Republic of Korea
The Korean Pension System at a Crossroads

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W1.00  = $0.000903

ABBREVIATIONS AND ACRONYMS

DB    Defined Benefit
DC    Defined Contribution
GEPC  Government Employees' Pension Corporation
ERISA Employee Retirement Income Security Act
TFR   Trattamento di Fine Rapporto
MPF   Mandatory Provident Fun
CPP   Canada Pension Plan
TFB   Trust Fund Bureau

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Old age income security in Korea is at a crossroads. The traditional system of family support is giving way to formal retirement savings - most of it mandated by government. Government employees and private school teachers are obliged to participate in special occupational schemes that operate on a pay-as-you-go basis while private sector workers must contribute to the partially funded National Pension Scheme. Employers must provide retirement allowances, a retirement cum severance payment program whose obligations are largely unfunded. These schemes have evolved over several decades and are not based on clear targets for the level of mandated retirement income or sustainable payroll tax burdens. They currently pay benefits to a minority of older Koreans. This means that over the next few years only social assistance programs will have a significant impact on the incomes of the current elderly poor. This report attempts to contribute to the ongoing policy discussion in Korea and presents several alternative reform options. These include reforms to some elements of the existing system as well as an integrated or systemic reform option. The latter is recommended because it resolves key questions of affordability, labor mobility, equity, and fund management. It also strikes a balance between public and private provision.
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   the cooperation of Korean Government officials from several Ministries, the Korean Financial
   Services Supervision, and members of the Korean Pension Reform Working Group.
Executive Summary

The report documents the recent evolution of Korea’s main programs for old age income protection. The authors find that at a time when traditional systems of family support may be in decline, only a relatively small proportion of Korea’s elderly population receives income from a formal pension scheme. In the short-run, therefore, and especially in the wake of the economic crisis, an issue that the Government faces is the protection of the most vulnerable elderly through an expansion of social assistance programs, such as the livelihood protection scheme.

In the longer run, however, the National Pension Scheme (NPS) will continue to mature and an increasing proportion of Korean workers will receive benefits based on contributions made during their active years. This will increase public pension spending dramatically. Although promised benefit levels were revised downwards at the end of 1998, the long-run financial sustainability of the system still depends on very high contribution rates in the future. The report highlights the need to reconsider benefit targets in order to avoid high payroll taxes or, alternately, deficits in the future.

The long run sustainability of the NPS will also depend on prudent management of pension reserves. Before NPS surpluses begin to decline as the scheme matures, the NPS will have accumulated a large stock of reserves; indeed, it would probably become the largest single investor in the economy. The report highlights some of the challenges posed by such a large accumulation of funds in a public monopoly institution.

In contrast to the NPS, the Government Employees’ pension scheme is already generating deficits. The report presents projections that show this deficit will increase under current rules. Gradually, benefit levels will have to be reduced and the normal retirement age increased in line with those of private sector workers.

The report also points out weaknesses in the retirement allowance scheme. In order to protect workers’ benefits and reduce labor market distortions, the report advocates improvements in regulations governing funding, financial management, portability, accounting and disclosure practices. The retirement allowance scheme should eventually be converted into a modern private pension system, complete with private fund management external to the sponsoring firm and strong regulatory oversight. In addition, the transparency and regulation of tax-favored personal pension plans should be improved so that this program achieves its objective of encouraging voluntary savings for retirement.

The current constellation of pension programs provides for a wide variety of outcomes depending on the worker’s age and type of employment. For a large group of workers, the target replacement rates are quite high by international standards. At the same time, the payroll contribution required to finance these high benefit targets may have to rise to as much as one quarter of the gross wage twenty years from now. In order to keep costs from spiraling and to harmonize pension provision across and within generations, the report proposes a systemic pension reform package.
The proposed reform would allow younger workers to opt out of the earnings-related portion of the National Pension Scheme. The combination of a mandatory private pension scheme (which would replace retirement allowances) and a reduced public pension scheme would result in a reasonable replacement rate target. New entrants would be obligated to join this system while older workers would continue to be covered by the existing arrangement. Finally, younger civil servants would join this new scheme, eventually resulting in seamless coverage across public and private sectors.

If this reform is implemented, Koreans retiring in 2030 and beyond would receive income during their old age from both public and private pension sources. In addition to setting reasonable target benefit levels, the public-private mix of pension provision would help workers diversify their risks. Second, the proposed reform would make the public pension system more financially sustainable and reduce the intergenerational inequities embodied in the current system. Third, it would reduce labor market distortions that would intensify as payroll tax rates increased over time in the absence of reform. Finally, it would lead to the development of an important private pension industry, stimulating long term savings and capital market development.

We believe that the Korean pension system is at a critical juncture where key policy measures taken today would yield major benefits for Korean workers and for the population at large tomorrow. The Government of Korea has recognized the importance of reform and has asked a Task Force to produce a White Paper which will be issued in May 2000. This report is an attempt to contribute to this effort as well as the broader policy discussion on pension reform in Korea.
I. ELEMENTS OF OLD AGE INCOME SECURITY IN KOREA

Informal Arrangements and Continued Labor Force Participation

1. Most of world’s elderly population depends on their own earnings and transfers from their children to survive. Widespread access to public or private pensions is limited to those industrialized countries with mature pension schemes and extensive coverage. Despite its relatively high-income level, Korea has a young public pension scheme with limited coverage. The old still depend on the family and their own earnings (see Figure 1 below). This will change rapidly as today’s younger workers increasingly participate in formal pension schemes. The pace of this transformation is likely to be much more dramatic in Korea than what was experienced historically in most OECD countries.

Figure 1. Sources of Income in Old Age in the 1980s

2. The pattern is already changing. As illustrated by Table 1 below, a decline in the role of informal transfers can already be noted during the 1980s as support from children was replaced by own earnings and pension income. With the expansion and maturation of the public schemes, this trend will become more pronounced during the next few years. By 2025, most Korean workers will reach the statutory retirement age and be eligible to receive pensions from one of the formal pension schemes.
Table 1. Sources of Income in Old Age, Japan, US, UK and Korea, 1981-1990

<table>
<thead>
<tr>
<th>Major sources of income</th>
<th>Japan</th>
<th>USA</th>
<th>UK</th>
<th>Korea</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wages</td>
<td>31.3</td>
<td>23.8</td>
<td>15.2</td>
<td>10.7</td>
</tr>
<tr>
<td>Public pension</td>
<td>34.9</td>
<td>54.3</td>
<td>53.9</td>
<td>55.2</td>
</tr>
<tr>
<td>Private pension</td>
<td>3.8</td>
<td>1.9</td>
<td>10</td>
<td>13.6</td>
</tr>
<tr>
<td>Deposit</td>
<td>2.1</td>
<td>2</td>
<td>1.7</td>
<td>1.8</td>
</tr>
<tr>
<td>Other wealth income</td>
<td>5.3</td>
<td>4</td>
<td>14.5</td>
<td>11</td>
</tr>
<tr>
<td>Support from children</td>
<td>15.6</td>
<td>5.7</td>
<td>0.3</td>
<td>0.7</td>
</tr>
<tr>
<td>Income maintenance</td>
<td>1.2</td>
<td>0.9</td>
<td>0.7</td>
<td>1.4</td>
</tr>
<tr>
<td>Others</td>
<td>3.1</td>
<td>1.8</td>
<td>3.5</td>
<td>2.7</td>
</tr>
<tr>
<td>N.A.</td>
<td>2.7</td>
<td>5.7</td>
<td>0.2</td>
<td>3</td>
</tr>
</tbody>
</table>

Source: Management and coordination Agency

Note: Elderly refers to people aged 60 years of age and older.

3. Until then however, the population already close to old age faces a difficult situation. On the one hand, the traditional system of old age support is in decline and the ability of families to support their elderly relatives has been negatively affected by the recent recession. At the same time, emerging public and private pension schemes require a history of contributions if they are to provide meaningful income. This cannot be achieved in the short-term. The only policy instrument available during the interim period while the NPS matures is social assistance.

Social Assistance for the Elderly

4. Social assistance is provided to the elderly in the form of the “livelihood protection” program and the non-contributory old age allowance. In 1996, 171,000 persons over age 65 were provided modest cash and in-kind assistance through the first program. In 1997, 265,000 persons received benefits through this program. The cash benefit for those over age 65 was 35,000 won per month while persons over 80 received 50,000 won monthly. The criteria include income and asset testing. In order to qualify, the recipient must have an income below 60% of the monthly average income per capita of urban workers. The recipient cannot have assets greater than 140% of the amount required to qualify for other social assistance benefits. In 1998, the benefit was raised to 40,000 won per month for persons between ages 65-79 while the benefit for those over 80 remained at 50,000 won. Total expenditures for these programs in 1998 was less than 0.1% of GDP.

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1 A recent article in The Economist noted the decline in family support for the old. It also cited a tripling of the suicide rate among Koreans over age 60 compared to a decade earlier.
2 The assistance includes in-kind provisions of rice, barley as well as fuel and clothing allowances. In 1997, the average cash value of such benefits was around 120,000 won monthly.
3 The figure appears to have stabilized at around 285,000 pensions since then.
4 In 1996, the maximum income would have been 350,000 won with maximum allowed assets valued at 19 million won.
5. These benefit levels are quite low relative to incomes and wages. In 1997, the cash transfer paid to needy persons aged 65-79 was approximately 6% of the average wage in the country and 4% of per capita income. This is low compared to other industrialized countries where means-tested or flat benefits tend to be 15-25 percent of economy-wide average wage.\(^5\) At the same time, less than five percent of the population above retirement age receives any means-tested benefit despite the very small proportion receiving income from the three contributory schemes (Government employees, private school teachers and the National Pension Scheme).\(^6\)

6. Low social assistance expenditures are not due to low poverty rates among the elderly in Korea. Even before the crisis, there is evidence that poverty rates were higher among the old. For example, Kwon (1998) reports that a disproportionate number of households headed by persons over 60 fell into the low-income category in urban areas. Lee (1998) found that elderly female heads of households were especially vulnerable, exhibiting much higher poverty rates than the rest of the population. Finally, citing results for 1990 in a study of the rural elderly by the Korean Rural Economics Institute (KREI), Park (1998) stated that “the incidence of poverty among the elderly is more than three times higher than for persons under 30.”

7. More research is needed in order to assess the longer-term impact of the recession on the elderly in Korea. In many industrial countries, public pension income would have cushioned the loss of earnings and private transfers. In the Korean context however, the old must depend primarily on their own earnings, savings and private transfers. Earnings likely were reduced sharply and private transfers were already in decline. Many families would have found it difficult to maintain transfers in the context of unemployment and real wage cuts. Expanding social assistance is an obvious option, and this has taken place, albeit on a limited scale.

**Publicly-Mandated Retirement Schemes**

8. **Coverage and System Dependency Ratios.** Government employees, workers in firms with more than five employees, and private school staff are required to participate in social insurance schemes. Recently, coverage has been expanded to farmers, fishermen and the self-employed. The Government also mandates that employers must provide “retirement allowances” - a form of privately managed retirement savings.\(^7\)

9. The three occupational schemes began to collect contributions long before the introduction of the National Pension Scheme in 1988. Special schemes were instituted for Government employees in 1960, for military personnel in 1963 and for private school staff in 1975. The first two schemes are now reaching maturation. In other words, the first cohorts that spent their entire careers covered by the scheme are now retiring with full pension rights. In 1998, they covered about six percent of the labor force (Figure 2).

10. Until recently, the NPS had covered employees in firms with more than four employees. In 1995, self-employed in rural areas, farmers and fishermen were required

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\(^5\) See World Bank (1994), Table 4.4, page 115 for examples of benefit levels in selected countries.

\(^6\) Note that the military pension scheme is not discussed in this report.

\(^7\) Because the lump sum benefit can be received upon termination of employment, this program is also a severance payment scheme. This mandate is contained in the Korean Labor Law.
to contribute to the scheme. In April 1999, an amendment to the National Pension Act extended coverage to the urban self-employed and small firms (i.e., under five employees). Contribution rates were lower for these new groups. The contribution for employees in larger firms is currently nine percent of gross wages while the urban self-employed, farmers and fishermen pay only three percent. The lower contribution rate will increase over time until converging at nine percent by 2005. The differential contribution rate schedule has recently led to controversy as discussed in the next chapter.

11. As shown in Figure 2 below, after the recent expansion, coverage has reached roughly 58 percent of the labor force by the NPS. This estimate is based on information on effective contributors to the scheme including the newly covered self-employed workers who actually declared some income and therefore paid contributions. Compliance rates for the NPS among the urban self-employed are low, and those who do report income are known to systematically underdeclare their incomes. According to the Korean tax authorities, only about one third of those listed as urban self-employed make income tax declarations.

Figure 2. Coverage of Mandatory Public Pension Schemes by Type of Worker, Mid 1999

12. Effective coverage – defined as the number of workers actually contributing to the NPS – is therefore somewhat lower. This figure is likely to increase gradually over time, but universal coverage is not likely in the near future. Out of the estimated economically active population of around twenty million, as many as five million may remain outside the system. These include part-time workers, household servants and self-employed persons who do not declare income. Roughly half of those covered by the NPS work in firms where retirement allowances are also mandatory.

8 Note that the government makes contributions on behalf of the very poorest rural members of the scheme.
13. The effective coverage ratio is very close to the predicted value using the cross-country regression shown below in Figure 3. The figure plots income per capita against coverage rates for more than 75 countries.

Figure 3. Public Pension Scheme Coverage in Korea after Expansion Compared to International Pattern

![Graph showing the relationship between income per capita and public pension scheme coverage](image)

Note: Income per capita is 1995 purchasing power parity adjusted. See Palacios and Pallares (2000).

14. This measure focuses on current workers. A much smaller proportion of the current elderly receives benefits from a pension scheme. In fact, although the Korean population is aging rapidly, there were fewer than \( \frac{1}{2} \) million persons receiving pensions in 1998, although the number is rising rapidly. This is due to the immaturity of the NPS, which has only been operating since 1988. The NPS system dependency ratio will rise over time, but this increase will be gradual due to the recent and projected expansion of coverage.

15. **Benefits and Eligibility.** The benefits in the occupational schemes and the NPS are paid mostly in the form of a pension while the retirement allowance benefit can be taken as a lump sum. Furthermore, the annuity paid by the NPS is indexed to prices while the occupational schemes are indexed to wages.

16. Target benefit levels in the three occupational schemes are much higher than those of the NPS and the way they are accrued over time is also very different. The NPS benefit formula is progressive and applies an average accrual rate of 1.5 per cent over a forty-year contribution history generating a 60 percent replacement rate. The occupational schemes pay 2.25 per cent for each year of service with a maximum replacement rate of about 75 percent for a 33-year career. Also, the wage histories to which these benefit formulas are applied are based on very different concepts. In the case of the NPS, it is a combination of the worker's own lifetime average wage revalued in line with earnings growth and the economy-wide average wage at time of retirement. Meanwhile in the special scheme for Government employees it is the final monthly wage.
The generosity of the benefit formula for the occupational schemes is reinforced by wage indexation while the NPS pension is indexed to prices.

17. The third mandatory scheme is the system of retirement allowances. The mandate requires employers to provide a minimum benefit equivalent to 1/12th of the worker’s final wage for each year of employment with the company. (Many employers voluntarily offered workers with longer tenure higher accrual rates.) The benefit is payable whenever a worker leaves his job and serves therefore as a kind of termination benefit. The law allows for withdrawal of these funds during the working period for various reasons such as the purchase of a house. In the event of such a withdrawal, the accrual of new rights would begin again from zero.

18. Eligibility conditions are also different across schemes. A full pension at the NPS can only be obtained at age 60 (rising to 65 by 2033) while until recently, Government employees could retire as soon as they meet the minimum length of service conditions. New entrants to the civil service will be required to retire only after reaching age 60. It should also be noted that Government employees have an additional retirement allowance that is 60 percent of monthly salary per year of service payable in a lump sum.

19. Financing. All mandatory retirement schemes in Korea are financed primarily by charges on the wage bill. Table 2 below shows the statutory allocation of this tax between employer and employee for the retirement three major schemes. (The actual incidence of the cost – through higher labor costs or lower net wages – depends on labor market conditions, specifically the relative elasticities of demand and supply of labor.) As discussed in the next section, the NPS contribution will have to rise by as much as nine percentage points in order to maintain funding levels and avoid deficits.

<table>
<thead>
<tr>
<th>Scheme</th>
<th>Employer</th>
<th>Employee</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>% of gross wage</td>
<td>% of gross wage</td>
<td>% of labor costs</td>
</tr>
<tr>
<td>National Pension Scheme</td>
<td>4.5</td>
<td>4.5</td>
<td>8.6</td>
</tr>
<tr>
<td>Retirement Allowance</td>
<td>8.3</td>
<td>0</td>
<td>7.7</td>
</tr>
<tr>
<td>NPS + RA</td>
<td>12.8</td>
<td>4.5</td>
<td>16.8</td>
</tr>
<tr>
<td>Government employees</td>
<td>7.5</td>
<td>7.5</td>
<td>14.5</td>
</tr>
<tr>
<td>Teachers</td>
<td>6.5</td>
<td>6.5</td>
<td>12.6</td>
</tr>
</tbody>
</table>

Note: A ceiling applies on the NPS contribution but not on occupational schemes. In 1998, the ceiling on NPS earnings subject to the payroll tax was around 2 million won.

20. The path of future payroll taxes for most workers depends on the ability of the NPS to generate income from its investments. Currently, the NPS is running large surpluses of almost two percent of GDP. It has accumulated reserves that now exceed ten percent of GDP. This prefunding strategy will limit the required long run increase in payroll taxes, to a certain extent. However, under current law the fund will be depleted by 2049. The NPS would begin to run deficits by 2037 (see Section II).
21. In sharp contrast, the Government employees' scheme has matured and is beginning to run deficits. According to Government officials, it will spend about one percent of GDP on pensions in 1999 and will borrow from the central Government in order to cover its deficit. As described below, these deficits are projected to increase further despite the recent increase in the total payroll tax rate to 15 percent.

22. Historically, there was a relationship between the financing of the NPS and retirement allowances. Since the early 1960s, Korean workers have relied on the lump sum benefits paid at termination of employment as part of their retirement package. It was not surprising therefore, that the NPS was explicitly linked to the retirement allowance scheme. This was done by diverting a contribution of three percent of wages to the NPS, which would have otherwise been considered a contribution for the retirement allowance scheme. In exchange, the employers' retirement allowance liability was proportionately reduced. But changes at the end of 1998 eliminated this offset. The old payroll tax (6% employer of which 3% were being diverted from the retirement allowances scheme and 3% employee contribution) was replaced with new rates of 4.5 percent for employer and employee, respectively. In effect, the overall charge on the wage bill increased by three percentage points at the beginning of 1999.

23. This change appears to have gone forward largely unnoticed and without much debate. This is probably because employers do not feel the burden of financing the retirement allowance mandate. This perception is due to the absence of funding rules, segregation of pension assets or at a minimum, clear accounting standards for book reserves (see Section II).

Voluntary Private Pension Provision

24. Personal pension plans offered by banks, investment trust companies and insurance companies (life and non-life), savings institutions and cooperatives have been encouraged by favorable tax treatment since 1994 and have become increasingly popular. In order to qualify for the tax deduction the individual must agree to a stream of contributions of at least 10 years duration and cannot withdraw the funds until reaching age 55. The maximum contribution stream subject to favorable tax treatment is 1 million won per month or 3 million won per quarter. As indicated below, if the individual cancels the contract before 10 years or seeks to withdraw prior to age 55, all the accumulated interest or dividends are subject to interest income tax. Funds are invested in three types of products – securities offering dividends linked to performance, variable interest rates or fixed interest rates. The benefit is typically paid in the form of a term certain annuity of at least five years. Anecdotal evidence suggests a typical contribution of 2-5 percent of salary but reliable information is not available. As shown in Table 3 below, by June 1996, the total value of these accounts was estimated at 10.8 trillion won or almost 3 percent of GDP. Surprisingly, the tax authority does not estimate the tax expenditure involved (see paragraph 26 on tax treatment below).

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9 In 1993, the National Pension Act in Korea (Article 75 (6)) was amended to require employers to pre-pay a portion of this retirement allowance (2% of wages between 1995 and 1997; 3% from 1998) to the NPS. Employers could reduce retirement allowances by the transferred amount – i.e., for every year of service, a worker would receive 5.33% (the prescribed 8.33% less the transferred 3%) of final monthly wage.

10 See Musalem (1999).
25. These accounts were supervised as part of financial sector supervision of the institutions involved. Life insurance companies have dominated this market in terms of new accounts as well as assets under management. There are no separate investment regulations although the assets are supposed to be segregated. The new, unified regulator, the Financial Services Supervision (FSS) is currently in the process of determining the supervisory strategy for all financial products including this one. Financial supervision in Korea has been lax and many of the institutions that offer this product are fragile or even insolvent. New international accounting standards and governance must be put into place before this voluntary retirement savings vehicle can be considered a useful part of overall public pension policy.

(In trillion won)

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Banks</td>
<td>1.1</td>
<td>2.1</td>
<td>2.7</td>
<td>n.a.</td>
</tr>
<tr>
<td>Insurance Companies</td>
<td>0.9</td>
<td>4.0</td>
<td>5.9</td>
<td>4.3</td>
</tr>
<tr>
<td>Investment Trust</td>
<td>0.4</td>
<td>1.4</td>
<td>1.9</td>
<td>n.a.</td>
</tr>
<tr>
<td>Friendly Societies</td>
<td>0.1</td>
<td>0.35</td>
<td>0.45</td>
<td>n.a.</td>
</tr>
<tr>
<td>Total</td>
<td>2.5</td>
<td>7.8</td>
<td>10.8</td>
<td>n.a.</td>
</tr>
<tr>
<td>As Percent of GDP</td>
<td>0.8</td>
<td>2.2</td>
<td>2.8</td>
<td>n.a.</td>
</tr>
</tbody>
</table>

Source: Korea Insurance Development Institute.

Tax Treatment

26. Public policy also affects pension provision through the tax system. Most OECD countries exempt contributions (up to a certain level) and investment returns to encourage long-term savings for retirement and tax benefits when they are paid. This is known as EET treatment (exempt, exempt, taxed) because the first two stages are exempt while the final stage is taxed. As shown in Table 4 below, Korean tax treatment applies different tax treatment to different parts of the pension system. In the case of the retirement allowances special exemptions results in a very low effective tax rate.

27. The impact of tax treatment of different savings instruments on individual savings behavior had not been the subject of much research in Korea. Chun (1999) uses a multivariate analysis of household data to test the private savings impact of the personal pension plans and their favorable tax treatment. His results are consistent with the economic literature from other countries, particularly the United States, which find a change in the composition but not in the level of savings due to preferential tax treatment.

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12 Based on information provided by the Income Tax Authority.
13 See for example, Poterba, Venti and Wise (1990).
Table 4. Tax Treatment of Pension in Korea as of 1998

<table>
<thead>
<tr>
<th>Scheme</th>
<th>Contribution</th>
<th>Returns</th>
<th>Benefit Payment</th>
</tr>
</thead>
<tbody>
<tr>
<td>National Pension Scheme</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- employers</td>
<td>exempt</td>
<td>exempt</td>
<td>exempt</td>
</tr>
<tr>
<td>- employees</td>
<td>taxed</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- self-employed</td>
<td>40% exempt up to 720,000 won p.a.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Occupational Schemes</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- employers</td>
<td>exempt</td>
<td>exempt</td>
<td>exempt</td>
</tr>
<tr>
<td>- employees</td>
<td>taxed</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Retirement allowances</td>
<td>50% exempt¹</td>
<td>not applicable</td>
<td>taxed at low rate;</td>
</tr>
<tr>
<td></td>
<td>100% insured</td>
<td>exempt</td>
<td>varies by amount</td>
</tr>
<tr>
<td></td>
<td>is exempt</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Individual Pension Plans</td>
<td>40% exempt up to 720,000 won p.a.</td>
<td>exempt</td>
<td>exempt</td>
</tr>
</tbody>
</table>

¹/ The 50% refers to book reserves limited to 10% of total wage bill. The 100% refers to insurance premium.
2/ Penalties apply for withdrawal before age 55 and/or 10 years of contribution.

28. Estimates of the magnitude of tax expenditures on mandatory or voluntary pensions are not available in the Government accounts. There are no published data on the total number of personal pension plans that now exist or the type of individuals that purchase them. The number of personal pension plan holders is thought to be in the millions. From a public policy perspective, it would be useful to know the incidence of the tax expenditures by income group and age. In the future, the Financial Services Supervision (FSS) is the entity best placed to keep track of this tax-favored retirement vehicle.
II. ANALYSIS OF MANDATORY RETIREMENT SCHEMES

29. The last section outlined the main mechanisms for generating income during old age in Korea. It was noted that most older persons in Korea today, especially those in the lower income strata, depend on their own earnings, family support and social assistance. A relatively small proportion of this generation rely primarily on government mandated pension schemes for income during old age.

30. This is because until recently only Government employees, teachers and the military were covered under public pension schemes. The only mandatory retirement scheme covering private sector workers was the retirement allowance program. This was mandatory for firms with more than 10 employees and later, for firms with five or more employees. The retirement allowance benefits provided differential coverage depending on working patterns and none to the large number of self-employed workers. After the introduction of the National Pension Scheme (NPS) in 1988, these workers were covered by two programs. In the late 1990s, the rural and urban, self-employed workers were added to the NPS membership. Retirement allowances do not cover these workers, however.

31. This section looks at the mandatory schemes. The assessment focuses on two criteria – the direct impact on members of the schemes and the indirect impact on the economy. Included in the latter set of considerations is the impact on fiscal policy and the efficiency of labor and capital markets.

National Pension Scheme and Retirement Allowances

32. Target Benefit Levels and Redistribution. A pension scheme can smooth lifetime consumption to avoid a sharp decline in living standards during old age. One way to express this target is the ratio of pension income to previous earnings, i.e., the replacement rate. Defined benefit schemes apply formulas, which typically target a certain replacement rate for workers who spend their entire careers making contributions. Defined contribution schemes set contribution rates at levels that are likely to produce a target replacement rate under reasonable assumptions about the investment return and costs. After retirement, the relative value of the benefits in either type of scheme depends on the way the annuity is indexed. These two parameters - the target replacement rate and the form of indexation of the benefit – are key policy choices for any pension system.

33. In Korea, the targets for public policy purposes are not well defined. Mandated retirement income levels vary by age cohort and type of worker. The variation over time is due to the fact that as the NPS matures the total replacement rate increases. The differences amongst workers within the same cohort are due to main factors: First, the self-employed do not have retirement allowances while workers in firms are covered both by this mandate and the NPS. Second, the NPS benefit formula is progressive by design. In other words, it provides a higher replacement rate (and therefore higher internal rates of return) to workers with lower lifetime incomes.

34. In order to illustrate the differences across age groups, Figure 4 shows the benefits provided by the two schemes for average wage workers retiring between 2010 and 2040. Note that the hypothetical retirement allowance is converted to an annuity and expressed
as a replacement rate. The annuitized retirement allowance is assumed to be price indexed to facilitate the comparison. Older workers that have not withdrawn retirement allowances during their careers can count on a lump sum payment equivalent to one month of final wage per year of service. Meanwhile, the NPS benefit for the same worker is calculated with a formula that applies an accrual rate of 1.75 percent through 1998 and 1.5 percent after this time. A Korean worker aged 50 in 2000 with 35 years of service would receive benefits of roughly equal magnitude from each of the two schemes. As the NPS matures however, workers will have spent more of their careers covered by the NPS. By the time workers entering the labor force in 1990 retire with full NPS benefits, the ratio of NPS benefits to retirement allowances will be 2:1.

35. This change in the composition of mandated retirement savings is accompanied by an increase in overall replacement rates generated by the two schemes over time as shown below. For example, the combined benefits of the two programs for a worker with 35 years of accrued rights would produce a replacement rate of around 85 percent of his final salary. Given the current tax treatment of pension benefits, the effective net replacement rate is even higher. This is an extremely high target replacement rate by international standards.

Figure 4. Replacement Rates for Korean Workplace Employees, 2010-2040

Note: Calculations based on male worker with average lifetime earnings path and 35 years of credited service.

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14 Most workers take their retirement allowance benefit as a lump sum payment since annuitization is not mandatory.
15 The lower rate was introduced as of January 1, 1999 through changes to the National Pension Act. These changes were not retroactive, however.
36. The rising NPS benefits will have to be financed by higher payroll taxes. Younger Korean workers will receive higher benefits than their predecessors, but they will also pay contributions for more of their working lives. And in order to maintain target funding levels, the tax rate would have to double over the next three decades. Future generations will pay much more for the same benefit and therefore will receive a lower rate of return on their NPS contributions.

**Figure 5. Internal Rates of Return in National Pension Scheme Members Retiring Between 2030 and 2080**

![Graph showing internal rates of return](image)

Notes: Assumes that contribution rate is increased to 17.25 percent by 2032 which is the estimated rate required to avoid deficits through 2080. Returns are for average wage workers with 35 years of credited service in the NPS. Source: World Bank staff calculations.

37. Intrageneral transfers – different rates of return to members of the same age group – are also common in public, defined benefit schemes. These transfers are often the result of intentional policies to redistribute to those with lower lifetime incomes within the earnings related system. In the United States, for example, the benefit formula is progressive with higher replacement rate coefficients applied to those with lower lifetime earnings. In other countries, minimum pension levels achieve the same result by effectively increasing the replacement rate of workers with lower lifetime earnings.

38. In the case of Korea, intrageneral redistribution is achieved through a formula which has two components. The first component multiplies the accrual rate by the average economy-wide wage while the second is applied to the workers own indexed earnings. The reform of the NPS at the end of 1998 reduced the progressivity in the benefit formula by reducing replacement rates more for lower income workers as shown in Table 5.
Table 5. Effect of 1998 Changes to National Pension Act on Replacement Rates, by Lifetime Income Level

<table>
<thead>
<tr>
<th>Lifetime Income Level</th>
<th>Old Formula</th>
<th>New Formula</th>
<th>% change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average wage</td>
<td>70%</td>
<td>60%</td>
<td>-14.3%</td>
</tr>
<tr>
<td>150% AW</td>
<td>57%</td>
<td>50%</td>
<td>-11.8%</td>
</tr>
<tr>
<td>50% AW</td>
<td>110%</td>
<td>90%</td>
<td>-18.2%</td>
</tr>
</tbody>
</table>


39. Despite this change, progressivity remains and for workers with lower than average lifetime wages, the first part of the formula produces a higher replacement rate than would have been achieved if their own earnings had been used in the calculation. Another way to express this difference is by calculating the internal rate of return provided by the formula to different workers. As shown in Figure 6 below, lower income workers receive a higher rate of return, other things constant.16

Figure 6. Intragenerational Redistribution in the NPS Internal Rate of Return by Income Level

Notes: Low income/High income = 60%/150% of average wage, respectively. A worker with rising income has a steeper age earnings profile than the average worker.

16 Some analyses of intragenerational redistribution in public DB schemes in the US and elsewhere find that much of the progressivity is offset by an inverse correlation between mortality and lifetime income. This relationship reduces the value of the annuity to lower income workers as well as the internal rate of return of the scheme.
40. Finally, as mentioned at the outset, target benefit levels also differ because some workers are not covered by the retirement allowances scheme and in practice, many of those that are covered avail themselves of the opportunity to withdraw funds, especially if they change jobs. As a result, the effective level of retirement savings varies widely across the labor force. The salient outcomes from the current system from the perspective of covered workers in Korea are the following:

- the NPS formula includes a progressive element that results in higher replacement rates for lower income workers
- mandated levels of retirement savings vary significantly across the labor force
- mandated retirement savings for Korea’s younger workers covered by both the retirement allowance program the NPS result in extremely high replacement rates
- the youngest workers and future generations will experience steadily declining rates of return on their NPS contributions.

41. **Financial Viability and Risks to Members.** In 1998, the risks of both private and public retirement schemes in Korea became more apparent. The replacement rate promised by the NPS only ten years earlier was reduced by 15 percent. Retirement ages increased, further reducing annuity values, at least for younger workers. These measures may have improved the long run sustainability of the NPS, but they also highlighted the risks associated with overly generous Government promises. Benefit reductions of this kind are common in more mature OECD pension schemes but unlike Korea, usually occur once reserves have been exhausted and the system has reached a crisis. These are laudable changes that reflect the desire of Korean policymakers to correct past mistakes. On the other hand, major changes to a scheme that was just starting to pay benefits was an early blow to the credibility of the public pension promise.

42. How safe is the NPS promise after the recent reform? The record in other OECD countries including a long list of partial defaults and cutbacks is not encouraging. It suggests that “policy risk” is significant in the most advanced economies. On the other hand, the current policy of prefunding has the potential to reduce pressures to cut benefits later by reducing the size of the intergenerational transfer relative to a pure pay-as-you-go scheme. As discussed below however, partially-funded defined benefit schemes run by governments have performed badly and may not actually contribute to national savings.

43. The lack of funding for retirement allowances has exposed their vulnerability. In the midst of the recession, with unemployment and bankruptcies reaching historical levels, many firms were not in a position to pay the benefit mandated by law. The Government reacted by establishing the Wage Guarantee Fund in July 1998. This fund is managed by the Minister of Labor and financed from a 0.2% tax on the wage bills of firms covered by the retirement allowance mandate. In the case that an employer cannot meet his obligations, the Guarantee Fund pays the retirement allowance to the worker subject to a limit of three months of wages.

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17 The recent benefit cuts in the Japanese public pension scheme are the most recent example.
18 See for example, McHale (1998).
44. Korea’s Labor Law requires employers to pay every worker who has been employed for one year or more, a minimum retirement allowance of 30 days (8.33%) of the worker’s average wage for every working year. Employers often promise to pay more than this mandatory minimum. The retirement allowance can be paid as a lump sum before retirement based on a period of continuous employment. If this option is chosen, the accumulation of new rights begins again from zero. Employers are required to pay this allowance within 14 days upon termination of the worker. There is no specification under the Labor Standards Act on the method of payment – cash, in kind compensation (e.g., marketable and non-marketable securities), or otherwise. A maximum fine of 20 million Won or imprisonment of up to three years may be levied on any employer failing to pay the required benefit.

45. There is no legal requirement mandating employers to register the liability associated with the retirement allowance on their balance sheet. However, many employers take advantage of favorable tax treatment accorded book reserves for these liabilities. Up to 50 percent of the total liability (or as much as 10% of total wage bill) is tax deductible through the book reserve method. Tax deductibility for the other half of the liability is possible if a policy is opened with an insurance company to cover the liability. Regulators claim that it has been common practice to establish such contracts with the proviso that funds are then lent back to the firm. This practice, along with the troubled state of the insurance sector in the wake of the recent crisis, threatens the security of even the funded portion of the program.

46. In short, retirement allowances are at risk, both because the sponsors may not be able to fulfill the obligations even when they appear as liabilities on their balance sheets and because the form of funding that has been used historically does not diversify the assets of members. Instead it is often recycled back to the firm for use as working capital. The ad hoc Government guarantees cover only a small fraction of the benefit for most workers. Finally, the legal requirement to pay these lump sum benefits to workers leaving a firm will undoubtedly make restructuring more difficult.

47. The Financial Services Supervision (FSS) has recently introduced regulations designed to improve the transparency and reliability of the funding through the insurance sector. From October 2000, the old insurance product for funding retirement allowances, the Employee Severance Plan (ESP) will be disallowed in favor of the Retirement Insurance Plan (RIP). This represents a small improvement by introducing clearer funding standards and allowing for annuity options. However, funding is not mandatory and a large portion of the preferential tax treatment can still be obtained through book reserves.

48. Improved funding rules are especially important in light of the problems faced by the institutions that offer pension products. As already noted, most of the insurance

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19 Article 34 of the Labor Standards Act.
20 Average wage is defined as the average of the wages received during the three calendar months preceding the calculation of the allowance payable.
21 According to the FSS, as of June 1999, the reserves backing the ESP policies amounted to about 14.3 trillion won or 11.9 billion US dollars. The RIP was introduced in April of 1999 but demand has not been great given the greater flexibility for employers offered by the old ESP product that still receives favorable tax treatment.
sector continues to suffer from severe financial strains. In addition, there are now plans to allow other financial institutions sell “corporate pension” products including the problematic investment trust companies. The small section of the FSS responsible for regulating retirement allowances along with the unit responsible for insurance regulation are aware of the problems. However, their resources are extremely limited and there is no oversight being exercised at the moment. They recognize that the introduction of the RIP is a small and partial step towards the required solution – the conversion of retirement allowances into a funded corporate pension scheme with international funding standards and accounting, segregated from sponsors balance sheets so that promised benefits will be secure.

49. Fiscal Implications of the NPS. As mentioned earlier, the NPS is currently running large surpluses of almost two percent of GDP. Therefore, in the short run the main implication for public finances is the availability of a potential source of financing for other Government activities. During the first ten years of the system, the Government managed to do this by borrowing from the NPS reserves directly. In fact, by the late 1990s, two thirds of the surpluses were automatically earmarked for this type of lending.

50. In 1998 changes to the Public Funds Management Act (PFMA) phased out this automatic mechanism for channeling NPS surpluses to the central Government. Automatic lending through the PFMA would be phased out by 2001 and old loans would not be rolled over. However, these changes and parallel amendments to the National Pension Act do not preclude the continuation of this practice on a discretionary basis. Specifically, the Ministers of Finance and Health can agree to loan NPS surpluses to the central Government without actually purchasing government debt on the market. The main restriction is that these loans must earn an interest rate at least equivalent to the yield on one-year treasury bills. During the transition period, the return credited must match that of a five-year government bond.22

51. The fiscal implications of a partially funded public pension scheme are not straightforward. It is possible for instance, that government consumption increases when these reserves are available to finance government deficits even if this is not the explicit policy of the government. This is largely due to flaws in fiscal accounting that focus on cash flow deficit concepts without taking into account the growth of pension liabilities. When fiscal policy targets are set with regard to the consolidated budget deficit (including the social security system) and when that deficit is reduced because of public pension surpluses, spending on other programs will be higher than it would have been had there been no pension surpluses. In other words, it is very possible if not likely, that the policy of prefunding the NPS will not have the desired positive impact on national saving, but rather will lead to higher government consumption.

52. This important point was made by a number of prominent economists analyzing the emerging surpluses of the US Social Security program in the late 1980s.23 The

22 "But in case the fund is deposited in Public Capital Management Fund by the Public Capital Management Fund Law in the item 2 of the Paragraph (2), the profit must be determined at a level of more than the interest of national bond matured in 5 years by mutual agreement between Minister of Health and Welfare and Minister of Finance and Economy, by the Article 7-2 of Public Capital Management Fund Act." (Amended by Law No. 5623, Dec. 31, 1998)

magnitudes involved (as a share of GDP) and the practice of lending the funds back to the central budget are similar to the current situation in Korea. One of those analysts was James Buchanan who described the scenario in which a comprehensive deficit target is used but the public pension program is running surpluses as follows:

"...suppose that the comprehensive budget was in deficit...but that medium range legislative targets were established to reduce and then eliminate the comprehensive budget deficit...In this case, surpluses in the social security account allow the deficit reduction targets to be satisfied, while still allowing for increases in the non-social security deficit. Much the same results emerge under any scheme for deficit control that uses balance or imbalance in the comprehensive budget as a criterion for policy achievement. As a final example, suppose that a decision is made to keep the relationship between the measured comprehensive budget deficit and the gross national product constant. Again, satisfaction of this norm would allow non-social-security deficits to increase during the period of trust fund accumulation."

53. The consequences are clear: If the additional spending induced by the availability of these surpluses takes the form of government consumption, there will be no induced increase in the rate of private capital formation in the economy. There will be no direct or indirect “funding” of the future pension obligations. In other words, as long as the Korean Government focuses on targets based on the standard definition of its budget deficit – which includes NPS revenues - the intergenerational fiscal burden does not improve through this type of prefunding.

54. The NPS will continue to run surpluses for the next three decades. These surpluses are projected to grow during the first half of this period due to the gradual expansion of coverage, which is assumed to peak by 2040. The important question from the perspective of aggregate savings and growth as well as for intergenerational equity, is to what extent these surpluses will actually be invested productively in the Korean economy. The scheme will then start to run cash flow deficits at about the time that today's labor market entrants retire. The repayment of the debt owed by the central Government to the NPS will start to take place much earlier. Unless the past borrowing from the NPS had generated a higher growth path for the economy, the debt will have to be financed either by more borrowing (this time on the market), by cuts in government spending or by higher taxes.

55. By the time the scheme fully matures, the deficits would stabilize at more than 6 percent of GDP as shown below in Figure 7. A more likely scenario is that contribution rates will rise or benefits will be cut, or both. A recent proposal by the National Pension Corporation for example, would preclude deficits until at least 2070 by increasing the contribution rate gradually until it reached 17.25 percent in 2033. Raising contribution rates this much would certainly help balance long run NPS finances. However, it would almost double taxes on labor in Korea. This would make it more difficult to achieve the coverage expansion assumed in Figure 8 since the incentives to stay out of the system would increase along with the contribution rates. For those in the system, the effects on the supply and demand of labor (depending on the incidence of the payroll tax) would distort the labor market and potentially reduce growth.

25 Ibid.
Notes: Projection assumes that coverage reaches 75 percent of the labor force by 2033. The wage bill subject to the payroll tax gradually rises to about 45 percent before stabilizing.

56. This chain of events – surpluses driven by immaturity and expanding coverage followed by rising contribution rates and pension deficits – are now a well established pattern among most industrialized countries. Box 1 summarizes the evolution of a large number of pay-as-you-go schemes that also once ran surpluses.
Box 1. Following a Well Trodden Path?: The Life Cycle of a Public Pension Scheme

Most countries made pension promises without a sober assessment of the long run financial sustainability of these schemes. As a result, a pattern of financial deterioration of publicly-managed DB schemes has been the rule rather than the exception around the world. The table below illustrates this pattern using key indicators based on data from more than 90 countries. The countries in the sample are evenly divided into three groups according to their demographic structure. The old age dependency ratio is shown in the first column. Demographically, Korea is in Stage 2 with an old age dependency ratio of 8.4% in 1997. Its main pension indicators place Korea somewhere in between Stages 1 and 2.

Life Cycle of Public Pension Schemes Around the World

<table>
<thead>
<tr>
<th>Old Age Dependency 1</th>
<th>Pensions/ GDP</th>
<th>Payroll Tax for Pensions</th>
<th>Coverage</th>
<th>Surplus to Revenues 2</th>
<th>Pension Debt 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stage 1</td>
<td>5.7%</td>
<td>0.6%</td>
<td>8.0%</td>
<td>15.7%</td>
<td>47.1%</td>
</tr>
<tr>
<td>Stage 2</td>
<td>8.5%</td>
<td>3.3%</td>
<td>13.7%</td>
<td>45.4%</td>
<td>34.9%</td>
</tr>
<tr>
<td>Stage 3</td>
<td>18.9%</td>
<td>8.5%</td>
<td>24.6%</td>
<td>89.4%</td>
<td>-19.6%</td>
</tr>
</tbody>
</table>

Note: Averages based on data from 92 countries in the late 1980s and early 1990s; Stages 1-3 represent even groupings of countries by demographic aging structure from young to old.
1/ Ratio of persons aged 65+ to aged 15-64
2/ Surpluses defined as contribution revenues minus benefit expenditures
3/ Pension debt is a stylized estimate of the accrued public pension obligations to date.

57. Under current contribution rates, the NPS reserves accumulate over time until reaching almost 50 percent of GDP (lower dotted line). In the case of gradually increasing contribution rates, the reserve would grow as large as 100 percent of GDP—a figure unprecedented in the international experience for a public pension fund. Obviously, this would raise important questions about the role of the NPS in the capital markets, corporate governance and potential conflicts of interest for the Government in its role as institutional investor and the regulator of industry and financial markets.26

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26 See Angelis (1998) for a discussion in the US context and Iglesias and Palacios (1999) for an international overview on this issue.
Figure 8. Projected Accumulation of NPS Reserves, 1999-2080

Notes: Bank staff calculations assuming gradual increase in contribution rate to 17.25 by 2033. Rate of return on investments of NPS reserves assumed equal to GDP growth. See Appendix I for assumptions.

58. **Impact on Capital Markets.** In some countries, pension funds and insurance companies play an important role in channeling long term savings to the capital markets.\(^\text{27}\) Contractual savings institutions do not take on this role in Korea for several reasons.\(^\text{28}\) First, the retirement allowance scheme is largely unfunded. The FSS estimates that only about ten percent of a gross liability of between 20 and 100 trillion won for retirement allowances in 1999 were actually backed by assets held external to the employer company. The rest of the implicit contributions required to finance this scheme either have not been set aside at all or have been set aside in external accounts and have been leant back to the firm and used as working capital. This practice not only exposes workers to considerable risk concentration as mentioned above, it also diverts funds from being more efficiently intermediated through the private capital markets.

59. This has important implications in the Korean context. For example, the growth of the liability of the retirement allowance scheme in the form of an internal debt to the firm's workers further aggravates the imbalance between debt and equity which has been the source of great problems in the corporate sector. It also complicates the process of divestment, restructuring, bankruptcy and sales to new investors. Most important

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\(^\text{27}\) See OECD (1997) for an extensive discussion.

\(^\text{28}\) Although this paper focuses on pensions, another important factor is the nature of the life insurance business. Despite assets equivalent to 22 percent of GDP in 1997, most of the business (more than three fourths) of Korean life insurance companies took the form of saving products while almost half of the assets were loans. Securities represented only 7-8 percent of assets of the insurance sector during the 1990s. See Kim and Park (1999).
perhaps, is the opportunity cost that arises from not having provided liquidity and long
term financing to the private capital markets in Korea.

60. Another reason for the minimal impact of contractual savings institutions on the
capital markets is that while the NPS has amassed significant reserves (more than 10
percent of GDP by 1999), less than one third has been available for investment after the
automatic lending to the central budget. Less than five percent is invested in private
securities. A small share (about four percent) is also invested in social welfare projects.
(There are no foreign assets in the NPS portfolio.) This pattern has held over a number of
years and is not a reaction to the recent developments in Korea’s capital markets. Instead
it is the result of an investment policy that has channeled the bulk of accumulated
surpluses to the Ministry of Finance in the form of direct loans. Not surprisingly, the rate
of return to investments has been roughly the same as that of one year t-bills since the
scheme’s inception.

61. Measures which diversify the portfolio’s risk (both in terms of products and
originators) could have a beneficial impact on capital markets. The lack of funding in
the retirement allowance scheme and the tendency of the NPS scheme to lend most of its
reserves to the Government have together meant that these contractual savings vehicles
have had little positive impact on the development of longer term savings instruments
(e.g., long-term bonds, mortgage-backed securities) and the depth of capital markets.

62. There is evidence of the positive effect of contractual savings on capital markets
development. In OECD countries, correlations were found between contractual savings
and depth, as measured by the ratio of market capitalization to GDP, and liquidity, as
measured by the ratio of the volume traded to GDP\(^2\). Because contractual savings
represent an illiquid asset to the insured, increases in such contractual savings will likely
result in reductions of other illiquid assets (e.g., real estate, jewelry, non-traded
securities) in favor of liquid assets (e.g., money, traded securities). This will reinforce
the portfolio decision of contractual savings institutions in favor of holding tradable
securities (bonds and shares), thus promoting the development of capital markets. With
greater depth of term fixed-income financing and equity, firms are better able to match
such financing to riskier investments. At the margin, investment can then be financed
which otherwise would not be. These investments command a higher rate of return and
should accelerate growth\(^3\).

savings (long-term liabilities either unfunded or backed by short-term assets) limits the
ability of Korea’s economy and financial system to withstand macroeconomic shocks or
fluctuations. Korea’s financial crisis resulted, to a significant degree, from excessive
term transformation undertaken by financial institutions, and excessive dependence of
enterprises on short-term debt as opposed to long-term debt and equity. This financial
structure places firms in a very vulnerable situation relative to macroeconomic shocks
such as increases in interest rates and weak domestic markets. Furthermore, over-
reliance on short term finance expose debtors to problems of rolling over of their debt,
which frequently leads to widespread insolvency and bankruptcies. A financial system

\(^{29}\) Musalem and Catalan (forthcoming).
\(^{30}\) Levine and Zervos (1996).
which mobilizes primarily short term funds is exposed to undertaking excessive term transformation risk. On the contrary, a financial system with a more balanced funding structure would not need to expose itself to market pressures and undertake excessive term transformation risks. The menu of instruments that would be available in the market would best suit the multiple demands for funding from the real sector and Government. Furthermore, contractual savings provide governments with long-term finance at market terms which allow them to lengthen the maturity of public debt. Finally, contractual savings lock in these resources in a way that prevent asset holders from engaging in large speculative foreign exchange transactions.

64. The share of contractual savings to financial assets (contractual saving plus money and quasi-money) is an important indicator of financial sector resilience. Chile, South Africa, Netherlands, United Kingdom, United States, and Canada, among other countries, have a share of contractual savings to total financial assets greater than 50 percent. In contrast, the share of contractual savings to total financial assets in Korea is about 35%. Contractual savings could be utilized as a vehicle to assist in the development of longer term financial instruments and therefore increase financial resilience in Korea.

**Government Employees' Pensions**

65. The special pension scheme for Government employees covers all public servants in the central and local governments including judges, policemen, railroad workers and public school teachers. Although the scheme started in 1960, its current administration under the Government Employees Pension Corporation (GEPC) dates to 1982. In 1999, there were 988 thousand contributors and 73 thousand pensioners in the scheme.

66. As mentioned in the first section, the scheme promises more generous benefits than its private sector counterpart and allows for earlier retirement. The benefit is equal to 50 percent of final year salary for 20 years of service plus 2% of final salary per year of service up to a total of 33 years, or a replacement rate of 76 percent of final salary. A retirement allowance benefit equivalent to 60 percent of monthly final salary per year of service is provided separately. The pension is indexed to public sector wage growth.

67. Unlike the NPS, the benefit formula applied for Government employees is not progressive. Nevertheless, while there may not be any intentional redistribution to lower income members of the scheme, the use of final earnings rather than lifetime average earnings may introduce an element of regressive redistribution. This is likely since Government employees with steeper age earnings profiles are also those with higher lifetime incomes.

68. Since 1970, the contribution rate that is paid by both employees and the Government has risen from 5.5 each to its current level of 7.5 percent each. Despite this increase however, the reserves that had been accumulated have been dissipated and the scheme began to run deficits in 1999. This has forced the GEPC to borrow from the

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31 Given their similarity in benefit structure and financing, much of the analysis of the Government employees' scheme is valid for the smaller scheme for teachers, although the latter matures somewhat later.

32 The government covers disability and death from the central or local budget as well as educational loans that are sometimes provided to government employees (GEPC 1999).
Government. From a fiscal perspective however, the result is a larger deficit for the consolidated budget. In the future, these deficits are projected to grow dramatically as shown in Figure 9 below.

**Figure 9. Deficits in Government Employees' Pension Scheme, 1999-2080**

![Graph showing deficits in government employees' pension scheme from 1999 to 2080.](image)

Source: World Bank staff calculations.
Notes: Assumes civil service employment remains constant as a share of labor force.

69. One factor driving up the costs of this scheme is early retirement. This is encouraged because there is no accrual after 33 years. Current workers can retire after only twenty years of service with a partial pension and there are cases of retirement before age 50. Although a minimum retirement age of 60 was introduced for new government employees, they will still be able to retire earlier than their private sector counterparts since the NPS retirement age will eventually reach 65. The projected deficits peak at three percent of GDP around 2030 when new retirement age restrictions begin to have an effect.

70. The benefit formula is also heavily backloaded - i.e., benefits accrue more rapidly toward the end of the career - discouraging labor mobility. This tendency is reinforced by the lack of portability of benefits between the public and private sector schemes.

**The Need for Reform**

71. The Korean Government has mandated retirement savings schemes that now cover almost sixty percent of the labor force. The target benefit levels however, differ across workers. For private sector employees in larger firms - about half of covered workers - the total benefit target may be too high for the younger cohorts. This would be true even in the case of a worker that withdrew half of his RA during his working life. Replacement rate targets continue to be very high for Government employees. Meanwhile the self-employed and small firms that are effectively covered by the NPS have much lower target benefit levels (exacerbated by underdeclaration of income).
There does not seem to be any public policy rationale for different benefit levels illustrated in Figure 10.

Figure 10. Replacement Rates of Mandatory Schemes by Type of Worker

Note: Worker with average wage in every period retiring in 2040 after 35 years of service.

72. The cost of these mandates is quite high. The combined burden of financing retirement allowances and paying long run NPS contributions could rise to more than 25 percent of the covered wage bill or more than ten percent of GDP. Alternatively, the NPS contribution rate could be held at current levels and deficits could be allowed to rise. In this case, the combined pension deficit of the civil servant's scheme and the NPS (without increase in contribution rates) would reach 5-8 percent of GDP after 2030.

73. Despite a policy of partial funding of NPS obligations, the present value of liabilities accrued to date minus existing assets is about 30 percent of GDP. Another 25 percent of GDP can be added to this to account for the present value of the stream of deficits in the Government employees scheme. This yields a rough estimate of the total implicit pension debt of 55 percent of GDP. Finally, as mentioned earlier, the unfunded retirement allowance mandate for employers is estimated at between 10 and 20 percent of GDP. In other words, the pension debt in Korea is larger than the conventionally defined public debt.

74. To the extent that funding has occurred, it has been undermined by a government that channels contributions back to the budget and employers that have used the funds for working capital. In both cases, the allocation of capital lacks market discipline and probably does not result in an efficient flow of funds to the most worthwhile investments - i.e., those with the best risk-adjusted returns. As mentioned above, it is also likely that

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33 This refers to the gross termination liability or accrued to date concept as opposed to a net liability which would take into account future revenues and spending.
the Government has increased its consumption in response to the availability of this
captive source of credit, undermining the rationale for prefunding itself.

75. In sidestepping the capital markets, the benefits of increased liquidity and greater
demand for equities was lost. The same can be said for the demand for long term bonds
and other financial instruments. The potential for institutional investors to exercise
corporate governance – a crucial issue in Korea and much of East Asia – was also
missed. On the other hand, many of these healthy effects – observed in a competitive
environment with many investors - would be lost in a setting dominated by a single,
monopoly institution.

76. Pension reform in Korea offers a “win-win” solution whereby strengthening
financial markets mutually reinforces social protection as follows: (i) Well regulated and
supervised contractual savings institutions and instruments contribute to the incentives
for employers and employees to comply with mandatory contractual savings
requirements as well as to mobilize voluntary pension contributions. This creates the
foundation for both old-age income protection as well as creates a resource pool for
social protection of the elderly; (ii) The same supervised instruments create a stronger
menu of options available for the individual to manage social risks such as death and
disability; (iii) By increasing the risk-adjusted rate of return to public and private pension
funds, such funds can better provide basic income protection for the elderly, including
the poor elderly; (iv) To the extent that contractual savings contributes to growth, such
growth can help to reduce poverty; and (v) Since development of contractual savings
improves the resilience of the economy and financial sector to shocks, it mitigates the
extent of crises and thereby reduces their negative effect on employment.

77. To summarize then, the main conclusions of this analysis are as follows:

- Replacement rate targets for a large portion of the labor force are too high.
  They cannot be afforded without a high level of distortions through high
  payroll taxes.
- There are differences in target retirement benefits for different kinds of
  workers – self-employed, large firms, Government employees – that are not
  justified by any public policy rationale.
- A large unfunded liability has already been accumulated in the NPS, the
  retirement allowance program and the Government employees scheme. These
  liabilities will continue to grow and to threaten the security of pension
  promises, especially in the retirement allowance program where sponsor risk
  is high.
- If the retirement allowance program is to remain an important element of the
  system, it will be necessary to make secure it through adequate, segregated
  funding and regulation to protect workers’ rights.
- Reforms are needed to establish target benefit levels for all Korean workers
  based on clear criteria, ensure long term financial solvency of each program,
  improve the impact on capital and labor markets and harmonize the role of
  public and private pension provision.

78. In the next section, we present concrete policy alternatives to address these issues.
III. OPTIONS FOR REFORM

79. As noted earlier, the problems of the elderly today in Korea cannot be addressed by existing retirement savings schemes. In the short run, the only option available to the Government is increased spending on social assistance programs targeted to the elderly. The available evidence shows that the old – especially very old women – were somewhat poorer than the rest of the population before the crisis and that social assistance expenditures were low and reached a small number of these individuals. While further studies are needed to assess the impact of the crisis, greater spending (as a share of GDP and/or total social expenditures) on income-tested benefits to the old seems warranted, at least on a temporary basis.\(^3\)

80. This section concentrates on the options for long run reforms of Korea’s pension system that will affect today’s workers. The first approach is partial reform that does not fully address the high costs that characterize a large part of the system. Nevertheless, partial reform would provide important benefits. The objectives would include (i) improving the way retirement allowances and NPS reserves are managed in order to reduce risk to workers while promoting the development of the capital markets and (ii) reducing future deficits in the Government employees pension scheme.

81. The second approach is a systemic reform that addresses all of the major issues highlighted in this paper. This reform phases in a balanced system of private and public provision and reduces target replacement rates for today’s younger workers to more affordable levels. The systemic reform would also subsume future Government employees into the new framework and harmonize target benefit levels for different types of workers.

82. Prior to describing these two reform approaches, it is useful to look at previous efforts at pension reform in Korea and the evolution of policies in this area.

Evolution of Pension Policy in Korea

83. The National Welfare Pension Act was originally promulgated in 1973 but was delayed due to the crisis arising from the oil price shock in the mid-1970s. In the early 1980s, the debate seems to have centered on the question of integration of the retirement allowance system. Unions were not keen to give up hard-won benefits in exchange for a new public pension scheme while employers insisted that the overall burden of labor costs should not be significantly increased.\(^3\)

84. In 1988, the National Pension Act established a scheme that covered all firms with more than 10 employees. The compromise reached did not integrate the retirement allowances into the new pension scheme. Instead, the mandated minimum liability of employers was reduced by an amount equivalent to 2 percentage points, which was then

\(^3\) In February 1999, the government announced increased spending on nursing homes (and old age allowances (social assistance for the elderly). These increases would be phased in over a three year period. Korea Times, February 23, 1999.

\(^3\) Fisher (1980) notes that, “...renegotiation of existing retirement allowances will be a condition for employer consent to the implementation of the seven-year old National Welfare Pension Law. The unions are unwilling to lose Article 28...”
diverted into the coffers of the NPS. The diverted contribution rose to 3 percentage points in 1998 with minimum mandated retirement allowances reduced accordingly.\(^{36}\)

85. The NPS was designed to run significant surpluses during the early years. Analysts quickly pointed out that even under scheduled increases in the contribution rate this funding would not be sufficient to guarantee long run sustainability. This objective would be threatened further if Government direction of pension fund investments reduced assumed rates of return. Some Korean experts also criticized the management of the reserves.\(^{37}\) Over time, the allocation of funds to the public sector projects grew from 50 to 65-70 percent during the 1990s. Some analysts even claimed that the Government had set up the scheme in order to gain access to a significant pool of funds with which to fund its public works projects.\(^{38}\)

86. Early analyses also recommended that the special schemes for Government employees, and teachers be integrated within the new system.\(^{39}\) It was pointed out that there was no particular reason to target higher replacement rates for Government employees and teachers. Concerns were also raised regarding the lack of redistribution in these schemes. Finally, problems with labor market mobility were cited.

87. The failure to clearly integrate the retirement allowance mandate into the new system was also cited as an urgent issue to be resolved. Min’s observations regarding the diversion of part of the employer contribution from the allowance scheme to the NPS and the incompleteness of the reform still ring true a decade later\(^ {40}\):

"...this may bring about confusion because there is no criterion provided for the computation of the remaining amount of retirement payments. On the other hand, it is desirable for a company’s own retirement payment system to be developed voluntarily and independently from the company’s own lump-sum refund system...However, without any measures for the improvement of established systems, it is very difficult to secure a complementary relationship between public and private systems."

88. National Pension Reform Board of 1997. Fewer than ten years after the implementation of the NPS, the National Pension Reform Board (NPRB) was convened to deal with many of these unresolved issues. The NPRB was asked to recommend measures that would provide long term financial sustainability, address the potential problems of extension of coverage to the urban self-employed, provide methods of efficient management of reserves, coordinate links with the occupational schemes and design policies to address those elderly citizens who would not be covered by the NPS. One issue that would not be addressed however, was that of the retirement allowances. Representatives from the major trade unions, cooperatives, academics and researchers as well as journalists participated along with numerous task forces at the working level. The NPRB held 13 conferences and 9 meetings of the Special Committee during 1997.

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\(^{36}\) This reduction in the employer’s liability is vaguely defined in Article 75 of the National Pension Act.

\(^{37}\) Yoo (1993).


\(^{39}\) Yoo (1993).

\(^{40}\) Min (1988).
89. The NPRB produced a detailed report that included financial projections of three reform alternatives. While certain measures were agreed, the three proposals that emerged differed substantially. The first proposal entailed scaling back the existing benefit formula. The second proposal would have split the scheme into a basic pension and an earnings related pension in addition to reducing the target benefit. Finally, a third proposal would have instituted a system of funded, individual, defined contribution accounts. The last two proposals would have opened the possibility to private management of the funds, although these plans were not fully elaborated.

90. The final recommendation of the majority advocated the second proposal. The most notable proposal was the reduction in the target replacement rate for average wage workers with full contribution histories from 70 to 40%. This figure was based on the desire to prevent an excessive increase in the required contribution rate. The contribution was to be maintained at current levels until 2010 and would eventually rise to 12.65% by the year 2025. Simultaneously, control of the investment policy of the pension reserves was to be removed from the central Government (and in particular, the Ministry of Finance). If the assumed improvement in returns took place, the revamped scheme would be financially sustainable through the year 2080.

91. It is interesting to note that the recommended reform was partly justified on the basis that it would be conducive to future contracting out in the private sector:

"It will be easy to link the National Pension with occupational pension systems when the latter proliferate. It would be possible to have a "contracting out" system which is similar to that of the United Kingdom in respect of the earnings-related pension."

92. In contrast, the minority opinion recommended a much higher replacement rate of 50-60 percent to be financed from higher contribution rates. Some accepted the split between basic and earnings related portions while others wanted to maintain the unified benefit. The minority also recommended that the Chairman of the fund management committee should be the Minister of Health and Welfare rather than the Minister of Finance.

93. Amendments to the National Pension Act in 1998. The NPRB recommendations were not accepted. Instead, after public hearings, the Ministry of Health and Welfare issued an official apology for the poor planning which had led to a major revision to the NPS only ten years after its inception. On May 8, 1998, it submitted a new reform proposal, which includes some elements of the NPRB proposal but more closely resembled the minority view. It included the following measures:

- An increase in the retirement age to 61 in 2013 and one year every five years thereafter until reaching 65 in 2033.
- A new benefit formula, which would use an accrual rate after 1998, which generates a 55 percent replacement rate for an average wage worker.
- No separation of the redistributive from the earnings related scheme.
- Past years would be credited under the old formula.

Another supporting argument was that this type of scheme could be applied more easily to North Korean workers when unification eventually took place.

The extension of coverage to the urban self-employed in October 1998
Changes to the management of the pension reserves
A schedule of increases in the contribution rate to 16.25 by the year 2025
Portability rules for moving between the occupational schemes to the NPS
Elimination of the lump sum refund.

Many of these measures would have clearly improved the long run financial outlook for the NPS. However, they relied heavily on improvements on the revenue side of the equation and some assumptions were optimistic. For example, the legal expansion of coverage is assumed to result in almost universal effective coverage over the next two decades. Moreover, the increase in coverage rates would take place in the context of an increase in formal, labor force participation rates, helping to offset the decline in the labor force after 2025 driven by Korean demographics.

Most of the measures recommended by the Ministry of Health were eventually approved and submitted to Congress where the National Pension Act was amended on December 31, 1998. Congress did make several important changes, however. The two that stand out are (i) the target replacement rate for an average worker was raised from 55 to 60 percent and (ii) the gradual increase in the contribution rate was not legislated, although five-year actuarial reviews were mandated. Obviously, both of these changes reduced the long run actuarial savings generated by the reform measures and left the financing question open.

The 1999 Pension Reform Task Force. In the wake of the financial crisis, the World Bank became involved in various areas including the pension system. In the context of two structural adjustment loans (SALs), the World Bank advised the Korean Government to review not only the NPS, but the entire pension system. In December 1998, the Government established a new Pension Reform Task Force. It was asked to draft a White Paper that would outline an integrated pension reform strategy and serve as the basis for new legislation. The White Paper would address, among other issues,

- The role of mandatory versus voluntary pension provision
- The proportion of public versus private pension provision
- The preferred institutional arrangements for private provision
- The role of funded pension schemes as institutional investors
- A strategy for supervising and regulating private pension providers
- A strategy for funding existing retirement allowance liabilities
- The integration of the occupational schemes with the NPS
- The long term financing of the teachers and Government employees pension schemes.

These issues cut across several areas of expertise and must be addressed in the context of parallel reform efforts. For example, changes in the Government employees pension scheme must be harmonized with general reforms of the civil service. The structure and supervision of private pension funds must be determined as part of the overall strategy for financial sector supervision and regulation. A strategy for moving towards funding retirement allowance obligations must be coordinated with corporate restructuring efforts and the introduction of new accounting standards, et cetera.
98. The Task Force relies on experts from different government agencies as well as representatives from the private sector in order to perform its technical work. It has met at least twice a month during 1999 and has produced about a dozen background documents. It is scheduled to produce its White Paper in May 2000.

Reforming Elements of the Current System - Partial Reforms

99. Partial reforms in three areas could provide significant benefits. The first is the improvement of the regulatory environment for the retirement allowances program. The creation of the Wage Guarantee Fund was a temporary and imperfect solution to the problem of the low rates of return and high risk of the current RA system. The FSS and the FSC have only recently started to seriously consider their alternatives as to a regulatory approach. Although a unit exists within the FSS to monitor the role of financial intermediaries that sell related products (at this point only insurance companies), at present there is no active supervision. At the same time, liabilities continue to grow and benefits remain vulnerable. Several thousand workers have already experienced defaults due to the lack of proper funding requirements and safeguards.

100. The management of the National Pension Scheme reserves is the second area where specific changes could have a major positive impact. As mentioned earlier, the 1998 reforms did not resolve the key issues that determine whether prefunding NPS obligations actually increases savings. As the funds continue to grow, the temptation to use them as a convenient source of deficit financing or for making politically motivated investments such as subsidized loans or hospital construction will be great. In the meantime, Korea's largest pool of long term will continue to bypass the capital markets, depriving Korean industry of an excellent source of finance.

101. Finally, a general consensus is developing in Korea that the Government employees' pension scheme is too expensive and needs to be reformed. The emerging deficits have created a new sense of urgency, providing an opportunity for the typical pay-as-you-go reform measures applied to many of the national schemes in OECD countries. In fact, simply harmonizing some of the eligibility conditions and benefit formula with the NPS would provide important savings in the long run.

102. The following paragraphs address each element of a partial reform package.

103. Converting Retirement Allowances into Modern Private Pensions. The retirement allowance scheme has not yet adapted to the changing nature of the Korean economy. When the scheme began, it was likely that an employee would remain with the same employer for many years. Therefore, he was likely to receive a significant sum at retirement. This could be used for the purchase of property or other stores of wealth. This wealth could be inherited by children who in turn could provide assistance to parents during old age.

104. Over the last three decades, the large companies that provided these benefits grew

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43 In December 1999, the World Bank and the FSS co-sponsored a two-day workshop in Seoul on private pension design and supervision. Private pension regulators from several OECD countries and Hong Kong presented their own supervisory strategy and interacted with Korean regulators.
rapidly. The staggering growth of Korean industry meant that there was less concern about the failure of the sponsor triggering a potential default on the retirement allowance obligation. Such instances appear to have been isolated as evidenced by the fact that no formal government intervention occurred until the creation of the Wage Guarantee Fund in 1998. Finally, the need for withdrawal because of unemployment was also a rarity in an economy with practically full employment for many years.

105. This environment was already beginning to change before the crisis. It was not until 1998 however, that the flaws of the system, especially its financing became apparent. There is growing recognition among Korean policymakers that the current system leaves a gap where a funded private pension sector might have emerged and that this has negative implications for the capital markets. It is also clear that the nature of employment is changing in Korea. In the future, the labor force is likely to be more mobile, more educated and more likely to be in the service sector. But the most important factor highlighted during the recent crisis was the need to protect workers’ benefits by segregating funds. The process of moving away from internal reserves to external funding has already taken place in the US and the UK among others and is now unfolding in continental Europe and most recently in Japan. The Italian case is especially interesting given the similarities of its severance payment system (TFR), described briefly below in Box 2, and the Korean retirement allowance.

106. Converting the retirement allowances scheme into an externally funded, private pension scheme requires three steps. The first order of business is to make a gradual transition to a funded scheme by amortizing past accrued liabilities of the firms. The United States set up such a process after the passage of the Employee Retirement Income Security Act (ERISA) in the mid-1970s when funding rules were tightened. In Japan after the introduction of international accounting standards, a number of large firms have unilaterally announced amortization periods for their unfunded pension liabilities.44 Table 6 below shows the amortization schedule for the US as first prescribed in 1974 by ERISA and later revised in 1987.

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44 Beginning April 2000, new accounting standards will require Japanese companies to disclose the liabilities of all retirement programs for employees as determined by using prescribed actuarial cost methods and discount rate. Potential unfunded liabilities are estimated at 70-80 trillion yen (14%-16% of GDP).
Box 2. Moving from Severance Payment to Private Pensions in Italy*

The Italian severance payment system – the Trattamento di Fine Rapporto (TFR) – shares many of the problems of Korea’s retirement allowances. Introduced in 1919 and expanded throughout the century, the TFR is financed by a 6.91% annual employer contribution that appears as a liability on the firm’s balance sheet. The return is given by a formula: \( r = 1.5 + 0.75p \) where \( p \) is the rate of inflation. This results in a very low real rate of return for workers. (Strangely, the return is negative when inflation is above 6%.)

With weak capital markets and a huge demand for capital in the medium-scale industrial sector, the TFR came to be an important source of financing for Italian firms. From the workers perspective, it provided a buffer for older workers losing their jobs in addition to long term savings that could be used to supplement public pensions. The government guaranteed the TFR and charged firms a fee of 0.5% of wage bill to finance it.

In recent years however, several factors have reduced the usefulness of the TFR. Capital markets have improved and are becoming more integrated into the European markets. Labor is more mobile and workers more interested in achieving a good rate of return on their savings. And finally, the public pension scheme has fully matured and is now paying very high replacement rates. Many consider the system overblown with contribution rates for public pensions plus the TFR at almost 40 percent of wages.

As a result, the TFR is being gradually replaced with a fully-funded, external, defined contribution system. Since 1993, new labor market entrants divert all of their TFR contribution into either closed (employer based) or open funds. Both types of funds must be licensed, must hire professional investment managers and are supervised by a specialized entity. Workers already employed in 1993 negotiate the terms of their TFR/pension fund contribution split. By 1999, there were 21 closed funds and 75 open funds with more than 400,000 participants. Some analysts expect that one quarter of the labor force will join the new DC schemes over the next five years. In the long run, the TFR will be phased out.

* Based on Beltrametti (1999).

107. Table 6 includes amortization periods for changes in liabilities for schemes that already existed and for newly created schemes. Funding targets are based on detailed regulations that include valuation procedures and acceptable assumptions. Creating these regulations and others to protect worker’s benefits is step two in the process of rationalizing Korea’s private pension scheme. However, the funding rules for DB plans must be determined more or less simultaneously with step one. During this second stage of drafting regulations, rules regarding vesting, portability, form of benefit payment etc. would also be determined since these also affect funding. Finally, appropriate tax treatment would have to be addressed, in particular as regards the taxation of returns on the new external funds.\(^\text{45}\)

\(^{45}\) There is an inherent tension between the tax authority and the regulator of defined benefit plans. Typically, the tax authority focuses on employers efforts to reduce their tax liability in profitable years by increasing their funding level while the regulator is focused on problems due to underfunding.
Table 6. Amortization Periods for Minimum Required Contributions, US Employer-Sponsored Defined Benefit Plans

<table>
<thead>
<tr>
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<th>ERISA</th>
<th>OBRA 37&quot; (After 1/1/88)</th>
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<tbody>
<tr>
<td>Unfunded liability for plans existing as of 1/1/74</td>
<td>40 years</td>
<td>no change</td>
</tr>
<tr>
<td>Initial unfunded liability for plans formed after 1/1/74</td>
<td>30 years</td>
<td>no change</td>
</tr>
<tr>
<td>Plan amendments</td>
<td>30 years</td>
<td>no change</td>
</tr>
<tr>
<td>Assumption changes</td>
<td>30 years</td>
<td>10 years</td>
</tr>
<tr>
<td>Actuarial gains and losses</td>
<td>15 years</td>
<td>5 years</td>
</tr>
</tbody>
</table>

108. In addition to defined benefit regulations, step two of the reform should set the rules for a defined contribution scheme in a way that fulfills the existing mandate. The global trend in pension provision is clearly toward defined contribution pensions. The most dramatic expansion has been observed in the US where the number of active participants in defined contribution plans rose from 11 to 42 million between 1975 and 1995. The same figure for defined benefit plans fell from 27 to 24 million over the same period. Similar trends are unfolding in Europe, especially in the Anglophone countries but also in countries like the Czech Republic, Italy and Spain. The Japanese are planning to introduce a type of 401(k) option in 2000.46 The most advanced defined-contribution scheme in Asia is the new Mandatory Provident Fund (MPF) in Hong Kong, described below in Box 3.

109. The third and final step is to create or upgrade supervisory capacity. The approach to supervision must be determined. Among the countries with mandatory, privately managed pension schemes, the Latin American and Eastern European countries have chosen to create new, specialized regulators with proactive as opposed to reactive supervisory philosophies.47 This reflects fears that a population with little experience with the private pension sector may be susceptible to fraud or mismanagement, especially when the system is just starting. It also reflects the fact that most of these schemes are mandatory and include implicit and usually, explicit government guarantees. Countries that have had long experience with voluntary private pensions such as the United Kingdom and Australia have had less intrusive regulatory approaches.

110. The disadvantages of a specialized agency include higher costs and potentially more difficult coordination with other regulators such as those involved in insurance or

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46 In July 1999, the Liberal Democratic Party released pieces of the draft framework for defined contribution legislation in Japan. The plan allows both corporations and individuals (including self-employed, non-working housewives, and public servants) to establish defined contribution plans on a voluntary basis, either through company pensions or as individual retirement accounts.

47 See Demarco and Rofman (1998) for an international perspective on supervision mandatory private pension schemes.
securities markets. In the Korean context, where the regulatory apparatus has just been overhauled and a unified regulator has been put in place, it would seem sensible to keep this function within the FSS.

Box 3. Hong Kong's Mandatory Provident Fund (MPF)

After decades of debate, Hong Kong enacted the legislation for implementing a Mandatory Provident Fund (MPF), with an expected compliance date of around December 2000. Until now, the only source of targeted old age protection in Hong Kong is the Comprehensive Social Security Assistance (CSSA) Scheme, which uses general revenues to pay old persons means-tested allowances. To alleviate the looming crisis of a rapidly aging population and the associated fiscal burden of the old-age allowance system, the government adopted a multipillar system by introducing the MPF, to be complimented by personal savings and CSSA.

The MPF system, is an employment-related, privately managed, fully-funded defined-contribution system and it was adopted for several reasons. It is considered equitable in that the amount of accrued benefits is directly derived from the contributions made. It is cost-effective – the MPF schemes are privately managed under free-competition, which will likely increase investment returns and reduce costs. Finally, it is fiscally sustainable so that the mandated contributions are estimated to generate pensions amounting to 30%-40% of final earnings without the need for government to guarantee a minimum pension or investment return.

Key features of the MPF:

Coverage: With a few exceptions, all employees (full and part-time) and self-employed persons between the ages of 18 and 65 are required to participate. Potentially, the MPF could cover as many as 3 million members, including the self-employed, small employers and family businesses.

Contributions: The employee is required to contribute 5% of his/her cash earnings up to HK$20,000 per month and the employer has to match this amount. An employee earning less than HK$4,000 per month may elect not to contribute, although employer contributions are mandatory. The self-employed can simply contribute 5% of relevant earnings.

Security of Assets: MPF schemes must be established as trusts. All contributions are to be secured through strict investment and trust controls and are subject to the provision of a compensation fund in case of losses due to fraud or misfeasance. Two types of trusts are available to an MPF scheme: (i) employer sponsored scheme; and (ii) master trust scheme. In addition, sectoral schemes operate for workers in high mobility industries such as construction and catering.

Investment Rules: The “prudent man” rule along with investment restrictions are prescribed. All schemes must offer participants at least one “capital preservation” investment option paying net guaranteed minimum returns not lower than bank deposit rates. At least 30% of assets must be denominated in HK dollars.

111. Once the rules of the new system are clear, an assessment of the staff, equipment and budget needs would have to be made. Training and recruitment would be necessary, information flows and databases would have to be established, statistical publications issued, manuals for employers written etc.. It will be important for formal mechanisms for coordinating with other parts of the supervision agency. Finally, policies and procedures for funding would have to be coordinated with the tax authority. The process would likely take several years to unfold as has been true in other countries.
112. *Improving the Management of the NPS reserves.* The international evidence shows that governments have not managed pension reserves very well. This appears to be due to the tendency of politicians to interfere with investment policy in order to finance programs other than pensions.

113. The use of criteria other than risk and return in the formulation of investment policy reduces risk-adjusted returns. Because these funds are often large relative to the national economy, the indirect negative effects may be even more important. In particular, the misallocation of scarce capital reduces productivity. Also, diversion of these funds from the capital markets results in missed opportunities with regard to adding liquidity and even to improving corporate governance. While the indirect effects are difficult to quantify, the direct impact can be observed in data on the performance of publicly managed pension funds around the world. Figure 11 presents this indicator relative to the growth of incomes in a number of countries.

**Figure 11. Long Run Real Rates of Return to Public Pension Funds Relative to Growth in Income Per Capita for Selected Countries**

![Graph showing long run real rates of return](image)


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48 See Iglesias and Palacios (1999) for a survey of the international experience.

114. A standard actuarial assumption is that investment returns will be higher than the growth of the wages that help determine the liability in a defined benefit scheme.\textsuperscript{50} A reasonable assumption for this differential is around 200 basis points. Data for countries with significant private pension sectors confirms that this differential is often observed over long periods of time. This is not true for publicly managed schemes. Only two of the countries in Figure 11 had returns higher than income growth and in both cases, the margin was very slim. Most of the funds, including Korea’s NPS, earned returns below income growth.\textsuperscript{51}

115. Low returns to publicly managed funds over the last several decades and growing concern about the likely response of government spending to the availability of reserves has led several OECD countries to take initiatives in this area. The purpose of these policy changes is to insulate the funds from politicians and install investment policies based on the same criteria applied in well-regulated private pension systems.

116. Canada provides an interesting example. Since 1966, the Canada Pension Plan (CPP) has been forced to invest in provincial government bonds with below market interest rates. By the late 1970s, there was evidence that provincial government consumption may have increased in response to this practice. And since the bonds yielded rates lower than would have been available on the market, depressing CPP returns relative to the private pension sector.

117. In 1998, reforms were introduced to increase the level of partial funding. The contribution rate was increased from 6 to 9.9 percent and a new investment policy was established along with a new governance mechanism to implement it. The CPP Investment Board would be composed of twelve members whose mandate was clear:

"Government employees are not eligible to be directors. The Board will be subjected to close public scrutiny. It will make investment policies public, release quarterly financial statements and an annual report and hold public meetings every two years in each participating province...This agency would be subject to fiduciary duty to invest CPP funds in the sole interests of contributors and beneficiaries - that is, to maximize returns without undue risk of loss."\textsuperscript{52}

118. Social investments and subsidized loans to the provinces are ruled out, as are any other politically motivated investments. This is accomplished by investing in market indices (including up to 20 percent in foreign securities) and by using externally contracted private asset managers. As of mid-1999, the CPP Investment Board was managing roughly 500 million Canadian dollars in this manner. Eventually, the fund is projected to grow to more than 20 percent of GDP.

119. Japan too is moving toward greater investment in private markets and has already begun to contract private asset managers, including international firms for a significant portion of its portfolio. Box 4 describes the current system and proposed changes.

\textsuperscript{50} For example, the UK Government Actuary currently assumes that returns will exceed wage growth by 175 basis points.

\textsuperscript{51} Data for the NPS refer to the period 1988-1997.

\textsuperscript{52} CPP (1998).
Box 4. Management of Public Pension Reserve Funds in Japan

Japan's public pension plan reserve funds totaled approximately ¥179 trillion. The Ministry of Health and Welfare (MoHW) is responsible for plan design and implementation but all public pension reserve funds are deposited with the Trust Fund Bureau (TFB), which operates under the Ministry of Finance (MoF). Of the total ¥134 trillion, only 18% is invested in market-based securities (¥24 trillion in 1998). The remaining 82% is allocated to national financial investments, loans programs and welfare operations which in turn invest in projects such as loans for welfare facility, housing loans for the insured, hospitals, social welfare facilities, medical facilities and pollution prevention facilities.

The ¥24 trillion of market-based portfolio is managed by the Pension Welfare Service Public Corporation (Nempuku), a public corporation established to provide loans, manage funds and establish/operate facilities of the public pension system. Nempuku borrows from TFB reserves at the long-term fixed interest rate. It manages a portion of its portfolio in-house, and entrusts the bulk to trust banks and life insurance companies.

The Government of Japan announced in June 1997 that Nempuku would be dissolved by 1999, to be replaced by a new agency under the direction of an Investment Advisory Board. Details on the process and criteria for appointment are not clear. However, there have been reports that this Board will be made up of civilians, with representatives from contributors, employers, labor unions, pension/investment specialists as well as academia. A representative from the MoHW will be the secretariat, but there will be no voting members from the MoHW or the MoF. The Board will formulate the investment policy and monitor the investment management process, and the banks, life insurance companies and investment advisory companies will implement the investments in accordance with the adopted policy. An investment committee consisting of private sector individuals will also be established and charged with the responsibility of making short-term and medium-term asset allocation decisions (in keeping with asset allocation strategies decided by the Board), as well as the selection and ongoing evaluation of fund managers.

It is anticipated that the new fund management process will be governed by a benchmark portfolio adopted by the Investment Advisory Board. The new management process is expected to deliver the required long-term target returns (one percentage point above long-term average borrowing interest from the TFB plus fees) with acceptable volatility. This benchmark portfolio, (54% Japanese Bonds, 4% International Bonds, 22% Japanese Stocks, 11% International Stocks, and 5% Cash), will serve as a guide for asset allocation, selection of investment managers and monitoring of managers' performance. Within the adopted benchmark, the investment committee has at its discretion the option of deviating from the benchmark allocation of up to 5%. To achieve the stated target returns with minimum volatility, the Board has decided that half of the portfolio should be managed passively while the balance would be actively managed. Managers will be selected by the investment committee based on both qualitative and quantitative evaluations, including management characteristics, investment styles, consistency and continuity of key portfolio personnel, and past performance. Investments are monitored through monthly reports. Based on the outcome of the qualitative and quantitative assessments, assets will be transferred from the bottom 25th percentile to the top 25th percentile of all hired managers.

The proposed pension law includes a plan for full repayment of the nearly 400 trillion yen in outstanding loans from the MoF within seven years, with details to be debated at the National Diet in the Fall of 1999. In the meantime, Nempuku has adopted a gradual implementation process to minimize the impact of the expansion of market-based asset allocations of public pension funds on the capital market. Under the proposed regime, contributions received at the pension finance unit will no longer be required to be deposited with the TFB. Funds will therefore be available for investment by the new agency throughout the year as contributions are remitted.
120. These initiatives (and others in Sweden and Ireland) are very recent and only time will tell if historical problems of public pension monopolies can be overcome. Some of the countries like Canada have ideal conditions for success. For example, there is a long history of private pension activity and regulation to which the CPP Investment Board can refer and a large private pension sector to which its performance can and will be compared. Concepts such as the responsibilities of the trustee are well understood.

121. In Korea, contractual savings have not grown along with the rest of the financial system and their role as investors in the stock market has been negligible. In 1998, less than ten percent of financial assets took the form of contractual savings in Korea. As a result, a large public pension fund like the NPS would play a dominant role rather than competing with or being compared to other pension funds.

122. Contracting out asset management in Korea in the short term is complicated by the unhealthy state of the asset management business. The insurance sector and investment trust companies are fragile have not yet moved to international accounting standards. There is also strong evidence of misconduct and fraud among asset managers. Reforms are under way but until asset management is well regulated and competitive, the option of contracting out management of most of the NPS reserves should and probably will be put on hold. In the medium term, however, the Japanese approach of combining domestic and international fund management to increase competition and diversification among managers may also be worth investigating.

123. Nevertheless, much can be done in the short run to set the stage for significant changes in the way investments are handled in a few years. The governance structure and investment policy that was introduced in the National Pension Act in 1998 replicates the mistakes of the past and is likely to lead to the same problems if maintained. Specifically, Article 83 of the Act should be revised in such a way so as to exclude social investments, personal loans to members and intragovernmental loans. Purchase of government securities should be done through the market. In general, allowable investments should include only listed instruments that are traded in the capital markets including investment grade fixed income securities. Investments in high quality foreign securities should be allowed. While these may initially be small, in the long run foreign investment should be exploited both to help mitigate the problems that are inevitable if a large public fund were to be invested in domestic private securities and to benefit from the well-known advantages of international diversification.

124. The Government could consider deeper reforms to the governance structure along the lines of the CPP’s Investment Board or the Norwegian Petroleum Fund. These models remove bureaucratic discretion and impose a discipline on investments through the use of benchmark portfolios chosen for their risk return characteristics.

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53 Musalem (1999).
54 The Norwegian experience with the Norway Petroleum Fund is also worth studying for its selection of asset managers through an international bidding process.
55 For example, as the NPS becomes a large shareholder it will have to devise a policy with regard to corporate governance that is consistent with the interests of its members but does not lead to political interference in private industry.
56 OECD (1997).
125. Actions to improve the governance should include a sequenced program incorporating the following: (i) articulation and adoption of an investment policy which seeks to maximize returns relative to risk; (ii) adoption of revised investment management guidelines whereby the investment management committee establishes strategic asset allocation parameters and reviews the risk and return implications of the parameters in light of performance on a monthly basis; (iii) strengthening the reporting system for portfolio performance both to the Investment Committee as well as to management so as to ascertain performance relative to risk-determined benchmarks on a daily basis; (iv) establish criteria and procedures for the same committee takes decisions on the hiring and firing of external fund managers (including passive management) upon the recommendation of staff; (v) establishment of tactical asset allocation parameters and exposure limits for portfolio managers and careful monitoring of performance of each manager against benchmarks which normalize the risk of the portfolio managed; (vi) strengthening the risk measurement by which possible external portfolio managers would be evaluated and monitored.

126. Reforming the Government Employees Scheme. This scheme has recently received much attention in Korea because of its emerging deficit. A reform of this scheme would not eliminate these deficits in the short run since any significant benefit reductions would have to be phased in gradually. The objective would be to make changes that reduced the growth of future deficits and, in the long run, set the scheme back into cash flow balance. The list of possible parameters to be modified is finite. Two scenarios are considered. The first scenario introduces the following four measures:

- Raising retirement age to 65 by year 2033
- Eliminate limit on accruals after 33 years of service
- Shifting from wage to price indexation gradually
- Change from final salary to lifetime average wage gradually

127. In the long run, these measures introduce a benefit formula that is more similar to the one used by the NPS (i.e., lifetime earnings and price indexation) and equalizes retirement ages. In the second scenario, a fifth measure is introduced to bring the civil servant’s formula even closer to that of the NPS. This is done by applying a new accrual rate of 1.5% for all future service years. Note that past years would still be accrued at the old, higher rates. Figure 12 below shows the path of future deficits under the no reform scenario, the package of four measures listed above and the same package including a reduction in the accrual rate. The final package basically eliminates the long run deficit.
Figure 12. Parametric Reform of the Civil Servant’s Pension Scheme
Deficits as share of GDP 1999-2050

128. Strengthening the Regulation and Supervision of Contractual Savings. Whether partial reforms are undertaken as outlined in this section, or more comprehensive reforms are enacted as outlined in the next, in either case, significant strengthening of the regulation and supervision of all contractual savings institutions is needed. This need is most evident for current forms of contractual savings which are impaired by weak oversight: (i) personal private pensions managed by various institutions; and (ii) retirement allowances managed external to the employer firm, currently by insurance companies. Although the total amount of funds under management by these two products is currently limited, precisely by strengthened oversight and disclosure could some of the benefits be realized of a more robust contractual savings sector.

129. Regardless of the degree of enactment of systemic reforms, the following measures are recommended so as to enable companies and individuals to manage the risk of funds held on their behalf by financial intermediaries: (i) licensing criteria (and related enforcement capability) by the FSS for pension fund managers should be strengthened including earmarked capital requirements for pension funds under management, application of “fit and proper” criteria to principals, and verification of capacity to undertake fund risk management. General insurance companies should likely not be licensed to offer pension products since the nature of pension fund management is not

56 Related to this should be verification of custodial arrangements, clearing and settlement procedures, account information systems
akin to their business which is more short-term in nature; (ii) any insurance company (for retirement allowances and personal pensions) found by the FSS to have material deficiencies in its solvency margins for insurance business be restricted from receiving additional pension assets. Similarly, other financial intermediaries (personal pensions) found to have material capital or other prudential deficiencies should also be restricted from receiving new pension fund management contracts until such time as the intermediary is able to demonstrate its return to full financial health; (iii) monitoring and enforcement capacity by the FSS specific to pensions need to be strengthened including the ability to restrict new contracts for institutions not meeting prudential requirements such as solvency margins; (iv) asset allocation and risk concentration parameters (limits) should be developed for pension fund management apart from those applied to other lines of a financial intermediary’s business; (v) public financial disclosure needs to be strengthened including segregation of pension accounts for reporting purposes, portfolio segregation by risk categories, and more detailed performance monitoring linked to benchmarks. The latter will be greatly enhanced by the movement from security valuation from historical cost to a “mark-to-market” basis; (v) tax treatment of retirement allowances should be reviewed with a view of potentially allowing the possibility of moving accounts from insurance companies to alternative solvent and well-managed financial institutions.

**Systemic Reform**

130. The reforms in the last section would mitigate the potential problems associated with the buildup of the National Pension Fund, convert the retirement allowance mandate into a modern private pension scheme and reduce the deficits in Government employees scheme. These measures have the potential for increasing national savings, reducing labor market distortions and mitigating the problems associated with publicly managed pension funds.

131. However, several important policy issues would remain unresolved. First, the pension system would still be characterized by differential levels of mandated coverage and high costs. In fact, forcing employers to fund the mandate for private pensions would place a new burden on industry at a difficult moment. This burden would only grow over time as the NPS matured and payroll taxes were raised as needed. In thirty years, more than one quarter of payroll may be required to finance the system.

132. The solution is a systemic reform. This requires at least two additional steps building on the measures already described. The reform would take decades to unfold and would reach a steady state only when today’s younger workers reached retirement age – around 2040. The first step would integrate the new employer-based pensions with a downsized NPS in a multipillar framework where public and private provision were balanced. The second step would bring Government employees into this new, multipillar arrangement.

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58 In principle, mutual funds should be considered for licensing if they are able to demonstrate the capacity and dedicated capital to support their business in pension asset management.
133. **Integration of Employer-Based Pensions and the NPS in a Multipillar Framework.** The future retirement benefits of young Korean workers will be derived from two sources, which together produce very high replacement rates. The cost of financing these benefits will increase over time. The solution proposed here is to reduce the NPS benefit as well as the mandatory contribution. Specifically, workers covered by the retirement allowance scheme would now participate in an employer-based, defined contribution scheme. Employers would be obliged to contribute approximately 8 percent of wages into this fully portable, individual account. Workers would be vested immediately and withdrawals would be allowed only upon reaching the normal statutory retirement age in the NPS. The exception would be that a portion, perhaps one fifth of the accumulated balance, could be withdrawn in case of unemployment. Meanwhile, an additional contribution of 4.5 percent would go to the National Pension Scheme. In return, the worker would be credited with an accrual of 0.75 percent per year of service multiplied by the average economy-wide wage at time of retirement (i.e., the first, progressive portion of the current NPS formula). Like the current NPS benefit, it would be indexed to prices.

134. In this proposal, target replacement rates in the NPS are reduced by half for members of the new system. Contribution rates are also halved. Employers and employees now pay 2.25 percent of wages each to the NPS. The ultimate incidence of this reduction depends on conditions in the labor markets, but nominally at least, this results in a 2.25 percent increase in the net wage of the worker and an equivalent reduction in labor costs to the employer. Participation in the multipillar arrangement would be mandatory for labor market entrants but optional for workers that have already earned rights in the system. All accrued rights to date would be respected.

135. In addition to new entrants, it is likely that many younger workers will accept this option in order to reduce their current payroll tax burden and avoid future increases. They are also in a position to accumulate significant balances in their defined contribution accounts through the effects of compounding over a long period of time. Older workers would not find it in their interest to switch given the short accumulation period remaining before their retirement.\(^{59}\)

136. Coverage of the self-employed in the NPS would continue but members would be given the option of sending 4.5 percentage points of their 9 percent contribution into a personal pension plan with an approved provider. In other words, a self-employed worker would have a choice between the earnings-related component of the NPS benefit and a privately managed personal plan similar to an Individual Retirement Account (IRA) in the US context or personal pensions in the UK. While this still results in a lower mandated replacement rate for the self-employed than for employees, the former would be encouraged to make voluntary contributions to their personal plan under favorable tax treatment in order to achieve the same replacement rates.

137. The result of this reform for workers covered by retirement allowances is shown below in Figure 13. Benefits stabilize over time at closer to 60 percent of final salary - still high by international standards. In the steady state, new entrants would receive...

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\(^{59}\) The international experience with age-related switching from public DB to private DC schemes is analyzed in Palacios and Whitehouse (1999).
A roughly half of their retirement benefits from the NPS and half from the private pension scheme. Obviously, this presentation ignores certain risks. For example, it ignores the possibility that the public pension benefit will be cut or that the net investment return obtained by the private pension account will exceed the rate of wage growth.

**Figure 13. Replacement Rates for Employees after Introduction of Multipillar Scheme by Cohort, 2010-2040**

Source: Bank staff calculations.

138. From the fiscal perspective, the plan would reduce the flows of NPS surpluses in the next two decades as contributions were diverted to the second pillar. The figure below illustrates an important characteristic of the transition to a multipillar scheme in Korea: unlike many OECD countries that already have mature pension schemes, the immaturity of the NPS means that the transition costs is very manageable. Deficits do appear earlier but are offset in the long run by lower deficits as NPS benefit spending is reduced.
139. The fact that reserves do not grow as fast as they would have otherwise to some extent mitigates the problem of investing massive NPS reserves discussed earlier. Assuming that a well-regulated and efficient private pension system can be constructed, the issues of corporate governance and allocation of capital will largely resolve themselves as competition provides the right incentives. The end result is a more balanced pension sector where a large public pension fund would coexist with a large privately managed pension sector as shown in Figure 15. Contrast this scenario with the massive fund accumulated by a monopillar NPS in Figure 8. The existence of a robust, competitive pension market may help discipline the public fund and reduce the temptation for political interference.

140. **Merging the Civil Servant's Scheme with the NPS.** Assuming that the reforms to the Government employees scheme described in Section III.2 were implemented, average benefit levels and retirement ages in the NPS and the civil service scheme would gradually converge. The main difference remaining would be the size of retirement allowances and the progressivity of the benefit formula at the NPS. The rationale for maintaining the current system where Government employees participate in an earnings related scheme while the rest of the workforce contributes to the NPS with its progressive benefit formula is not obvious. If there is a clear public policy objective with regard to redistribution within a cohort, it would seem reasonable that it would be applied to all members of the cohort, not only private sector workers. These differences complicate a shift from public to private sector inhibiting labor mobility. Not surprisingly, proposals to merge the Government Employees' scheme were made by Korean experts in 1993.

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60 As in many countries, the creation of a separate pension scheme for Government employees is a result of historical circumstances rather than part of a larger strategy.
Figure 15. Public and Private Pension Assets in the Proposed Multipillar System, 2000-2030

Source: Bank staff calculations. Note: voluntary private pension savings not included.

141. In the context of a systemic reform, a merger is slightly more complicated. The proposal here is to offer Government employees the same option that is presented to private sector workers - contribute 9 percent (and probably more later) to the NPS and receive the full benefit or contribute 4.5 percent to the NPS and receive only the portion determined by the first component (the one based on lifetime average earnings) in the NPS formula. New entrants would be forced to participate in the new scheme, just as in the NPS.

142. In addition, the Government would make the same contribution - 8 percent - as would an employer in the private sector to a defined contribution scheme, which would replace the retirement allowance benefit. The Government as employer would be subject to all of the same rules and regulations as an employer in the private sector with regards to the choices available to the worker, information provided, portability and vesting rules etc. This would allow seamless movement of the retirement account between the public and private sector employment.

143. An extra incentive could be provided in the form of lower contributions if individuals were to switch to the new scheme. For example, a worker choosing to join the NPS would pay 4.5 percent while the worker remaining in the civil servant's scheme would continue to pay 7.5 percent. Naturally, allowing these workers to switch and increasing their net wage would result in a higher deficit in the civil service scheme, offsetting part of the effects of the parametric reforms described in the last section. However, this may be preferable to a very long transition whereby parallel schemes continue to exist for more than 35-40 years.
If current Government employees were allowed or even encouraged to participate in the new system, the existing liability due to rights accrued in the past should not be foisted onto the NPS. There are two preferable methods for dealing with rights already earned under the old system. Recalling again that there may be incentives for the youngest workers to switch, there may be a case for canceling any rights earned prior to the moment of switching.\textsuperscript{61} If the Government wishes to see more Government employees switch to the new system, it could decide to recognize the value of previous years of contribution for those who voluntarily switched to the new scheme. This should then be paid in a lump sum to the NPS.\textsuperscript{62} In any case, a careful analysis would be needed to assess the tradeoff between incentives to switch, speed of the transition and larger deficits.

\textsuperscript{61} This is feasible since the worker is not forced to choose the new system.

\textsuperscript{62} This would be similar to the "recognition bond" calculation that has been made in several countries, most notably Chile, that offered the option of switching from a DB to DC scheme.
IV. CONCLUSION: KOREAN PENSIONS IN 2040

145. In the absence of reforms, the combined spending on the Government employees and National Pension Scheme could rise to more than 10 percent of GDP by 2040. In order to finance this spending, payroll taxes will have to rise to levels like those now found in the demographically advanced countries of Europe that have chosen to rely primarily on unfunded public pension schemes.

146. One alternative is to address the individual elements of the system separately. Partial reforms could be undertaken to (i) protect workers' retirement allowance benefits, past and future (ii) reduce projected deficits in the civil servant's and teacher's schemes and (iii) improve the direct and indirect effects of investing NPS reserves by changing its governance and investment policy. The combined positive effect of these three measures would be very significant.

147. The partial reforms would, however, leave important questions unresolved. The most important one is how will such high mandated benefits be financed without the detrimental effects of rising labor costs? Another is the appropriate balance between public and private provision that will prevail when Korea's population ages. Will Korean pensions be provided primarily by the Government as in Italy or by a combination of public and private pension funds as in the United Kingdom. Only a systemic reform can address these important public policy issues.

148. The systemic reform proposed here would ease the burden on Korean workers by reducing their NPS contributions. In exchange they would forfeit the earnings-related portion of their NPS benefit. However, with full funding, appropriate regulation and good supervision, the same worker is likely to receive a private pension that, combined with the reduced NPS benefit, will provide a replacement rate that is still high by international standards.

149. Since the NPS benefit is progressive, lower income workers will achieve higher replacement rate targets (relative to their own income). For example, for a worker with an income at half the average wage, he would receive a replacement rate of close to 90 percent while an average wage worker would target about 60 percent and a worker at twice the average wage (roughly the current ceiling on the earnings subject to NPS contributions) would target about 45 percent of their own earnings. Self employed workers would be forced to save somewhat less but would be encouraged to match the mandated replacement rates for employees. The separation of the earnings related contribution and the diversion of contributions to an IRA type scheme should encourage greater compliance and might even defuse the current controversy about combining self-employed and employees within the same scheme.

150. A systemic reform would also go further than partial reforms in addressing the key question of fund management. Even if the goals of prefunding were not threatened by the government's tendency to increase its own consumption and finance it with NPS surpluses, the concentration of assets in one institution is inherently susceptible to political interference; nor is it conducive to efficient allocation of capital in the economy. Although not impossible, it is difficult to imagine a reliable mechanism to insulate the
funds from political motives. In contrast, a private pension system with competing fund managers, regulated by a strong supervisor is a model that has already been shown to work in many countries. A robust private pension sector may also lead to more liquid capital markets, greater demand for longer-term instruments and perhaps even better corporate governance.

151. From the worker’s perspective, the multipillar scheme provides higher returns on a reduced overall contribution. The security of both the public and private pension promise would be increased. Arbitrary differences between workers would be reduced and intended transfers would be more transparent. Finally, workers would gain some control over their own retirement savings within the mandatory scheme. It is important to note however, that the introduction of a defined contribution to eventually replace the retirement allowance (except for employers that choose to offer fully-funded defined benefit schemes under the new rules), implies greater worker responsibility for their own retirement. As in other countries, efforts would then have to be made to increase financial literacy and provide reliable information to the public.

152. The alternative to systemic reform can be seen in the history of public pensions around the world. Korea is currently following in the footsteps of a number of richer countries including Germany and Italy where today, high labor taxes are a partly blamed for high unemployment and slow growth and where the consensus is that they cannot be raised further. Instead, pensions have been cut repeatedly by one government after another. While proposals to introduce private, funded pensions have emerged, systemic reforms of the type described here are extremely difficult because of existing pension obligations. Pension policies in place for four decades or longer have tied the hands of those who would pursue reforms.

153. The Korean pension system is at a crossroads. The public pension scheme was introduced fifteen years later than was originally planned. It is still immature and the debt owed to those that have contributed since 1988 is still manageable. A shift to a system less dependent on the state and on high payroll taxes on future generations can still be made comfortably. This means setting the public pension promise to an affordable level and securing a strong private pension system. Effective reform requires a vision of income security in old age that is relevant not just for the next few years, but for 2040 and beyond.
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Appendix 1. Methodology of Fiscal Projections
The World Bank Pension Reform Option Simulation Toolkit

INTRODUCTION

Pension Reform Option Simulation Toolkit (PROST), a generic PC-based projection model, developed by the Social Protection Unit of the World Bank was designed to provide analytical information for legislators, pension experts and Bank task managers in policy dialogues. The program can be customized to specific country circumstances and simulates the evolution of its pension system of 100 years or more. There is also built in flexibility for sensitivity tests and scenario comparisons. This is the program that was used in assisting the World Bank mission team to analyze the Korea National Pension Scheme.

The mission team collected information from many sources. Meetings and interviews were conducted with officials from different ministries. Details pertaining to the assumptions and methodology used in preparing the actuarial estimates of the National Pension Scheme were obtained from the Financial Projection Research Division at the National Pension Research Center. Publications and statistical yearbooks presenting economic, labor, social and demographic data were also used. Practitioners and scholars from the pension industry were consulted on the current thinking and emerging trends in the pension arena.

ABOUT PROST

PROST consists of an input template and five output modules. The algorithms of the modules are programmed using Visual Basic. The input file/template is an Excel workbook with four embedded worksheets defining over 50 variables. Each of the five output modules contains various Excel worksheets with graphical presentations of key results.

- **The Input File**

  Data must be entered for the base year and the final year of projections. Information for intervening years can be inserted if there are anticipated changes that may alter the linear relationship between the base year and the final year. The program is equipped to handle both “stock” based as well as “flow” based calculations. With the “stock” method, the current pool of contributors and beneficiaries are expressed as percentages of either the overall population or employment data; thereon, new retirees and newly disabled are derived from changes in the stocks. With the “flow” method, the increment (or decrement) of different categories are computed first. These

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63 Officials consulted include those from the Office of the President, Ministry of Finance and Economy, Ministry of Health and Welfare, Ministry of Labor, Korean Institute for Health and Social Affairs, Korea Development Institute, National Pension Corporation, the National Pension Research Center, the Financial Supervisory Service, the Korea Securities Research Institute, and the Korea Insurance Development Institute.
increments/decrements are then aggregated with the beginning stock of contributors and benefits. Data requirements under the input templates are summarized as follows:

- **General** Input information about the economy (inflation rate, interest rate, GDP growth, etc.) as well as parameters on the pension system (current benefit expenditures, retirement age, accumulated reserve fund, etc.)

- **Population** Input base year population along with age-specific fertility and mortality rates as well as immigration information

- **Labor** Input base year labor force participation rates, unemployment rates, age-earnings profile

- **Pension** Input base year pension system information including number of contributors, beneficiaries, coverage rates, average years of service, replacement rates for new beneficiaries according to the relevant formula(s)

- **Profiles** Input sample profiles of individual workers with different work experience, earnings profiles, and mortality exposure

- **Reforms** Input mandated or assumed switching patterns, methodologies on how to recognize acquired rights, reform the pay-as-you system, and accumulate future benefits under the defined contribution system.

**The Output File**

PROST generates five output modules. Each of the modules contains a number of Excel worksheets and a graphical summary on key indicators. The output modules are arranged as follows:

- **Population Projection** Key output includes population pyramids, life tables (by sex and year), life expectancy changes and other demographic indicators

- **Demographic Structure** Projections on labor force, employment, contributors and beneficiaries, demographic structure, and system dependency ratios are generated

- **Financial Flows** Macroeconomic trends, wage distribution, contributions, pension payments are projected. The number of beneficiaries are separated into two categories – the existing stock and those entering payment status

- **Individual accounts** Illustrations are presented using individuals under pay-as-you-go contributory scheme, affordable replacement rate, defined
contribution and multi-pillar scheme

- Finances of multipillar

Financial projections include NPV of pay-as-you-go flows, implicit pension debt, notional accounts, transition to multipillar system, and results of the reform

POPULATION/PENSION DEMOGRAPHICS

**Population/Pension Demographics**

Population data based on the 1995 census was obtained from the National Statistical Office, separated by single year, age and sex.

Projected mortality rates (1995-2030) by five-year age groups for male and female were supplied by the National Pension Research Center, from which life tables were created for each year during the simulation horizon. Mortality rates from 2030 and 2080 were extrapolated in accordance with the World Bank Population Projections database. Net immigration was assumed to be 20,000 each year, distributed evenly among the 30-34 age group for both male and female. Fertility rates were assumed to be in line with those presented in the Actuarial Estimates of The National Pension.

<table>
<thead>
<tr>
<th>Table 1. Summary of Key Demographics Indicators</th>
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<tr>
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<tr>
<td>Total Population (in millions)</td>
</tr>
<tr>
<td>1995: 46.0</td>
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<td>2020: 52.1</td>
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<tr>
<td>2050: 49.3</td>
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<tr>
<td>2080: 41.4</td>
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<tr>
<td>Old Age Population Dependency</td>
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<tr>
<td>1995: 18.5%</td>
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<tr>
<td>2020: 34.1%</td>
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<td>2050: 58.5%</td>
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<tr>
<td>2080: 59.0%</td>
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<tr>
<td>Life Expectancy at Birth (M/F)</td>
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<tr>
<td>1995: 69.6/77.8</td>
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<td>2020: 74.7/82.4</td>
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<td>2050: 75.7/83.8</td>
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<td>2080: 75.7/84.2</td>
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<tr>
<td>Life Expectancy at age 20 (M/F)</td>
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<td>1995: 51.0/59.0</td>
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<td>2020: 55.7/61.9</td>
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<td>2050: 56.5/64.4</td>
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<td>2080: 56.5/64.8</td>
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<tr>
<td>Life Expectancy at age 60 (M/F)</td>
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<td>1995: 16.7/21.6</td>
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<td>2020: 19.0/24.4</td>
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<td>2050: 19.3/25.5</td>
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<td>2080: 19.3/25.9</td>
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<tr>
<td>Life Expectancy at age 65 (M/F)</td>
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<td>1995: 13.4/17.5</td>
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<td>2020: 15.3/19.9</td>
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<td>2050: 15.6/21.0</td>
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<tr>
<td>2080: 15.6/21.4</td>
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<tr>
<td>Total Fertility Rate</td>
</tr>
<tr>
<td>1995: 175.1</td>
</tr>
<tr>
<td>2020: 178.5</td>
</tr>
<tr>
<td>2050: 181.3</td>
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<tr>
<td>2080: 184.1</td>
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</tbody>
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*Source: Prost output file*

Based on the above assumptions, Figure 1 shows the population pyramid from 1995 to 2080 which illustrates the aging trend.
From the population projections, pension demographics are then developed in accordance with the flow chart shown in Figure 2.

Figure 2. Pension Demographics

Labor force participation statistics was obtained from the Yearbook of Labor Statistics based on the 1995 activity rate of economically active population by sex and age group.
Table 2. Labor Force Participation Rate

<table>
<thead>
<tr>
<th>Age</th>
<th>Male 1995</th>
<th>Male 2080</th>
<th>Female 1995</th>
<th>Female 2080</th>
</tr>
</thead>
<tbody>
<tr>
<td>14 and under</td>
<td>0.0%</td>
<td>0.0%</td>
<td>0.0%</td>
<td>0.0%</td>
</tr>
<tr>
<td>15-19</td>
<td>9.3%</td>
<td>9.3%</td>
<td>14.6%</td>
<td>14.6%</td>
</tr>
<tr>
<td>20-24</td>
<td>58.0%</td>
<td>58.0%</td>
<td>66.1%</td>
<td>66.1%</td>
</tr>
<tr>
<td>25-29</td>
<td>89.6%</td>
<td>89.6%</td>
<td>47.8%</td>
<td>47.8%</td>
</tr>
<tr>
<td>30-34</td>
<td>97.1%</td>
<td>97.1%</td>
<td>47.5%</td>
<td>47.5%</td>
</tr>
<tr>
<td>35-39</td>
<td>96.9%</td>
<td>96.9%</td>
<td>59.2%</td>
<td>59.2%</td>
</tr>
<tr>
<td>40-44</td>
<td>96.6%</td>
<td>96.6%</td>
<td>66.0%</td>
<td>66.0%</td>
</tr>
<tr>
<td>45-49</td>
<td>95.3%</td>
<td>95.3%</td>
<td>61.1%</td>
<td>61.1%</td>
</tr>
<tr>
<td>50-54</td>
<td>91.3%</td>
<td>91.3%</td>
<td>58.3%</td>
<td>58.3%</td>
</tr>
<tr>
<td>55-59</td>
<td>83.9%</td>
<td>91.3%</td>
<td>54.2%</td>
<td>54.2%</td>
</tr>
<tr>
<td>60-64</td>
<td>54.2%</td>
<td>91.3%</td>
<td>28.9%</td>
<td>28.9%</td>
</tr>
<tr>
<td>65-69</td>
<td>54.2%</td>
<td>91.3%</td>
<td>28.9%</td>
<td>28.9%</td>
</tr>
</tbody>
</table>


Unemployment rates presented by the National Pension Research Center for their mid-term forecasts (1998 to 2002) were used; thereafter, it was assumed that unemployment will remain at 2% per annum.

Table 3. Projected Unemployment Rate in Korea (%)

<table>
<thead>
<tr>
<th></th>
<th></th>
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<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Annual Rate of unemployment</td>
<td>2.0</td>
<td>2.6</td>
<td>6.5</td>
<td>6.0</td>
<td>5.1</td>
<td>4.3</td>
<td>4.1</td>
<td>2.0</td>
</tr>
</tbody>
</table>

Source: Adapted from the June 1, 1998 NPC meeting material

INSURANTS AND BENEFICIARIES

*Insured Population:* Information on the number and earnings profile of insurants by age group, sex and class of standard monthly income was obtained from the 1995 National Pension Statistical Yearbook. The future number of insurants (called nominal contributors under PROST) is derived from the population data and the input pension coverage rate.

*Contributors:* Pension coverage rates under the NPS for 1995-1998 were assumed to observe the historical trend. In 1999, pension coverage rates, as percentages of labor force, were assumed to increase gradually as shown in Figure 3. It was further assumed that the collection rate would be 97% for the workplace, 75% for the rural workers, whereas the collection rate for the urban self-employed will increase gradually from 45% in 1999 to 70% by 2006, and ultimately rises to 75% by 2080.
Coverage under the Government Employees Pension System for 1995-1998 were assumed to observe the historical trend; thereafter, it is assumed to remain as a constant percent at 4.5% of the total labor force.

**Figure 3. Coverage (1995-2080)**

<table>
<thead>
<tr>
<th>Coverage Trend</th>
</tr>
</thead>
<tbody>
<tr>
<td>% of labor force</td>
</tr>
</tbody>
</table>

Source: Prost output file

**Beneficiaries:** The number of base-year beneficiaries under each category (those in receipt of old-age pension, disability, survivors and lump-sum refunds) expressed as percentages of the population by sex- and age-cohorts were set as the initial stock rates. Subsequent stock rates were determined in accordance with the maturity of the pension system and interpolated rates were used for the interim years. The stock calculated based on the number of insurants, their average length of service at retirement, and the incidence of disability.

**FINANCIAL PROJECTIONS**

The following chart shows a schematic view of the financial flows and the calculations.
Figure 4. Financial Flows

| Contributions | Direct govt. Contributions | Other sources of revenue |

Contributions in age group
\[ \times \]
Average wage of age group
\[ \times \]
Contribution rate

**Macro Economic Trends:** In performing projections on the financial status of the NPS and the Government Employees Pension System, macroeconomic trends were estimated by the Bank's mission team. Key economic assumptions are summarized in Table 4 below.

**Table 4. Economic Assumptions**

<table>
<thead>
<tr>
<th></th>
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<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Real GDP Growth</td>
<td>7.1%</td>
<td>5.5%</td>
<td>-1.0%</td>
<td>2.8%</td>
<td>4.9%</td>
<td>5.3%</td>
<td>5.4%</td>
<td>3.0%</td>
<td>3.0%</td>
<td>3.0%</td>
<td>3.0%</td>
<td>3.0%</td>
<td>3.0%</td>
</tr>
<tr>
<td>Real Wage Growth</td>
<td>7.8%</td>
<td>-7.4%</td>
<td>-11.7%</td>
<td>-1.4%</td>
<td>7.3%</td>
<td>4.8%</td>
<td>4.5%</td>
<td>3.0%</td>
<td>3.0%</td>
<td>3.0%</td>
<td>3.0%</td>
<td>3.5%</td>
<td>3.5%</td>
</tr>
<tr>
<td>Inflation Rate</td>
<td>5.0%</td>
<td>4.4%</td>
<td>9.4%</td>
<td>4.5%</td>
<td>4.3%</td>
<td>4.0%</td>
<td>3.4%</td>
<td>3.2%</td>
<td>4.0%</td>
<td>3.5%</td>
<td>3.0%</td>
<td>2.5%</td>
<td>2.5%</td>
</tr>
<tr>
<td>Real Interest Rate</td>
<td>6.6%</td>
<td>8.6%</td>
<td>8.3%</td>
<td>4.3%</td>
<td>6.4%</td>
<td>6.8%</td>
<td>6.0%</td>
<td>5.0%</td>
<td>5.0%</td>
<td>5.0%</td>
<td>5.0%</td>
<td>5.0%</td>
<td>5.0%</td>
</tr>
</tbody>
</table>

*Source: World Bank assumptions*

**Estimated Contributions**

Estimated yearly contributions were derived by applying the specified contribution rates against the average wage of each age-cohort, based on information obtained from the 1995 National Pension Statistical Yearbook. The age/wage distribution of those who will enter the National Pension Scheme under the 1999 coverage expansion was assumed to resemble those of insurants in the workplaces, except for their earnings level. Average wage of these urban insurants was assumed to be 80% of those from workplaces.

Based on the above economic assumptions, the wage distribution profile across age cohorts, the age- and gender-specific nominal wages, the total wage bill of the nominal contributors would then be determined and the resulting payroll tax revenue calculated.
• **Estimated Expenditures**

   Figure 5. Estimation of Expenditures

   ![Diagram of Expenditures](image)

   From the total wage bill, average wage of the nominal and effective contributors would then be determined and applied against a pre-defined replacement rate to calculate the entry benefits of the various categories of beneficiaries. Replacement rates were determined based on the pension formula and the weighted average term-insured. Apart from benefit payments, it was assumed that no other expenditures including administrative costs were to be paid from the pension fund.

• **Fiscal Balance**

   From the revenue and expenditure stream of payments, current balance and fund balance was calculated.

   Current balance is defined to be the difference between revenues and expenditures. The fund reserve would accumulate based on the following:

   \[ A(t+1) = A(t) \times (1+r(t)) + I(t) - E(t) \]

   where, \( A(t) \) is the amount of fund reserve at the beginning of the year
   \( A(t+1) \) is the amount of fund reserve at the end of the year
   \( r(t) \) is the assumed portfolio return for the year \( t \)
   \( I(t) \) is the revenue for the year \( t \)
   \( E(t) \) is the expenditure for the year \( t \)
TRANSITION TO MULTIPILLAR

Switching Patterns: In modeling the transition to the multipillar system, it is assumed that the insurants' age profile will determine their likelihood of switching. Apart from the fact that all new entrants will be required to join the multipillar system, current insurants are assumed to base their switching decision on the number of years to retirement. As such, Table 5 shows the percentage, by age cohorts, of current insurants who will switch to the multipillar system.

Table 5. Switching Patterns

<table>
<thead>
<tr>
<th>Workplace</th>
<th>Rural</th>
<th>Urban</th>
</tr>
</thead>
<tbody>
<tr>
<td>Under age 20</td>
<td>80%</td>
<td>50%</td>
</tr>
<tr>
<td>21-30</td>
<td>40%</td>
<td>30%</td>
</tr>
<tr>
<td>31-40</td>
<td>20%</td>
<td>10%</td>
</tr>
<tr>
<td>Age 40 and over</td>
<td>0%</td>
<td>0%</td>
</tr>
</tbody>
</table>

Source: World Bank assumption

Acquired Rights: In accordance with the suggested provisions, all acquired rights under the current NPS will be preserved.