Discussion of “Exporters and Shocks”

by Doireann Fitzgerald and Stefanie Haller

Logan Lewis

Federal Reserve Board

June 1, 2013

The views expressed here should not be interpreted as reflecting the views of the Federal Reserve Board of Governors or any other person associated with the Federal Reserve System.
Overview

- Trade is surprisingly unresponsive to (real) exchange rate changes and surprisingly responsive to tariff changes.

- Major potential explanations
  1. Sunk costs/extensive margin
  2. Incomplete exchange rate pass through (price frictions)
  3. Intensive margin adjustment costs (quantity frictions)

- This paper: use firm-level data from Ireland to document this at the micro level and help sort out some of these explanations
Estimation strategy - participation

- Annual exports by firm $i$ in market $k$ at time $t$ from Ireland over 2000-2009
- Participation $X_{ik}^t$ estimating equation (linear probability model):

$$\Pr[X_{ik}^t = 1] = \alpha^k + c_i^t + \beta'z_i^k + \phi X_{ik}^{t-1} + \text{(interactions)} + \epsilon_{ik}^t \quad (1)$$

- $\alpha^k$ market fixed effects, $c_i^t$ firm-year fixed effects
- $z$ includes real exchange rate, firm-market-year ad valorem tariff, and GDP minus exports (destination currency).
- Tariff measure for each firm is production-weighted changes in tariffs.
- Interactions: size $\times$ macro variables; revenue $\times$ export participation; macro variables $\times$ export participation; size $\times$ macro variables $\times$ export participation; revenue $\times$ macro variables $\times$ export participation
Estimation strategy - revenue

- Revenue ($r_{ik}^t$) estimating equation:

  $$\Delta r_{ik}^t = \alpha^k + c_i^t + \sum_{j=0}^{J} \beta_j^t \Delta z_{t-j}^{ik} + \gamma^t a_{t-1}^{ik} + \eta_{tik}$$

  (2)

- $\alpha^k$ market fixed effects, $c_i^t$ firm-year fixed effects, $a_{t-1}^{ik}$ age-in-market fixed effects

- Baseline: only firms which exported to market $k$ in every year during the sample.
Main results

Participation

- Firms more likely to export after a depreciation, with larger firms more sensitive (10% depreciation $\rightarrow$ 0.2 ppt increased probability of export)
- Following a tariff reduction, large firms more likely to export/stay exporting
  - Large firms: 10% reduction $\rightarrow$ 0.3 ppt increased probability of export and 3.4 ppt reduced probability of exit
  - Small firms: 10% reduction $\rightarrow$ 0.2 ppt decreased probability of export and 5.4 ppt increased probability of exit.

Revenue

- 10% depreciation $\rightarrow$ 9.7% increase in export revenue
- 10% tariff reduction (lagged) $\rightarrow$ 197% increase in export revenue (large standard error)
Imported intermediates

- Imported intermediates reduce exchange rate pass-through (Goldberg and Campa 2010; Amiti, Itkshoki, and Konings 2012, ...)
- Supply chains and vertical specialization can increase the response of gross trade flows to tariff changes (Yi 2003).
  - Interesting exercise to exploit this heterogeneity across firms and time (trend changes)

Data source: Goldberg and Campa (2010) for Ireland in 1998 by CPA sectors
Anticipated tariff reductions

- The tariff reductions in the sample are known years in advance (Uruguay Round concluded in 1994)
- What should we expect from an anticipated tariff reduction? It depends.
- Consider a simple model of small open economy importing from Ireland:
  - Log utility over consumption
  - Bond market with interest rate $1 + r = 1/\beta$ and bond holding costs ala Schmitt-Grohe and Uribe (2003)
  - Armington aggregation over home good and foreign good, elasticity $\theta = 4$.
  - Exogenous price of imported good, to be reduced by 10%
  - No uncertainty
  - Tariff reduction announced in period 2, takes effect in period 10.
Anticipated tariff reductions - “model”

- Constant endowment of home good
- High bond holding costs
Anticipated tariff reductions - “model”

- Constant endowment of home good
- Low bond holding costs
Anticipated tariff reductions - “model”

- Production with perfect competition using only labor
- Linear disutility of labor
Asymmetric/non-linear responses?

- Some explanations (e.g. sunk costs) might imply asymmetries and/or non-linear effects, at least in partial equilibrium.
- In this sample, non-linearities are easier; all major currencies had a trend depreciation with few appreciations.

Figure 4: Annual average real exchange rates: Non-Euro destinations
Other comments

- It would be interesting to see a combined calculation (back of the envelope?) combining the participation and revenue estimates to decompose aggregate changes in trade along the extensive and intensive margins.
  - Summary stats show a limited role for the extensive margin
- Surprising lack of significance on demand (GDP - exports) in sales regression.
- Why not more interactions in revenue regression? (e.g. Berman et al. 2012)
Conclusion

- A very nice paper which helps to distinguish between the extensive/intensive margin explanations for the small response of exports to exchange rates and the large response of tariffs.
- Largely consistent with past-evidence, both micro and aggregate.
  - Exports respond little to exchange rate changes and respond a strongly to tariff liberalizations.
- The extensive margin, while (statistically) affected by both exchange rates and tariffs, is not important for aggregate trade over short horizons.