The Challenges Facing Social Security

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February 9, 2000

OASDI Operations
Estimates for 2000
(billions of dollars, except Trust fund ratio)

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td>Trust fund at beginning of year</td>
<td>886.8</td>
</tr>
<tr>
<td>Income excluding interest</td>
<td>479.2</td>
</tr>
<tr>
<td>Interest income</td>
<td>58.9</td>
</tr>
<tr>
<td>Total income</td>
<td>538.1</td>
</tr>
<tr>
<td>Outgo</td>
<td>409.1</td>
</tr>
<tr>
<td>Net income</td>
<td>129.0</td>
</tr>
<tr>
<td>Trust fund at end of year</td>
<td>1015.8</td>
</tr>
<tr>
<td>Trust fund ratio</td>
<td>2.17</td>
</tr>
</tbody>
</table>

Source: 1999 OASDI Trustees Report, Table III.B3.
Social Security: 
Demographic Time Bomb

Beneficiaries per 100 Covered Workers

Source: 1999 OASDI Trustees Report, Table II.F.19

Baby Boom in a PayGo System

- Seeds of the Problem
  - Boomers in the work force
    - Easy to pay high per-retiree benefits to early (small) cohorts of retirees
- The Problem Blossoms
  - Boomers in retirement
    - High per-retiree benefits are expected (promised)
    - Large number of retirees
OASDI Trust Fund Ratio

Source: 1999 OASDI Trustees Report, Table II.F.20

Income and Cost Rates: Intermediate

Source: 1999 OASDI Trustees Report, Table II.F.13
Income and Cost Rates: Low Cost

Source: 1999 OASDI Trustees Report, Table II.F.13

Income and Cost Rates: High Cost

Source: 1999 OASDI Trustees Report, Table II.F.13
OASDI Trust Fund Ratios

<table>
<thead>
<tr>
<th>Maximum trust fund ratio (%)</th>
<th>Intermediate</th>
<th>Low Cost</th>
<th>High Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>364</td>
<td>529</td>
<td>265</td>
</tr>
<tr>
<td>Year attained</td>
<td>2013</td>
<td>2018</td>
<td>2008</td>
</tr>
<tr>
<td>Year of exhaustion</td>
<td>2034</td>
<td>--</td>
<td>2024</td>
</tr>
</tbody>
</table>

Source: 1999 OASDI Trustees Report, Table I.G3.

Actuarial Balance

<table>
<thead>
<tr>
<th></th>
<th>Intermediate</th>
<th>Low Cost</th>
<th>High Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Income rate</td>
<td>Cost rate</td>
<td>Balance</td>
<td></td>
</tr>
<tr>
<td>1999 - 2023</td>
<td>12.78</td>
<td>12.50</td>
<td>0.28</td>
</tr>
<tr>
<td>2024 - 2048</td>
<td>13.12</td>
<td>17.79</td>
<td>-4.67</td>
</tr>
<tr>
<td>2049 - 2073</td>
<td>13.28</td>
<td>18.99</td>
<td>-5.71</td>
</tr>
<tr>
<td><strong>1999 - 2073</strong></td>
<td><strong>13.49</strong></td>
<td><strong>15.56</strong></td>
<td><strong>-2.07</strong></td>
</tr>
</tbody>
</table>

| Income rate | Cost rate | Balance |
| 1999 - 2023 | 12.74    | 11.38    | 1.36      |
| 2024 - 2048 | 12.99    | 14.85    | -1.85     |
| 2049 - 2073 | 13.05    | 14.24    | -1.19     |
| **1999 - 2073** | **13.37** | **13.14** | **0.23** |

| Income rate | Cost rate | Balance |
| 1999 - 2023 | 12.82    | 13.70    | -0.88     |
| 2024 - 2048 | 13.28    | 21.18    | -7.89     |
| 2049 - 2073 | 13.62    | 25.80    | -12.19    |
| **1999 - 2073** | **13.62** | **18.60** | **-4.97** |
Recommendations of 1999 Technical Panel

<table>
<thead>
<tr>
<th>Change in actuarial balance</th>
<th>75-year actuarial balance</th>
<th>Annual balance for 75th year</th>
</tr>
</thead>
<tbody>
<tr>
<td>1999 Trustees Report actuarial balance</td>
<td>-2.07%</td>
<td>-6.44%</td>
</tr>
<tr>
<td>Increase rates of mortality decline</td>
<td>-0.51%</td>
<td></td>
</tr>
<tr>
<td>Increase real wage differential by 0.2%</td>
<td>+0.20%</td>
<td></td>
</tr>
<tr>
<td>Reduce return on gov’t securities by 0.3%</td>
<td>-0.20%</td>
<td></td>
</tr>
<tr>
<td>Panel’s actuarial balance</td>
<td>-2.60%</td>
<td>-7.70%</td>
</tr>
</tbody>
</table>

Source: Table II.1 of Panel’s Report

Why Should the Government Provide Retirement Income?

- Myopia/Ignorance of Individuals?
- Adverse Selection in Private Annuities
  - Compulsory program is immune to adverse selection
- Moral Hazard of Individual Savers
  - Government will not let them starve
- Redistribution of Income
  - Intra-generational and inter-generational
PayGo vs. Funded

- PayGo
  - Decreases national capital accumulation
  - Allows intergenerational risk sharing
    - Social Security began during Great Depression
    - Requires intergenerational cooperation
  
- Funded
  - Increases capital accumulation and wages
  - Does not rely on intergenerational cooperation

Strategies for Fixing Social Security

- Changes within Current PayGo Framework
- Change the Structure to a Funded System
  - Funded system run by government
  - Funded system with limited individual control
  - Privatization
  - These changes require a transition that respects currently accrued promises
Moving to a Funded System

- $9 Trillion of Unfunded Liabilities
  - Transition to funded system cannot ignore these
  - Could issue “recognition bonds”
    - People might accept less than 100% of claim
    - Would increase debt/GDP from 0.5 to 1.5

Strategies in PayGo Framework

- Increase Contributions by Workers
  - Increase OASDI taxes
    - increase tax rate or remove cap
  - Increase retirement age
- Reduce Benefits Paid to Retirees
  - Increase retirement age
  - Tax Social Security benefits (redistributional)
- Earn Higher Return on Assets in Trust Fund
  - Invest in other assets such as equities
Motivation for Equity Investment: Exploit the Equity Premium

- Equity Premium = Rate of return on stock minus riskless interest rate
  - Ex post equity premium - data presented below
  - Ex ante equity premium
    - should guide investment
    - unobservable
- No Free Lunch: Equity premium is risky

The Equity Premium in the U.S.

Equity Premium
Relative to Bills and Bonds

- 1920s
- 1930s
- 1940s
- 1950s
- 1960s
- 1970s
- 1980s
- 1990-7

bills
long-term govts
Will the Equity Premium Persist?

- Is the Market Overvalued?
  - Historically high price/earnings ratios
    - Reversion to typical P/E would reduce returns
- Demographic Factors?
- Effect of Trust Fund Investment on Equity Premium?
  - Probably will reduce equity premium
    - By how much?

A Stock Market Collapse: Japan

Index of Japanese Stock Prices
How Big is the Risk of Investing in Equities? - Conceptual Issues

- Who Bears the Risk of Low Investment Returns by the Trust Fund?
- Can the Trust Fund be Used to Share Risks across Generations?
- Intra-generational Distributional Issues
  - Social Security is more important for low-income families
    - May bear more of the risk