

EXCHANGE RATES AND MONETARY POLICY WITH HETEROGENEOUS  
AGENTS: SIZING UP THE REAL INCOME CHANNEL

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# THE BIG PICTURE

## LITERATURE & AUTHORS' RESEARCH AGENDA

Is a RER depreciation (always) expansionary?

- ▶ Empirical identification is tricky but many devaluation episodes suggest it's painful.
- ▶ Theoretical consensus: depreciations stimulate output through an expenditure switching effect.
- ▶ A few papers consider alternative mechanisms such as
  - \* Currency composition of debt
  - \* Real income channel.
- ▶ This paper revisits the latter in the context of the HANK literature: international Keynesian cross.
- ▶ Important implications for optimal monetary policy

## KEY MECHANISM

In the standard small open economy New Keynesian framework

$$Y_t = (1 - \alpha) \left( \frac{P_{H,t}}{P_t} \right)^{-\eta} C_t + \alpha \left( \frac{P_{H,t}}{P_{F,t}} \right)^{-\gamma} C^*$$

Following a RER depreciation,  $Q_t \uparrow$ :

- ▶  $\frac{P_{H,t}}{P_t}$  and  $\frac{P_{H,t}}{P_{F,t}} \downarrow$  implying  $Y_t \uparrow$ . This is **expenditure switching**.
- ▶ Consumption is unchanged.

**NEW:** (i) imperfect international risk sharing and (ii) heterogeneous agents  $\Rightarrow C_t = C_t \left( \left\{ \frac{P_{H,s}}{P_s} Y_s \right\}_{s=0}^{\infty} \right)$ .

- ▶  $\frac{P_{H,t}}{P_t} \downarrow$  implying  $C_t \downarrow$ . This is the **real income channel**.
- ▶ **Multiplier effect** through  $C_t$ .

# MODEL IMPLICATIONS

In the analytical model, the trade elasticity,  $\chi$ , is key:

- ▶ If  $\chi = 1$ , solution coincides with Gali and Monacelli 2005.
- ▶ If  $\chi < 1$ , RER depreciations are contractionary.

Add these channels to NK monetary policy transmission mechanism.

- ▶ Neutrality requires  $\chi = 1 + \textit{home bias}$ .
- ▶  $\chi < 1 + \textit{home bias}$  weakens monetary policy.

Rest of the paper: go quantitative.

- ▶ Make  $\chi$  dynamic through a delayed import substitution model.
- ▶ Understand when is the real income channel important.
- ▶ Explore multiple extensions.

## SOME REMARKS

Great paper: relevant question, elegant framework & important policy implications.

Summary of my comments

1. Contribution of the paper is quantitative.
  - ▶ Quantification exercise is incomplete.
2. The nature of the shock matters.
  - ▶ Authors could capture and quantify this.
3. Towards optimal monetary policy
4. Other minor suggestions.

# CONTRIBUTION IS QUANTITATIVE

## REVISITING THE BACKUS-SMITH PUZZLE

*One possibility would be to admit demand side shocks in addition to the endowment shocks [...]. Other possibilities include (i) wealth effects, (ii) measurement error, and (iii) incomplete markets.*

Backus and Smith (1993)

- ▶ Incomplete markets by themselves do not solve the puzzle (Cole and Obstfeld 1991, Baxter and Crucini 1995).
- ▶ Corsetti, Dedola and Leduc (2008): unless endogenous wealth effects are strong enough.
  - \* Requires low elasticity of substitution (or persistent shocks).
- ▶ This paper amplifies the endogenous wealth effect.

**How much do the odds of a contractionary depreciation increase?  
HA versus incomplete-RA**

# NATURE OF THE SHOCK

- ▶ Asymmetric demand shocks can break the positive relationship between the real exchange rate and relative consumption.
  - \* Shown by literature even under complete markets.
- ▶ In this model (with log utility):  $\frac{Q_t}{B_t} = \frac{C_t}{C^*}$ .
  - \* Monetary policy is set such that  $Q_t = B_t$ .
  - \* But, it's more likely that  $\Delta Q_t < \Delta B_t$ .
- ▶ Taylor rule extension goes in this direction; but limited to extending neutrality result.

**Do demand shocks generate contractionary depreciations?**

**How much do the odds of a contractionary depreciation increase? HA versus demand shock.**

# OPTIMAL MONETARY POLICY

- ▶ Understanding under which conditions depreciations are contractionary is key for monetary policy design.
- ▶ The study of optimal monetary policy is unfortunately out of reach at this stage.
- ▶ In the meantime, worth exploring:
  - \* Choice of rules: CPI-based Taylor rule, fixed exchange rate.
  - \* Role of net foreign asset position: non-zero steady state.
  - \* Other shocks, ZLB and DCP.



## OTHER MINOR SUGGESTIONS AND CONCERNS

- ▶ Most papers feature some kind of trade costs (Corsetti, Dedola and Leduc (2008) feature a distribution sector).

**The extension that is missing!**

- ▶ Non-homothetic preferences already break the Backus-Smith puzzle.  
**Including these in the quantitative model masks the effect of heterogenous agents.**
- ▶ Footnote 21 should read: Consumption comoves *positively* with real exchange rates.

## SUMMING UP

- ▶ Accounting for heterogenous agents in the NK model increases the chances of contractionary depreciations.
- ▶ Ideally, we would like to learn exactly by **how much!**
- ▶ Looking forward to optimal monetary policy.