Comments on

"Demand Learning and Firm Dynamics: Evidence from Exporters"

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- **Bayesian learning model of exporter behavior**
  - This paper views the association between exporter stability and age through the lens of a Bayesian passive learning model. Details
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  - *considerable attention to robustness issues and alternative interpretations for the results.*

Implications

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  - knowledge is at least partly irreversible.
  - Once induced to enter a market, exporters tends to stick around.
- **Time dimension is significant**.
  - Demand signals still matter after 7 years in the market, though they are half as important as they were in the first year.
  - Yet all knowledge is lost after several years absence, so the lengthy learning process reboots upon re-entry.

The horse race

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- **Horses not allowed to run, but discussed**
  - growth in idiosyncratic demand due to investments in marketing, relationship building (*"**active learning**"*)
  - firms drawing poor sequences of demand shocks drop out (*"**selection effects**"*)

Alternative mechanisms

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  - Are the mean growth effects in Table 3 based on an unbalanced panel?
  - In a model without learning, Arkolakis (forthcoming) finds growth rates are higher among younger firms because of selection.
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- **Decisions are made once per calendar year.**
- **But typical Colombian exporter makes about 8 shipments per year.**
  - Authors do show that sectors with higher input intensity or time-to-ship show stronger results.
  - Could also limit to industries with low shipment frequencies as additional robustness check.

On the estimation

- **Identification of σ_k**

$$\ln Z^p_{ijkt} = \beta \ln Z^q_{ijkt} + \upsilon_{ijkt}$$

where

  - $\ln Z^p_{ijkt} = \ln p_{ijkt} - FE^p_{ikt}$
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- **The structure of the model implies:**
  - $\ln Z^q_{ijkt} = \sigma_k \ln E_{t-1}\left[\exp(\frac{a_{ijkt}}{\sigma_k})\right]$
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- **The elasticity estimator is therefore**:

$$E\left[\hat{\beta}\right] = \frac{-1}{\sigma_k} + \frac{cov\left[\sigma_k \ln E_{t-1}\left[\exp(\frac{a_{ijkt}}{\sigma_k})\right], \frac{a_{ijkt}}{\sigma_k}\right]}{var\left(\sigma_k \ln E_{t-1}\left[\exp(\frac{a_{ijkt}}{\sigma_k})\right]\right)}$$

On the estimation

- **Expect $\hat{\beta}$ biased toward zero; over-estimation of σ_k**
  - Overestimation of $\hat{\upsilon}_{ijkt} = \frac{a_{ijkt}}{\sigma_k}$ especially among large q observations.
  - Need to get $\overline{a_{ijk}}$ out of the error, but Z_{ijkt}^{q} depends on entire history of $\hat{\upsilon}_{ijkt}$
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- **A possible selection bias in the other direction**
  - An unbalanced panel?
  - Tend not to observe low realizations on $\frac{a_{ijkt}}{\sigma_k}$ when Z^q_{ijkt} is small.
  - Problematic if really do anticipate part of the demand shock.
  - Then, tend to overstate steepness of negative slope, $\hat{\beta}$; i.e., under-estimate σ_k.

Testing prediction 1

- **Recall**:
  - $\hat{v}_{ijkt-1} = \ln Z^{p}_{ijkt-1} - \hat{\beta} \ln Z^{q}_{ijkt-1}$ measures signal in period $t-1$
  - $\Delta \ln Z^{q}_{ijkt}$ measures subsequent adjustment in residual output:

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- **If $\hat{\beta}$ biased toward zero, $\hat{v}_{ijkt-1}$ exhibits spurious negative corrrelation with** $\ln Z^q_{ijkt-1}$.
  - Tends to bias $\hat{\alpha}^t_1$ downward.
  - Over-estimation of $\hat{v}_{ijkt-1}$ more severe when $\ln Z^q_{ijkt-1}$ is large (older exporters), so downward bias could grow with age.

On the orthogonality of the demand shocks

- **In support of the theory, BRV note (p. 13):**

$$corr\left[\ln E_{t-1}\left[\exp\left(\frac{a_{ijkt}}{\sigma_k}\right)\right], \hat{a}_{ijkt}\right] = 0.086$$

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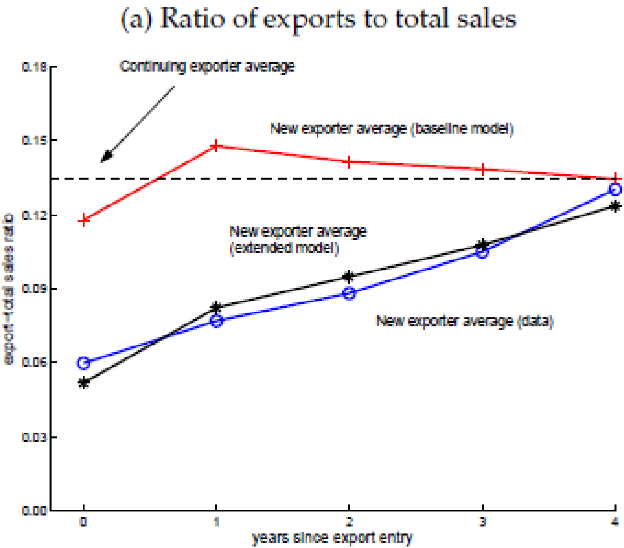
- **Why isn't covariance exactly zero?**
  - trimmed $\hat{\upsilon}_{ijkt}$ values are used
  - possibly variables don't have zero mean?

- **Not clear that the covariance tells us anything about the validity of the model's assumption**

Summary

- **Very nice job of formalizing demand learning and measuring it.**
- **Key issue: is demand really fixed and exogenous?**
- **Possible refinements:**
  - use ratio of means to estimate σ
  - incorporate selection bias in regression

Exports over domestic sales: Colombia



source: Ruhl and Willis (2014)