The Political Feasibility of Postponing Retirement

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The Political Economy Approach

- Conventional Wisdom: Aging – by changing the ratio between Workers and Retirees – may undermine the financial sustainability of PAYG systems
Figure 2.1: Percentage of Elderly in the Total Population
## Financial Sustainability Issues

### EC and OECD’s Official Projections of Pension Spending

<table>
<thead>
<tr>
<th></th>
<th>2000</th>
<th>2050</th>
<th>Old Age Dependency Ratio</th>
<th>Employment Rate</th>
<th>Benefit Formula</th>
<th>Eligibility</th>
</tr>
</thead>
<tbody>
<tr>
<td>France</td>
<td>12.1</td>
<td>15.9</td>
<td>7.6</td>
<td>-0.5</td>
<td>-3.4</td>
<td>0.4</td>
</tr>
<tr>
<td>Germany</td>
<td>11.8</td>
<td>16.8</td>
<td>6.4</td>
<td>-0.7</td>
<td>-2.7</td>
<td>2.1</td>
</tr>
<tr>
<td>Italy</td>
<td>14.2</td>
<td>13.9</td>
<td>10.1</td>
<td>-3.2</td>
<td>-5.5</td>
<td>-1.5</td>
</tr>
<tr>
<td>Spain</td>
<td>9.4</td>
<td>17.4</td>
<td>8.6</td>
<td>-2.6</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>UK</td>
<td>4.3</td>
<td>3.6</td>
<td>1.7</td>
<td>0.1</td>
<td>-2.5</td>
<td>0.1</td>
</tr>
<tr>
<td>US</td>
<td>4.4</td>
<td>6.2</td>
<td>2.4</td>
<td>-0.1</td>
<td>-0.2</td>
<td>-0.3</td>
</tr>
</tbody>
</table>
Conventional Wisdom: Aging – by changing the ratio between Workers and Retirees – may undermine the financial sustainability of PAYG systems

Problem: Systems will have to be Reformed. Possible measures – higher contribution rates, lower pension benefits, postponing retirement, partial funding – differ in how the costs of the reform are distributed across generations.
A Look at Preferences in Europe: Do Pensions Matter?

Public Resources should be Shifted from other Policies towards Pension

DISAGREE  AGREE

Portugal  Grecia  Francia  Italia  Austria  Alemania  Bélgica  Luxemburgo  España  Dinamarca  Irlanda  Países Bajos  Suecia  Finlandia  Reino Unido  Union Europea
A Look at Preferences in Europe: Higher Taxes?

Current Pension Levels Should be Maintained even if this Means Raising Taxes or Contributions

DISAGREE  AGREE

Dinamarca  90
Finlandia  80
Países Bajos  70
Reino Unido  60
Irlanda  50
Suecia  40
España  30
Francia  20
Austria  10
Luxemburgo  0
Bélgica  10
Alemania  20
Italia  30
Portugal  40
Grecia  50
Union Europea  60
A Look at Preferences in Europe: Lower Benefits?

Current Taxes or Contributions Should NOT be Increased even if this Means Lower Pension Levels

DISAGREE AGREE

Portugal 40 30
Francia 50 20
Grecia 60 10
Béllica 50 30
Alemania 40 20
Finlandia 30 10
Dinamarca 0 80
Italia 20 60
Irlanda 10 70
Austria 0 80
Luxemburgo 30 50
Suecia 20 60
España 0 80
Países Bajos 40 30
Reino Unido 20 60
Union Europea 0 80
A Look at Preferences in Europe: Work More?

Retirement Age should increase so people work more and enjoy less old age leisure
Conventional Wisdom: Aging – by changing the ratio between Workers and Retirees – may undermine the financial sustainability of PAYG systems.

Problem: Systems will have to be Reformed. Possible measures – higher contribution rates, lower pension benefits, postponing retirement, partial funding – differ in how the costs of the reform are distributed across generations.

This research project’s view: the political process will have to reconcile the opposite interests of subsequent generations.
Key Issue: Political Sustainability

- **Political Sustainability**: Existence of a majority of the voters in favor of the existing social security system

  - Political sustainability of the social security contribution rate for a given retirement rate.
  - Individual preferences over social security contribution rate depend on age and income
  - How does aging affect political sustainability of the social security contribution rate?
Aging induces (at least) two crucial effects:

- **Economic**: An increase in the Dependency Ratio reduces the average long run return of the system.
  → Since pensions represent a saving device, Portfolio Rebalancing: agents *reduce* the size of pension system.

- **Political**: Aging Increases the Political Weight of the Elderly
  → Generates “political pressure” to *increase* the generosity of the system.
Aging and Politics

Median Age among Voters

- Germany
- France
- Italy
- Spain
- United Kingdom
- United States
Simulations’ Results: Direct Impact of Aging

<table>
<thead>
<tr>
<th>Country</th>
<th>Median Voter’s Age</th>
<th>Effective Retirement Age</th>
<th>Social Security Contribution Rate</th>
<th>Replacement Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>2000</td>
<td>47</td>
<td>58</td>
<td>22.4%</td>
<td>49.2%</td>
</tr>
<tr>
<td>2050</td>
<td>56</td>
<td>58</td>
<td>40.8%</td>
<td>54.6%</td>
</tr>
<tr>
<td>2050</td>
<td>56</td>
<td>65</td>
<td>29.7%</td>
<td>72.2%</td>
</tr>
</tbody>
</table>

**Political aspect dominates:** contribution rates increase everywhere although (generosity) replacement rates may decrease

**Policy Implications:** Higher effective retirement age limits the increase of the size while increasing the generosity of the system.
The Main Lessons

- Aging affects the financial as well as the political sustainability of PAYG pension systems.

- Political effect dominates: the size of the social security system will increase in all countries, albeit with differences.

- Policy implication: an increase in the effective retirement age decreases the size of the system while increasing its generosity

- Next research question: Will voters be willing to support an increase in the effective retirement age?
Key Issue: Political Sustainability

- **Political Sustainability**: Existence of a majority of the voters in favor of the existing social security system (contribution and retirement age)

This paper:
- Preferences onsocial security contribution rate for a given retirement rate.
- Preferences on retirement rate for given social security contribution rate.
- What do individual preferences over retirement rate depend on?
- How does aging affect political sustainability of retirement age?
Retirement Behavior Matters!
Remaining Road Map of the Talk

- Methodology
- Economic Environment
- Voting Game
- Calibration of the Model
- Simulations Results
- Conclusions
Methodology

- Introduce a general equilibrium politico-economic model, calibrated to the economic, demographic and political aspects in four countries: France, Italy, UK and US.

- Simulate the expected economic, demographic and political for 2050 and assess the political sustainability of postponing retirement (and of the social security contribution rate).

- Steady state comparison and issue-by-issue voting.
Economic Environment

- 77-Generations OLG Model: Agents may Live from 18 to 95 and face age-specific probability of survival
- CES Utility Function (on consumption and retirement leisure)
- CD Production Function
- No Labor-Leisure Decision (intensive margin)

Demographic Structure:
- Survival Probability;
- Dependency Ratio (Growth Rate of Population)

- Unfunded, Budget Balanced DB Social Security System
- Political system: issue-by-issue voting.
Economic Model

Preferences -- Life-Time Utility Function:

\[
G \sum_{j=0}^{\infty} \beta^j \prod_{i=0}^{\infty} \pi_{t,i} \left[ \left( c_{t+j} \right)^{1-\rho} - 1 \right] \frac{1}{1-\rho} + \nu_{t+j}
\]

Budget Constraint:

\[
c_{t+j} + a_{t+j+1} = a_{t+j} R_{t+j} + y_{t+j} + H_{t+j}
\]

Income:

\[
y_{t+j} = h \varepsilon_{t+j} w_{t+j} \left( 1 - \tau_{t+j} \right)
\]

Workers

\[
y_{t+j} = P_{t+j}
\]

Retirees
Economic Model

Technology: -- Production Function:

\[ Q_t = f \left[ (1 + \lambda)^t \cdot l_t, k_t \right] = k_t \theta \left[ l_t (1 + \lambda)^t \right]^{1 - \theta} \]

Capital

\[ k_t = \sum_{i=1}^{J} \sum_{q=1}^{Q} \frac{a_{i, q}^t \mu_{q, t, i}}{1 + n} \]

Wages and Rates of Returns:

\[ w_t = f_1 \left[ (1 + \lambda)^t \cdot l_t, k_t \right], \]

\[ R_t = 1 + r_t = f_2 \left[ (1 + \lambda)^t \cdot l_t, k_t \right] + 1 - \delta \]
## Calibration

<table>
<thead>
<tr>
<th>2000</th>
<th>France</th>
<th>Italy</th>
<th>UK</th>
<th>US</th>
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<tbody>
<tr>
<td>Population growth</td>
<td>1.04%</td>
<td>0.7%</td>
<td>0.5%</td>
<td>1.35%</td>
</tr>
<tr>
<td>Retirement Age</td>
<td>58</td>
<td>58</td>
<td>63</td>
<td>63</td>
</tr>
<tr>
<td>SS Contribution</td>
<td>43</td>
<td>44</td>
<td>45</td>
<td>47</td>
</tr>
<tr>
<td>Median Voter Age</td>
<td>43</td>
<td>44</td>
<td>45</td>
<td>47</td>
</tr>
<tr>
<td>Capital share</td>
<td>31%</td>
<td>38%</td>
<td>30%</td>
<td>36%</td>
</tr>
<tr>
<td>Capital-output ratio</td>
<td>2.21</td>
<td>3.18</td>
<td>1.81</td>
<td>2.43</td>
</tr>
<tr>
<td>Productivity growth</td>
<td>1.6%</td>
<td>1.92%</td>
<td>2.6%</td>
<td>1.94%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>France</th>
<th>Italy</th>
<th>UK</th>
<th>US</th>
</tr>
</thead>
<tbody>
<tr>
<td>Leisure</td>
<td>1.7</td>
<td>1.8</td>
<td>2.9</td>
<td>0.75</td>
</tr>
<tr>
<td>CRRA</td>
<td>2.24</td>
<td>2.67</td>
<td>3.65</td>
<td>4.17</td>
</tr>
<tr>
<td>SDF</td>
<td>1.01</td>
<td>1.07</td>
<td>1.04</td>
<td>1.08</td>
</tr>
</tbody>
</table>
Key Issue: Political Decision over two issues

- Bi-dimensional Policy Space: Voting on social security contribution rate and retirement age

- Condorcet cycles may arise and median voter cannot be used

- Issue-by-issue voting (Shepsle, 1979):
  - Voting on social security contributions for a given retirement age
  - Voting on retirement age for a given social security contribution rate
  - The intersection of these “reaction functions” is a (Structure-induced) equilibrium
How do individuals vote?

- Voting on social security contributions for a given retirement age depends on age (and possibly income/education)
  - Negatively sloped reaction function

- Voting on retirement age for a given social security contribution rate depends on
  1. Individual labor-leisure trade-off due to retirement
  2. Impact of retirement age on pension benefits via dependency ratio (given the contribution rate)
  3. General equilibrium effects on wages and returns
  - No clear pattern with respect to the individuals’ age
Preferences over retirement age
How do individuals vote?

- Voting on social security contributions for a given retirement age depends on age (and possibly income/education)
  - Negatively sloped reaction function

Voting on retirement age for a given social security contribution rate depends on

1. Individual labor-leisure trade-off due to retirement
2. Impact of retirement age on pension benefits via dependency ratio (given the contribution rate)
3. General equilibrium effects on wages and returns
   - No clear pattern with respect to the individuals’ age
   - Ambiguous reaction function: higher contributions (and pensions) create a substitution (lowering RA) and an income effect (increasing RA)
Issue-by-Issue Bidimensional Voting Italy 1992

![Graph showing Tau as Function of RA and RA as Function of Tau.](image)
How does Aging affect individuals vote?

- Voting on social security contributions, given retirement age:
  - Economic Effect (lower IRR): lower contributions
  - Political Effect (older median voter): higher contributions
  - Overall result is ambiguous

- Voting on retirement age, given social security contribution
  - Negative Income effect: aging reduces returns from social security. Retirement Age increases
  - Negative Substitution effect: for a given contribution rate, aging reduces pension benefit. Retirement Age increases
  - Overall result: Retirement Age increases
Issue-by-Issue Bidimensional Voting in 2050

[Graph showing data points and lines indicating trends for different scenarios.

Key: Tau as Function of RA (1992), RA as Function of Tau (1992), Tau as Function of RA (2050), RA as Function of Tau (2050).]
Bidimensional Voting Simulations’ Results

<table>
<thead>
<tr>
<th>Country</th>
<th>Year</th>
<th>Age of the median voter over contribution rate</th>
<th>Effective retirement age</th>
<th>Social security contribution rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>France</td>
<td>2000</td>
<td>47</td>
<td>58</td>
<td>22.4%</td>
</tr>
<tr>
<td></td>
<td>2050</td>
<td>56</td>
<td>67</td>
<td>27.1%</td>
</tr>
<tr>
<td>Italy</td>
<td>1992</td>
<td>44</td>
<td>58</td>
<td>38.0%</td>
</tr>
<tr>
<td></td>
<td>2050</td>
<td>56</td>
<td>67</td>
<td>34.9%</td>
</tr>
<tr>
<td>UK</td>
<td>2000</td>
<td>45</td>
<td>63</td>
<td>14.5%</td>
</tr>
<tr>
<td></td>
<td>2050</td>
<td>53</td>
<td>70</td>
<td>27.1%</td>
</tr>
<tr>
<td>US</td>
<td>2000</td>
<td>47</td>
<td>63</td>
<td>9.7%</td>
</tr>
<tr>
<td></td>
<td>2050</td>
<td>53</td>
<td>68</td>
<td>13.5%</td>
</tr>
<tr>
<td></td>
<td>2050</td>
<td>53</td>
<td>69</td>
<td>11.9%</td>
</tr>
</tbody>
</table>

- When voting over RA and SS contribution rates, the political economic equilibrium is associated with lower contribution and higher RA.

- WHY? With aging and large social security systems individuals will be “poorer” and will need to work longer years.
The Main Lessons

- Aging affects the *political sustainability* of PAYG pension systems leading to larger systems.

- **Policy implication**: an increase in the *effective retirement age* decreases the size of the system while increasing its generosity.

- Voters will be willing to support an increase in the effective retirement age. Why? with aging and large social security systems individuals will be “poorer” and will need to work longer years.

- Hence, less increase in social security contribution and higher retirement age (in 2050 in Italy retirement at 67 and contributions only at 34.9%)
The Political Future of Social Security in Aging Societies

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