

Discussion of “Uncertainty, Pessimism and Economic Fluctuations” by Guangyu Pei

Leyla Jianyu Han
The University of Hong Kong

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Overview

- 1 Brief Summary
- 2 Model
- 3 Two Comments

Brief Summary

- Introduce uncertainty (ambiguity) shocks to RBC model.
 - Specifically, ambiguity shock is the exogenous variations in the variance of idiosyncratic TFP shock.
 - 2nd-order ambiguity shock has 1st-order effect on real quantities.
- In response to a positive ambiguity shock, agents believe aggregate demand is getting worse and more volatile.
 - Agents are endogenously pessimistic → depressed market confidence.
 - Coordination friction (incomplete information) → use private information → belief dispersion.
- Quantitatively successful in explaining
 - market confidence and belief dispersion;
 - comovements in real quantities;
 - counter-cyclical labor productivity and labor wedge.

Model

- Log island-specific productivity

$$a_{j,t} = a_t + l_{j,t} \quad (1)$$

$$a_t = \rho a_{t-1} + \xi_t, \quad \xi_t \sim N(0, \sigma_\xi^2), \quad l_{j,t} \sim N(\omega_t, \sigma_l^2)$$

- ω_t : cross-sectional mean of idiosy. productivity shock, is **ambiguous**.
- if $\sigma_l^2 = 0$, agents have complete information.

$$\omega_t \sim N(0, e^{\psi_t})$$

$$\psi_t = (1 - \rho_\psi)\bar{\psi} + \rho_\psi\psi_{t-1} + \tau_t \text{ with } \tau_t \sim N(0, \sigma_\tau^2) \quad (2)$$

- ψ_t : amount of ambiguity; τ_t : amount of ambiguity shock.
- Information structure
 - Perfect private information over own productivity $a_{j,t}$
 - Incomplete information over average productivity $\int_J a_{j,t} dj$

Model Implication

- Output

$$y_t = (y^* + \bar{h}_y(\bar{\psi})) + \kappa_{ya_j}(\psi_t, \lambda) \int_J a_{j,t} dj + \hat{h}_y(\psi_t, \lambda) \quad (3)$$

- Market confidence

$$Conf(\psi_t, \lambda) = (y^* + \bar{h}_y(\bar{\psi})) + \kappa_{ya_j} \left(\frac{\sigma_\xi^2 + e^{\psi_t}}{\sigma_\xi^2 + e^{\psi_t} + \sigma_t^2} \right) g_\mu(\psi_t, \lambda) + \hat{h}_y(\psi_t, \lambda) \quad (4)$$

- Cross-sectional dispersion of output forecast

$$FD_t(\psi_t, \lambda) = \kappa_{ya_j}^2(\psi_t, \lambda) \left(\frac{\sigma_\xi^2 + e^{\psi_t}}{\sigma_\xi^2 + e^{\psi_t} + \sigma_t^2} \right)^2 \sigma_t^2 \quad (5)$$

Comment: Investment

- Empirical success: 1) counter-cyclical labor productivity and 2) labor wedge.
- $Y/N = A(K/N)^\alpha$, it may be due to capital is not sensitive to shocks.
- However, this does not depress the paper.
 - Fact: In Great Recessions, hours \downarrow , output \downarrow , consumption \downarrow , investment \downarrow . But TFP do not drop significantly.
- This paper:
 - A positive ambiguity shock plays a similar role in a negative discount rate shock.
 - Therefore, future cash flow is not valuable and firms will reduce the labor demand.

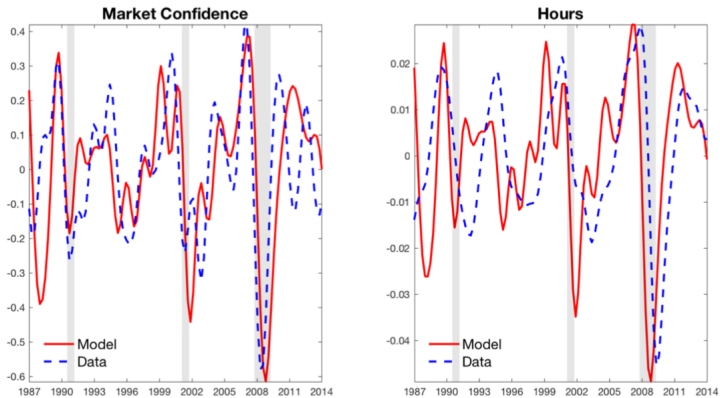


Figure 7. Estimated Times-Series vs Empirical Proxies

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 - A positive ambiguity shock plays a similar role in a negative discount rate shock.
 - Therefore, future cash flow is not valuable and firms will reduce the labor demand.
- If this is true, the mechanism should also apply to investment.
- **Do investments respond to ambiguity shocks as hours to?**

Comment: Measurement of Ambiguity

- This paper uses dispersion of SPF to measure belief divergence.
- Also use Consumer Sentiment Index to proxy market confidence.
- However, does SPF and CSI really measure the first moment or second moment (ambiguity)?

Comment: Measurement of Ambiguity

- Ai and Bansal (2018): Ambiguity aversion type of models uniquely indicates high FOMC announcement premium.
- It is useful to use asset market based evidence to confirm the validation of the measurement.