The National Pension System:
Sustainability and Options for Reform

2007. 3.
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Objectives

- To examine the impact of population aging on the NPS
- To assess the financial robustness of the NPS
- To analyze contributions and limits of the NPS Reform proposals
- To discuss policy measures for enhancing the long-term sustainability and inter-generational equity


**Issues & Problems : Basic Structure of NPS**

**Basic Structure**

- Introduced in 1988
- Defined Benefit Plan (Old-Age, Survivors, Disability)
- Contributory System with Partial Prefunding
  - Fund Reserve: 160 bil. USD (20% of GDP) in 2005
- Redistribution (Lump-sum : Earnings Proportional = 50 : 50)
- Base for Benefits: Lifetime Average Income (Wage Indexation)
- Average Replacement Rate (40yrs): 70% (’88) → 60% (’98)
- Contribution Rate: 9% (with income ceiling)
- Pensionable Age: 60 → 65 (2033)
- Benefits are indexed by inflation rate (CPI)
Issues & Problems: Population Aging

- Although it is at an initial stage, it is expected Korea’s population aging will rapidly progress.
  - Currently, the ratio of population over the age 65 is 8.3%, which is in the mid range of OECD countries.
  - What has taken several decades for other advanced countries to transform to ‘aged society’, it will only take 18 years for Korea.

<table>
<thead>
<tr>
<th>Country</th>
<th>Ratio of population aged 65 and over</th>
<th>Years in transition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Korea</td>
<td>7% to 14% (2000), 14% to 20% (2026)</td>
<td>18</td>
</tr>
<tr>
<td>Japan</td>
<td>7% to 14% (1970), 14% to 20% (2006)</td>
<td>24</td>
</tr>
<tr>
<td>France</td>
<td>7% to 14% (1864), 14% to 20% (2020)</td>
<td>115</td>
</tr>
<tr>
<td>Germany</td>
<td>7% to 14% (1932), 14% to 20% (2012)</td>
<td>40</td>
</tr>
<tr>
<td>U.K.</td>
<td>7% to 14% (1929), 14% to 20% (2021)</td>
<td>47</td>
</tr>
<tr>
<td>Italy</td>
<td>7% to 14% (1927), 14% to 20% (2007)</td>
<td>64</td>
</tr>
<tr>
<td>U.S.</td>
<td>7% to 14% (1942), 14% to 20% (2028)</td>
<td>71</td>
</tr>
<tr>
<td>Sweden</td>
<td>7% to 14% (1887), 14% to 20% (2012)</td>
<td>85</td>
</tr>
</tbody>
</table>
Issues & Problems : Population Aging

- Korea’s rapid aging is mainly attributable to 1) decline in birth rate, and 2) extended life expectancy.
  - Fertility rate for Korea in 2004 is 1.08, the lowest level in the world
  - Korea’s life expectancy in 2000 was 75.9, in 2030 will be 81.5

<TFR : 1970-2003>

<Dependency Ratio : 2000-2070>
Issues & Problems: Population Aging

- With population aging and system’s maturing, recipients will outnumber contributors by 2045.
- Plan’s Dependency Ratio
  - Old-Age Pensioners: 10.8% ('05) → 101.0% ('70)
  - Total Beneficiaries: 13.0% ('05) → 131.3% ('70)

Dependency Rate (I) = Old Age Pensioners / Total Contributors  
Dependency Rate (II) = Total Beneficiaries / Total Contributors
Issues & Problems: Structural Imbalance

- **Financial Vulnerability** due to the structural imbalance between low contributions and high benefits
  - Korean public pension schemes strongly favor early contributors (intergenerational inequity).
    - The NPS will become unsustainable unless the contribution rate is increased from the current level of 9 percent to above 20 percent.

< Internal Rate of Return of the NPS >

<table>
<thead>
<tr>
<th></th>
<th>Lowest income</th>
<th>Median income</th>
<th>Highest income</th>
</tr>
</thead>
<tbody>
<tr>
<td>IRR</td>
<td>10.4% (7.4)</td>
<td>8.4% (5.4)</td>
<td>7.3% (4.3)</td>
</tr>
</tbody>
</table>

- PVB/PVC for median income earners:
  - 2.6 for real discount rate of 2%
  - 2.0 for real discount rate of 3%
Issues & Problems : Structural Imbalance

- If the current B/C levels are sustained, the NPF will be exhausted by 2047.
  - Contribution Rate : 30% (2050), 39% (2070)

< Financial Projection of the Current NPS (KDI) >
Issues & Problems: Accounting Standard

- Funding Methods and Accounting Standards:
  - PAYG: Open Group Measure (balancing yearly cashflow)
  - Prefunded: Closed Group Measure (maintaining actuarial robustness)

- ‘mismatch’ problem between (partial) prefunding and OGM accounting:
  - OGM poses limitations with regard to identifying the actuarial robustness and assessing the appropriateness of the fund reserve level.
  - If we are to maintain or strengthen the partial prefunding, accounting standard of NPS should be changed to OGM.
Issues & Problems: Accounting Standard

- Actuarial Evaluation
  - Unfunded Actuarial Liability (PBO) will continue to increase.
    - UAL (% of GDP): 33.2% (’05) → 117.1% (’45) → 161.5% (’70)
  - Funding Ratio (actual reserve/total pension obligation):
    - 37.7% (’05) → 46.6% (’20) → 0.0% (’47)

< Actuarial Evaluation of the Current NPS >
Issues & Problems: Relative Advantages

- The NPS is still in its initial stage. (plan’s dependency ratio is only around 10%)
- So far, the NPS has maintained the partial pre-funding method.
- The level of UAL is relatively low. (UAL(’05): 30% of GDP)

⇒ Depending on the reform measures taken in the future, the choice still can be made on whether to maintain or strengthen the pre-funding method, or to transition into the PAYG method.
The 2003 NPS Reform Bill: Major Features

- **Government Reform Proposal (2003)**
  - parametric reform (1-tier scheme)
  - Long-term financial stabilization measures:
    - avg. replacement rate (40yrs):
      - $60\% \rightarrow 55\% (2005) \rightarrow 50\% (2008)$
    - contr. rate: $9\% \rightarrow 15.9\% (2030)$
      \[ \Rightarrow \text{Partial funding will be maintained until 2070.} \]
  - measures to discourage early retirement
    - increase in reduction rate for early retirement pension
  - measures to enhance transparency in fund management
    - strengthen the role of the NPF Management Committee
The 2003 NPS Reform Bill: Actuarial Evaluation

- When the proposed NPS reform measures are implemented, it cannot sufficiently guarantee the financial sustainability:
  - The pension fund’s balance will turn to deficit in 2058.
  - Just postpones the timing of fund depletion by 25 yrs.

< Financial Prospects of NPS Reform Bill (KDI) >
The 2003 NPS Reform Bill: Actuarial Evaluation

- Financial stabilization goal: “to maintain the target reserve ratio* as twice by 2070”
  (* reserve ratio = fund reserve / yearly pension expenditure)
  - Under such a goal, the stabilization measures would vary sensitive to the preset target period, and periodical readjustment is unavoidable.
  - Fund depletion is inevitable beyond the target year, and the pre-funding would not be tenable.

- The fundamental cause of such irrationality in financial stabilization goals are;
  - Lack of discussion on the appropriate funding method that must precede adoption of specific stabilization measures.
  - The mismatch of accounting standard of OGM in spite of the pre-funding operation.
Actuarial evaluation reveals that, despite the NPS reform,
- UAL will continue to rise to 137% of GDP by 2070.
- Funding ratio will be dropped to 14% in 2070.
The Revised 2006 NPS Reform Bill

- Revised Reform Proposal (2006)
  - Financial stabilization measures:
    - avg. replacement rate (40 yrs): 60% $\rightarrow$ 50% (’08)
    - Contribution rate: 9% $\rightarrow$ 12.9% (2018)
  $\Rightarrow$ just postpones the fund depletion for 17 yrs.

*Estimated by KDI*
The Revised 2006 NPS Reform Bill

- Introduction of Basic Old-Age Pension (BOAP)
  - Objectives: to supplement the insufficient coverage of the current NPS
  - Coverage: 60% of the elderly population (65+) (means-tested)
  - Benefits: lump-sum payments of 89ths. won per month (appr. 5% of avrg. wage)
  - Tax-financed

<Forecasts of Annual Expenditures: Comparison>

※ Estimated by KDI
**The OP’s NPS Reform Bill (2004)**

- **Structural Reform**
  - 2-tier scheme: BP+ERP
  - Average Replacement Rate (ARR): 40%

- **Earnings Related Pension (ERP)**
  - (nearly) fully-funded DB Plan (Contr. rate: 7%)
  - Earnings proportional benefits (A.R.R.: 20% for 40yrs)
  - Employees: mandatory participation, self-employed: optional participation

<Financial Prospects of OP's Reform Bill>

![Graph showing financial prospects of OP's Reform Bill](image)
The OP’s NPS Reform Bill (2004)

- Basic Pension (BP)
  - Universal coverage (80% of 65+)
  - Lump-sum benefits (A.R.R: 20%)
  - Tax-financed PAYG scheme

<Forecasts of Annual Expenditure of OP's Proposal>

※ Estimated by KDI
Policy Implications

- If we are to maintain the sustainability of the NPS in the face of population aging,
  - Decision on the appropriate funding method is a prerequisite for the establishment of its reform direction.
  - The target reserve ratio(multiple) should be replaced by the target funding ratio.
  - Stabilization measures should be designed properly to achieve such goals, based on the more accurate actuarial evaluation and inter-generational accounting
Policy Implications

- Relationship among funding ratio, premium adjustment speed and the inter-generation equity;
  
  • A higher target-funding ratio will improve the inter-generational equity, but demands a higher pace of premium increases.
  
  • A lower target-funding ratio can be achieved through relatively slow premium adjustment, but will result in increased burden to the follow-on generations.

⇒ In deriving a social consensus on a target-funding ratio, such inter-generational accounting implications should be explicitly considered.
**Policy Implications**

- Gradual increase of premiums (1.38% pt for every 5 yrs):
  - premiums: 24.2% ('70), long-term funding ratio: 60%

- Rapid increase of premiums (2.0% pt for every 5 yrs):
  - Premiums: 21.0% ('70), long-term funding ratio: 88%
Policy Implications: Further Discussions

- Missing Discussions
  - for Earnings Related Pension (Part)
    - Defined Contribution Plan
    - Individual Account System
    - Introducing ‘Demographic Adjustment Mechanism’ (e.g. Sweden, Germany)
  - for Basic Pension (Part)
    - universal coverage vs means-tested
    - minimum pension/income guarantees
    - Prefunded vs PAYG

- Step-by-step Approach is needed.
  - Two objectives (‘financial sustainability’ and ‘universal coverage’) needs to be separated.
  - Parametric Reform → Structural Reform
Thank you