Comments on: "The Trade and Demand Nexus: Do Global Value Chains Matter?" by Al-Haschimi, Skudelny, Vaccarino, and Wörz.

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Summary and Context

Question: Do GVCs raise the income elasticity of import demand?

Approach: Regress bilateral imports on: (a) importer income, (b) importer income $\times$ exporter GVC participation.

Result: Elasticity of imports to importer income is higher when exporter GVC participation is high.

Context

- Great Trade Collapse brought new attention to income elasticity, and stimulated work on GVCs and import demand.
- Income elasticity of trade rose in 1990s (2.2), fell in the 2000s (1.3), and is even lower post-2008 (0.7). [Constantinescu, Mattoo, and Ruta (2015)]
- Trade recovery has been "sluggish." A GVC-based explanation?

Plan for the Discussion

Problem: with GVCs, the income elasticity is hard to interpret.

Solution: more structure and some IO arithmetic.

Composition matters for income elasticity and GVC trade dynamics.

- Sector-Composition Effects
- Expenditure Categories & Import-Adjusted Demand
- Vertical Specialization Trade

Detailed comments/questions for the authors at the end.

Imports

Identity 1: $\text{IM} = \iota' \mathbf{A}_I \mathbf{y} + \iota' \mathbf{f}_I$

Identity 2: $\mathbf{y} = \mathbf{A}_D \mathbf{y} + \mathbf{f}_D + \mathbf{x}$

1 & 2 yield: $\text{IM} = \underbrace{\iota' \mathbf{A}_I (\mathbf{I} - \mathbf{A}_D)^{-1} \mathbf{f}_D}_{\text{import content of } \mathbf{f}_D} + \underbrace{\iota' \mathbf{A}_I (\mathbf{I} - \mathbf{A}_D)^{-1} \mathbf{x}}_{\text{vertical specialization}} + \iota' \mathbf{f}_I$

Definitions:

- IM is imports (nominal scaler).
- $\mathbf{y}$ is the gross output vector.
- $\mathbf{A}_D$ and $\mathbf{A}_I$ are domestic and import IO matrices.
- $\mathbf{f}_D$ and $\mathbf{f}_I$ are domestic and import final goods vectors.
- $\mathbf{x}$ is export vector.
- ι is a vector of ones.

Sectoral Composition of Expenditure

Repeating: $\text{IM} = \iota' \mathbf{A}_I (\mathbf{I} - \mathbf{A}_D)^{-1} \mathbf{f}_D + \iota' \mathbf{A}_I (\mathbf{I} - \mathbf{A}_D)^{-1} \mathbf{x} + \iota' \mathbf{f}_I$

- Changes in $\mathbf{f}_I$ map directly into imports.
- Changes in $\mathbf{f}_D$ and $\mathbf{x}$ map to imports via $\mathbf{A}_I (\mathbf{I} - \mathbf{A}_D)^{-1}$.

Import content of sector-level expenditure is key.

- Demand for manufactures/durables changes more than 1-for-1 with income at business cycle frequency.
- Import content of manufactures/durables is high.
- Together, this implies high elasticity of trade to income.

This story accounts for $\approx 70\%$ of the great trade collapse.

[Bems, Johnson, and Yi (2010), Eaton, Kortum, Neiman, and Romalis (2011)]

Import-Adjusted Demand

Bussière, Callegari, Ghironi, Sestieri, and Yamano (2013)

A1 Break up **f**'s: $\mathbf{f}_D = \mathbf{C}_D + \mathbf{I}_D$ and $\mathbf{f}_I = \mathbf{C}_I + \mathbf{I}_I$.
Aggregate: $C = \iota'[\mathbf{C}_D + \mathbf{C}_I]$ and $I = \iota'[\mathbf{I}_D + \mathbf{I}_I]$.

A2 Production is Cobb-Douglas $\Rightarrow$ $\mathbf{A}_I$ and $\mathbf{A}_D$ are constant.

A3 C & I are Cobb-Douglas $\Rightarrow$ $\mathbf{C}_D/C$, $\mathbf{C}_I/C$, $\mathbf{I}_D/I$, $\mathbf{I}_I/I$ are constant.

A4 Exports too $\Rightarrow$ $\mathbf{x}/X$ is constant, with $X = \iota'\mathbf{x}$.

$$\begin{aligned} \text{IM} =& \iota' \left[\mathbf{A}_I(\mathbf{I} - \mathbf{A}_D)^{-1}(\mathbf{C}_D/C) + \mathbf{C}_I/C\right] C \\ &+ \iota' \left[\mathbf{A}_I(\mathbf{I} - \mathbf{A}_D)^{-1}(\mathbf{I}_D/I) + \mathbf{I}_I/I\right] I \\ &+ \iota'\mathbf{A}_I(\mathbf{I} - \mathbf{A}_D)^{-1}(\mathbf{x}/X)X \end{aligned}$$

Import-intensity of $C \neq I \neq X$.

Empirically, I & X are import intensive, so they drive import demand.

Punchline: don't use $GDP = C + I + X$ to measure demand.

Vertical Specialization Trade

VS Trade Level: $VS = \iota' \mathbf{A}_I (\mathbf{I} - \mathbf{A}_D)^{-1} \mathbf{x}$.

VS Trade Share: $\frac{VS}{X} = \iota' \mathbf{A}_I (\mathbf{I} - \mathbf{A}_D)^{-1} (\mathbf{x}/X)$.

With A1-A4: VS Trade Share is constant.

Dropping A4: export composition matters for VS trade share.

VS Trade Share falls when exports fall more for VS-intensive goods.

Empirically, manufacturing/durables/investment goods are VS-intensive.

On Recent Trade Dynamics

Two (Controversial?) Conjectures

1. Slow recovery of investment has limited the trade recovery.
   - Not wholly original: Boz et al. (2014) argue IAD halves the "puzzle." Sector-composition effects would further narrow gap?
     See also: Constantinescu, Mattoo, and Ruta (2015).
   - Investment has been depressed in Europe, and European trade is important in understanding world trade.
   - This 'looks like' slow growth in aggregate VS trade, because investment goods are both import-intensive and exported.

2. The slowdown in (aggregate) GVC trade growth does not indicate GVC-dysfunction or slowdown/reversal in pace of GVC growth.
   - To isolate changes in GVCs, strip composition effects out of data.
   - Counterpoint: is the RTA and EME liberalization era over?

Questions/Comments for the Authors I

1. Why put bilateral trade on the left-hand side? Explaining multilateral imports is a more straightforward place to start.
2. Why is demand measured as imports plus GDP? Ignoring non-TB components of the current account, GDP equals income. To be consistent with the literature, we want estimates of income elasticities?
3. With the level of imports on the left-hand side, the theoretically correct relative price ratio is the ratio of exporter producer prices to the price of total absorption in the destination (which is not equal to destination producer prices). If you put the ratio of imports to home expenditure on domestically produced goods on the left-hand side, then the relative producer price ratio is fine.
4. Why are there different coefficients on relative producer prices and the nominal ex. rate? There should be one relative price.

Questions/Comments for the Authors II

5. Why run two sets of regressions, splitting EMEs from Advanced Countries? The obvious reason they would have different elasticities is that the regression model is mis-specified, leading to coefficient instability.
6. Why include bilateral fixed effects and not bilateral trends? A basic concern is that variables on both the left and right sides of the regression are trending. We might want to look at deviations from trend?

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