IMBALANCED GEODEMOGRAPHIC STRUCTURES IN TÂRNAVE REGIONAL SYSTEM. CASE STUDY: POPULATION AGEING

H.-V. CONȚIU[1], ANDREEA CONȚIU[2]

ABSTRACT – Imbalanced geodemographical structures in Târnave regional system. Case study: population ageing. The demographic prospects of a regional system, the natural dynamics of the population, the potential of manpower resources, planning and forecast of its use, show a high degree of dependence on the demographical structure by age, the identified imbalances involving an increase in the vulnerability of the regional system and therefore an enhancement of geodemographical risks (acceleration of population ageing, decreasing population trend, disappearance of some rural settlements, socio-economic failures etc.). In this study, a special attention is paid to the analysis of ageing index and demographical dependency ratio, and the share of young and old people to the Târnave regional system, taking into account as milestones, the population censuses from 1910, 1992 2002 and 2011.

Key words: demographic ageing, demographic dependency ratio, population age pyramid, young population, old population.

1. INTRODUCTION

The evolution of main geodemographic indicators, along with the analysis of regional structures that are specific to the Târnave geodemographical system, faithfully reflect the socio-economic, political, religious, cultural, mentality, etc. changes which occurred in the Romanian, in general, and in the study area, particularly after the threshold year 1990. It is a known fact that the demographic prospects of a regional system, the natural dynamics of the population, the potential of manpower resources, planning and forecasting its use, to name a few items considered defining, show a high degree of dependence on the population structure by age. In this study, a special attention is paid to the analysis of ageing index and demographic dependency ratio, as well as the share of young and old people in the Târnave regional system, taking into account as milestones population censuses of

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1910, 1992, 2002 and 2011. Since the available data for the first three mentioned censuses do not allow a proper delimitation of old population (over 65 years), we've opted methodologically for the comparative analysis of the population structure by three groups, as follows: the group of young people (0-14 years), the adult group (15-59 years) and the old group (over 60 years), while adapting various indicators to this distribution formulas.

2. DEMOGRAPHIC AGEING INDEX

In literature, population ageing (fr., v*ieillissement de la population*) is a geodemographic phenomenon which represents the tendency for long-term growth of the older population in parallel with the decrease of the young population, sometimes to the adult population too, from the total effective (cf. C. Vert, 2001, p. 98); the calculating formula for the homonym index can be obtained by dividing the older population to the young population, and it is expressed as a percentage (number of older people per 100 young people).

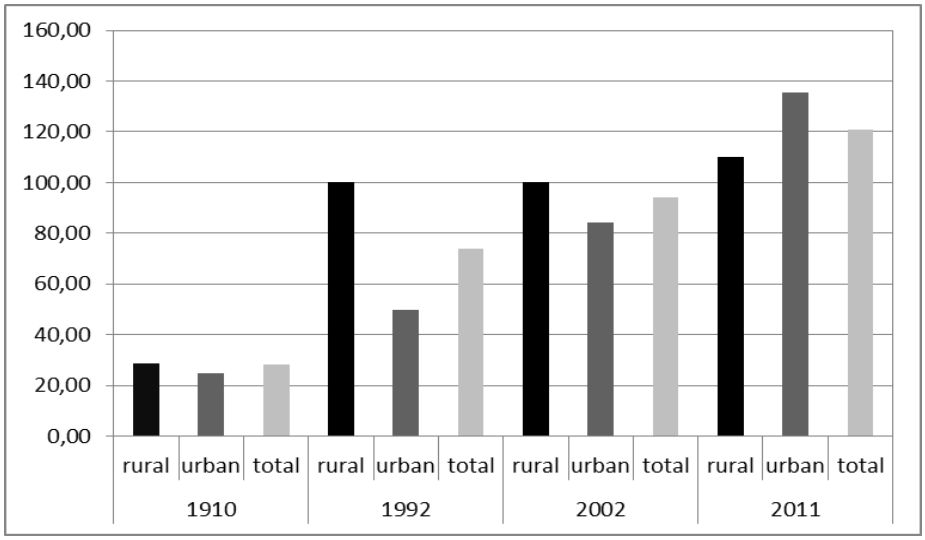


Figure 1. Târnave regional system. Demographical ageing index by living environment in 1910, 1992, 2002 and 2011

Overall, in the Târn(fig.1)ave regional system in the past 100 years, the ageing index grew increasingly faster , from 28.23 in 1910 to 121.01 in 2011 (the average ratio of demographic ageing index in Târnave regional system for the period 1992-2011 exceeds the national average, which was 48.4 in 1992 and 101.8 in 2011), doubling itself in the periods 1910-1992 and 1992-2011, fact that outlines

the premises of a more pronounced geodemographical vulnerability in the entire area, the most critical area being the south-west one.

In the studied region in the last century, at the rural level can be noticed a decrease of the number of young people share (under 14 years), from 35,3% in 1910 to 23,6% in 1992, 22,2% in 2002 and 19,8% in 2011 (fig.2).

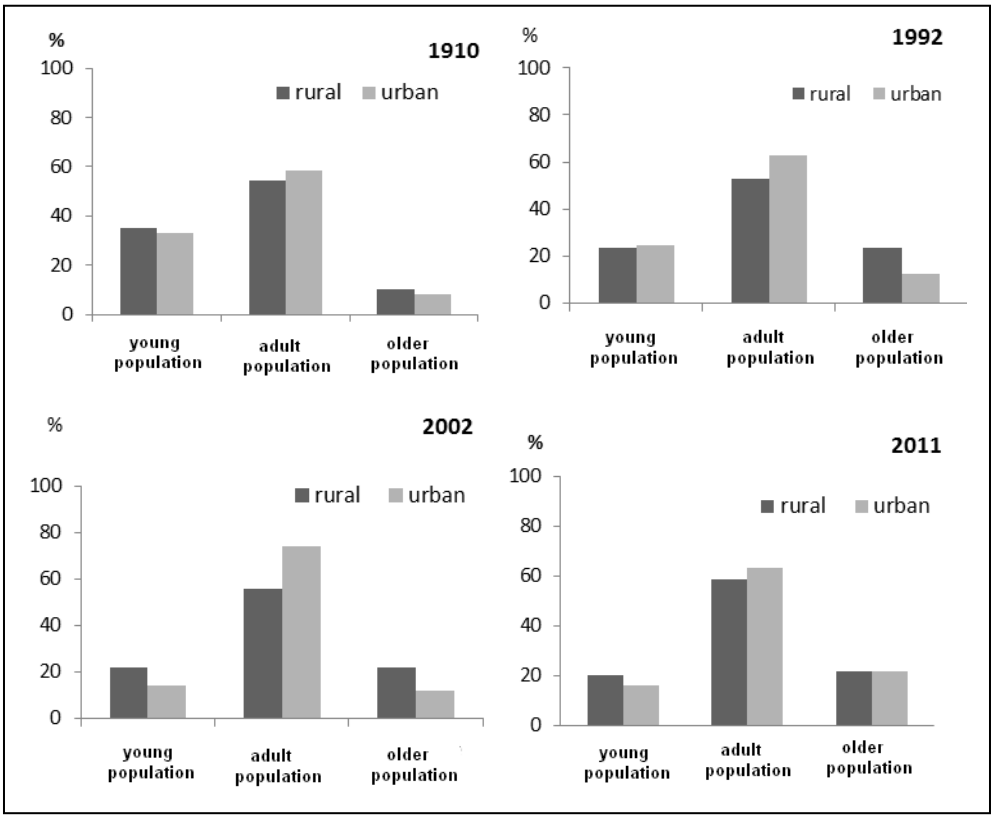


Figure. 2. Târnave regional system. Population structure by age and living environment in 1910, 1992, 2002 and 2011

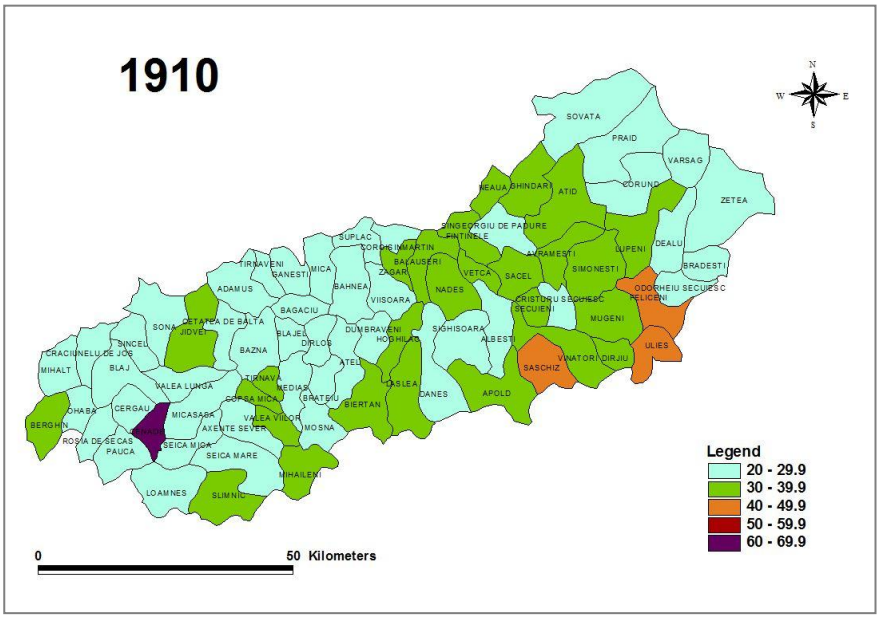
Group older (over 60 years) doubles (both number and weight) between 1910 and 1992, increasing from 10,1% (1910), 23,6% (1992); during 1992-2011, it slightly decreases to 22,2% in 2002 and 21,7% in 2011. It is noted that the shares of the two population groups were relatively equal during 1992-2002, later share is unbalanced in the favour of older population, which illustrates the phenomenon of demographic ageing. Thus, analysing the evolution of the demographic ageing index, there can be observed a dramatic increase from 28,7% in 1910 to 109,89% in 2011.

On the other hand, observing the situation from the beginning of the XXth century, it is obvious that the rural population was the main demographic link supporting the birth rate in the studied region, a feature that seems to have be lost today. The decline of young population and demographic ageing highlighted by the analysed index (in 2011) are significant especially in the south-west part of the Târnave regional system, which can be correlated with pronounced demographic involution of some administrative units, such as: Ohaba (the ageing index has a maximum for the region studied: 500) Berghin (245,98), Mihalț (238,75) etc. Looking ahead, we believe this problem/malfunction as extremely serious and with inevitable consequences at demographic and socioeconomic level, and not only.

A slightly different situation may be surprised by analysing the urban environment. Thus, from the total urban population of the Târnave regional system, young population has halved in share in the period 1910-2002, decreasing from 33,2% in 1910 to 24,8% in 1992 and 14% in 2002 (the numeric situation is not in line with the percentage situation for the specified period, recording an increase due to the increase of cities and urban population number in the period's historical, political and economic context); in the next decade, it slightly increased to 15,7% in 2011. The older population percentage increased from 8,2% in 1910 to 12,3% in 1992, decreasing slightly to 11,8% in 2002; but in the next period, the increase is alarming, the share of older population reaching 21,3% in 2011, due to a very large ageing index of 135,48 (surpassing in scale the rural area). Among possible explanations, it can be mentioned the sharp decline in the birth rate, fertility, increase of emigration rate, which determines a demographical ageing in areas of origin, in many cases poor, in the terms of economic restructuring, and the increase in scale of unemployment, a big part of the active population emigrating in search of employment; the phenomenon is accentuated by the return of some population in rural areas, for the same reasons, doubled by the large amount of expenses and/or the impossibility of paying the financial obligations.

Analysing the distribution of this indicator in the administrative-territorial units under study for extreme reference moments such as 1910 and 2011, we can notice that the census of 1910, for 76 of these units, the ageing index was under 50 (young and very young population) including Târnăveni (22,9), Sighisoara (23,44), Odorheiu Secuiesc (23,9), Sovata (24,8), Dumbrăveni and Blaj (over 25,7), Mediaş (26,38), Cristuru Secuiesc (over 27,2) and Copșa Mică (over 30,7); only Cenade

Village had an ageing population, with an index value of 60,77. Over a hundred years after (2011), all administrative-territorial units of the regional system (78) had values above 50 (ageing and very old population), with the



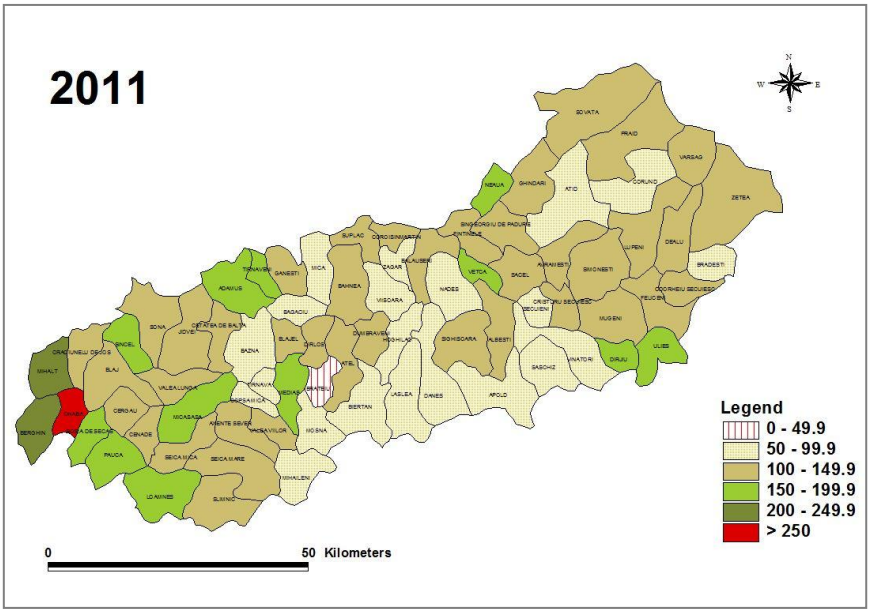


Figure 3. Târnave regional system. Repartition of demographical ageing index.

exception of one Village - Brateiu, Sibiu County (47,77) - one possible explanation is neighbourhood of Mediaș Municipality (8 km) and the attraction of young people, due to cheaper land prices in rural areas; also for the city of Copșa Mica, where there was a slight revival of the young population, probably for the same reason as in the case above (possible, a "bedroom town" for Medias), the ageing index was 59,32 (fig.3). Most of the administrative-territorial units have values above 100, meaning that there are more than 100 older people per 100 young people, the most drastic case depicting Ohaba Village, where are 500 older people for 100 young people. The differences between the two censuses are obvious, the region's population presenting an accentuated demographic decline with strong social and economic consequences.

After building the age pyramid and after analysing the results, there can be observed the changes in the population structure by age and gender, with an obvious demographic ageing trend (fig.4). They were analysed as case studies, the age pyramids for Păuca Village and Mediaș Municipality, considered representative to illustrate the studied phenomenon. A phenomenon visible in both cases is the numeric jump of the subgroup of 20-30 years for 2002, respectively 30-40 years for 2011, due to the specific socio-political determinations of the 7th decade of the twentieth century (especially, the effects of restrictive legislative measures adopted in 1966 regarding abortions in the context of a previous downward trends in birth rates, which caused a disruption/break in the allure of age pyramids). The sudden drop in birth rates in the period after 1990 (the consequence of a complex situation: emancipation of women, the decline of female fertility, emigration of young people and adults, increase of marriageable age, decrease of traditional families, increasing education degree, family planning, abortion liberalization, birth control methods, etc.), had the effect of strongly narrowing the base of the pyramid, a phenomenon reflected especially in Păuca Village, by the reduced quota of the subgroup 5-9 years, in 2002, ie 0-5 years in 2011. In both cases, the age pyramid is stationary, but at Păuca, the village presents a critical situation because the pyramid basis narrows greatly, the adult population segment being also reduced, while the older segment is increased; also very low birth rates, high mortality and negative migration growth determined a pyramid shape moving toward regressive model. The demographic ageing phenomenon is, in both cases, undoubtedly; its consequences are numerous: economic and social pressure on the adult population, increasing dependency ratio, the mandatory allocation of more resources for health and pensions, increased morbidity, etc.

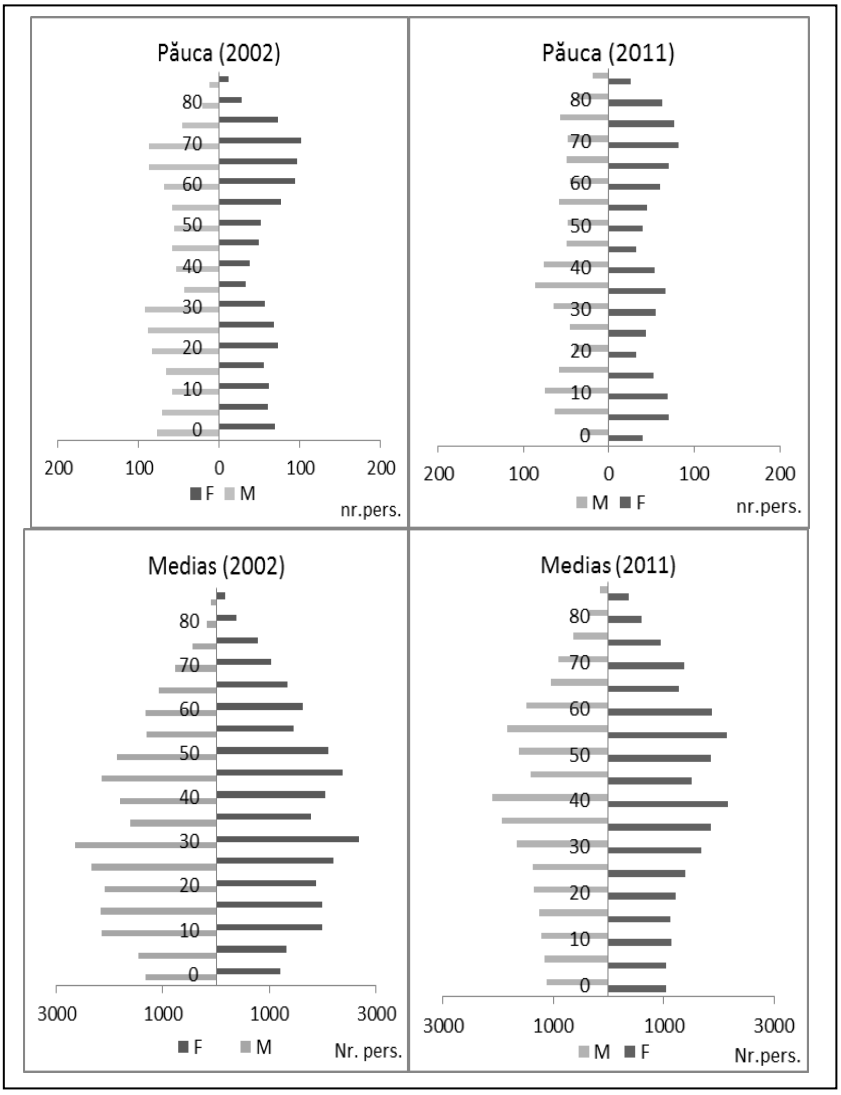


Figure. 4. Population age pyramid for Păuca Village and Mediaş Municipality, in 2002 and 2011

3. DEPENDENCE RATIO

The structure of population by age remarks itself not only by determining the evolution of the demographic potential, but also by economic impact force on the regional system, being directly involved in assessing the dynamic potential of the society. The adult, potentially active population is supporting the pressure

young and older population, theoretically maintained. For this we calculated the *dependence ratio (index)*, which measures the pressure of "dependent" population, belonging to inactive groups (young and older people) over the potentially active, within the "working age" population, expressed for 100 people (cf. *The Dictionary of Human Geography*, 4th edition, Edited by RJ Johnston et al., 2005, pp.163-164; C. Vert, 2001, pp. 101-102; Ar. Haupt, Th. Kane, 2006, p.13), ie the number of inactive people, on average, for 100 adults, potentially active. For detail, it is calculated also, a dependency ratio for young population, namely the older population, expressing the number of young or older people per 100 adult, potentially active people.

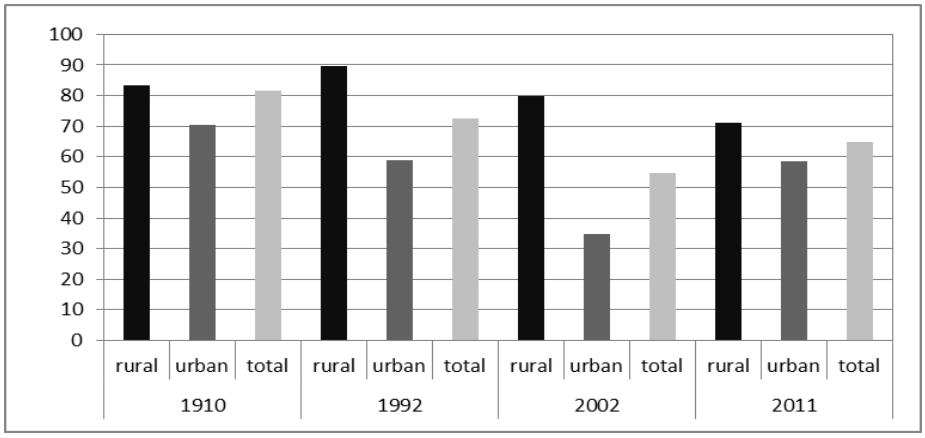


Fig. 5. Târnave regional system. Demographic dependence ratio by average, in the years 1910, 1992, 2002, 2011

The dependency index for the population of Târnave regional system (fig.5 and 6), in 1910, had high values (81,63), meaning the theoretical maintained population was higher than the potentially active population, but this phenomenon should be related to the high percentage of young population (35%) and a low ageing index (28,2). For example, for 100 adults, there were 63,66 young people and 17,97 older people. The index value for this year is higher in rural areas (83,31) than urban areas (70,49).

In 1992 the dependency index was low (72,63) due to the doubling of the share of older population (17,9%), the fall in the share of young population (24,2%) and significant increase of the ageing population (73,8%) - rural ageing index exceeded 100 which means that there were more people over 60 than young people. This year, the dependency ratio for young people was 41,78, while of the older people 30.85.

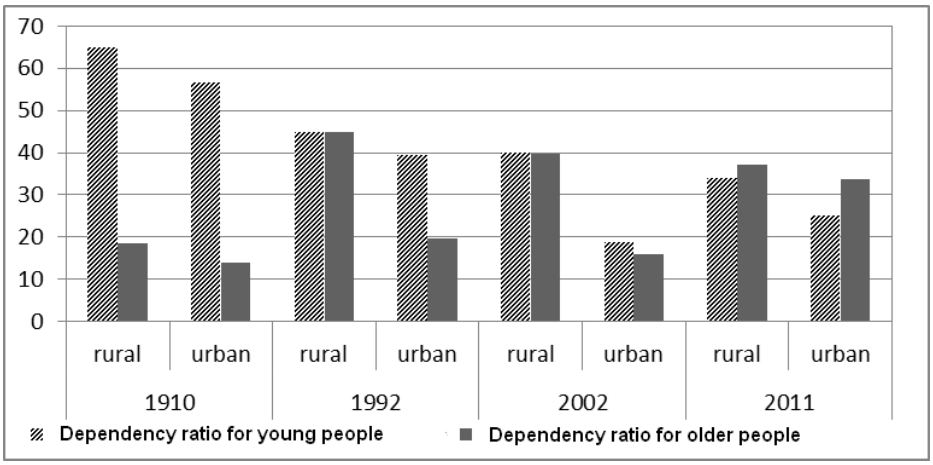


Figure 6. Târnave regional system. Dependence ratio between old and young people, by average, in the years 1910, 1992, 2002, 2011

This phenomenon can be seen at the next census in 2002, being very pronounced in urban areas: 34,69. The weight of the two groups at the base and at the top of the pyramid have almost equal values (22,2%), contributing almost equal to the pressure on the adult population (28,13, respectively 26,5) (total value of dependence index: 54,62).Following the 2011 census, it can be observed that the population continues to decline. In urban areas, the dependency index reaches 58,7, and 71,05 in rural areas, with a total value of 64,74 in the context of demographic ageing and emigration. Dependency ratio of young people increases from the previous threshold to 29,3, while for the older people at 35,45.

1. CONCLUSIONS

If a hundred years ago young people represented 35% of the total population, in 2011 it was only 17,8%; in turn, the older population in 1910 was 9.9%, reached 21.5% in 2011; the phenomenon of demographic ageing is evident, the two calculated and analysed indices fully illustrating this fact. The stationary shape of present demographic pyramids tends toward a regression model, the significant contingent of the adult population, due to the rupture occurred in their allure in the7th decade of the XX century (in the context of restrictive policy for abortion), migrating towards the top of the pyramids, the pressure on the future contingent of the adult, potentially active population, being huge.

In conclusion, based on the statistics provided by the census and the interpretation of graphical and cartographical materials, there can be observed the existence of serious imbalances in the population structure by age, imbalances that constitute geodemographic risk factors: accelerated population ageing, which in its

turn increases the dependency ratio, ie an increase in the pressure of inactive population on the active one and braking the growth of living standards, along with a decline in labour productivity, the decreasing population trend, disappearance of rural settlements, socio-economic failures etc. Therefore are necessary some economic measures and firm political laws for stimulating birth rates growth and for reviving the countryside.

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