When Ramsey Searches for Liquidity

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Introduction

- Interesting and thought provoking paper.
- Question addressed in this paper:

  What are optimal government policies with liquidity frictions?

- Answers:
  1. Optimal SS debt-to-GDP independent of initial conditions.
  2. Optimal long-run capital tax not zero (not Chamley-Judd).
- In a quantitative model:
  1. Optimal debt-to-GDP ratio 60-90%.
  2. Tax rate on capital negative, -10 to -20%.

Outline

- Context.
- Model and Ramsey problem.
- Main results.
- Comments (throughout).

Context

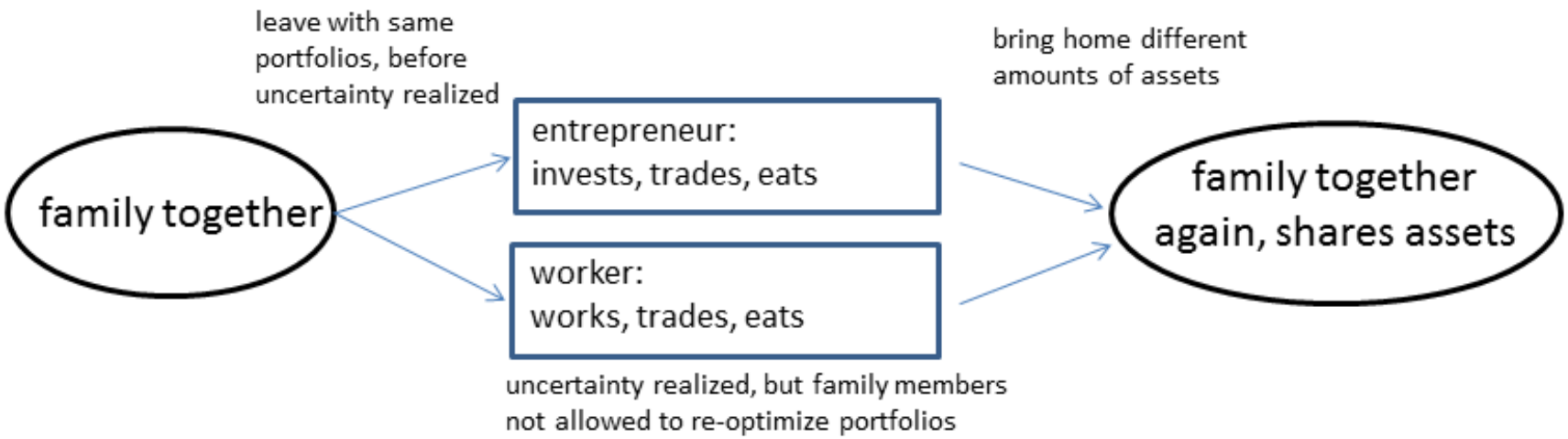
- Growth model with uninsurable idiosyncratic investment risk.
- Related to Kiyotaki, Moore (IER, 2006) and in particular Kiytaki, Moore (2012).
- Papers using similar environments for various questions:

  Shi (JME, 2015), Ajello (AER, 2016), Del Negro et al. (AER, 2017), Bigio (2012), and Nezafat, Slavik (2015).
- Wei Cui's contribution: endogenize liquidity frictions.
- Takes a closer look at (fiscal) policy in this paper.

Model

Repre household consists of measure 1 of members:

- $\forall t$: Randomly picked as entrepreneurs (can convert C into K) or workers (can work). What is this in the data?
- Unitary HH model: Allocations determined by (full info and full enforcement) HH head to max weighted utility.
- Timing within each period:



Model

Rest of the model:

- Neoclassical CRS production sector.
- Gvt taxes capital τ_k, labor τ_l, issues bonds B_t at nominal rate R_t to finance G_t. Price P_t adjusts. Is this needed?
- Assets markets: Government bonds and equity (capital).
- Asset market frictions: $\forall t$ entrepreneurs can only sell ϕ_t of their assets, but government bonds fully liquid.
- ϕ_t endogeneous from asset market search, primitive friction: Intermediation costs κ_t. Is endogeneity important?

Equilibrium

What is going on?

- Workers' labor choice undistorted if $\tau_l = 0$.
- Entrepreneurs would like to invest lot, but cannot:
  1. Not all (created) capital can be sold (borrowed against),
  2. they do not have enough liquid gvt bonds.
- Entrepreneurs (still) consume less than workers.
- HH head would like to transfer (liquid) resources from workers to entrepreneurs, but cannot.
- But the government can!
  1. Directly through τ_k, τ_l.
  2. Indirectly through liquid bonds provision.

Ramsey Problem

Benevolent gvt picks allocations to max weighted utility s.t. FC, (adjusted) IC and TVC (missing).

Two propositions:

1. CE satisfies FC, IC and TVC.
2. Allocation satisfies FC, IC and TVC $\Rightarrow \exists$ prices, taxes and debt s.t. allocation with these taxes, prices, policies are CE.

Suggestion: State Proposition 2 and prove it formally.

- Definition of allocation not consistent with CE (bonds).
- How does one construct capital prices q_t^i, q_t^n and the financial market variables, in particular, ϕ_t?
- How does one make sure both BC's are satisfied? $IC \Rightarrow BC1 + BC2 = 0$ at most, I think. Need 2 IC's? $\forall t$?

Results

- Optimal long-run $\tau_k \neq 0$. Quantitatively < 0.
- Long run government debt independent of initial conditions and substantial.
- Suggestion: Sensitivity of endo variables to (non-optimal) τ_k, and maybe also sensitivity to B.
- Can you sign optimal long-run τ_k?
- What about optimal long-run τ_l?

Comments 1

- Clarify relationship to:
  - Your own (positive) work.
  - Kiyotaki-Moore (2012): talk about liquidity provision.
  - DelNegro et al (2017): assess private asset purchases (liquidity provision to entrepreneurs).
- Is this a paper about debt (then maybe distortionary taxes not critical), taxes or both?
- Is this a theoretical or applied paper?

Comments 2

- $\tau_k^* \neq 0$ common in growth models if not enough instruments:
  1. Capital-skill complementarities and no skill-dependent taxation (Chari and Kehoe, 1999, Slavik and Yazici, JME, 2014).
  2. Uninsurable idiosyncratic productivity shocks and no individual state-dependent taxation (Aiyagari, JPE, 1995; NDPF).
  3. Life-cycle and no age-dependent taxation (Erosa and Gervais, JET, 2002, as well as CKK, AER, 2009).
  4. Etc.

- Here not enough instruments either: τ_c, τ_x NOT redundant (I think). Two possible ways to proceed:
  1. Clarify this better. Why the tax instrument restrictions?
  2. Focus on more efficient ways to tax - maybe τ_x subsidy?

Comments 3

- Paper argues that without search frictions ($\kappa = 0 \Rightarrow \phi_t = 1$), the usual Chamley-Judd result applies, i.e. $\tau_k^* \to 0$.
- Straub, Werning (2016): Chamley-Judd based on assumptions:
  1. Solution converges to interior SS,
  2. multipliers on (period-by-period) IC and FC converge,
  3. $\tau_{k,t} \leq \bar{\tau}_k$ not binding if t large enough.
- Need to clarify which assumptions and how are used here.
- Chari, Nicollini, Teles (2017): Straub, Werning (2016) is an incomplete tax system result ($\tau_{c,0}$ implicitly restricted).
- Here similar assumptions: $\tau_{c,t} = 0, \forall t, \tau_{k,0} = 0$.
- Clarify how assumptions matter (for all your results).

Summary

- Interesting, relevant and promising agenda.
- Paper needs work:
  1. Tighten the paper,
  2. add some flesh (explanations, intuitions) too.
- Maybe think more about alternative policy tools.
- Looking forward to the next version.

Additional Comments

1. Debt levels in the data should probably be debt held by the private sector.
2. What about the international (debt) dimension?
3. Role of nominal price level? Let gvt issue real bonds and have the return clear mkt? But then timing might matter (are bonds quoted in period t costs or period $t+1$ returns).
4. State the full HH problem clearly.
5. CE definition: is ϕ_t missing? Should there be ϕ_t instead of θ_t. In (2), should say 'q_t^n satisfies (14) given ϕ_t', I think.