A Monetary Business Cycle Model for India: Discussion

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Disclaimer

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Background

- Common problem in emerging market economies
  - Weak monetary transmission to interest rates
  - Prevelant credit channel
    - : Mishra & Montiel (2012), Montiel et al. (2014)
- Monetary transmission in India
  - Empirical Work
    - : Das (2015), Mohanty (2012), Segupta (2014), Singh (2011)

Summary

- Why is aggregate demand channel of monetary transmission weak in India?
- Examine using DSGE framework
  - NK model augmented to include fiscal dominance
    - : statutory liquidity ratio
    - : administered interest rates on small deposits
  - Real & monetary shocks
- Show effect of fiscal dominance on amplification & propagation of shocks
  - Argue fiscal dominance does not weaken monetary transmission

Outline

1. Modelling
   - Modelling fiscal dominance
   - Comment on banking system in model
2. Quantitative
   - Calibration
   - Measuring monetary transmission

A Model of Fiscal Dominance

- Transmission hindered by conflicting incentives between gov’t and CB
  - CB wants to control inflation and output gap
  - Gov’t wants to sustain fiscal deficit

  $\Longrightarrow$ pressure to monetize deficit with low interest rates

- Case of India
  - Gov’t holds some portion of monetary base captive through SLR and regulated deposits

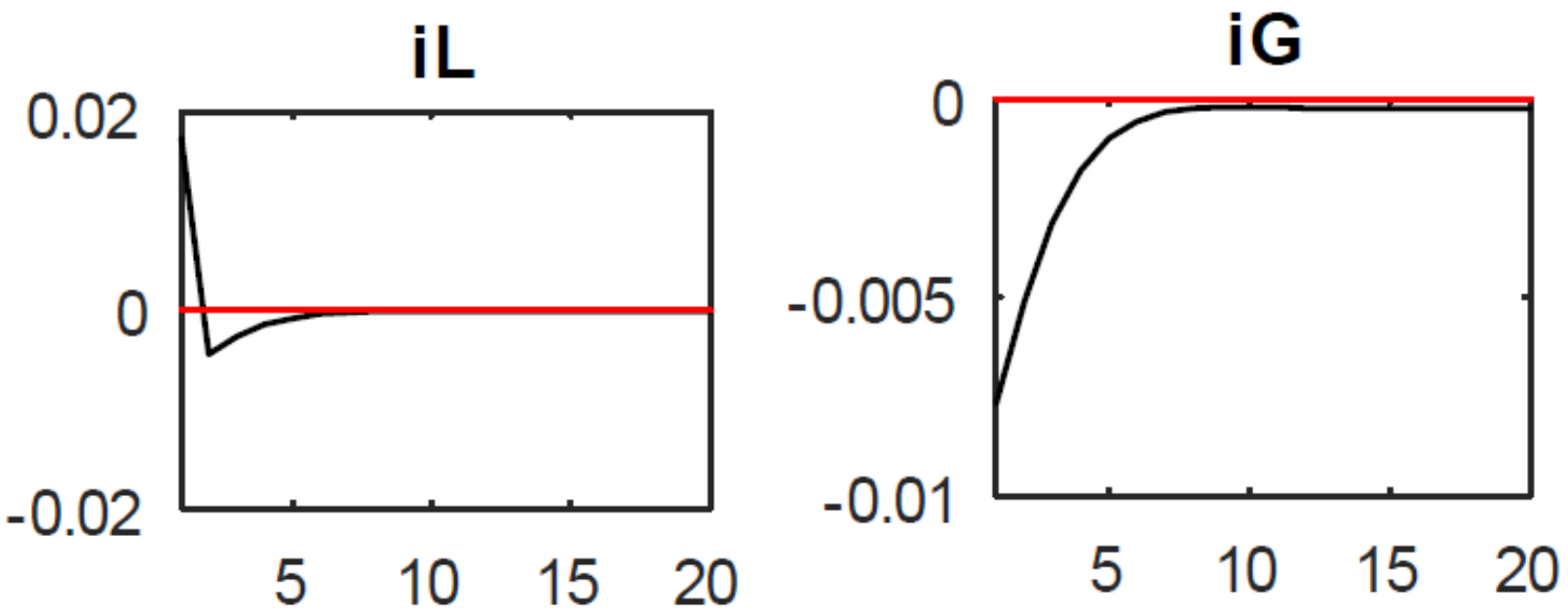
A Model of Fiscal Dominance

- Model imposes policy by specifying
  - Money Supply Rule: $gr_{MS} = \pi, \;\; C.P.$
  - Taylor rule for government bond rate
  - Exog. gov’t spending
- By what mechanism does high gov’t borrowing transmit to interest rates?
  - Gov’t bond rate and money supply fixed by policy
  - Interest rate on reserves theoretically could adjustment, but appears to be fixed
  - Appear to transmit through taxation

Interest rate setting in the model

- Perfect competition in banking
  - Loan-deposit spread driven by hh liquidity preference
- Does the model replicate income gap in data?
  - Captures bank reponse to interest rate risk (Gomez et al. 2016)
- Deposit rates pegged to policy rate: $1 + i_t^D = \zeta \cdot (1 + i_t^G)$
  - Maturity pattern of deposits in India tilted towards longer duration ($>$ 1yr) term deposits
  - Deposit rates have large impact of volatilities in model
  - Deposit rate channel can drive loan supply with mkt power
    - : Drechsler et al. (2017)

Response of Interest Rates to Policy Shock



Market Power in Banking

- Allow loans/deposiits to be differentiated by retail banks
  - Demand for loans: $L_t = \left(\int l_{jt}^{\frac{\eta-1}{\eta}} \cdot dj \right)^{\frac{\eta}{\eta-1}}$
  - Supply of deposits: $D_t = \left(\int d_{jt}^{\frac{\zeta-1}{\zeta}} \cdot dj \right)^{\frac{\zeta}{\zeta-1}}$
- Deposit/loan rates set according to
  - Loan demand func. $l_{jt} = \left(\frac{i_{jt}^L}{i_t^L} \right)^{-\eta} L_t$, adjustment costs $\phi^L(i^L)$
  - Deposit supply func. $d_{jt} = \left(\frac{i_{jt}^D}{i_t^D} \right)^{-\zeta} D_t$, adjustment costs $\phi^D(i^D)$

Market Power in Banking

- Market power $\Longrightarrow$ Loan-deposit spread & sluggish adjustment

$$
\begin{aligned}
i_{jt}^{L} &= \kappa_0^{L}(\eta, \phi^{L}) \cdot i_t^{L} + \kappa_1^{L}(\eta, \phi^{L}) \cdot i_{jt-1}^{L} + \kappa_2^{L}(\eta, \phi^{L}) \cdot \mathbb{E}_t \cdot i_{jt+1}^{L} \\
i_{jt}^{D} &= \kappa_0^{D}(\zeta, \phi^{D}) \cdot i_t^{D} + \kappa_1^{D}(\zeta, \phi^{D}) \cdot i_{jt-1}^{D} + \kappa_2^{D}(\zeta, \phi^{D}) \cdot \mathbb{E}_t \cdot i_{jt+1}^{D}
\end{aligned}
$$

Parameterization of Model

- By what metric does this parameterization fit the data?
  - Most of reported volatilities miss by order of magnitude
  - Reported cross-correlations seem weak
    - : text notes that sign is generally correct
    - : not good enough standard for paper that seeks to answer a quantitative question
- Why not pursue moment-matching exercise?
  - NK model will never match everything
  - Can plausibly match key moments of interest rate channel
    - : elasticities of deposit/loan rates, etc...

Measuring Monetary Transmission

- Key quantitative result:
  - Monetary shocks account for small share in output & inflation variance decomposition
  - Variance decomposition of output invariant to SLR and administered interest rates
- Is this the best way to think about monetary transmission?
  - By how much do loan/deposit rates repond to a given change in the policy rate? output, loans, etc...?
  - How long does this take?
  - How do these responses change with fiscal dominance, structure of banking sector, etc...

Summary

- Paper addresses important question for EMEs in structural way
- Calibration and evaluation of model needs to be improved before quantitative insights can be credited
- Is the environment rich enough to capture fiscal dominance problem, frictions in deposit/loan markets?