Discussion of "Mussa Puzzle Redux" by Oleg Itskhoki and Dmitry Mukhin

Adrien Auclert

Stanford

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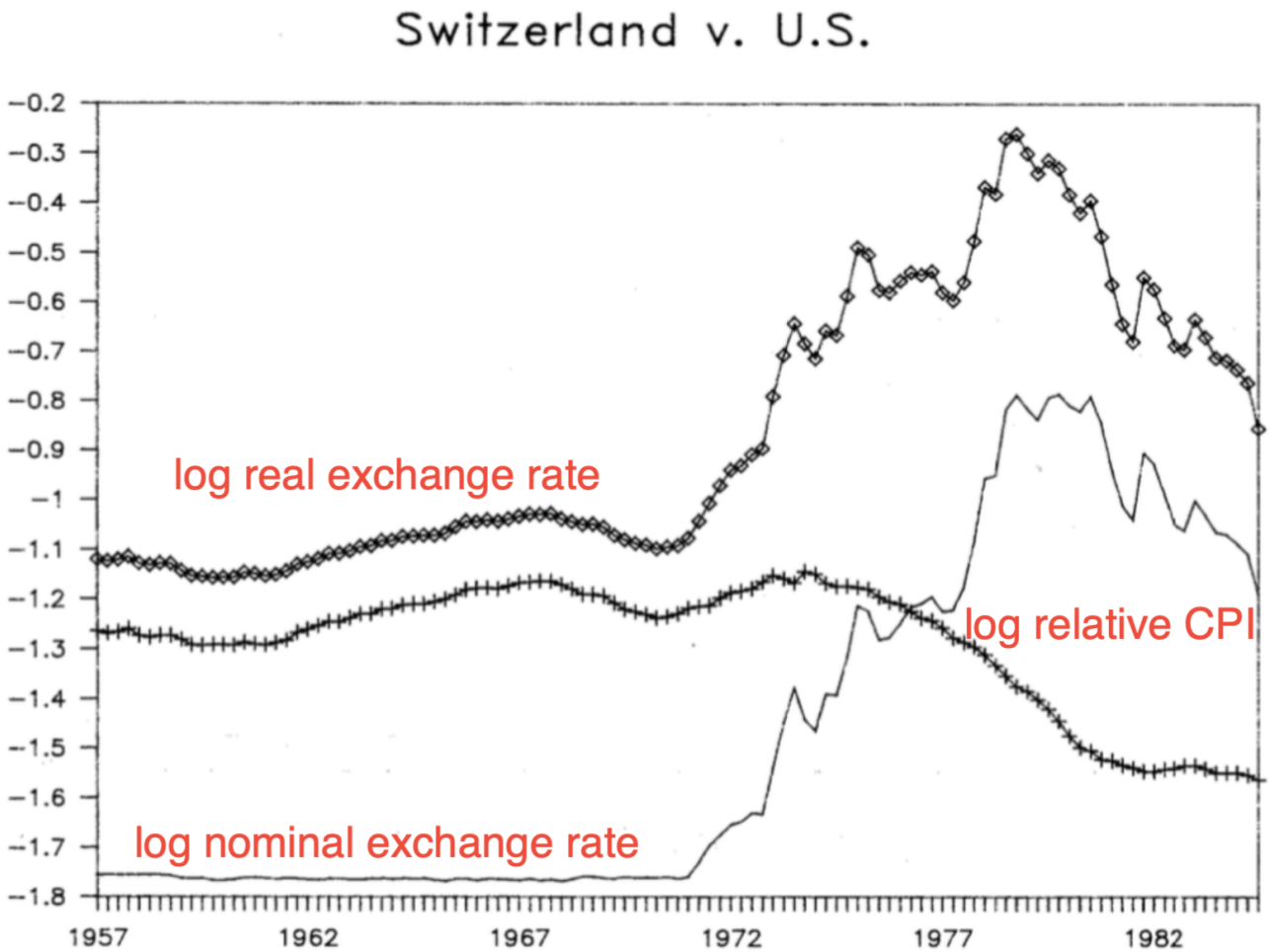
A very important macro question

- **Q**: How does monetary policy work? How to test across models?
  - One idea: exploit large and discontinuous changes in policy regime
  - Look around the event, treat as effectively exogenous
- Mussa (1986) tradition: use 1973 exit from Bretton Woods system
- Consider real exchange rate before/after the peg

$$q_t = e_t + p_t^* - p_t$$

  - Key allocative price in international macro models
  - Indep. of monetary regime in standard flex-price models (IRBC)
  - Not in standard sticky-price models (NKOE)

Original Mussa (1986) fact



- Clear evidence of monetary nonneutrality

Using the original Mussa fact for model discrimination

- Conventional interpretation:

After Peg→Float....	IRBC model	NKOE model
$\mathrm{std}\left(\Delta q_t\right)$ changes	✗	✓

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- **This paper**: what about macro quantities?
  - If q_t plays its allocative role, would expect to see something there
  1. If markets are complete, Backus-Smith condition:

$$\sigma(c_t - c_t^*) = q_t$$

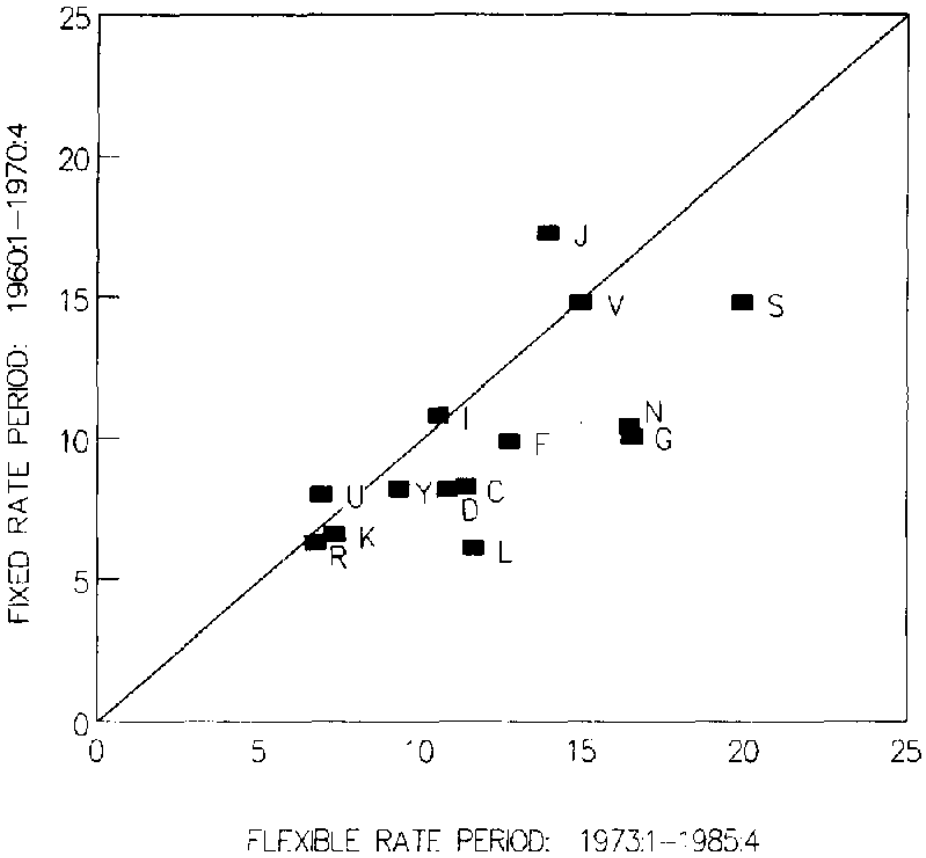
  2. q_t also affects terms of trade s_t; with conventional export demand

$$nx_t = \theta \cdot s_t + \cdots$$

  - Not the first to look at this: eg, Baxter and Stockman (1989)

Baxter and Stockman (1989) facts

- Peg $\rightarrow$ float does not affect sd of macro variables (c, nx, ip, ...)



COUNTRY NAME	SYMBOL
USA	U
FRANCE	F
CANADA	C
ITALY	I
NETHERLANDS	N
IRELAND	R
LUXEMBOURG	L
YUGOSLAVIA	Y
FINLAND	D
GREECE	G
JAPAN	J
SPAIN	S
GREAT BRITAIN	K
SWEDEN	V

Fig. 1. Standard deviation of industrial production (%); linear trend filter.

Using the extended Mussa facts for model discrimination

- IM interpretation: falsifies NKOE model too!

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- Paper:
  1. Shows this logic extends to standard forms of incomplete markets
     - Statistical properties of $\sigma\left(c_t - c_t^*\right) - q_t$ should always be $\perp$ m.p.
  2. Proposes a model that is consistent with both facts (based on IM'17)

Using the extended Mussa facts for model discrimination

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  2. Proposes a model that is consistent with both facts (based on IM'17)
     - Works qualitatively with flexible prices—sticky prices only improve fit

My assessment of the paper

- Provocative paper. Simple point, very nicely argued:

  "Nominal rigidities are neither necessary nor sufficient to explain the (extended) Mussa facts"

  - How important this point is depends on how strong your prior was
  - There is likely a wide range of opinions here

- My view:
  - You can never learn about importance of nominal rigidities from looking at prices alone. Extending to quantities is very important.
  - The most suprising part is that nominal rigidities are not necessary

- Rest of discussion:
  - Overview of why flex-price IM model "works"
  - Suggestions for paper along the way

Why does flex-price model solve the Mussa puzzle?

- Key idea: there is financial market segmentation
  - Equilibrium position of intermediaries in home bonds:

$$d_{t+1} = \frac{i_t - i_t^* - E_t\left[\Delta e_{t+1}\right]}{\omega \mathrm{Var}\left[\Delta e_{t+1}\right]} \tag{1}$$

  - When $\mathrm{Var}(e_t) \uparrow$, less incentives to arbitrage away UIP deviations

- Why does this explain discontinuity of RER at float vs peg?
  - Under peg, $e_t = 0$, $q_t = p_t^* - p_t$ only affected by productivity shocks
  - Under float + perfect inflation targeting, $q_t = e_t$ affected by both productivity *and* noise trader shocks $\rightarrow$ much more volatile

- Why does this explain continuity of quantities at float vs peg?
  1. UIP deviations break Backus-Smith condition
  2. Not enough: need to prevent XR changes from affecting economy in other ways (eg s_t)

Comments on financial market segmentation model

- (1) is testable with data on financial intermediary balance sheets.
  - Do gross positions vary with UIP deviations and XR vol in this way?

- Paper focuses a lot on Backus-Smith residual, which here is

$$E_t\left[\sigma\left(\Delta c_{t+1} - \Delta c^*_{t+1}\right) - \Delta q_{t+1}\right] = i_t - i^*_t - E_t\left[\Delta e_{t+1}\right]$$

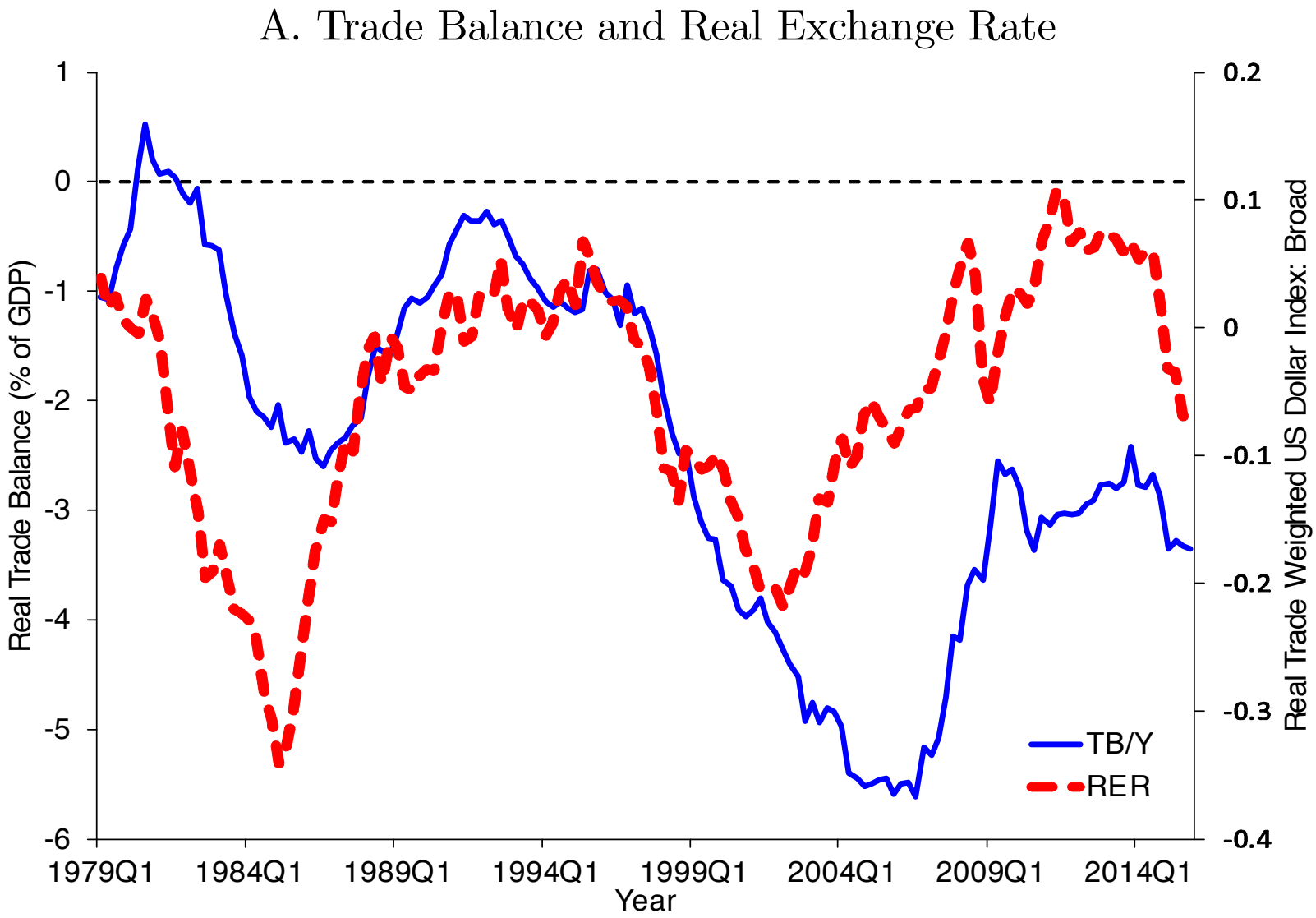
  - Relies on Euler equations, which perform poorly in practice
  - Does this solution work as well if model has an EE wedge?

- The paper uses a set of tables and impulse responses to demonstrate its point. Would be more effective to plot model simulations and show that they really look like the data.

Solution to broader exchange rate disconnect

- Exchange rate still affect economy in other ways (eg nx_t vs s_t)
- Solution: consider the autarky limit, $\gamma = 0$
  - Even in quant model, suddenly switch to interpreting "home" as US, justify setting $\gamma = 0.035$
  - How robust are quantitative results to higher values of γ?
- Surely the exchange rate has some allocative role to play in practice?
- A lot of evidence that XR do affect net exports, but need to look:
  - At medium frequencies
  - Allow for lags
- Can model be made consistent with medium-run facts?

Medium-run evidence from Alessandria and Choi (2019)



Using Mussa facts for falsification, revisited

- What do we really learn from the Mussa facts?
  1. There is monetary nonneutrality: XR regime matters for RER volatility
  2. There is an exchange rate disconnect: our models imply short-run passthrough of RER to quantities that is too high
- Seemingly lots of ways to explain this:
  - RER not directly allocative for most real decisions
  - Passthrough of RER to final goods prices is imperfect
  - Lags in adjustment of quantities in response to prices, eg because of fixed costs, habit formation, inattention, ...
- Can paper make a strong case that nominal rigidities + some of the above can't explain the data?

Concluding thoughts

- Very nice paper!
  - Tackles one of the most important questions in monetary economics
- One of first formal models of monetary regime affecting risk premia
- My posterior is that nominal rigidities still play a big role in explaining the Mussa facts—but less than they did in my prior