

MACROECONOMIC IMPACT OF AGEING IN THE CZECH REPUBLIC

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Abstract

The ageing of the population represents important and often discussed issue in the Czech Republic because it is a characteristic feature of present and future demographic development. The share of elder people is growing at the expense of the declining proportion of productive population. An increasing financial burden on the pension system belongs to serious consequences of the ageing of population. It is caused by growing disproportion between paid retirement pensions and received pension contributions. Pensioners will consume real goods and services and they have indisputable right to get satisfy their needs. The important question about satisfying needs of elders is opened in many countries. As well as in the Czech Republic, the liabilities of society to the pensioners are discussed. The paper deals with the cost of legitimate claims of current and future pensioners in the Czech Republic in the form of government liabilities. One issue is the macroeconomic estimation of entitlements and second issue is that any needed prolongation of retirement age should respect healthy life expectancy.

Key words: *ageing of population, retirement age, pensions liabilities.*

1. Introduction

Population and its characteristics represent popular subject of several studies highlighting demographic or economic point of view. But the problem of population ageing and its consequences on the rate of economic activity should be studied from both perspectives simultaneously. Elder people form a significant economic power that is still increasing. Their participation on the market is at least in two ways. Firstly, with respect to their health they can work longer. These people have lots of experience but sometimes they might behave very conservative. Secondly, their economic power as consumers with specific needs and their increasing voting role is indisputable. Even the share of elder people is still rising, due to the progress in the health care and improved environment including food, ageing need not to be a significant problem if the society is well prepared. The point of readiness in post-communist countries seems rather difficult. Hot political issue connected with the age of retirement and egalitarian approach to state pensions do not provide optimism for skilled economists and researchers.

It is clear that the age of retirement is still rising and it seems that this trend will not change in the near future. Unfortunately, our society is not well prepared for that. Even grandparents

retired about their 60s, it is assumed that children can smoothly accept prolonging of retirement age. Such assumption need not be realistic because economic and social analyses are very scarce. The emphasis is put on the three pillars approach as a mantra and discussion is about possible implementation or revocation¹ of a particular system. The most important issue is missing. The problem of ageing is not only connected with pension system. It is more connected with the development of society and the possibility of equality.

Appropriate determination of the retirement age is a key parameter determining sustainability of the pension system, regardless of kind of funding². A decline in the living standards of older people may become while keeping current determination of retirement age. The increasing share of economically inactive people will continue to rise as well as the increase of the share of their expenditures on total households' consumption expenditures. If the ratio between economically active and inactive people should be kept at a stable level, the retirement age would have to be increased to 73 years, which is the age discussed in northern Europe (Šimková and Sixta, 2013).

There is a significant amount of studies dealing the issue of increasing the retirement age, e.g. (Wiatrowski, 2001) or (Lee, 2014). Our paper illustrates the cost of legitimate claims of current and future pensioners in the Czech Republic in the form of government liabilities. One issue is the macroeconomic estimation of entitlements and the second issue is that any needed prolongation of retirement age should respect healthy life expectancy.

2. The Possibilities of Increasing of the Retirement Age

There has been a long discussion about the possibilities of the increase of the age of retirement on the scientific field. It is a question what are the real possibilities of human life. It is expected that men aged 65 have the life expectancy³ 15.7 years and women aged 65 have 19.2 years (in 2012). In relation to postponing retirement age, it should be opened the question about potential usefulness of elder people. To decide whether the increase of retirement age is significant in terms of human life and health, we can use the comparison of the life expectancy, healthy life expectancy⁴ and the current retirement age. With respect to the healthy life expectancy, current estimates for the Czech Republic are 8.4 for men aged 65 and 8.7 for women aged 65 in 2011, it means 58.2% (resp. 45.2%) of life expectancy in relative expression. Life expectancy of men and women in the Czech Republic is rising, while the healthy life expectancy has not changed significantly. Moreover, healthy life expectancy for men slightly decreased. This implies that retirement age is possible to increase in terms of health (Cséfalvaiová et al., 2013) or (Cheng et al., 2002).

Czech Ministry of Labour and Social Affairs prepared a reform of the pension system (MLSA, 2011). According to the current plans, the age of retirement is going to be increased from 62 for men and 60 for women in 2013 to a common threshold of 67 years in 2041, see following Table 1. When we compare estimated Czech retirement age with Germany (65 years for men and women now and 67 years in 2030), the development is still slow.

¹ This happened in Hungary in 2010 and in the Czech Republic in Autumn 2014

² Let's neglect potential financial risks.

³ It represents number of years that an average person lived with presumption, if structure of mortality remained at the same level as in the year. It is a hypothetical figure.

⁴ This indicator represents the average number of remaining years of life that a person of specific age lives in good health, i.e. without any health limitation. It attempts to characterize not only the quantity (expressed in number of lived years), but also the quality of life, with its division of the part lived in good health and the part lived in the disease (with physical limitations).

Table 1. Increasing of statutory retirement age in the Czech Republic

	2013	2018	2021	2024	2027	2030	2034	2041
Men	62	63	64	64	65	65	66	67
Women	60	61	62	63	64	65	66	67

Source: MLSA 2011

The current adaptation of the pension reform will cause the increase of the number of economically active people in the next 30 years, by 850 thousand people to 5.8 million in 2040. The increase of retirement age will keep the absolute number of economically active people at stable level (see Figure 1), however it is not sufficient to keep the ratio of economically active and economically non-active people in balance. If the retirement age was increased to 73 years, according to (Šimková, Sixta, 2013), the ratio would be at same level as nowadays, 6.4 million economically active people in 2040.

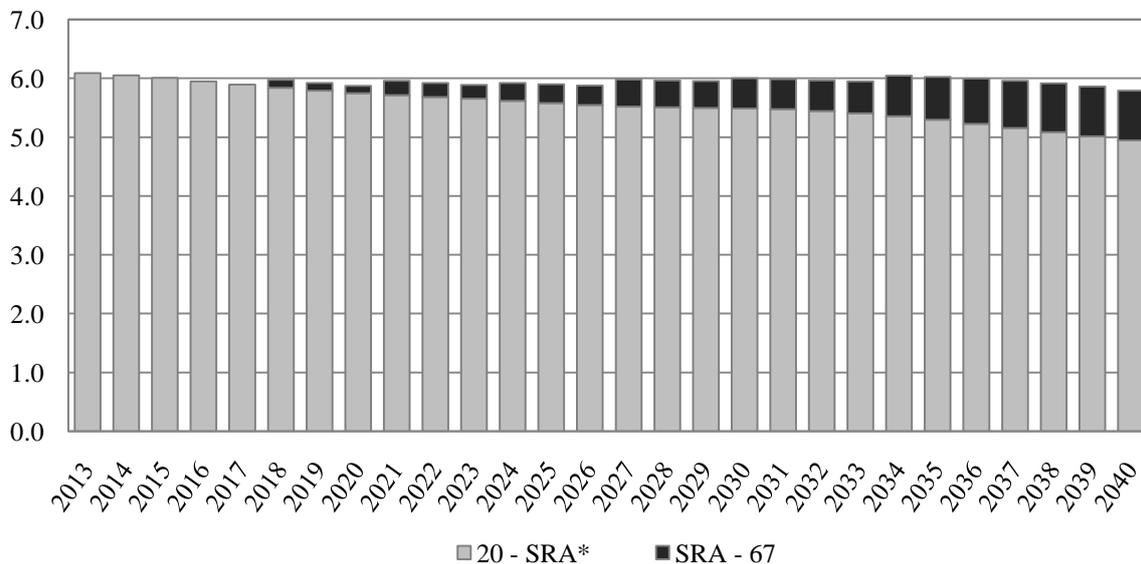


Figure 1. The number of people in economically active age and people in transition group between working life and retirement (million people)

Source: CZSO 2013, authors' calculations, * SRA = statutory retirement age

3. Ageing of Population and Pensions

An increasing financial burden on the pension and health care system belong to serious consequences of the ageing of population (Dlugosz, 2011). It is caused by an increasing disproportion between paid retirement pensions and received pension contributions.

One of the key questions is: will the society (including state) be able to satisfy needs of elders in the future? What are the liabilities of society⁵ to the pensioners? It is an important question that is opened in many countries. From statistical perspectives, some assumptions was emphasised few years ago. First of all, it started with the low possibility of comparisons of pension systems between based on benefits and contributions. From the economic point of view, changes of parameters of pension systems can ensure appropriate living conditions for selected individuals, i.e. in a relatively lower age (e.g. 60 years), the majority of population

⁵ It does not mean that the state has to pay everything.

cannot be retired. In other words, people consume real goods and services and not financial. Some stable workforce has to be able to ensure the needs of both theirs, children and pensioners. In a current pension system, prolonging of retirement age is just an effort to keep a stable ratio between paid retirement pensions and received pension contributions. However, the increase of retirement age to 67 years for both men and women in 2041 provides only partial success (see Figure 2). The share of people in this age group (entitled to retirement pensions) will still grow. Consequently, the government expenditures will continue to increase. Without any change of the retirement age, expenditures will rise to 813 billion CZK⁶. The Czech Republic will save about 214 billion CZK when shifting retirement age to 67 and paid retirement pensions will reach 597 billion CZK. If the retirement age reaches 73 years, retirement pensions amount to 401 billion CZK. Furthermore, we do not consider any employees' early retirement, which can even increase this amount.

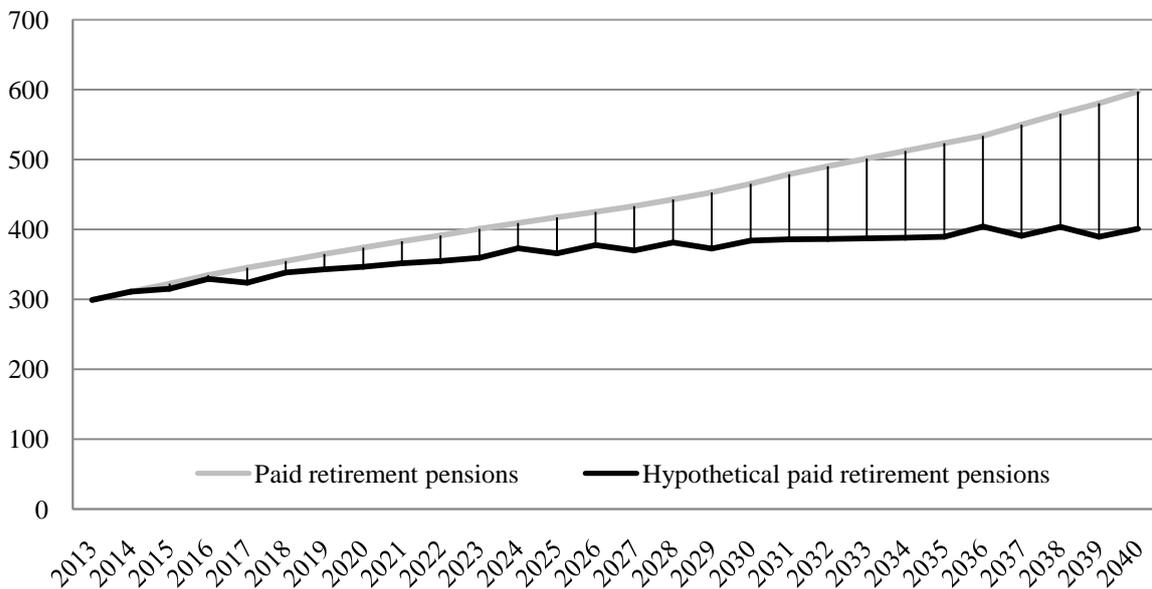


Figure 2. Paid retirement pensions and savings from them due to the increase of retirement age (billion CZK)

Source: CZSO 2013, MLSA 2013, authors' calculations

One statistical possibility of expressing society liabilities are the so-called pension schemes. They became a part of official macroeconomic statistics for the EU, see (ESA 2010), and EU countries will obligatory express pension entitlements irrespective of the system from 2017⁷. There can be found lots of alternative estimates of pension entitlements in Technical Compilation Guide, see (Eurostat, 2011). It all leads to the new balance sheet for the country. It means that the balance sheet for government sector should include a new type of liabilities. Since there are no official data, we roughly estimated pension entitlements for the Czech Republic. We used slightly adjusted approach that differs from the official statistics since our aim is the estimate of entitlements for the total population. It means that we do not treat government employees specifically and we respect the population characterizes only. We

⁶We assume 2% wage growth in the future (see below).

⁷Actually, this activity may threaten due to the resistance of countries with conservative approach using benefits defined systems.

estimate pension entitlements (PE) for both current pensioners (formula 1) and people older 20 years (future pensioners, formula 2):

$$PE_{x,t}^g = \sum_{x=x_t}^{100} R_{x,x+s-x_t}^g \cdot B_{x,x+s-x_t}^g \cdot p \cdot 12 \cdot \frac{1}{(1+r)^{x+s-x_t-t}} \quad (1)$$

$$PE_{x,s}^g = \sum_{x=d_t}^{100} R_{x,x+s-d_t}^g \cdot B_{x,x+s-d_t}^g \cdot p \cdot 12 \cdot \frac{1}{(1+r)^{x+s-d_t-t}} \quad (2)$$

where

R_x the number of retirees in age x ,

B_x the average of monthly retirement pension,

p index of wage growth,

r discount rate,

s year,

t the base year,

x age,

g sex,

d_t retirement age in t ,

x_t age in t and $x_t > d_t$.

Pension entitlements are dependent on the assumptions about discount rate and wage growth. The discount rate is a tool to measure the actual capital costs of financing future payments. Its choice differs, we use the discount rate at 5% in nominal terms according to the Guide (mentioned above) recommendations. Assumptions about future development of wages have a significant impact on the level of pension entitlements, despite difficult predictability. The wages has risen by 5% on average in the last ten years. But after the financial crisis in 2007 – 2008 the wage growth slowed to 2%. We assume this wage growth in the future (2%).

For example, we show the discounted pension entitlements related to people who are aged 62 years in 2013, which is actual statutory retirement age for men. 147 thousand people aged 62 years lived in 2013 in the Czech Republic. These people will be aged 100 (maximum supposed age) in 2051 and the current total pension entitlements represent 309 billion CZK, see Figure 3. The entitlements are declining in hyperbolic trend and respect the development of society.

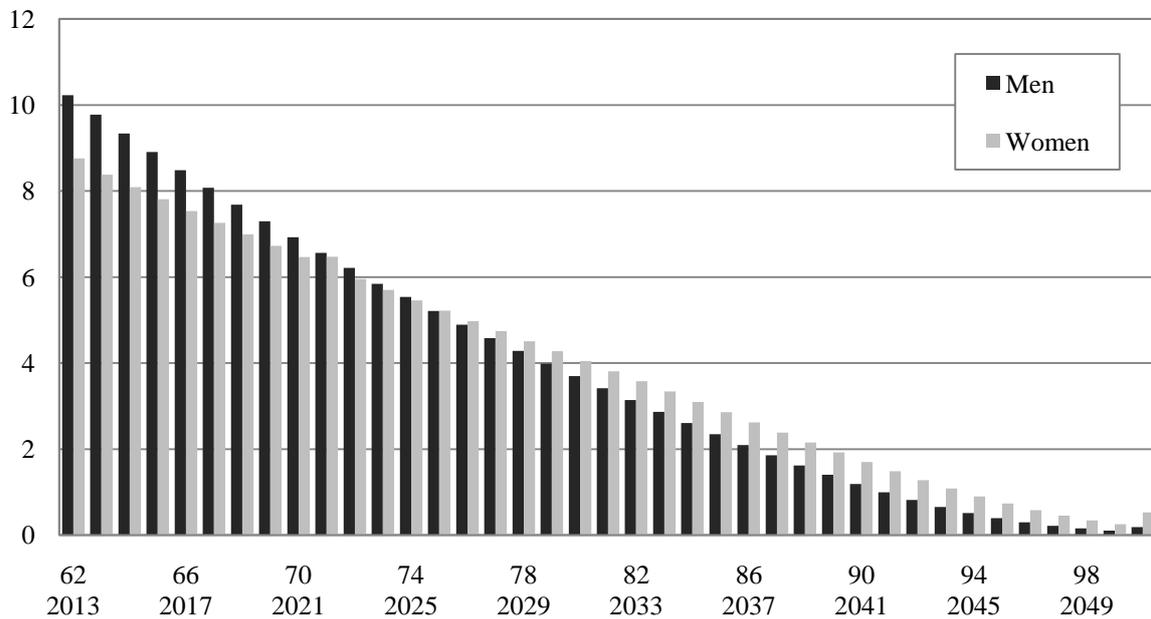


Figure 3. Pension entitlements related to people aged 62 in 2013 (billion CZK)
 Source: CZSO 2013, MLSA 2013, authors' calculations

The sum of current household pension entitlements of individual ages represents the total pension entitlements to current pensioners and future pensioners to actual (base) year:

$$PE_t^g = \sum_{s=t}^{t+80} PE_{x,s}^g + \sum_{x=x_t}^{100} PE_{x,t}^g \tag{3}$$

Total pension entitlements in 2013 will be crucially dependent on the retirement age. It ranges from between 155% to 135% of gross domestic product (GDP) for the retirement age 67, 73 respectively. Even the estimates are based on several assumptions that may change in time, the total value of pension entitlements represents important information. The share of entitlements on GDP expresses the amount of created product that will be needed for satisfying pensioners' rights and needs. The following table illustrates the effect of prolongation of retirement age to 73 years on selected year 2040. If the retirement age would be increased to 73 years in 2040, the number of pensioners reduces by 840 thousand in favour of the economically active people and total pension liabilities to current pensioners and future pensioners in 2013 decrease by 20 percentage points of GDP.

Table 2. Discounted pension entitlements in 2013 to 2040

Retirement age	Number of people in economically active age in 2040	Number of pensioners in 2040	Discounted pension entitlements, billion CZK in 2013	Pension entitlements, % of GDP in 2013
67	5 872 533	2 566 697	6 352	155%
73	6 710 421	1 728 809	5 534	135%

Source: CZSO 2013, MLSA 2013, authors' calculations

The development of society liabilities results from the all accrued-to-date pension liability (ADL)⁸ to current pensioners and current living persons over 20 years (future retirees). Such pension liabilities amount to 9,929 billion CZK, which is 243% of GDP in 2013. The prolongation of the statutory retirement age to 67 years in 2040 will reduce pension liabilities by 1,765 billion CZK. Accrued-to-date pension liabilities would reach 286% GDP without any pension reform. Alternative prolongation of retirement age to 73 years in 2040 would reduce the current pension liabilities by 1,564 billion CZK, to 205 % of GDP. This hypothetical situation is shown by the black line in figure 4. For comparison, according to actuarial estimates in Germany, the pension liabilities amount to 6,702 billion EUR (186,061 billion CZK), which is equivalent to 276% of GDP in 2007 (Eurostat, 2011). The pension reform in Germany approved the increasing the statutory retirement age gradually from 65 to 67 between 2011 and 2029 and this reform lowered the level of pension liabilities by 178 billion EUR (4,941 billion CZK), to 269% GDP. According to study of Van der Wal (2014), household pension entitlements in UK were estimated to 321% of GDP in 2010. In comparison with Germany and the United Kingdom, Czech pension entitlements seem low. But they reflect also current Czech purchasing power and increasing differences between workforce and pensioners. The replacement ratio between average pension and average wage per month is 44% in the Czech Republic (in 2013), while in Germany it is 47% and in United Kingdom 50% (Destatis, 2014).

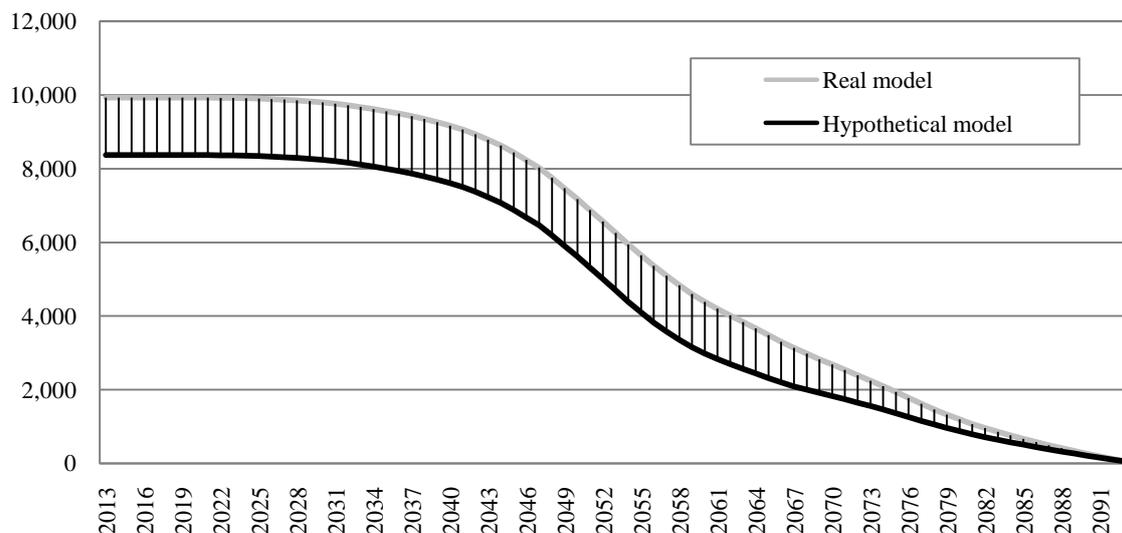


Figure 4. Total pension entitlements in 2013 to people older 20 years (billion CZK)
 Source: CZSO 2013, MLSA 2013, authors' calculations

The pension liabilities can be higher because of the influence by other criteria like education (Zimmermann et al., 2014). Retirement pension will also tend to be higher for individuals with higher education. Despite the simplicity, macroeconomic impact would not differ significantly.

Estimation of entitlements irrespectively financial or non-financial shows that the problem is serious and much deeper than the discussion about pension system. The pension system is only a part of the problem and it is much more connected with personal motivation, equality

⁸ADL represents the present value of pensions to be paid in the future on the basis of accrued rights. The concept of ADL is described in Guide in a detail.

and responsibility than with macroeconomical stability. It is clear that the reduction in pension entitlements will decrease the burden and resources may be spent for different goods and services. Moreover, outstanding issue of ageing is the availability of specific services for elders or further improvements of health care systems. Anyway, financial estimates of entitlements correspond to simple solution mentioned above. Without further limitation of reduction of the share of productive population, Czech society will face significant problems. The share of productive population may slightly be declining to be compensated by the increase of productivity.

4. Conclusion

Although the problem of ageing is very important, it is very often limited to the discussion about pension systems. This is far from the problem itself. The substance lies in the share of active and non-active population and the possibility of the economy in the future. Pensioners will consume real goods and services and they have indisputable right to get satisfy their needs. For the economy, it is not important if the needs are satisfied via state of private funds or the system is based on contributions or on benefits. The parameters of the systems can be always changed in line with the opinion of the political representation but the core remains unchanged. Elders' participation on the market seems not sufficient nowadays. The preparation of society is very weak. It ranges from the availability of social services and health improvements to the obvious discrimination of elders on the labour market.

Since ageing is often discussed issue, it might be seen that the problem is discussed from economic and demographic approach. Unfortunately, all the discussion are focused on creation and destruction of pension systems. The real problem is more complicated, it is connected with the future availability of resources taking into account possible increase of productivity and demographic structures.

Even the Czech situation looks better than in other Central European countries, proposed reforms seem not adequate. One of the modern possibilities for evaluation of the problem of ageing is the estimate of pension entitlements. The method is based on the combination of economic and demographic models and the results provide information about the burden of pension as a percentage of GDP. With respect to the pension entitlements, the increase of statutory retirement age to 67 in 2040 means that overall pension entitlements takes 243% of GDP in 2013. If the statutory retirement age is 73 years, entitlements will be reduced to 205% of GDP. The difference of 40 p.p. is rather significant and an outstanding issue is whether the economic development can ensure needs of our society.

One issue is the macroeconomic estimation of entitlements and participation of older people on the labour market but second issue is if the increase of statutory retirement age will respect healthy life expectancy, situation on the labour market and individual conditions of people.

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