Dynamic Labor Supply and Saving Incentives under a Privatized Pension System: Evidence from Chile

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Individual Pension Accounts

▶ Chile, 1980: first country to replace its insolvent pay-as-you-go with a privatized pension system,

▶ Many countries have since implemented similar systems:
  ▶ Central Asia (Kazakhstan (1998)).

▶ “Privatized” = individual pension accounts → self-financed pensions
Chile’s Privatized Pension System

- Mandatory savings program => “Contributory” pensions
  - 10% of monthly wages saved in a tax-deferred pension account,
  - The funds cannot be accessed until retirement.

- Safety net => “Social” pensions
  - Means-tested welfare pension for the poor,
    (1/3 of minimum wage)
  - Guaranteed Minimum Pension if more than 20 years of contribution.
    (3/4 of minimum wage)
Low Pension Savings Accumulation

- Main policy concern: pension coverage is low.

- In Chile:
  - 62% of the employed contribute to individual account.
  - 50% expected to retire with less than State’s guaranteed minimum pension (GMP).
  - Only 2% will receive the GMP, which requires 20 years on contributions.

- Who contributes?
  - Employees: Contributions are mandatory $\Rightarrow$ coverage is high.
  - But many workers switch in and out of self-employment/informal work.
  - Voluntary contributions are very rare ($< 2\%$ of workers each month).
Research Questions

▶ Are pension rules responsible for the low participation to the pension system?
  ▶ Are workers avoiding pension contributions?
  ▶ Do social pensions crowd-out contributions?
  ▶ Or are workers being rationed out of covered jobs?

▶ What will be the effects of actual or potential policies that aim to increase retirement income?
  ▶ Increase contribution rate,
  ▶ Expand social pensions $\implies$ Chile’s 2008 reform.
Develop a dynamic model of a couple’s lifetime labor and saving decisions:

- Explicitly account for pension rules.

Estimate the model using longitudinal data on Chilean households:

- Earnings, private and pension savings and labor histories

Use the estimated model to evaluate the effects of two policies:

- Policy experiment 1: Changes in the contribution rate,
Model Highlights: The Labor Market

▶ Two sectors:
  ▶ Covered sector (salary jobs),
  ▶ Uncovered sector (informal and self-employed jobs).

▶ Covered jobs...
  ▶ Are subject to taxation and mandatory pension contributions,
  ▶ Might give access to a guaranteed minimum pension.

▶ Endogenous sector-specific human capital accumulation.

▶ Limited access to the covered sector:
  ▶ Covered earnings offers received with proba \( \leq 1 \)
Model Highlights: The joint labor decision

- The household is modeled as unitary.

- Each period each spouse can work in a covered job, an uncovered job or stay home.

- Extra “degree of freedom” to alleviate income uncertainty, liquidity constraints.
  - One of spouses can work in the covered sector while the other is in the uncovered sector.

- Otherwise disincentives from mandatory savings constraints might be overstated.
Model Highlights: The saving decision

- 2 types of savings:
  - Illiquid pension savings accumulated exogenously in covered jobs,
  - Liquid private savings accumulated endogenously.

- The two kinds of wealth are partial substitutes:
  - Private savings $\Rightarrow$ Precautionary and Retirement saving motive
  - Pension savings $\Rightarrow$ Retirement saving motive

- The tradeoff evolves over the lifecycle with the relative strength of the two savings motives, affecting sector choice.
Results: Labor market segmentation

- Are workers rationed out of the covered sector?
  - Counterfactual: Set the probability of receiving a covered offer equal to 1

<table>
<thead>
<tr>
<th></th>
<th>Husbands Baseline</th>
<th>$\Gamma^t_i = 1$</th>
<th>$\Delta$</th>
<th>Wives Baseline</th>
<th>$\Gamma^t_i = 1$</th>
<th>$\Delta$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>69.9</td>
<td>74.0</td>
<td>4.1</td>
<td>30.4</td>
<td>30.7</td>
<td>0.3</td>
</tr>
<tr>
<td>By Education</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No Highschool</td>
<td>62.4</td>
<td>70.8</td>
<td>8.4</td>
<td>17.5</td>
<td>18.6</td>
<td>1.1</td>
</tr>
<tr>
<td>Highschool dropout</td>
<td>68.2</td>
<td>72.5</td>
<td>4.3</td>
<td>21.6</td>
<td>21.7</td>
<td>0.1</td>
</tr>
<tr>
<td>Highschool graduate</td>
<td>72.3</td>
<td>75.4</td>
<td>3.0</td>
<td>35.6</td>
<td>35.8</td>
<td>0.3</td>
</tr>
<tr>
<td>College graduate</td>
<td>77.8</td>
<td>79.3</td>
<td>1.5</td>
<td>74.9</td>
<td>75.4</td>
<td>0.6</td>
</tr>
</tbody>
</table>

- Transferability of Human capital between sectors:
  - Returns to cross-sector H.C. = 0.97 * Returns to same-sector H.C.
Results: Contribution avoidance

Elasticity of pension coverage

<table>
<thead>
<tr>
<th>Contribution Rate</th>
<th>Elasticity to earnings net of contributions (w(1-tao))</th>
</tr>
</thead>
<tbody>
<tr>
<td>5%</td>
<td>Husbands: 0.5, Wives: 1.5</td>
</tr>
<tr>
<td>7.5%</td>
<td>Husbands: 1.0, Wives: 2.5</td>
</tr>
<tr>
<td>10%</td>
<td>Husbands: 2.0, Wives: 3.0</td>
</tr>
<tr>
<td>12.5%</td>
<td>Husbands: 1.5, Wives: 3.5</td>
</tr>
<tr>
<td>15%</td>
<td>Husbands: 1.0, Wives: 2.0</td>
</tr>
<tr>
<td>17.5%</td>
<td>Husbands: 0.5, Wives: 1.0</td>
</tr>
</tbody>
</table>

The graph shows the elasticity of pension coverage for husbands and wives, with contributions ranging from 5% to 17.5%. The elasticity peaks at around 12.5% for both groups, indicating a significant response to changes in contribution rates.
Results: Chile’s 2008 reform

- Minimum Pension (pre-2008)
- Welfare Pension (pre-2008)
- High implicit tax on contributions

YEARS OF CONTRIBUTION
PENSION

20
Results: Chile’s 2008 reform

- Minimum Pension (pre-2008)
- Welfare Pension (pre-2008)

2008 Reform: Slope → “taper rate”

+ 50%
Results: Chile’s 2008 reform

- Eligibility and cost of social pensions are greatly expanded:
  - Welfare pension recipients: 3.6% ⇒ 21.7%
  - Safety net cost multiplied by 6

- Effect of reform on pension coverage is negative:
  - Negligible effect at younger ages
  - Reduction of coverage of 5 perc. pts at older ages: stop working earlier.
Conclusion

▶ I develop and estimate a dynamic model of labor supply and saving under a privatized pension system:
  ▶ Context: a developing country with a large uncovered labor market.

▶ I quantify the effects of reforms that aim at increasing pension savings accumulation.

▶ I find that low pension coverage is significantly affected by:
  ▶ Pension contribution avoidance,
  ▶ Crowding-out effects from government transfers,
  ▶ Shortage of covered jobs for low-skilled workers.