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)

	Basic scheme	Resource-tested	Minimum pension
Australia		X	
Belgium		X	X
Denmark	X	X	
Finland			X
France			X
Germany		X	
Italy		X	
Netherlands	X		
New Zealand	X		
United Kingdom	X	X	X
Countries (total)	13	12	18

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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;)

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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**
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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

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

subject to the constraints

$$a_{j+1} = a_j(1+r) + w_j(1-\tau^m-\tau^e) - T(\cdot) + b_j^m + b_j^e - (1+\tau^c)c_j + \nu_j.$$

$$a_j \geq 0 \qquad \ell_j \leq 1 \quad \forall j.$$

Pension system

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

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

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

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

$$b_j^e = \Gamma(\hat{w}_{J_R}).$$

Calibration and Simulation

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 φ, θ
5. Compute transition path after reform: welfare effects
6. Compute transition path with compensation payments: aggregate efficiency effects

Simulation Results

Single tier - only asset test

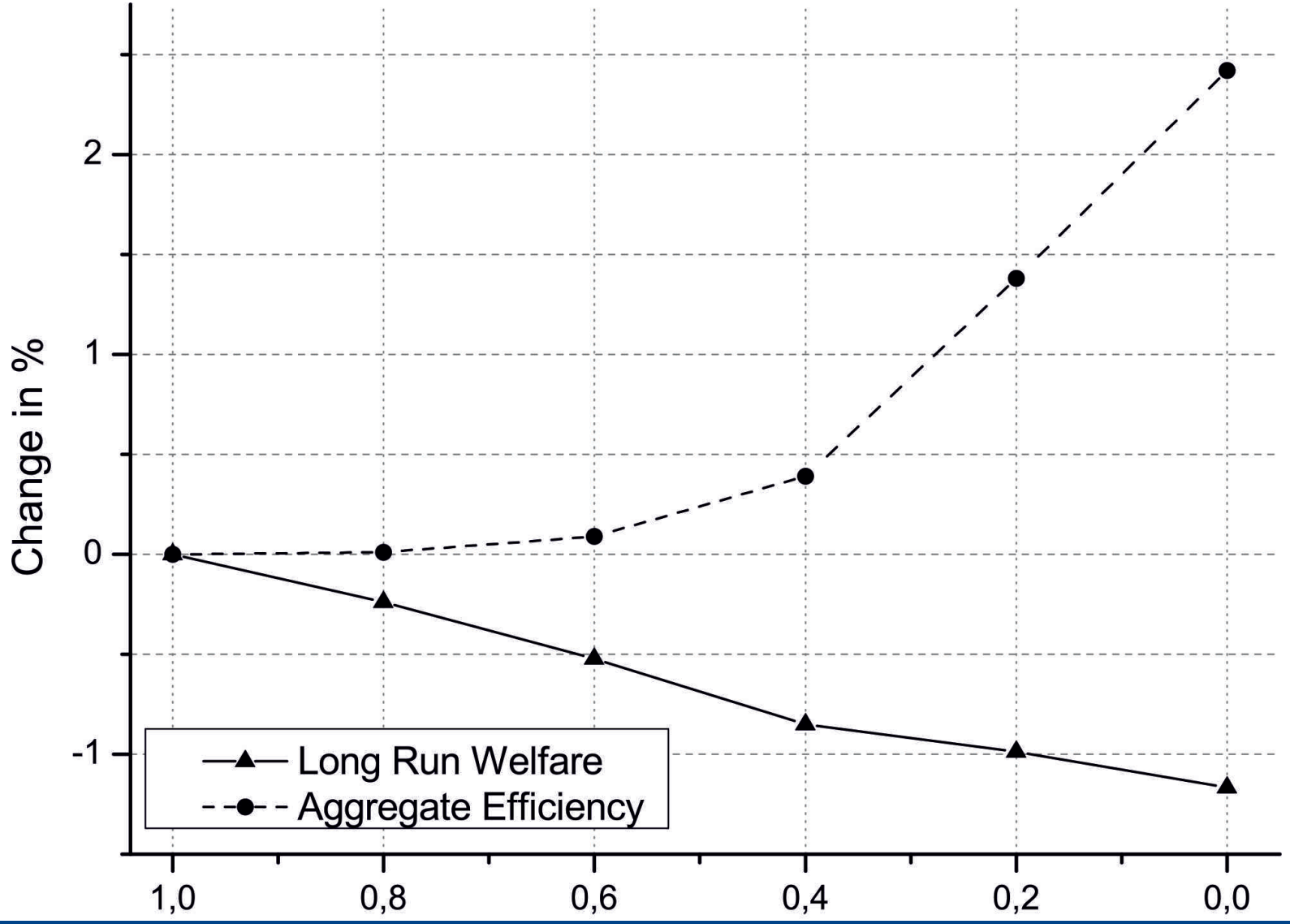
Macroeconomic and welfare effects of basic scheme ($\varphi = 0.0$)

Macroeconomic effects[a]	Period 1	Period ∞	Welfare and efficiency[b]: Age in reform year	Skill level: low	Skill level: median	Skill level: high	with LSRA
Labor supply	-1.1	0.6	65-69	4.8	10.4	12.5	0.0
Consumption	-0.9	-0.1	45-49	0.3	1.7	2.3	0.0
Private assets	0.0	-3.8	25-29	-1.3	-0.7	-0.3	0.0
Consumption tax[c]	1.6	0.4	15-19		-1.2		2.4
Contribution rate[c]	4.9	4.9	∞		-1.2		2.4

[a] Changes in percent over value in initial equilibrium.
[b] Changes are reported in percentage of initial resources.
[c] Changes in percentage points.

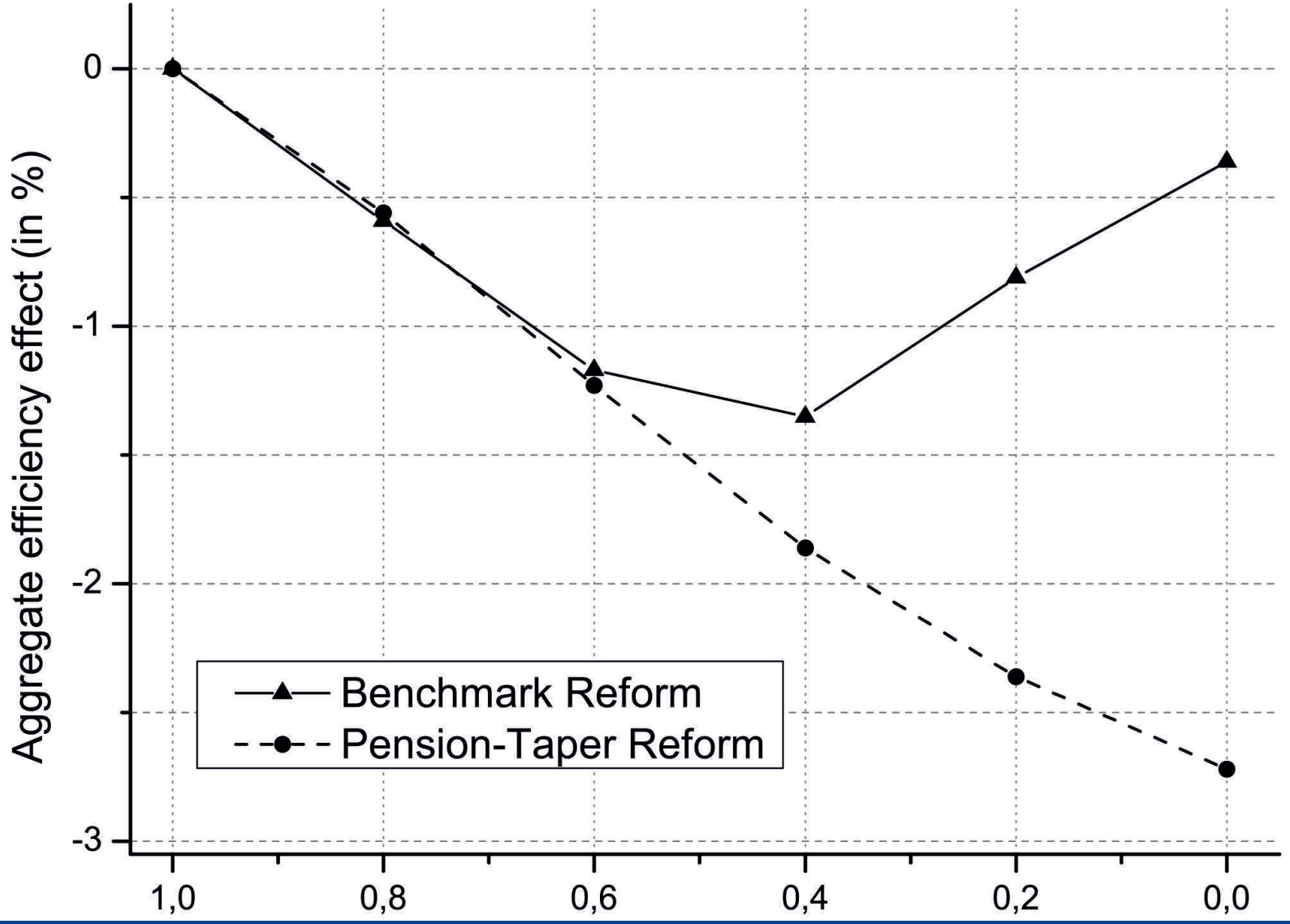
Simulation Results

Single tier



Simulation Results

Two-tier system - pension and asset test



Simulation Results

Two-tier system - optimal design

Comparison of selected reform options, benchmark model

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

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- 100% taper rate is efficient in a resource-tested two-tier system (i.e. pension credit reform in UK reduces economic efficiency)!

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- **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!