When Ramsey Searches for Liquidity by Wei Cui

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Paper - Overview

- Motivation
  - After the crisis, we see elevated levels of government debt compared to low and stable pre-crisis levels
  - There might be a benefit to sustaining this higher level if government debt provides a liquidity service which supports investment in risky (productive) assets
  - Also cheap to issue debt in these times
  - Relevant in several contexts: Importance of US Treasury (dollar) liabilities for ROW; maturity structure of debt
- Model
  - Economy with workers and entrepreneurs (can change roles)
  - Trade of claims to capital returns subject to search frictions
  - Ramsey planner sets level of fiscal tools
  - Perfect commitment - repayment conditions and sustainability are not problems

Main Results

- Long run optimal debt quantity does not depend on initial debt or capital (CRRA). Depends only on steady state level of the liquidity premium
  - Numerical exercises suggest range 65%-85% of GDP.
- Non-zero long run capital tax used (only) to counteract liquidity frictions or redistribute from worker to entrepreneur (for constant relative risk aversion)
  - Numerical examples suggest steady state subsidy for capital (redistribution dominates financing benefit)

Related Literature

- Large literature on the optimum quantity of debt:
  - Aiyagari and McGrattan (1998); Aiyagari, Marcet, Sargent, Seppälä (2002); Angeletos, Collard, Dellas and Diba (2013)
- Optimal long run capital tax results:
  - Judd (1985), Chalmley (1986)
- Literature on scarcity of safe assets:
  - Caballero and Farhi (2014); Caballero, Farhi and Gourinchas (2016)
  - Triffin dilemma for dollar claims - Triffin (1960), Smaghi (2016)

Channels - Optimal Debt to GDP

- **Channel 1**: Mechanical effect on output - higher ρ reduces output
- **Channel 2**: Issuing debt increases liquid resources of household when equity is difficult to sell - increase debt when ρ is higher
- **Channel 3**: 'Redistribution' - sign is ambiguous, but we know that optimal debt is increasing in ρ if:

$$\frac{\partial \frac{\frac{\partial \theta}{\partial \rho}}{1-\rho}}{\partial \rho} > 0$$

So the planner should increase debt with ρ if market activity does not respond too much to the liquidity premium. But why?

- When above condition is satisfied, optimal consumption is also increasing for *both* the worker and the entrepreneur

Channels - Optimal Debt

- When ρ is high, and the entrepreneur is *relatively* worse off, the planner responds by increasing *total* consumption financed by higher debt
  - In the numerical solutions, this mainly takes the form of a subsidy for return to capital
- But this seems like a very blunt way of dealing with the **inequality** induced by the financial friction
- How much does the role of depend on the fact that the fiscal tools cannot target the entrepreneur?
  - Workers can become entrepreneurs can become workers, and vice versa
  - Household shares portfolio equally

General Comments

- Should discuss welfare cost of having wrong debt level - in Aiyagari and McGrattan (1998) the welfare cost is small
- Is there a way of doing an exercise which replicates the adjustment period after a shock to liquidity? - We would like to know how fast to decrease debt towards the steady state level