Discussion of

Exporters and Shocks: Dissecting the International Elasticity Puzzle

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NBER Summer Institute
IFM Meeting, July 2014
Why a Puzzle?

- **Assumptions**
  1. Downward-slopping demand
     \[ Q_{ikt} = q(P_{ikt}; Z_{kt}) \]
     where \( P_{ikt} \) is local currency price (good \( i \), market \( k \))
  2. Marginal cost of delivering the good to consumers in local currency:
     \[ MC_{ikt} = (1 + \tau_{kt})E_{kt}MC_{it}^* \]

- **Result**
  Static profit maximization implies
  \[ \frac{\partial \log(P_{ikt}Q_{ikt})}{\partial \log E_{kt}} = \frac{\partial \log(P_{ikt}Q_{ikt})}{\partial \log(1 + \tau_{kt})} \]
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  \]

  \[ \rightarrow \] under additional assumption of constant pass-through (e.g., PC or CES+MC), \( \theta \) is (local) elasticity of demand
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Two Distinct Puzzles

1. Exchange Rate vs Tariffs
   - exports are more responsive to tariffs

2. Short Run vs Long Run
   - exports are more responsive over longer horizons
   - J-curve

\[
\log(P_{ikt} Q_{ikt}) = \alpha_k + \delta_{it} + \beta_1 \Delta \log(E_{kt}) + \beta_2 \log(1 + \tau_{kt}) + \beta_3 \log(D_{kt}) + \epsilon_{ikt}
\]
Two Distinct Puzzles

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This paper: Exchange Rate vs Tariff at the firm level

(i) small extensive margin (entry and exit) effects at annual frequency

(ii) large differences in intensive margin elasticities ($\beta_2 < \beta_1$)

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Exchange Rates vs Tariffs
Why Measured Elasticities may be Different?

1. Different statistical properties (persistence, volatility) and . . .
   (a) sunk cost of entry
   (b) sunk adjustment costs (of inputs or prices)
Exchange Rates vs Tariffs
Why Measured Elasticities may be Different?

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2. Different panel properties
   — little time-series variation in $\tau_{ikt} \Rightarrow$ regression with $\alpha_k$ and $\delta_{it}$ is a long-run cross-sectional regression (LR investment response)
   — lots of time-series variation in $E_{kt} \Rightarrow$ regression with $\alpha_k$ and $\delta_{it}$ picks up response to annual deviations of $E_{kt}$ from its time-series average (lack of SR price response)
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3. Different general equilibrium comovement
   — correlation with $MC_{kt}$, $Z_{kt}$, etc
   — correlations across markets $k$
   — controlling for $\delta_{it}$ does not necessarily resolve it
Why controlling for $\delta_{it}$?

- Consider a pricing-to-market regression:

$$P_{ikt} = M_{ikt}(1 + \tau_{kt})\varepsilon_{kt} MC^*_{it} \quad \Rightarrow$$

$$\log P_{ikt} = \log M_{ikt} + \log(1 + \tau_{kt}) + \log \varepsilon_{kt} + \log MC^*_{it}$$

- "Second stage":

$$P_{ikt} Q_{ikt} = e^{\eta_{ikt}} Q_{kt} P_{kt}^{1-\theta} P_{ikt}^{1-\theta} \quad \Rightarrow$$

$$\log(P_{ikt} Q_{ikt}) = \eta_{ikt} + \log Q_{kt} - \theta \log P_{kt}$$

$$\quad + (1 - \theta) \left[ \log M_{ikt} + \log(1 + \tau_{kt}) + \log \varepsilon_{kt} + \log MC^*_{it} \right]$$

- But note that both $P_{kt}$ and $M_{ikt}$ potentially have different comovement properties with $(1 + \tau_{kt})$ and $\varepsilon_{kt}$:

  — different cross-$k$ correlations and...
  
  (i) input-output effects on $P_{kt}$
  
  (ii) strategic complementarities
Conclusion

• Many possible stories are consistent with the different measured elasticities

• This paper shows that the measured elasticity differences persistent at the firm level controlling for extensive margin → simple story based on sunk costs of entry is insufficient

• Next steps:
  1. Identify the mechanism most consistent with the data
  2. Develop a modeling framework
  3. Develop a structural estimation technique