

POSSIBLE MODIFICATION OF THE INCREASE OF RETIREMENT AGE IN THE CZECH REPUBLIC

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Abstract

According to the current Czech legislation the statutory retirement age is planned to increase permanently regardless the future development of mortality. The Council of the European Union recommends to link the rise of retirement age more clearly with expected changes in life expectancy. The Expert Committee on Pension Reform of the Czech Republic thus recommends to determine the retirement age as the age when the percentage share of the life expectancy (calculated as the arithmetic mean of these expectancies for men and women) in respect of the total expected average length of life at that age will be about one quarter of the total expected length of life. Generation life tables would be used for this computations, of course.

The paper presents computation of the retirement age in the case of the Czech Republic according to this proposal. Assumptions of future mortality trends work on the latest population projection by the Czech Statistical Office and the latest Eurostat population projection. The corresponding values of the old age dependency ratios (where the upper threshold of productive age is the proposed retirement age) are presented as well.

Key words: pension system, retirement age, old-age dependency ratio, Czech Republic.

JEL Code:J11, J21, J26

Introduction

According to the existing legal arrangement (LawNo. 155/1995) the retirement age in the Czech Republic is to permanently rise in time. Theoretically, therefore, it could happen that, if the growth of life expectancy slowed down or stopped, in the future many people would not even reach retirement age or would receive a pension only for a relatively short period of time because the growths of retirement age does not depend of the development of the life expectancy. One of the themes dealt with in 2014 by the Expert Committee on Pension Reform of the Czech Republic was the adjustment of the age limit for retirement in the Czech Republic, attaining which is one of the conditions for entitlement to the old-age pension.

Completely halting any further rise in retirement age after reaching a certain limit (such as 65 years), as proposed by some political parties, would not, however, be suitable. The Council of the European Union, on the contrary, recommends the Czech Republic to *Ensure the long-term sustainability of the public pension scheme, in particular by accelerating the increase of the statutory retirement age and then by linking it more clearly to changes in life expectancy*. See Council Recommendation...(2004), p. 15. According to present projections of the population of the Czech Republic it is expected that there will be a permanent rise in the life expectancy throughout the present century and so the continuing rise of the retirement age is thus in accordance with the European Council recommendation.

The question remains of how to link the retirement age with the development of the life expectancy to achieve a certain degree of stabilization of the average period of receipt of the old-age pension. Proposals have appeared, for example, which envisaged selecting the retirement age in such a way that the average duration of the receipt of the old-age pension would be roughly constant, say 20 years. This would mean, however, that, assuming a rise in the length of life, the retirement age would rise and thus also the expected length of economic activity, but the period of receipt of the pension would remain the same and the relative period of receipt of the pension would drop.

The Expert Committee on Pension Reform therefore finally approved the recommendation that the retirement age (which should be the same for both men and women) and, as hitherto, should depend on the year of birth of the individual. The value of the retirement age should in this case be determined so that people reaching senior age should receive an old-age pension on average for the last quarter of their lives (Expert Committee, 2014). For the generations born before 1966 the retirement age in this case should continue to be in accordance with the present legislation, where for every generation of succeeding year of birth the retirement age rises (in comparison with the preceding year generation) for men by 2 months. For women (which have at present time lower retirement age) the rise is by 4 months, after 2019 by 6 months until they reach the level of men. Men born in 1965 should thus retire at the age of 65 years, women with 2 children at 64 years 8 months.

The calculations for the average period of receipt of old-age pensions must, however, be based on the life expectancy at the appropriate age (not at birth) and also calculated on the basis of the generation (not cross-section) life tables.

The aim of this paper is to present model calculations of the development of retirement age in the Czech Republic with the application of the above-mentioned proposal that seniors should receive their pension on average for the last quarter of their lives. The calculations are

made for generations born in the period 1950–2020, i.e. for generations which will reach the retirement age in the period since the present time until almost the end of this century. The calculation of the generation life expectancies and hence also the values for retirement age was carried out in two variants of the expected development of mortality in the Czech Republic. The first works on the scenario of the mortality of the medium variant of the projection of the Czech population 2013 (CZSO, 2013), the second is based on the main scenario of the Eurostat projection for the Czech Republic from the same year (Eurostat, 2014).

From the point of view of financial burden of the old-age pension system, the important indicator is the old-age dependency ratio – the relation of people in post-productive age and the people in productive age. The used lower threshold of productive age will be 20 years the upper threshold will be equal to the retirement age. The idea of non-constant growing threshold of old age was proposed e.g. by Sanderson & Scherbov (2010). The values of the ratio for proposed retirement age and current legislation (with both projections) are also given.

1 Methodological notes

The most accurate estimate of the real length of the remaining life of a person of birth year g at age x is the life expectancy $e_x^{(g)}$ from the generation mortality tables for the generation of birth year g . For the calculation of retirement age, which is to be the same for both men and women, we will use the life expectancy without gender differentiation defined for each age unit as the arithmetical mean of the life expectancies of males and females at this age.

The estimate of the average length of entire life of a person of birth year g at the moment they attain the age of x , is understandably then the value $x + e_x^{(g)}$. According to the proposal of the Pension Committee the theoretical retirement age $x^{(g)}$ for the generation of those born in year g should be such that for this generation it applies that

$$\frac{e_x}{x + e_x} = 0.25, \quad (1)$$

(upper index g is omitted for simplicity). The expected average period of receipt of pension for this generation $e_x^{(g)}$ would then be equal to a third of the value of their retirement age $x^{(g)}$.

For determining the retirement age of the generation born in year g it is not, of course, necessary to have the values of life expectancies for the entire age range. It is sufficient to know these values for the higher age when the life expectancy comes close to a quarter of the

average length of entire life. Present mortality prognoses indicate that for the generations born after 1950 this age will be over 60 years for both males and females.

2 Scenarios of the population projections used

Computation of generation life tables must work on some population projection or forecast. The latest population projection for the Czech Republic published by the Czech Statistical Office – medium variant (ČSÚ, 2013) and the Eurostat projection – main variant (Eurostat, 2014) were utilized.

The mortality scenarios of both projections assume the continuing reduction in the mortality of both males and females and therefore the growth of the life expectancy at birth for both genders during the entire period of the projection. There is a difference, however, in the rate of this growth. The projection of the CZSO envisages more rapid growth of the life expectancy up to 2030, but after that (up to 2080) a gradual slowing of the annual rise in the life expectancy, whereas Eurostat starts from the assumption of a lower, but more stable, rise in life expectancy for the whole period up to 2080. The CZSO projection thus considers a life expectancy for both males and females in the middle of the century roughly 1 year 4 months higher than Eurostat, but gradually the difference between the two projections drops and roughly from the seventies Eurostat expects a higher life expectancy than the CZSO. See Table 1.

Tab. 1: Projection scenarios

Projection	2015	2020	2025	2030	2035	2040	2045	2050	2055	2060	2065	2070	2075	2080
Total fertility rate														
CZSO	1,45	1,47	1,48	1,50	1,51	1,53	1,54	1,56	1,56	1,56	1,56	1,56	1,56	1,56
Eurostat	1,55	1,63	1,68	1,72	1,75	1,77	1,78	1,79	1,80	1,80	1,80	1,80	1,80	1,81
Life expectancy at births – males														
CZSO	75,8	77,0	78,3	79,5	80,4	81,3	82,1	83,0	83,4	83,7	84,1	84,4	84,8	85,2
Eurostat	75,5	76,5	77,4	78,3	79,2	80,1	80,9	81,7	82,5	83,3	84,0	84,7	85,4	86,0
Life expectancy at births – females														
CZSO	81,6	82,8	83,9	85,1	85,8	86,6	87,3	88,0	88,3	88,6	88,9	89,2	89,6	89,9
Eurostat	81,5	82,3	83,1	83,8	84,5	85,3	85,9	86,6	87,3	87,9	88,5	89,1	89,7	90,2
Net migration														
CZSO	8 934	10 082	11 110	11 659	12 319	13 079	13 780	14 384	14 876	15 238	15 568	15 924	16 299	16 657
Eurostat	23 326	28 042	31 481	35 777	37 764	40 736	33 899	25 480	23 145	21 240	20 059	19 088	19 842	17 597

Source: author's calculations based on Census data of Czech Statistical Office

The fertility scenarios are more different. In both projections the rise in fertility is expected. The CZSO assumes very mild increase of the total fertility rate to the value of 1.56 in the first half of this century and stabilization until 2080. According to the Eurostat scenario

the value 1.56 will be reached already in the next year and the values in the second half of this century should be about 1.8.

The highest difference is in net migration trends. Both scenarios suppose positive values of net migration. While the CZSO projection expects gradually increasing net migration values and average value 13.5 thousands per year, according to Eurostat this should be more than 33 thousands per year until 2040. In next decades the migration should be a little bit lower but the average number for the projected period is twice as high as in the CZSO scenario. It is evident that the CZSO scenario would lead to older population than the scenario of Eurostat.

3 Retirement age ensuring the receipt of a pension on average for the last quarter of one's life

The retirement age for individual generations, assuming that the average period of receipt of a pension should equal a quarter of the average lengths of entire life of seniors, is given in Fig. 1. From the differences in the generation life expectancies in retirement age of the two scenarios it emerges that according to the CZSO scenario the retirement age for generations born roughly up to 1985 would be slightly higher than according to the Eurostat scenario and for generations born later it should be the other way round.

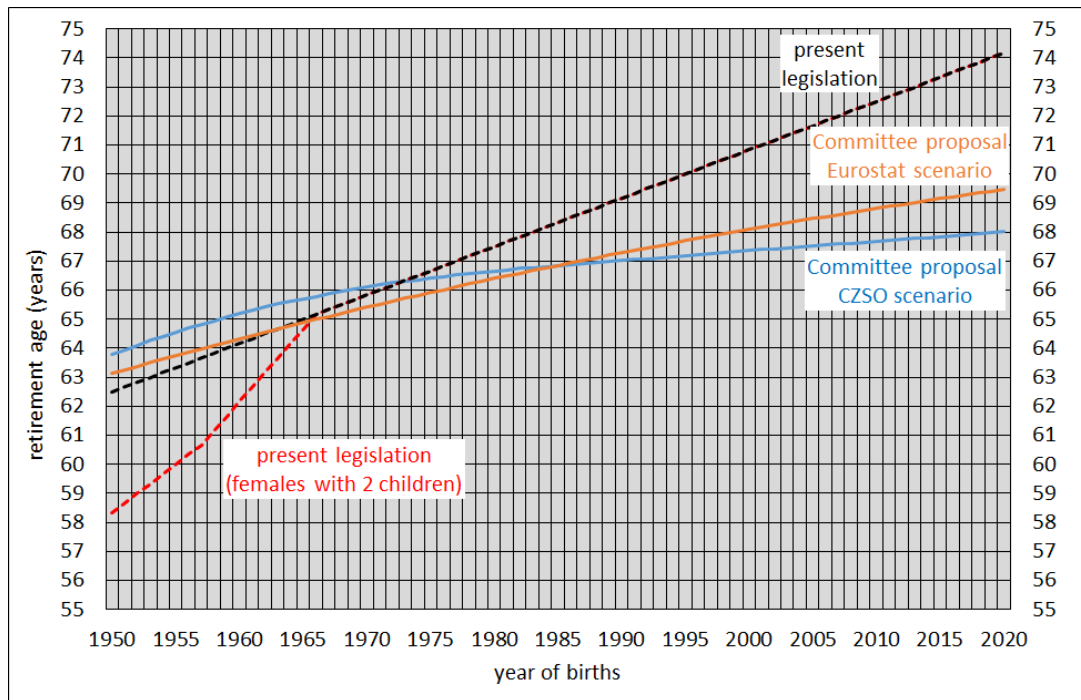
In both scenarios it is evident, however, that the proposal of the Pension Committee, even if it were realized immediately, decidedly would not lead to a reduction in the retirement age of the generations entering retirement at present. The retirement age according to present legislation is, for generations born in the fifties of last century, roughly one year for men and sometimes several years for women (according to the number of children reared) lower than the model value envisaging the average period of receipt of a pension as the last quarter of one's life.

For the model calculations according to the CZSO projection the model value for retirement age for men born in 1965 is still about 8 months higher than according to present legislation. The model value for retirement age according to the Eurostat projection is, however, already 1 month lower for this generation than the 65 years hitherto proposed.

For younger generations, however, it is evident, that with the development of mortality according the assumptions of the Eurostat scenario, the retirement age for further generations would be higher according to present legislation than the retirement age ensuring that the average duration of receipt of a pension would equal the length of a quarter of a lifetime and

that this difference would increase. For the generation of those born in 2000 this difference would already be roughly 2 ³/₄ years and for those born in 2020 the difference would be almost 5 years.

Fig. 1: Retirement age ensuring the receipt of a pension on average for the last quarter of one's life



Source: author's calculations, Law No. 155/1995 Coll.

With the development of mortality according to the CZSO projection the retirement age according to present legislation would always be lower for the generations born up to 1973 than the model retirement age, but then, with regard to the expected strong slowing of the growth of life expectancy and the continuing raising of the retirement age by 2 months for each generation, the difference would increase rapidly. For the generation of those born in 2020 the retirement age would, according to present legislation, already be more than 6 years higher than the retirement age ensuring receipt of a pension for the last quarter of one's life on average.

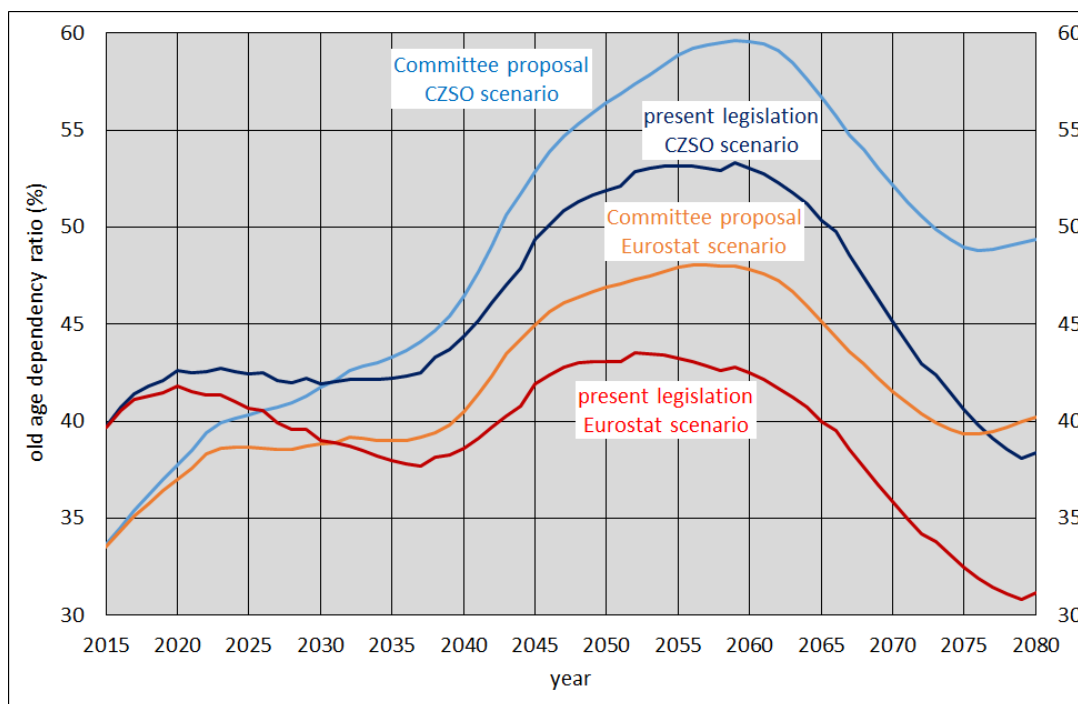
4 Development of the old age dependency ratio

The old age dependency ratio used in this paper is defined as the proportion of people at post-productive and productive age where the lower threshold of productive age is as usual

20 years but the upper threshold is equal to the retirement age at given moment. Computations of old age dependency ratio defined this way were e.g. in Miskolczi & Langhamrová (2011) or in Fiala (2013). The present value of the old age dependency ratio is of course higher than the value for the retirement age proposed by the Committee because the retirement age at present is, especially for females, several years lower than the Committee proposal (see Fig. 1). About 2030 the values should be almost equal and later on, if the Committee proposal would be realized and the rise of retirement age would be slowed down, the dependency ratios would be higher than according to present legislation (Fig. 2).

The old age dependency ratio depends not only on the value of retirement age but also on the age structure of the population, which is affected not only by the development of mortality, but mostly by fertility and migration. The Eurostat projection expecting much higher fertility and net migration than the CZSO scenario brings significantly lower values of the old age dependency ratio. If the real population development in the Czech Republic would follow the Eurostat scenario, the old age development ratio in the case of realizing the Committee proposal for lower rise of retirement age would be lower than in the case of CZSO scenario development and sustaining the current legislation. The best way for sustainability of pension system would thus be good family and migration policies.

Fig. 2: Development of the old age dependency ratio



Source: author's calculations, Law No. 155/1995 Coll.

Conclusions

The paper shows the model calculations of the retirement age needed to ensure that the average period of receipt of a pension is at the level of the last quarter of the expected entire lifetime of people reaching retirement age.

The level of the model value of retirement age understandably dependent first and foremost on the prognosis used/chosen for the future mortality development. For practical purposes it is expected that far more sophisticated methods will be used for predicting the development of mortality, not the simple projections used in this paper. In addition the accuracy of prognoses declines with their length and actual development almost always differs somewhat from the forecast development. The prognoses would be thus regularly updated every five years on the basis of the latest available data. Any correction of the retirement age would be carried out only for the generation of people whose age would be between roughly 25–50 years at the moment of making the correction.

The results of the modelling on the basis of the simple projections of the CZSO or Eurostat, however, confirm in any case that in the generations of persons born up to 1965 there is no reason to lower the existing limit of the retirement age, as in their case the average period of receipt of a pension would actually be a little more than 25 % of their lives. This applies in particular to women, whose retirement age should rise by 2030 to the level of the retirement age for men or (in the case of women with three or more children, of whom there are relatively few) they should reach this level a few years after 2030.

On the other hand the model calculations indicate that if the average period of receipt of a pension should equal 25 % of a lifetime, then after 2030 (i.e. for the generation of 1966 and younger) there should be a slowing-down of the present tempo of the rise in retirement age. This depends, however, not only on whether the proposal mentioned will be approved, but also on the results of later calculations based on more sophisticated and updated prognoses of the future development of mortality.

Slowing down the rise of retirement age will of course result in increase the value of the old age dependency ratio. It can be partly eliminated by growth of fertility and migration, which will increase the number of population in productive age. But persons in productive age are only potential employees. Much will depend on the degree to which their potential will be used in the future. Unemployment of young people is relatively high in some countries. And there is another important aspect whether the raising of the retirement age will result in a real extension of the period of economic activity. In the past the income of Czech households was

relatively stable (Bartošová & Longford, 2014). But later on persons aged 50 and over are regarded in some cases as less employable especially in some regions of the Czech Republic (Löster & Langhamrová, 2011). By the year 2030 the number of persons aged 50 and more who will not qualify for old-age pension is to increase. If no suitable work is available to them, it can worsen their standard of living of older people, and in some cases it can affect even their mortality (see, e.g. Šimpach and Pechrová, 2014). If the employment rates of seniors will be low, then, although the rise in retirement age may lead to a financial stabilisation of the pension system, it would probably result in increased expenditure on social-security benefits.

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