Discussion of: Uncertainty Shocks, Financial Frictions, and Business Cycle Asymmetries Across Countries (by Pratiti Chatterjee)

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BASICS

- **Goal: Investigate role of "uncertainty" shocks in SOE framework with financial frictions**

- **Timely topic**
- **Helpful contribution to macro/int'l macro literature w/financial frictions**

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- Quantitative Structural DSGE Model
- Empirical Analysis
- Discussion focuses only on quantitative model and results

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- **Nominal price rigidity**
- **Flexible real exchange rate**
- **Foreign-currency denominated debt**

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- Key: External finance premium depends on financial development

MODEL – SKETCH

- **Importance of financial development in emerging vs. advanced**
  - **Borrowing costs ~65% higher in emerging SOEs vs. advanced SOEs**

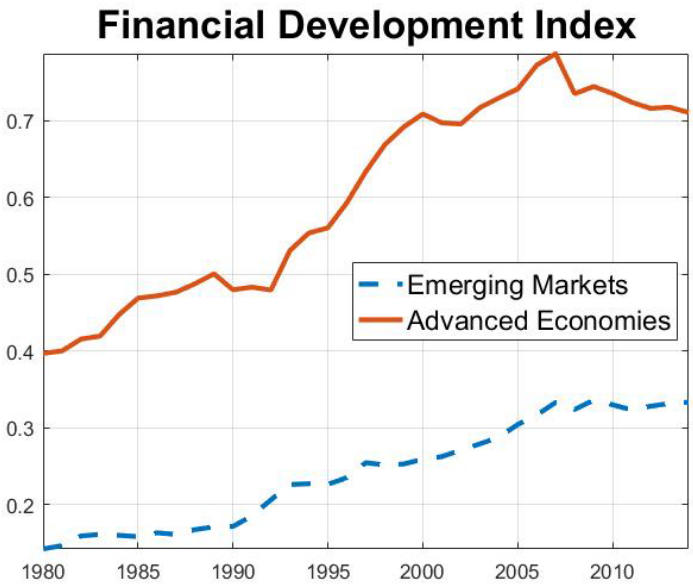

Figure 1

MODEL – SKETCH

- Importance of financial development in emerging vs. advanced
  - Borrowing costs ~65% higher in emerging SOEs vs. advanced SOEs
- Financing Condition
  - Implied by one-period debt contract (non-state contingent)

Key parameter

$$E_t R_{t+1}^K = R_t^* \left[\frac{Q_t K_t}{N_t} \right]^{\nu} \cdot E_t \frac{q_{t+1}}{q_t}$$

  - Elasticity of borrowing costs wrt leverage
  - Model Assumption: Larger in emerging SOEs than advanced SOEs

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Payoff of entrepreneurial capital producer

Key parameter

$$E_t R^K_{t+1} = R^*_t \left[\frac{Q_t K_t}{N_t} \right]^{\nu} \cdot E_t \frac{q_{t+1}}{q_t}$$

World risk-free real i.r.

Expected appreciation of home real exchange rate

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MODEL – UNCERTAINTY

- **Exogenous aggregate productivity process**

$$a_t = (1-\rho_a)\bar{a} + \rho_a a_{t-1} + \sigma_t^a u_t^a$$

- **Exogenous shock to β ("demand")**

$$z_t = (1-\rho_z)\bar{z} + \rho_z z_{t-1} + \sigma_t^z u_t^z$$

SD Shocks (time volatility)

Model – Uncertainty

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SD Shocks (time volatility)

- **Standard deviation processes**
  - **Common component η_C**

$$\sigma_t^a = (1-\rho_{\sigma^a})\sigma^{\bar{a}} + \rho_{\sigma^a}\sigma_{t-1}^a + \eta_C \cdot u_t^C$$

$$\sigma_t^z = (1-\rho_{\sigma^z})\sigma^{\bar{z}} + \rho_{\sigma^z}\sigma_{t-1}^z + \eta_C \cdot u_t^C$$

Uncertainty Shock

- **Basu and Bundick (2017 *ECMA*)**
  - **Independent shocks to productivity and preferences**

Interpretation

MAIN RESULTS

- **Uncertainty Shock leads to simultaneous declines in**
  - **Consumption, Investment, and GDP**

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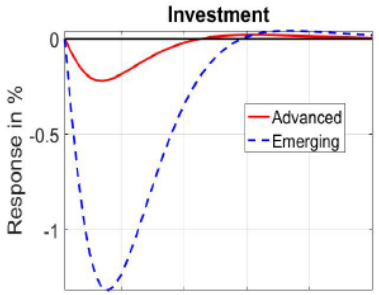

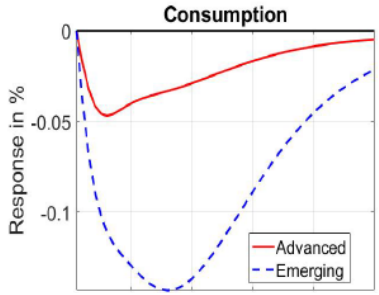

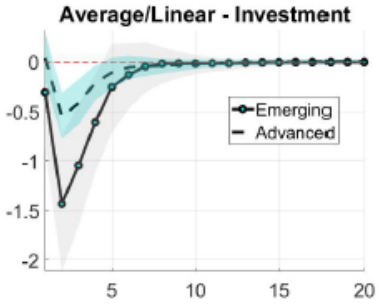

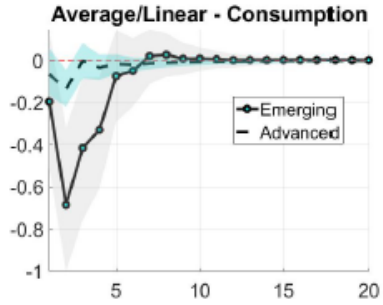

Model

Data

Stronger Responses in EME

Main Results

- **Uncertainty Shock leads to simultaneous declines in**
  - **Consumption, Investment, and GDP**
- **Countercyclical Trade Balance**
  - **For sufficiently costly financial intervention in EMEs**

Model type	Leverage (k)	Elasticity of borrowing costs wrt leverage (ν)
Representative Advanced Country	2.5	0.04
Representative Emerging Country	2.5	0.07

$$\nu^{EME} > \nu^{ADV}$$

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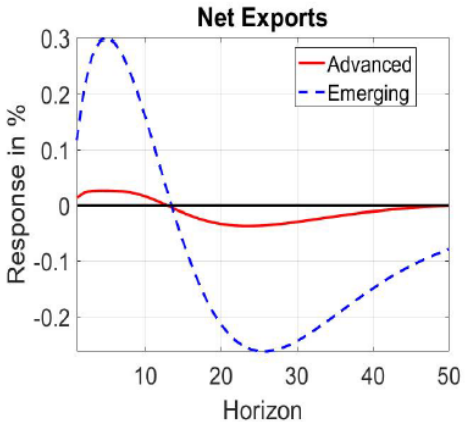

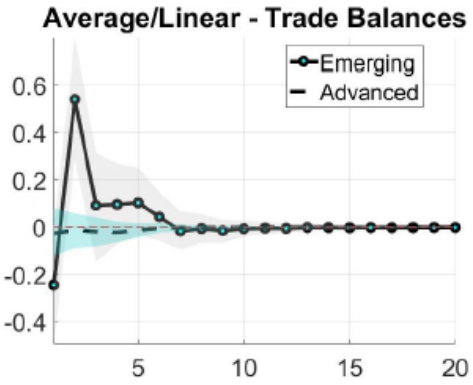

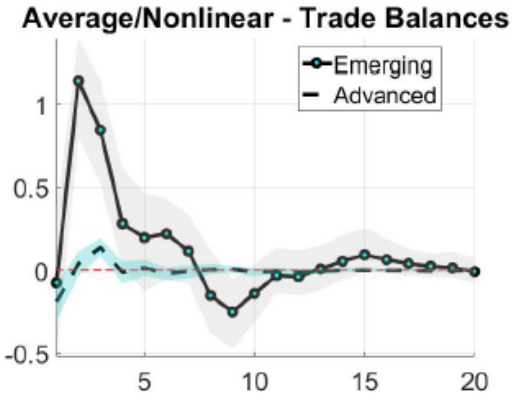

Model **Data**

QUESTIONS AND CLARIFICATIONS

- **Terminology / Methodology: "Uncertainty" Shocks vs. "Risk" Shocks**
  - **Third-order approx. needed to capture "uncertainty" in SD in time dimension…**
  - **… but not needed to capture "risk" in SD in cross-sectional dimension**

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  - **Intraperiod debt contract (ala Carlstrom and Fuerst (1997 *AER*))**
  - **(Recent work: Dorofeenko, Lee, and Salyer (2008 *EcResearch*, 2016 WP), Chugh (2013 *JEDC*, 2016 *RED*))**

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  - **Shed further economic insight?**

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- **State-contingent financial contract**
  - **Carlstrom, Fuerst, and Paustian (2016 *AER: Macro*)**
  - **Larger state-contingency → smaller is role of accelerator**

SUMMARY

- **Well written paper!**
- **Well executed work!**

- **Third-order approximation techniques**

- **Tractable application of consequences of stochastic volatility in SOE models with financial frictions**

- **Tax theory perhaps useful in considering the results**

APPENDIX

Walrasian Labor Market

Figure 1: Flexible Price Model Intuition

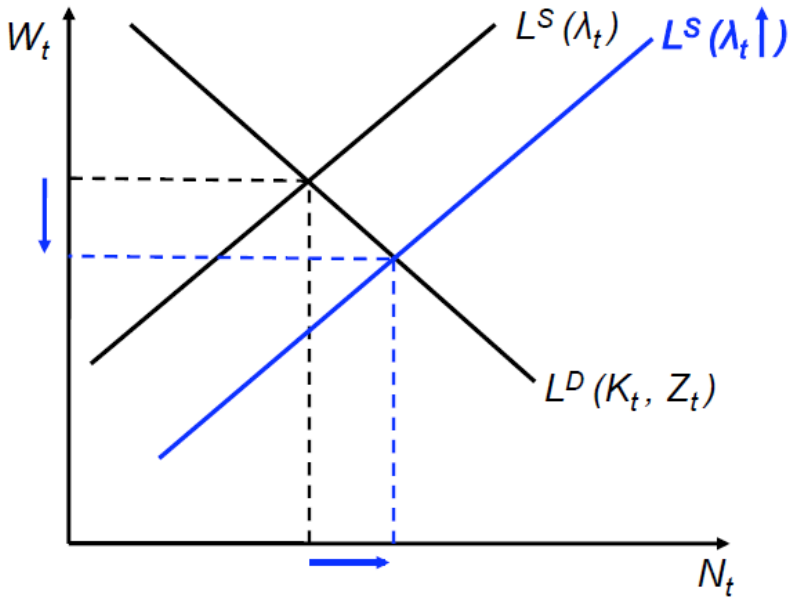
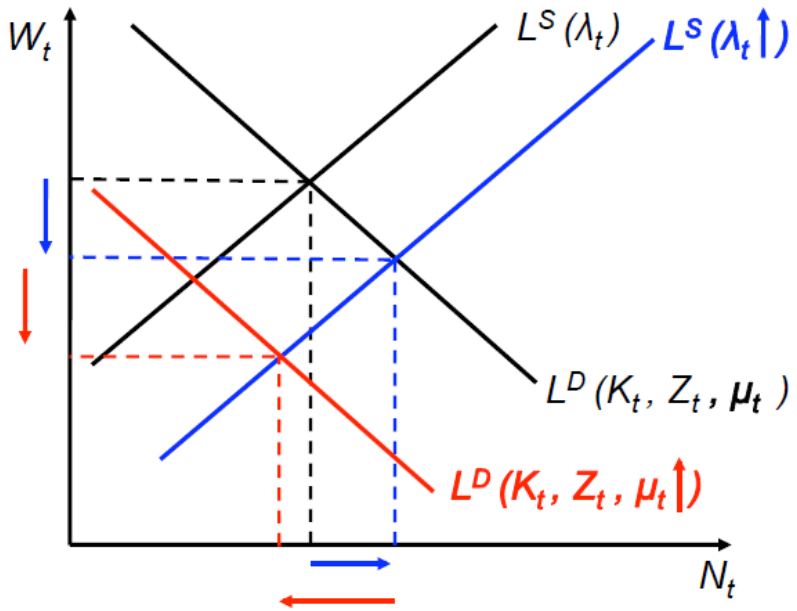


Figure 2: Sticky Price Model Intuition



Basu and Bundick (2017 *ECMA*)

Uncertainty