Chapter 21

The NDC Reform in the Czech Republic

Agnieszka Chłoń-Domińczak and Marek Mora*

The Czech government is facing the need to reform its pension system. As projections show, the current system is not sustainable in the future and shifting to NDC was one option considered by the Czech government. This chapter analyzes the possibility of a shift to a notional defined contribution (NDC) system from the current defined benefit (DB) system in the Czech Republic. In particular, it aims to analyze the pros and cons of the implementation of such a scheme in the Czech Republic.

This chapter is structured as follows. First, it sheds light on the major challenges that the Czech pension scheme currently faces. Second, it summarizes main reform measures that have been adopted since 1990, including the most recent measures incorporated in the fiscal reform of 2003–4. Third, it develops arguments in favor of the introduction of the NDC system in the Czech Republic, and identifies those issues that can be problematic in a shift to NDC. The discussion is also illustrated by some financial simulations of the results of the implementation of the NDC in the Czech Republic. Finally, it offers conclusions regarding possible implementation of the NDC reform.

Main Challenges for the Czech Pension Scheme

The current Czech pension system is currently dominated by a state-run, mandatory, defined benefit pay-as-you-go (PAYG) pillar that provides old-age, disability, and survivor...

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The ideas expressed in this chapter should be attached only to the authors and they should not be understood as an official policy of the respective institutions for which they...
benefits. Old-age pensions account for about 70 percent of total pension expenditures. The
PAYG pension benefits are financed by a pension contribution levied on the gross wage of
employees and a part of the profits of the self-employed. The state subsidizes the PAYG
scheme, either directly by financing gaps between revenues and expenditures, or indi-
rectly by acknowledging noncontributory periods for the calculation of pensions (covered
unemployment, higher education, military service, and maternity leave).

Like almost all pension schemes in Europe, the Czech pension scheme will face the
problem of an aging population. Currently, fertility rates in the Czech Republic are very
low. According to the United Nations (2005) the fertility rate in the Czech Republic
between 2000 and 2005 was the fourth lowest in the world. In addition, average life
expectancy is already increasing and projected to rise still further, which will lead to a
growing number of pensioners. According to the projection of the Czech Statistical Office,
the elderly dependency ratio—the share of population aged 65 or more in population to
working age (15–64)—is projected to increase from 20 percent in 2004 to almost 40 percent
in 2030. This will be caused both by a decrease in the working-age population (in the
period between 2000 and 2030 by some 14 percent) and by an increase in the post-work-
ing-age population (by more than 60 percent in the same time period).

After 2030, the aging process will be even more advanced. The UN population projec-
tions show that among the European countries, the Czech Republic—together with Greece,
Italy, and Spain—should have the highest share of people older than 65 years in the year
2050. More importantly, the demographic transition in the Czech Republic between 2000
and 2050 is expected to be extremely pronounced. According to Eurostat (2005), the elderly
dependency ratio will almost triple between 2004 and 2050, reaching 54.8 percent, above
the average of the European Union (52.8 percent). The change in the elderly dependency
ratio is projected to be the second largest in the European Union (figure 21.1).

This negative demographic development will create pressure on the financial sustain-
ability of the pension scheme. Since the late 1990s, the pension system has already been in

Figure 21.1. The Increase in the Elderly Dependency Ratio in EU Countries between
2004 and 2050

deficit for several years and, according to the IMF estimates, this deficit was projected to increase from 5 percent of GDP in 2025 to 11 percent of GDP in 2050.\textsuperscript{1} In 2002, the Czech Ministry of Labor and Social Affairs estimated that—in order to finance the liabilities of the pension system—the contribution rate would have to rise to around 45 percent in 2030, almost twice the contribution rate of 26 percent.\textsuperscript{2}

The PAYG pension system is also influenced by the recent developments of the labor market. On the one hand, the share of active labor force (calculated for the group 15–64 years old) has been declining, despite the fact that the number of people in the age category 15–64 years reached a record level of 7.2 million persons in 2002 (see figure 21.2). On the other hand, the rate of structural unemployment has been relatively high and still appears to be slightly rising. The registered unemployment rate has been increasing and, in 2004, reached its historical maximum of 10.2 percent.

The unfavorable development in the labor market can partly be explained as a consequence of pension policy itself as the Czech pension system creates serious distortions. The pension formula is a sum of a constant element, equal for all retirees, and a wage-dependent element. However, this second part of the old-age pension takes into account a fraction of wage in a regressive manner (the higher the wage, the smaller the percentage considered for the assessment base). This implies large intragenerational redistribution, as persons with lower earnings can expect benefits that are higher in relation to their wages than persons with higher earnings. An estimate of this redistributive effect of the pension formula is shown in figure 21.3.

This means that the marginal taxation of labor income is highly progressive, and at some point it reaches 100 percent. This feature of the pension scheme, combined with the structural problems in labor market, is a reason why people (especially those with low skills) often leave the labor market as soon as possible—mostly through early retirement. As a result, the actual exit age is much lower than the statutory age for an old-age pension. In 2002, the actual exit age was 56 years for women and 59 for men.
Changes in the Czech Pension System after 1990

Since 1990, when economic transition started, the Czech Republic has implemented a number of changes in its pension system. First, several parametric reforms of the PAYG scheme were introduced in the 1990s. Second, a fully funded pillar with a voluntary participation was introduced in 1994. Third, the public finance reform of 2003–4 introduced further parametric changes.

Parametric Changes of the PAYG Pillar

During the 1990s, the government succeeded in introducing a number of parametric changes in the PAYG scheme. Most important was the abolishment of special occupational pension rights, which occurred in two steps, partly in the period 1990–92, and then entirely in 1995. An overview of parametric changes in 1990s and in 2001 is given in table 21.1.

The Second Pillar

In addition to parametric reforms, a fully funded second pillar was introduced in 1994. The participation in this pillar is voluntary and contributions are paid on individual basis, but subsidized by the state budget.3 There have been several legislative changes in this area as well. Those changes have mainly been aimed at increasing the security of deposits of participants. In 2003—10 years after the introduction—there were 12 private pension funds operating on the Czech pension insurance market. Despite the high number of contributing participants (more than half of those in the PAYG system, almost one-third of the total population), the accumulated pension capital in the second pillar is still very low. In 2003, it amounted to 3.3 percent of GDP.

Pension Reform Process after 2002

The fact that the first pillar of the Czech pension system is clearly financially unsustainable in the medium and long term and that it needs to be reformed has been generally acknowl-
edged not only by pension experts, but also by political leaders. Nevertheless, since 2001, the pension reform has been de facto stopped. The parliament refused to accept several reform proposals (for example, the creation of an independent social insurance agency) and the reform process was in a gridlock, awaiting an election in 2002.

The intensity of the debate on pension reform options increased after the election. Facing high deficits of public finances (6.8 percent of GDP in 2002 and 11.7 percent of GDP in 2003), the Czech government decided to reform its public finances. As pension expenditures constitute a major part of the overall spending of the state budget, the fiscal reform package as adopted in 2003 included more parametric changes in the PAYG system. The reform measures took effect in the beginning of 2004. They include:

- Significant cuts in noncontributory periods counted in pension rights for higher education
- Elimination of the possibility of early retirement with only a temporary benefit reduction
- Increase in the contribution base for self-employed persons (50 percent of net income compared with 35 percent previously)
- Commitment to limit the pension increase in the period 2004–6 only to the minimum indexation required by the law (increase in the Consumer Price Index plus 33 percent of real wage growth, considered over a two-year period)
- A further and gradual increase of the retirement age to 63 by 2008 for both men and women
- An increase in the pension contribution from 26 percent to 28 percent (the overall social security contribution was unchanged because the contribution to the employment policy was lowered by 2 percent at the same time)\(^4\)

In 2003, the medium-term reform strategy of the Czech Ministry of Labor and Social Affairs was to reform the first pillar along NDC lines and possibly to extend the variety of the old-age savings instruments by introducing a second occupational pillar on a voluntary basis. The NDC reform was considered to be implemented by the year 2010.\(^5\)

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**Table 21.1. Parametric Reforms in the Czech PAYG Pension Scheme (1990–2002)**

<table>
<thead>
<tr>
<th>Year</th>
<th>Reforms</th>
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<tbody>
<tr>
<td>1990–92</td>
<td>• Elimination of some special pensions; with the exception of the self-employed whose pension contribution base is only 35% of their net income (compared with 100% of gross wage of employees)</td>
</tr>
<tr>
<td>1993</td>
<td>• Creation of an earmarked contribution rate for financing social policy (including pensions), as a part of the state budget</td>
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<tr>
<td></td>
<td>• Creation of an explicit pension formula</td>
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<tr>
<td>1996</td>
<td>• A new law on pension insurance (several parametric changes aiming at reducing the fiscal burden and strengthening intragenerational equity), inter alia, gradual increase in the statutory retirement age by 2007—to 62 for men and to 57–61 for women, depending on the number of children; reduction in the contribution rate from 27.2% to 26%</td>
</tr>
<tr>
<td></td>
<td>• A special account for pensions in the state budget (an asymmetric measure as contributions credited to this account can be spent only on pensions, whereas any loss must be covered by general taxes)</td>
</tr>
<tr>
<td>1997</td>
<td>• Tightening up the indexation rule; reduction in noncontributory periods</td>
</tr>
<tr>
<td>2001</td>
<td>• Tightening of early retirement provisions</td>
</tr>
</tbody>
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Source: Authors’ analysis.
Why Is NDC Considered a Reform Option in the Czech Republic?

When thinking about reform options, it is worthwhile to analyze the dynamics behind pension “reform” performance in the Czech Republic since 1990. It has been generally acknowledged that medium- and long-term financial sustainability of a PAYG pension scheme can be achieved by parametric reforms. Although this is true technically, parametric reforms face several problems in practice. The major difficulty of this approach is that decisions about parametric reforms are often taken ad hoc and there is no clear reform path. This increases reform costs in economic terms because adjustments often take place among people shortly before retirement age or even among those already retired. It also creates a credibility problem that increases reform costs measured in terms of political resistance. People oppose reform proposals not because of the proposals themselves, but rather because of uncertainty about any further changes. This general mistrust is further aggravated by the fact that politicians have often misused parametric reforms to serve their political client groups. In the Czech Republic, the opposition to parametric reforms was shown when the trade unions fiercely opposed government proposals to cut some of the noncontributory periods and increase retirement age for women under the 2003 fiscal reform package.

When reforming their pension systems, many of the middle-income/transition countries have decided to follow the reform benchmark of the World Bank and implemented the three-pillar concept. The introduction of the fully funded pillar is often seen as a way to overcome the above-mentioned difficulties with parametric reforms. Among the new EU member states, this kind of radical reform was introduced in Estonia, Hungary, Latvia, Lithuania, Poland, and most recently in Slovakia (on January 1, 2005). The Czech Republic differs significantly from many other middle-income/transition countries in this respect. The main explanation of why the Czech Republic has followed a different path is linked to general scepticism about a mandatory fully funded pillar. This scepticism has a number of sources.

First, so far, the first PAYG pillar has still not faced any serious financial crisis and, despite all its shortcomings, it is considered to be a reliable and well-functioning part of the Czech pension system, and of the Czech state in general.

Second, there is a general scepticism among the Czech population and politicians about the functioning of capital markets. This scepticism has its specific reasons, which can be found in recent history. In the process of voucher privatization, high expectations were created that “ownership society” would be created in the Czech Republic after the majority of Czechs received shares in exchange for the privatization vouchers. However, after two waves of voucher privatization, many people saw the value of their shares disappear because of poor regulation of capital markets and because of underdeveloped corporate governance. There is also the concrete experience with the private pension funds operating within the Czech second pillar, whose performance has not been very convincing so far: the annual real net rate of return was on average only 0.7 percent over the period 1995–2003 (table 21.2).

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</tr>
</thead>
<tbody>
<tr>
<td>RNRR</td>
<td>0.7</td>
<td>3.1</td>
<td>1.7</td>
<td>–0.6</td>
<td>0.3</td>
<td>3.9</td>
<td>–2.3</td>
<td>0.3</td>
<td>0</td>
</tr>
</tbody>
</table>

Source: Data from the Ministry of Labor and Social Affairs (2002).
Third, awareness about the medium- and long-term financial development of the PAYG pension pillar arose mostly after 1995. On the one hand, this increase of awareness was linked to the paradigmatic shift in thinking about pensions that was to a large extent influenced by the publication of the World Bank report *Averting the Old-Age Crisis* in 1994. On the other hand, more in-depth insights were enabled because of a broader use of information technology, which made it possible to produce longer projections of the financial situation of the pension system. However, at that time the liberal-conservative governments had to deal with more immediate problems, such as the financial crisis in 1997. Since 1998, the Social Democratic government has not supported the introduction of a compulsory fully funded pension pillar for several reasons. One group of reasons is technical. Although the problems in Czech Republic’s the first pillar are well recognized and acknowledged, there has been enduring scepticism about the economic benefits usually claimed to follow from the introduction of a second pillar (that it deals better with the aging population, and that it results in higher savings, less distortions in the labor markets, a deepening of capital markets, and higher economic growth). On the contrary, political costs linked to intergenerational redistribution arising from the financing of transition from a PAYG to a fully funded system are almost sure (table 21.3). The ongoing discussion among pension experts about the uncertain economic effects of a shift toward a mandatory funded system also made it easier to oppose the radical pension reform for “ideological” reasons.

In sum, a combination of three factors explains why the NDC reform has begun to be considered as a reform option in the Czech Republic. First is the acknowledged unsustainability of current pension policy. Second is the lack of support for further parametric reforms of the existing system by the society. And third is the general scepticism at the political level about a mandatory fully funded pillar, based either on technical or on ideological reasons.

**Advantages of Introducing the NDC Pillar**

As economic and demographic conditions in the Czech Republic are likely to change significantly over the next decades, advantages from introducing the NDC pillar can be numerous. First, financial conditions of the pension system would improve, because of both its automatic adjustment mechanism and its almost zero transition costs. Second, NDC systems would also have a positive on labor supply and mobility. Third, NDC systems are more transparent than other systems, thus lowering the costs of necessary adjustment. And fourth, NDC reform could help form policy preferences about further reform steps.

**Table 21.3. Costs and Benefits of the Switch from PAYG to Fully Funded Financing**

<table>
<thead>
<tr>
<th>Economic benefits</th>
<th>Political costs</th>
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<tbody>
<tr>
<td>higher rates of return</td>
<td>intergenerational redistribution arising from the financing of transition</td>
</tr>
<tr>
<td>higher savings</td>
<td>almost sure</td>
</tr>
<tr>
<td>deepening of capital market</td>
<td></td>
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<tr>
<td>elimination of labor market distortions</td>
<td></td>
</tr>
<tr>
<td>higher economic growth</td>
<td></td>
</tr>
<tr>
<td>better protection against aging</td>
<td></td>
</tr>
<tr>
<td>uncertain (risk adjustment, transition costs, administrative costs)</td>
<td></td>
</tr>
<tr>
<td>uncertain</td>
<td></td>
</tr>
<tr>
<td>likely</td>
<td></td>
</tr>
<tr>
<td>no (rather a shift from DB to DC)</td>
<td></td>
</tr>
<tr>
<td>uncertain</td>
<td></td>
</tr>
<tr>
<td>limited</td>
<td></td>
</tr>
</tbody>
</table>

*Source: Authors’ analysis.*
Financial Stability and Its Automatic Adjustment to Demographic Trends

It is commonly believed that the greatest economic advantage of NDC systems is their high degree of financial stability, which stems from the built-in automatic stabilizers to changing economic and demographic conditions. Most importantly, in an NDC scheme the net present value of an individual’s account value is always equal to the expected value of his or her entitlement for any given life expectancy. The notional interest and the annuity factor lead to adjustments in the pension level as economic and demographic conditions fluctuate. NDC schemes are thus much better equipped to adapt themselves to demographic shocks, whether they are well predicted or not.

The NDC critics correctly point out that the PAYG could still display short-term financial imbalances that result from time lags of built-in stabilizers. Moreover, they claim that long-term financial stability can be achieved in the traditional pay-as-you-go defined benefit (PAYG-DB) schemes as well, when proper repeated adjustments to the benefit formulae are carried out. From an economic point of view, this critique is correct. From a political economy point of view, however, the NDC pension scheme is by far superior to the traditional pension schemes, just for its rule-oriented institutional characteristics. As already mentioned, the traditional parametric approach allows for discretionary measures, whereas the NDC rate of return is generated directly by economic and demographic factors and there is no administrative discretion involved other than what can be applied to fully funded schemes.

No Transition Costs

Another important advantage from the point of financial stability is that the transition from a DB to an NDC system does not require any additional financing. As both of the schemes function on the PAYG basis, current contributions are still used to finance current expenditures. The implicit pension debt, which is often considered to be a major obstacle for the introduction of capital funding, should not increase because of the strict application of actuarial rules. The difference between DB and NDC systems lies in the way pension rights under each regime are accrued. Deficits can be observed in the short run, as the transition is a long-term process and pensions from the old system will still be paid to all those persons who were working when reform was introduced.

To minimize transition costs, implementing the NDC system should be accompanied by several measures. The required steps include:

- Limiting pensions’ indexation to the statutory minimum (one-third of real wages growth)
- Faster increase of retirement ages for men and women
- Equalizing the retirement age of men and women and eliminating earlier retirement based on the number of children.

Labor Market Neutrality and Explicit Trade-Offs

Compared with the traditional DB systems, the NDC does not create distortions in the labor market. As the pension formula is based on actuarial adjustments, the marginal taxation should be close to zero. There are no built-in incentives for early retirement, and the individual chooses only between the replacement rate and the retirement age. By deferring retirement, the individual increases the value of the notional account, through additional contributions paid and additional interest accrued on the account. In addition, the expected period of receiving the benefit is shorter (due to lower remaining life expectancy at higher retirement age), which also contributes to higher pension benefit. As marginal taxation is close to zero, the NDC contributions can be perceived by workers as an individual savings scheme, not as an element of the tax wedge. Moreover, the NDC system can also allow an individually designed gradual exit from the active labor force.
As a result, one could expect that the NDC scheme would raise the employment rates of the working-age population. In particular, it is important to increase the employability of the older workers and to increase female participation. The employment rates of the older workers in the Czech Republic are still far below the targets set by the European Union in the Lisbon Strategy. Female employment rate is significantly below the men’s level, particularly between the ages of 55 and 64 (see table 21.4).

An NDC pension scheme not only makes the trade-off between the level of pension benefit and the retirement age explicit, but, more importantly, retirement age is no longer a politically set variable, as this trade-off can be decided at the purely individual level. The only politically set variable is the minimum retirement age, which defines the earliest time that an individual can start receiving the benefit. The minimum retirement age should be high enough to avoid having too many people end up with a pension below the subsistence minimum, thus creating pressure on public finances. It should also reflect the process of aging, in particular changes in the longevity.

Figure 21.4 shows results of simulation, comparing values of the old-age benefit under the PAYG scheme as it was in 2002 with the values under the NDC scheme. In both cases it is

Table 21.4. Employment Rate in 2004

<table>
<thead>
<tr>
<th>Employment rate</th>
<th>Total</th>
<th>Men</th>
<th>Women</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age group 15–64</td>
<td>64.2</td>
<td>72.3</td>
<td>56.0</td>
</tr>
<tr>
<td>Age group 55–64</td>
<td>42.7</td>
<td>57.2</td>
<td>29.4</td>
</tr>
</tbody>
</table>


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Figure 21.4. Simulation of NDC versus DB Pension in the Czech Republic (2004)

Source: Chłoń-Domiriczak (2003).

Note: Assumed level of real wage growth and notional accounts indexation: 3 percent per year.
assumed that a person starts his or her career at the age of 20 and works until retirement age, earning an average wage. The comparison is based on the DB formula, and assumes that a person does not receive any reduction for early retirement or advancement for later retirement.

It should be noted that under the pension system as of 2002, early retirement (up to 2 years prior to reaching retirement age) was additionally punished:

- Pension was reduced by 1.3 percent of the calculation basis (the adjusted personal assessment basis, based on the average earnings 10 years before retirement) for each 90 days of earlier retirement but no longer than 2 years before the legal retirement age. This reduction was temporary, and was in force until the person reached retirement age.
- Pension was reduced by 0.9 percent of the calculation basis for each 90 days of earlier retirement but longer than 2 years and no longer than 3 years before the legal retirement age. This reduction was permanent.

There was also an “reward” for later retirement, equal to 1.5 percent of the calculation basis per each 90 days of working past the legal retirement age. This would change the presented figure slightly. However, as adjustments were still below actuarial neutrality, the majority of retirees decide to retire below legal retirement age.

Under the NDC system, it is assumed that contribution rate equals 20 percent of wages. Life expectancies are computed as the average value for men and women together, based on 2000 data. Replacement rates are calculated based on gross wages. Though based on relatively simplistic assumptions, the results of the simulation show that benefits expected under both systems are similar at the age of 62. In case of lower retirement age, benefits in the NDC system are smaller, but above age 62, the NDC system would offer higher pensions.

Therefore, a shift to an NDC scheme would increase incentives to postpone the decision to retire by introducing a more actuarially fair value for future pensions if the worker remains employed for longer.

**Labor Mobility**

Another reason why the NDC system should be introduced is that it would make it a lot easier to provide adequate pension coverage for workers who move from country to country. Despite the fact that current mobility of the work force is still low, it is likely to increase with the further integration of product and financial markets—especially in Europe. As pension coverage is going to become a major issue for mobile workers, the NDC approach seems to be particularly well suited to such an environment.

**Transparency and Lower Adjustment Costs**

In an NDC system, the present value of accounts for each individual is always known and everybody in the system is treated equally. This increased transparency is one of greatest advantages of NDC systems. Higher transparency lowers the adjustment costs of the pension schemes, both economic and political. First, transparency is important from the point of view of optimal intertemporal consumption smoothing. Members in NDC pension schemes are informed about their accumulated pension capital during their working careers. This allows them to make more informed choices about their individual savings and about the “correct” timing of retirement. In contrast, frequent and unpredictable adjustments of DB pensions are clearly suboptimal for individual decisions.

Second, the high degree of transparency of NDC schemes is important from the political economy point of view. The NDC formula does not include an income redistribution element, as it gives pension rights for contributions actually paid. For the same reason, everybody in the system is treated equally, which makes the concept more transparent for the population. The history of financial imbalances of pension schemes shows that they arose partly because of the lack of information about consequences of certain decisions...
and partly because of their conscious abuse by politicians. Thus, transparency in the NDC scheme substantially reduces the probability of risk that the pension schemes would either be changed with unintended consequences or intentionally misused.

The NDC System and the Formation of Reform Preferences

Institutional economics stipulates, on the one hand, that institutions are the result of the preferences of voters, and, on the other hand, that institutions might have a large impact on forming the preferences of voters. If preferences on pension policy are endogenous, we would argue that the NDC reform could be used as an institution for preference formation about future policy options.

As the study of Boeri, Börsch-Supan, and Tabellini (2001) shows, the level of information among individuals seems to be dependent not only on their individual characteristics (age, sex, income, and education), but also on institutional characteristics of the pension scheme, especially on the degree of individualization of the pension scheme that in turn affects the quality of information among its participants. Boeri, Börsch-Supan, and Tabellini (2001) claim that Germans, Italians, and to a lesser extent Frenchmen, are relatively better informed about (the cost of) their pension schemes than Spaniards. About three-quarters of respondents from Germany, Italy, and France expect that there will be pension reform, which will significantly reduce the level of public pensions; in Spain only 47 percent of respondents expected this (Boeri, Börsch-Supan, and Tabellini 2001, p. 25). One can interpret these results as a consequence of a long social-insurance (Bismarckian) tradition of German and French pension schemes (the so-called point system) and of the NDC pension reform in Italy. People are ready to accept cuts in their pensions if these are “fair.” This “fairness” is in turn derived from the understanding about their accumulated individual pension rights. Also in Poland during the preparation of the 1999 pension reform, the majority of respondents in opinion polls preferred having a close link between contributions and benefits.11

Moreover, the study of Boeri, Börsch-Supan, and Tabellini (2001) indicates that the willingness of people to opt out from PAYG pension scheme and to bear the related transition burden is relatively low. In all four countries considered (Germany, France, Italy, Spain), only little more than 10 percent of the respondents are willing to opt out if that entails bearing the transition burden (pp. 31–32).

In other words, the NDC reform could enable people to learn about the real costs of their pension scheme and make it in this way easily comparable with its chief counterpart—the financial (or funded) DC scheme. This institutional gain is worth considering. On the one hand, costs to enter the NDC system are very low, in particular compared with the costs of radical financial pension reform. On the other hand, the NDC system does not create any additional obstacles for further reform options.

Main Risks of NDC Reform from the Czech Perspective

There are four main kinds of risk of NDC reform in the Czech Republic: risks to equity, to portfolio considerations, to the political economy, and to building administrative capacity.

Equity

First, the issue of equity can be considered from the point of view of welfare economics. If pensioners are assumed to be more risk-averse than workers (contributors), pensions should be subject to more modest adjustments than adjustments in contribution rates. In an NDC scheme, the contribution rate is fixed and the pension to a large extent depends on growth of the wage bill during the working time and on the expected wage-bill growth and on the life expectancy at the moment of retirement. This would imply a worsening compared with the original DB system. However, neither wage-bill growth nor life
expectancy change abruptly. The transparent system allows workers to be informed about estimates of their future NDC pensions and make appropriate advanced adjustments in their consumption behavior.

Second, the issue of equity can be considered from the political economy point of view. The pension formula in the Czech Republic, in particular its flat-rate part and the regressive wage-dependent part, aims at redistributing from the rich to the poor. Persons with lower earnings can expect benefits that are higher in relation to their wages than persons with higher earnings. In addition, selected noncontributory periods are also counted for pension calculation. In contrast, the NDC system gives pension rights only for actually paid contributions. Persons who have paid the same amount of contributions and retire at the same age may expect similar pensions. It thus appears that one of the most important elements of the NDC system is a reduction of intragenerational transfers. This consideration is, however, not straightforward.

On the one hand, redistribution under the DB systems might have several shortcomings. First, redistribution related to noncontributory periods is delayed in time, as costs of financing these periods are not paid when they occur, but only after a person retires. Thus, in the case of aging populations, it means that additional higher burden, related to financing of these periods, is put on the younger cohorts. Second, the direction of the redistribution may be disturbed by the method of calculating the assessment base. If it is based on the earnings history obtained from the end of a working career, people who tend to have higher earnings just before retirement age are “the winners.” Thus it may happen that persons who have longer working careers but lower wage levels have lower pensions, even if they paid the same amount in contributions. Third, DB pension formulae are often perceived as unfair and lead to higher evasion on the part of those who could not benefit from additional contributions.

On the other hand, intragenerational redistribution in the NDC system is possible to avoid workers with low wages or interrupted work careers not receiving receive an adequate retirement income.

Countries with existing NDC schemes, such as Latvia, Poland, and Sweden, introduced the concept of minimum pension guarantee. Pensions from the NDC scheme are topped up to the statutory level of minimum benefit from the general revenue of the state budget. For those who need it, social assistance should be provided, based on a means test. This social assistance should, however, be separated from the social insurance pension system and be a part of the general social assistance scheme, financed by general taxes.

Figure 21.5 shows the results of simulations for the Czech Republic if the minimum pension level is set at 30 percent of the average wage (the contribution rate is equal to 20 percent). The simulation results show that persons earning below 60 percent of the average wage who started to work at age 20 and retired at age 62 would be eligible to minimum-pension guarantee (assuming a notional interest rate of 3 percent).

Another solution that can be applied is to introduce a flat benefit, financed from general revenue. The simulation in figure 21.6 shows the outcome of such a solution for persons with different wage levels. In the simulation it is assumed that the level of flat benefit is 25 percent of average wage and the contribution rate for NDC pension is 12 percent.

Comparison of replacement rates for both simulations is shown in figure 21.7. Compared with the minimum guarantee concept, the pension distribution is flatter, which influences the replacement rates. With the minimum pension guarantee, replacement rates are increased for low-income earners and remain unchanged for persons not covered by the guarantee, while in the case of the flat benefit, replacement rates fall continuously with income.

When choosing the appropriate option, long-term financial projections are necessary. In the aging environment, costs of the flat pensions increase with the increase of the depen-
Figure 21.5. Functioning of the Minimum Pension Guarantee

![Diagram showing the functioning of the Minimum Pension Guarantee.](image_url)

*Source: Chłoń-Domińczak (2003).*

Figure 21.6. An Alternative: Flat Benefit plus NDC Pension

![Diagram showing an alternative pension system.](image_url)

*Source: Chłoń-Domińczak (2003).*
dency rate. In the case of the topping-up option, as the level of subsidy from the state budget is smaller, the costs for the state budget also increase, but not to the same level.

This type of redistribution broadens the base for financing, not relating it only to the pension contribution as the one embedded in the DB pension system, which is socially more justified and less distortive for the labor market. As already discussed, to keep the costs of such guarantees reasonable, the minimum age to receive such a guarantee should be set relatively high and it should increase with the increase of life expectancies.

**Portfolio Considerations**

The NDC reform does not accommodate the portfolio advantages pointed out by the promoters of radical financial pension reform, namely that the two forms of pension financing (PAYG and capital funding) face different risks. The argument that NDC reform does not accommodate portfolio advantages requires at least two qualifying remarks. First, the question of to what extent both forms of pension financing really face different risks is disputable, especially as regards demography. And second, the composition of portfolio of assets used for financing consumption at the retirement stage should be left to individual choice. As Disney (2000) argues, the “voluntary” route of offering incentives to individuals to make private retirement savings arrangements as public commitments are cut back has proved to be a popular reform vehicle. NDC reform makes pension benefits for each individual dependent on his or her contributions and retirement age. If information about the approximate NDC pension is known in advance, the individual can complement NDC pensions with a long-term savings scheme of his or her choice (private pension insurance, life insurance, mortgage, and so on). To achieve this, various forms of long-term savings schemes should be given equal treatment by the government.

**Political Economy**

The major weakness of any pension reform is its political feasibility. NDC reforms contain basically only adjustments of current pension rights through changes in the rate of return.
on accounts and the life expectancy factor used in computing the annuity. In particular, in
the NDC framework those adjustments are explicit and they cannot be compensated for by
any promise of future benefits. This is a key contrast to radical financial pension reforms,
which have always pointed out that short-term cuts in the PAYG state pillar would be more
than compensated for by long-term benefits in the fully funded private pillar.

Another major political economy consideration under the NDC reform is that it does
not have any natural advocates. Normally, radical financial pension reforms are supported
by private financial institutions because they usually profit from them. This is, however,
not the case with NDC reforms. It has been only recently that the World Bank, as the major
intellectual institution in the field of pension reform, started promoting this reform option.

Building Administrative Capacity
A shift to the NDC system requires significant administrative preparations. Introducing
individual accounts is a technological and operational challenge. Usually such a change
requires recording money and information flows in the pension system. In the individual-
ized pension systems, there are many processes. The most important is the collection and
assignment of the payments. All other processes (registration, transfers, and so on) support
the main process. However, they have to fulfill quality standards, to ensure proper assign-
ment of payments. The NDC system is very demanding for social security administrators,
as individual accounts need to be kept for all insured people. Thus sufficient time should be
allowed between completing the legislation and implementing the pension system.

Introducing the NDC has several technical preconditions. These include:

- Building administrative capacity that also includes development of the IT system
  necessary to run individual accounts and preparing all actors—including bank and
  employers—for the new information requirements
- Separating social security from the state budget and building a demographic reserve
  fund as a stabilizer of the NDC system
- Assessing the quality of identification numbers necessary to have proper informa-
  tion for individual accounts.

Financial Simulations for the Future

In this section, some assessment of the costs for old-age pensions is presented. The simu-
lation is based on the demographic projection until 2030, prepared by the Central Statisti-
cal Office of the Czech Republic. However, as data on life expectancies were not available,
the relevant values for the Polish population were used for the purpose of pension calcu-
lation.

Other assumptions include:

- A wage growth of 3 percent annually
- A constant employment rates, based on 2002 data
- A real pension indexation at the level of 33 percent of real wage growth
- NDC assumptions:
  - The contribution rate for the NDC system is equal to 20 percent of the wage
  - The notional accounts indexation is equal to wage bill growth
  - The benefit formula is equal to the value of accumulated capital divided by life
    expectancy at retirement
  - The pension rights under the old regime are calculated as a percent of accrued
    pension rights at the end of 2003.

Figure 21.8 presents the results of simulation for the application of latter assumption on
the calculation of the accrued pension rights. It is assumed that retirement age is equal to
62, the required insurance period is 25 years, individuals start work at the age of 20, and the person earns an average wage for the entire period. The role of the initial pension decreases for younger cohorts, but the total value of old-age pensions remains relatively stable. Such an approach leads to the equal treatment of all workers when calculating the pension rights, contrary to, for example, the Polish approach, where the initial capital is calculated by multiplying the accrued pension right by life expectancy at age 62. As a result, women who have a lower retirement age lose from the conversion of pension rights.15 This assumption also has its drawback. Namely, when life expectancies increase, the value of the accrued pension rights remains unchanged. This may increase the future pension expenditure compared with the situation where all pension rights are adjusted to changes in the life expectancy.

Two retirement ages scenarios are calculated. The first one assumes that retirement ages are equalized to 63 by 2008 (the current reform scenario). However, to achieve this, given the current age structure of pensioners, in the period from 2005 to 2009 no women should actually retire, as most have already retired at a younger age. The second scenario assumes that current retirement ages are kept.

**Increased Retirement Age Scenario**

Assuming the increase of retirement ages, the relation between the number of workers and the number of old-age pensioners is expected to decrease compared with the current level, resulting in lowering the system dependency ratio (figure 21.9).

The average pension to average wage ratio is also expected to decline, since the indexation of benefits is close to the Consumer Price Index. The decline observed during the first years of the simulation is the result of small number of new pensioners. As a result, benefits are reduced because of the assumed indexation level (figure 21.10).
Figure 21.9. Employed and Pensioners: Increased Retirement Age Scenario

Source: Chłoń-Domińczak (2003).

Figure 21.10. Average Pension As a Percent of Average Wage: Increased Retirement Age Scenario

Source: Chłoń-Domińczak (2003).
Combining the two effects, total expenditure on pensions should decline and the system should generate surpluses, in particular between 2008 and 2020. After that date, as the aging of the population accelerates, the difference between revenues and expenditures is likely to diminish (figure 21.11).

**Constant Retirement Age Scenario**
Under the constant retirement age scenario, the situation looks different. First, the system dependency ratio is increasing throughout the entire simulation period (figure 21.12).

Second, as the inflow of new pensioners is not disturbed, the average pension to average wage level is decreasing, but at a much slower pace. However, at the end of the projection period, the average pension level is slightly lower than in the case of the increased retirement age. This is because of the actuarial pension formula that would result in lower pensions under current retirement ages (figure 21.13).

Finally, overall old-age pension expenditures are increasing above expected revenues from contributions, which shows a significant risk of insolvency of the pension system. This is mainly due to keeping low retirement ages, which results in both increased number of pensioners and a reduced number of workers contributing to the pension system in the future (figure 21.14).

The results of the simulations show that the implementation of the NDC alone is not sufficient to improve the financial situation of the old-age pension system. Other changes, such as increasing retirement age or lowering pension indexation level, are necessary.

Under the full reform scenario—including the shift to an NDC scheme, changes in the pension indexation, and rising retirement age—it is expected that in the next decades pension systems can generate some surpluses. This shows that there is some room for accumulating reserves for the next decades, when aging of the population is expected to be more advanced.
Figure 21.12. Employed and Pensioners: Constant Retirement Age Scenario

Source: Chłoń-Domińczak (2003).

Figure 21.13. Pensions As a Percent of Average Wage: Constant Retirement Age Scenario

Source: Authors' calculations.
Conclusions

Given the current prospects of the pension system in the Czech Republic, urgent steps are necessary to reform it. Demographic projections show that the number of working-age persons will be decreasing while the number of pensioners will be increasing. After several years of the PAYG pension system facing deficits, the fiscal reform package adopted in 2003 included parametric changes that safeguarded its fiscal sustainability for about the next 10 years. However, further actions are necessary to ensure long-term stability.

From this point of view, introducing an NDC scheme would link the system’s liabilities to contribution revenues, thus making the pension system stable. NDC would also provide incentives to lengthen the working career and enhance transparency, which in turn may increase financial literacy and thus support the development of individual savings. Introducing an NDC scheme does not generate transition costs, as would be the case with a funded system, as both of the schemes function on the pay-as-you-go basis, where current contributions are still used to finance current expenditures. That also means that NDC scheme—when compared with the current DB system—would not create any extra transition costs for the introduction of a funded system later on. Moreover, the NDC system provides similar microlevel incentives to contribute, as benefits are closely tied to contributions.

Thus, it seems that such a reform option may be attractive. However, an NDC reform might have also some disadvantages. One of the criticized elements of the NDC system is the elimination of income redistribution and its failure to broaden a portfolio of assets to finance retirement. This criticism is not fully warranted. For instance, income redistribu-
tion can be maintained by establishing the minimum pension guarantee. Concerning portfolio of assets to finance consumption at retirement, the transparent NDC system enables people to make choices about their private savings. From the political point of view, a major weakness of an NDC system is that it does not offer any future benefits in exchange for the immediate cuts in real pensions and it does not have any natural advocates. An NDC reform would also require building administrative capacity.

Stylized simulations show that the shift to an NDC scheme—accompanied by changes in the pension indexation and rising retirement age—would be a viable reform option for the Czech Republic.

Notes

2. See Ministry of Labor and Social Affairs (2002).
3. Using the vocabulary of the World Bank, the Czech second pillar would be a third pillar.
4. This measure is questionable. On the one hand, it means an effective increase in the already very high contribution rate. On the other hand, it is a decrease in financial resources for the active labor market policy in a situation with rising rate of unemployment.
5. In the meantime, the range of preferred reform approaches became much wider. To analyze those approaches, the government decided in 2004 to set up an independent group of experts. Its main objective was to carry out calculations of pension reform proposals put forward by the political parties.
6. These sceptical points have also been raised by Barr (2000), Lindbeck and Persson (2003), Thompson (1998), and others.
7. The most outstanding critics of this reform approach are Disney (2000) and Valdés-Prieto (2000).
10. The Lisbon Strategy, adopted by European Union in 2000, is aimed at implementing actions that would enable the EU by 2010 to “become the most competitive and dynamic knowledge-based economy in the world capable of sustainable economic growth with more and better jobs and greater social cohesion.” To achieve this, the employment rate in the EU area should reach the level of 70 percent, employment of women, 60 percent, and employment of older workers (aged 50–74) 50 percent.
12. This could be observed for example in Poland, where in opinion polls 76 percent of people answered that they expect to have a direct link between contributions and benefits in the pension system (Chłoń 2000).
13. The simulation here is based on very limited information and, thus, it should be seen as indicating the general direction of the results. Further, more detailed, simulations are necessary when working on the actual proposal of the discussed pension reform.
14. The most comprehensive set of new simulations for the NDC reform and for other reforms options was presented in June 2005 by the Executive Team for Pension Reform. See www.reformaduchodu.cz.

References


