Discussion:
Asymmetries and Non-Linearities in Exchange Rate Pass-Through
by Kim, Lewis and Vigfusson

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Motivation

▶ Great paper:

▶ Long-standing question: Is exchange rate pass-through (ERPT) asymmetric for depreciations vs appreciations?
  ▶ Very important practically for monetary policy
  ▶ Informative for macro modeling in general: Exchanges rates as an exogenous shock to understand price adjustment

▶ Particular contributions:
  ▶ Using micro-data, show asymmetric response in ERPT
  ▶ Micro data allows to rule out some alternative explanations
  ▶ Non-linearities do not appear to play a role
Main Results 1/2

- Asymmetric ERPT:
  - FX appreciations pass-through more quickly in the medium term
  - no difference after a year
  - more pronounced for differentiated goods

- Some alternative mechanisms ruled out:
  - not caused by asymmetric price stickiness – some evidence of state dependence (for depreciations)
  - not caused by selective exit; both appreciations and depreciations raise exit probability (curiously, depreciations by more)

- There is no evidence of non-linearities
Main Results 2/2

- **Quantities:**
  - FX appreciations increase trade values in short run
  - depreciations decrease trade values in short run
  - no effect in long run
  - using estimated ERPT, can infer quantity responses

- **Empirical paper, but includes a partial-equilibrium model:**
  - monopolistic competition model with convex adjustment costs for quantity increases
  - model generates asymmetry in ERPT
  - model fails to match pricing moments in the data (magnitude)
  - no quantity moments matched
Discussion Overview

Next:
- 3 comments on the empirical analysis
- 1 comment on modeling
Comment 1: More From Within the Data

▶ Exploit richness of the data: Solidify guidance for modeling and policy!

▶ Several possible extensions:
  ▶ What if you look at exports? Just a different flag in the dataset. Do results flip? Interesting either way.
  ▶ Most ERPT is due to producer-currency pricing (PCP) when desired pass-through is high, vs. local-currency pricing (LCP, see Gopinath et al. 2010). Do results depend on invoicing currency choice?
  ▶ Intra-firm trade (Neiman 2010): Is asymmetric ERPT still present? Very important check, different intra-firm concerns.

▶ Analysis of adjustment probability:
  ▶ Go beyond linear probability model.
  ▶ You can use a multinomial logit/probit model to distinguish up/downwards adjustment. Do appreciations make increases more likely and vice versa? (also, show error bands)
Comment 2: More from Beyond the Data

- Is the asymmetry finding a more general result? Really important to know for modeling assumptions.

- Several angles:
  - Use PPI and CPI micro data
  - Run the same regression using cost shocks
    - commodity price movements
    - extract shocks like in Auer et al. (2017)
    - use common factors from FAVAR like in Boivin et al. (2009)

- Implement using PPI disaggregated data:
  - 325 U.S. PPI inflation series, 01/1947-12/2017
  - Commodity price index from St. Louis Fred
  - Estimate

\[ \Delta P_{i,c,t} = \sum_{k=0}^{18} \left( \beta_k^+ \Delta c_t^+ + \beta_k^- \Delta c_t^- \right) + \text{controls} + \epsilon_{i,c,t} \]  

(1)
Comment 2: More from Beyond the Data

Similar pattern emerges!
Comment 3: Quantities

- Results based on trade values. Using estimated ERPT to impute pure quantity effect.
- Find that quantity goes down when prices go down, and up when prices go up!
- Potentially problematic composition effect/confounding units:
  - ERPT estimated for 4-digit HS sectors. Trade values at 4-digit SITC? Need to make consistent/clarify. Else we are not comparing the same units.
  - If same sectoral definitions, are both samples representative?
  - Can you show standard errors?
- Take pure quantity results with caution.
Comment 4: Model 1/3

- Partial equilibrium model, currently work in progress.

- Convex adjustment costs for output increases lead to asymmetry in ERPT: large cost decreases do not lead to much pass-through because cost of increasing demand is convex.

- Most exchange rate changes are small, are convex adjustment costs realistic?

- Alternative: menu cost model with trend inflation
  - follow Mankiw and Ball (1994)
  - even and odd periods, $t$ and $t + 1$
  - marginal cost of $C_t$
  - demand $Q_t = BP_t^{-\rho}$, $B, \rho > 0$
  - $\Pi$ expected cost inflation at end of $t$, realized $\Pi \times E_t$
Comment 4: Model 2/3

- Flex-prices:
  - \( P_t^* = \frac{\rho}{\rho - 1} C_t \)
  - \( P_{t+1}^* = \frac{\rho}{\rho - 1} \Pi E_t C_t \)

- Firm solves in period \( t \):
  \[
  \min_{p_t} (p_t - p_t^*)^2 + \beta E_t (p_t - p_{t+1}^*)^2
  \]
  Optimal price in period \( t \):
  \( p_{t}^{**} = c_t + \mu_t + \frac{\beta}{\beta + 1} \pi \)

- In period \( t + 1 \), pay \( K \) to minimize loss again?
  Given \( c_{t+1} = c_t + \pi + \epsilon_t \), get asymmetric sS band:
  \[
  \epsilon_t \in \left[ -\sqrt{K} + \left( \frac{\beta}{\beta + 1} - 1 \right) \pi, \sqrt{K} + \left( \frac{\beta}{\beta + 1} - 1 \right) \pi \right]
  \]
Extensions

- Use nested demand structure to make imports and domestic goods less substitutable and mitigate quantity effects

- How to obtain effect on exit probability, especially higher probability after depreciations? Role of distribution costs (Burstein et al. 2005)
Great paper!