THE PUBLIC PENSION SYSTEM IN THE CZECH REPUBLIC FROM THE POINT OF VIEW OF PUBLIC FINANCE

Vladimir Bezdek[*]

Abstract:

The Czech public pension system is fiscally unsustainable in the long run because of population ageing, which is particularly pronounced in the Czech Republic. Some parametrical adjustments have been implemented since the beginning of the 1990s, but in contrast to other central European transition countries, the Czech pension scheme is still awaiting a fundamental reform. An independent working group was established in 2004 to analyse the pension reform proposals of the main political parties, and is expected to finalise its analysis by mid-2005. Its results will ideally contribute to the pension reform process, although the timing of the pension reform remains uncertain owing to political considerations.

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[*]The author is the coordinator of a working group established by the Czech government in order to prepare an analysis for a reform of the public pension system in the Czech Republic. The opinions presented in this paper are those of the author and should neither be attributed to the working group nor the Czech government.

1. Introduction

As is the case in many other countries, the Czech public pension scheme is financially unsustainable in the long term due to profound population ageing. The adverse nature of this expected demographic development will create large deficits in the pension system if it is left unreformed. This would in turn lead to an enormous pension debt that could destroy the country's overall fiscal credibility.

This paper looks at the Czech pension system purely from the fiscal point of view. Apart from fiscal consequences, there are other macroeconomic areas that can be affected by pension systems and their reforms. Much of the literature is devoted, for example, to the links between pension systems and the labour market, private and public savings, financial markets or potential economic growth.[1] However, for the sake of simplicity and due to space constraints, the non-fiscal macro aspects of the pension system have been omitted from this analysis.

The paper is structured as follows. Chapter 2 describes the basic characteristics of the Czech public pension scheme. Chapter 3 then briefly summarises the previous reforms of the public system, including a discussion of parametric reforms implemented by 2004, and the recent reform effort that was launched in the middle of 2004, whereby all political parties represented in the Lower House of the Czech Parliament submitted proposals for the reform of the Czech public pension scheme. This chapter also looks at the work of the independent working group that was established to assess the impact of these proposed reforms. Its findings can be used by policymakers and those in the political sphere in the search for a good and politically stable pension reform.

Chapter 4 looks at the main exogenous parameters that the working group had to agree on before starting work on the individual proposed pension reforms. In particular, it was necessary to choose a long-term demographic projection. Some long-run macroeconomic assumptions also had to be accepted.

Chapter 5 presents the working group's preliminary findings. So far it has already quantified the "no policy change" scenario and some parametrical changes to the current public pension scheme. Chapter 6 then briefly describes the major principles of the reform variants as formulated by the political parties. Finally, the last chapter contains some preliminary conclusions on the current state of affairs with regard to public pension system reform in the Czech Republic.

2. Basic characteristics of the Czech public pension system

The Czech public pension scheme is a typical pay-as-you-go (PAYG) financed scheme which offers defined-benefit (DB) characteristics. It provides four types of benefits: old-age pensions (which consume circa 70% of the total expenditure of the pension system), disability pensions (circa 20%) and survivors' and children's pension benefits (circa 10% of total pension system expenditure). In 2003, 3.21 million pension benefits were paid by the system, 1.92 million of which were old-age pensions, 0.55 million disability pensions, and 0.74 million survivors' or children's payments. However, the total number of pensioners was lower

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[1] For discussion on these issues see, for example, Corbo and Schmidt-Hebbel (2003), Makenzie, Gerson and Cuevas (1997), Kotlikoff (1996), James (1997) or Roseveare et al. (1996).

– only 2.56 million – because some pensioners are entitled to receive more than one pension (e.g. an old-age pensioner can also receive, under certain conditions, survivor's benefit).

The public scheme has a universal character, which means that all economic sectors in the Czech Republic belong to the same universal public pension scheme. The system is mandatory for both employees and the self-employed. However, self-employed persons are allowed (by law, and in contrast to employees) to minimise their contributions to the public pension system. There is a linear contribution rate which finances the system at the level of 28% of each person's gross wage.[2] One-quarter of this rate is paid by the employee, and the remaining three-quarters directly by the employer.

The statutory retirement age differs according to sex. Women can retire earlier than men, depending on the number of children raised. The statutory retirement age has however been gradually rising since 1996 at a speed of two months per calendar year for men, and four months per year for women. Therefore, from a starting level of 60 years for men and 53-57 years for women in 1995, the retirement age is being gradually increased, and will eventually reach 63 for men and 60-63 for women by 2013. However, the real retirement age is significantly lower than the statutory retirement age, owing to the existence of early retirement benefits, which allow people to enter the pension system up to three years before they have reached the statutory retirement age.

The average public old-age pension is about 40% of the average gross wage in the Czech Republic. Public pensions are not taxed[3] and it is therefore more appropriate to relate the average old-age pension to the average net wage, which results in a higher average net replacement ratio of about 55%.

From a financial perspective, the public pension system has repeatedly been in deficit in recent years (see Table 1). Between 1996 and 2003, the revenue side of the system was quite stable in proportion to GDP. The expenditure of the system, on the other hand, has been steadily rising with respect to GDP. Therefore, the system has turned from a positive balance in 1996 into deficits of around 0.8% of GDP a year. In 2004, the contribution rate was increased by 2 percentage points to 28%, which boosted the revenues of the system. A small surplus is thus estimated for 2004.

Table 1: Revenues, expenditures and balance of the public pension scheme, 1996-2003

	Revenue (CZK bn)	Expenditure (CZK bn)	Balance (CZK bn)	Revenue (% of GDP)	Expenditure (% of GDP)	Balance (% of GDP)
1996	133.9	129.5	+4.4	8.1	7.8	0.3
1997	146.3	152.8	-6.5	8.2	8.6	-0.4
1998	156.3	168.8	-12.5	8.0	8.6	-0.6
1999	161.8	181.3	-19.4	7.9	8.9	-1.0
2000	170.5	186.8	-16.4	7.9	8.7	-0.8
2001	186.0	201.0	-15.0	8.0	8.7	-0.6
2002	197.7	217.3	-19.7	8.2	9.0	-0.8
2003	209.6	229.5	-19.9	8.3	9.1	-0.8

Source: Final State Budget Accounts for given years; Ministry of Finance.

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[2] Before 1 January 2004 the contribution rate was only 26%.
[3] Only pensions higher than around 12,000 CZK per month (about 70% of the gross average wage) are subject to personal income tax. However, less than 1% of retirees receive such high retirement benefits.

3. Reforms of the public pension system

The origins of the Czech public pension system can be found at the end of the 19th century, when a mandatory public social insurance system was established by the Austrian monarchy, inspired by the Bismarck's reforms in Prussia. After the Second World War, the public pension scheme in the former Czechoslovakia became a PAYG system, since the pension capital accumulated in the pre-war pension funds had been depleted and/or defrauded by the Nazi regime. After 1948, when the Communist Party took power for the next 40 years, the pension system gradually lost its insurance principles and became a strongly redistributive instrument. In 1989, at the time of the so-called Velvet Revolution, the former Czechoslovakia inherited an inefficient and excessively complex pension scheme that could not cope with the expected demographic and economic changes.

3.1 Reforms implemented prior to 2004

Public pension system reforms implemented after 1989 have been a mixture of systemic and parametric adjustments. First of all, the universal character of the public system was emphasised, with all the occupational-based preferences in the system being completely abolished. Thus, the pension scheme treats all citizens equally, independent of their professional or occupational status.

In 1993, a contribution rate at the level of 27.2% was introduced in order to finance the pension scheme. Prior to 1993, the costs of the system had been financed by general taxation within the state budget. In the first few years of independence, the pension system was in surplus. This positive financial development made it possible in 1996 to decrease the rate to 26%. However, although the contribution rate was increased by two percentage points to 28% in 2004, this adjustment had no real impact from the fiscal point of view, since the government simultaneously decreased other social contribution rates (financing the unemployment insurance scheme) by 2%. Therefore, despite boosting the revenues of the pension system, overall fiscal incomes were not affected by this measure.

In 1995, a new public pension system bill was enacted. Most importantly, this law initiated a process of gradually increasing the statutory retirement age. The law has also increased the number of years that are relevant for calculating individual pension benefits. Before the 1995 reform, a public pension depended on the best five income years chosen from the last ten years before the year of retirement. Since 1996, the decisive period has been gradually rising, and is expected to span the last thirty years by 2016. Each year in this decisive period has an equal weight for computing the lifetime earnings that determine the level of an individual public pension.

In 1997, the system of indexation of public pensions was amended. Since then, the government has been obliged to increase public pensions by inflation plus at least one-third of the real wage increase. The law however does not specify any upper limit of pension indexation. Between 1996 and 2004, the average indexation equalled inflation plus 60% of the average real wage increase, which is much more generous than the minimum rate as prescribed by law.

Early retirement benefits have also been tightened in recent years. In 2001, the financial penalties for early retirement were increased in order to limit growing demand for early retirement pensions. This adjustment was successful, as Table 2 illustrates. On top of that, the so-called "temporary penalised" early retirements were completely abolished in 2003. Since 1

January 2004, only the "permanently penalised" early retirement vehicle has remained for those who want to become pensioners up to three years prior to the statutory retirement age. Under these conditions, the percentage part of the pension[4] is decreased by 0.9% for every three months missing from the statutory retirement age. Under the temporary penalised early retirement scheme, the financial sanction used to be abolished once a person reached the statutory retirement age. The increase in early retirees in 2003 should therefore be only temporary, as many people requested the temporary penalised early retirement before its abolition.

Table 2: Share of standard and early retirees in new retirees between 1996 and 2003

	New retirees (numbers)		New retirees (% shares)	
	Normal	**Early retirees**	**Normal**	**Early retirees**
1996	48,846	10,868	81.8	18.2
1997	56,514	24,318	69.9	30.1
1998	58,299	55,535	51.2	48.8
2000	39,843	57,051	41.1	58.9
2001	32,461	31,766	50.5	49.5
2002	41,617	21,993	65.4	34.6
2003	47,080	38,524	55.0	45.0

Source: Czech Social Security Administration

3.2 Progress of reforms since 2004

In spring 2004, the public pension reform process received a new impetus. The tripartite coalition government[5] agreed with the opposition[6] that the public pension system reform represents an important and unavoidable challenge in the coming years. A special body called the "Team of Experts" was established, comprised of two nominees from each political party, plus representatives appointed by the prime minister, minister of finance and minister of labour and social affairs.

Each political party has specified its own ideas on how the public pension system should be reformed. An independent working group has been created to analyse and quantify these political pension reform variants. A special position, the co-ordinator, has been created and accepted by all members of the Team of Experts to lead the working group. The co-ordinator has appointed six experts to the working group, relying mainly on the experts from the Ministry of Finance and the Ministry of Labour and Social Affairs. Apart from that, each political party has nominated one or two of its own experts to the working group.

The working group began work at the beginning of October 2004. First of all, it had to agree on the main exogenous parameters. In particular, it was necessary to choose a long-term demographic projection. Some long-run macroeconomic assumptions also had to be accepted.

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[4] The Czech public pension consists of two parts. The first is a flat-rate basic pension. This is the same for all pensioners, independent of their pre-retirement incomes. In 2004, it amounted to 1,310 CZK per month, which corresponded to about 7% of the average wage or around 18% of the average old-age pension. The second part of the public pension benefits is called the percentage part. This differs among pensioners according to their pre-retirement incomes in the decisive period.

[5] The government was created in mid-2002 by the left-of-centre Social Democrats (70 members in the Lower House of the Parliament), the centre-right Christian Democrats (21) and the right-liberal Freedom Union (10). The Czech Lower House of the Parliament has 200 members. The government has thus a narrow majority of one vote over the opposition.

[6] The right-conservative Civic Democrats (58) and the Communist Party (41).

The exogenous parameters used are common to all the reform variants in order to maximise the comparability of the results of the pension reform analyses.

The demographic and macroeconomic assumptions are discussed in the next chapter. The working group has already reached some preliminary results as far as the no policy change and some parametric reform scenarios are concerned. These long-term pension system projections are presented in Chapter 5.

4. Main exogenous assumptions

As far as the pension system projections are concerned, the most important exogenous parameters are the long-term demographic and macroeconomic scenarios, which are presented in detail below in sub-sections 4.1 and 4.2 respectively.

4.1 Demographic scenario

The demographic assumptions are based on the prognosis created by experts at the Nature Faculty of the Charles University in Prague in autumn 2003.[7] The prognosis includes three scenarios – low, medium and high. The medium variant was chosen for the purpose of pension system projections. The main characteristics of the demographic projection are summarised in Table 3.

Table 3: Main demographic parameters, 2003 - 2100

Year	Total fertility rate			Life expectancy (years)						Active migration balance (thousands)		
				Men			Women					
	Low	Medium	High	Low	Medium	High	Low	Medium	High	Low	Medium	High
2003	1.15	1.19	1.19	72.0	72.4	72.7	78.5	78.8	79.1	10.0	24.0	34.0
2010	1.19	1.34	1.37	73.4	74.1	74.9	79.7	80.3	81.0	7.0	20.0	25.0
2020	1.32	1.51	1.58	75.4	76.5	77.6	81.3	82.4	83.4	10.0	24.9	34.1
2030	1.38	1.57	1.67	77.0	78.7	80.0	82.6	84.0	85.2	10.2	25.9	37.3
2040	1.43	1.61	1.74	78.4	80.4	81.8	83.6	85.4	86.7	10.2	25.7	38.7
2050	1.45	1.64	1.80	79.7	82.0	83.4	84.6	86.7	88.0	10.3	25.4	39.7
2065	1.49	1.68	1.87	81.3	84.0	85.7	85.8	88.3	89.8	9.9	23.9	39.3
2080[1]	---	1.70	---	---	85.8	---	---	89.7	---	---	25.4	---
2100[1]	---	1.73	---	---	88.0	---	---	91.4	---	---	25.3	---

Source: Burcin and Kucera (2003): Prognosis of the population development of the Czech Republic for 2003-2065, Nature Faculty of the Charles University in Prague, 2003.
1) Based on the demographic projection from December 2004.

It should be noted that considerable uncertainty is attached to demographic projections covering time horizons over several decades, since they are conditional on assumptions regarding the fertility rate, life expectancy and migration flows. The economic transition may further multiply these uncertainties as, for example, the currently extremely low fertility rate can probably be attributed to the economic transition. However, it is difficult to estimate the length and size of this temporary shock.

Notwithstanding the above, the demographic development in the Czech Republic will certainly be affected significantly by the ageing of the population, as Chart 1 illustrates. First of all, there will be an apparent decline in the share of economically active people (between

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[7] In December 2004, at the request of the working group, the authors from the Nature Faculty of the Charles University prolonged the medium scenario of their demographic prognosis up to 2150 (data after 2065 are demographic projections).

20 and 59 years) in the total population from 59% in 2002 to less than 45% by 2050. On the other hand, a rapid rise in the share of people over 60 can be expected from less than 19% in 2002 to almost 37% in the mid-2050s. Ageing will be further intensified by low fertility rates. As a result, the share of people aged 19 or less will fall from more than 24% in 1998 to below 19% at the beginning of the 2030s, before more or less stabilising.

Chart 1
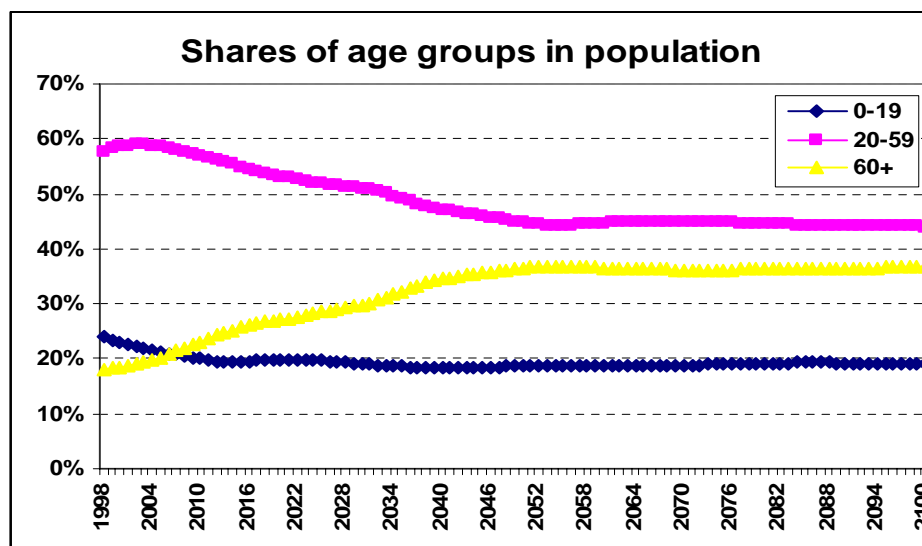
Source: Based on Burcin and Kucera (2003)

The expected Czech demographic development in the 21st century is very similar to the demographic perspectives of a number of developed economies. However, the speed of population ageing in the Czech Republic is striking in the international context, which is documented in Table 4. In the next five decades, the Czech Republic ranks as the third-fastest ageing country among the OECD economies, leading to a rise in the old-age dependency ratio of more than 36 percentage points by 2050.

Table 4: Old-age dependency ratio (persons aged 65 and over/persons aged 20-64)

Selected OECD countries	2000	2050	Change in percentage points
Austria	25.2	58.2	33.0
Belgium	28.1	49.5	21.4
Czech Republic	**21.8**	**58.3**	**36.5**
Finland	25.9	50.6	24.7
France	27.2	50.8	23.6
Germany	26.6	53.2	26.6
Hungary	23.7	47.2	23.5
Italy	28.8	66.8	38.0
Netherlands	21.9	44.9	23.0
Norway	25.6	41.2	15.6
Poland	20.4	55.2	34.8
Portugal	26.7	50.9	24.2
Spain	27.1	65.7	38.6
Sweden	29.4	46.3	16.9
United Kingdom	26.6	45.3	18.7
OECD average	23.8	49.9	26.1

Sources: OECD (2001) and Burcin and Kucera (2003).

4.2 Macroeconomic scenario

The logic of the long-term macroeconomic scenario is consistent with the principles applied by the Ageing Working Group of the European Union's Economic Policy Committee. The growth rate of the Czech economy is, by definition, a result of the employment and labour productivity growth rates. The average wage goes hand in hand with productivity growth. Therefore, the share of labour income in GDP is constant over time.

Employment depends on three factors: (i) the underlying demographic projection, (ii) the projection of participation rates, and (iii) the unemployment rate. The first of these has been discussed in the previous chapter. As far as participation rates are concerned, two projection methods – static and dynamic – were considered. Whereas the static approach holds the age-specific participation rates constant over time, the dynamic method takes into account different behaviour across generations and allows for different levels of participation rates in different generations. [8] Finally, the dynamic approach was used to build up the macroeconomic scenario. Regarding the unemployment rate, a gradual decline from contemporary levels of over 8% (the ILO methodology) towards 7% is projected. The latter level is in line with OECD and EU estimates of the Czech Republic's structural unemployment rate.

The projected labour productivity growth rate is based on the fact that the Czech economy is expected to converge to the average labour productivity level in the European Union. Czech labour productivity in purchasing power parity reached 59% of the average labour productivity of the euro zone (EU-12) in 2003. Thus, in 2003, there was a gap in productivity levels of 41 percentage points between the Czech Republic and the EU-12. The convergence process, according to the macroeconomic scenario, should eliminate each year 3% of the existing productivity gap. The macroeconomic scenario also assumes that average labour productivity growth in the EU-12 would be 1.75% p.a. Thus, Czech labour productivity growth is given by productivity growth in the EU-12 plus the convergence element.

It is necessary to emphasise that, owing to the very long horizon of the macroeconomic scenario, all the above-mentioned trends must be treated as projections, not predictions. The macroeconomic scenario purely accentuates the structural relationships between the variables and omits any cyclical variations.[9] Cyclical fluctuations will certainly occur; however, they are insignificant in the long run. Last but not least, it must be mentioned that, for the sake of comparability of different pension reform scenarios and due to the ambiguous results in the literature, no link is assumed between the different pension reform strategies on the one hand and macroeconomic performance on the other.[10]

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[8] See Burniaux, Duval and Jaumotte (2003) and Scherer (2002) for more details on the estimation of static and dynamic participation rates.

[9] The only exception to this rule is the short term (by 2007) of the macroeconomic scenario, which uses the macroeconomic predictions of the Ministry of Finance (2004). Therefore, the logic discussed above with regard to the macroeconomic scenario applies from 2008 onwards.

[10] The only exception is the projection of participation rates, which are affected by the process of gradual increases in the statutory retirement age. If any pension reform strategy increases the retirement age above the levels discussed in Chapter 2, it would result in higher participation rates of the pre-retirement age cohorts, thereby increasing the overall participation rate. This would stimulate GDP both in terms of levels and growth rates.

Table 5: Summary of the main variables in the macroeconomic scenarios

Averages over decades	2001-2010	2011-2020	2021-2030	2031-2040	2041-2050	2051-2060	2061-2070	2071-2080	2081-2090	2091-2100
Labour productivity (Czech Republic as a % of EU-12)	63	74	80	85	89	92	94	96	97	98
Annual labour productivity growth	3.0%	2.8%	2.5%	2.3%	2.1%	2.0%	1.9%	1.9%	1.9%	1.8%
Annual employment growth	0.2%	0.0%	-0.3%	-0.7%	-0.7%	-0.4%	-0.2%	-0.2%	-0.1%	-0.1%
Annual GDP growth	3.2%	2.8%	2.2%	1.5%	1.4%	1.6%	1.7%	1.6%	1.7%	1.8%

Source: Working group, macroeconomic scenario.

Table 5 presents the key variables of the macroeconomic scenario and their projected development over the coming decades. The average labour productivity growth rate will gradually decline from 3% in the first decade of this century to below 2% in the 2060s. This corresponds to closing the gap in productivity levels between the Czech Republic and the euro area. Whereas in the first decade of projections the average gap is 37%, after 20 years it diminishes to 20%. In the second half of the century, differences in productivity levels will be less than 10% and will continue to decline. Employment should experience a slight increase in the first decade as the gradual rise in the statutory retirement age will outweigh the adverse demographic development. In the next decade, both these factors will be roughly in balance and employment will stagnate. However, from the 2020s onwards, population ageing effects clearly dominate[11] and employment growth turns into negative values. GDP growth is, as mentioned earlier, a result of employment growth and labour productivity growth. Even in the 2030s and 2040s, when negative demographic pressures will be strongest, the drop in employment should be more than compensated by productivity growth. Thus, the GDP growth rate should remain positive during the entire projection period, close to at least 1.5% p.a. in real terms during the period of intensive population ageing.

5 Preliminary results

As emphasised in the introduction, this paper purely focuses on the fiscal consequences of the public pension system. Thus, it does not investigate potential links between the pension system on the one hand and other macroeconomic variables on the other. Neither are the microeconomic characteristics of the pension system considered.[12]

The working group has so far presented some preliminary results of two pension variants – the no policy change scenario and different types of parametric reforms to the current PAYG DB public pension pillar. Sub-sections 5.1 and 5.2 comment on the main fiscal consequences of these pension scenarios.

5.1 The 'No policy change' scenario
The no policy change scenario stems from the assumption that the current legislative framework regarding the pension system remains unchanged over the whole horizon of the projection. However, the current legislation gives the government a certain degree of freedom

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[11] The rise in the statutory retirement age, discussed in Chapter 2, will be completed by 2020.

[12] The working group has defined three microeconomic-based criteria: (i) the individual replacement ratio (pension divided by the last pre-retirement wage); (ii) the internal rate of return from the pension scheme; and (iii) implicit tax (see Duval (2003) for more details on this topic). These micro-oriented criteria have been calculated for different individuals ,varying according to their lifetime earning profile.

as far as some important pension system elements are concerned. Therefore, important initial assumptions had to be made in the following parameters:

(i)   Pension benefits indexation: the law stipulates only the minimum rate, which must not be lower than inflation plus one-third of the average real wage increase. The law does not specify the maximum rate of indexation.

(ii)   Basic (flat-rate) part of the pension: according to the law, the development of the flat-rate component of the pension is set by the government. This parameter is important when it comes to calculating new pension benefits.

(iii)   "Reduction borders" in the pension formulae: unlike the flat-rate component, the percentage part of the pension benefits corresponds to the wage of a given retiree in the period of his/her economic activity. However, this relationship is not linear. There are some income redistribution elements included in the pension system. More specifically, the system introduces two so-called reduction borders. In 2004, the first of these was set at the level of about 42% of the average wage, while the second one equalled 107%. The whole wage of an individual counts for his/her percentage pension if the wage is lower than the first reduction limit. Between the first and second reduction limits, only 30% of the wage is included in the pension benefit formulae, and any wage over the second reduction limit increases the percentage pension benefit by only 10%.

Regarding the pension benefit indexation, a minimum rate was chosen (inflation plus one-third of the average real wage increase). This is in line with the practice implemented in the last two or three years. As far as the basic flat-rate component of the pension is concerned, full wage adjustment of this parameter is assumed in the no policy change scenario. Thus, the flat-rate component of the pension will keep its proportion to the average wage. Full wage indexation was also assumed in the case of the reduction limits. Therefore, the no policy change scenario expects that the relative intra-generational redistribution of the pension system should remain unchanged over the projection horizon.

Chart 2
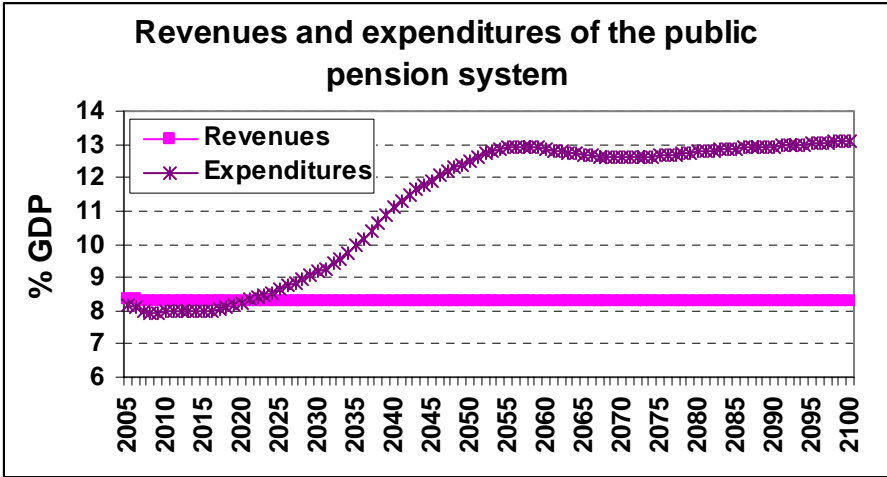
Source: Preliminary results of the working group (www.reformaduchodu.cz)

Chart 2 illustrates the development of revenues and expenditures of the public pension system under the no policy change scenario. The revenues of the system as a percentage of GDP remain constant over time, since no change in the contribution rate is allowed in the

scenario.[13] The expenditure projection is affected by the expected ageing of the population. In the long run, pension spending will jump by about 5% of GDP to about 13%.

Chart 3

Balance and cumulated balance of the public pension system
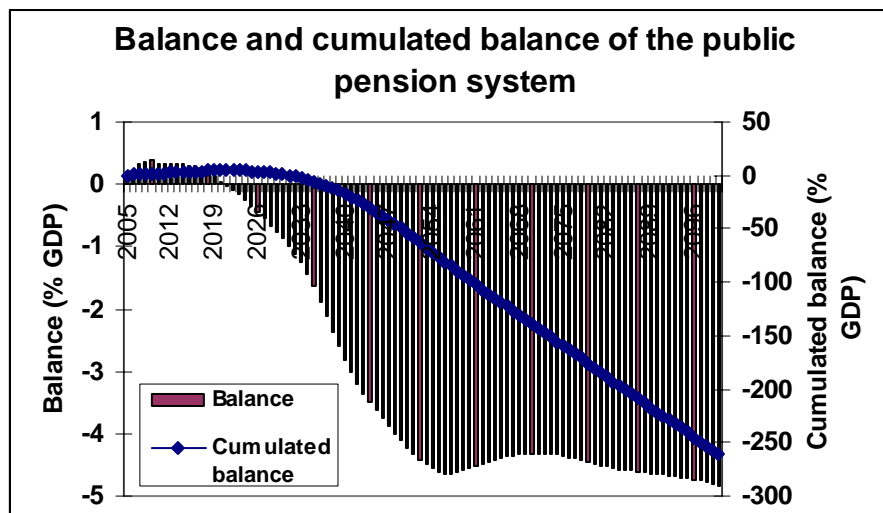
Source: Preliminary results of the working group (www.reformaduchodu.cz)

The public pension system is expected to be in a small surplus by the early 2020s, owing to recent parametrical changes (increased contribution rates and a gradual rise in the statutory retirement age). The assumption of minimum pension benefit indexation also plays an important role (only inflation plus one-third of the average real wage increase). However, after 2015 this surplus declines until, in the mid-2020s, the system goes into deficit. In the long run, deficits could total almost 5% of GDP.

The surpluses from the first two decades of the projection, if invested in the financial markets,[14] will amount to more than 4% of GDP by the beginning of 2020s. Then, due to the rise in expenditures, deficits would appear. The buffer fund will then have to be gradually depleted to cover rising pension system expenditures. The system starts to accumulate debt by about 2030. At the end of the century, the overall pension debt could in theory reach 260% of GDP.[15] In reality, it can be assumed that annual pension deficits of over 4% of GDP, coupled with steeply rising pension debt, would force the financial markets to impose an increased risk premium on the economy. This would in turn increase the real costs of financing of government debt and further worsen the projected development of the pension debt. However, these risk premium effects are not explicitly considered in this analysis.

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[13] Any increase/decrease in the contribution rate would have to be implemented by an amendment of the law, which would be in contradiction to the basic preposition of the no policy change scenario – namely an unchanged legislation framework.

[14] A real investment rate of 3.5% p.a. is assumed in the accumulation phase. This corresponds to a portfolio invested 50% in government bonds and 50% in stocks. The long-run average real yield of the world's stock markets is estimated at 6% p.a. The long-run average real yield of 10-year government bonds was set at 2% p.a. See Siegel (2002), Dimson, Marsh and Staunton (2002, 2004) and Global Financial Data Inc. website for relevant data. A positive inflation differential of 0.5% p.a. between the Czech and EU-12 inflation rates is expected in the macroeconomic scenario, which, under the assumption of convergence in nominal interest rates, finally yields the above-mentioned 3.5% p.a. average real rate of return.

[15] When it comes to financing the pension deficit, a 1.5% average real rate of return on 10-year government bonds is used.

5.2 Parametrical changes to the current PAYG DB system

This chapter examines how the results of the no policy change scenario would change if some parametrical reforms are implemented, and considers three specific scenarios (named Scenarios A, B and C). Scenario A demonstrates the sensitivity of the current system to a different indexation of benefits. Scenario B then tests a rise in the statutory retirement age. Finally, Scenario C discusses two combined parametrical reforms.[16]

A) Indexation of pensions

Three different scenarios were considered:
- wage indexation,
- price indexation,
- "Swiss" indexation (inflation plus half of the real wage increase).[17]

All other important parameters of the pension system remain unchanged in comparison with the no policy change scenario. The effect of different indexation strategies on pension expenditures is documented in Chart 4 below.

Chart 4
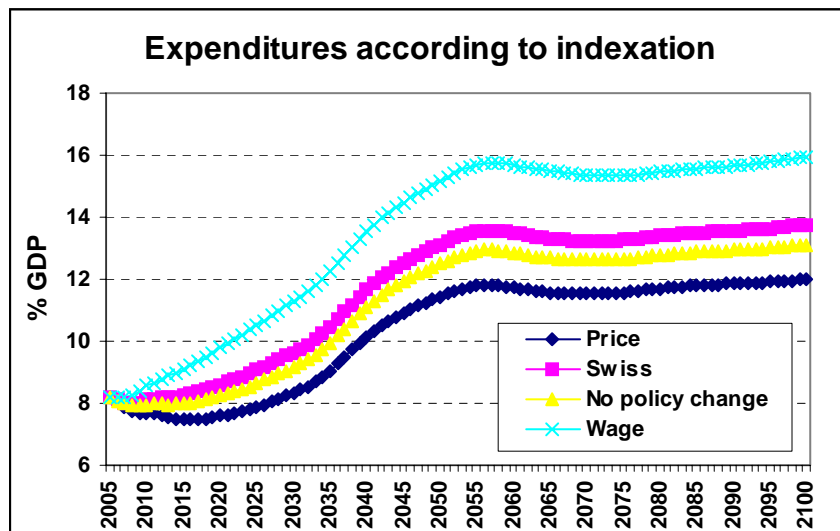
Source: Preliminary results of the working group (www.reformaduchodu.cz)

The results are in line with intuition. More generous indexation than the one in the no policy scenario (inflation plus one-third of the real wage increase) leads to higher pension system expenditure, and vice versa. Thus, the wage indexation of pensions would push expenditure towards 16% of GDP in the long run, some 3 percentage points above the no policy change scenario. "Swiss" indexation would increase pension spending by about 1% of GDP in the long run. On the other hand, price indexation, which keeps the real value of pensions constant over time, would save 1% of GDP on the expenditure side of the public pension system in the long run.

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[16] The working group has also analysed five different adjustments of the pension benefit formulae. These results are not included in this paper. Details can be found at www.reformaduchodu.cz (since June 2005 also available in English).

[17] Such an indexation has been used in Switzerland for a number of years. In the literature, it is therefore often called Swiss indexation.

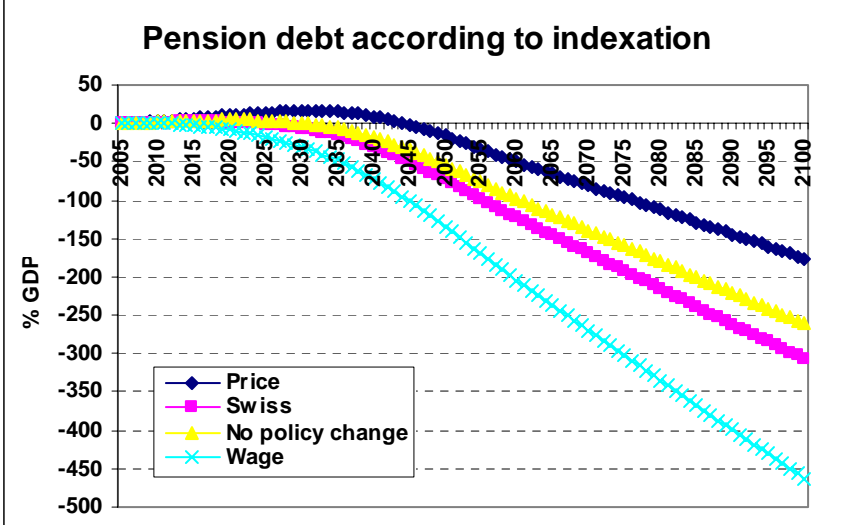Compared to the no policy change scenario, higher expenditures will fully affect the balance of the pension system and cumulated pension debt.[18] This is clearly displayed in Charts 5 and 6.

Chart 5
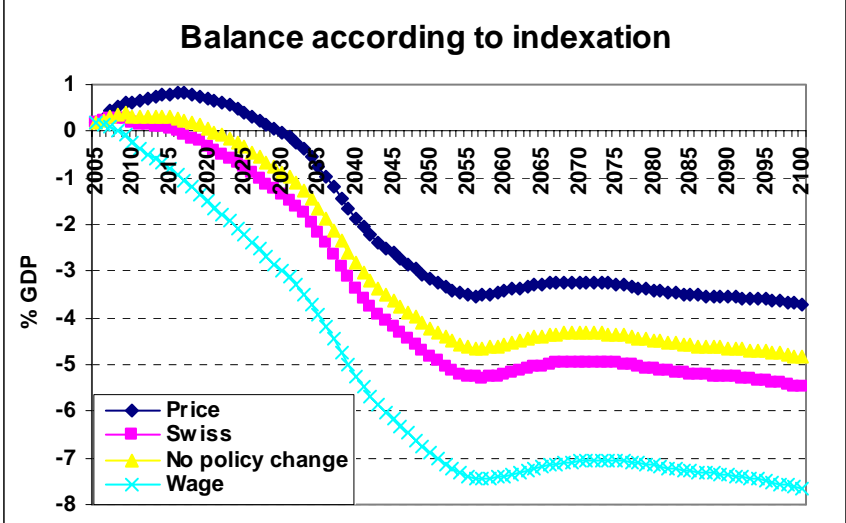
Source: Preliminary results of the working group (www.reformaduchodu.cz)

Chart 6

Source: Preliminary results of the working group (www.reformaduchodu.cz)

More generous indexation shortens the period of temporary surpluses in the pension system and deepens the long-term deficits. Consequently, the pension system builds up a smaller buffer fund in the first phase and then accumulates higher debts. Price indexation, on the other hand, would keep the pension system in surplus by 2030. A buffer fund would help finance rising expenditures by 2045. However, pension system debt at the end of the century could reach around 175% of GDP, which means that from a long-term perspective, even price indexation cannot make the public pension system financially sustainable.

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[18] The contribution rate in all indexation scenarios remains the same as in the no policy change variant. Therefore, the pension system's revenues are unchanged and constant at the level of 8.3% of GDP.

B) Rise in the statutory retirement age

Three scenarios assuming a further increase in the statutory retirement age were analysed by the working group.[19]

- A gradual rise in the retirement age to 65 years for both men and women. This level would be achieved by 2030 in the case of men, and between 2033-2043 in the case of women, depending on the number of raised children;
- A gradual rise to 67 years for both sexes (2044 in the case of men; 2047-2051 in the case of women);
- A gradual rise to 69 years for both sexes (2058 in the case of men and 2061-2065 in the case of women).

All other pension system parameters are the same as in the no policy change scenario.

Unlike the indexation strategies, which change the generosity of the pension system, the rise in the statutory retirement age mitigates at least partially the negative impact of population ageing on the number of retirees. Therefore, a further increase in the statutory retirement age lowers the overall pension system expenditures if compared with the no policy change scenario (Chart 7).

Chart 7
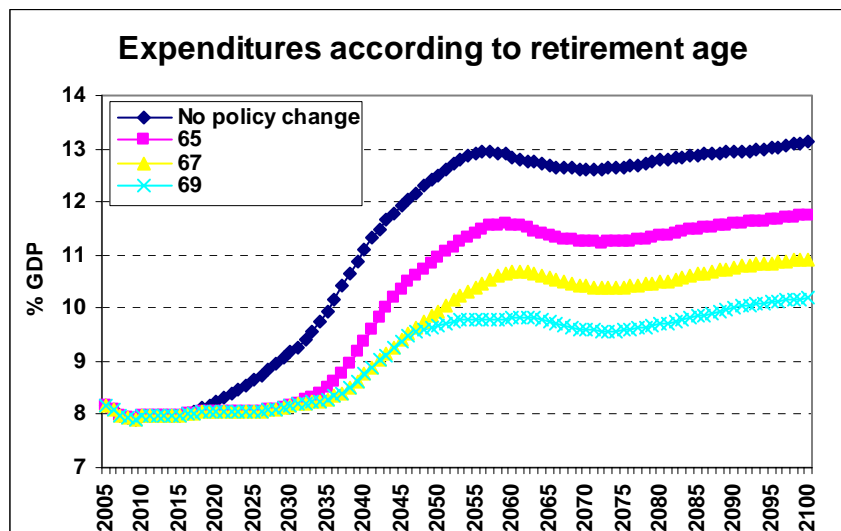
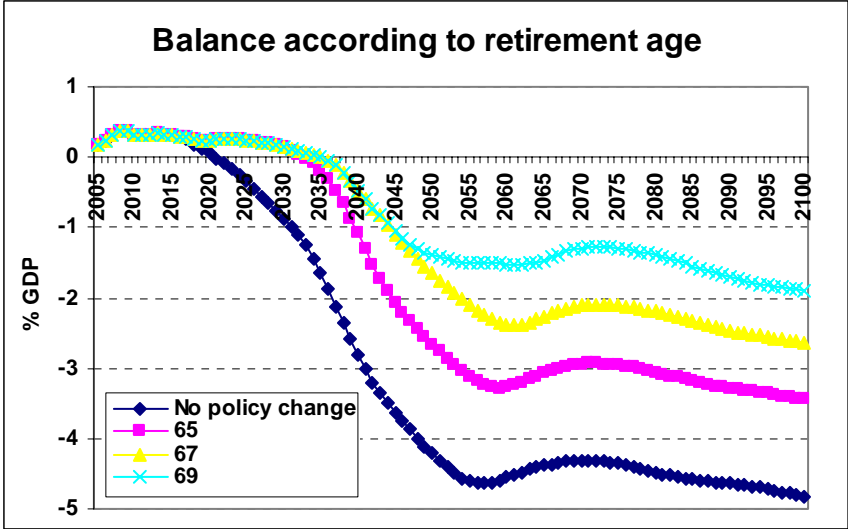Source: Preliminary results of the working group (www.reformaduchodu.cz)

In the no policy change scenario, expenditures will amount to 13% of GDP in the long run. Raising the retirement age to 65 would bring them below 12%. In the case of people retiring at 67, the pension system should not consume more than 11% of GDP. Finally, the population retiring at 69 years should ensure pension spending at around 10% of GDP. The scenario that increases the statutory retirement age to 69 years may look perhaps too drastic. However, it must be emphasised that the first generations that would retire at 69 are, in this simulation, men born in 1989 and women born between 1992 and 1996. In other words, such an apparently drastic increase in retirement age would be fully applied to children who are at present between 10 and 15. Based on the demographic projection that has been used for all pension system calculations, the average life expectancy of these generations would be significantly higher than currently observed values. Therefore, even under the most drastic

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[19] As noted earlier, even the no policy change scenario takes into account some increase in the retirement age (up to 63 for men and 59-63 for women, according to the number of raised children), given the currently valid legislative framework.

(69 year) scenario, the average length of receiving old-age pension benefits should not be in any case lower than the average number of years in retirement of current retirees.

Charts 8 and 9 show projections of the pension system's balance and pension debt. These results stem directly from the expenditure projections discussed above and are in line with intuition. It seems clear that even raising the statutory retirement age to 69 cannot in isolation guarantee the financial sustainability of the pension system in the long run.

Chart 8

Source: Preliminary results of the working group (www.reformaduchodu.cz)
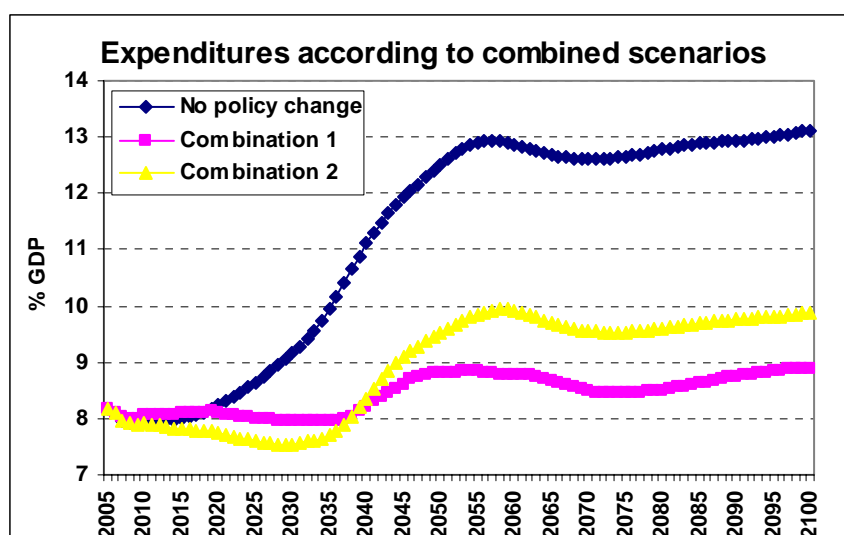
Chart 9
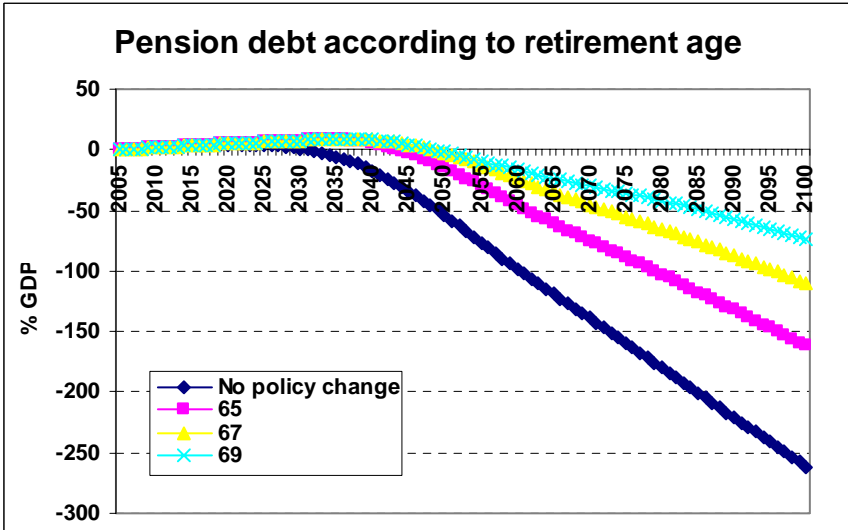
Source: Preliminary results of the working group (www.reformaduchodu.cz)

C) Combined parametrical reforms

Two scenarios consisting of simultaneously implementing several parametrical adjustments to the current pension system have been analysed by the working group. The first scenario (hereafter referred to as Combination 1) gradually raises the statutory retirement age to 69 for both men and women. Moreover, it assumes a "Swiss" indexation of pensions and, last but not least, keeps the flat-rate component of pensions constant (no indexation) in absolute terms at the level of 2005.[20] The second scenario (Combination 2) increases the statutory retirement age to 65 for both sexes. Indexation of pensions is the same as in the no policy change scenario (i.e. inflation plus one-third of the average real wage increase). In this scenario, the flat-rate component of pensions of the new pensioners (retiring after the start of reform) is also kept in absolute terms at the level of 2005. All other relevant pension system parameters are in both Combination 1 and 2 identical with the no policy change variant.

Chart 10 compares expenditure projections. Both parametrical adjustment combinations represent significant spending savings in the long run, ranging from 3 to 4% of GDP a year, if compared with the no policy change scenario.

Chart 10

Source: Preliminary results of the working group (www.reformaduchodu.cz)

Consequently, one can expect higher temporary surpluses or lower long run deficits. This hypothesis is confirmed in Chart 11. Both combined scenarios would keep the system in surplus for the next 35 years on average, before deficits emerge. Combination 1 will lead to lower deficits than Combination 2, since raising the statutory retirement age from 65 to 69 offers greater savings than decreasing the indexation from the "Swiss" approach to the minimum rate guaranteed by law (inflation + one-third of the real wage increase).

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[20] In the analysis, this is only relevant for the new retirees. The relative weight of the flat-rate component in their pension will decrease over time (if compared with current pensioners) due to zero indexation of the flat-rate part of the benefits.

Chart 11
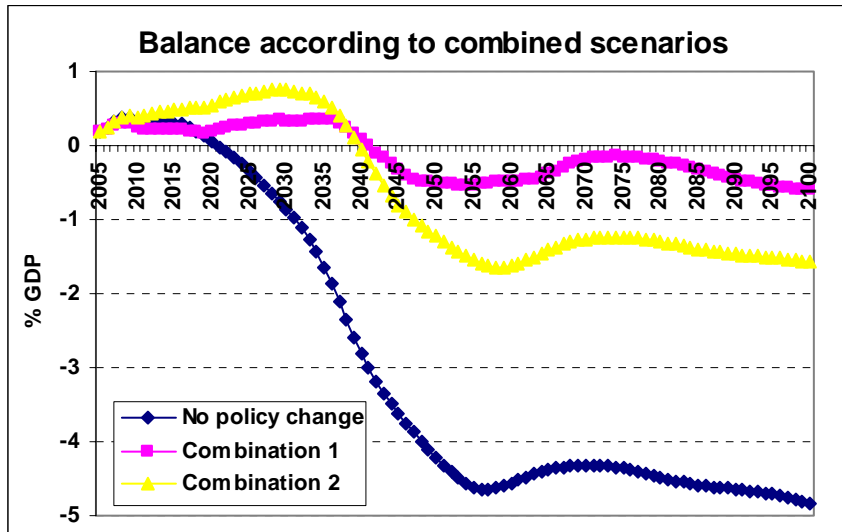
Source: Preliminary results of the working group (www.reformaduchodu.cz)

Both combined scenarios will significantly decrease the debt of the pension system over the next 100 years. Combination 1 can even completely eliminate this debt, as Chart 12 illustrates. In Combination 2, debt of about 45% of GDP could be accumulated by 2100. However, the system can quite easily be stabilised given the fact that in the very long run, even a small improvement in deficits (surpluses) could have a substantial impact on cumulated debt.

Chart 12
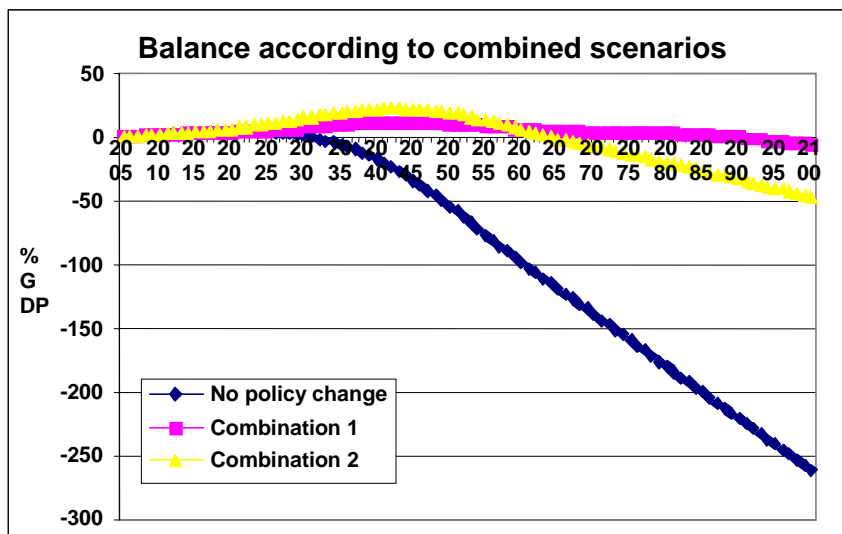
Source: Preliminary results of the working group (www.reformaduchodu.cz)

Therefore, Combinations 1 and 2 represent examples of how the pension system could be stabilised in the long run if policymakers prefer parametrical adjustments to systemic pension reforms. The next chapter sums up the main elements of the pension reform variants proposed by the political parties.

6. Pension reform variants

The Czech political parties have formulated their own strategies on how to reform the country's public pension system. The working group was asked to analyse these variants independently, placing considerable emphasis on keeping the analysis as comparable as possible. Therefore, all the political variants' calculations will be based on the same demographic projections and macroeconomic scenario. The analysis of the working group should be finished by June 2005. An English version of the final report will be available on the working group's website (www.reformaduchodu.cz). This chapter summarises all five political reform strategies.

6.1 Social Democratic Party

The Social Democrats asked the working group to quantify the effect of changing the current PAYG DB public pension system to an NDC (notional defined contribution) pension system.[21] Under this system, PAYG financing would remain unchanged. However, the system would become defined-contribution-oriented instead of defined-benefit, as the level of pension would be tied up with the contributions paid into the system. The statutory retirement age would be gradually increased to 65 for both men and women. The system would however allow both to retire up to three years earlier. A minimum pension at the level of 130% of life minimum would be guaranteed.22 Indexation of pension benefits as well as the "interest" accrued to the notional individual accounts of the contributors would be equal to the growth rate of totally paid contributions.

6.2 Christian Democrats

The Christian Democrats also plan to raise the statutory retirement age to 65. They would allow people to partially opt out of the state-managed, PAYG financed pension system. People could use 8 percentage points of the 20% "old-age" contribution rate in order to save for their own private pensions using the existing private pension funds or life insurance companies. Such a switch would be entirely voluntary. Even new labour market entrants will have the chance to decide whether they wish to stay fully in the state PAYG DB system or switch to a mixture of public PAYG DB scheme and private fully-funded DC pillar. People who have switched would of course receive a lower state pension in comparison to those who have not switched, since they would have paid lower contributions into the state pension system. People older than 50 would not be allowed to switch.

6.3 Freedom Union

The Freedom Union proposes implementing far-reaching parametrical reforms to the current pension system. The retirement age would be increased to 65 by 2030, increasing gradually thereafter at a speed of two months per calendar year. The level of new pensions would be gradually decreased between 2010 and 2030 from the current level of about 43% of the average wage, to about 30%. The link between pensions on the one hand and the total amount of contributions paid to the system on the other would also be strengthened. Moreover, like the Christian Democrats, the Freedom Union is also thinking of introducing some form of voluntary partial opt-out of the PAYG DB system. More specifically, people would be allowed to save 2 percentage points (or 3%) of the total 20% contribution rate for their own pensions. However, this opt-out rate would have to be supplemented by another 4% (or 6%) from their own savings. Thus, this opt-out would be conditional on the availability of private

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[21] For more details on NDC systems, see for example the Swedish social security system.
[22] The life minimum is defined by the law. Currently, it is 4,300 CZK per month for a single person (circa 140 euro or 180 USD).

savings and the willingness of people to invest at least part of their savings over a very long-term horizon.

6.4 Civic Democratic Party

The Civic Democrats intend to change the current PAYG DB system into a flat-rate pension system. In a flat-rate system, there is no link between the pension and contributions paid into the system. The flat-rate pension would be between 20-30% of the average wage in the economy,[23] and the retirement age would be gradually increased to 65. If necessary, a further rise to 66 or 67 would also be possible. Cutting the average pension benefits of future pensioners should allow the "old-age" mandatory contribution rate to be reduced. A gradual decrease from the current 20% of up to 10% is considered. A decrease in the mandatory contribution rate would result in an increase in disposable income of those in the labour force. According to the Civic Democrats, each citizen should have the right to decide on how to use this "extra" money. They can choose either to prefer short-term consumption and then, when retired, to receive the flat-rate state pension that would be only marginally above the life minimum, or to invest at least part of this money in financial products, real estate, education, etc. and thus save for old age.

6.5 Communist Party

The strategy of the Communist Party regarding the public pension system is to keep the current PAYG DB scheme. If necessary, they would implement some parametrical adjustments, including an increase in contribution rates. More specific parametric adjustments will be suggested after the Communist Party has analysed the results of the no policy change scenario of the public pension system.

7. Conclusions

The Czech Republic's public pension system is unsustainable in the long run, a situation it shares with most other developed countries. This situation is particularly acute owing to the fact that demographic experts expect very rapid population ageing in the next 50 years.

Over the last decade some partial adjustments to the current public pension system have already been implemented. This has initiated a process of gradually increasing the statutory retirement age. Moreover, some early retirement benefits have been completely eliminated, while the financial sanctions for early retirement have been increased. Last but not least, the contribution rate to the system has recently been increased.

In spring 2004, all the political parties agreed that, due to the urgent and long-term character of public pension reform, they would try to cooperate on this issue and formulate their own reform strategies. The independent working group established to analyse these strategies has already released some preliminary results (see Chapter 5), and the whole analysis will be finished by mid-2005.

It is certainly too early to form any firm or too optimistic conclusions about pension reform in the Czech Republic. Pension reform is always a highly political issue and politicians usually tend to postpone tough decisions as much as possible. On top of that, there will be general elections in June 2006 in the Czech Republic. It may thus happen that (i) pension reform issue

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[23] Currently, the average old-age pension is about 40% of the average wage.

will be misused by politicians in the pre-election campaign, or (ii) a decision on pension reform will be postponed until the post-election period.

Both these scenarios would be harmful. The first could damage the credibility of any future pension reform. Postponing the decision on reform, on the other hand, would waste a further year or two which could otherwise have been used to support reform. The current structure of the Czech population is still favourable (there are relatively few old people and numerically strong generations in the labour force), but this will start to change quite rapidly in the next five to ten years. Further postponing the reform decision is therefore very costly from a long-term perspective.

Nevertheless, the fact that different potential pension reform strategies will be analysed on as comparable a basis as possible is definitely a positive step on the path to reform. The outcome of this work should be applicable now as well as in two years' time. It is clear that the timing of decision-making is entirely in the hands of the politicians.

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