Accounting for Intermediates: Production Sharing and Trade in Value Added

By Robert Johnson (Dartmouth) and Guillermo Noguera (Berkeley)

Discussion by Brent Neiman (Chicago and NBER)

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Basic Motivation – Obvious to ITI Crowd

- Vietnam exports a $99 bicycle to China
- China paints it using $1 labor and exports $100 to the U.S.
- (Gross) Trade statistics suggest no economic relationship for the U.S./Vietnam and a $100 one for U.S./China.
- In fact, we might want to think about Vietnam exporting far more **value added** to U.S. than China...

Basic Idea Behind Calculation

Production y equals final goods: c

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$+$

$\vdots$

$+$

$$y = (I-A)^{-1}c$$

Assessment

- A very nice paper
  - Dormant theory
  - GTAP (Purdue) global I/O data
  - Well written, intuitive, believable results
- Relative to I/O literature, some non-standard improvements
  - Export-processing zones in Mexico/China
  - Analyses of cross-country variation
- Standard I/O critiques apply
  - Fixed coefficient technologies
  - Representativeness assumptions
  - etc.

But the More Exciting Part is How to Use this Tool?

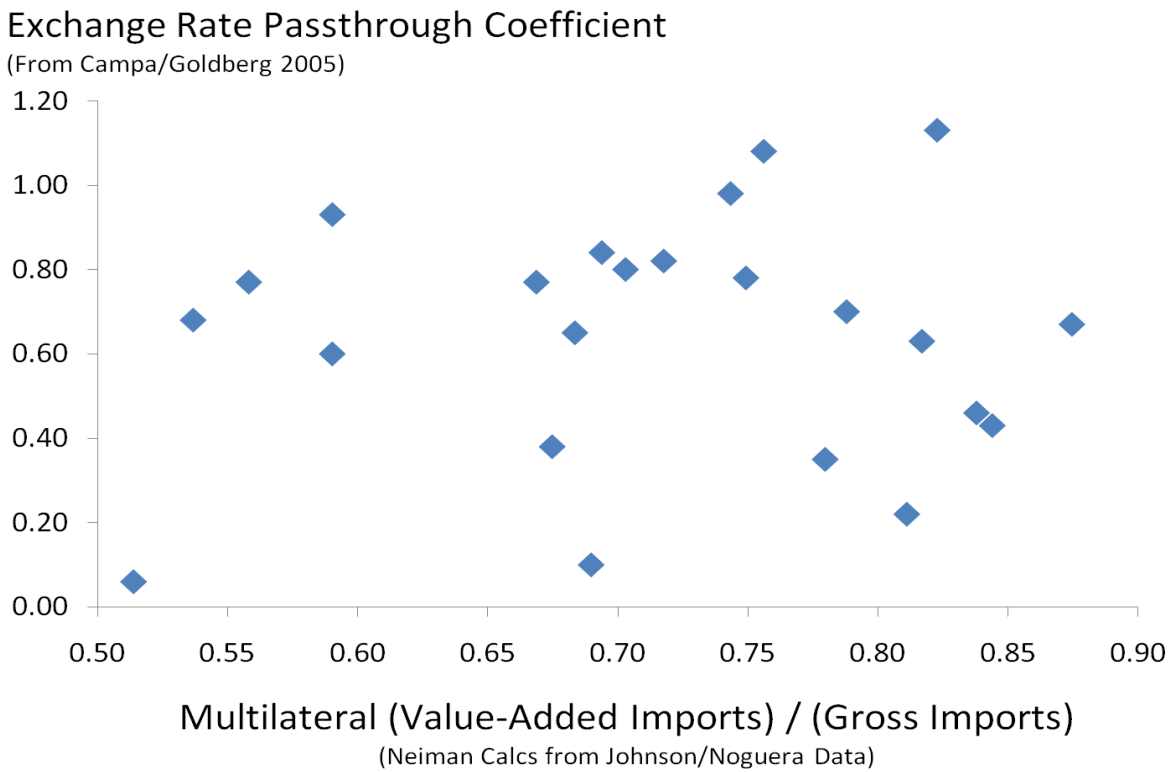
- *Multilateral* Results are very similar to HIY (2001)
- So, benefit comes from new *Bilateral* relationships
  - Exchange Rate Passthrough
  - Gravity
  - Trade Routes
  - Co-Movement / Contagion
  - Jones' (2009) input multiplier
  - Bilateral Trade Balances
  - Time Series – Tests of Yi

Value-Added FX Passthrough (Multilateral)

- Standard Passthrough (Campa and Goldberg, 2005):

$$\ln \Delta p_{i,t} = \alpha_i + \beta_i \ln \Delta e_{i,t} + \textit{controls} + \textit{lags} + \textit{etc}.$$

- $e_{i,t}$ is the **gross trade-weighted exchange rate**. But, we *should* use **value-added trade-weighted exchange rate:**

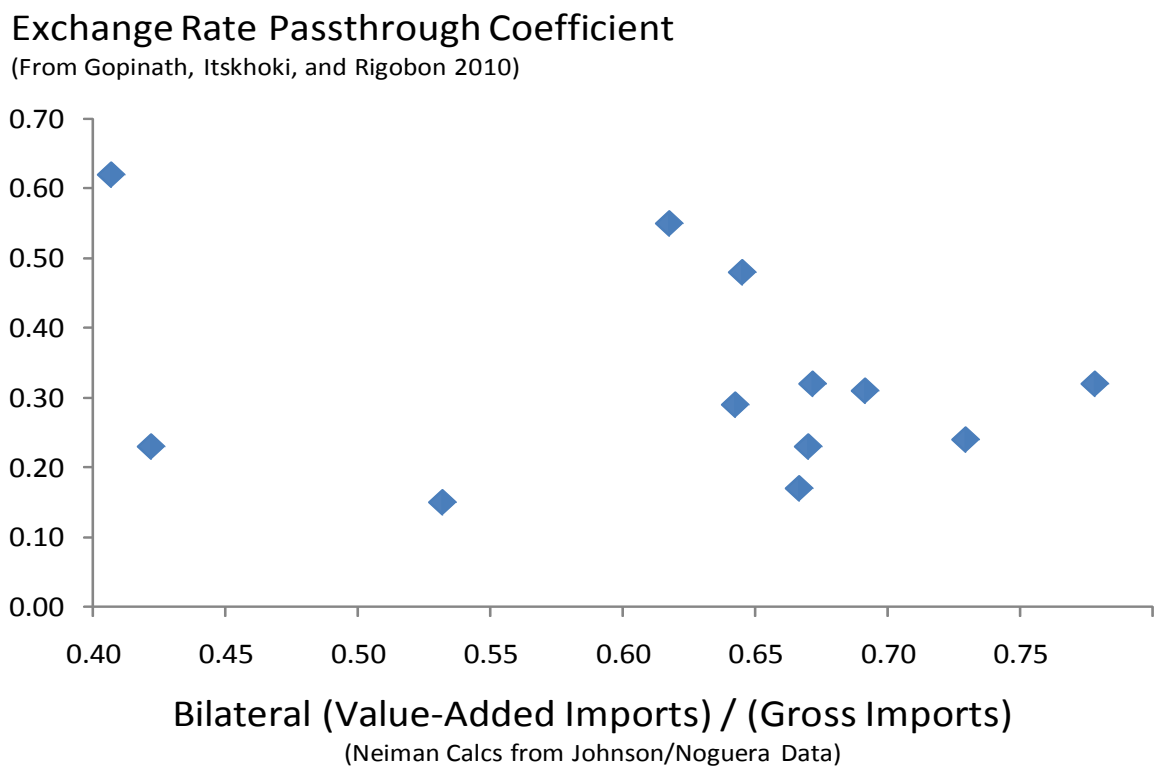


Value-Added FX Passthrough (Bilateral)

- Bilateral Passthrough (Gopinath et al., 2010, Neiman, 2010):

$$\ln \Delta p_{ni,t} = \alpha_i + \beta_{ni} \ln \Delta e_{ni,t} + controls + lags + etc.$$

- Literature explains $\beta_{ni} \neq \beta_{ki}$ with variable markups, but $VAX_{ni} \neq VAX_{ki}$ also $\Longrightarrow \beta_{ni} \neq \beta_{ki}$



Value-Added vs. Standard Gravity

- Can we learn about what is generating gravity? (Anderson, 1979; Evenett and Keller, 2002)

VARIABLES	Ln(Gross Trade)	Ln(Value Added Trade)
Ln(Distance)	-1.071***	-0.775***
Border	0.829***	0.687***
Island	-0.372**	-0.199**
Legal System	0.116**	0.067**
Common Language	0.585***	0.360***
Colonial Relationship	0.645***	0.406***
Note: Other standards (FTA, Religion, etc.) included, but not shown		
Observations	5,684	5,700
R-squared	0.90	0.96
Robust standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1		

- No Zeros. But Helpman, Melitz, Rubinstein (2008) selection equation could be really interesting

Other Interesting Potential Next Steps

- Explore Trade "Routes"
  - Given endpoints, is route the same?
  - Clues as to impact of policy/MNCs/geography
- Replicate and Compare using Earlier/Later Data
  - Document Yi explanation about trade-cost elasticity
- Co-movement
  - Di Giovanni and Levchenko (2007), but much better data

Conclusion

- Nice job, clear exposition, cool data, useful tool
- Most interesting/important part will be putting it to good use