Macro-Backbone

Monetary Policy and Exchange Rate Volatility in a Small Open Economy

JimmyChen 0802

Paper Results Summary

Benchmark Results : optimal monetary policy in close economy

- Optimal Monetary Policy : the one that replicates the flexible price equilibrium allocation Rotemberg and Woodford (1999)
  - Intuition : 在完全彈性價格（無黏著）下，企業每期都選擇效率加成、市場出清、沒有價格分散。
  - 補貼 τ 消除了長期的壟斷加成扭曲；當央行讓$\tilde{mc}_t = 0$ (產出缺口與實質邊際成本，以對數偏離計)黏著的限制變成「不痛不癢」：沒有人有改價誘因，結果與「大家每期都能改價」的有效率配置等價。

Paper Results Summary

Benchmark Results : Similar results with other open economy Literature

- Optimal Monetary Policy : 偏離$\tilde{mc}_t = 0$，因為多了改善貿易條件（terms of trade）的誘因
  - **貿易條件(TOT) :** 常指出口價格／進口價格。對本國而言，**ToT** 變好代表用同樣的出口能換到更多進口，等同於進口相對變便宜，對本國消費者是好事。
  - 有價格黏著（Calvo/黏性價格）時，名目匯率與總需求的變動會短期改動進口與出口的相對價格（視定價貨幣與定價假設而定），因此央行能藉由利率/匯率反應，影響 ToT。
  - **貨幣當局可以用通膨與匯率在短期內模仿關稅/補貼的效果，把部分福利由外國「搬」到本國（典型的beggar-thy-neighbor誘因）**

Paper Results Summary

Results of this paper

- Optimal Monetary Policy : Special Case
  - **Parameter settings :** $\sigma = \eta = \gamma = 1$
  - Optimal Allocation by Social planner :
    - Maximize : $U_N(C_t, N_t)$
    - Subject to $Y_t = A_t N_t \quad C_t = \vartheta_i C_t^i Q_{i,t}^{\frac{1}{\sigma}}$

$$Y_t = (\frac{P_{H,t}}{P_t})^{-\eta} C_t \left[(1-\alpha) + \alpha \int_0^1 (S_t^i S_{i,t})^{\gamma-\eta} Q_{i,t}^{\eta-\frac{1}{\sigma}} di \right]$$

Paper Results Summary

Results of this paper

- Optimal Monetary Policy : Special Case
  - **Optimal Allocation must satisfies :**
    - $-\frac{U_N(C_t, N_t)}{U_C(C_t, N_t)} = (1-\alpha)\frac{C_t}{N_t}$
    - $1 - \frac{1}{\epsilon} = (1-\tau)\bar{N}t^{1+\varphi}$
  - **In the closed economy case, the optimal monetary policy requires stabilizing the output gap**
    - **Setting τ such that** $(1-\tau)(1-\alpha) = 1 - \frac{1}{\epsilon}$

Paper Results Summary

Results of this paper

- Optimal Monetary Policy : General Case (Under Domestic Inflation Targeting D.I.T)
  - $x_t = \pi_{H,t} = 0$ (by D.I.T) $\implies$ $y_t = \bar{y}_t$ and $r_t = r\bar{r}_t$
  - Central Bank should not follow $r_t = r\bar{r}_t$ blindly (Multi-equilibria and fluctuations)
  - Suppose Central bank follows :
    - $r_t = \bar{r}r + \phi_\pi \pi_{H,T} + \phi_x x_t$ and $\kappa_\alpha(\phi_\pi - 1) + (1-\beta)\phi_x > 0 \iff \exists!$ optimal equilibrium allocation

Basic Model

Agents Problem : Households

Basic Model

Agents Problem : Households

Basic Model

Agents Problem : Firms

Basic Model

Agents Problem : Firms

Equilibrium

Agents Problem : Firms

Equilibrium

Agents Problem : Firms