

Peter Podolák

Institute of Geography, Slovak Academy of Sciences
Štefánikova 49, 814 73 Bratislava, Slovak Republic
Podolak@savba.sk

Demographic changes of rural population in Slovakia

Abstract: *The absolute and relative decline of the rural population numbers is one of the most evident features of demographic development in Slovakia. The most intensive decline was observed during the period of extensive urbanization (1970–1985). The general political and socio-economic changes after 1989 significantly influenced and slowed-down the emigration processes from rural settlements to urban centres. This development has a deep impact on the basic demographic characteristics of the rural population in the country. The here presented evaluation of demographic changes of rural population in Slovakia accounts also for the national and regional dimension.*

Key words: *Slovakia, rural areas, demography, population, administrative changes, Roma minority*

Introduction

The monitoring of problems concerning the rural population is justified, as the rural area became the focus of increased attention at the turn of century. This is connected, in particular, with the fact that living in the countryside experiences a renaissance, concentration of population has been replaced by decentralization, and people move to the immediate hinterlands of large cities, that are in fact the rural areas. Rural areas are a less agrarian and more multifunctional territory nowadays. This transformation also results in far-reaching demographic consequences and implications.

The size of communes, as far as population number and their character – rural or urban – are concerned, is an important differentiating factor of many demographic phenomena and processes. It is generally accepted that the reproductive behaviour of urban population is different from that of rural population. For instance, the birth and fertility rates are usually lower in large cities compared to small towns or villages, the differences being reflected in the population's age structure. Likewise, the differences in the denominational structure are known between these population categories – atheists or persons with no specified religion are more abundantly represented in urban population. The theory concern-

ing the differences in reproductive behaviour and population structure between urban and rural areas is a frequently treated problem and it is referred to as urbanisation theory or theory of the urbanisation factor, giving rise to such differences. The problem of development of rural population has been analysed in the Slovak literature in the context of the overall population development by several authors (Korec *et al.* 1998; Podolák 1999a, b; Švecová 1998; Bezák 1999; Michálek, Podolák 2001) or in the wider context of the overall or regional development (Danglová 1997; Falt'an *et al.* 1995; Gajdoš 1999 and 2002; Ira and Huba 1999).

The aim of this contribution is to point to some fundamental differences between the urban and rural populations at the level of natural movement, migration and total development of population, share of rural population and its age structure in Slovakia as a whole and in the individual regions in 1970–2001.

Rural population and administrative changes

The basic problem for the observation of the number and development of rural population is constituted by the classification of communes into rural and urban settlements. The methodology of this differentiation is not uniform. The definitions of rural areas differ among countries. Some of them stick to the statistical criterion, others adapt this criterion to local conditions. Apart from the concept of rural communes and cities (towns), in some countries the concept of rural towns is used (for instance in Germany where a rural town is inhabited by 2 to 5 thousand inhabitants). In the USA, the settlements with 10 thousand inhabitants are denoted towns and in Austria, they are settlements with 5 thousand inhabitants. Czech demographers (Pavlík, Rychtaríková, Šubrtová 1986) classify communes with more than 10 thousand inhabitants among towns. Vojtko (1988) recommends the use of category of rural towns with population of 2,000 to 10,000 inhabitants.

In the individual census years in Czechoslovakia or Slovakia different criteria were applied and often in connection with preparation of a new census a different classification of towns was established, which did not necessarily agree with the one previously applied. In the past, historical criteria were used to define the town. Later, with ongoing urbanization, the quantitative traits and the size of settlements were taken into account. Classification of settlements (communes), carried out by the Statistical Service contained geographic criteria as well. Statistical Service considered towns all communes that were centres of districts, communes with more than 5,000 inhabitants and those that fulfilled certain criteria (population density, amenities, character of urban fabric, etc.). Spas and some historical settlements were also classified among towns. In the 1960s, the so-called status of town, approved by the Ministry of Interior, was a new element applied to classification of towns. The number of towns approved in terms of the status was always lower than that used by the Statistical Service. For instance, in 1980, 123 towns boasted the status, but statistically 146 communes were considered towns. In processing of the 1991 Census of Population, Houses and Dwell-

ings, this discrepancy was partially eliminated. As far as many formerly rural communes obtained the status of a town and the criteria of urban character were applied more consequently, the number of towns stabilised at 136. Before 2001, two towns were added so that at present there are 138 towns in Slovakia.

One of possible ways of eliminating the disparities in the definition of urban or rural population in different years is the adoption of statistical classification i.e. in the time of censuses the towns defined by the Statistical Office were considered as such.

The dominant feature of settlement development in Slovakia after 1950 was the process of socialist urbanisation, which was closely connected with the process of the so-called socialist industrialization. These processes were, in particular, characterised by central planning and distribution of residential construction in accordance with location of economic activities. It led to artificial and often negative interventions into the process of development of Slovakia's settlement structure. Integration of rural communes into towns, when the originally rural population changed abruptly into urban population by the mere administrative measure contributed to the decrease of the share of rural population. Another cause was the ban on construction in communes that have peripheral localisation and subsequent demographic imbalance when they found themselves in the process of demographic destruction, as the elderly inhabitants were not able to reconstruct their homes and young people moved out into towns.

The period 1950–1989 is often referred to as the period of “integration” in the area of administrative-territorial changes in municipalities. Out to the total number of almost 800 territorial-administrative changes having taken place in communes during that period, 86% had an integrating nature. The process of integration was most intensive in the years 1970–1980, when urbanization reached its peak in Slovakia, particularly in the districts of Považská Bystrica, Nitra, Trenčín, Trnava and Žilina (Slavík 1998). The most frequent changes included annexation of rural communes to towns. About 101 communes with altogether more than 100,000 inhabitants were annexed to towns. Integration accounted for as much as 33% of the total increase of urban population in Slovakia.

This integrating process constituted the largest intervention into the structure of administrative-territorial units in the 20th century, involving the changes in the size structure of communes and in dynamics of growth of towns, a pronounced decrease of participation of citizens in administration, management and life of rural communes, and the deterioration of the environment.

The decrease of rural population practically stopped after 1990 and the following stage in the development of Slovakia's settlement system can be called the disintegrating one. Above all, after the referendum many villages have separated from towns and obtained the status of independent rural communes (with exception of Vrútky as a town). The greatest number of communes separated from Topoľčany, Žilina and Banská Bystrica, where this was also expected in view of

the most intensive integration having taken place under the former political regime (Banská Bystrica: 19 communes, Žilina: 18 communes). It is notable that no disintegration has taken place in the largest Slovak cities, although there were such tendencies (Bratislava – Devínska Nová Ves). At the stage when the communes separated from towns, there occurred four contrary cases, where communes joined smaller towns in the region of Spiš.

The majority of territorial changes took place in 1990 (49 communes having separated) in response to the obligatory integration in the past regime. In some cases, the process of disintegration was complicated by the interests of particular towns and often by new urbanization of flats and infrastructure. However, the legal position of communes became stronger and citizens themselves can decide about integration or separation of their communes through ballot. In the following years, there were much less territorial changes and their number steadily decreased, so that in the years 1994–2000 altogether 43 communes with about 40 thousand inhabitants separated from towns. The intensity of territorial changes in the individual regions of Slovakia varied and generally, it decreased along the West-East direction. At present, a law limiting territorial-administrative changes to once in ten years at the occasion of the census is under preparation.

Share of rural population

In the first half of the 20th century, Slovakia represented a distinctly rural country with more than 75% of rural population (Figure 1). The decrease of the rural population share was most pronounced in the 1960s and 1970s. Between 1961 and 2001 this share decreased from 69.4 to 43.9%. The figure contains data since 1869, when the first relevant census was carried out in the Austro-Hungarian monarchy, of which Slovakia was a part then. This census informed about population number in individual communes (not only in higher administrative units – *zhupas*). Comparability starts by 1961, since when the same definition of town was applied.

In the course of the socialist development of Slovakia (1948–1989), an observable massive movement of population into lowland took place as connected with the socialist industrialization, accompanied by urbanization. It means that great many of villagers, who formerly lived in the mountains moved down to the towns in the lowland. On the contrary, in districts where lowlands or lowly situated basins prevail, migration of population was not as intensive and the towns enlarged by annexation of the surrounding communes. This fact though, does not mean that other higher situated towns (Banská Bystrica, Žilina) did not grow due to administrative interventions. The towns of eastern Slovakia, to which the population of the demographically strongest areas moved, constitute some exceptions of this general rule. In the years 1971–1980, 101 communes were annexed to towns and rural area lost 108,000 inhabitants in this way.

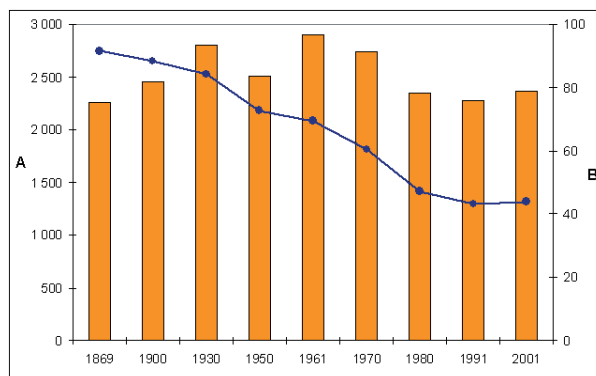


Figure 1. Number in thousand (A) and share (B) of population living in rural settlements of Slovakia in 1869–2001

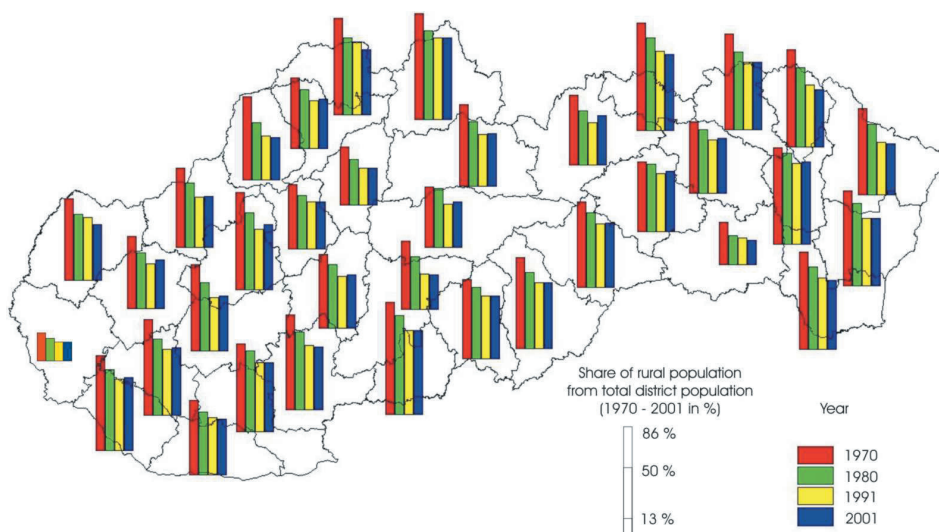


Figure 2. Shares of the rural population in 1970, 1980, 1991 and 2001

Districts where the most intensive decrease of rural population (Figure 2) was observed between the years 1970 and 2001, can be divided into two groups. Nitra, Topoľčany and Považská Bystrica were characterized by an extremely high number of administrative changes in the 1970s, when rural communes were annexed to towns. After 1990 many of them became independent. The second group comprises districts of northern Slovakia – Humenné, Stará Ľubovňa, Svidník and Čadca, which were characterised by an extremely high migration-related decrease of population in the 1970s. They were the regions with high dynamics of population development and high natural increase. Long-term emigration has weakened the demographic sources of rural areas in these regions to such an extent that they not only do not supply population for large centres (Košice and Bratislava), they do not even fill its proper district centres and the demographic structure of these areas displays the elements of distinct

ageing of rural population. At the present moment, the share of rural population reaches the highest values (over 60%) in the districts of Veľký Krtíš, Vranov n. Topľou, Dolný Kubín and Dunajská Streda.

Natural movement and migration of rural population

Rural population constitutes an important share in natural increase of population. The intentions to conserve the family through progeny, care for property or land are the stabilizing factors in the period of general birth rate and fertility decrease. They also demonstrate the fact that women in rural areas enter the marriages with the aim to become mothers. The influence of religion is stronger in the rural areas and it is manifested through birth, divorce and abortion rates. Women in rural areas enter marriage earlier than those in towns, and earlier than women with higher education. Population behaviour in rural areas is generally more favourable. Calculations of correlation-regression analysis (Hrubý 1997, Pastor 1997) show the significant positive dependence between population in districts with prevailing Catholic population, birth rate and natural increase, while negative dependence between religious beliefs of the population, and abortion and divorce rates persists in all districts. In the 1970s, the specific situation in Slovakia was that an extreme migration-related increase of young population groups was observed in towns. The accompanying factors were education (medium and higher education levels concentrated in towns), onset of economic activity (apart from agriculture again concentrated in towns) and marriage rates. The possibility of acquiring a comparatively cheap housing in the town, as the large industrial firms and other institutions offered flats to their employees, was connected with the above important changes in life. In this way the age structure of urban population became younger and children of immigrants were born in the new urban environment. This is how the birth rate of urban population surpassed that of rural population. At the same time, a distinct difference appeared in the gross rate of mortality that reached double values in rural area compared to urban population.

The result of these component processes is the differentiation of natural increase values, which reached 13.5% in towns and 7.9% in rural areas in the years 1971–1980. Natural increase of rural population was lower than that of urban population in all districts except for Prešov. By the end of the 1970s, the natural population decrease was observed in several districts (Levice, Veľký Krtíš and Nové Zámky). The most dramatic difference in the development of urban and rural population, though, is manifested through the indices of migration balance. Towns reached the mean annual migration increase of 13.4%, while rural areas experienced migration loss of 12.2% in the decade of 1971–1980. Migration decrease was indeed high in some northern and eastern districts – Bardejov, Humenné, Stará Ľubovna, Svidník and Spišská Nová Ves.

Demographic behaviour of the majority of population has changed significantly after 1990 as they adapted to new conditions. This meant distinct changes in the

development of some demographic characteristics. Indicators of these phenomena and processes, as probably influenced by the abrupt change in individual population behaviour and decision-making of individuals, changed in a comparatively short time. The dramatic decrease of fertility and birth rate indices, increase share of children born out of wedlock, and the decrease of migration rate were observed, while marriage and divorce rates stabilised at levels different from those of the past. On the contrary, comparatively small changes were observed in indices, whose change requires an action of external factors and a longer time – life expectancy, total mortality and health conditions of population. Population development as a whole in Slovakia has drawn closer to the West European reproductive model that is characterised by low natality and fertility. These indices have undergone a distinct decrease in all the size categories of communes in Slovakia and the differences have shown up in the urban-rural comparisons in the course of the 1990s.

During the whole study period of 1970–2001, natality decreased more in towns than in rural area. Nevertheless, rural population still features almost double the values of gross mortality rate compared to towns. This high mortality level has caused the 1991–2001 values of natural increase to be still higher in towns (3.2%) than in rural area (0.9%). Natural decrease was observed for rural population in 23 districts for the whole decade compared to one district (Komárno) for urban population. Natural increase of population is higher in rural areas than in urban areas in only five districts of northern and eastern Slovakia. On the other hand, the drop of natural increase compared to the decade of 1971–1980 is more distinct in case of urban population and since the mid-1990s, the number of newborn children in many towns of Slovakia is lower than the number of persons who died.

Spatial distribution of natural increase of rural population in the years 1971–1980 and 1991–2002 is depicted on Figure 3. The map shows the distinct decrease of values in the second period and distinct regional disparities between the northern and partially eastern regions on the one hand and southern districts on the other.

Age structure of rural population

The process of demographic ageing of Slovakia's population that has been ongoing more rapidly than supposed several years ago is evident. The age structure was, in terms of the share of reproductive age group, relatively balanced during the after-war development. Changes have been observed in the shares of child and post-reproductive components. In the consequence of the decreasing natality, in particular, the child component decreased. In 1970, the category of 0-14 year old represented 27.1% of total population. In 2001, it was at mere 18.9%. On the other hand, the share of the older population increases; in 1970, the post-productive population group accounted for 16.2% and in 2001, for already 18.0%. Even a more rapid increase of the number and share of persons

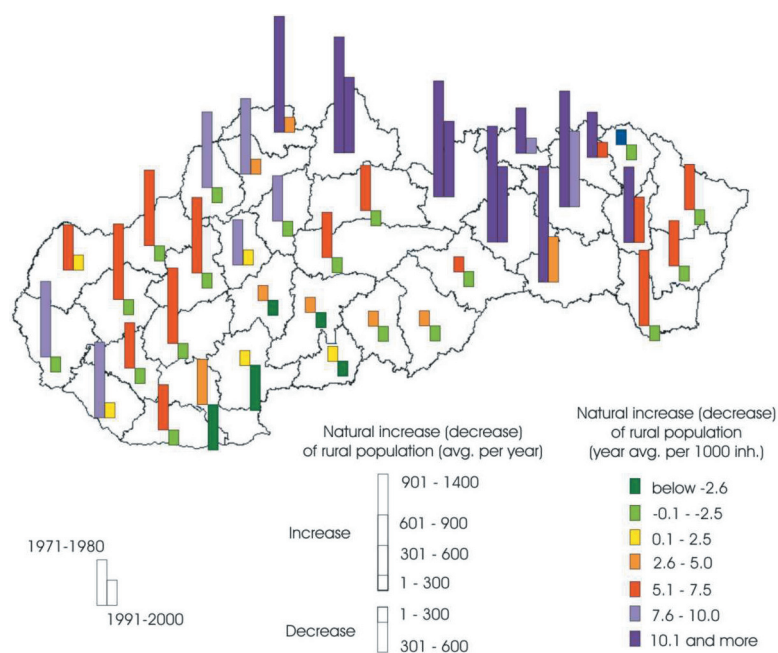


Figure 3. Natural increase of rural population

in post-productive age is supposed to take place in the first decade of the new millennium, when the persons born in the immediate post-war period and in the 1950s will enter the post-productive age. The decreased number of children born in the last years will manifest even more distinctly then and the burden on the productive population represented by the non-productive components will substantially increase. The decrease of the child component in the overall structure of population and the increase of number of post-productive component causes that Slovakia loses the character of young population and gains the features of the West European demographic type with all economic and social consequences of ageing of the population as a whole and in individual regions.

The age structure of rural population displays some specific features. Compared to overall population, lower representation of the pre-productive component and higher share of post-productive population are observed (Figure 4). This is true both for 1970 and 2001. Yet, the difference in representation of the post-productive component progressively decreases. In comparison with urban population, rural population is characterised, as well, by lower representation of the child component and a higher share of elderly inhabitants. In this case, the difference in representation of the post-productive component also decreases relatively distinctly. In 1970 out of total number of pre-productive age inhabitants 58% lived in rural areas, while in 2001 this share was equal only 43%. More than 60% of the post-productive population lived in rural areas in 1970, while in 2001 only 50%. All the data quoted demonstrate the fact that urban population is relatively

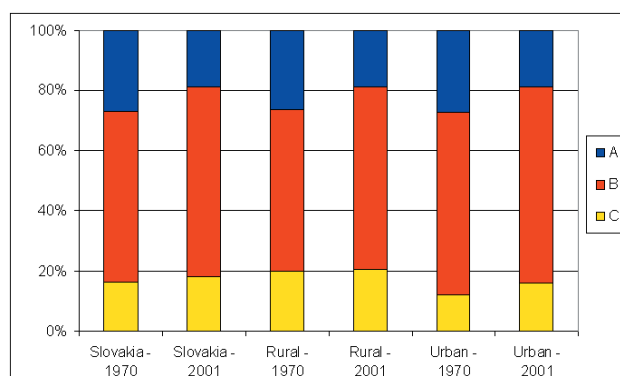


Figure 4. Age structure of population in Slovakia, rural and urban settlements in 1970 and 2001. A – pre-productive, B – productive, C – post-productive

younger but the ageing process is generally much quicker in the urban population than in the rural one.

The facts quoted are valid for the whole population, along with its rural and urban components. At the regional level the situation is somewhat more complicated. Differentiation of the demographic process and structures between the northern or eastern parts of the country on the one hand and the southern or western parts of Slovakia on the other has been evident for several decades. This polarity of demographic development manifests itself at the level of population as a whole and especially at the level of rural population. Figure 5 shows spatial differentiation of the index of age of rural population in the years 1970 and 2001. High index values reflecting the relatively younger structures are characteristic for the districts in the North and East of the country. Along with the general ageing trend, the depopulated area with low values progressively spreads from the southern part of central Slovakia westward and north-westward (Levice, Nové Zámky, Bratislava, Trenčín and Senica). Marginal districts in the north-east (Humenné, Michalovce) are also characterised by low age index values. Higher index values are typical for some districts in the North of the country with the highest natality rate (and Catholic population) or with higher share of the Gypsy (Roma) ethnic group.

Slovak population is ageing more rapidly than supposed. Practically all indices used for evaluation of the age population structure point to the acceleration of this process in the country as whole and in its individual regions. About a million of retired persons live in Slovakia now, about a third more will live here in 20 years; the share of 60-year and older persons will move into the bracket of 21–22%. In contrast, far less people will enter productive age than will leave this category. It follows that an ever smaller population group will have to produce for the increasing share of the non-productive groups. The complexity of situation in Slovakia also lies in the fact that unfavourable demographic trends of rural population and problems of socio-economic nature meet in the same regions.

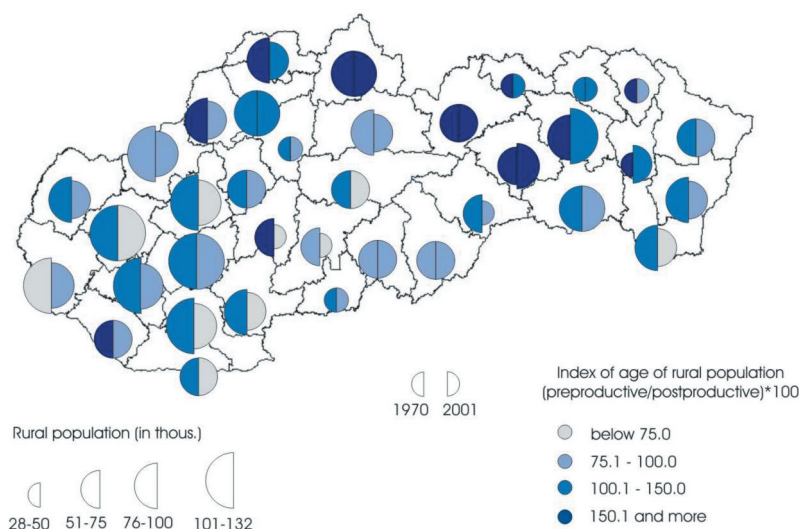


Figure 5. Index of age of the rural population

Roma minority in rural areas

The ethnic appurtenance is an important element in demographic development and related phenomenon generally in almost all countries. The irregularity in distribution of the Gypsy (Roma) population with its specific social, demographic and cultural behaviour is one of the most important factors of spatial differentiation of socio-economic and demographic phenomena, especially in some rural areas of Slovakia. As far as the absolute number and relative share of the Roma population in some regions of the Slovak Republic is really very significant, and their differentiation from majority population is evident, we consider useful to point out some basic characteristics of this ethnic group. In difference with other nationalities (Hungarinas, Ukrainians etc.) their behaviour from demographic and social point of view is definitely remarkable, so their distribution in rural areas of the country significantly influence social and demographic development of rural population.

Observation of the social and demographic development of the Roma minority is extremely complicated because reliable data are not available or are missing - both for the past and present periods. Experts agree that the results of the statistics concerning this minority are not correct. It is the fact though, that there is a relatively high number of Romas living in Slovakia and their number steadily increases. From the point of view of the socio-demographic development of the country, Romas compose precisely that group of population, whose development will be determined by life quality parameters first of all at the regional and communal levels.

According to available estimates, the actual number of Romas in Slovakia was between 350 and 380 thousand (6.5 to 7.0% of the total population of Slovakia)

in 2000. Most of them live in rural settlements. However, only 90,000 Romas (1.7% of total population) or the quarter of their estimated real number, declared themselves as such at the 2001 official population census. Even considering the complications implicit to international comparisons, it is clear that such share of the Roma population in country's total population is one of the highest in Europe. Meanwhile, in Slovakia there are regions and communes where the share of Romas is significantly higher and it is evident that there is correlation between concentrations of the Roma minority and the ranking of the particular communes among the problem areas. Spatial distribution of Romas in 2001 pointed to the regions in the East and North of Slovakia where their representation highly exceeded the national average (Figure 6). The situation in the regions where the Romas live in segregated and usually marginal locations is especially critical.

The basic demographic characteristics demonstrate the striking features of structure and development of this population, that significantly influence the overall demographic and social situation in rural regions, in which they live. The fertility level of the Roma women decreases but it is still more than a double of the Slovak average (3.6 and 1.5 respectively). The life expectancy of the Romas is on the average 10 years lower than in the rest of the Slovak population. Their infant mortality is 34.8‰ or double in comparison with the rest of population of Slovakia. Taking into account the demographic laws, the demographic situation of Romas is not at all exceptional. The Roma people constitute a developing population characterised by the progressive type of age structure with high representation of children (almost 40%, while this share for the total population of Slovakia is below 19%). Such situation is normal in developing populations. The remaining Slovak population developed in the same way. The values of

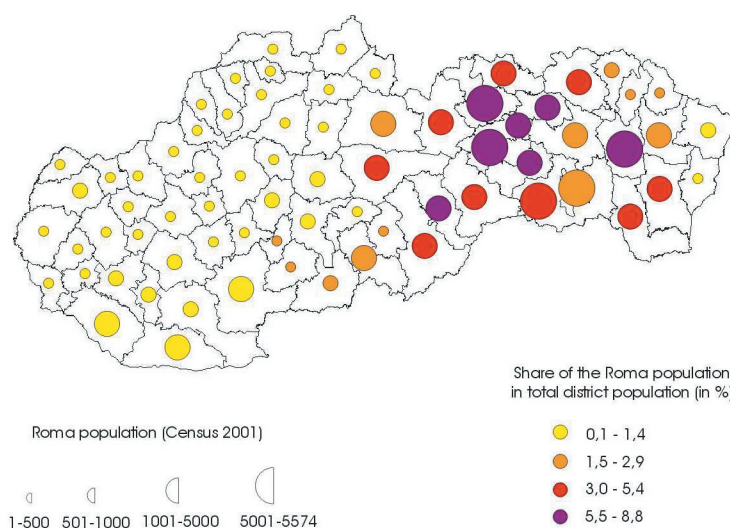


Figure 6. Distribution of the Roma population in Slovakia 2001

reproductive characteristics observed now for Romas were typical for the Slovaks in the first half of the 20th century.

An eventual change of such a reproductive behaviour requires the change of living conditions, improvement of the living standard and of the education level. Such changes are slow because of the isolation of the Roma population. The decisive factor will then be their inclusion into the majority population. Moreover, the marginalised members of the Roma ethnicity live in marginal regions with a high level of the long-term unemployment and high risk of social dependence and poverty. The question of backward Roma settlements and huts was inherited by the East and North of the country from the pre-transition period. Among the total number of 278 Roma settlements in Slovakia in the 1990s, 230 were in eastern Slovakia. What were once the most underdeveloped parts of the country definitely could not offer enough jobs and decent existence for the large concentration of Romas, on the contrary, while they have minimum prerequisites for decent existence they are not economically active.

This is how the Romas living in segregated settlements find themselves in an extremely difficult situation, which cannot be resolved by means of any individual life strategy. Implementation of extensive supporting programmes with active participation of Romas is necessary. Meanwhile, the relevant EU projects aim to bring progress to entire areas not only to one social or ethnic group.

According to qualified estimates, the share of the Roma population in productive age will amount to 15–20% of Slovakia's respective total in 2020. Without radical changes, which should bring a solution to the problem, the majority of them will lack education, jobs, and – considering their life style – they will be chronically ill. Instead of taking part in supporting the progressively ageing population they will expect financial support from the society. The probable consequences of such situation include increased crime, ethnic tensions and conflicts accompanied by attempts of mass exodus to more advanced foreign countries. Prevention of such scenarios depends on the State's policy and an extensive implementation of educational and work programmes with active participation of the Romas.

The absolute numbers and the relative representation of Romas in the Slovak Republic are steadily increasing. The State is not interested any more in providing special social privileges to the ethnic group, which often does not know of or want to accept them. The Romas are compelled to care after them in the same manner as any other ethnic group living in Slovakia. Regarding the extremely intensive (for the central European context) demographic growth of this population and its very young age structure, with high potential for further increase in terms of relative and absolute numbers, it is perhaps justified to say that an accumulation of not solved problems connected with the Roma population is to be expected in the social and economic areas in future.

Conclusions

The specific feature of rural population is the increasing quality of the environment and civilisation of rural settlements on the one hand, and the deepening demographic and social problems caused by continuous decrease of population and its improper socio-demographic structure (high age, high mortality rate, absence of young people, etc.) on the other. Transition is more demanding and more problematic for rural areas than for towns. It must be said, though, that this is also partially an inherited problem as the rural areas were in the socialist industrial-urbanisation process treated as sources used for the development of towns. The present rural areas must not only solve the inherited problems, but also the new ones brought about by the transformation of the economy, accompanied by the changed property relations, restitution of real estates, forest and land, by disappearance of work opportunities and change of criteria concerning labour force. Hence, these problems include the ones of the economic, educational, cultural and yet other nature. The socio-demographic situation leads to complex problems associated with the reproduction of the local communities. The development tends towards the deterioration of population's socio-demographic composition.

The significance and scope of the outlined problems gain a specific context in connection with the transfer of competence from the central state administration to self-administration of communes, which also means transfer of problems towards the settlement communities, namely the problems related to local development, sources and potential.

Acknowledgement

The presented research was supported under Grant No. 3083, Scientific Grant Agency of the Ministry of Education and the Slovak Academy of Sciences (VEGA).

References

- Bezák A., 1999, *Development of urban and rural populations in Slovakia between 1970 and 1995*. Geographia Slovenica, 31, p. 170–177.
- Danglová O., 1997, *Podoby chudoby vo vidieckom prostredí južného Slovenska*. Slovenský národopis, 45,1.
- Falňan L., Gajdoš P., Pašiak J., 1995, *Sociálna marginalita na území Slovenska*. Bratislava, S.P.A.C.E.
- Gajdoš P., 1999, *Sociálno-priestorová situácia Slovenska, jej vývoj a problémy v 20. storočí*. Sociológia, 31, 2, p.1–26.
- Gajdoš P., 2002, *Priestorová sociológia*. Bratislava, Sociologický ústav SAV.
- Hrubý J., 1997, *Problematika prirodzeného prírastku vo vzťahu k vidieku*. Slovenská štatistika a demografia, 7,1, 40–47.

- Ira V., Huba M., 1999, *Changes of rural spaces in Slovakia from sustainability perspective*. Geographia Slovenica, 31, 151–161.
- Korec P. et al, 1998, *Vývoj počtu obyvateľstva Slovenska*. In: Mládek, J. (ed.). Demogeografia Slovenska. Bratislava, Univerzita Komenského.
- Michálek A., Podolák P., 2001, *Transformation of the society in Slovakia and its effect on demographic behaviour*. European Spatial Research and Policy, 8, 23–37.
- Pastor K., 1997, *Súčasný populačný vývoj na Slovensku a demografické teórie*. Slovenská štatistika a demografia, 7, 1997, 4, 45–58.
- Pavlík Z., Rychtaríková J., Šubrtová A., 1986, *Základy demografie*. Praha, Academia.
- Podolák P., 1999a, *Demographic aspects of changes in rural areas*. Geographica Slovenica, 31, 162–169.
- Podolák P., 1999b, *Populačný vývoj vidieckych sídiel Slovenska*. Acta Facultatis Studiorum Humanitatis et Naturae, XXXII., Folia Geographica, 3, 67–72.
- Slavík V., 1998, *Úzmené zmeny obcí v Slovenskej republike v etape transformácie (1990–1998)*. Acta Facultatis Rerum Naturalium Universitatis Comenianae, Geographica Nr.41, 137–154.
- Štatistický úrad SR, 2002, *Sčítanie obyvateľov, domov a bytov 2001*. Základné údaje: Domy a byty. Bratislava, ŠÚSR.
- Švecová A., 1998, *Zmeny vo vývoji prirodzeného pohybu mestského a vidieckeho obyvateľstva v okresoch Slovenska v rokoch 1985–1995*. Acta Facultatis Rerum Naturalium Universitatis Comenianae, Geographica Nr.41, 209–224.
- Vojtko D., 1988, *Základy demografie*. Bratislava, Vysoká škola ekonomická.