



Political (In)Stability of Social Security Reform

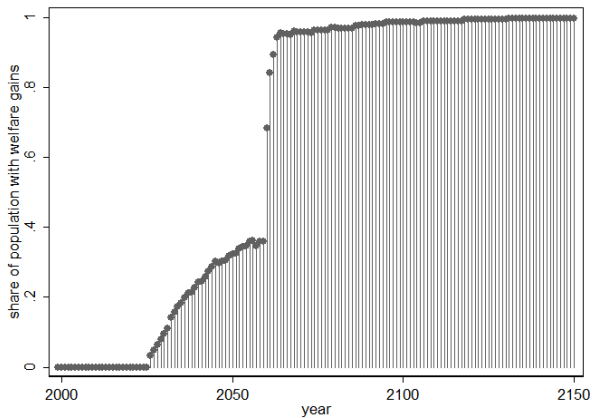
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Motivation



Literature review

- A wave of reforms: Holzman and Stiglitz (2001), Bonoli and Shikinawa (2006), Gruber and Wise (2009)
- Most of these reforms somehow reversed: Jarrett (2011)
- (At least) Some of the reversings welfare deteriorating: Hagemeyer et al (2015)

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- Political economy of pension systems: will the reform be implemented
 - Cooley and Soares (1999), Galasso and Profeta (2002), subsequent literature reviewed by de Waque (2005)
 - extant literature on whether or not privatization is in fact welfare enhancing: Conesa and Kruger (1999), Nishiyama and Smetters (2007), Fehr (2009)

Goals and expectations

Goal

Suppose there already is a reform, with stable long-term gains, but delayed: **does it eventually become politically stable?**

Expectations

- With passing of the initially old cohorts, welfare gains become majoritarian
- Intend to understand/explain the reversing of reforms

Outline

1 Motivation

2 Model

3 Results

Agents

- "born" at age 20 ($j = 1$) and live up to 100 years ($J = 80$)
- subject to time and cohort dependent survival probability π
- choose labor supply l endogenously until exogenous retirement age \bar{J} (forced to retire)

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- choose labor supply l endogenously until exogenous retirement age \bar{J} (forced to retire)
- optimize remaining lifetime utility derived from leisure $1 - l$ and consumption c

$$U_{j,t} = \sum_{s=0}^{J-j} \left[\delta^s \frac{\pi_{j+s,t+s}}{\pi_{j,t}} u(c_{j+s,t+s}, l_{j+s,t+s}) \right]$$

with

$$u(c, l) = \log(c^\phi (1 - l)^{1-\phi})$$

Agents

- receive market clearing wage for labor
- receive market clearing interest rate on private savings
- receive pension income + unintentional bequests
- pay taxes

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Subject to the budget constraint

$$\begin{aligned}
 (1 + \tau_t^c)c_{j,t} + s_{j,t} &= (1 - \tau_t^l)(1 - \tau_t^v)w_{j,t}l_{j,t} && \leftarrow \text{labor income} \\
 &+ (1 + (1 - \tau_t^k)r_t)s_{j-1,t-1} && \leftarrow \text{capital income} \\
 &+ (1 - \tau_t^l)p_{j,t}^l && \leftarrow \text{pension income} \\
 &+ b_{j,t} && \leftarrow \text{bequests} \\
 &- \Upsilon_t && \leftarrow \text{lump-sum tax}
 \end{aligned}$$

Firms

- Perfectly competitive representative firm
- Standard Cobb-Douglas production function

$$Y_t = K_t^\alpha (z_t L_t)^{1-\alpha}$$

- Profit maximization implies

$$w_t = z_t(1 - \alpha)k_t^\alpha$$

$$r_t = \alpha k_t^{\alpha-1} - d$$

Government

- collects taxes on earnings, interest and consumption (sum up to T)
- spends GDP fixed share of GDP on government consumption G
- collects social security contributions and pays out pensions of DB and NDC system

$$subsidy_t = \tau^l \sum_{j=1}^{\bar{J}-1} w_{j,t} l_{j,t} - \sum_{j=\bar{J}}^J p_{j,t} N_{j,t}$$

- services debt D and maintains debt/GDP ratio fixed
- lump-sum taxes Υ adjust to satisfy the govt budget constraint

$$G_t + subsidy_t + (1 + r_t)D_{t-1} = T_t + D_t + \Upsilon_t \sum_{j=1}^J N_{j,t}$$

Pension system

Initial steady state: defined benefit

- Exogenous contribution rate τ and an exogenous replacement rate ρ

$$p_{\bar{j},t}^{DB} = \rho w_{\bar{j}-1,t-1} l_{\bar{j}-1,t-1}$$

indexed by 25% of total payroll growth

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Reform: partially funded defined contribution

- Exogenous contribution rate τ and actuarially fair individual accounts

$$p_{\bar{j},t}^{DC} = \frac{\text{accumulated sum of contributions}_{\bar{j},t}}{\text{expected remaining lifetime}_{\bar{j},t}}$$

- In PAYG: Contributions and pensions are indexed by 25% of total payroll growth
- In funded part: return on capital, tax free

Political economy

What happens within each vote?

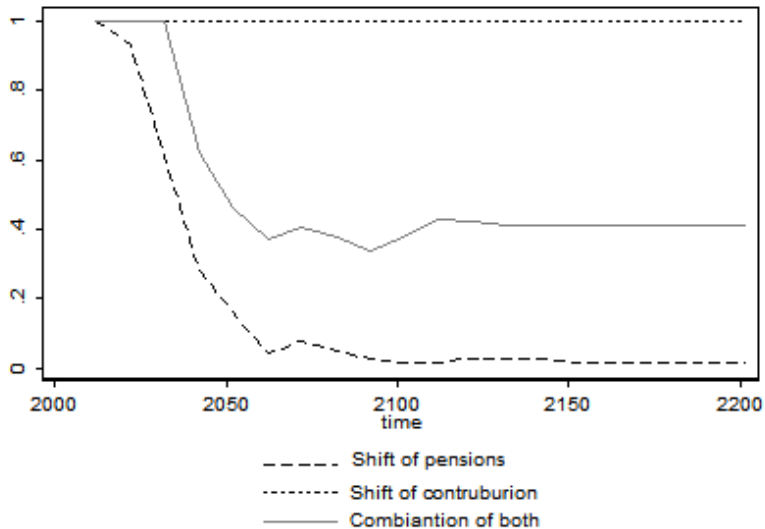
- Policy 1 - shift of contributions: funded \Rightarrow PAYG
- Policy 2 - shift of pensions: annuity \Rightarrow benefit
- Policy 3 - a combination of the two

Political economy

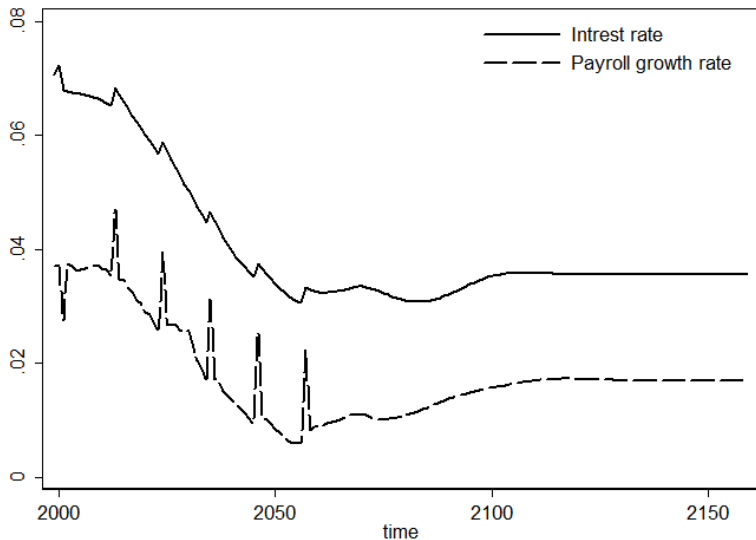
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-
- We run these votes in subsequent years
 - If consumption equivalent positive, a cohort is in favor
 - If a policy gains majority, it is put in place
 - Order of voting: Policy 1 vs status quo \rightarrow winner vs Policy 2 \rightarrow winner vs Policy 3
(tested for transitivity of preferences, holds)

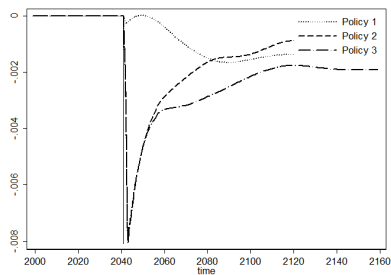
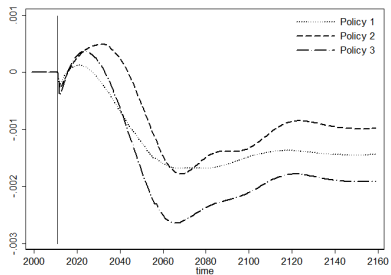
Voting results



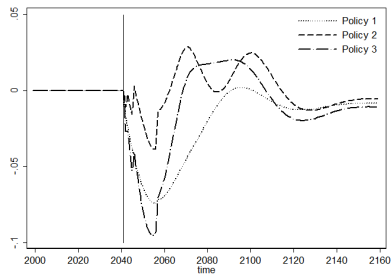
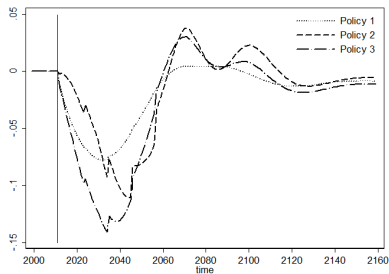
Why are reforms never stable?



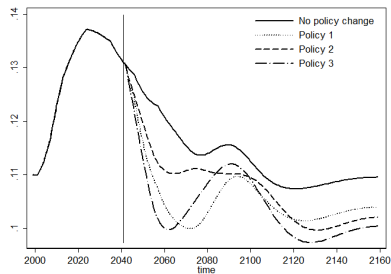
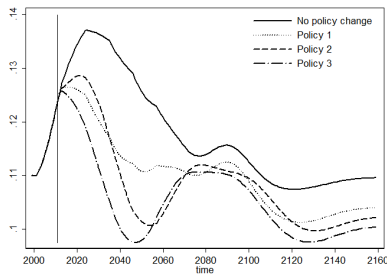
Pension benefits (year 14 and year 44)



Debt share (year 14 and year 44)



Taxes (year 14 and year 44)



Shift of pensions becomes unviable quite fast

Winning scenarios

Voting year	Winning scenario
2014	3
2024	3
2034	1
2044	1
2054	1
2064	1
2074	1
2084	1
2154	1

Conclusions

- We allow subsequent votes of pension system reform reversion to seek when do they become politicall stable
- The votes concern scenarios with long-run welfare deteriorating policies
- We find that
 - funded is never preferred to PAYG
 - annuity becomes preferred to benefit
- Our model has no political risk, business cycle, etc.
- Pension reform reversion is preferred always if it reduces taxes for the living cohorts

Thank you for your attention!

