Redistribution in an Aging Society

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Introduction

■ Silver Democracy
  ■ The old tend to exercise stronger political influence in democracy as the population growth slows down.

■ A tyranny by the old? So what is wrong?
  ■ Redistribution to the old expands in size as the population ages.
  ■ But this is the outcome in democracy, where the majority dictates policy decisions.

■ Costly intergenerational redistribution
  ■ Redistribution to the old has been traditionally made by taxing the young.
  ■ Intergenerational redistribution costs more as the population growth slows down.
  ■ How can we alleviate the cost in a politically feasible way?
Political Feasibility of Electoral Reform

- Some recent proposals for reforming electoral rules.
  - Demeny voting, Life-Expectancy weighted voting, Age-based districts
  - Electoral reform, let alone constitutional amendment, will take a long time if it is politically feasible at all.
  - Are the elderly willing to give their political power away to the young?

- Is there any other solution that is more politically-feasible and practical to lessen inefficiency caused by intergenerational transfer?
Finance of Old-Age Public Pension

- **Pay as you go program (PAYG) vs. Fully funded program (FF)**
  - The young pay wage taxes as a contribution to the public pension account.
  - PAYG pays out the money to the old immediately, making intergenerational transfer without accumulating it.
  - FF accumulates and invests the money without making intergenerational transfer, and pays out when they are retired.

- **Japan’s public pension program**
  - Now holds large pension funds but is projected to move to an almost complete PAYG pension in 2110.
  - Asset/Payout Ratio of public pension plans in 2014: 3.8 for Employee Pension and 2.8 for National Pension, both going to 1.0 in 2110.
PAYG vs. FF

Generation 0

period 0

YOUNG

\( g = (1+n) \tau \)

period 1

OLD

PAYG

\( g = (1+n) \tau \)

Generation 1

PAYG

\( g = (1+n) \tau \)

period 2

OLD

FF

Generation 2

PAYG

\( g = (1+n) \tau \)

period 3

OLD

n: population growth rate
r: interest rate

\( g = (1+r) \tau \)
PAYG is less efficient than FF in the long run

- Consider an economy with no economic growth, where each pays a contribution \( \tau \) when young and receives a pension \( g \) when old.
- The internal rate of return
  - PAYG: population growth rate \( (n) \) since \( g = (1 + n)\tau \)
  - FF: interest rate \( (r) \) since \( g = (1 + r)\tau \)
- PAYG is more efficient than FF if \( n > r \).
  - PAYG guarantees a higher internal rate of return.
  - No worries about the silver democracy!
  - Most economists dismiss this condition as unrealistic in the long run.
- PAYG is less efficient than FF if \( n < r \).
  - PAYG creates a lower internal rate of return.
- Claim: If \( n < r \), reforming a PAYG pension into FF makes everyone better off in the long run.
The Double Burden Problem: Diagrammatic Explanation

Unfunded Liability
\[ g = (1+n) \tau \]

\[ g = (1+r) \tau \]

\[ g = (1+r) \tau \]
The Double Burden Problem

- In transition from PAYG to FF, the young have to pay for the unfunded pension liability to the old on top of paying contributions for their own retirement.
- How large is the unfunded pension liability in Japan?
  - MHWL reports it is 16 times as much as the yearly receipts for Employee Pension and 8 times for National Pension in 2014.
- Double burden problem is a political obstacle for reforming PAYG into FF.
  - Payment of unfunded liabilities will dissipate the gain that the young in transition should be able to enjoy from the reform.
  - To reduce such young’s burden, the pension must be cut, which will lead the old to oppose the reform.
- Is there any other politically-feasible way to reduce inefficient intergenerational transfer?
## Financing Public Social Expenditure in EU and Japan

### Table: Composition of Social Protection Revenues

<table>
<thead>
<tr>
<th>Nation</th>
<th>Social Contributions</th>
<th></th>
<th>Government Subsidy</th>
<th>Other Revenues</th>
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<tr>
<td></td>
<td>Total</td>
<td>Employers</td>
<td>Protected Persons</td>
<td></td>
</tr>
<tr>
<td>Netherlands</td>
<td>0.66</td>
<td>0.49</td>
<td>0.51</td>
<td>0.20</td>
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<td>Germany</td>
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<td>0.53</td>
<td>0.47</td>
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<td>Japan</td>
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<tr>
<td>France</td>
<td>0.62</td>
<td>0.69</td>
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<td>UK</td>
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<td>0.74</td>
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<td>Italy</td>
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<td>0.70</td>
<td>0.30</td>
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<tr>
<td>Norway</td>
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<td>0.68</td>
<td>0.32</td>
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<td>Sweden</td>
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<td>0.80</td>
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<td>Denmark</td>
<td>0.19</td>
<td>0.58</td>
<td>0.42</td>
<td>0.80</td>
</tr>
</tbody>
</table>

Source: EuroStat (2014), 社会保障費用統計 (H26)
Financing Social Expenditure by Consumption Tax

- Public social expenditure is financed in a variety of ways.
  - Contributions by employers and employees
  - Subsidies from general government
  - Other revenues such as the interest income of public pension funds

- The source of government subsidies
  - In EU countries, a fairly large part seems to come from VATs, which are charged at rates mostly higher than 20%.
  - Japan started earmarking the state’s consumption tax revenues to social security budget since 2014.

- Adema et al. (2011) estimates the effective consumption tax rates facing recipients of public cash benefits.
  - 15% in EU on average, 6.3% in Japan, and 4.1% in US in 2007.

- Overall, consumers pay a non-negligible share of social protection receipts in some countries and not in others.
To Sum UP the Discussions So Far

- Public pension programs have been traditionally and are still now mostly financed by taxing wage income.
  - If a PAYG public pension is financed by wage tax, it becomes less and less efficient as the population growth slows down.
  - The reform of changing PAYG into FF allows us to avoid such inefficiency.
  - But the double burden problem will make it politically difficult to carry out the reform.

- Recently, public pension programs have been financed also by taxing consumption in some countries.

- What differences will be made if a PAYG pension program is financed by taxing consumption instead of taxing wage income?
Lifetime Budget Constraint and Consumer’s Choice

C: Consumption Plan
W: Before-Tax Wage
W’ : After-Tax Wage
AW’ : Savings under Wage Tax

Consumption when Old
Consumption when Young

consumption plan
before tax wage
after tax wage
savings under wage tax
Comparison between Wage Tax and Consumption Tax

- Claim: With a perfect capital market, consumption tax and wage tax have an identical impact on an individual lifetime budget constraint if their tax rates do not change over time and each pays the same tax revenue in a present discounted value.

- However, payments of consumption taxes spread out rather evenly during the whole period of life, while those of wage taxes concentrate during the working period.

- Under consumption tax individuals have to save more when young because they have to pay consumption taxes during the retirement period.

- Claim: Consumption tax encourages the young to save, as compared to the equivalent wage tax.
Financing Public Pension Program by Consumption Tax

Diagram showing the flow of consumption tax and wage tax between generations over three periods.
Impact of Consumption Tax on the Pension Finance

- Claim: If \( n < r \), everyone is better off in the long run when the old-age public pensions program is financed by taxing consumption rather than wages.

- The intuitive reason is as follows.
  - Suppose that the public pension is constant per retiree in real terms.
  - The old are taxed if they spend beyond their pensions.
  - The young are then induced to save more for paying consumption taxes after retirement.
  - Those taxes are used to finance their own public pensions.
  - Thus, when financed by consumption tax a public pension program induces individuals to save for their own old-age pensions as a FF program does.
Reverse Double Burden: Diagrammatic Exposition

Diagram showing the flow of resources and taxes between generations over three periods. The diagram includes symbols for consumption tax, wage tax, and saving. The generations are labeled as Generation 0, Generation 1, and Generation 2.
The Reverse Double Burden Problem

- Financing a public pension program by consumption tax improves the long-run economic welfare of an aging society.

- However, similar to the case of changing PAYG into FF, there occurs what I call the reverse double burden problem.

- If wage tax is replaced with consumption tax, the retirees in the transition period will be forced to pay consumption taxes for financing their own pensions on top of the contributions they have already paid when young.

- This reverse double burden problem may seem to undermine the political viability for replacing wage tax with consumption tax as the double burden problem does for changing PAYG to FF.

- Can we overcome this problem?
Is the Old Generation a Political Monolith?

- Recent silver democracy arguments assume that the old generation is a monolithic, closely united political group.
- When it comes to the problem of choosing the size of intergenerational transfer, they will behave as such. This is why the reform of changing PAYG into FF is politically difficult.
- However, there is large inequality in economic status among the old.
- The old will not behave as a monolithic political group when it comes to the problem of choosing a policy that redistributes income across themselves.
- Using consumption tax to finance a public pension program is a way to break down the old’s political monolith.
How the Reform will Gain Political Support

- Consider a proposal that will increase a public pension per retiree by taxing consumptions rather than wages.
- A poorer class in the old will support it because they receive more than they pay, while a richer class will oppose it.
- As the population growth slows down, the supporters in the old will increase because it becomes more difficult to secure sufficient pensions by taxing only wages due to the shortage of workers.
- A lower income class in the young will also support it as the population growth slows down, because consumption tax becomes a more efficient way to finance a public pension program, while richer class will oppose it.
- Thus, as the population grows older, the proposal is more likely to be backed by a political coalition of poor and middle class of the old and the young.
Concluding Remarks

- Intergenerational transfer becomes less and less efficient as the society grows older.
- Silver democracy may hinder the society from reducing it as far as the old-age voters behave as a monolithic political group.
- A reform that reduces intergenerational transfer and simultaneously redistributes income across the old has a possibility to overcome the silver democracy.
- Financing a public pension program by consumption tax serves as one of such reforms and will gain more political support as the society grows older.
- In practice, we may need wealth tax or inheritance tax to complement redistribution by consumption tax.
- How individuals face liquidity constraints is left as an empirical question.