

AGING POPULATION-A CLOUD ON ROMANIA'S ECONOMIC FUTURE

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Abstract

The decision to have children nowadays is largely a matter of choice; this has led researchers to model fertility in economic terms. This paper links the demographic effects to the labor market characteristics and consequently to the national economy. It shows that the situation in the Romanian economy is characterized by a steadily declining share of the working age population, a rising share of the elderly and a decreasing share of the young. Therefore if the downward demographic trend should continue, there will only be 15.6 million people left in Romania in 2060 with only 2 million labor force participants. The burden of financing 8 dependents will fall on one labor force participant, thus, the rising old-age dependency ratios will translate into growing tax burdens. The generous pension and health care benefits will crowd out public investment in infrastructure or education, with negative effects on capital accumulation and productivity growth.

Keywords: Population aging, fertility, dependency ratio, economic pressure.

1. SITUATION ANALYSIS

The demographic dynamics in Romania show a worrisome picture. Longer life expectancy and international migration of the working population that started after Romania's accession to the European Union "EU" in 2007 pose great consequences on the Romanian economy. According to data available at the National House of Pensions and Other Social Insurance Right, if the downward demographic trend that started in 1991 should continue, Romania's population will be only 15,620,036 in the 2060 and the rate of aging population (65 years and above) will represent 25.25% of the labor force. Population aging is one of the most devastating social and economic challenges facing European societies in the 21st century. This phenomenon will affect all member states and will have an impact on most areas of action. On June 5th 2014, the European Commission reported that by 2025, over 20% of Europeans will be at least 65 years old. Also, there will be a rapid increase of people over 80 years. Because elderly need special medical care, health systems will need to adapt in such a way as to provide adequate care and remain financially viable. According to the Romanian state social insurance budget (Bugetul asigurărilor sociale de stat BASS), during 1990-2002, the state social insurance budget implementation was achieved with great difficulty registering permanent deficits after 1995. Poor budget

implementation was predictable given that there has been a decrease in economic activity. Unemployment and inflation reached levels of critical mass which impacted the collection of revenue that has been declining. The number of protected persons increased considerably; however, correlated with a "limited" financial and fiscal discipline. Therefore, BASS stated that there has been an increase of over 80% in the number of pensioners in the period from 1990 to 2003 and a reduction in the number of taxpayers to almost 50% in the same period, thus BASS balance could not be achieved through subsidies (Aghergheloei, 2006).

The article is structured as follows: The next section presents empirical evidence of Romanian demographic structure over time due to the movement of its fertility rate. It discusses individual's utility maximization that determines the cost and benefits of having a child and the subsection discusses retirement security. Section three accounts for fiscal pressure coming from social welfare system and the burden on active working age population. The discussion is concluded with policy recommendation in section four.

2. EMPIRICAL EVIDENCE

Due to the decline in fertility rate and increase in life expectancy, a significant shift occurred in the Romanian demographic structure, causing the rate of aged population to rise from 10.45% in 1961 to 21.4% in 2013 and the share of children from 44.1% to 21% in the same time period (see figure 1).

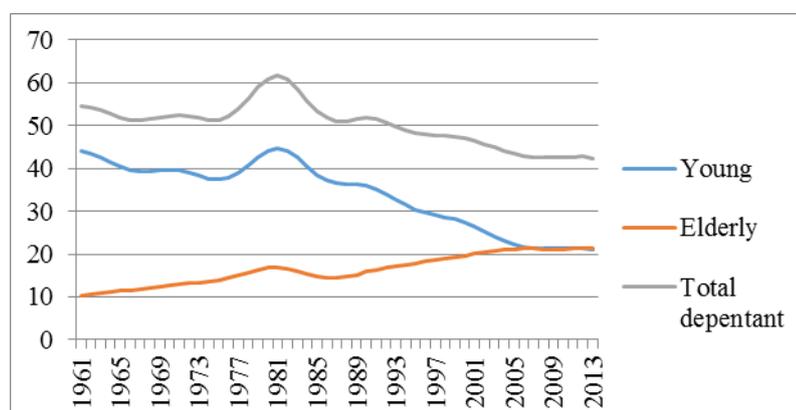


FIGURE 1 - AGE DEPENDENCY RATIO (PERCENTAGE OF WORKING-AGE POPULATION)
 Data source: World Bank

Existing literature shows that the decision to have children is dependent on numerous factors (Kantor, Hozyainova, 2008); and many of them cannot easily be accounted for in models. Medical and technological advancements coupled with less demanding manual work and a healthier life style, made it possible to grow older. Now, couples decide to have children on the grounds of economic constraints,

personal satisfaction derived from having one's own child and some due to religious beliefs which has led to the decline of fertility rate from 3.66 per woman in 1967 to 1.53 in 2012 (World bank data, 2013).

Like any other nation with a high proportion of either children or elderly or both, Romania is likely to devote a high proportion of resources to their care, which tends to depress the pace of economic growth. By contrast, if most of a nation's population falls within the working ages, the added productivity of this group can produce a "demographic dividend" of economic growth, assuming the country holds the policies to take such advantage. A bulk of literature has focused on ways to mitigate the consequences of aging by reforming existing institutions of the welfare state (Preda & Grigoraş, 2011; Groot & Peeters, 2011). In 2008, the Directorate-General for Economic and Financial Affairs of the European Commission provides a description of underlying macroeconomic assumptions and projection methodologies of the age-related expenditure projections for all member states. On the basis of these documents, the underlying assumptions and methodologies, age-related expenditures covering pensions, health care, long-term care, education and unemployment transfers were calculated and presented to the ECOFIN Council in May 2009. Bloom et al, (2001) examines the relationship between population change and economic development in different regions of the world. Another way to alleviate the long-run consequences of an aging population is to reverse the demographic development by increasing the fertility rate (Ivonne Honekamp 2008). The economies that will experience steeply rising dependency ratios in the future are characterized by high inactive shares of the working age population, mainly because many of working age population (e.g. housewives, unemployed, physical or psychological challenge) do not perform paid work or only work on part-time basis.

Technically, the fiscal policy is sustainable as long as there is equalization of the net present value of primary surpluses and debt obligations (Ley, 2010). Analogously, a country is solvent as long as the net present value of its primary surpluses is greater than or equal to the net present value of its debt obligations. On the assets side, productivity (growth) – the size of the workforce and the labor force participation rate largely determine the future stream of tax revenues. On the liability side, the share of the young and old aged in the population determines largely the accumulated government debt and the future stream of government commitments with respect to the main categories of public spending such as health care, social security and education.

2.1 Fertility and economic growth

Apart from the moral or cultural values attached to child bearing, people now decide to have children based on economic factors. Hence, fertility can be treated as an endogenous variable and can be

analyzed economically. Leibenstein (1957) and (Becker, 1960) developed a micro-economic model based on consumer demand theory and endogenous fertility. This model is grounded in individual's utility maximization that determines the cost and benefits of having a child. On the one hand, declining fertility rate could be explained by the increasing costs and declining benefits of raising children. This could as well explain (Folbre, 1994) argument that children are increasingly becoming a public good. On the other hand, we could say it's a result of the increasing rate of women getting tertiary education (as revealed in figure 2) and securing better positions in the labor market.

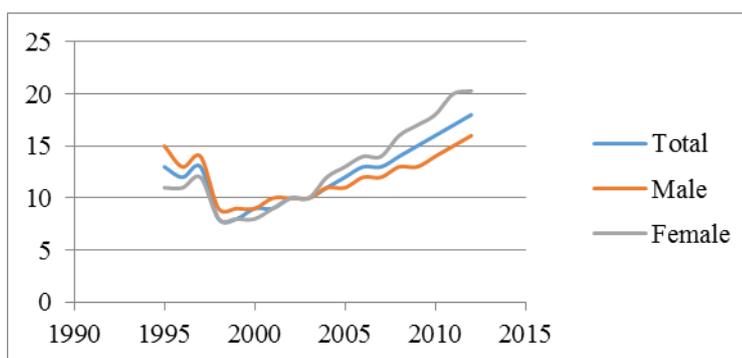


FIGURE 2 - LABOR FORCE WITH TERTIARY EDUCATION (% OF TOTAL)
 Data source: World Bank 2014

Also some women are finding it difficult to sacrifice their lifestyle or career for raising children. 47% of the respondents from (Allensbach Institut, 2004) survey reveal that a child would be a financial burden. Bundeszentrale (2013) study shows that couples with two children and couples with three children face higher risk of poverty of 12% and 24.58% respectively, than couples without children. In West Germany, one adult with a child at middle income federal level has 9% risk of poverty, and 10.1% risk at the regional level. The risk increases to 10.3% with two children at federal level and 11.6% at regional level. With three children, the risk is 21.8% at federal and 21.8% at regional level. Meanwhile in East Germany, one adult with a child at middle income federal level has 13.6% risk of poverty, and 9% risk at the regional level. The risk increases to 16.4% with two children at federal level and 10.5% at regional level. With three children, the risk is 31.4% at federal and 20.6% at regional level. High fertility in the 1960s created a "baby boom" generation in Romania, which was larger than the generations that preceded. In the early 1990s when this generation was in the working age, the savings rates were boosted by 23% on average; from 1961 to 1991, the working-age population grew by 2.83% annually and the dependent population diminished by 0.2% (World Bank, 2013). When analyzing the economic consequences of aging, it is not possible to come up with an example in which aging does not cause negative effect on social security programs. Bloom et al, (2011) adopt a life cycle perspective, based on the fact that people's economic needs and contributions vary over the various stages of life. Specifically,

the ratio of consumption to production tends to be high for children and elderly and low for working-age adults. This means that key drivers of economic growth such as aggregate labor supply, productivity, consumption, and savings will tend to vary depending on where most people fall in the life cycle. Therefore, a country with large ratio of dependency is likely to experience slower growth than one with a high proportion of working-age people. Meanwhile, the former U.S. Federal Reserve Chairman Alan Greenspan warned that aging in the United States will make social security and Medicare programs unsustainable in the long run (Greenspan, 2003). In quantifying dependency and fertility rate – as an expression of family behavior, (Ghita et al, 2010) argue that fertility rate depends to a great extent on the specific socio-economic conditions, and on major changes in economy. Hence, concluded that family must remain the main ground cell of the society, which helps all the generations move to a new economic and social dimension. For this reason, Romania needs to take action soon to increase fertility and stop migration as its future situation is severely unsustainable (Bărbulescu, 2013).

2.2 Retirement and Pension reform

As Romania's population is rapidly aging with increased longevity, a heavy burden is placed on the public pension's budget, which has to rely on less labor force to support more beneficiaries. Therefore, the public pension budget is no longer sustainable in its current form and needs a major reform to avoid collapsing during the next decades. Consequently, it is becoming increasingly critical to develop and offer new financial products that help protect economic security during the retirement period.

Retirement security can potentially be enhanced with the purchase of a life annuity with premium paid to an insurer which will provide a steady income stream until the insured party's death. According to (Albrecht & Maurer, 2002), the probability of exhausting one's assets prior to death without an annuity can be quite substantial, though how likely this is, will depend on the asset allocation of the retiree's non-annuity wealth. The present form of public pensions system known as pay-as-you-go "PAYG" where the state collects contributions from workforce and redistributes the money among existing pensioners is unsustainable since it highly relies on contributions from a shrinking working population. This threat was well measured by The EU's (Economic Policy Committee, 2014) which says: The aging of the population is becoming a growing challenge to the sustainability of public finances in the EU Member States. If this trend should continue, the redistribution logic of government will no longer be viable, as contributor's numbers are falling and the number of pensioners is already going up. In 2001, Romania's public pensions system relied on contribution from 7,278,468 labor force, while 4,425,800 pensioners benefited; in 2013, only 5,252,744 labor force were left to contribute in the system, while the number of pensioners went up to 4,682,300 (Casa Națională de Pensii Publice, 2014).

Reforming the welfare state to make it compatible with the changing demography structure would not be an easy task for the government since people are reluctant to accept changes, especially when they are accompanied by a cut back of welfare benefits. However, in order to curtail this effect, in 2007, the World Bank recommended to Romania a multi-pillar private pensions system based on a tested model. This system has now been put in place in 11 countries in Central and Eastern Europe "CEE" which includes Romania.

3. ACCOUNTING FOR PRESSURE

3.1 Fiscal Pressure

The real fiscal pressure coming from social welfare system is both determined by the number of beneficiaries of the public social insurance and the costs per group of dependent, relative to the working-age population, and also by the average cost per person that the government is making relative to GDP per capita. These costs can be denoted as YG, OAG and OSIG, hence the fiscal pressures relative to GDP are:

$$Y_{\text{prest}} = \frac{YAP_t * YG_t}{GDP_t} \dots \dots \dots (1)$$

$$OAP_{\text{prest}} = \frac{OAP_t * OAG_t}{GDP_t} \dots \dots \dots (2)$$

$$OSI_{\text{prest}} = \frac{OSIP_t * OSIG_t}{GDP_t} \dots \dots \dots (3)$$

Where the young age population is represented by YAP, OAP the old age population, OSIP for other social insurance population, subscript "t" represents time, and GDP is the nominal gross domestic product. The significant changes in demographic structures also reveal changes in pressure (Δ_{pres}) for individual groups in year "t+1" in comparison with year "t", that is

$$\Delta_{\text{pres}} = \text{pres}_{2013} - \text{pres}_{2012} \dots \dots \dots (4)$$

Even with the 3.5% increase in GDP reported by the Romanian National Institute of Statistics for the year 2013, the social benefit burden only declined by 0.12%; youth, elderly and other social insurance pressures changed by 0.02%, 0.01% and 0.09% respectively (see figure 3).

In 2009 and 2010, expenditure for pensions reached almost 25% of all government spending and 9.2% of GDP (Figure 4), without taking into account nearly 150,000 military pensioners (army, police, secret service) whose pensions were paid, until the beginning of 2011, out of the annual budgets of those institutions.

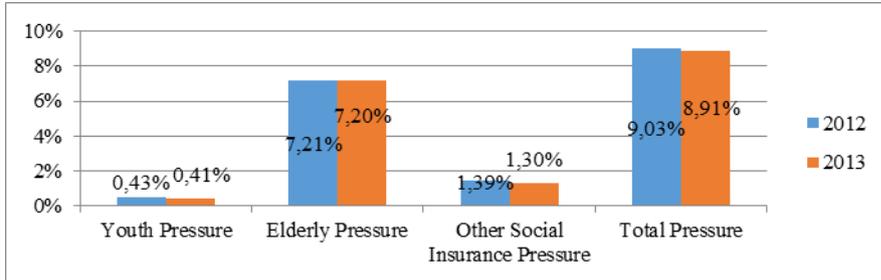


FIGURE 3 - DEPENDENCY PRESSURE

Source: Arthurs' computation, data from National House of Pensions and Other Social Insurance Rights.

Note: Other social insurance (OSI) is the ammonization of the three main programs of social assistance benefits (eligible expenditure programs) which include family support allowance, child raising allowance, social assistance called minimum income guarantee (MIG) and children state allowance. See figure 5 for the share of all social benefits.

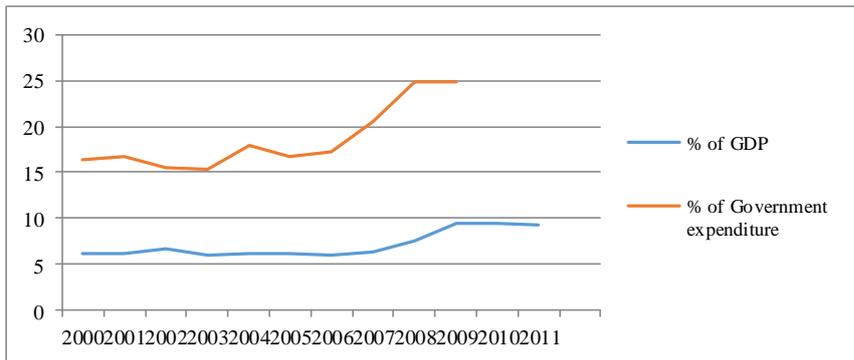


FIGURE 4 - SHARE OF PENSION SPENDING IN THE GDP AND TOTAL GOVERNMENT SPENDING
 Data source: Eurostat

The pressure variable as presented above represents the fiscal burden of the dependents. It reveals the share of each group in government expenditure(see figure 5 for clarity) and also reflects how well each group is taken care of by public services relative to GDP per capita. The high fraction of OAP due to the increasing share of the elderly population contributes more to the pressure on government expenditure.

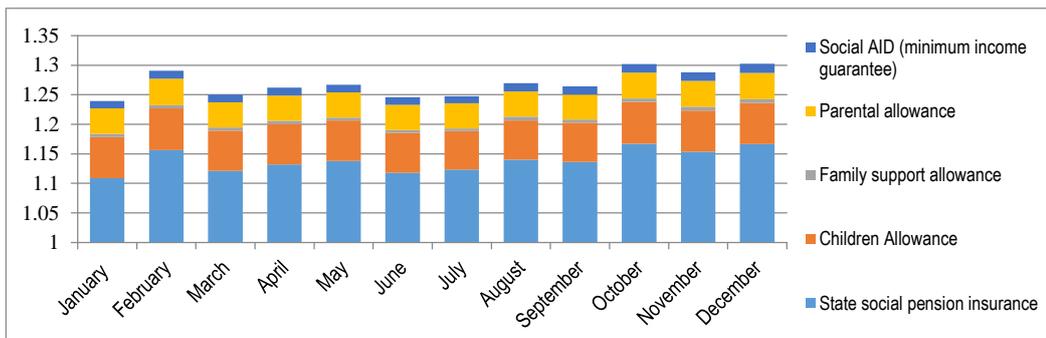


FIGURE 5 - GOVERNMENT EXPENDITURES ON SOCIAL BENEFITS IN YEAR 2013 (USD\$1BILL)

Data source: Casa Națională de Pensii și Alte Drepturi de Asigurări Sociale (The Ministry of Labor, Family, and Social Protection)

3.2. Pressure on the active population

The active working age population has to bear the country's burden, mainly by paying for the education of the younger generation and providing health care and pensions to the elderly. In 2012, Romania recorded 54.9% labor force participation rate of total working population (age 15-65), this ratio will drop to 36.3% in 2060 (see figure 6 for the forecast). Shrinking labor force with increasing dependency rate will negatively influence economic growth. This means that for each labor force, there will be approximately 8 dependents to be financed. Therefore, the rising old-age dependency ratios will translate into growing tax burdens while generous pensions and health care benefits will crowd out public investment in infrastructure and education, with negative effects on capital accumulation and productivity growth (Niepelt & Gonzalez-Eiras, 2011).

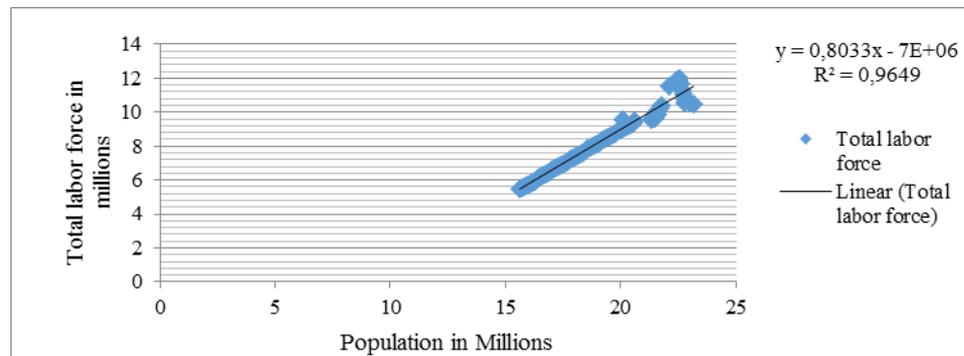


FIGURE 6 - CORRELATION BETWEEN POPULATION & TOTAL LABOR FORCE (1990-2060)
 Data source: Forecasted by author based on World Bank statistic for 1990-2012

This section estimates the future population and total labor force by using existing data of 1990-2012 obtained from World Bank. The predicted value is a y-value for a given x-value. The known values are existing x-values and y-values, and the new value is predicted by using linear regression. The equation for the forecast is $a+bx$, where:

$$a = \bar{y} - b\bar{x} \dots\dots\dots (5)$$

$$b = \frac{\sum(x-\bar{x})(y-\bar{y})}{\sum(x-\bar{x})^2} \dots\dots\dots (6)$$

And where x and y are the sample means average (known x's) and average (known y's).The linear regression shows how strong is the relationship between the two variables. The closer the data to the trend line, the closer the relationship and R2 of 0.9649 (96.5%) explain the reliability of the data.

The first challenge to be faced in the future is primarily the broad definition of the economically active population coupled with a strong income effect on the economy. By the year 2060, the economically active population which includes high school and university students, fulltime house wives, the employed and unemployed will account for 5,444,466 populist of the estimated 15,620,036 total population. Hence, the increasing pressure on the active population will hinder economic growth, force labor into the informal sector of the economy and encourage tax evasion.

4. CONCLUSIONS AND POLICY RECOMMENDATIONS

This paper links the demographic effects to the labor market characteristics and consequently to the national economy. It shows that the situation in the Romanian economy is characterized by a steadily declining share of the working age population, a rising share of the elderly and a decreasing share of the young. Considering the need of Romania to increase its fertility rate, government needs to reduce the costs of having children by subsidizing families through child benefits or other allowances. Therefore we can assume that the utility of low skilled women and women with a university degree will be equally affected by an increase of child benefits. However, the utility a woman with university degree, earning a relatively good salary will get from \$50 increase of child benefit cannot be compared with that of a woman earning little income without university degree. In the short run, this might increase the Burden on government; however it will go a long way in increasing the fertility rate, and will significantly contribute to the change in the age structure of the population over time. It is also good to mention that the increase in child allowance for the parent of a new baby from 75% to 85% of their average income of the past 12 months, which was instituted on 1st January 2011 by the GEO no. 111/2010, is another innovative idea from the part of the government. Thus, there is a need for an upward review of the current maximum amount of 3,400 lei (\$1,017 or €756) monthly child raising allowance to encourage higher income earners into childbearing, since their consumption will be increasing while income decreasing. This might not be unconnected to the causality between the increase female labor force participation rate and decreasing fertility rate. Also, income tax reduction should be granted to those having their third child and above, in order to augment their disposable income. Furthermore, government should invest in state funded child care facilities which would be an incentive to the families and would increase female productivity at work. Government should as well promote policies towards flexible work programs that ensure reconciliation between family and professional life for both parents.

The financial difficulties faced by social security systems are generated primarily by the aging population and budget balancing measures should be adopted to increase contributions. Therefore, in

order to revise the current situation where a rising number of aging people are overwhelming the available resources, it has become necessary, as a matter of urgency, for policy makers to go back to the drawing board and take a holistic approach to policy reforms. To ensure the future pension payment, it is necessary for contributions to increase from 1997 level of 25.5% to about 41.5% in 2050 (Consiliul Național al Persoanelor Vârstnice, 2009). Another important point is to increase the legal age of retirement for both men and women from the age of 64 and 59 respectively to the age of 65, and to increase the contribution period from 33 years and 28 years for men and women respectively, to 35 years, to mitigate the economic consequences of the aging population.

Vasile (2004) reported that the gross migration potential of the graduates was about 25% for the higher education graduates and about 60% for the upper secondary school graduates. From the 8.2 million legal emigrants in the year 2002, 3,972 emigrants were 24 years to 34 years old, highly trained and qualified. In order to stop this brain drain trend, government needs to reform the labor market and improve the standard of living to encourage this group to remain in Romania, increasing thus the working age participation ratio and contributing to the government revenue which will translate into fiscal pressure reduction in the longer term.

In conclusion, government needs to take a major overhaul of socio-economic policies in order to reduce citizens' short term burden and encourage savings.

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