

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

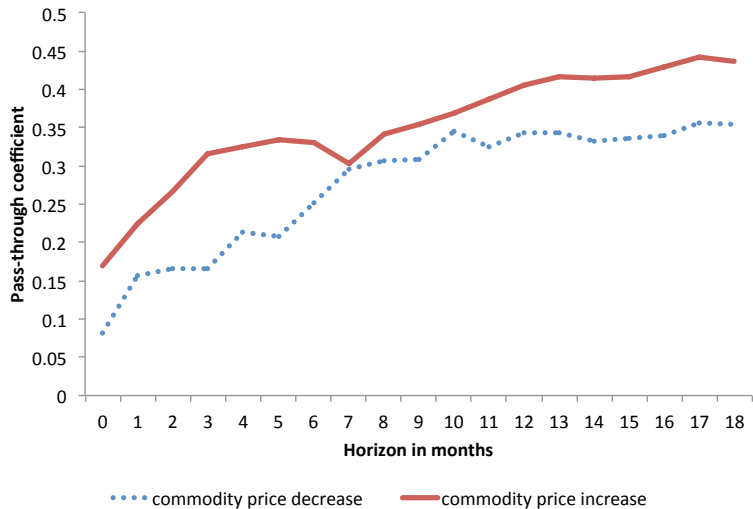
- ▶ Exploit richness of the data: Solidify guidance for modeling and policy!
- ▶ Several possible extensions:
 - ▶ What if you look at exports? Just a different flag in the dataset. Do results flip? Interesting either way.
 - ▶ Most ERPT is due to producer-currency pricing (PCP) when desired pass-through 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

$$\Delta P_{i,c,t} = \sum_{k=0}^{18} (\beta_k^+ \Delta c_t^+ + \beta_k^- \Delta c_t^-) + \text{controls} + \epsilon_{i,c,t} \quad (1)$$

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 $Q_t = BP_t^{-\rho}$, $B, \rho > 0$
 - ▶ Π expected cost inflation at end of t , realized $\Pi * E_t$

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:

$$\epsilon_t \in \left[-\sqrt{K} + \left(\frac{\beta}{\beta+1} - 1 \right) \pi, \sqrt{K} + \left(\frac{\beta}{\beta+1} - 1 \right) \pi \right]$$

Comment 4: Model 3/3

- ▶ 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)

Conclusion

Great paper!