Discussion of "Optimal Exchange Rate Policy" by Oleg Itskhoki and Dmitry Mukhin

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Optimal policy in open economies

- Two strands of literature, studying two separate frictions:
    - **Nominal rigidities.** Use monetary policy (MP) to stabilize inflation and the output gap [Obstfeld-Rogoff, Clarida-Gali-Gertler, Gali-Monacelli, Devereux-Engel, Egorov-Mukhin,...]
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  [follow-up from positive analysis in Itskhoki-Mukhin I&II]
  - What should be the goals of MP and FXI?
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  - What should be the goals of MP and FXI?
  - How do these policies interact?
- Enormous policy relevance [eg Basu, Boz, Gopinath, Roch and Unsal]
- Very clean answers

What do we learn from the paper?

- With unrestricted MP and FXI, can **eliminate both frictions**
  - Use MP to stabilize output gap and inflation
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  - Deviate from output stabilization to reduce exchange rate volatility
  - Mitigate depreciations by hiking and tolerating recession
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- In two very nice extensions, study international policy coordination and capital controls to capture intermediation rents

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- **My discussion**:
  - Go over core results and intuition behind them
  - Discuss solution method, which is nonstandard
  - Suggestions along the way

Framework: preferences, endowment, technology

- Household problem

$$\max \sum \beta^t \mathbb{E}_t \left[\gamma \log C_{Tt} + (1-\gamma) \log C_{Nt} - (1-\gamma) L_t\right]$$

- Exogenous endowment Y_{Tt}, price $P_{Tt} = \mathcal{E}_t$
- Nontradables produced under fully sticky prices, linear technology

$$Y_{Nt} = A_t L_t = C_{Nt} = W_t$$

- Intertemporal Euler for leisure $\Rightarrow$ MP controls W_t directly

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  - "$T - NT$ setup is a bad model of exchange rates" [Itskhoki 2019]
    - Not (much) harder to do produced tradables model—section 7.2.

First best with incomplete markets

- First best level of NT production is $Y_{Nt} = C_{Nt} = A_t$
- "First best" level of T consumption is determined by the PIH

$$\max \sum \beta^t \mathbb{E}_t [\log C_{Tt}]$$
$$C_{Tt} + \frac{B_t^*}{R_t^*} = B_{t-1}^* + Y_{Tt}$$

where R_t^* is the exogenous tradable real rate.

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- With mean reverting tradable shocks: fall in Y_T leads to decline in C_T, depreciation $\mathcal{E} \uparrow$, and international borrowing $B^* < 0$.

[what about Aguiar-Gopinath?]

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[Gabaix-Maggiori, Itskhoki-Mukhin I&II,...]

$$\frac{D_t^*}{R_t^*} = \frac{\mathbb{E}_t\left[\Theta_{t+1}\left(R_t^* - R_t \frac{\mathcal{E}_t}{\mathcal{E}_{t+1}}\right)\right]}{\omega R_t^2 \mathrm{Var}_t\left(\frac{\mathcal{E}_t}{\mathcal{E}_{t+1}}\right)}$$

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- How to achieve first best?
  - Use MP to set $W_t = A_t = Y_{Nt} = C_{Nt} \rightarrow$ first best production
  - Use FXI to match household desired NFA position $F_t^* = B_t^*$
  - Done!

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  - Do the opposite when Y_T increases (mitigate $\mathcal{E} \downarrow$)
  - This reduces $\mathrm{Var}_t \left(\frac{\mathcal{E}_t}{\mathcal{E}_{t+1}} \right)$, makes financial intermediaries more willing to accommodate international bond demand in both directions
  - Why does this improve? Deviations from FB NT are second order

Other meaningful tradeoffs?

- Optimal policy is very close to first-best: manages to stabilize the output gap on average (and under some shocks, even perfectly)
- Q1: how "far" from first best are we in a sensible calibration?
- Q2: alternative non-trivial tradeoffs?
  - eg, cost-push shock in model with price adjustment?
  - should also emphasize the case with arbitrageur profits more

The solution method

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- Many results are instead stated after linearization using the New Keynesian "gap" language
- Objective function becomes quadratic in tradable and output gap

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  - "risk sharing wedge" is confusing name for z_t
- Other concern: how good is the approximation?
  - Approximation known to work well with standard DSGE models
  - Here, because of variance fixed point, not so clear!

The solution method continued

- How to address concerns with solution method:
  1. Derive main results using nonlinear equations
     - eg, Propositions 1 and 2 clearly hold nonlinearly
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- Alternative way to check: use nonlinear perfect foresight
  - Guess a σ_t^2, solve for shocks under perfect foresight
  - Simulate exchange rate paths from the impulse responses
  - Update σ_t^2 using the simulated $\mathrm{Var}\left(\mathcal{E}_t/\mathcal{E}_{t+1}\right)$

Concluding thoughts

- Insightful paper
- Elegant framework
- Emphasize the second best problems more
- Show how accurate the loglinear solution is