

# Social Risks Arising from Evolution Trends in Population Structure\*

Ciprian Pânzaru

West University of Timișoara, Faculty of Sociology and Psychology Bv. Vasile Pârvan nr. 4, Timișoara  
300223, Romania  
e-mail: ciprian.panzaru@gmail.com

## Abstract

*This article reflects one of the social risks caused by the current evolution in population structure, namely the aging of population. The effect of this phenomenon is analyzed primarily through the effects on the social security system component, deeply unbalanced by the major asymmetry between the number of employees – and therefore of contributors – and the number of retired persons, increasingly higher due to aging. This article provides an analysis based on existing statistical data at the level of specialized institutions such as: the UN Population Fund, the Ministry of Labor, Family and Social Protection, the National Institute of Statistics, the European Commission etc.*

**Key words:** social security, population, demographic risk

**JEL Classification:** J11, J21

## Introduction

The current situation is characterized by a profound transformation of economic structures, decrease in population, growth of the participation rate of youth in higher education, and especially massive retirements and migration, issues that have resulted in a drastic reduction in labor market participation. In this picture, a major social risk is caused by the increase of the not contributing population segment in the general active population. A diagnosis of these issues is found in UNFPA analyses<sup>1</sup>. According to this source, the ratio of “productive Romanian citizens, contributors to the public budget and social funds” and the beneficiaries of these funds decreases continuously, with the decreasing of entries into the labor market and the increasing number of retirees. As such, the population aging phenomenon is a real one with multiple effects especially on the social security component. After the revolution, Romania’s population decreased by nearly two million people and could reach according to UN and World Bank<sup>2</sup>

---

\* This work was co-financed from the European Social Fund through Sectoral Operational Programme Human Resources Development 2007-2013, project number POSDRU/1.5/S/59184 „Performance and excellence in postdoctoral research in Romanian economics science domain”.

<sup>1</sup> United Nations Population Fund, *Populația României încotro?*, available at <http://populatiaromanieiincotro.unfpa.ro/demografic/piramidapopulatiei/?limba=Ro> [accessed on December 21, 2010]

<sup>2</sup> ibidem

studies 16 to 17 million inhabitants by 2050. In all this record of demographic change, the pension system occupies the most vulnerable place.

## Theoretical and Statistical Highlighting of Socio-Demographic Risks

The socio-demographic and economic processes that characterize the period of the last two decades in Romania (population aging, active population reducing, macroeconomic problems mainly of transition countries, etc.) and that will exacerbate in the future are transforming the issue of social protection for the elderly and particularly the problem of more effective administration of pension systems in one of the largest social vulnerabilities. Population ageing is the factor with the greatest impact on pension systems, its effects being obvious: lower value of contributions as a result of the reduced number of contributors and increase in pension costs due to the increased number of beneficiaries. Given the funding of these pension programs under PAYG<sup>3</sup> regime, tax burden is placed primarily on employees and employers.

The demographic trend is evidenced best by the population pyramid (Figure 1). Thus, in 2009 it shows the following population state:

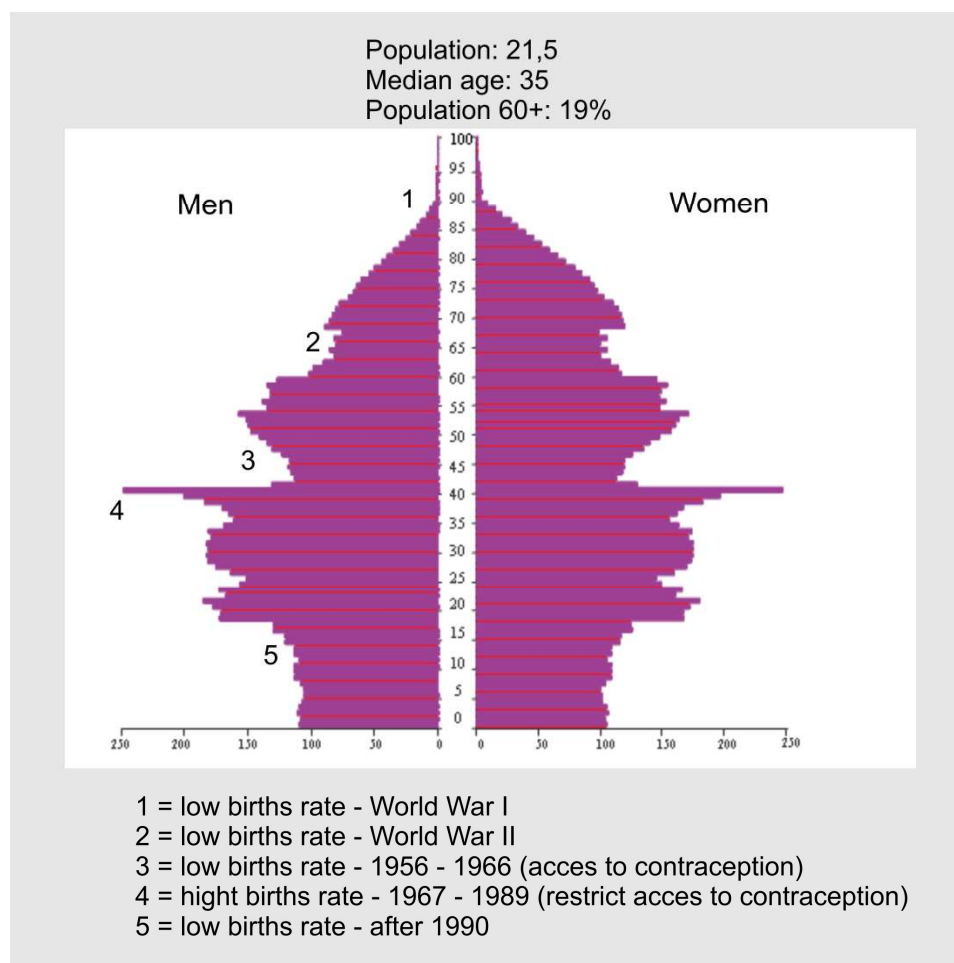
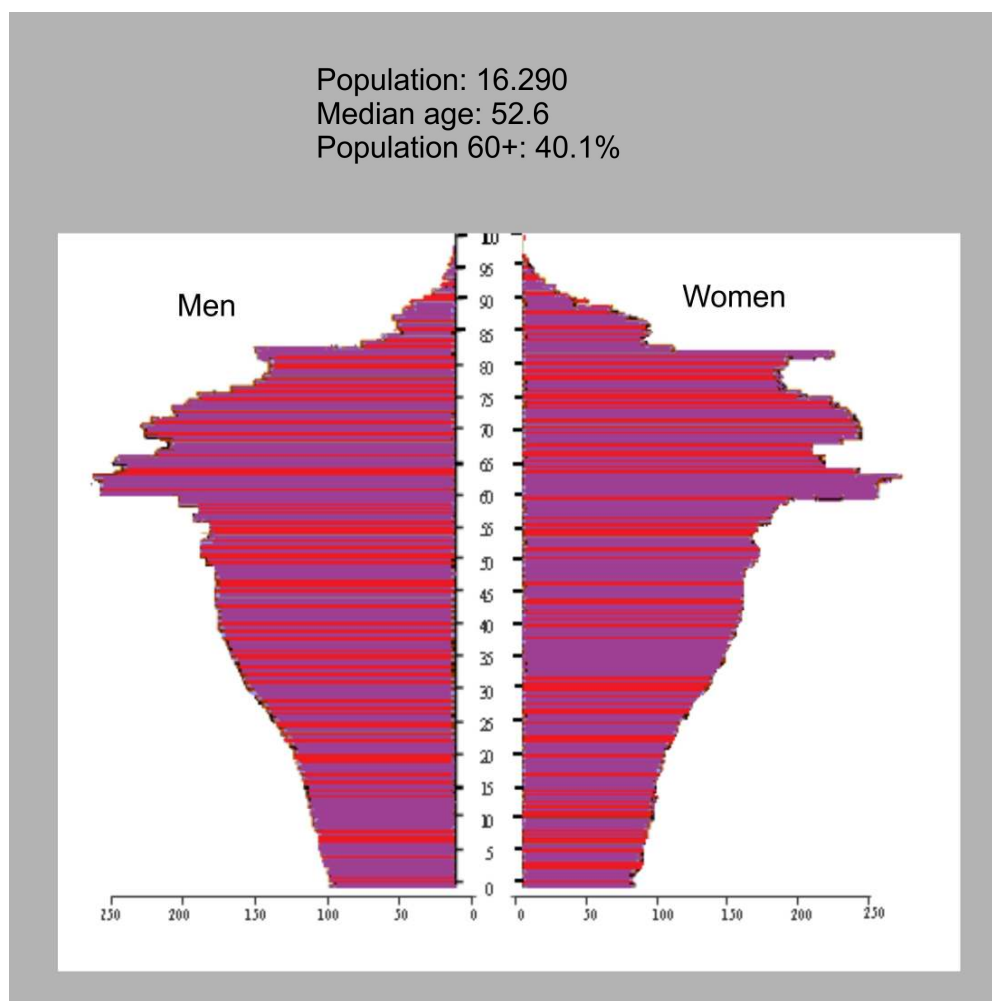


Fig. 1. Population Pyramid – Romania 1st July 2009

<sup>3</sup> Pension system based on the principle of social solidarity, i.e. the support by those who currently have an income of those who worked in the past

Source: National Institute of Statistics, Romanians in Figures 2010, p. 10

If the population pyramid reflects a young population more numerous than the older population it means that the public pension system is somewhat assured in the sense that pensions can be paid from contributions coming from the younger ones. 20 years ago, when the number of employees was approximately 8.1 million, the pension system was not compromised. Currently, when the number of employees was significantly reduced, it becomes extremely vulnerable, especially since the number of retirees is increasing. In 15 to 20 years, those born after 1990 will reach adulthood, and those born during the population boom – the 60s and 70s – will be at retirement age. That context will be characterized by a pronounced imbalance. The forecasts are grim, according to the same sources (UNPFA); for 2050, the population pyramid in Romania will be completely unbalanced, the population consisting mainly of 60 year olds and above:



**Fig. 2.** Population Pyramid – Romania 2050

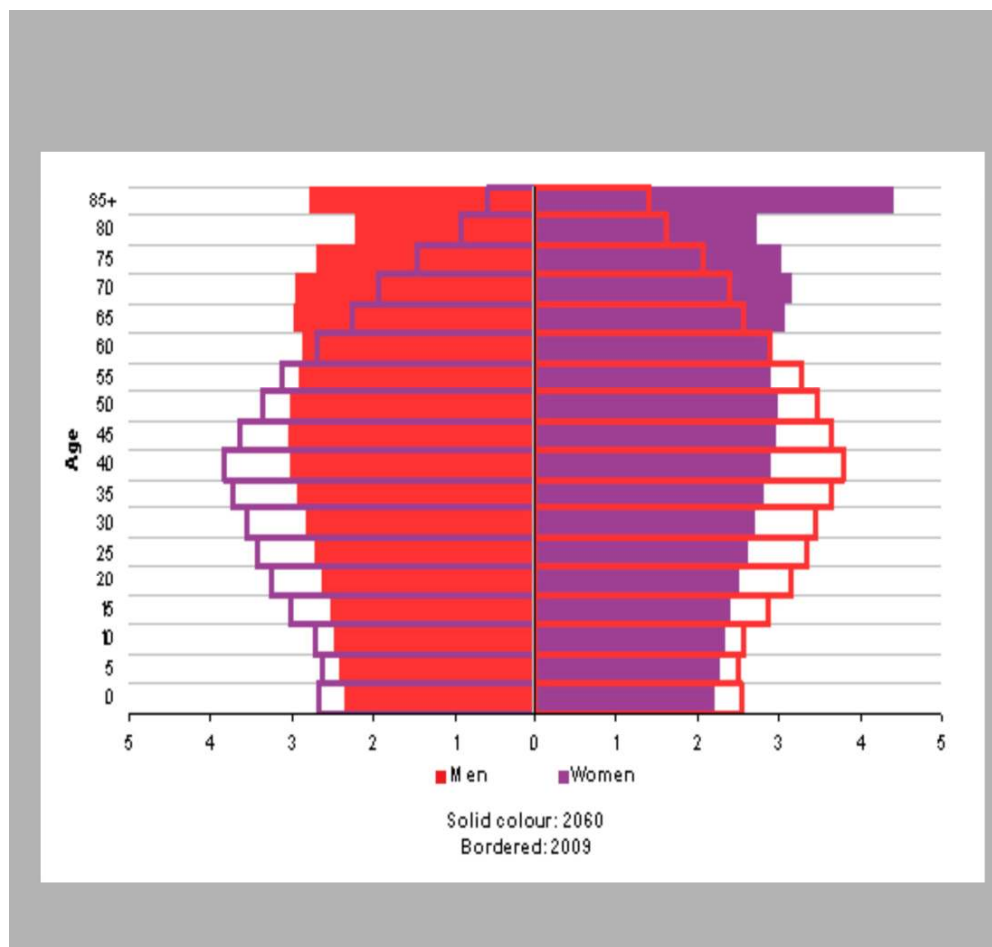
Source: UNFPA, 2005 [www.populatiaromanieiincotro.unfpa.ro/demografic/piramidapopulatiei/](http://www.populatiaromanieiincotro.unfpa.ro/demografic/piramidapopulatiei/)

Romania is not the only one in this situation; an IMF study<sup>4</sup> estimated that the ratio of retirees and active population will halve in Europe by 2050, from four to two active people for each retiree. In 2006, a European Commission report<sup>5</sup> estimated that EU workforce will fall by 48

<sup>4</sup> ibidem

<sup>5</sup> ibidem

million people, or 16%, between 2010 and 2050, while the number of the elderly will increase by 77%, or 58 million people.



**Fig. 3.** The European Union, Population Pyramids 2009 and 2060 (% of the total population)

Source: Eurostat 2009, Population, Structure and Ageing

[http://epp.eurostat.ec.europa.eu/statistics\\_explained/index.php/Population\\_structure\\_and\\_ageing](http://epp.eurostat.ec.europa.eu/statistics_explained/index.php/Population_structure_and_ageing)

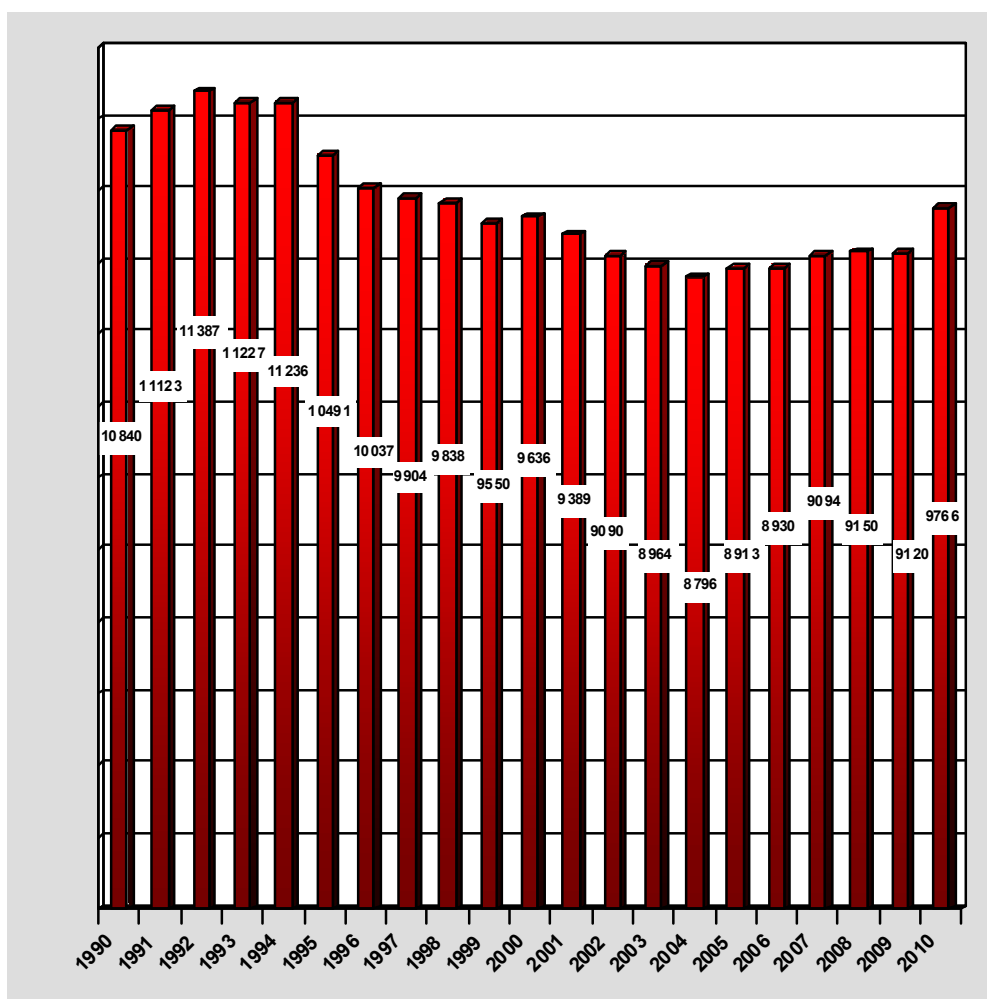
The graphic illustration through the population pyramid for the European Union population shows a “bulging” caused by the baby-boom period which, as shown in Figure 3, is situated at the 35 to 45 years interval, but in perspective (2060) it will be in the range of 70 to 80 years.

Due to this, on the labor market less numerous generations will gradually enter and the number of employees will not increase very much even in the event of steady economic growth since there will be no demographic pool large enough to increase the mass of employees. As a result, young labor inputs will be increasingly smaller, being affected also by the increase of the share of students in each generation, as well as by migration, presumably to increase especially because of the perpetuation of the crisis in our country, once with labor market liberalization in EU countries which have not yet done so. In one more generation, starting with 2030, children born during the transition period will enter the labor market, which are even less numerous, so that the labor market entry crisis will increase. The effects of these two demographic waves were, are and will be a source of major imbalance in the education systems, labor market, social protection system, in the migration processes, as well as in the evolution of Romania’s population structure. Subtracting the mass of employees and especially the increase of the number of retirees is generated, beyond the demographic aging process, also by the substantial

increase in life expectancy. Thus, the ratio between persons at a productive age (15 to 64 years) and those aged over 65 will increase permanently. Ageing is translated primarily through a reduction in the active population.

## The Implications of Population Structure Evolution on the Labor Market

The way in which the labor market “moves” determines the volume of labor. From an economic perspective, the most important demographic category considered for the characterization of the labor force is the active civil population. Firstly, the active population is part of human resources, and therefore of the total population. Its evolution does nothing but follow the decreasing path of the total population. Its size and structure is directly dependent on the volume of some macroeconomic indicators such as national income and gross domestic product, and in the alternative, in Romania’s case, the state social insurance budget. For the period under review, namely the period 1990-2010, the active population evolution in Romania is as follows:

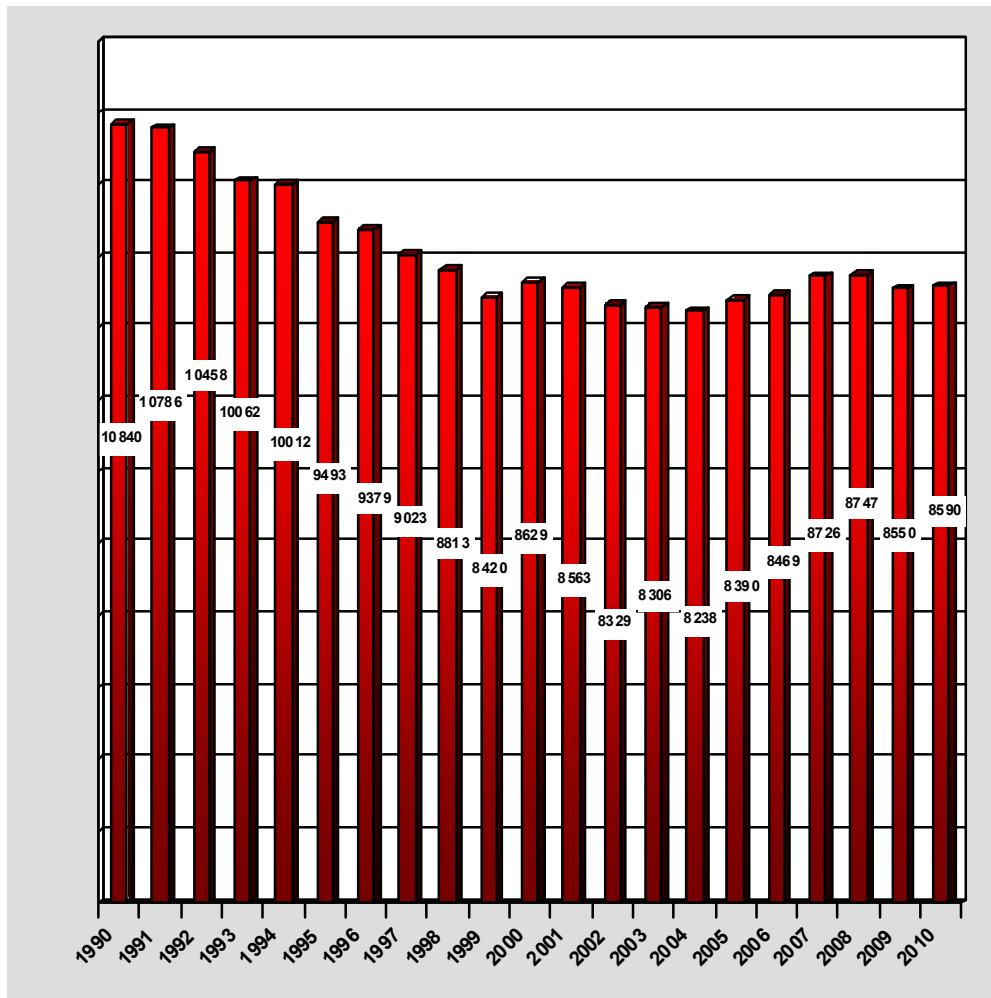


**Fig. 4.** Evolution of the active population in Romania during 1990 - 2010 (thousands of persons)

Source: National Institute of Statistics, [www.ins.ro](http://www.ins.ro), FOM102A matrix - Civil active population by sex, macroregions, regions of development and counties, and Press Release no. 61 of March 28, 2011 - Employment and unemployment in the fourth quarter 2010

In the early 90s, Romania's civil active population has had a slightly upward trend, culminating in the number of 11,387 thousand of active civil persons, recorded in 1992, the highest level achieved so far. After two years of stagnation, the working population has entered into an accelerated decline, and, in just two years (1995 and 1996), decreased by nearly 1.2 million civil active persons. The pace of decline has decreased since 1997, so that in 2010 the civil active population was 9,766 thousand people.

Records of this evolution with the implications on what the volume of labor means are more apparent when we analyze the indicator "employed population".



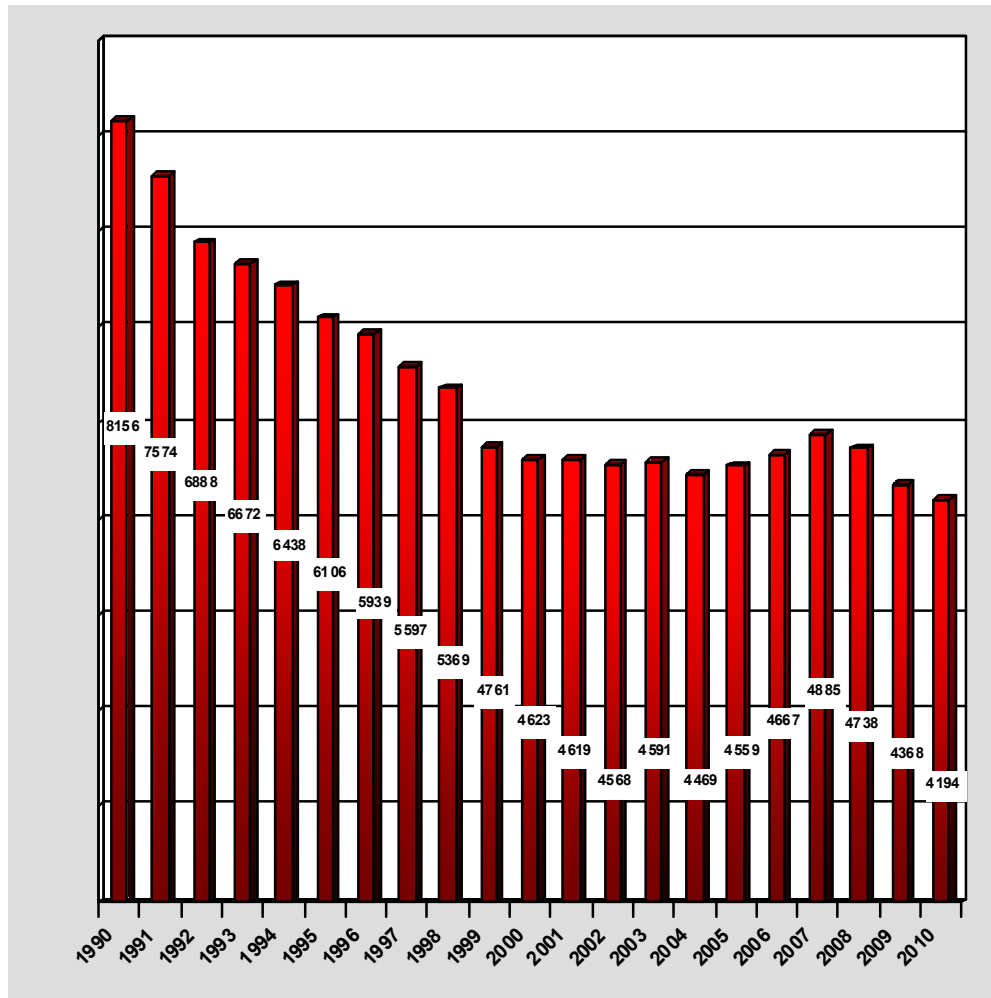
**Fig. 5.** Evolution of employed population in Romania during 1990 - 2010 (thousands of persons)

Source: National Institute of Statistics, [www.ins.ro](http://www.ins.ro), FOM103A matrix - The civil employed population by economic sector at section level NACE Rev.1 gender, macroregions, regions of development and county, and Press Release no.61 March 28, 2011 - Employment and unemployment in the fourth quarter 2010

Analyzing the volume of the employed population, the downward trend until 2004 stands out, mostly due to the reduction in the number of employees in the economy as a result of its restructuring and closure of many businesses. After 2005, a slight increase in employment is noticeable. In 2010, employment reached 8,590 thousands of persons.

These evolutions have fully demonstrated their influence on the number of employees in Romania. If in 1990 there were 8.1 million employees, their number is now 4.19 million<sup>6</sup> for an active population of approximately 10 million. Basically, in 2010, only 4.19 million people, above mentioned, have pension insurance, which will bring major long-term problems.

Developments so far indicate no improvement of this issue. Basically, with few exceptions, the evolution in the number of employees in the 1990 to 2010 period was a descendant one:



**Fig. 6.** Evolution of the number of employees in Romania between 1990 to 2010 (thousands of persons)

Source: Romanian Statistical Yearbook 2009, pp.136-137 and online database of the Ministry of Labor, Family and Social Protection, <http://www.mmuncii.ro/ro/statistici-55-view.html>

The number of employees has decreased considerably, this being reflected in the social security contributors – beneficiaries ratio. Among the employed population, the share of employees, those on which Romania's GDP and budget relies on, although it showed an upward trend since 2001, arrived in 2009 to only 65% to 66% of the employed population<sup>7</sup>.

<sup>6</sup> Ministry of Labor, Family and Social Protection, *Number of employees 2001 - 2010*, available at <http://www.mmuncii.ro/ro/statistici-55-view.html> [accessed on December 18, 2010]

<sup>7</sup> Presidential Administration, *the Presidential Commission for Social and Demographic Risk Analysis*, 2009, p. 312

Basically, at present, a minority of employees supports the economy of Romania, the budget and the rest of the population.

## Impact on the Sustainability of Public Pensions System

The existence of a significant segment of pensioners in the total population affects the income to the state budget and especially the sustainability of social policies. Pensions are the most important form of social protection for the elderly. Through the dimensions of pension costs and the number of beneficiaries (nearly five million people), the pension system represents the largest category of public spending; hence its crucial importance for the Romanian society. Pension expenditures represent the largest category of budget spending, namely over one fifth of public expenditures. The number of registered pensioners increased continuously during the 2001 to 2010 period. Thus, if in 2001 there were 4,512.4 thousand pensioners, in 2010 (September) there were with over 300 thousand more, their number being 4,776.5 thousand<sup>8</sup>. These two cases, by the way they complete each other when talking about risk analysis induced by population evolution trends, best highlight the current situation in our country. The evolution, of course upward, of the number of pensioners for the period under review can be seen in the chart below:

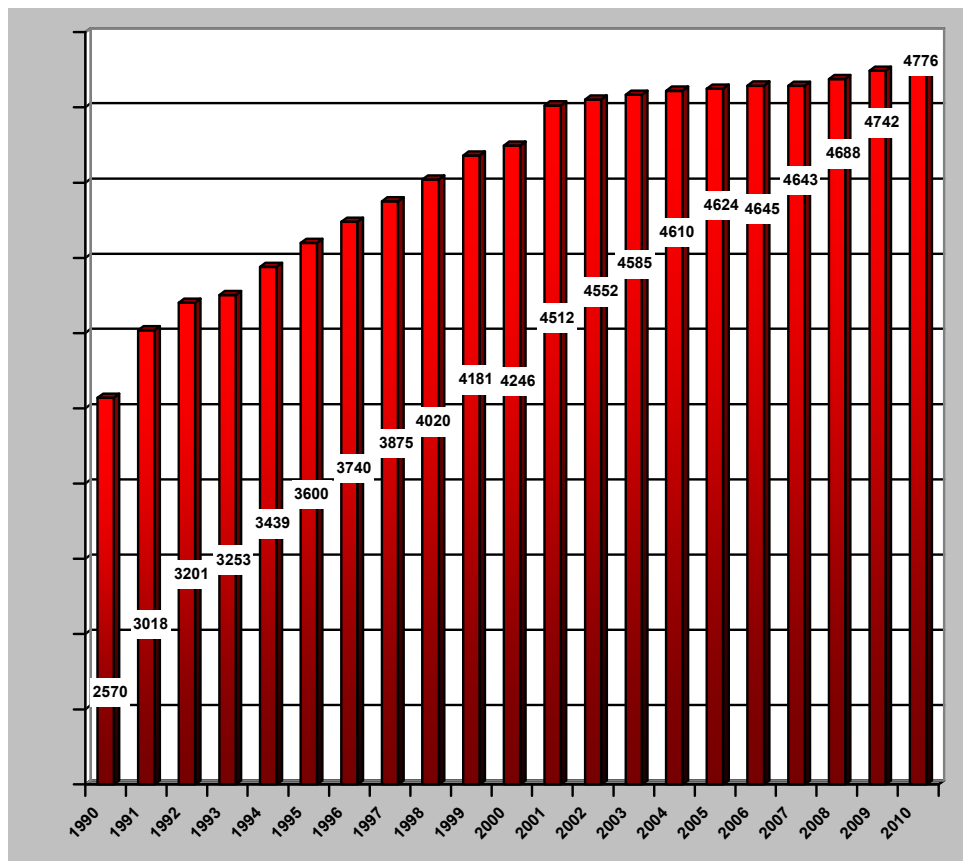


Fig. 7. Evolution of the number of pensioners in Romania during 1990 to 2010 (thousands of persons)

<sup>8</sup> Ministry of Labor, Family and Social Protection, *Number of State Social Insurance Pensioners*, available at <http://www.mmuncii.ro/ro/statistici-55-view.html> [accessed on December 18, 2010]



Source: Romanian Statistical Yearbook 2009, pp. 397-396 and online database of the Ministry of Labor, Family and Social Protection, <http://www.mmuncii.ro/ro/statistici-55-view.html>

This situation is more alarming if we look at the evolution of types of pensions accessed between 2001 to 2010. Thus, although the number of pensioners, as shown in the chart above, has grown continuously, yet the number of those who have retired from old age and having a full contribution period (i.e. those who have contributed throughout the period expressed in years required by law in force in this field) decreased yearly. Basically, the increase in the number of pensioners is given by a different type of pensions than those obtained for old age: early retirement pensions, disability and old age pensions, but with an incomplete contribution period. The evolution of these types of pensions for the period 2001 to 2010 is visible in the chart below:

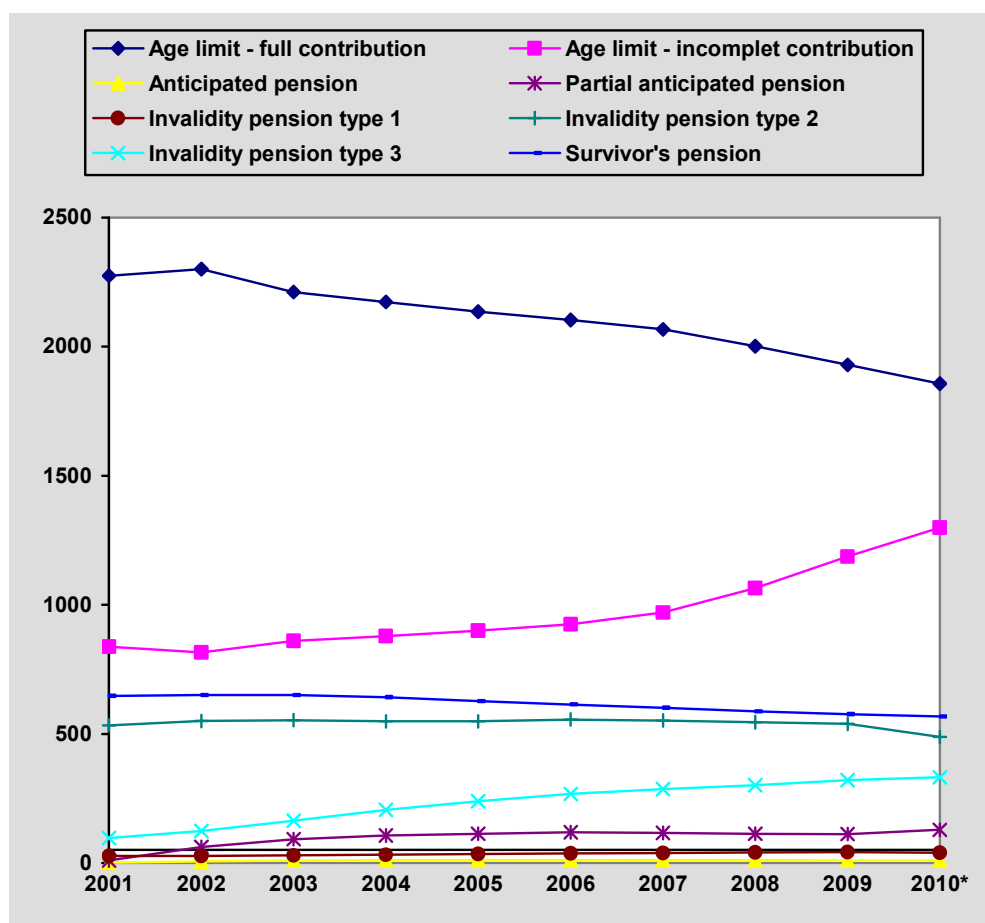


Fig. 8. The evolution of the types of pensions granted during the 2001 to 2010 (thousands of persons)

Source: online database of the Ministry of Labor, Family and Social Protection, time series 2001-2010  
<http://www.mmuncii.ro/ro/statistici-55-view.html>

Worse is that in the “pensioners’ class” cross persons who do not have complete contribution stages and especially people who are still in the productive age range, thereby disturbing the balance of the active population employed – unemployed active population.

In 25 to 35 years, by the increasing of the number of retirees, the pressure on the social insurance system will increase considerably. At that time, the active age population (paying these costs through taxes and contributions to insurance funds) will be less numerous, leading, for example, to a significant increase in taxes. In all these cases, the population aging is also

added. The wave coming is made up of the baby-boomer generation<sup>9</sup> now reaching retirement age and which will represent an increased social risk by the effect produced on the social security system component in general and on the pension system in particular. The share of retirees will be around 32% of the total population in 2025 and over 45% in 2050, if the current average real retirement age is kept. To maintain an acceptable proportion of retirees in the total population, of approximately 30%, the average real retirement age should be of 65 and the legal age of 70. In 2025 we will have 6.5 million retirees if we keep a (real) reduced retirement age and 4.9 million if we reach 60 years. Finally, in 2050, at a possible population of 16.7 million people<sup>10</sup>, we could have 5 million pensioners (30%) only if we reach an average real retirement age of 65 years, therefore a legal (statutory) retirement age of 70 years. It should be noted in this context that the average real retirement age is the average age of all those who retire during a time interval. It also includes early retirees, disability pensioners and people in particular systems retired at early ages, and this is why it is significantly smaller than the theoretical age of retirement. In Romania, in recent years it was at about 54. Therefore, the issue of elderly people with no pension and health insurance will be visible especially after 2025 when people currently working under the counter or not working at all will reach old age without the benefit of pension and health insurance, and minimal services' costs will be borne by the social services system.

With so few employees, it is evident that many Romanians are part of the categories that benefit from the redistributions of revenue collected from the state budget and social security funds.

## Conclusions

Given the major effect of current evolution trends in Romania's population demographic structure, it reflects on the social security system, more specifically on the pension system; the solving should also come from this direction. Therefore, one of the solutions should consider setting up a pension system model to ensure an appropriate balance in relation to demographic aging.

One solution, in the context of active population decreasing, to ensure sustainability of the pension system, could be, on the long term, the development of pension programs based on capitalization at the expense of redistributive ones. At present, pensions in the public system in Romania provide retirees a replacement income of about 30% of the gross average wage<sup>11</sup>. In this situation it is necessary to impose a solution that can complement the public system pension based on private pension schemes. In this case, the funds representing the contribution of the insured will be accounted for in individual accounts and will be capitalized throughout the period of accumulation, so that in the decumulation phase, the proceeds to be as large as possible.

Another solution, otherwise taken into account throughout the world, to reduce the risks caused by the demographic evolution of the population (aging phenomenon) is to increase the average real retirement age (which is now only at about 54) up to an average of 60 years by discouraging early retirement, unjustified medical retirements and prohibiting the accumulation of public pension with the salary<sup>12</sup>.

---

<sup>9</sup> A baby boomer is a person who was born during the demographic baby boom period (for Romania this period is between 1965-1970)

<sup>10</sup> Presidential Administration, *the Presidential Commission for Social and Demographic Risk Analysis*, 2009, p. 89

<sup>11</sup> Victora Șeulean, Liliana Donath, *Dezvoltarea planurilor de pensii private, alternativă viabilă la pensile din sistemul public*, Curierul fiscal C.H. Beck Bucuresti, Bucuresti, 2006, p. 4

<sup>12</sup> Presidential Administration, *the Presidential Commission for Social and Demographic Risk Analysis*, 2009, p. 315

Finally, to control the situation, but with long-term effects, pro-birth policies should be included among the activities undertaken with the purpose of social risks decrease induced by the population's demographic structure evolution.

## References

1. European Commission, *Demographic Report*, Luxembourg, 1997.
2. European Commission, *The social Situation in the European Union*, Luxembourg, 2000.
3. European Commission, *Communication on Social Trends COM/2000/82*, Luxembourg, 2000.
4. European Foundation for the Improvement of Living and Working Conditions, *Survivor's Pension*, available at <http://www.eurofound.europa.eu/>, [accessed on January 15, 2011].
5. G i n n e k e n , W . , *Extending social security: Policies for developing countries*, ESS Paper No. 13, Geneva, International Labour Office, 2003.
6. International Labor Office, *Employment and social protection in the new demographic context* , Geneva, 2010.
7. International Social Security Association, *Social Security and Demographic Changes*, available at <http://www.issa.int/Topics/Social-security-and-demographic-changes>, [accessed on December 18, 2010].
8. Ministry of Labor, Family and Social Protection, *Number of State Social Insurance Pensioners*, available at <http://www.mmuncii.ro/ro/statistici-55-view.html> [accessed on December 18, 2010].
9. P r e d a , M . , *Riscuri și inechități sociale în România*, Editura Polirom, Iași 2009.
10. Presidential Administration, *The Presidential Commission for Social and Demographic Risk Analysis*, 2009.
11. Romania's National Institute of Statistics, *Romanian Statistical Yearbook 2009*, available at <http://www.insse.ro/cms/rw/pages/anuarstatistic2009.ro.do> [accessed on January 7, 2011]
12. Ș e u l e a n , V . , D o n a t h , L . , *Dezvoltarea planurilor de pensii private, alternativă viabilă la pensile din sistemul public*, Curierul fiscal C.H. Beck, București, 2006.
13. United Nations Population Fund, *Populația României încotro?*, available at <http://populatiaromanieiincotro.unfpa.ro/demografic/piramidapopulatiei/?limba=Ro> [accessed on December 21, 2010].

## Riscuri sociale generate de tendințele de evoluție a structurii populației

### Rezumat

*Prezentul articol reflectă unul din riscurile sociale induse de evoluția actuală a structurii populației, și anume îmbătrânirea demografică. Efectul acestui fenomen este analizat în primul rând prin prisma efectelor produse pe componenta sistemului de securitate socială, profund dezechilibrat de asimetria majoră dintre numărul salariaților – deci al contribuitorilor – și numărul pensionarilor, din ce în ce mai sporit din cauza fenomenului îmbătrânirii. Articolul face o analiză pe baza unor date statistice existente la nivelul unor instituții de profil precum: Fondul ONU pentru Populație, Ministerul Muncii, Familiei și Protecției Sociale, Institutul Național de Statistică, Comisia Europeană etc.*