



THIN **K** NAT
think tank

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Political Science Research Centre
Gupčeva 14a
10 090 Zagreb
Croatia
Tel./fax.: +385 (1) 38 63 113
URL: www.cpi.hr
E-mail: cpi@cpi.hr

Editor

Višeslav Raos

Author

Ivo Nejašmić

Graphic Design

Erna Matanović

Layout

Višeslav Raos

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Think tank - A New Public and Business Activity

Taking into account the social, economic and political situation in Croatia, Europe and worldwide, the Political Science Research Centre, as the only specialized private scientific, analytic and publishing institution in the field of social sciences and humanities in Croatia, has recognized the need for further public engagement. Therefore, in addition to our current activities, we are also preparing to become Croatia's first think tank, i.e. an analytical team of experts which would provide public and business activities (products) in the form of specialized analysis of current political and social issues, such as EU enlargement, Lisbon Treaty, global economic crisis, global climate agenda, Croatia's role in the NATO, security and stability in South Eastern Europe, etc.

Beginning with February 15, 2010, the PSRC will start publishing brief monthly position papers and analysis of current issues on its Portal. In the next phase, we will offer policy analysis and strategies tailor-made according to the needs of interested individuals, public institutions, as well as investors, managers, business planers and coordinators. The brief, monthly content of our think tank activities will be freely accessible for reading and download, while longer, more detailed and individualized analysis and documents represent exclusive content, whose scope and pricing will be depend on the needs and wishes of interested clients.

The PSRC Think tank primarily consists of the scientific and research team of the PSRC. However, building upon our past successful experience, the PSRC Think tank will also encompass members of the PSRC Forum who wish to participate in this public and business activity. The PSRC Forum is a global scientific network that consists of over a 100 scientists and researchers with diverse specializations, from Croatia, Europe and overseas. Professional competence, multidisciplinary, international networking and an emphasis on the further development of the information society guarantee the quality and future perspective of this project.

Political Science Research Centre
Gupčeva 14a
10090 Zagreb
Tel: + 385 1 3863 113
Fax: + 385 1 3863 113
E-mail: cpi@cpi.hr



As part of the battle against recession and Croatian government's program of economic recovery, a huge emphasis is put on the reform of the pension system and its long term sustainability. Bearing in mind the importance of demographic trends for the future economic and social development of Croatia, in this month's report, we present you projections of future population trends.

Where is Croatia going? Future population trends¹

Predicting the future demographic development is of extraordinary importance, both to deepen scientific knowledge, as well as for very practical reasons. This is an important tool and an important factor in the planning of social and economic development. Many components of the social and economic life depend, directly or indirectly, on the future size and composition of the population. Another, no less important role of demographic forecasts and projections is related to population policy. Namely, in order to be able to effectively influence demographic development, knowledge of future trends is essential. It should be noted that the object of screening is more in the understanding of the past than in the predicting of future. In other words, only an awareness of current demographic trends (particularly of natural population dynamics) allows us to answer the question what will happen and where the continuation of current trends is leading to.

The demographic picture of Croatia is a reflection of a range of demographic trends and social events throughout the centuries, but the events in the last fifty years have played an especially important role in creating such conditions. A number of sources clearly show that almost all demographic processes and structural changes for several decades, very unfavorable. In the early nineties, Croatia entered into one of the more specific stages of its demographic development. The aggression against Croatia and the war on its territory, with an inevitable impact on the general social characteristics and processes, particularly affected demographic trends causing disturbances and accelerating the negative trends. The consequences of the war affected directly or indirectly the entire population of Croatia, but the greatest human and material losses were in those areas that were directly affected by warfare. Post-war and transitional difficulties are also a significant destabilizing factor in the demographic development.

Demographic projections for Croatia for the period 2001-2031 were calculated using the analytical or the so-called component method. It is based on the study of past changes, as well as on hypotheses about future changes in components of population dynamics. In fact, a simpler version of the analytical method was used, called the survival method, using one-year age cohorts. The projection was done for the so-called closed population (excluding external migration). Migration is generally the least predictable component of population trends. It largely depends on political and economic circumstances and is thus subject to rapid and unpredictable change. However, due to the fact that migration could be shown to modify the projection, the end of this paper briefly discusses the possible impact of migration on population trends in Croatia.

Population projections for Croatia in the period 2001-2031 are based on the following elements (assumptions, data and knowledge):

- a) data on the composition of the population by sex and age from the 2001 census (starting point of the projection),
- b) longitudinal synthetic indicators of population aging,

¹ This text relies on the seventh chapter of the book Nejašmić, I. (2008): *Stanovništvo Hrvatske: demogeografske studije i analize*, Zagreb: Hrvatsko geografsko društvo.

- c) data on multi-decade (1971-2000) natural change (the basis for evaluation of future trends)
- d) the assumption (author's forecast) about trends in fertility rates,
- e) the rate of survival (with corresponding computational model, i.e. matrix calculus) and
- f) analyses and studies.

The results of the screening show that in 2031, there will be 3 680 750 inhabitants in Croatia. In comparison to 2001, the population will be reduced by 756 710 (17.1%) and in relation to 2010 by 633 780 (14.7%)!

Table 1: Development of the total Croatian population (projection 2001-2031)

Year	Population	Index (2001 = 100)
2001	4 437 460	100
2011	4 293 210	96.7
2021	4 018 670	90.6
2031	3 680 750	82.9

Year after year, the population decline will become ever stronger. This is indicated by an average annual rate of change for the three sub-projections. Thus, the Republic of Croatia will, on average, due to biological (natural) depopulation, i.e. higher mortality than fertility (the migration component has been omitted), lose 25 224 residents - or a medium-sized town (such as Bjelovar) each year. This means that each hour, there will be a loss of three inhabitants. Judging by the results of the screenings, Croatia will return to a population size that inhabited the today's national territory a hundred years ago, precisely in 1928!

Table 2: Average annual change (decline) in Croatian population (projection 2001-2031)

Period	Average annual absolute decline	Average annual rate of decline (%)
2001-2011	14 425	0.33
2011-2021	27 454	0.66
2021-2031	33 792	0.88
2001-2031	25 224	0.61

After the 20th century, when the country saw a population increase of 40% (1900- 2001), the first half of the 21st century will be characterized by a marked depopulation, i.e. demographic extinction. By the end of the century, there is a possibility of a decline which would exceed the growth experienced in the last century. Of course, this might be stopped by a miracle which would reverse the main demographic processes!

In addition to strong population decline, an even less favorable fact is the onset of further deterioration of the population age structure. Details of the so-called functional age-sex groups indicate even more unfavorable characteristics of future demographic trends in Croatia. Comparison of *children base* (age 0-4) and the population of *ages 80+* is very significant for the understanding of the conditions and processes in population age composition. In 2031, there will be 140 350 inhabitants (3.8%)

in the youngest and 180 150 persons (4.9%) in the oldest group.

There will be a significant contraction of *preschool children* (ages 0-6): From 2001 to the end of the projection period (2031) their number will decline by 136 764 (40.6%, thus much more than the decline of the total population, which amounts to 17.1%. The average annual decline will amount to 4558, the population share of this age group will fall from 7.6 to 5.4%.

- The number of *youth* (ages 0-14) will decline by 413 940 (29.1%). This means an average decline of 13 798 per year. Their share will be halved, falling from 23.7% to 17.4%.
- The number of children in *primary school age* (ages 5-14) will decline by 2031 by 197 572 (38.2%). In 2031, this age contingent will number 319 540 persons, so that its population share will fall from 11.7 (2001) to 8.7%.
- The number of inhabitants in *secondary school age* (ages 15-19) will decline by 2031 by 119 206 (39.9%). In 2031, this age contingent will number 179 400 persons and its population share will fall from 6.8 (2001) to 4.9%.
- The *female fertility contingent* (ages 15-49) will decline by 300 916 (27.7%), which gives an average of 10 030 per year. The population share of the contingent will drop from 47.2 (of the total female population) to 40.8%.
- The *younger female fertility contingent* (ages 20-29), which is especially important for biological reproduction will decline by the end of the projection period by 105 325 (35.4%). This gives an annual average of 3511 and decline in population share from 12.9 (of the total female population) to 10%.
- The *labor force contingent* (M ages 15-64 and W ages 15-59) will decline by 586 955 (20.6%). On annual basis this gives an average of 19 565 and a decline in the population share from 64.1 to 61.3 %.
- The number of *persons aged 60 and over* will increase by 120 000 (12.5%), with an annual average of 4000 and an increase in population share from 21.7 to 29.4%.
- The number of *persons aged 65 and over* will increase by 132 886 (19%). Per year, this gives an average of 4430, while the population share will increase from 15.7 (2001) to 22.6% (2031).
- The number of *persons aged 75 and over* will increase by 121 899 (51.2%). Per year, this gives an average of 4060, while the population share of this age group will rise from 5.4 to 9.8%.

Other demographic indicators confirm the unfavorable trends (2001-2031) as well.

The *average age* will be 44.5 years in 2031 (men 42.6, women 46.3). In 2001 the average age for the total population was 39.3.

The *aging index* (the number of persons aged 60 and over per 100 youth ages 0-19) will be 169.1 in 2031. This accounts for 3.4 (*old persons per 2 young persons*). For comparison, in 2001 that index was 90.7 (or 91.3 if persons of unknown age are included). What this means for the future of Croatia can be most clearly seen in those parts of the country which already have such demographic characteristics. The demographically most affected county in Croatia is the Lika-Senj county which had an aging index of 145.7 in 2001. So, Croatia will in the foreseeable future have an even less favorable composition of the population by age than the last census recorded in its demographically most endangered areas!

The accuracy of predictions of future trends in population is aggravated by the fact that external migration represents a large uncertainty. The tracking of incoming and outgoing flows of migration is the weakest part of official statistics. Should we pay respect to the component of migration in the overall population trends, one should provide an answer to a series of questions.

Will Croatia continue to lose population to international migration and by how much on an annual basis? Will it stop the emigration as a fatal factor in general demographic trends and processes? Will Croatia experience important changes in migration patterns after EU accession? Will young professionals leave Croatia, while the retirees from richer countries will immigrate to the country? Croatia will very likely become a *second home* for a noticeable number of European retirees. In this way, there will be an increase in the total population (according to the criterion of *usual residence*), but will further exacerbate the age structure of the population and relatively lower the fertility contingent.

Will a economically, culturally and more developed Croatia attract expatriates and foreigners? When and how could this happen? This will likely happen when Croatia's GDP reaches ten thousand euros. Will Croatia develop in such a way that it will even have to encourage selective labor migration? There are already labor shortages in certain economic sectors and it is therefore realistic to expect that the future population policy will encourage selective immigration. A possible positive external migration cannot stop or slow down the aging of the population in a short term basis, as this is a process that can be observed in Croatia for decades. It is caused by a decline in birth rates and an increase in average life expectancy. All indicators show that external migration will not have a major effect on demographic trends in the projected period.

Finally it should be stated that in the next thirty years demographic extinction will be a main feature of the Croatian population. A dire demographic perspective would not significantly change, even with stronger pro-family policies and higher birthrates (whose increase would constitute a miracle). A significant effect would be absent due to a very simple reason: the future (a) reproduction will be strongly influenced by population aging and discrepancies between large age groups. In this process, the narrowing of the fertile contingent, especially that of younger women (ages 20-29) plays a key role. The results of the projections show that by the year 2031 that the most fertile contingent will be reduced by more than a third. Despite possible encouragement and stimulative policies, popularly speaking, "there will be nobody left to give birth to children!"

In addition to demographics, there are many social, economic, as well as other consequences of the changes indicated in these projections. Following the strong causality of general developmental and demographic processes, we can expect a multiplication of negative consequences. An increase in the number of elderly residents and a decline in the number of young people in terms of negative natural change has many adverse implications for all areas of social life. The increase in the number and proportion of older population will burden various social security funds (pension system, social welfare, health care). The reduction in size and the aging of the labor force contingent in turn puts rapid economic development of the country at stake. The demographic trends and processes presented here, as well as the relationships that derive from them pose a great challenge for demographic, economic and social policies of Croatia.

Professor Ivo Nejašmić, PhD
Department of Geography
Faculty Science, University of Zagreb