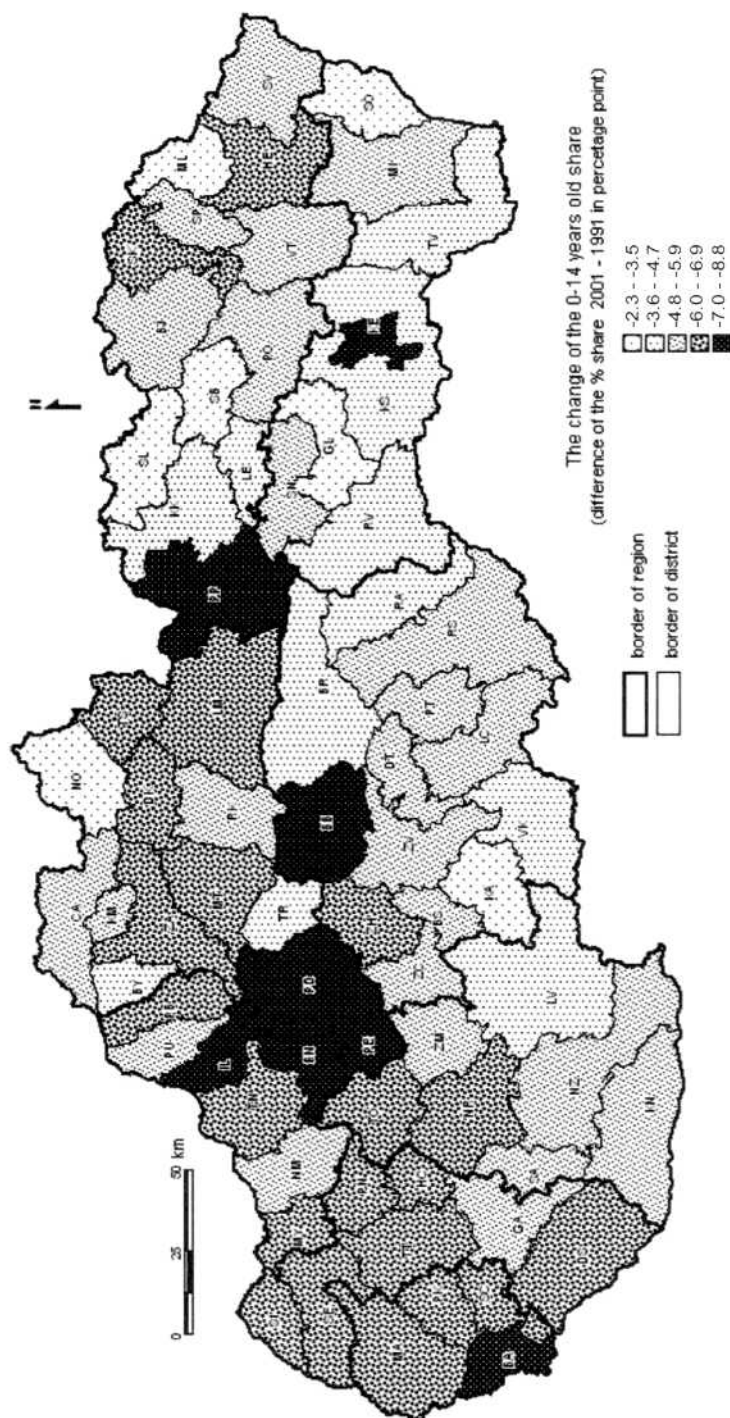
Fig. 7. Age population structure changes of Slovak districts (1991-2001)

1. Zlaté Moravce, Bardejov, Stropkov, Spišská Nová Ves, Čadca, Detva, 2. Michalovce, Lučenec, Ružomberok, 3. Žilina, Nové Mesto nad Váhom, Humenné, Žiar nad Hronom, Svidník, Piešťany, 4. Liptovský Mikuláš, Tvrdošín, Senec, Galanta, Myjava, Považská Bystrica, Zvolen, Nitra 5. Banská Štiavnica, 6. Krupina, 7.Rimavská Sobota, 8. Veľký Krtíš, 9. Revúca, 10. Senica, 11. Poltár, 12. Levice, 13. Malacky, 14. Skalica, 15. Nové Zámky, Žarnovica, 16. Kežmarok, Košice-okolie, 17. Stará Ľubovňa, 18. Banská Bystrica, 19. Topoľčany, Trnava, Bánovce nad Bebravou, 20. Trebišov, 21. Rožňava, Levoča, 22. Námestovo, 23. Sabinov, 24. Pezinok, 25. Vranou nad Topľou, 26. Trenčín, Brezno, 27. Bytča, 28. Sobrance, Gelnica, 29. Prievidza, 30. Hlohovec, Dolný Kubín, Dunajská Streda, 31. Komárno, 32. Prešov, 33. Medzilaborce, 34. Poprad, 35. Košice, Partizánske, 36. Martin, Trenčín, 37. Púchov, 38. Kysucké Nové Mesto, Snina, 39. Ilava, 40. Bratislava

The change of the 0-14 years old share
(difference of the % share 2001 - 1991 in percetage point)

- -2.3 - -3.5
- -3.6 - -4.7
- -4.8 - -5.9
- -6.0 - -6.9
- -7.0 - -8.8

border of region

border of district

note: districts of Košice and Bratislava ale evaluated as a whole

Source: Eras Data Pro
ŠÚ SR (2002),SODB 2001

Fig. 8. Intensity of relative population ageing from the bottom in Slovak Republic (1991-2001)

the bottom . The least intensive decline of the child constituent is also registered in the districts with the highest proportion of this age group in the long term (Námestovo, Sabinov, Stará Ľubovňa). The evenly low decline can also be seen in the districts where an advanced process of ageing can be seen on a long term basis (Medzilaborce, Sobrance and Krupina).

The change in the proportion of population aged of 15-64 is displayed in Fig. 9. The proportion of this age group has increased in all districts, but the intensity is differentiated. The highest increase (more than 5.5 percent point) is found in ten districts, six of them located in Western Slovakia between Bratislava and Skalica. The same intensity is shown by the districts of Topoľčany, Bánovce nad Bebravou, Banská Štiavnica and Banská Bystrica. On the other hand, the lowest increase of the proportion can be found in two districts of Northern Slovakia – Námestovo, Kysucké Nové Mesto; and five districts in the east of the country: Medzilaborce, Sobrance, Svidník (all of them situated on the borders), Gelnica and Sabinov. The district of Medzilaborce is the only one with an absolute decline of this age group. The increase within the population of the whole of Slovakia is 4.7 percent point.

The change in the proportion of people over 65 years in districts is not so unambiguous (Fig. 10). We register a decline in the proportion of population over 65 years in five districts of the southern part of Central Slovakia (Krupina, Banská Štiavnica, Veľký Krtíš, Rimavská Sobota and Revúca – the highest decline (1.1 percent point) is in Krupina), which indicates the population becoming younger from top. The districts of Poltár and Levice show the null growth. All the remaining districts recorded an increase in the proportion of the old population in the period 1991-2001, indicating the ageing of their population structures. The highest increase in the proportion of this age group (more than 2.3 percent point) can be seen in Bratislava and in the districts of Partizánske and Ilava. The value of the growth for the whole Slovakia is 1.2 percent point.

CONCLUSION

Population age structure and processes of its formation can be regarded as demographic phenomenon of a rather high degree of complexity. Unlike the numerous group of phenomena that relate only to a certain part of a population (marriage, divorce, fertility, education, etc.) formation of the age structure and its changes concern all inhabitants. The population age structure complexity is also manifested in its multiple relationships with many demographic and social phenomena. The development of the basic population processes, such as natality, mortality and migratory movements is reflected in the age structure. On the other side, the age structure in every population can remarkably affect the development of the level of many population phenomena and processes (apart for the above-mentioned, marriage, labour potential, etc.).

The complexity and importance of the population age structure is also reflected in the relatively extensive set of methods and techniques, by means of which it is studied. In this set there are several statistical and graphical procedures that differ in intensity with respect to the collection and processing of the basic statistical information as well as in interpretation of the statistical and graphical evaluations.
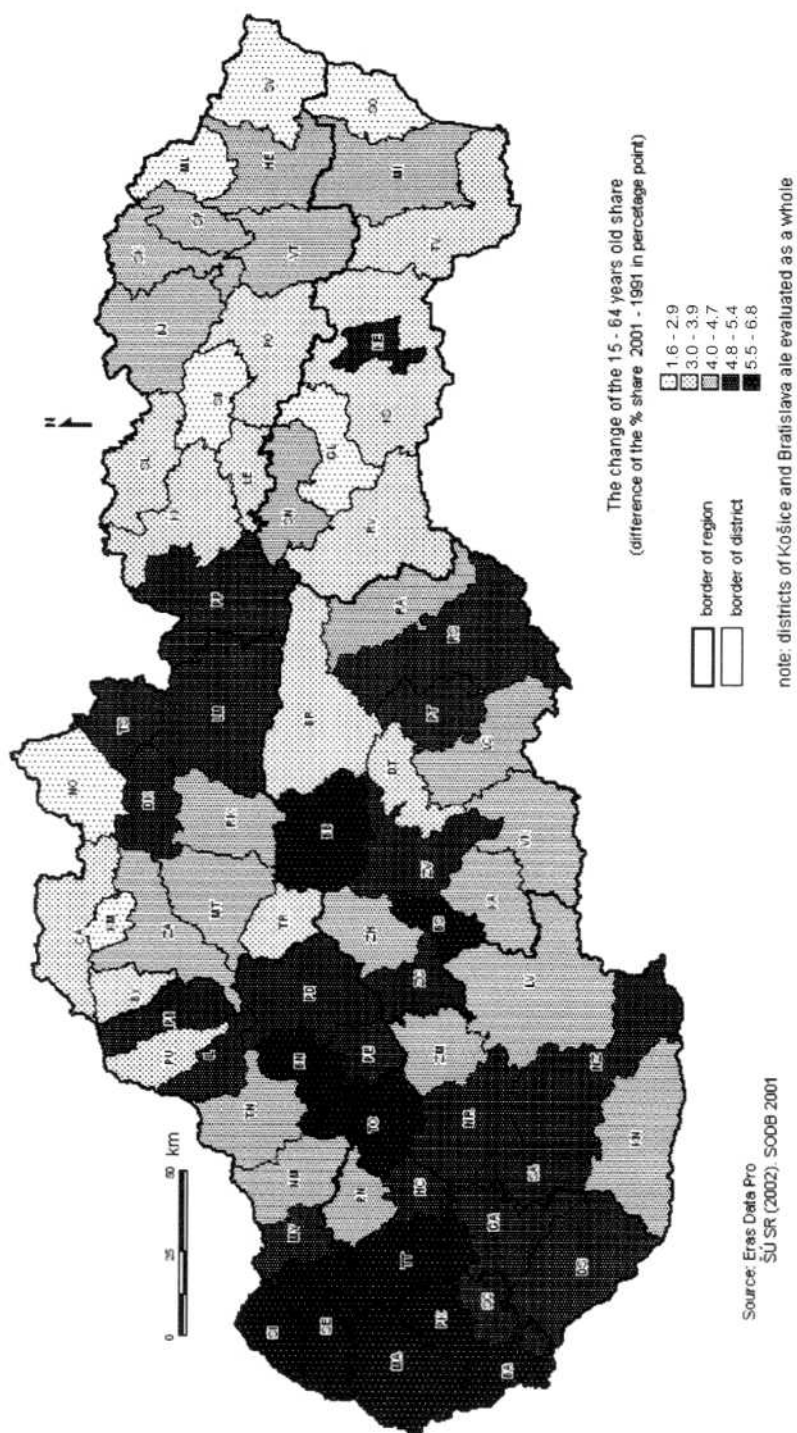
The change of the 15 - 64 years old share
(difference of the % share 2001 - 1991 in percetage point)

- 1.6 - 2.9
- 3.0 - 3.9
- 4.0 - 4.7
- 4.8 - 5.4
- 5.5 - 6.8

border of region

border of district

note: districts of Košice and Bratislava ale evaluated as a whole

Source: Eras Data Pro
ŠÚ SR (2002). SOOB 2001

Fig. 9. Change of productive age group intensity in Slovak Republic (1991-2001)

The change of the 65 + years old share
(difference of the % share 2001 - 1991 in percentage point)

-1.1 - -0.1
0.0 - 0.6
0.7 - 1.2
1.3 - 1.8
1.9 - 2.5

border of region
border of district

note: districts of Košice and Bratislava ale evaluated as a whole

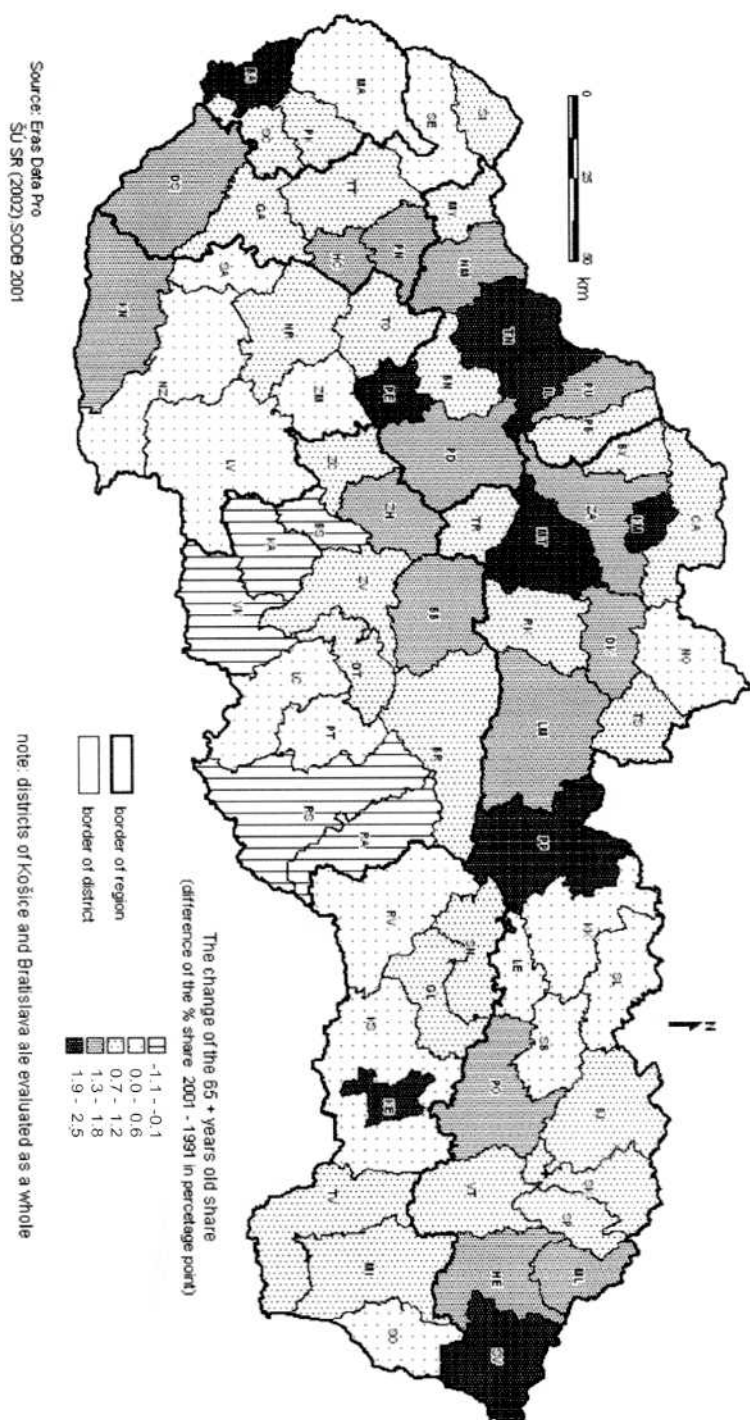Source: Eras Data Pro
ŠÚ SR (2002), SODB 2001

Fig. 10. Intensity of relative population ageing from the top in Slovak Republic (1991-2001)

The population ageing processes are making it necessary to solve a whole series of social problems, recently found mainly in developed countries. They can be ordered into two areas even if they overlap each other.

The first area comprises problems of an economic character. In the first place this means creating the economic conditions, in which all the basic and specific needs of the non working pensioners will be satisfied. With a growing proportion of this population it will be more complicated to create options for additional exploitation of the abilities and knowledge of the elderly population.

The second area is problem of a social-medical character. Reduction of the income of this population should not radically limit its needs. Subsistence and the social services are extraordinarily important Widened health care should include the qualitative as well as the quantitative side. It will be desirable to provide for a widened network of specialized facilities for treatment of old people and chronic ally ill people. This means widening the geriatric departments, preparing the physicians and health workers for treatment of this group of people, including psychological workplaces, and widening the preventive activity. Special are the requirements for housing of the old population. It is necessary to consider alternative solutions − constructing old people's homes of different types, conditions for the existence of multigeneration families, providing nursing services.

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POPULAČNÉ STARNUTIE SLOVENSKA, ČASOVÁ A PRIESTOROVÁ DIMENZIA

Starnutie obyvateľstva Slovenska sa prejavuje ako v dlhodobom trende, tak aj v období posledných 15 rokov. Práve posledné obdobie charakterizuje starnutie zdola (t. j. pokles počtu i podielu obyvateľov najmladších vekových kategórií), zásluhou poklesu plodnosti. Starnutie zhora (t. j. rast počtu i podielu obyvateľov najvyšších vekových kategórií) ako dôsledok predlžovania veku je taktiež evidentné, aj keď jeho prejavy nie sú tak výrazné. Procesy starnutia obyvateľstva vyvolávajú potrebu riešiť celý rad závažných sociálnych problémov (ekonomického a socio-medicínskeho charakteru).

Často sa pri štúdiu starnutia obyvateľstva uplatňujú dva odlišné prístupy. V prvom prípade sa úsilie orientuje na komparáciu viacerých regionálnych populačných štruktúr (interregionálna analýza) s orientáciou na poznanie rozdielov vekovej štruktúry ich obyvateľov. Inokedy sa hlavná pozornosť zameriava na časové zmeny vekovej štruktúry jedného regionálneho populačného útvaru (intertemporálna analýza). Ukazuje sa však výhodnosť v geografických analýzach i potreba spájania oboch prístupov. Ak sa starnutie chápe ako proces, potom jeho analýza sa musí opierať o jeho časový vývoj, priestorovo značne diferencovaný.

Naše hodnotenie sa sústredilo na populačné starnutie obyvateľstva Slovenska v časovom rade rokov 1950-2005. Detská zložka populácie (0-14 roční) sa v sledovanom období znížila v podiele z 29 % v roku 1950 na 16,6 % v roku 2005. Priemerne ročne klesol podiel detí za päťdesiatpäť rokov o 0,2 % a priemerný absolútny úbytok ročne bol 2 108 detí. Najvýraznejší pokles je v období rokov 1990-2005, kde registrujeme pokles o viac ako 2,6 % ročne. Počet detskej zložky dosiahol historické minimum (894 tis.). Je to dôsledok radikálneho poklesu pôrodnosti v 90-tych rokoch 20. storočia.

Všetky vymedzené kategórie starého obyvateľstva v roku 2005 registrujú svoje maximálne hodnoty, čo je spôsobené zlepšením úmrtnostných pomerov, predĺžením strednej dĺžky života a pohybom vekových skupín (vĺn). Početnosť obyvateľov 65 a viac ročných vykazuje v rokoch 1950-2005 priemerný ročný prírastok 7 271 osôb, čo značí priemerné ročné zvýšenie ich podielu o 1,8 %. Od roku 1950 sa počet starých obyvateľov v populácii Slovenska zvýšil z 232 719 (6,7 %) na súčasných 632 638 (11,7 %), čo predstavuje takmer 2,5 násobný nárast.

Štúdium regionálnej diferencovanosti využíva predovšetkým údaje zo sčítania obyvateľstva z rokov 2001 a 1991. Na základe zhlukovej analýzy autori vyčlenili štyri regionálne typy okresov. Slovensko sa z hľadiska vekovej štruktúry resp. intenzity starnutia rozdeľuje na dva veľké regionálne celky. V zmysle typológie možno viesť hranicu líniou okresov od Púchova, Žiliny, Ružomberka, Liptovského Mikuláša cez Brezno po Rožňavu. Na sever od tejto hranice možno hovoriť o regionálnom type mladej vekovej štruktúry a na juh od nej (vrátane týchto okresov) o regionálnom type starej vekovej štruktúry.

Pri hodnotení procesu starnutia sú dôležité zmeny v zastúpení vekových skupín a to v absolútnom aj relatívnom vyjadrení. Prvý typ predstavujú okresy (67), u ktorých možno identifikovať výrazné prejavy starnutia populácie zdola aj zhora. Ďalšiu skupinu predstavujú okresy so zmiešaným typom starnutia svojich populácií (päť okresov), v ktorých dochádza k starnutiu zdola a mladnutiu zhora. Vo všetkých 72 priestorových jednotkách v sledovanom desaťročí pozorujeme pokles zastúpenia obyvateľstva vo veku 0-14 (dôsledok intenzívneho poklesu prirodzeného prírastku obyvateľstva v 90-tych rokoch).