Trade-off in Means-Tested Pension Design

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17th Colloquium of Superannuation Researchers
UNSW-Jul 2009
Equity v.s. Efficiency and Means-Testing

- Classic issue with any public transfer program: equity v.s. efficiency
- Need to balance out these two goals
- Means testing as a policy instrument: targeting those who need help while minimizing distortion
Basic Structure of Means-Testing

Pension Payment

- **Full**
- **Partial**
- **No**

P-max

Income/Asset

Y1

Y2

Taper rate
Design of Means-Tested Pension

- Three key policy parameters: maximum payment ($P_{-max}$), test threshold ($Y1$), and a taper rate
- Issues: adequacy, targeting, sustainability
- Trade-off in design of a public pension program
  - Redistribution/risk-sharing mechanism (equity)
  - Distortion on savings and labor supply (efficiency)
- How to set these parameters
  - Optimal policy literature
  - Policy practice in Australia e.g. see Pension Review (Harmer, 2009)
Objective of the Paper

- Develop an analytical framework to study relative optimality of a means-tested pension program
- Evaluate the current structure of means-tested pension program in Australia
Model: Key Features(1)

- Dynamic stochastic general equilibrium model
- Household, firm, government, and foreign sectors
- Consumption goods, labor, and capital markets
- No insurance markets
- Small open economy
Model: Household Sector(2)

- Overlapping generations

- Endowments: random lifetime (live at most 70 years) and random ability to work (labor productivity)

- Derive utility from consumption and leisure

- Decide on sequences of consumption, savings, and leisure/labor to maximize its lifetime utility
Firm sector
- Competitive
- Production technology: labor and capital
- Firms decide on labor and capital to maximize profit.

Government sector
- Spending: a means-tested pension program and general government consumption
- Revenue: income tax and consumption tax
- Adjusts tax to balance budget every year
Goal: to match Australian data 2007-8

Previous studies

HILDA data: labor supply, income, and assets

ABS data: production and government budget
Calibration Results

Average Asset Holding

Average Consumption

Average Labor Supply

Average Labor Earnings

Tran and Woodland (UNSW)
Policy Experiments

- **Goal**: optimal design of a means-tested pension policy

- **Evaluation criteria**: expected utility (Social welfare function)

- **Income test**
  - fix income test threshold and vary maximum pension and taper rate
  - let consumption tax adjust to balance the government budget

- **Partial v.s. general equilibrium analysis**
P.E. Policy Experiment 1: Varying Maximum Pension

Expected Utility

Taper Rate = .4

Fraction of Current Maximum Pension

Max

Tran and Woodland (UNSW) 2009 12 / 15
G.E. Policy Experiment 1: Varying Maximum Pension

![Graphs showing Average Asset Holding and Average Labor Supply over age]

- **Average Asset Holding**
  - X-axis: Age (20, 40, 60, 80, 100)
  - Y-axis: Value (0, 0.5, 1, 1.5, 2, 2.5, 3)
  - Two graphs for different pension scenarios:
    - Yellow line: 50%
    - Red line: 150%
  - Peak asset holding occurs at approximately age 60 for both scenarios.

- **Average Labor Supply**
  - X-axis: Age (20, 40, 60, 80, 100)
  - Y-axis: Value (0, 5, 10, 15, 20, 25, 30, 35)
  - Graphs show labor supply decreases with age for all scenarios:
    - Yellow line: 50%
    - Red line: 150%
    - Blue line: Current scenario
  - Current supply decreases rapidly, while the 50% scenario shows a more gradual decrease.

Sources:
- Tran and Woodland (UNSW) 2009
G.E. Policy Experiment 2: Varying Taper Rate

![Graph of Average Asset Holding](image)

![Graph of Average Labor Supply](image)

Tran and Woodland (UNSW) 2009 14 / 15
Main message: potential efficiency and welfare gain from re-design the current structure of means-tested pension program in Australia

Future work:
- Model: calibration, transition
- Asset test
- Taxation
- New features: housing, superannuation