Discussion of "Factory Asia" by Ramondo

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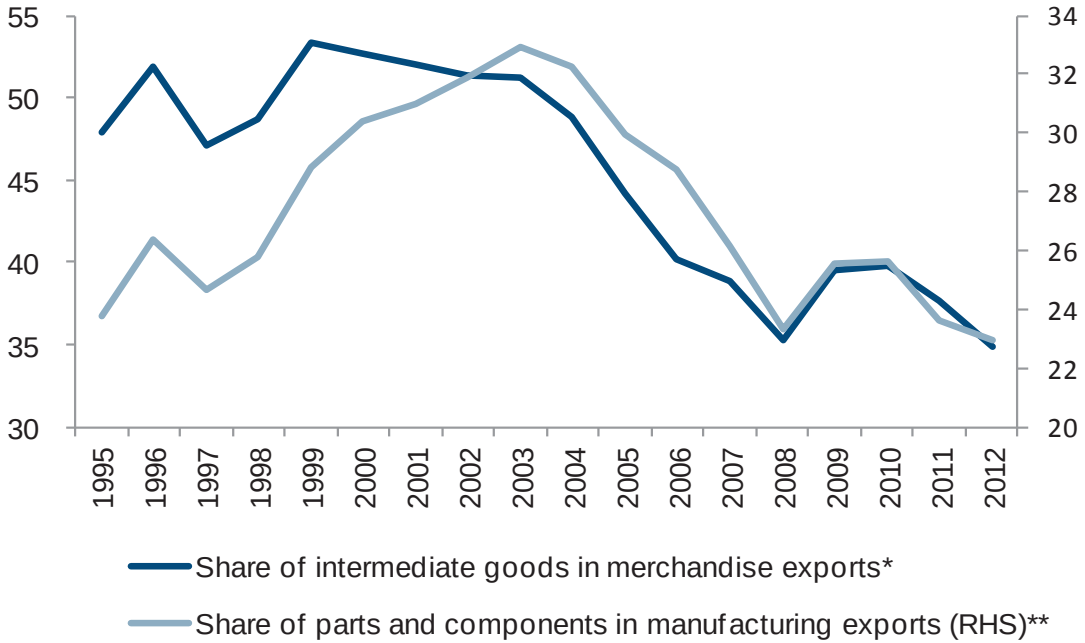
GVCs and MNCs: An Empirical Agenda

Goal: To understand the role of multinationals in global value chains.

- "Factory Asia" is a very nice empirical setting to explore this
- Current trade slowdown raising questions over whether regional GVC links are weakening.

Figure 7 China's imports of intermediates and parts and components as a share of exports, 1995-2012 (%)



Source: Constantinescu, Mattoo, and Ruta, (2015), Chapter 2 in VoxEU.org eBook, *The Global Trade Slowdown: A New Normal?"*

Data approaches to studying GVC activity

1. Trade-in-value-added statistics
   - Use cross-country Input-Output (I-O) Tables to break up gross exports into value-added by source and ultimate destination country.
   - Important yeoman's work done in recent years to construct such measures of value-added trade. (Hummels-Ishii-Yi, OECD TiVA, Johnson-Noguera, Koopmen-Wang-Wei)

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However: Level of industry aggregation in such I-O Tables not very detailed.

   - E.g.: Latest TiVA has 34 sectors.
   - Alfaro and Charlton (2009) show that information is lost when focusing on 2-digit SIC industries.

     Rich information on vertical linkages to be found at the 4-digit level.

     E.g.: Consider 3711 (Motor Vehicles and Passenger Car Bodies).

     Its biggest input by direct requirements coefficient is 3714 (Motor Vehicle Parts and Accessories).

Data approaches to studying GVC activity (cont.)

2. Firm-level data

   In principle: Want information on firm-level sourcing decisions.

   (i) Set of inputs. (Can be inferred from detailed U.S. I-O Tables.)

   (ii) Information on the supplier from whom each input is obtained.

   (iii) Transaction quantities, for inputs purchased and goods produced/exported.

Data approaches to studying GVC activity (cont.)

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However: These data requirements are very demanding!

- Datasets that identify buyer-supplier linkages gradually becoming available.

  E.g.: Compustat (Atalay et al. 2012), Japan (Bernard et al. 2015).

  But: No transactions values. Limited country coverage.

- Studies with transactions values: Typically customs or administrative data.

  E.g.: Ramondo et al. (2015), Kee and Tang (forthcoming).

  But: Information on domestic sourcing is less comprehensive. Often no firm-level information on transactions partners. Limited country coverage.

Approach in this paper

Absent the ideal dataset, can we nevertheless make progress?

This paper:

- Uses Dunn and Bradstreet WorldBase; 2015 data covering Asia.
- Wide country coverage with large number of *establishments*.
- Detailed information on industry activities: Up to six 4-digit SIC codes.
- Infer a (potential) input supply relationship from I-O linkages between parents and affiliates.

  (But note that this is only intrafirm sourcing, hence the focus on MNCs in GVCs in this paper.)

Approach in this paper

Absent the ideal dataset, can we nevertheless make progress?

This paper:

- Exploit a categorical variable on the affiliate's trade status: whether it exports, imports, or both.

  Implication: Affiliate participation in exporting would speak against the horizontal motive for FDI, in favor of vertical motives.

- Explore the correlates of affiliate participation in exporting, viz affiliate-country characteristics and I-O relationships

- Caveat: No information on identity of exports. (Are these semi-finished intermediates? Or final goods?) No transactions values.

1. Export and Import status variable

Looking more closely at this categorical variable:

- In the 2005 WorldBase:

  "Importer", "Exporter", "Both Importer and Exporter", "Not Available or None", ... and some categories for intermediaries/agents

- Double-check that all intermediaries/agents are dropped
- "Not Available or None": Could mean either "Not" or "Don't Know"
- No obvious clean way to tell these apart.

  Eg: In the 2005 data, 99.5% of U.S. manufacturing establishments with employment ≥ 20 report "Not Available or None"

  ... vs 89.0% for Japan, 76.1% for China and 12.0% for Singapore

  (Caveat: Computed from the baseline sample in Alfaro et al. (2015). Data quality could be better in the WorldBase 2015 edition.)

1. Export and Import status variable

Looking more closely at this categorical variable:

- To author's credit: Several useful checks already performed, e.g., to verify that exporters are bigger than non-exporters (Figure 5).
- But more caution wouldn't hurt:
  - Double-check with D&B what sources are used to code this trade status variable.
  - Tabulate number of exporters/importers by country, and cross-check with publicly available sources (e.g.: World Bank's Exporter Dynamics Database, BEA dataset on US multinational activity abroad)
  - For countries with a high share of "Not Available or None": Look at some of the larger establishments under this category, and cross-check with news sources or Annual Reports to verify whether it's in fact a non-exporter.
- Would be particularly cautious when export status is being used as a RHS variable.

2. Empirical specification

$$D(\text{exports}_{ac} > 0) = \alpha Size_{ac} + \beta X_c \times D(\text{foreign}_{ac} > 0) + \text{fixed effects} + \epsilon_{ac}$$

- a: affiliate; c: affiliate country
- X_c: Affiliate country characteristics

  (An analogous specification looks at industry characteristics.)
- Findings consistent with the export decision being driven by comparative advantage forces (factor proportions, rule of law, ...)
- "Factory Asia" effect: More affiliate exporting seen in countries with more downstream exports (production hub?)

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Thought (i): Clarify what variation is being exploited.

- Using parent-affiliate industry and origin country fixed effects:
  - "Within input-output pair"
  - But: No reason that propensity to export would be governed by the same relationship when *dr* is close to zero vs the input being very important.
  - Would like to see a "Cross input-output pair" regression (with say separate sets of parent and affiliate industry fixed effects) to see if exporting is more likely when the input-output relationship is stronger.
  - Could also report: Within a parent (or parent industry), how does the average *dr* of exporting affiliates compare with that of non-exporting affiliates?
  - Alternative: In the above, restrict to affiliates with *dr* above a certain threshold.

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Thought (ii): Additional controls.

- Distance between parent country and affiliate country.
- Export potential of the affiliate country (e.g.: inverse distance-weighted measure of third-country GDP *a la* Blonigen et al. (2007))
- Interactions between country and industry characteristics (e.g.: factor endowments interacted with industry factor intensities *a la* Yeaple (2003))
- Parent firm characteristics: Log sales

3. Other Comments

- If an affiliate doesn't export, doesn't imply that vertical motives are absent.

  E.g.: Suppose that Toyota has several auto parts establishments in Thailand. All intermediates are shipped to an assembly plant (also in Thailand), with the latter doing all the exporting.

- Making better use of the secondary SIC industries of affiliates.
  - E.g.: Associating the SIC code with the maximum *dr* value to the affiliate; Using sum of *dr* over all affiliate SIC codes.

- Affiliates of Asian vs non-Asian MNCs: Are there systematic differences in the FDI strategies pursued in the region?

- How do the results look if China is excluded?

- Use $D(\text{exports}_{ac} > 0, \text{imports}_{ac} > 0)$ as an alternative dependent variable to capture involvement in cross-border production chains.

Final remarks

- Great project, with a great dataset to exploit!
- A lot of interesting descriptive information already, given that the dataset was acquired in early May.
- Naturally, a lot more digging to be done.
- A number of key choices need to be made as to which patterns to focus on.
- Look forward to seeing how this paper evolves and develops.