Expanding Coverage of the National Pension in Korea: Effectiveness of Matching Contribution Subsidy

Hyungpyo Moon (Korea Development Institute)
OUTLINES

I. Introduction: Current State

II. Participation Behaviors in the National Pension

III. Effectiveness of Matching Contribution Subsidy

IV. Policy Implications
I. Introduction: Current State
I. National Pension: Current State

- **Major Old-age Income Security System in Korea (2011)**

  - **<3rd Pillar>**
    - Private Pensions
    - Corporate Pensions/Retirement Allowances
      - Tax subsidized
      - Mandatory participation
      - Tax subsidized

  - **<2nd Pillar>**
    - NPS (1988)
      - Earnings-proportional
        - Contributory/partially funded DB (USD 300bil.)
        - Avg. R.R (40 yrs): 50% ('08) → 40 ('28)
        - Redistribution function (50:50)
        - Pensionable age: 60 → 65 ('33)
        - CPI indexed
        - Contribution Rate: 9%
          - workplace: 4.5% each (employer/employee)
          - self-employed: 9%
      - Flat rate

  - **<1st Pillar>**
    - Basic Old-age Pension
      - Non-contributory/tax-financed
      - 70% of population 65+ (means-tested)
      - Benefits: flat benefits of R.R 5% → 10% ('28)
I. National Pension: Current State

Coverage Expansion of the NP

- Workplace Insured
- Workplace Insured with 1 or more employees
- Workplace Insured with 10 or more employees
- Workplace Insured with 5 or more employees
- Rural areas, farmers, and fishermen
- Individually Insured (paying)
- Individually Insured (exempted)
- Urban self-employed, workplaces with less than 5 employees

Source: NPS
## National Pension: Current State

### Narrow Coverage

Currently, about 1/3 of the insured are non-contributors.

Insufficient income and administrative incapacity are main causes for non-contributions.

<table>
<thead>
<tr>
<th></th>
<th>Total Insured</th>
<th>Workplace-based</th>
<th>Individually Insured</th>
<th>Voluntary Participants</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(thousand persons., %)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Insured</td>
<td>18,624 (100.0)</td>
<td>9,867 (53.0)</td>
<td>8,680 (46.6)</td>
<td></td>
</tr>
<tr>
<td>Workplace-based</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Individually Insured</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Contributions</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Collected</td>
<td>2,253 (12.1)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Not-Collected</td>
<td>1,375 (7.4)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Exempted</td>
<td>5,052 (27.1)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Voluntary Participants</td>
<td>77 (0.4)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Non-contributors (34.5%)
Ⅱ. Participation Behaviors in the NP
II. Participation Behaviors in the NP

Who are the individually-insured?

Statutory division: active wage workers ⇒ workplace-insured

self-employed/ employers ⇒ individually-insured

Surveyed results (KOWEPS) are quite different.

- In fact, 1/3 of individually-insured are active wage workers.

Composition of Individually-insured

- Others*: 31.0%
- Self-employed: 35.4%
- Wage Workers:
  - Regular: 12.9%
  - Temporary: 8.4%
- Daily: 12.1%

* includes unpaid family workers, unemployed, and economically non-active population

Source: Calculated from Korea Welfare Panel Data, 2008.
Who are non-participants?

Participation rates: self-employed (58.6%), wage workers (27.8%)

- Only 17.7% of temporary workers are actually paying contributions.

The higher the job insecurity, the lower the participation rate.

Participation Behaviors by Type

* includes unpaid family workers, unemployed, and economically non-active population

Source: Calculated from Korea Welfare Panel Data, 2008.
## II. Participation Behaviors in the NP

### Estimation Results for Individually Insured Persons (Probit)

<table>
<thead>
<tr>
<th>Dependent Variables</th>
<th>Model 1</th>
<th></th>
<th>Model 2</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>dy/dx (s.e)</td>
<td></td>
<td>dy/dx (s.e)</td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>0.0758*** (0.028)</td>
<td></td>
<td>0.0736*** (0.028)</td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td>0.0375** (0.016)</td>
<td></td>
<td>0.0355** (0.016)</td>
<td></td>
</tr>
<tr>
<td>Age²</td>
<td>-0.0002 (0.000)</td>
<td></td>
<td>-0.0002 (0.000)</td>
<td></td>
</tr>
<tr>
<td>Economic Status</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Basis: Temporary Worker)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Regular Worker</td>
<td>0.1835*** (0.063)</td>
<td></td>
<td>0.1822*** (0.063)</td>
<td></td>
</tr>
<tr>
<td>Daily Laborer</td>
<td>0.0023 (0.058)</td>
<td></td>
<td>0.0048 (0.058)</td>
<td></td>
</tr>
<tr>
<td>Self-employed</td>
<td>0.3129*** (0.052)</td>
<td></td>
<td>0.3150*** (0.052)</td>
<td></td>
</tr>
<tr>
<td>Others*</td>
<td>-0.0513 (0.052)</td>
<td></td>
<td>-0.0492 (0.052)</td>
<td></td>
</tr>
<tr>
<td>Educational Background</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Basis: Middle School or lower)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>High School</td>
<td>-0.0475 (0.037)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>College or Higher</td>
<td>-0.0399 (0.042)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Years of Schooling</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>In (Disposable Income)¹)</td>
<td>0.1144*** (0.023)</td>
<td></td>
<td>0.1140*** (0.023)</td>
<td></td>
</tr>
<tr>
<td>Observations</td>
<td>1,933</td>
<td></td>
<td>1,933</td>
<td></td>
</tr>
</tbody>
</table>

Robust standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1

¹) Adjusted for family size using $\sqrt{n}$
Empirical Findings (individually-insured)

Participation behaviors are highly sensitive to variables such as income, age and gender.

Education variables were statistically insignificant.

When individual characteristics are controlled, the participation probability of regular workers (self-employed) is 2 times (2.8 times) higher than temporary workers, respectively.
What type of workers are excluded? (1)

The workers in smaller workplace are more unlikely to participate in NP.

- Participation rates are much lower for workplaces with 10 or less employees.

Participation Behavior of Wage Workers

A. By Workplace Size

<table>
<thead>
<tr>
<th>Workplace Size</th>
<th>Workplace-based Insured</th>
<th>Individually Insured</th>
<th>Individually Uninsured</th>
</tr>
</thead>
<tbody>
<tr>
<td>1~4</td>
<td>36.57</td>
<td>14.68</td>
<td>48.75</td>
</tr>
<tr>
<td>5~9</td>
<td>57.91</td>
<td>9.12</td>
<td>32.98</td>
</tr>
<tr>
<td>10~99</td>
<td>79.74</td>
<td>6.68</td>
<td>13.58</td>
</tr>
<tr>
<td>100~299</td>
<td>91.93</td>
<td>3.11</td>
<td>4.97</td>
</tr>
<tr>
<td>300 or more</td>
<td>92.95</td>
<td></td>
<td>4.20</td>
</tr>
</tbody>
</table>

Legend:
- Workplace-based Insured
- Individually Insured
- Individually Uninsured
What type of workers are excluded? (2)

Participation rates are particularly low for workers in Construction, Wholesale/Retail, and Accommodation industries.

Participation Behaviors of Wage Workers

B. By Business Type

- Manufacturing: 91.8% Workplace-based Insured, 5.8% Individual Insured, 2.4% Individually Uninsured
- Construction: 39.3% Workplace-based Insured, 14.5% Individual Insured, 5.4% Individually Uninsured
- Wholesale & Retail Trade/Accommodation: 59.9% Workplace-based Insured, 34.7% Individual Insured, 9.0% Individually Uninsured
- Transportation/Telecommunications: 77.0% Workplace-based Insured, 14.0% Individual Insured, 9.0% Individually Uninsured
- Other Services: 75.0% Workplace-based Insured, 16.0% Individual Insured, 9.0% Individually Uninsured
- Public Administration/Defense/Education: 84.0% Workplace-based Insured, 10.6% Individual Insured, 5.4% Individually Uninsured

Source: Calculated from Korea Welfare Panel Data, 2008.
## Ⅱ. Participation Behaviors in the NP

### Estimation Results for Wage Workers (Probit)

<table>
<thead>
<tr>
<th>Dependent Variables</th>
<th>Participation or Non-participation</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>dy/dx</td>
</tr>
<tr>
<td>Male</td>
<td>0.0109</td>
</tr>
<tr>
<td>Age</td>
<td>-0.0138***</td>
</tr>
<tr>
<td>Age^2</td>
<td>0.0002**</td>
</tr>
</tbody>
</table>

### Educational Background (Basis: Middle School or Lower)
- High School: -0.0823*** (0.027)
- College or Higher: -0.0223 (0.026)

### Economic Status (Basis: Temporary Worker)
- Regular Worker: 0.2301*** (0.027)
- Daily Laborer: -0.0840** (0.034)

### Workplace Size (Basis: less than 5 employees)
- 5~9: 0.0235* (0.014)
- 10~99: 0.0885*** (0.012)
- 100~299: 0.0864*** (0.009)
- Over 300: 0.1138*** (0.012)

### Business Type (Basis: Manufacturing)
- Agriculture, Forestry, and Fishery: -0.1820* (0.111)
- Construction: -0.1080*** (0.033)
- Wholesale & Retail Trade and Accommodation: -0.1547*** (0.033)
- Transportation and Telecommunications: -0.1140*** (0.039)
- Other Services: -0.0919*** (0.023)
- Public Administration, Defense, and Education: -0.0430 (0.029)

<table>
<thead>
<tr>
<th>ln (dincome)(^{1)}</th>
<th>0.0280**</th>
<th>(0.012)</th>
</tr>
</thead>
</table>

Observations: 2,746

Robust standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1

1) Adjusted for family size using $\sqrt{n}$. 


Ⅱ. Participation Behaviors in the NP

Empirical findings (wage workers)

Participation probability of regular workers is higher by 23.0% p, compared to temporary workers.

Participation probability of workers in small business (<10 employees) is lower by 8~11% p.

Participation probability of regular workers in construction (wholesale/retail) industry is significantly lower by 15% p (10%p), compared to manufacturing industry.

→ The primary target group for coverage expansion should be non-regular workers in small business.
Ⅲ. Effectiveness of Matching Contribution Subsidy
Ⅲ- 1. Policy Options for Coverage Expansion

► Option 1: Introduction of non-contributory universal basic pension
- Due to rapid population aging, the BP expenditure alone will take up 7.2~9.6% of GDP in 2050. (avg. rep. rate: 15~20%)
- When financed by VAT, the tax rate (currently 10%) should go up to 21~29% by 2050.

► Option 2: Providing compliance incentives through matching contribution subsidy
- How effective is the contribution subsidy in enhancing coverage of the challenging groups?
- Who should be the targeted groups?
1. Policy Options for Coverage Expansion

Proposal of the Ministry of Health & Welfare (2010): to provide low-income individually-insured persons with a matching subsidy that covers a half (4.5%) of their contributions.

The MoHW’s proposal implicitly assumes that the majority of individually-insured are self-employed.

- However, many of them are actually active wage workers who are automatically entitled to the workplace-based insurance.
- If they were workplace-based insured, they would have to pay only employee’s share of 4.5% (instead of 9%).
1. Policy Options for Coverage Expansion

Conceptual problems of the MoHW’s proposal:

- First, it is equivalent to exonerating irresponsible employers who don’t provide their employees with the workplace-based insurance, rather than relieving the contribution burden of workers.

- Second, it will eliminate incentives to convert non-regular workers into workplace-based insured, as the share of contribution to be paid by workers would not be changed.
Ⅲ- 1. Policy Options for Coverage Expansion

Conceptual problems of the MoHW’s proposal (continued)

- Third, Employers who already registered their employees as workplace-based insured may choose to convert them into individually-insured so as to save their share of contribution (collusion problems).

⇒ More careful design of a matching contribution subsidy is needed, so as not to produce *moral hazard* among employers.
III- 2. Effectiveness of Contribution Subsidy

Current Contribution Subsidy for Farmers/Fishermen

- Beneficiaries: persons who are engaged in agriculture, forestry, livestock or fishery businesses. (farmers and fishermen)
- Subsidizing period: 1995 ~ 2014
- Financing: tax-financed (Special Accounts for Agriculture and Fishery Structure Adjustment)
- Subsidy amount:
  - if monthly income ≤ SIA, 4.5% of income (1/2 of contribution)
  - if monthly income > SIA, 4.5% of SIA (fixed amount)

※ SIA (Standard Income Amount): 3-year average income of the total insured
Ⅴ - 3. Effectiveness of Contribution Subsidy

- number of obs. : 1,933(individually insured, 18~59)

Compliance Rate of Individually Insured Persons by Income Class

### III- 2. Effectiveness of Matching Subsidy

Q: Is there significant differences in participation behaviors?

#### Estimation Result (Probit)

<table>
<thead>
<tr>
<th>Dependent Variables</th>
<th>Individually Insured Persons</th>
<th>Self-employed/employer</th>
<th>Wage Workers</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>dy/dx</td>
<td>s.e.</td>
<td>dy/dx</td>
</tr>
<tr>
<td>Gender</td>
<td>0.1604*** (0.025)</td>
<td>0.0230 (0.058)</td>
<td>0.1001** (0.041)</td>
</tr>
<tr>
<td>Schooling years</td>
<td>-0.0001 (0.005)</td>
<td>-0.0001 (0.009)</td>
<td>-0.0060 (0.008)</td>
</tr>
<tr>
<td>Age</td>
<td>0.0688*** (0.015)</td>
<td>-0.0031 (0.030)</td>
<td>0.0602** (0.026)</td>
</tr>
<tr>
<td>Age²</td>
<td>-0.0006*** (0.000)</td>
<td>0.0002 (0.000)</td>
<td>-0.0005* (0.000)</td>
</tr>
<tr>
<td>ln (Disposable Income)¹)</td>
<td>0.1653*** (0.023)</td>
<td>0.0985*** (0.036)</td>
<td>0.1597*** (0.037)</td>
</tr>
<tr>
<td>Dummies for farmers &amp; fishermen</td>
<td>0.1785*** (0.060)</td>
<td>0.0131 (0.064)</td>
<td>0.2551*** (0.064)</td>
</tr>
<tr>
<td># of obs</td>
<td>1,933</td>
<td>691</td>
<td>800</td>
</tr>
<tr>
<td>Log pseudolikelihood</td>
<td>-1120.21</td>
<td>-446.49</td>
<td>-417.71</td>
</tr>
</tbody>
</table>

Robust standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1

¹) Adjusted for family size using

Empirical Findings

• The *overall* marginal effect of contribution subsidy to farmers and fishermen seems to be statistically significant and robust.

• However, no empirical evidence was found regarding positive impacts of the contribution subsidy between farmers/fishermen and other self-employed.

  - Provision of similar contribution subsidy for the self-employed may not bring out significant effects of increasing compliance rate.

• On the other hand, the compliance rate of farmers/fishermen is estimated to be higher by 25%p than that of wage workers.
### Ⅲ- 2. Effectiveness of Contribution Subsidy

Workers face additional obstacles.

#### Reasons of Non-compliance: Surveyed Results

<table>
<thead>
<tr>
<th>Reasons</th>
<th>Age</th>
<th>30~39</th>
<th>40~49</th>
<th>50~59</th>
<th>60</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lack of affordability</td>
<td></td>
<td>53.24</td>
<td>50.86</td>
<td>33.61</td>
<td>53.10</td>
</tr>
<tr>
<td>Employers' Refusal</td>
<td></td>
<td>22.17</td>
<td>33.81</td>
<td>53.19</td>
<td>13.63</td>
</tr>
<tr>
<td>Unstable pension scheme</td>
<td></td>
<td>10.65</td>
<td>5.53</td>
<td>6.93</td>
<td>13.87</td>
</tr>
<tr>
<td>Enough other alternatives</td>
<td></td>
<td>3.35</td>
<td>2.41</td>
<td>2.86</td>
<td>3.65</td>
</tr>
<tr>
<td>Not familiar with the scheme</td>
<td></td>
<td>4.37</td>
<td>2.11</td>
<td>1.80</td>
<td>13.59</td>
</tr>
<tr>
<td>Not entitled to mandatory compliance</td>
<td></td>
<td>6.21</td>
<td>5.28</td>
<td>1.60</td>
<td>2.15</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Source: KIHASA (2010).
Ⅳ. Policy Implications
IV. Policy Implications(1)

- Contribution subsidy can be considered as a pre-emptive social investment, as it will alleviate poverty among the elderly in the future.

- It is much less costly compared to the introduction of non-contributory demogrant-type basic pension.

- If properly targeted to low-income/non-regular workers, contribution subsidy can be effective in increasing compliance to the NP.
IV. Policy Implications(2)

- How to design subsidy scheme:
  - provide incentives both to *workers* to participate in the NPP,
  - and to *employers* to convert the individually insured workers into workplace-based insured.

※ example: $3\% (G) - 3\% (E) - 3\% (W)$ for very low-paid workers
  $2\% (G) - 3.5\% (E) - 3.5\% (W)$ for low-paid workers

- need to consider the equity issue between workers and self-employed.
Thank you!