Should Pensions be Means-tested?

Hans Fehr

University of Würzburg, Department of Economics
Netspar, CESifo
Motivation

Multitude of institutional designs:

- One-tier schemes either flat or earnings-related;
- Two-tier schemes with a flat and an earnings-related tier;
- (DB, DC, Notional account systems)
- Basic schemes and means-tested benefits;
  - **Resource-tested**: Benefits depend on all income from other sources;
  - **Minimum pension**: Benefits depend only on other pension income;
- Coverage of safety-net benefits: 80% in Australia, 2% in Germany!
Motivation

Redistributive pension programs in OECD countries (OECD, 2013)

<table>
<thead>
<tr>
<th>Country</th>
<th>Basic scheme</th>
<th>Resource-tested</th>
<th>Minimum pension</th>
</tr>
</thead>
<tbody>
<tr>
<td>Australia</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Belgium</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Denmark</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Finland</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>France</td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Germany</td>
<td>X</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Italy</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Netherlands</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>New Zealand</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>United Kingdom</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>

Countries (total) 13 12 18
Welfare analysis of means-testing has to trade-off:

- reduction of labor supply distortions;
- changes in savings distortions;
- insurance provision against old-age poverty risk;
- (liquidity effects;)
Motivation

Welfare analysis of means-testing has to trade-off:

- reduction of labor supply distortions;
- changes in savings distortions;
- insurance provision against old-age poverty risk;
- (liquidity effects;)

Research questions:

- When is means-testing optimal?
- What resources should be tested for?
- What is the optimal taper rate?
Previous Literature (UK, AU)

- **Means-testing improves long-run welfare**
  → Sefton, van de Ven and Weale (EJ 2008, 2009)
  → Kumru and Piggott (WP 2010)

- **Means-testing deteriorates welfare**
  → Kudrna and Woodland (JoM 2011)
Previous Literature (UK, AU)

- **Means-testing improves long-run welfare**
  - Sefton, van de Ven and Weale (EJ 2008, 2009)
  - Kumru and Piggott (WP 2010)

- **Means-testing deteriorates welfare**
  - Kudrna and Woodland (JoM 2011)

**Our paper:** Reform of the UK pension system

- We consider transition path to long-run equilibrium;
- Isolate aggregate efficiency effects of policy reforms;
- Single vs. two-tier system, alternative basic pension, etc.
General OLG model structure

- **Individuals**
  - three different skill classes
  - work for 45 years
  - retire at age 65
  - live up to a maximum age of 100
  - decide about labor supply, consumption and savings
  - face idiosyncratic lifespan and income risk
  - liquidity constraints

- **Production sector** produces single good using capital and labor

- **Progressive tax and paygo pension systems** (various designs)
Household optimization problem

\[ V(z_j) = \max_{c_j, \ell_j} \left\{ u(c_j, \ell_j) + \beta \psi_{j+1} E[V(z_{j+1})] \right\}, \]

subject to the constraints

\[ a_{j+1} = a_j (1 + r) + w_j (1 - \tau^m - \tau^e) - T(\cdot) + b^m_j + b^e_j - (1 + \tau^c) c_j + \nu_j. \]

\[ a_j \geq 0 \quad \ell_j \leq 1 \quad \forall j. \]
Pension system

- **Means-tested flat tier** (progressive):

\[ b_j^m = \max \left\{ \bar{b} - \varphi \left[ \theta \max(a_j - \kappa ; 0) + b_j^e \right] ; \bar{b} \right\} . \]

Relevant parameters:
- \( \bar{b} \) - minimum income guarantee
- \( \varphi \in [0, 1] \) - taper rate
- \( \theta \in [0, 1] \) - imputed return on assets
- \( \bar{b} \) - basic state pension

- **Earnings-related second tier** (non-progressive):

\[ b_j^e = \Gamma(\hat{w}_J R) . \]
1. Preferences and income process as in Sefton et al. (2008) and Kumru and Piggott (2010);

2. Small open economy: No factor price effects;

3. Initial equilibrium: UK 2003 \( \Rightarrow \bar{b} = 0.3\bar{w}, \varphi = 1.0, \theta = 0.1; \)

4. Policy reforms: Reductions of \( \varphi, \theta \)

5. Compute transition path after reform: welfare effects

6. Compute transition path with compensation payments: aggregate efficiency effects
Macroeconomic and welfare effects of basic scheme \((\varphi = 0.0)\)

<table>
<thead>
<tr>
<th>Macroeconomic effects(^a)</th>
<th>Welfare and efficiency(^b)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Period 1</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>Labor supply</td>
<td>-1.1</td>
</tr>
<tr>
<td>Consumption</td>
<td>-0.9</td>
</tr>
<tr>
<td>Private assets</td>
<td>0.0</td>
</tr>
<tr>
<td>Consumption tax(^c)</td>
<td>1.6</td>
</tr>
<tr>
<td>Contribution rate(^c)</td>
<td>4.9</td>
</tr>
</tbody>
</table>

\(^a\)Changes in percent over value in initial equilibrium.
\(^b\)Changes are reported in percentage of initial resources.
\(^c\)Changes in percentage points.
Simulation Results
Two-tier system - pension and asset test

Aggregate efficiency effect (in %)

-3
-2
-1
0
1,0 0,8 0,6 0,4 0,2 0,0

Benchmark Reform
Pension-Taper Reform

Pensions in Europe, Bruegel, December 6, 2013
## Simulation Results

Two-tier system - optimal design

### Comparison of selected reform options, benchmark model

<table>
<thead>
<tr>
<th></th>
<th>Taper rate Pension income</th>
<th>Taper rate Private Wealth</th>
<th>Efficiency effect (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Initial Equilibrium</td>
<td>1.0</td>
<td>1.0</td>
<td></td>
</tr>
<tr>
<td>Pension Credit</td>
<td>0.4</td>
<td>0.4</td>
<td>-1.4</td>
</tr>
<tr>
<td>Universal Benefits</td>
<td>0.0</td>
<td>0.0</td>
<td>-0.4</td>
</tr>
<tr>
<td>Pension-taper reform</td>
<td>0.0</td>
<td>1.0</td>
<td>-2.7</td>
</tr>
<tr>
<td>Asset-taper reform</td>
<td>1.0</td>
<td>0.0</td>
<td>+0.8</td>
</tr>
<tr>
<td>Higher MIG-level ($b = 0.4\bar{w}$)</td>
<td>1.0</td>
<td>1.0</td>
<td>-1.6</td>
</tr>
<tr>
<td>Basic Pension ($b = 0.15\bar{w}$)</td>
<td>1.0</td>
<td>1.0</td>
<td>+0.6</td>
</tr>
</tbody>
</table>

Pensions in Europe, Bruegel, December 6, 2013
Conclusions

- Long-run welfare is not a good indicator for economic efficiency!
Conclusions

- Long-run welfare is not a good indicator for economic efficiency!
- Asset-testing deteriorates efficiency, pension-testing increases efficiency!
Conclusions

- Long-run welfare is not a good indicator for economic efficiency!
- Asset-testing deteriorates efficiency, pension-testing increases efficiency!
- Benefits from pension-testing compensate cost from asset-testing! (due to low savings elasticity!)
Conclusions

- Long-run welfare is not a good indicator for economic efficiency!
- Asset-testing deteriorates efficiency, pension-testing increases efficiency!
- Benefits from pension-testing compensate cost from asset-testing! (due to low savings elasticity!)
- 100% taper rate is efficient in a resource-tested two-tier system (i.e. pension credit reform in UK reduces economic efficiency)!
Conclusions

- Long-run welfare is not a good indicator for economic efficiency!
- **Asset-testing deteriorates efficiency, pension-testing increases efficiency!**
- Benefits from pension-testing compensate cost from asset-testing! (due to low savings elasticity!)
- 100% taper rate is efficient in a resource-tested two-tier system (i.e. pension credit reform in UK reduces economic efficiency)!
- Elimination of asset-testing while keeping pension-testing is optimal policy!