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Pension Developments and Reforms in Transition Economies¹

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Abstract

This paper reviews developments in pension systems in 11 transition economies during the 1990s, highlighting the forces behind their rapid weakening. It focuses on the challenges these systems face—including those arising from demographic factors—and discusses why most transition countries are considering shifting, or have already shifted, from traditional defined-benefit pay-as-you-go systems to defined-contribution fully funded systems. Finally, the paper looks at the main options that arise in introducing fully funded components, including the relative mix between funding and pay-as-you-go, and the speed of the transition toward the new system.

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SUMMARY

During the 1990s, the pay-as-you-go (PAYG) pension systems of transition economies were badly hit by a series of shocks, as the contribution base collapsed and pensions systems were often used to reduce the social costs of the transition. The resulting pressure to increase pension expenditures had to be contained by slashing average benefits.

As these developments unfolded, it became clear that the piecemeal approach followed initially by most countries in reforming the pension system had to be replaced by more comprehensive approaches. By mid-1995, the pension systems in transition countries were weakened by high system dependency ratios, low retirement age, strong distortions, and widespread contribution evasion.

Most countries in the sample are addressing these problems not only by streamlining the existing PAYG system, but by changing the nature of the pension system through the introduction of defined contribution fully funded mandatory pension pillars. The interest that this approach has raised can be explained by economic factors—particularly the expected high yield of the funds invested in transition economies, with respect to the implicit yield of PAYG pensions, and the need to strengthen the link between contributions and benefits. However, other factors were probably at play, in particular the fact that PAYG pension systems had failed to protect pensioners during the transition, and the fact that pension benefits in fully funded systems might have been regarded as better protected from political risks than in PAYG systems.

The weak performance of PAYG systems in the 1990s should not lead to overlooking the potential risks implicit in fully funded systems, in particular those related to financial risk and inadequate supervision. In this respect, we discuss how the countries that have already implemented pension reform are tackling these problems, as well as those related to the transition from PAYG to fully funded systems.

I. INTRODUCTION

The reform of the public welfare system has been a key component of the structural reform process in transition economies. In countries where the state had been expected to provide social assistance “from cradle to grave,” the shift to a market economy necessarily involved dramatic changes in the relation between citizens and the social security system, in terms of both the benefits provided and their financing. This need for change had to be addressed by the authorities at a time of extremely unfavorable macroeconomic conditions. In an environment characterized by high or hyperinflation and a collapse of output, the welfare state had to be fixed mostly through *ad hoc* measures. In particular, pension systems in transition countries were typically used as a buffer to alleviate the effect of the output loss on certain segments of the population and the increased income inequality that characterized the first phase of the transition.

Macroeconomic conditions have improved in many transition countries and the debate on pension reform has taken a new scope: moving away from stop-gap measures, authorities have increasingly focussed on comprehensive pension reform projects. These reforms typically aim not only at guaranteeing the financial viability of the pension system, but also at putting in place proper economic incentives to improve compliance with contribution obligations, reduce labor market distortions, increase saving, and accelerate financial market development. The debate on pension reform in transition economies is quite advanced. Indeed, four transition economies (Hungary, Latvia, Poland, and Kazakhstan) have already approved comprehensive reforms. These reforms and reform projects go well beyond making parametric changes to the current pay-as-you-go (PAYG) pension system, moving toward systems that have mechanisms to ensure that contributions and payments are more directly linked, including through the establishment of defined contribution (DC) fully funded (FF) pension components.²

This paper describes the forces that have molded pension systems in transition economies since the beginning of the transition, outlines the reforms that have been approved or are under discussion, and attempts to explain the reasons why the approaches to pension reform in transition economies are usually more radical than those currently contemplated in many industrial economies. The focus is on seven economies in Central and Eastern Europe (Bulgaria, Czech Republic, FYR Macedonia, Hungary, Poland, Romania, and Slovenia), and four BRO countries (Latvia, Kazakhstan, Russia, and Ukraine).³

² The shift from a pay-as-you-go to a fully-funded system involves (among other things) a switch from a defined-benefit to a defined-contribution pension system.

³The acronym BRO refers to the Baltics, Russia and other countries of the Former Soviet Union.

The plan of the paper is the following. Section II places pension developments in the context of basic macroeconomic developments in transition economies during the 1990s. Section III describes trends in pension systems during the same period. Section IV provides a snapshot of mid-1990s pension systems in transition economies, and highlights the reasons why pension reform is regarded as a top priority in most countries of the sample. Section V reviews the directions that different countries have taken, or seem inclined to take, in reforming the pension system. It also suggests an interpretation of the social and economic factors that are shaping pension reform in those countries. Section VI summarizes the main findings.

II. MACROECONOMIC TRENDS IN THE 1990S AND THEIR RELATIONSHIP WITH PENSION SYSTEMS

Macroeconomic trends in the countries of our sample have been characterized by common features, but by obvious differences as well. In all countries the transition was marked initially by a large output loss (Table 1). However, the magnitude and the duration of the output loss differed markedly across countries: in Central and Eastern European (CEE) countries, the decline was not as marked as in BRO countries. Moreover, in most CEE countries output started recovering earlier, reaching growth rates significantly above 5 percent in some cases (Poland). These growth rates tend to underestimate actual output dynamics, because of the rapid growth of the informal sector, sometimes estimated to represent one third of output.⁴ The shrinking of the official economy and the growth of the informal sector had important implications for social security systems throughout the area, as the social security contribution base rapidly shrank both in absolute and in relative terms.

Another important feature of the transition was the rapid rise in unemployment (Table 1). The increase in unemployment was sharper and occurred earlier in CEE countries than in BRO countries. This difference indicates the lower propensities of firms in BRO countries to shed labor, because firms were providing the safety net that in CEE countries was partially provided through social programs (see below). Indeed, the growth of unemployment in CEE countries would have been even higher had it not been for a number of social programs.⁵

⁴Johnson, Kaufman, and Shleifer (1997) estimate that in the first half of the 1990s the share of the unofficial economy in the countries in our sample (excluding FYR Macedonia and Slovenia) grew from 17 percent in 1989 to 34 percent in 1995, shrinking moderately only in Poland and Romania. The expansion of the unofficial economy was more pronounced in the BRO countries, where it increased from 12 percent to 40 percent over the same period.

⁵Moghadam (1998) estimates that 80 percent of the 1 million decline in the labor force in Hungary during 1990–96 was due to social programs (such as early retirement and disability pensions), excluding official unemployment benefits.

The third feature is high inflation. Most countries experienced very high inflation rates at the beginning of the transition. Although some countries were then able to disinflate fairly rapidly, inflation remained at moderate levels for a number of years in the majority of the countries in the sample (Table 1). Inflation affected the pension system deeply as the purchasing power of pension became strictly dependent on the specificities of the indexation mechanism, or on *ad hoc* decisions on pension increases. Moreover, the calculation of the pension base became very sensitive to the number of salary years over which it was computed, to the revaluation mechanism, and to the date of retiring. As discussed in the next section, these forces affected significantly the relative living standards of the elderly during the transition.

III. TRENDS IN PENSION REVENUES AND EXPENDITURES IN THE 1990S

At the beginning of the transition all pension systems in transition countries were (and most still are) financed on a PAYG basis.⁶ As such, their financial viability was particularly susceptible to the shocks that accompanied the transition: not only were contributions declining because of the output contraction, but the system dependency ratio (the ratio between pensioners and contributors) started rising rapidly, reflecting both the decline in the number of contributors, and the growth in the number of pensioners.

The fall in the number of contributors reflected the plunge in official employment (far in excess of the drop in output, as enterprises were shedding low-productivity workers, particularly in CEE countries) and the growth of the informal economy. As reported in Table 2, virtually all countries in our sample suffered from this problem.

The rapid growth in the number of pensioners (Table 2) was due partly to demographic factors, as evidenced by the increase from 16¼ percent to 17½ percent of the average elderly dependency ratio (the ratio between the population of age 65 and above to the population of age 15–64) between 1990 and 1995 (Figure 1).⁷ But, in addition to demographic factors, the number of pensioners was inflated by the use of the pension system to cushion the effect of the transition on open unemployment: early retirement reached massive proportions in most countries and was exacerbated, in some cases, by liberal rules on the granting of disability pensions. The use of the pension system to cushion unemployment was more common in the

⁶See Kopits (1992) for a survey of pension systems at the beginning of the transition.

⁷The increase was less pronounced than expected in the early 1990s (see, for example, Kopits (1992), Table 1, p. 293), possibly reflecting the unexpected jump in mortality rates in some countries during the transition. Note also that during 1990–95 the increase in the elderly dependency ratio was accompanied by a decline in the overall dependency ratio (the ratio between youth (0–14) and elderly (over 64) and working age population (15–64)), thus cushioning in part the effect of demographics on public finances.

Table 1. Macroeconomic Trends, 1990-97

| | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | Period Average 1/ |
|---|-------|-------|--------|--------|--------|-------|-------|--------|----------------------|
| GDP growth | | | | | | | | | |
| Bulgaria | -9.1 | -11.7 | -7.3 | -1.5 | 1.8 | 2.1 | -10.9 | -7.4 | -5.5 |
| Czech Republic | -1.2 | -11.5 | -3.3 | 0.6 | 2.7 | 5.9 | 4.1 | 1.2 | -0.2 |
| FYR Macedonia | ... | ... | ... | -9.4 | -2.7 | -1.6 | 0.9 | 1.5 | -2.3 |
| Hungary | -3.5 | -11.9 | -3.1 | -0.6 | 2.9 | 1.5 | 1.3 | 4.0 | -1.2 |
| Poland | -11.6 | -7.0 | 2.6 | 3.8 | 5.2 | 7.0 | 6.1 | 6.9 | 1.6 |
| Romania | -5.6 | -12.9 | -8.7 | 1.5 | 3.9 | 6.9 | 3.9 | -6.6 | -2.2 |
| Slovenia | -7.5 | -8.9 | -5.5 | 2.8 | 5.3 | 4.1 | 3.2 | 3.7 | -0.3 |
| Kazakhstan | -2.3 | -9.8 | -2.9 | -10.4 | -17.8 | -8.2 | 0.5 | 2.1 | -6.1 |
| Latvia | ... | -8.2 | -34.9 | -14.9 | 2.1 | 0.3 | 2.8 | 6.0 | -6.7 |
| Russia | -2.3 | -5.0 | -14.5 | -8.7 | -12.6 | -4.0 | -2.8 | 0.4 | -6.2 |
| Ukraine | ... | ... | -17.0 | -14.2 | -22.9 | -12.2 | -10.0 | -3.4 | -13.3 |
| Average 2/ | -5.4 | -9.7 | -9.5 | -4.6 | -2.9 | 0.2 | -0.1 | 0.8 | -3.8 |
| Unemployment Rate | | | | | | | | | |
| Bulgaria | 2.9 | 10.5 | 15.0 | 16.3 | 13.1 | 11.4 | 12.7 | 13.9 | 12.0 |
| Czech Republic | 1.7 | 4.2 | 3.1 | 2.9 | 3.3 | 3.0 | 3.1 | 4.2 | 3.2 |
| Hungary | 1.3 | 6.2 | 15.3 | 19.1 | 16.9 | 16.3 | 16.5 | 15.9 | 13.4 |
| FYR Macedonia | ... | ... | 18.6 | 18.9 | 20.7 | 23.7 | 24.9 | 26.5 | 22.2 |
| Poland | 6.3 | 11.8 | 13.6 | 16.4 | 16.0 | 14.9 | 13.6 | 10.3 | 12.9 |
| Romania | 3.4 | 3.5 | 5.4 | 9.2 | 11.0 | 9.9 | 7.7 | 7.5 | 7.2 |
| Slovenia | 4.7 | 8.2 | 11.6 | 14.4 | 14.5 | 14.0 | 13.9 | 14.3 | 11.9 |
| Kazakhstan | ... | ... | ... | ... | ... | 11.4 | 3.6 | 4.1 | 6.4 |
| Latvia | ... | ... | 2.3 | 5.8 | 6.5 | 6.6 | 7.2 | 6.7 | 5.9 |
| Russia | ... | ... | ... | 5.5 | 6.9 | 7.8 | 9.0 | 9.8 | 7.8 |
| Ukraine | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| Average 2/ | 3.4 | 7.4 | 10.6 | 12.1 | 12.1 | 11.9 | 11.2 | 11.3 | 10.3 |
| CPI Inflation rate | | | | | | | | | |
| Bulgaria | 23.9 | 333.5 | 82.0 | 72.8 | 96.0 | 62.1 | 123.0 | 1082.2 | 234.4 |
| Czech Republic | 9.5 | 56.5 | 11.1 | 20.8 | 10.0 | 9.1 | 8.8 | 8.4 | 16.8 |
| Hungary | 28.6 | 34.8 | 22.8 | 22.4 | 18.8 | 28.3 | 23.5 | 18.3 | 24.7 |
| FYR Macedonia | 583.1 | 117.4 | 1692.6 | 334.5 | 126.5 | 16.4 | 2.5 | 1.3 | 359.3 |
| Poland | 585.8 | 70.3 | 43.0 | 35.3 | 32.2 | 27.9 | 19.9 | 15.0 | 103.7 |
| Romania | 5.1 | 161.1 | 210.4 | 256.1 | 136.7 | 32.3 | 38.8 | 154.8 | 124.4 |
| Slovenia | 551.6 | 115.0 | 202.6 | 31.9 | 19.8 | 12.6 | 9.7 | 9.1 | 119.0 |
| Kazakhstan | 5.6 | 91.0 | 1515.7 | 1662.3 | 1879.9 | 176.3 | 39.1 | 17.4 | 673.4 |
| Latvia | 10.5 | 124.4 | 951.3 | 109.1 | 35.9 | 25.1 | 17.6 | 8.4 | 160.3 |
| Russia | 5.6 | 92.7 | 1353.0 | 895.9 | 302.0 | 190.1 | 47.8 | 14.7 | 362.7 |
| Ukraine | 4.2 | 91.2 | 1210.0 | 4734.9 | 891.2 | 376.4 | 80.2 | 15.9 | 925.5 |
| Average 2/ | 164.9 | 117.1 | 663.1 | 743.3 | 322.6 | 87.0 | 37.4 | 122.3 | 282.2 |
| External current account balance in percent of GDP | | | | | | | | | |
| Bulgaria | -4.7 | -4.6 | -9.3 | -12.8 | -2.1 | -0.3 | 0.9 | 1.8 | -3.9 |
| Czech Republic | -1.7 | 1.6 | 2.1 | 1.5 | -1.9 | -2.7 | -7.6 | -6.3 | -1.9 |
| Hungary | 1.0 | 1.2 | 0.9 | -10.9 | -9.7 | -5.7 | -3.8 | -2.2 | -3.6 |
| FYR Macedonia | -0.3 | 0.3 | -0.8 | 0.6 | -6.3 | -6.2 | -7.4 | -8.5 | -3.6 |
| Poland | 1.1 | -1.2 | 1.9 | -0.1 | 2.3 | 3.3 | -1.0 | -3.2 | 0.4 |
| Romania | -7.5 | -4.7 | -7.8 | -4.7 | -1.7 | -4.9 | -7.3 | -5.1 | -5.5 |
| Slovenia | 0.1 | 1.1 | 7.4 | 1.5 | 4.2 | -0.1 | 0.2 | 0.0 | 1.8 |
| Kazakhstan | -22.8 | -7.0 | -51.4 | -9.4 | -11.6 | -4.5 | -3.9 | -5.4 | -14.5 |
| Latvia | -3.0 | -1.7 | 1.8 | 7.0 | -2.4 | -3.5 | -6.8 | -4.3 | -1.6 |
| Russia | -0.5 | 0.5 | -1.4 | 1.4 | 3.8 | 1.3 | 0.5 | 0.8 | 0.8 |
| Ukraine | -0.4 | -1.7 | -3.0 | -5.9 | -5.7 | -4.1 | -2.7 | -3.3 | -3.4 |
| Average 2/ | -3.5 | -1.5 | -5.4 | -2.9 | -2.8 | -2.5 | -3.5 | -3.2 | -3.2 |
| General government balance in percent of GDP | | | | | | | | | |
| Bulgaria | -12.8 | -14.7 | -5.2 | -10.9 | -5.8 | -6.4 | -13.4 | -2.6 | -9.0 |
| Czech Republic | -2.2 | 4.8 | -2.1 | 0.5 | -1.2 | -1.8 | -1.2 | -2.1 | -0.7 |
| Hungary | 1.0 | -3.7 | -6.9 | -8.5 | -8.3 | -7.1 | -3.1 | -4.6 | -5.1 |
| Macedonia | -0.4 | -1.4 | -9.6 | -13.6 | -3.2 | -1.3 | -0.4 | -0.3 | -3.8 |
| Poland | 3.2 | -6.8 | -8.0 | -4.0 | -2.0 | -2.7 | -2.5 | -1.7 | -3.1 |
| Romania | 1.0 | 3.3 | -4.6 | -0.4 | -1.9 | -2.6 | -3.9 | -4.5 | -1.7 |
| Slovenia | 0.9 | 0.4 | 0.2 | 0.3 | -0.2 | 0.0 | 0.3 | -1.2 | 0.1 |
| Kazakhstan | -6.5 | -8.6 | -7.3 | -1.4 | -7.1 | -2.2 | -3.0 | -3.7 | -5.0 |
| Latvia | 7.6 | 9.5 | -0.8 | 0.6 | -4.0 | -3.3 | -1.3 | 1.4 | 1.2 |
| Russia | -5.9 | -14.9 | -18.2 | -7.3 | -10.4 | -5.8 | -8.1 | -7.4 | -9.8 |
| Ukraine | -6.1 | -13.6 | -23.3 | -11.3 | -7.8 | -6.9 | -3.2 | -5.8 | -9.7 |
| Average 2/ | -1.9 | -4.1 | -7.8 | -5.1 | -4.7 | -3.6 | -3.6 | -3.0 | -4.2 |

Source: World Economic Outlook.

1/ Simple average of annual figures.

2/ Unweighted average across countries

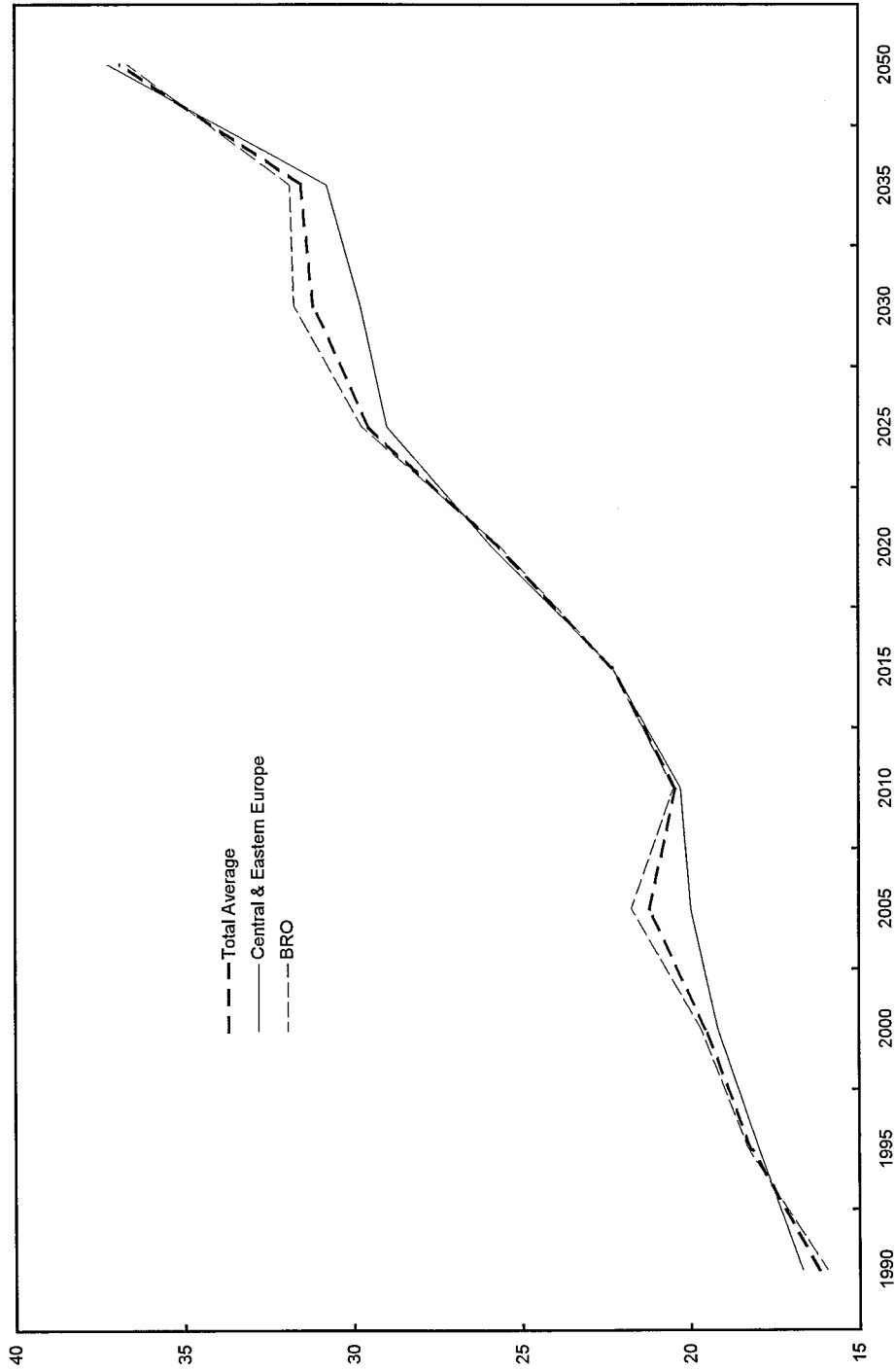
Table 2. Number of Pensioners and Contributors

(Average annual growth rate)

| Country | Number of Pensioners | Number of Contributors 1/ |
|----------------|----------------------|---------------------------|
| Bulgaria | 2.4 (1990-93) | -9.8 (1990-93) |
| Czech Republic | 1.8 (1990-93) | 0.6 (1993-96) |
| FYR Macedonia | ... | -6.9 (1994-96) |
| Hungary | 3.1 (1989-95) | -5.3 (1989-96) |
| Poland | 4.4 (1991-96) | -1.6 (1990-96) |
| Romania | 7.4 (1990-96) | ... |
| Slovenia | 3.7 (1990-96) | -2.4 (1990-96) |
| Latvia | 3.0 (1990-96) | -17.7 (1991-93) |
| Kazakhstan | 3.6 (1992-96) | -8.5 (1993-97) |
| Russia | 1.9 (1992-96) | -2.2 (1991-96) |
| Ukraine | 1.6 (1990-96) | -2.9 (1990-96) |

1/ Employment figures for Czech Republic, Hungary, Macedonia, Poland, Russia, and Ukraine.

Figure 1. Elderly dependency ratio in transition countries, 1990-2050 1/



Source: World Bank Population Survey, 1995.

1/ Ratio of Elderly (65+) to Working Age (15-64) Population.

CEE and in Latvia than in the largest BRO countries.⁸ In the latter, enterprises started laying off workers at a later stage of the transition, when strained public finances allowed only a limited use of the pension system as a social buffer.

As a result of these forces, the system dependency ratio increased in all countries, reaching very high levels by international standards (see Section IV). How did countries react to the financial pressure arising from this increase? As detailed in Table 3, about half of the countries in our sample took steps to contain the rise in the pension expenditure-to-GDP ratio by keeping the growth rate of average pensions well below the growth rate of nominal GDP, primarily through incomplete indexation. In other countries (Kazakhstan, Romania, Russia) expenditure growth was (temporarily) contained through the accumulation of sizable arrears, which in some cases were never paid in full. As a result, pension expenditure did not rise much in relation to GDP during the 1990s, other than in Latvia and Poland; indeed, it declined sharply in Russia over 1993–96 (Table 4).

As average pension growth was usually kept below the growth of per capita income, the welfare of the average pensioner deteriorated with respect to that of the population. However, pensioners did not fare too badly with respect to the average private sector employee. Indeed, the ratio of the average pension to the average wage of a private sector employee increased in the CEE area between the second half of the 1980s and the mid-1990s (Table 5). The comparison is even more striking when based on households incomes, rather than on individual incomes (Table 6). Thus, the average pensioner, together with the average worker, lost particularly vis-à-vis the most dynamic sectors of the economy (for example, self-employed workers, entrepreneurs). Poverty among pensioners during the transition increased, but it did not grow more than in other low income groups (Box 1).

⁸In Kazakhstan the number of pensioners declined between 1993 and 1996, possibly reflecting strong emigration toward other BRO countries.

Table 3. Major Trends in Pension Systems of Transition Economies, 1990-96

| Country | Pension Expenditure Over GDP | Number of Pensions | Average Pension in Real Terms | Pension Revenues Over GDP | Number of Contributors | Contribution Rate | National PAYG Financial Balance |
|----------------|---|--|---|---|---|---|--|
| Bulgaria | Rising during 1990-93, then dropping rapidly (below the 1990 level in 1996) | Fast increase during the 1990s for both old age pensions—as early retirement was used to facilitate labor shedding—and disability pensions (which more than doubled between 1990 and 1996) | Sharp drop in the replacement rate from 43 percent in 1991 to 28 percent in 1997 | Broadly constant through 1993, declining thereafter | Sharp drop between 1990-93, then broadly constant | Small increase in 1996 | Broadly balanced |
| Czech Republic | Broadly constant at about 8 percent | Sizable increase (5½ percent during 1990-93) due primarily to early retirement and disability pensions, although demographic factors were also at play | Share decline with respect to average wages, including after the recovery took hold | Broadly constant | Declining | No major change until 1996, when it was reduced | Small, broadly constant surplus in relation to GDP |
| FYR Macedonia | Increasing in the early 1990s, with a peak in 1993 (14½ percent of GDP); after the December 1993 reform (tightening of PAYG pensions), it declined to about 11 percent of GDP | Increasing rapidly in the 1990s because of early retirement, partly through disability pensions | High replacement ratios declining somewhat after 1993 | Slightly increasing | Declining | No major change | Fairly sizable deficits of the pension fund (5 percent of GDP in 1995, net of government transfers), falling to about 2 percent of GDP in 1996; this deficit, however, reflects welfare expenditure, rather than an imbalance in the PAYG system |

Table 3 (continued). Major Trends in Pension Systems of Transition Economies, 1990-96

| Country | Pension Expenditure Over GDP | Number of Pensions | Average Pension in Real Terms | Pension Revenues Over GDP | Number of Contributors | Contribution Rate | National PAYG Financial Balance |
|------------|---|---|--|---|---|--|---|
| Hungary | Broadly constant (at about 10 percent of GDP) | Rising rapidly (20 percent during 1989-95), reflecting the sharp increase in disability pensions, but also early retirement | Sharp drop in real terms (25 percent in 1990 and 1995, more than the decline in real wages) due to less-than-full price indexation, and fall in the real value of pension at entry | Dropping rapidly because of base erosion, in the presence of high contribution rates | Declining | Broadly constant at very high levels (35 percent); declining in 1997 | Notional PAYG balance deficit deteriorating by about 2 percentage points of GDP during 1991-95 |
| Kazakhstan | Broadly constant at about 4½ percent, but at the cost of accumulating large arrears, which amounted to about 2 percent of GDP at end-1996 | Increasing in the early 1990s, then declining, reflecting demographic factors and, possibly, emigration | Increasing as a percentage of GDP | Declining | Declining | Declining since 1993 | Broadly balanced |
| Latvia | Rapidly rising in the early 1990s | Fast increase owing to early retirement | Falling less than GDP | Rising, but less than expenditure | Declining (by 50 percent between 1991 and 1995) | Increasing to very high levels | Some increase in the deficit |
| Poland | The pension expenditure ratio doubled in the early 1990s, to about 15 percent, it has remained approximately constant since then | Increasing rapidly as a result of early retirement and disability pensions | Generous pension increases in the early 1990s, more contained growth after 1992; real pensions are high by the standard of transition economies | Rising in the early 1990s, although not as much as expenditure, broadly constant since then | Declining | Increase in the early 1990s broadly stable since then | Sharp deterioration in the early 1990s with subsidies from the budget rising to 6 percent of GDP in 1992; no further major increase thereafter, in 1997, the transfers declined to 4 percent of GDP as the state assumed responsibility for family allowances |

Table 3 (concluded). Major Trends in Pension Systems of Transition Economies, 1990-96

| Country | Pension Expenditure Over GDP | Number of Pensions | Average Pension in Real Terms | Pension Revenues Over GDP | Number of Contributors | Contribution Rate | National PAYG Financial Balance |
|----------|--|---|--|----------------------------------|--|--|---|
| Romania | Declining in 1990-91, then broadly stable | Increase in beneficiaries reflecting the relaxation of early retirement regulations and a large increase in the number of disability pensions | Falling faster than GDP | Increase in contribution arrears | Fast decline due to higher unemployment, the expansion of the informal sector, and regulatory changes (for agricultural workers) | Increasing from 15 percent in 1990 to 23.5 percent in 1997 to match the rise in the number of pensioners | Balanced budget up to 1995 when a 1/4 percent of GDP deficit was recorded; further increase in the following year to 1/2 percent of GDP financed initially by arrears and then by the state budget; larger structural deficit in the pension fund of agricultural workers, financed by the state budget |
| Russia | Declining, partly reflecting the accumulation of arrears, until 1995; rising afterward | Increasing as of 1992 | Declining in line with real wages, although with some fluctuations | Declining from 1992 | Falling but less than in other transition economies | No major changes since 1993 | Weakening through 1993; broadly constant since then |
| Slovenia | Rapidly rising (from 9.3 percent in 1991 to 13.5 percent in 1997) | Rising rapidly; the pension system has been used to provide a partial solution to the problem of growing unemployment through incentives for early retirement and generous disability pension standards | Good protection of standard of living of pensioners, with an increase in replacement rates | Rapidly rising | Decreasing | Dramatic increase; Slovenia has the second highest contribution rates in our sample (after Ukraine) | Broadly constant |
| Ukraine | Broadly constant | Rapidly increasing | Falling more than wages | Declining from 1992 | Declining | No major changes | Shrinking surplus until 1995; balanced thereafter |

Table 4. Pension Expenditure in Percent of GDP, 1990–96

| Country | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 |
|-------------------|------|------|------|------|------|------|------|
| Bulgaria | 8.7 | 9.1 | 10.0 | 11.0 | 9.7 | 8.1 | 7.3 |
| Czech Republic 1/ | 7.9 | 7.5 | 7.5 | 7.6 | 7.7 | 8.2 | 8.4 |
| FYR Macedonia | ... | ... | 11.1 | 14.6 | 12.0 | 10.4 | 10.4 |
| Hungary | ... | 10.5 | 10.4 | 10.4 | 11.4 | 10.5 | 9.7 |
| Poland | 8.7 | 14.2 | 15.8 | 15.8 | 15.8 | 14.1 | 13.9 |
| Romania | 7.9 | 7.5 | 7.1 | 8.0 | 8.0 | 6.8 | 7.0 |
| Slovenia | ... | 9.3 | 12.5 | 13.0 | 13.4 | 13.6 | 13.4 |
| Latvia | 5.5 | 7.8 | 6.2 | 9.5 | 9.8 | 10.2 | 10.8 |
| Kazakhstan | ... | ... | ... | 4.4 | 3.8 | 4.5 | 5.0 |
| Russia | ... | ... | 7.3 | 6.4 | 5.9 | 5.3 | 5.7 |
| Ukraine | ... | ... | 7.4 | 8.3 | 7.4 | 7.6 | 8.6 |

Source: National authorities; and IMF staff estimates.

1/ Czechoslovakia before 1993.

Table 5. Ratio of Average Pensions to Average Wages in Real Terms in Transition Economies: 1987-1994 1/

| | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | Pre-Trans. 1987-1989 | Early-Trans. 1990-92 | Late-Trans. 1993-96 |
|------------------------|------|------|------|------|------|------|------|------|------|------|-------------------------|-------------------------|------------------------|
| Central Eastern Europe | 48 | 49 | 49 | 56 | 55 | 52 | 49 | 51 | 50 | 65 | 48.5 | 54.7 | 53.9 |
| Baltics | 39 | 37 | 36 | 34 | 28 | 40 | 36 | 30 | 30 | 40 | 37.2 | 33.8 | 34.0 |
| Slavic & Moldova | 38 | 38 | 38 | 39 | 43 | 31 | 39 | 40 | 38 | 37 | 38.4 | 37.8 | 38.4 |
| Central Asia | 40 | 38 | 42 | 43 | 62 | 50 | 36 | 32 | 33 | 38 | 40.1 | 51.5 | 34.6 |
| Armenia | 44 | 45 | 41 | 45 | 47 | 35 | 37 | ... | ... | ... | 43.3 | 42.2 | 36.7 |
| Azerbaijan | 49 | 49 | 49 | 52 | 43 | 41 | 37 | 27 | 19 | 23 | 48.6 | 45.4 | 26.5 |
| Belarus | 38 | 36 | 37 | 40 | 32 | 28 | 35 | 54 | 43 | 41 | 37.1 | 33.6 | 43.3 |
| Bulgaria | 44 | 43 | 43 | 39 | 42 | 33 | 28 | 30 | 31 | ... | 43.1 | 38.0 | 29.7 |
| Czech Republic | 56 | 57 | 64 | 62 | 57 | 52 | 46 | 44 | 44 | ... | 58.6 | 56.6 | 44.7 |
| Estonia | 41 | 38 | 36 | 33 | 25 | 47 | 34 | 21 | 25 | ... | 38.5 | 34.8 | 26.5 |
| Georgia | 42 | 40 | 43 | 48 | 77 | ... | ... | ... | ... | ... | 41.9 | 62.5 | ... |
| Hungary | 55 | 64 | 65 | 66 | 64 | 62 | 63 | 61 | 62 | ... | 61.3 | 64.3 | 61.7 |
| Kazakhstan | 38 | 36 | 38 | 38 | 42 | 46 | 35 | 19 | 26 | 31 | 37.3 | 42.4 | 27.6 |
| Kyrgyzstan | 41 | 39 | 45 | 46 | 75 | 51 | 45 | 45 | 47 | 45 | 41.5 | 57.0 | 45.5 |
| Latvia | 40 | 38 | 37 | 29 | 27 | 37 | 31 | 38 | 34 | 40 | 38.1 | 31.1 | 35.7 |
| Lithuania | 36 | 34 | 35 | 39 | 33 | 36 | 44 | 32 | 31 | ... | 34.9 | 35.7 | 35.4 |
| Moldova | 39 | 44 | 44 | 41 | 49 | 36 | 38 | 34 | 42 | ... | 42.5 | 42.1 | 38.4 |
| Poland | 51 | 45 | 43 | 57 | 65 | 63 | 64 | 66 | 65 | 63 | 46.1 | 61.9 | 64.3 |
| Romania | 32 | 33 | 34 | 36 | 35 | 34 | 34 | 33 | 31 | ... | 32.9 | 35.1 | 32.4 |
| Russia | 37 | 36 | 33 | 34 | 48 | 27 | 35 | 36 | 38 | 38 | 35.4 | 36.1 | 36.6 |
| Slovak Republic | 43 | 45 | 46 | 48 | 51 | 46 | 36 | ... | ... | ... | 44.7 | 48.3 | 36.5 |
| Slovenia | 55 | 54 | 50 | 85 | 74 | 77 | 75 | 75 | 68 | 66 | 52.9 | 78.7 | 71.2 |
| Tajikistan | 45 | 43 | 43 | 48 | 49 | 38 | 78 | ... | ... | 27 | 43.9 | 44.9 | 52.4 |
| Turkmenistan | 40 | 39 | 39 | 42 | 46 | 43 | ... | 28 | 19 | 26 | 39.6 | 43.4 | 24.4 |
| Ukraine | 40 | 38 | 39 | 42 | 44 | 33 | 46 | 35 | 29 | 32 | 38.7 | 39.6 | 35.5 |
| Uzbekistan | 41 | 39 | 46 | 45 | 84 | 60 | 29 | 34 | 39 | 50 | 42.0 | 63.2 | 38.0 |

Source: Milanovic (1997).

1/ Data is constructed using Household Budget Surveys.

Table 6. Change in Real Per-Capita Household Income
(Workers per-capita income 1987=100) 1/

| | 1987-88 | 1993-94 |
|---------------------------|---------|---------|
| Czech Republic | | |
| Workers | 102 | 73 |
| Pensioners | 61 | 54 |
| Ratio Worker to Pensioner | 1.67 | 1.35 |
| Hungary | | |
| Workers | 100 | 73 |
| Pensioners | 92 | 68 |
| Ratio Worker to Pensioner | 1.09 | 1.07 |
| Latvia | | |
| Workers | 101 | 54 |
| Pensioners | 59 | 34 |
| Ratio Worker to Pensioner | 1.71 | 1.59 |
| Lithuania | | |
| Workers | 102 | 43 |
| Pensioners | 58 | 46 |
| Ratio Worker to Pensioner | 1.76 | 0.93 |
| Poland | | |
| Workers | 107 | 85 |
| Pensioners | 95 | 89 |
| Ratio Worker to Pensioner | 1.13 | 0.96 |
| Romania | | |
| Workers | 103 | 76 |
| Pensioners | 88 | 68 |
| Ratio Worker to Pensioner | 1.17 | 1.12 |
| Slovak Republic | | |
| Workers | 102 | 71 |
| Pensioners | 64 | 52 |
| Ratio Worker to Pensioner | 1.59 | 1.37 |

Source: Milanovic (1997).

1/ Non-farm workers, private and public sector employees. excludes self employed. Pensioners are households where more than 50 percent of income is derived from pensions.

Box 1. Living Standards of the Elderly in Transition Economies.

The dramatic decline in output experienced in transition economies, was accompanied by an important increase in the incidence of poverty. Milanovic (1997) finds poverty rates to have increased in all 18 of the transition economies included in his survey, and that the increase in poverty was greater in poorer countries of the regions, in particular the Balkans, the Baltics and the Former Soviet Union. The transition to a market economy was also accompanied by important changes in income distribution. Household budget surveys indicate that the average income Gini coefficient rose from 24 in the pre-transition period (1987–88) to 33 in the post-transition period (1993–95), approaching income disparity levels found in western Europe. Preliminary evidence suggests that the increase in income disparity during the transition was to a large extent the result of increases in the relative return to skill and entrepreneurship.

The deterioration in the living standards of the average population was accompanied by changes in the relative status of the elderly. Differences in pension policy across countries during the transition period translated into differences in the relative welfare of pensioners. In most of Eastern Europe, the ratio of the average pension to the average wage of a dependent worker increased between the late-1980s and the mid-1990s. In the Balkans and Baltics the ratio of pensions to wages of dependent workers remained broadly stable, while in Central Asia the ratio of pensions to wages fell significantly since the early 1990s. However, household surveys seem to indicate that the ratio of average pensions to dependent worker wages can only provide a partial picture of how well pensioners fared relative to the rest of the population during the transition. When comparing the incomes of households of dependent workers to those of pensioner households, where a pensioner household is defined as a household where more than half its income is derived from pensions, the results can be surprisingly different. Milanovic finds that the income of pensioner households relative to dependent worker households increased during the transition in seven of the countries in his study (Czech Republic, Hungary, Latvia, Lithuania, Poland, Romania, and the Slovak Republic), including countries where the ratio of pensions to wages of dependent workers fell, such as the case in the Czech Republic. This result suggests that pensioner households during the transition must have increased their share of labor earnings in total income. While further study is warranted, it could be argued that important declines in the real value of pensions might have led pensioner households to increase their labor participation in order to improve their living standards. In addition, more generous early retirement provisions during the transition might have reduced the average age of pensioners, and in turn increased the average labor supply of these households, since younger pensioners are more likely to simultaneously work and receive a pension at the same time.

While there are cases where pensioners were less affected by economic hardships during the transition period than dependent workers, both groups lost vis-à-vis self-employed workers and entrepreneurs (in Poland, by the mid-1990s the average income of self-employed workers was approximately 30 percent greater than that of dependent workers).

While poverty rates of the elderly increased in all countries during the transition, limited evidence exist on how the age-composition of poverty changed during this period. According to household budget surveys for the period 1992–95, in Bulgaria, Belarus, Czech Republic, Hungary, Latvia, Poland, and Russia the incidence of poverty among the elderly (men 60 and above, women 55 and above) were lower than among all other age groups. Only in Estonia, due to low and flat pensions in existence since 1992, was the poverty rate of the elderly above the population average. The most dramatic documented change in poverty rates across age groups occurred in Eastern Germany following the 1990 unification. Prior to unification, the incidence of poverty decreased with age until the age of 60, increasing significantly thereafter. Following unification, poverty rates fell monotonically with age, largely as a result of more generous pension benefits.

The pressure arising from the higher system dependency ratio was also matched in some of the sample countries (Latvia, Poland, Romania, Slovenia) by sizable increases in contribution rates, in spite of their initially high levels (see below).⁹ However, the containment in average pension growth, the accumulation of pension arrears, and the adjustment in contribution rates were not always sufficient to avoid a deterioration of the PAYG notional cash balance, defined as the balance between actual collections of pension contributions and payments of pension benefits,¹⁰ which weakened significantly in Hungary, Latvia, Poland, and, up to 1995, FYR Macedonia.

IV. MAIN FEATURES OF PENSION SYSTEMS IN THE MID-1990S

Against these developments, what were the main problems from which pension systems in transition economies were suffering by the middle of the 1990s? The most important ones were: (i) very high system dependency ratios; (ii) fairly low retirement ages, particularly taking into account the limited penalties on early retirement and generous disability pension systems; (iii) high replacement ratios in some countries; (iv) exposure to the expected demographic shocks and, as a consequence, a growing financial imbalance; (v) high contribution rates and weak link between contributions paid and pension benefits, and resulting limited incentive to compliance; and (vi) significant intergenerational and intragenerational inequalities.¹¹

(i) *High system dependency ratios.* As a result of falling number of contributors and, in CEE countries and the Baltics, the sharp increase in the number of pensioners, system dependency ratios in 1995–96 were very high in transition economies, indeed higher than in the average of the major industrial countries (Table 7). This is in sharp contrast with the fact that population dependency ratios were not higher than in the industrial country group.¹²

(ii) *Low retirement age.* At the beginning of the transition statutory retirement ages were typically 55 and 60 years, respectively for women and men. By the mid-1990s, the statutory retirement age had been raised in several transition economies, particularly in CEE countries

⁹Other countries (Hungary, Kazakhstan, and Latvia), however, have recently started reducing their contributions rates slightly. In Hungary, this was accompanied by a broadening of the pension base, which is now the same as the base for the personal income tax.

¹⁰Usually, the notional cash balance differed significantly from the balance of the pension funds, as the latter were burdened by expenditures of different nature and transfers from the central government budget unrelated to the PAYG system.

¹¹For a discussion of these aspects in BRO countries see de Castello Branco (1998).

¹²However, population dependency ratios in transition economies are on average higher than in developing countries with similar living standards.

Table 7. Pension Systems in Transition Economies, 1996

| Country | System Dependency Ratios 1/ | Retirement Age | | Replacement Ratios | Contribution Rates | |
|-----------------------------------|--------------------------------|----------------|----------|-----------------------|--------------------|--------------|
| | | Men | Women | | Total payroll | Contribution |
| Bulgaria | 79 | 60 | 55 | 30 | 47.2/ | 42.2/ |
| Czech Republic | 47 (1993) | 62.3/ | 57-61.3/ | 44 (1995) | 34.0 | 26.0 |
| FYR Macedonia | 55 (1997) | 63 | 60 | 80 (1997) | 30.0 | 20.0 |
| Hungary | 59 | 62.4/ | 62.4/ | 60 | 62.3 | 30.5 |
| Poland | 61 | 65 | 60 | 78 (1995) | 31.0 | ... |
| Romania | 36 | 62.5/ | 57.5/ | 29 | 33.5.6/ | 26.5 |
| Slovenia | 59 | 58.7/ | 55.7/ | 75 (1994) | ... | 31.0 |
| Latvia 8/ | 57 | 60 | 55 | 39 | 38.0 | 20.0 |
| Kazakhstan | 57 | 63.9/ | 58.9/ | 34 | 32.0 | 25.5 |
| Russia | 55 | 60 | 55 | 37 | 36.0 | 29.0 |
| Ukraine | 68 | 60 | 55 | 32 | 49.0 | 33.0 |
| Major industrial countries 10/ | 31 | ... | ... | 38 | 4.6-26.2 | ... |

1/ Number of pensioners over number of employed.

2/ Weighted average of the three existing categories.

3/ As of 2007; the retirement age for women depends on the number of children.

4/ As of 2001 for men; as of 2009 for women.

5/ 60 and 55 with full service.

6/ 36.5 as of a January 1, 1998.

7/ With full service; otherwise 63 for men and 60 for women.

8/ Retirement age is purely indicative as Latvia no longer has a statutory retirement age.

9/ As of 2002.

10/ United States, Japan, Germany, France, Italy, United Kingdom, and Canada; these data are from de Castello Branco (1998).

(Table 7). However, the actual retirement age fell significantly below the statutory age in most countries because of incentives that encouraged early retirement and disability claims. For example, about one third and one half of pensioners, respectively, in Russia and Kazakhstan currently receive early retirement pensions (de Castello Branco, 1998).

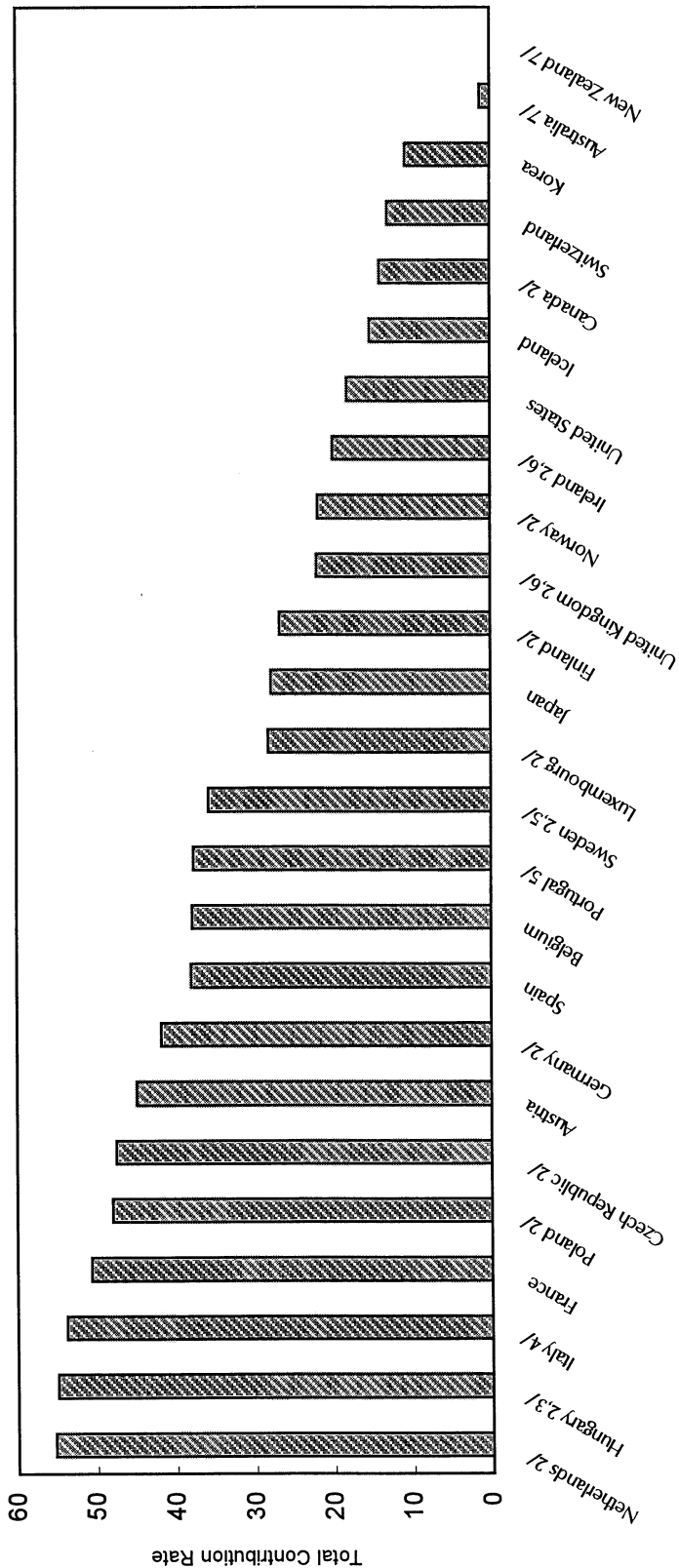
(iii) *High replacement ratios (in some countries)*. Replacement ratios have declined during the 1990s, but, in some CEE transition economies, remain high compared with industrial countries (Table 7). Moreover, in some BRO countries there appears to be a large gap between the incomes of new and old pensioners, as the latter were relatively more eroded by inflation (de Castello Branco, 1998).

(iv) *Unfavorable demographic trends and growing financial imbalance*. As discussed, the increase in the dependency ratio led to a deterioration in the balances of the PAYG systems in some (albeit not all) transition economies. This trend is expected to continue in the future, in the absence of reform, reflecting primarily demographic factors. The population dependency ratio is expected to increase more slowly through 2010 (by some 0.2 year per year in our sample), but to rise much more rapidly (by 0.6 year per year in our sample) thereafter (Figure 1).¹³ This increase will lead to a sizable weakening in the PAYG balance: for example, in absence of reform the PAYG balance in Hungary would have deteriorated by 2 percentage points of GDP by 2015 and by 4 percentage points of GDP by 2035 (Palacios and Rocha, 1997, and Ruggiero, 1996).

(v) *High contribution rates, weak link between contribution and benefits, and limited incentive to comply*. Social security contribution rates and, more specifically, the pension contribution rate are significantly higher in transition economies than in the average of major industrial countries (Table 7). The three transition economies that are currently members of the OECD (Czech Republic, Hungary, and Poland) all have social security contribution rates well above the OECD average (Figure 2). High contribution rates are the product of high replacement rates and high system dependency ratios. The high level of contribution rates reduced tax compliance and in turn eroded the contribution base. A related factor is the weak link between contributions and pension benefits, a feature of many PAYG systems, which is, however, exacerbated in some transition countries by the fact that the starting pension level

¹³This is not true of all transition economies. The demographic structure of the population of central Asian BRO countries is still quite young.

Figure 2. Contribution Rates for Social Security Programs in Selected OECD Countries, 1997 1/



Source: USA Social Security Administration, 1997.

1/ Includes Old Age, Disability, Death, Sickness and Maternity, Work Injury, Unemployment, and Family Allowances. In some countries, the rate may not cover all of these programs. In some cases, only certain groups, such as wage earners, are represented.

2/ The central government pays the whole cost of Family Allowances.

3/ Plus flat amount for disability.

4/ Plus flat amount for Work Injury.

5/ Plus flat amount for Unemployment.

6/ Range according to earnings bracket. Higher rate is shown, which applies to highest earnings class.

7/ The central government pays the entire cost of most programs from general revenues.

depends on wage history (and, hence, contributions) for a limited number of years, in some countries because of inadequate earning records. Moreover, the minimum contribution years required for full benefits are low by international standards, and noncontributory service years are computed generously.¹⁴

(vi) *Significant intragenerational and intergenerational inequalities.* The current PAYG systems are characterized by a number of *intragenerational inequalities*, similar in nature to those existing in PAYG systems of industrial countries. In most countries of the sample women are able to retire five years earlier than men (Table 7) and, usually, with a lower minimum number of pensionable years of service. This implies that for an equivalent contribution and earnings history, the expected net present value of a female worker's pension will substantially exceed that of a male worker. Taking into account differences in life expectancy exacerbates this problem further. Another problem relates to the computation of pensions based on the best consecutive years of salary over a limited number of years, which gives rise to a number of possible inequities. For example, the rule favors workers whose wages rise more rapidly with experience, such as skilled workers (their return to contributions, all else being equal, is likely to be greater). Moreover, the rule tends to benefit the self-employed over the regular employee, as regular employees must contribute on the basis of earnings over their working lifetime, while the self-employed may choose the minimum contribution base for most of their working lifetime, paying their full compensation only during a much shorter period. Other inequalities relate to the favorable early retirement conditions, as penalty rates are much below actuarial rates. Finally, in some countries certain sectors of the economy (such as agriculture) are exempt from contributions; other sectors benefit from early retirement eligibility ages, owing to work hardship.¹⁵ As to *intergenerational inequalities*, the difference between the expected return on contributions of a current new retiree relative to those entering the labor force is particularly large in most transition economies. New entrants to the labor force can expect to pay significantly larger contributions over their lifetime, with far fewer possible benefits to be received during their retirement years. This difference arises precisely because of the limited relationship between contributions made and benefit rights accumulated.

¹⁴ An additional problem is that in many countries, benefits have a ceiling while contributions are levied on total wage income, without a ceiling. The overall effect is to encourage evasion since beyond a certain income there is no return on the contribution. This is also a problem shared with PAYG systems in many industrial countries.

¹⁵ While these privileges may have a distributive justification, cross financing through a common PAYG may not provide the right incentives to best utilize human resources or to better reflect social costs.

V. REFORMS IN THE 1990s

Faced with the problems discussed in the previous section, governments in most transition countries have embarked upon comprehensive reform programs (Table 8). These programs have consisted in most cases of two components: the parametric reform of the PAYG system and the introduction of a mandatory FF component of the pension system. Where countries have differed is in the role that the FF component plays. On one extreme, Kazakhstan has opted for a pension system entirely based on a single FF pillar. On the other extreme, Ukraine, and the Czech Republic have, at least for the moment, opted for rationalizing the PAYG system, postponing the consideration of a mandatory FF pillar at a later stage.¹⁶ In between are all the other countries in our sample, which have approved (Hungary, Latvia, and Poland), or are preparing (Bulgaria, FYR Macedonia, Romania, Russia, and Slovenia) pension reforms based on mixed (multi-pillar) systems, in which a first mandatory PAYG pillar, providing basic pension benefits, is complemented by a second mandatory FF component, and by a third voluntary FF pillar.¹⁷ In two of these countries (Latvia and Poland), the reform of the PAYG system has gone well beyond the mere tightening of key parameters, and has involved introducing notional defined-contribution accounts, which, similarly to FF schemes, involve a tight link between pension contributions and benefits (see below).

A. Rationalizing the Existing PAYG Systems

Some of the problems affecting the pension system described in the previous section (primarily those resulting in a financial weakening of the PAYG system, as well as some of its distortionary effects) can and have been addressed by tightening the existing PAYG system. Virtually all countries in the sample have followed this route, at least as an initial step toward more comprehensive reforms, but often in a piecemeal fashion. In some cases, adoption of such measures has facilitated a reduction in the pension contribution rate. Measures have concentrated on (i) increasing the pensionable retirement age; (ii) modifying the indexation formula; (iii) tightening benefits; and (iv) strengthening contribution collection. Table 9 provides a summary of measures adopted to date and plans under discussion to rationalize existing PAYG systems.

(I) Increase in the pensionable retirement age—Pensionable retirement ages have been increased in most of the sample countries. The only exceptions are Bulgaria and Ukraine, where this issue is still under discussion. Latvia is a different case. Under the new system, there is no mandatory retirement age. The minimum retirement age is 60 years for most

¹⁶For the Czech Republic, see Ministry of Labor and Social Affairs, Czech Republic (1996).

¹⁷For Russia, see Ministry of Labor and Social Development of the Russian Federation (1997); for Bulgaria, see National Social Security Institute, Republic of Bulgaria, 1997.

Table 8: Status of Reforms in Selected Transition Economies as of End-1997

| Country | Comprehensive reform program | | Reform of first pillar | | Introduction of second pillar | | Introduction of third pillar | |
|----------------|------------------------------|--------------------------------------|------------------------|--------------------------------------|-------------------------------|--------------------------------------|------------------------------|--------------------------------------|
| | In Preparation | Approved by Government Legislated | In Preparation | Approved by Government Legislated | In Preparation | Approved by Government Legislated | In Preparation | Approved by Government Legislated |
| Bulgaria | X | | X | X | X | | X | X |
| Czech Republic | X | | X | | | | | |
| FYR Macedonia | X | | X | | | | | |
| Hungary | | X | X | X | X | X | X | X |
| Kazakhstan | | X | X | X | X | X | X | X |
| Latvia | | X | X | X | X | X | X | X |
| Poland | | X | X | X | | | | |
| Romania | X | | X | | X | | X | |
| Russia | X | | X | | X | | X | |
| Slovenia | X | | X | | X | | X | |
| Ukraine | X | | X | | X | | X | |

Table 9. Status of Reforms of PAYG Systems

| Country/Status of Reforms | Increase in Retirement Age | Indexation Rules | Benefit Formula | Eligibility Criteria | Taxation |
|-----------------------------------|---|--|---|--|---|
| Bulgaria (Effective 1996) | 60 (men) and 55 (women) Early retirement categories account for about 16 percent of pensioners and 22 percent of pensions. | Gross wages. | Best three years out of 15. Since 1997, each year of contribution added to the calculation. Maximum pension capped at three time minimum wage. | 25 (men) and 20 (women) years of contribution. | Pension contributions and benefits tax exempt. |
| Czech Republic (Effective 1996) | Gradual increase introduced in 1996 up to 62 (men) and 57-61 (women depending on number of children) in 2007. | Inflation if CPI exceeds 5 percent plus 1/3 increase in real wages. | Based on entire contribution period, which is being extended from 10 to 30 years over the next 20 years. | Early retirement allowed after 25 years of contribution. | Social insurance benefits are tax exempt. |
| FYR Macedonia (Reforms announced) | Revised from 60-55 to 63-60 for men and women, respectively, effective 2003. | Implementation of a Swiss formula is under discussion. | Reduction in targeted replacement rates are under discussion. | 20 years of contribution. | Pension contributions and benefits are tax exempt. |
| Hungary (Effective January 1998) | Progressively raised and unified to 62 by 2001 (men) and 2009 (women). | Changed from net wages to a weighted average of gross nominal wages and prices. Starting in 2001 the weight will be 50/50 (Swiss formula). | Lower coefficients applied to worker's gross wage history. Previously higher coefficients to worker's net wages. | 40 years of contributions and 59 years of age for early retirement. Reduction of noncontributory years for students and maternity leave. | Contributions exempt, benefits taxed under the personal income tax. |
| Kazakhstan (Effective 1996) | Beginning 1997, increase by 6 months a year until reaching 63 (men) and 58 (women) by 2002. | Since 1996 quarterly increases based on "calculation" index established in budget laws. | 60 percent of highest recent wage, increased by 1 percent of base salary above the minimum eligibility criteria. | 25 (men) and 20 (women) years of contribution. | Pension contributions and benefits are tax exempt. |

Table 9 (continued). Status of Reforms of PAYG Systems

| Country/Status of Reforms | Increase in Retirement Age | Indexation Rules | Benefit Formula | Eligibility Criteria | Taxation |
|----------------------------|---|---|--|--|---|
| Latvia (Effective 1996) | No mandatory retirement age. Incentives are to work beyond unified minimum age (60 years). | CPI until 2000. Rate of growth of contribution wage base afterwards. | Notional Defined Contribution account (NDF). Pension is equal to the pension capital of the insured divided by the life expectancy coefficient at pension allotment. | Previously 25 (men) and 20 (women) years of contributions, with 5 years minimum. Under the new system, 10 years minimum. | State pensions are tax exempt. |
| Poland (reforms announced) | 65 (men) and 60 (women). Prior to that, 59 and 55. occupation specific privileges are common. | CPI, but since 1998 pensioners' basket not too different from CPI. | Ensure 25 percent of average wage. NDC accounts. | Switch to NDC accounts. | Contributions would be paid on a pre-tax basis and pension benefits would be taxed. |
| Romania | 62 (men) 57 (women), planned to be increased to 65-62, respectively. There are early retirement categories. | Fully indexed to minimum wages. | 54-58 percent of average wage over the best five out of last ten years. | At least 30 years (women 25) of contributions. | Pension contributions and benefits tax exempt. |
| Russia | Currently 60 (men) and 55 (women). A number of early categories exist. | No formal indexation; some pensions have been recently indexed to the effective average contribution base (as defined by payroll tax collection over the number of contributors). | 55 percent of reference wage, based on the best 2 out of 5 consecutive years, with a cap equal to 3 times minimum pension. | 25 (men) 20 (women) years of contribution. | Pension contributions and benefits tax exempt. |

Table 9 (concluded). Status of Reforms of PAYG Systems

| Country/Status of Reforms | Increase in Retirement Age | Indexation Rules | Benefit Formula | Eligibility Criteria | Taxation |
|---------------------------|---|--|---|--|--|
| Slovenia | 58 (men) 55 (women). Gradual increase to European average for both genders is envisaged. | Inflation and wages. Plans are to switch to price inflation. | Floor and ceiling (264 and 22 percent) of net average wage, based on best 10 average net wages. | 35 (men) 30 (women) years of contribution. | Pension contributions and benefits are tax exempt. |
| Ukraine | 60 (men) 55 (women). About 15 percent of pensioners receive privileged pensions and are allowed early retirement. | Indexation is done occasionally. | Average salary calculated on most recent two years. A replaceable salary is defined. Floor and ceilings (three times the minimum wage). | 25 (men) 20 (women) years of contribution. | Pension contributions and benefits are tax exempt. |

participants, including most of the previously existing early retirement categories, but the system provides strong incentives to work longer. As a result, assuming a constant wage, the pension doubles when an individual works until 70 instead of 60.¹⁸

(ii) *Pension indexation*—In most countries, the base for pension indexation has been shifted from gross wages to prices, the most common approach used in most OECD countries (one exception being Germany, where pensions are indexed to net wages). This shift has dramatic implications for pension benefits in transition economies in which real GDP and wage growth will likely remain high for a long time. It was a particularly difficult step to take—from a political standpoint—as during the early phase of the transition wages increased less than prices. Shifting away from wage indexation now that wages have started to grow faster than prices has appeared excessively penalizing in some countries. Thus, a mixed system whereby pensions are indexed to prices and wages on a 50/50 basis—which is sometimes referred to as the Swiss formula—was preferred in some countries (such as Hungary, starting from 2001).

(iii) *Tightening benefits*—Countries have typically tightened benefits by lengthening the minimum contribution period, limiting the use of noncontributory periods in calculating the benefit, and increasing the number of years over which the pension base is computed. In addition to improving the financial position of the PAYG system, these steps aimed at reducing the incentive to evade contributions—a key problem in transition economies—as they strengthened the link between contributions and benefits.

(iv) *Strengthening contribution collection*—As discussed above, the contribution loss was one of the key factors behind the deterioration of PAYG systems in transition economies. The financing of existing systems has been strengthened by broadening the contribution base and improving tax administration. Broadening the contribution base was a key step in some countries (Hungary, Latvia, Bulgaria), as the base for pension contributions typically excluded a number of fringe benefits, which had become increasingly large.¹⁹ Only Hungary, Latvia, and Poland, though, have made progress toward a more correct the tax treatment of pension contributions and benefits by bringing benefits within the personal income tax base (Box 2). The collection of contributions from the self-employed has also been tightened, either by imposing minimum payments (Hungary) or, indirectly, through more wide-ranging measures, such as the introduction of notional defined-contribution accounts in Poland and Latvia (see below). Measures aimed at strengthening tax administration have also been taken, including

¹⁸Under the new system, early retirees will be penalized. For example, a woman who retires at 55 will experience on average a 25 percent cut in her pension under the new system if she stops contributing. Those who retire even earlier will suffer an even greater loss of benefits.

¹⁹As a way to improve administration, these countries have unified the base for social security contributions and personal income taxes.

Box 2. Tax Treatment of Pensions, Fringe Benefits, and Life Insurance

In most of the countries in our sample, prior to the reforms, compulsory contributions under the social insurance system were tax deductible and pension benefits were tax exempt. Moreover, in many countries fringe benefits were not captured under the tax base, so contributing to the shrinking of the taxable base and inducing informal employment.

The favorable tax treatment of pensions and other savings instruments under a personal income tax has typically been seen as a way to stimulate savings. There are basically two approaches to tax treatment for savings invested in pension schemes: the Exempt-Exempt-Tax (EET), and the Tax-Exempt-Exempt (TEE). Under the EET approach contributions to approved retirement plans are tax deductible (within certain limits); the returns on the earnings of these plans are excluded from tax currently; and pension benefits are taxed when received by recipients. The alternative TEE approach (which is equivalent from an *ex ante* perspective if tax rates are the same during retirement and working years) is not to allow tax deduction for contributions to retirement plans; to allow the return on the earnings to be excluded from tax currently; and not to tax pensions and the earnings when received.

In most developed countries, fringe benefits provided by employers are included in the employee's taxable income and deducted as an expense to the company. Contrary to monetary or easily monetizable benefits, in-kind benefits are often most easily administered by denying a deduction to the employer that provides them, rather than attempting to include them in the employee's income. Some countries have adopted a "fringe benefits tax," e.g., Australia and New Zealand. Under such a system, the value of in-kind benefits is treated in the aggregate as a taxable item for the employer, but not included in the employees' incomes. Instead, the employer pays a separate tax, generally at a rate designed to approximate the average marginal rate of the employees who are receiving the benefits. This serves the purpose of avoiding the apportionment of the benefits to all the employees who receive them, and including it in their taxable incomes. It does not preclude the need to value the benefits, however.

Life insurance is often an important fringe benefit provided to employees. Life insurance combines a premium related to a payment upon the death of the policy holder to the beneficiaries; and a separate amount paid as a savings component, which accrues interest and yields a return to the policy holder, irrespective of whether he or she dies. In most countries, death benefits are exempted from tax on the assumption that this payment merely compensates the beneficiary of the life insurance policy for the lost earnings power of the deceased and does not represent an increase in income to the beneficiary. On equity grounds, life insurance premiums that represent payments for death benefits should not be tax deductible to employees and any payments by employers to purchase such premiums on behalf of employees should be subject to the same tax treatment as other fringe benefits. The saving component of life insurance should also be taxed as voluntary contributions to approved pension plans.

In the course of pension reforms, a number of countries have modified or plan to modify the tax treatment of pensions. Others—Bulgaria, Hungary, Poland—have effectively broadened their tax bases by including a number of fringe benefits. Thus far, only Hungary and Poland have brought pension benefits under the personal income tax base. In Poland, the mandatory second pillar will have, similarly to the first pillar, an EET system. Contributions to open pension funds under the second pillar will be paid on a pre-tax basis, just as in the first pillar of the new system. Investment funds' earnings will be tax exempt. The pension fund company will be taxed while assets transferred to claim lifelong pension benefits upon retirement will not be taxed. Participants will be taxed only upon receiving their pension. Hungary has adopted a similar approach, the main difference being that a 25 percent tax credit on mandatory employee contributions has been introduced. In Poland, the voluntary third pillar, instead, will be taxed according to the TEE approach. This approach was chosen because the government could ill afford to lose current revenues from taxes under present conditions.

merging the collection of pension contributions and personal income taxes under a single administration, as in Kazakhstan and Latvia. However, even in advanced transition economies (such as Hungary), the tax and social security administrations remain separate.

B. Notional Defined-Contribution Accounts

Latvia and Poland have complemented the tightening of the PAYG system with a more wide-ranging reform, which introduced in their PAYG systems some aspects borrowed from defined-contribution pension systems.²⁰ Both countries have established notional defined-contribution accounts (NDCAs) and have turned their PAYG system into a contribution-based benefit system. In a nutshell, NDCAs record individual contributions but no fund is actually accumulated. Contributions accumulate according to a notional rate of return. In Latvia, this rate of return is equal to the growth of the nationwide wage bill on which contributions are collected, the so-called contribution wage base.²¹ At retirement, the accumulation in a person's account is converted into an annuity. The advantages are several. First, NDCAs make explicit the implicit actuarial mathematics of any PAYG system, and add considerable transparency to the system. Second, as benefits are fully dependent on contributions, a large part of the disincentive effect of benefit-defined PAYG systems disappears. Third, the financial equilibrium of the system is strengthened, as pension payments reflect more directly the movement of the revenue base. Finally, in the case of Latvia, the system also incorporates a flexible adjustment of benefits to changes in life expectancy, thereby avoiding politically sensitive debates over retirement age.

C. The FF Approach

Most transition countries are considering or have approved the introduction of a mandatory FF component of the pension system, with one country (Kazakhstan) going all the way to the adoption of a FF system. While the specific rules and transitional arrangements might differ from country to country, they all have the common feature of creating individual retirement accounts in which mandatory saving is accumulated and invested in financial assets. This approach aims at setting in place proper economic incentives, enhancing contributory compliance, reducing distortions in capital accumulation and labor supply, and developing financial markets. Macroeconomic considerations have also entered the picture, with emphasis on the effect on savings, investment, and, ultimately, on growth.

²⁰See Fox (1998) for Latvia; and Office of the Government Plenipotentiary for Social Security Reform (1997) for Poland.

²¹Agreement on the implementation of a similar system has been reached in January 1998 in Sweden, based on guidelines sent to Parliament in 1994. The implementation law is expected to be sent to parliament in the Spring of 1998. The approach also presents similarities with the 1995 Italian pension reform, in which, however, the notional yield is the nominal GDP growth rate.

The introduction of FF systems can be discussed from different angles: (i) the relative pros and cons of introducing a FF system vis-à-vis maintaining the existing PAYG system; (ii) the optimal mix of PAYG and FF components in multi-pillar systems; and (iii) the problems emerging in the transition from PAYG to FF systems. We address these three points, which have been discussed in a more general context,²² from the perspective of transition countries. This may shed light on why these countries, more than other country groups, have seemingly found the introduction of a FF pension system more attractive.

1. Pros and Cons of Introducing a FF Pension System

In comparing PAYG with FF systems six distinctive aspects need to be considered: the extent to which the new system can correct for certain market imperfections; effects on savings, financial market development and growth; risk and supervisory environment; distributive and transparency concerns; administrative costs; and political economy aspects.

Market imperfections and the role of social insurance

Arguments in favor of a public PAYG system are based on its ability to provide social insurance and thereby correct market failures that arise due to standard adverse selection and moral hazard arguments. A mandatory public PAYG social security system in the presence of inefficient private markets can better insure against the longevity risk, disability risk, and the risk of spousal death (life insurance), through its ability to pool risk.

Formal annuity markets are almost absent in transition economies.²³ Therefore, moving from a PAYG to a FF pension system based on individual choice would imply losing the ability to insure against certain contingencies, particularly the likelihood of living longer than expected. James (1997) suggests that inefficient annuity pricing has been the reason why retirees of the Chilean private pension system are not opting to purchase annuities, but prefer phased withdrawals that do not insure against longevity risk.

Allocative distortions, effects on savings, financial market development and growth

These aspects are of paramount importance for transition economies, given their need for increased domestic saving, and a rapid improvement in the allocation of resources to foster the convergence of per capita income toward industrial country levels. In this respect, FF systems are often regarded superior to PAYG systems for several reasons. First, FF systems reduce

²²See James (1997), Feldstein (1997), Mackenzie, Gerson, and Cuevas (1997), Hemming (1998).

²³Engen and Gale (1993) find that only 2 percent of the elderly own individual annuities in the United States. Friedman and Warshawsky (1990) attribute the thinness in private annuity markets to their actuarially unfair nature (primarily resulting from adverse selection).

labor supply distortions by making more explicit the link between contributions and benefits. Second, FF systems typically require a lower contribution rate than PAYG systems to cover a given replacement ratio, as the average yield of pension funds is usually considered to be higher than the growth rate of the wage bill (that is, of the contribution base) in the long run.²⁴ Third, it has been argued that aggregate saving may increase as a result of a shift to a FF system. Finally, there may be an effect on financial market development: initially, the resources collected by the private pension funds from mandatory contributions will be channeled, particularly in transition economies, into government securities. In time, however, they will be invested, at least in part, in the private financial market, thus sustaining investment and growth.

The empirical evidence of these effects has been the subject of intense debate, including with respect to the implications for fiscal policy (see Section C.3 below). While the evidence of the introduction of a FF system on savings is, at best, mixed (Mackenzie et al. 1997), there is more evidence to support the link between financial market development and economic growth: in particular, the evidence from Chile suggests that the shift to FF pensions helped to improve the efficient use of capital (Holzmann, 1997b)—although it remains a difficult exercise to isolate any such effect from the other reforms taking place in Chile at that time. The uncertainty surrounding the magnitude of these effects explains why the simulations made in transition economies to assess the effect on the pension system of the introduction of FF pension components (including those used by policy-makers to support their decisions) have typically—and cautiously—assumed the absence of effects on growth (see, for example, Palacios and Rocha, 1997). By no means does this imply that these considerations were not critical in explaining the trend towards FF systems in transition economies. On the contrary, it seems that at least one aspect, the desire to develop financial markets, did play an important role in at least two of the countries that have already reformed the pension system (Hungary and Kazakhstan). It is clear, however, that the smooth development of private capital markets cannot take place in a vacuum. This brings us to the discussion of risk and supervisory issues.

Risk, supervision, and guarantees

In industrial economies, the shift toward FF systems is often perceived as involving significant risks for future benefits, as these benefits will be determined by an uncertain yield from invested assets, rather than being guaranteed by the government. While private pension accounts involve the risk of fluctuating portfolio returns, unfunded pension systems are also risky in that they depend on the willingness of future voters to pay taxes to finance retirement

²⁴Moreover, insofar as the weak link between contributions and benefits in traditional PAYG systems leads to contribution evasion and the development of a underground economy (see below), there may be further distortions. However, labor market distortions induced by high contribution rates and a weak link between contribution and benefits are not limited to PAYG systems. As long as the rate of return of fully funded schemes is below the market rate of return, a fully funded scheme may produce the same undesirable effects.

benefits. This issue takes an additional dimension in transition economies in which PAYG pension systems have been rocked by the dramatic shocks discussed in Section II. Indeed, while it has been shown that pensioners in many cases did not fare too badly with respect to wage earners, the pension system failed to provide the type of security that could have been expected. In countries like Kazakhstan, and other BRO countries, where pension benefits were slashed by inflation, and pension payments became a buffer in the cash-constrained public finances, the relative risks arising from shifting to a FF system may have seemed quite limited. This may have created a bias against PAYG system, in the same way in which the poor performance of FF systems during the 1930s depression contributed to the introduction of PAYG systems.

Nevertheless, the problem of future financial risks of FF systems in transition economies should not be underrated, as yields in those markets, while high, are likely to be characterized by much volatility for a long time. Moreover, in most cases the financial and supervisory structure is weak compared to those of industrial countries. Indeed, insufficient consideration of these aspects led to the closure of early private pension funds in Kazakhstan and to an increasing number of privately managed pension funds operating without any licensing or regulatory framework in a number of countries in the region.

The risks arising in a FF system can be dampened in two ways: by imposing a regulatory framework and developing supervisory institutions that specify asset portfolio management; and by providing government guarantees on minimum pension payments. These two alternatives have very different implications for the government's contingent liabilities. Thus, not surprisingly, they have been key points in the policy discussion leading to pension reform.²⁵

Different solutions have been adopted in various countries (Table 10). Regarding investment policies, in Poland a draft law specifies the classes of investment in which funds' assets can be invested and the maximum proportion of each class of assets in which they may be held. At least 90 percent of funds' assets will have to be invested in the publicly traded securities, in the securities issued or guaranteed by the State Treasury of National Bank of Poland, and in bank deposits. The funds will not be allowed to invest more than 5 percent of their assets in the securities of one issuer. In Kazakhstan, private pension funds will be able to invest in government securities, private bonds, bank deposits, equities and, possibly, with restrictions, abroad. As it is expected that in the early years of the reform pension funds will invest mostly in government securities, the authorities are planning to expand the range of maturities of government securities. Moreover, in order to accommodate workers who mistrust private funds, the government has established a government-run pension fund, the State Accumulation Fund (akin to the Banco de la Nacion scheme in Argentina). The state accumulation fund will be authorized to invest only in securities issued by the government,

²⁵The IMF has usually supported the introduction of FF components. However, it has argued against them in cases where supervisory institutions were not regarded as adequate.

Table 10. Main Features of Mandatory Fully Funded Pillar

| Countries | Financing and Tax Treatment | Limits on Investment | Type of Funds | Regulatory Framework | Minimum Guaranteed |
|------------|---|---|--|--|---|
| Hungary | 8 percent of the contribution rate from the PAYG to the second pillar, implying a loss of revenues for the PAYG scheme of about .8-1.3 percent of GDP in the early years of the reform, depending on the number of workers opting out of the new system. The tax treatment will be a modified EET system (pension contributions and investment income from pension funds exempt; pension benefits taxed under personal income tax) by allowing a 25 percent tax credit on mandatory employee contributions. | Most of the investment will be initially in government's papers. Limits will be relaxed once the pension funds reach a certain level of assets. Pension funds will not be allowed to invest in foreign securities in 1998. This limit would be progressively raised to 30 percent over a five-year period. | Private mutual pension funds managed by their members. | There is a unified public supervisory body for mandatory and voluntary pension funds, financed by a share of pension funds' premia. | There are two layers of protection. First, individuals participating in the second pillar will be guaranteed annuities equal to 25 percent of the value of the first pillar pension. Second, there is a relative rate of return guarantee loosely connected with the individual guarantee. The Supervisory authority has discretion in setting the range of investment returns in a given period. |
| Kazakhstan | 10 percentage points out of the envisaged total payroll tax rate of 25 percent diverted to the new funded pillar. This is estimated to generate a gap equivalent to nearly 2 percent of GDP in the first year of the reform. | Private pension funds will be able to invest in government securities, private bonds, bank deposits, equities and, possibly with some restrictions, abroad. In the early years of the reform, it is expected that pension funds will invest mostly in government securities. To facilitate the operation of the funds, the authorities are planning to expand the range of maturities of government securities. | The government envisages that a core group of 4-5 private pension funds should be ready to operate at the early stages of the reform. Foreign companies (banks, insurers, asset managers, actuaries, accounting and auditing firms) are expected to provide much needed expertise in fund management, account administration, marketing and systems management. Insurance companies are expected to be established to provide the annuities which are required to convert defined contribution pension plans into a regular stream of retirement income. | Pension funds will be supervised by the National Pension Agency, while asset managers will be under the purview of the National Securities Commission. | The government has established a government-run pension fund, the State Accumulation Fund. The state accumulation fund will only be authorized to invest in securities issued by the government, deposits of state banks, and international financial institutions. |

Table 10 (concluded). Main Features of Mandatory Fully Funded Pillar

| Countries | Financing and Tax Treatment | Limits on Investment | Type of Funds | Regulatory Framework | Minimum Guaranteed |
|-----------|--|---|---|--|--|
| Poland | Two options are being considered. The first option envisages a mandatory switch of everybody under 30 to the fully funded pillar with 20 percent of social security contributions (9 percentage points of the 45 percent payroll tax on net wages). The second option envisages a voluntary switch of everybody under 50 with 20 percent of contributions and a mandatory switch of all new entrants to the labor market. The tax treatment envisaged is a EET system, that is, pre-tax contributions from individuals; deductible expenses for employers. Fund investment earning are tax exempt. Benefits will be taxed. | The new law will specify the classes of investment, in which funds' assets can be invested and the maximum proportion of each class of assets in which they may be held. At least 90 percent of funds assets will have to be invested in the publicly trade securities, in the securities issued or guaranteed by the State Treasury of National Bank of Poland and in bank's deposits. The funds will not be allowed to invest more than 5 percent of fund's assets in the securities of one issuer. | Open pension funds (banks, life insurance companies, investment funds, and brokerage firms) managed by profit companies, subject to the provision of the Commercial Code for joint stock companies. | The new law will establish a state supervisory body, the State Office of Supervision over Pension Funds (UNFE), which will have very wide-ranging powers to monitor and supervise the activity of the funds. One of the most important tasks of UNFE, apart from the above-mentioned, will be to take responsibility for the public education. | There will be a minimum required rate of return. Pension Fund Society would be liable to pay its own money to the fund, if the rate of return achieved by the managed fund is significantly (more than 50 percent) below the weighted average rate of return achieved by all open pension funds within the last 24 months—this rate is going to be calculated every three months |

deposits of state banks, and international financial institutions. In Hungary, restrictions on internal asset management have also been introduced, including mandatory internal reserves equal to at least 0.5 percent of the stock of individual accounts.

Regarding guarantees, the Polish reform draft envisages establishing a minimum required rate of return, borrowed from the South American models, which will force Pension Fund Societies to pay their own money to the fund if the rate of return achieved by the managed fund is significantly (more than 50 percent) below the weighted average rate of return achieved by all open pension funds within the last 24 months. In Hungary, there will be two layers of protection. The first is a state guarantee, which applies to all workers with at least 15 years of contributions: this guarantee is quite large, as it corresponds to about 93 percent of the pension which would have been received under a pure PAYG system.²⁶ The second guarantee is similar to the one introduced in Poland, but it is less clearly defined.²⁷

Distributive and transparency concerns

As discussed in Section III, the weak link between contributions and benefits in PAYG systems has given rise to a number of distortions and privileges in transition economies. Moreover, it reduced the transparency of the system, *inter alia*, because pensions were exempt from taxation. By definition, a pure FF system eliminates any distributive problem of the kind found in defined-benefit PAYG systems.²⁸ Given the magnitude of the distortions, this factor is likely to have been important in promoting FF systems in transition economies.

Administrative costs

A FF system involves additional costs that are not present in PAYG systems. First, private pension management companies are normally required to spend money on marketing and on a sales workforce due to the competitive setting in which they are typically working. The latter is an important item in any retail financial industry, especially when financial instruments are

²⁶A Guarantee Fund, financed by a contribution of 0.3 percent of wages has been set up to back up the state's contingent liability (Ruggiero, 1997).

²⁷The Supervisory authority will have wide discretion in setting the minimum rate of return below which the guarantee will be triggered (Palacios and Rochas, 1997).

²⁸Of course, even in FF systems, it is necessary to guarantee a minimum pension level, financed out of general revenue, in order to protect those workers who cannot accumulate enough funds. In Kazakhstan, the state will top up the contribution-related pension to achieve a minimum pension level.

addressed to poorly informed investors as in the case in FF systems.²⁹ Second, the cost of administering a large number of small accounts is high. These aspects have attracted limited attention in the FF reforms so far approved or close to approval. However, Poland is planning to put limitations on the marketing policies of pension funds.

Political economy aspects

Political considerations have also been important in explaining the wide interest that FF pensions have raised in transition economies. These include: the overall mistrust that, after years of communism and a costly transition, the people have developed toward the public sector; and the opportunity for “extraordinary politics”, to use the words of the current Polish Finance Minister Balcerowicz (cited, for example, in Bruno, 1996), that have made it easier to introduce sweeping reforms.

Regarding the first consideration, it has been argued that PAYG systems are subject to significant political risks. Even where attempts have been made to provide funding for defined-benefit schemes, for instance through the buildup of reserve assets, there remains the risk that governments will run a fiscal deficit, financed by low interest loans from the social security fund. Ultimately, when such reserves have been drawn upon, the public would be forced to bear high tax rates to support the repayment of the debt to the social security system.³⁰ FF systems are considered to be more insulated from this type of political risk. As contributions are recorded in individual accounts—a monitorable track record of the property rights of each individual worker over time—the political system is less likely to take away the individual funds. Owners of accounts are routinely informed of the contributions, investment income, and capital gains/losses for which they have been periodically credited. These advantages are probably playing a key role in transition economies, in which the trust between the citizen and the new political institutions has yet to stand the test of time. However, Heller (1998) argues that defined contribution schemes where government provides insurance against the risk of financial insolvency are not insulated from political risk, as these represent contingent government liabilities.³¹

²⁹Chile has experienced a sharp increase in administrative costs (Diamond, 1994). Mitchell (1996) has estimated that on average administrative costs reduce the real return of private funds by one percentage point.

³⁰A parallel risk is the one linked to the political cycle so that generous benefits are granted when politically convenient.

³¹Even in the absence of formal government guarantees, governments may feel obligated to provide some guarantee, hence may equally perceive a similar “conjectural” liability. Heller (1998) claims that the political bind might increase the more involved the government is in supervising and regulating the private fund.

The second consideration is that, in the context of the systemic changes that are taking place in all aspects of political and economic life, the introduction of a new pension system—which by industrial economy standards seems to be a daunting political task—takes different proportions. This may also explain the relative ease in implementing other structural reforms (such as privatization, price liberalization, and current account and capital account liberalization) that took a fairly long time to be completed in industrial countries.

2. The Optimal Mix of PAYG and FF Systems

Countries face basically three options: to reform the existing PAYG; to shift to a mandatory fully funded system; and to adopt a combination of the first two (a multipillar system). The possibility for voluntary saving toward retirement has always existed. In fact, most transition economies of our sample have rapidly developed this form of saving, for instance, through tax incentives.³²

A three-pillar system—including a first mandatory PAYG pillar, a second mandatory privately managed FF pillar, and a third voluntary FF privately managed pillar—has been increasingly supported by the World Bank—the Bretton Woods institution that is primarily responsible for advice in the area of pension reform. The first pillar would provide a minimum pension to all citizens with minimum contributions, so as to satisfy the need of poverty alleviation and income redistribution to the elderly; the second pillar would increase forced saving, while allowing the channeling of this saving toward the capital market; and the third voluntary pillar would increase the flexibility of the system for those willing to provide additional saving.³³ After extensive experience in pension reform in Latin American countries, the World Bank concluded that a multipillar approach is the one that provides enough flexibility while encompassing all the various options available. Multipillar systems have indeed become quite popular in Latin America (including in Argentina, Mexico, Columbia, Peru, and Uruguay).

The advantages of the multipillar approach have been discussed, for example, in Holzmann (1997a). The principal advantage is risk diversification. As FF systems and PAYG systems are subject to different types of political and economic risks, and have different pros and cons, then a mixing of the two systems can reduce the exposure to specific shocks. According to Holzmann (1997a), these considerations were behind the approach followed in Argentina; he also notes that it is not by chance that the Polish reform has been labeled “Security Through Diversity.” For many countries, the much-required short-term PAYG reforms would free up resources for a funded second pillar of significant size within a decade of gradual transition. Latvia is an example of a country that has followed this approach. A third advantage is that, by offering something immediately to younger generations (the expected higher return of FF

³²The voluntary FF pillar has developed quite rapidly in some advanced transition countries; for example, it covered about 15 percent of the workforce in Hungary in mid-1997.

³³For a fuller discussion, see The World Bank (1994).

systems), the mixed approach makes it easier to muster political support for tightening the remaining PAYG regulation. This aspect was instrumental in passing the reform in Hungary and is playing a major role in Poland as well.

The factors discussed above that influence the comparative advantages of PAYG vis-à-vis FF systems across countries also influence their appropriate mix in countries that have adopted a multi-pillar approach. In practice, Hungary has decided to divert to the mandatory FF pillar about one-fourth of its contributions. Poland is considering diverting to the FF pillar one-fifth of the contributions, while no orientation on this issue has yet emerged in Latvia.

3. Transitional Problems

A shift to a FF system involves some transitional problems. One of them—the absorption capacity of countries' financial and regulatory infrastructure—has already been discussed. This section focuses on possible problems arising from the increase in the fiscal deficit that occurs when part or all of the mandatory pension contributions are shifted toward the FF pillar, while the government remains committed to the payment of the pensions of those workers covered by the PAYG system. This commitment can of course be reduced if, at the time of the introduction of a FF component, the PAYG liabilities are reduced. Nevertheless, it can be quite sizable. For example, in Kazakhstan the shift to a FF system has involved an increase in the fiscal deficit of about 2 percentage points of GDP. A related issue, namely, how the speed of the transition can be modified, in order to facilitate the adjustment is discussed next together with the rules that regulate the switching of individuals from the PAYG to the FF system.

Is the increase in the fiscal deficit a problem?

The increase in the fiscal deficit arising from the shift to a FF system has not been seen by IMF and World Bank staff as necessarily entailing an adjustment, as the shift simply makes *explicit* an *implicit* liability. However, some fiscal adjustment, possibly spread out over time, may in some cases be needed (FAD, 1997; Holzmann, 1997c).

The starting point is that, under certain conditions, the increase in the deficit arising from a shift to a FF system does not involve a fiscal expansion. On the one hand, the saving-investment balance is not altered, as the lower government saving is offset by the surplus of the new pension funds (which receive contributions, but do not pay pensions for a number of years). On the other hand, the increase in public sector debt due to the deficit is essentially the conversion of implicit into explicit debt. Thus, a pension privatization that leaves the mandatory contribution rate equal to the combined payroll tax rate of the former public system, and that does not alter the terms of eligibility for or magnitude of retirement benefits under the old system, will have no impact on the disposable income and wealth of individuals who move from the old system to the new. Some degree of fiscal consolidation may be needed, however, depending on private sector's saving, the interest rate on government debt, and possible recognition effects.

As discussed in Section C. 1 above, the effect on private saving of a shift to FF pensions remains subject to debate. The reduction or elimination of the distortions created by the payroll tax may boost labor supply and output and thereby saving, investment, and growth. Moreover, the national saving rate may increase if the switch from a defined benefit to a privately managed defined contribution scheme increases contributors' compliance (unless the higher pension contributions are fully offset by lower voluntary saving). On the other hand, the private sector saving rate could be lowered because of wealth effects, if the rate of return of the privatized system is higher than that of the public system, so that expected retirement benefits are higher. In sum, the effect on saving is highly uncertain. Thus, if one of the purposes of shifting to a FF system is to raise the saving rate, this objective could be achieved more safely by coupling the shift to a FF system with fiscal consolidation. A move in this direction may be politically easier to sell at a time when the measured deficit increases.

When the cost of government borrowing exceeds the implicit rate of return of the old PAYG system, the conversion of implicit debt to explicit debt would effectively increase the debt burden, and, other things being equal, create a need to undertake a fiscal consolidation to limit the growth in the stock of public debt.³⁴ This effect would be exacerbated if the additional public debt issues can be floated only at the cost of an increase in the interest rate paid by the government. Initially, this is unlikely to be the case, as the private pension funds will likely invest primarily in the government securities market. However, in time, a rising share of their portfolio will be invested in private securities, and, unless private and government papers are perfect substitutes, the interest rate on the latter may increase.

Finally, if markets did not fully account for the value of the implicit debt of the pension system, making this debt explicit could have a recognition effect that could unsettle financial markets, but at the same time make fiscal consolidation politically easier. Similarly, if explicit debt is less subject to repudiation, there is an additional reason for treating a part of the recognized implicit debt as effectively additional debt.³⁵

One additional problem emerges for those countries that are relatively closer to acceding the EU, and eventually EMU. According to the definitions used to assess compliance with the Maastricht criteria, the surplus of the FF pillar will not be regarded as part of the general government balance. Thus, *ceteris paribus*, governments will have to take offsetting measures to meet the 3 percent deficit ceiling.

³⁴The contributions can be seen as implicit debt because (unlike conventional taxes) they give rise to an obligation to pay future benefits.

³⁵Moreover, if the new system involves a government guarantee of a minimum pension, it may be necessary to set aside funds for its financing.

How did the four countries with most advanced reforms approach this problem? Different strategies have been followed. Hungary has decided to rely on debt financing in the first year of reform (1998), during which the impact on the deficit is modest (less than ½ percent of GDP). However, in the medium-term the fiscal stance (measured by the primary surplus) is expected to remain unchanged, which *ceteris paribus*, will require measures to offset the contribution loss. Kazakhstan has taken the view that, at least for the moment, a larger measured deficit of the order of 2 percent of GDP would not pose serious fiscal sustainability problems.³⁶ Poland is considering reform options that involve a loss of contributions of at most 2 percentage points of GDP, and is leaning toward playing the privatization card to the extent possible.³⁷ Latvia has chosen to wait for a surplus to emerge from the restructuring of the PAYG system before proceeding with the FF second pillar.

Factors affecting the speed of the transition

A key decision that needs to be taken in introducing a FF system is who is eligible to participate in the new system and whether workers should have the possibility of choosing between PAYG and FF systems. In particular, should the FF system be open only to new labor force entrants? And how should participation of existing workers in the FF system be regulated? The solution adopted will affect not only the speed of the convergence toward the steady state, but will have distributional and equity implications.³⁸

Table 11, reproduced from Palacios and Whitehouse (1997), but revised to incorporate the final features of the pension reform in Hungary, details how this issue is treated in 11 transition and nontransition developing countries. In all three transition economies in the table (Hungary, Kazakhstan, and Poland) switching to the new pension system (FF for Kazakhstan, multipillar for Poland and Hungary) is mandatory for all new entrants. However, they have adopted different solutions regarding the pre-reform labor force. In Kazakhstan, the switch is mandatory also for participants in the old PAYG system. However, all pension rights accrued under the old system will be honored by the government, based on a formula that Palacios and

³⁶However, the present discounted value of the transitional costs has been estimated to be 40 percent of GDP.

³⁷Privatization receipts could be used to pay off existing public debt. In principle, the government could then earmark, formally or informally, the budgetary savings arising from the reduction in debt service payments to an investment fund that could be used to finance the cost of the transition to a FF system.

³⁸See Palacios and Whitehouse (1997) who argue in favor of a voluntary switching as this would be more palatable to workers, thus helping the political approval process. They argue that the main disadvantage of voluntary switching—the non-predictability of the process—is not important, from a practical standpoint. Given the parameters of the system, the percentage of workers who will switch can be predicted fairly accurately.

Table 11. Switching Rules in Selected Multipillar Reforms

| | Switching for New Entrants | Switching for Current Labor Force |
|------------------------------------|----------------------------|-----------------------------------|
| Latin America | | |
| Argentina (1994) | Voluntary | Voluntary |
| Bolivia (1997) | Mandatory | Mandatory |
| Chile (1981) | Mandatory | Voluntary |
| Colombia (1994) | Voluntary | Voluntary |
| Mexico (1997) | Mandatory | Mandatory |
| Peru (1993) | Voluntary | Voluntary |
| Uruguay (1996) | Mandatory | Mandatory <40 |
| Eastern Europe/Central Asia | | |
| Hungary (1997) | Mandatory | Voluntary |
| Kazakhstan (1998) | Mandatory | Mandatory |
| Poland (proposal) | Mandatory | Mandatory <30 |
| Western Europe | | |
| United Kingdom (1988) | Voluntary | Voluntary |

Source: Palacios and Whitehouse (1997). The second column has been amended for Hungary.

Whitehouse (1997) regard as fairly generous.³⁹ These expenditures will be financed by earmarking about 60 percent (gradually declining to zero) of pension contributions (de Castello Branco, 1998).⁴⁰ In Hungary, the switching is voluntary. However, the formula used for converting past contributions is such that switching is likely to be unattractive to workers above the 35- to 40-year-old age range (the precise age depending on the assumption on the expected yield of the FF component). Poland has adopted an optional switch for all those between 30 and 50 years of age, while those above 50 will remain within the old system.

VI. SUMMARY AND CONCLUDING REMARKS

In the first half of the 1990s, the PAYG pension systems of transition economies were badly hit by a series of combined shocks. On the one hand, the contribution base collapsed. On the other hand, pensions systems were often used to reduce the social costs of the transition, as highlighted by the sharp increase in early retirement and disability pensions. The resulting pressure to increase expenditures had to be contained by slashing average benefits, mostly through tampering with indexation rules, although it was shown that pensioners did not fare too badly compared with the average worker. However, in most countries of our sample, real average pensions declined more than average real incomes.

As these developments unfolded, it became increasingly clear that the piecemeal approach followed initially by most countries in reforming the pension system had to be replaced by a more comprehensive approach. By mid-1995, the pension systems in the countries of our sample were weakened by high system dependency ratios, low *de facto* retirement age, strong distortions, and widespread contribution evasion, as a result of high contribution rates and a limited link between pension benefits and contributions. Moreover, adverse demographic developments—not a primary force behind the deterioration of pension systems in the first half of the 1990s—were expected to become increasingly important and to lead to a further sizable deterioration of the financial balance of PAYG systems.

Most countries in the sample are addressing these problems not only by streamlining the existing PAYG system (for example, by raising the mandatory retirement age, or tightening early retirement rules), but by changing the nature of the pension system. A key goal has been to increase the link between pension contributions and benefits. In some cases this is being done within the context of the PAYG system (as in the countries that introduced NDCAs). In most cases, however, countries have introduced or are considering introducing defined contribution FF mandatory pension pillars, a move that has been strongly supported by the

³⁹A similar solution, albeit in a different context, has been adopted in Latvia with the introduction of the notional accounts. An alternative, adopted in some Latin American countries, is to convert the old contributions into bonds, the so-called recognition bonds, with an immediate effect on public debt.

⁴⁰This means that, initially only 40 percent of contributions will go to the FF system.

World Bank. The interest that this approach has raised in transition economies can be explained by objective economic factors—particularly the expected high yield of the funds invested in those economies, with respect to the implicit yield of PAYG pensions, and the need to strengthen the link between contributions and benefits (although this aim can also be achieved through NDCAs within a PAYG approach). However, other factors were probably at play, in particular the fact that PAYG pension systems had failed to protect pensioners during the transition, and the fact that pension benefits in FF systems might have been regarded as better protected from political risks than in PAYG systems. Moreover, in the context of wide ranging economic reform, the political difficulty of introducing more ambitious pension reform is probably lower than in industrial countries.

We also drew attention on the fact that the weak performance of PAYG systems in the 1990s should not lead to overlooking the potential risks implicit in FF systems, in particular those related to financial risk and inadequate supervision. In this respect, we briefly discussed how the countries that have already implemented pension reform are tackling these problems, as well as those related to the transition from PAYG to FF systems (fiscal implications and switching regulation).

REFERENCES

- Bruno, Michael, *Deep Crises and Reform - What Have We Learned?*, Directions in Development, The World Bank, Washington, 1996.
- de Castello Branco, Marta, 1998, *Pension Reform in the Baltics, Russia and Other Countries of the Former Soviet Union (BRO)*, IMF Working Paper, 98/11, (Washington: International Monetary Fund).
- Diamond, Peter, 1995, "Privatization of Social Security: Lessons from Chile," in *Revista de Análisis Económico*, Vol. 9, No. 1, pp. 21-33, June.
- Engen Eric, and William Gale, 1993, "IRAs and Saving in a Stochastic Life-Cycle Model," Mimeo, University of California at Los Angeles.
- FAD (Fiscal Affairs Department of the International Monetary Fund), 1997, *Assessing the Fiscal Stance in the Context of Privatizing a Public Pension System*, mimeo, Washington.
- Feldstein, Martin, 1997 Transition to a fully funded pension system: five economic issues, *NBER working paper no. 6149*. Cambridge, MA.
- Fox, Louise M., 1998, *Pension Reform in Latvia*, paper presented at the World Bank seminar on pension reform in transition economies, held in Washington on February 27.
- Friedman, Benjamin, and Mark Warshawsky, 1990, "The Cost of Annuities: Implications for Saving Behavior and Bequests," *Quarterly Journal of Economics*, February.
- Heller, Peter, 1998, *Rethinking Public Pension Reform Initiatives*, IMF Working Paper 98/61, (Washington: International Monetary Fund)..
- Hemming, Richard, 1998, *Should Public Pensions be Funded?* IMF Working Paper 98/35, (Washington: International Monetary Fund).
- Holzmann, Robert, 1997a, "Main Issues of Bank-Guided Pension Reforms," Paper prepared for the *Eleventh ISSA Regional Conference for Asia and the Pacific*, Manila, November 24-27.
- _____, 1997b, "Pension Reforms, Financial Market Development and Economic Growth: Preliminary Evidence from Chile," *Staff Papers*, International Monetary Fund, Vol. 44, No. 2 (June).
- _____, 1997c, "Starting Over in Pensions: The Challenges Facing Central and Eastern Europe", *Journal of Public Policy*, No, 17, 3, pp. 195-222.

- James, Steven, 1997, "A Public versus a Private Canadian Pension Plan: A Survey of the Economics", Working Paper 97-04, Department of Finance, Canada.
- Johnson, Simon, Daniel Kaufman, and Andrei Shleifer, 1997, "The Unofficial Economy in Transition," *Brookings Papers on Economic Activity*, No.2, pp. 159-239.
- Kopits, George, 1992, "Social Security", in *Fiscal Policies in Economies in Transition*, edited by Vito Tanzi, Washington, International Monetary Fund.
- Kotlikoff, Laurence, 1996, Simulating the privatization of social security in general equilibrium, *NBER working paper no. 5776*. Cambridge MA.
- Mackenzie, George A., Philip Gerson, and Alfredo Cuevas, 1997, *Pension Regimes and Savings*, IMF Occasional Paper No. 153 (September).
- Milanovic, Branko, 1997, *Income Inequality and Poverty During the Transition from Plan to Market Economy*, Washington, The World Bank.
- Ministry of Labor and Social Affairs, Czech Republic, 1996, *Pensions and Pensions Insurance*, Prague.
- Ministry of Labor and Social Developments of the Russian Federation, 1997, *Pension Reform Program of the Russian Federation*, December.
- Mitchell, Olivia, 1996, "Administrative Costs in Public and Private Retirement Systems", in M. Feldstein, *Privatizing Social Security*. University of Chicago Press, Chicago.
- Moghadam, Reza, 1998, "Labor Market Developments and Flexibility", in Carlo Cottarelli and others, *Hungary: Economic Policies for Sustainable Growth*, IMF Occasional Paper No. 159, International Monetary Fund, Washington D.C., February.
- National Security Institute, Republic of Bulgaria, 1997, *Conceptual Considerations Concerning Changes in Pension reforms*, November.
- Office of the Government Plenipotentiary for Social Security Reform, 1997, *Security Through Diversity. Reforms of the Pension System in Poland*, March.
- Palacios, Robert, and Roberto Rocha, 1997, *The Hungarian Pension System in Transition*, World Bank, mimeo, November.
- Ruggiero, Edgardo, 1996, "Pension Reform", in International Monetary Fund, *Hungary—Selected Issues*, IMF Staff Country Report No. 96/109, Washington, October.

_____, 1998, "Reform of Public Finances, 1994-97", in Carlo Cottarelli and others, *Hungary: Economic Policies for Sustainable Growth*, IMF Occasional Paper No. 159, International Monetary Fund, Washington, February.

World Bank, 1994, *Averting the Old Age Crisis: Policies to Protect the Old and Promote Growth*, (New York: Oxford University Press).