

Comments on *Putting the Parts Together*

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Now-Accepted Stylized Fact

- *Geographical Fragmentation* (Production from Consumption/Tasks inside production) leads to more *temporal agglomeration* of activity
 - More trade between countries leads to *more* business cycle synchronization (BCS), not less (as some expected initially)

Simple Empirical Framework

- Estimate regressions and find $\beta > 0$:

$$\text{BCS} = \beta \text{Trade} + \text{FE} + \text{Error}$$

- Here: objective is learn more about β by using sectorally-disaggregated data

Relationship always theoretically Ambiguous

- Reduce trade barrier between 2 countries engaged in factor-proportions trade and they should *specialize* more
 - If sectoral productivity shocks important, BCS *falls*
 - But if common/demand shocks or intra-industry trade important, BCS *rises*
- Conclusion: nature of 1) BC shocks and 2) trade patterns *matters a lot* for BCS/trade linkage

A Mammoth Data Project!

- 55 countries, 30 years of annual data, dis-aggregated to 28 manufacturing sectors
 - 5 sub-scripts (time/country/country/sector/sector)!
 - Over 650,000 observations
 - “left-handed labor economist” problem; everything statistically significant, but not necessarily economically interesting

Much admirable sensitivity analysis

- Many combinations of fixed-effects
- Different measures of trade
- Everything done over whole sample, halves
- BCS measured using growth rates and HP-filtering
- Messing around with IO matrices
- ...

5 Estimation Quibbles

- Essentially a bivariate regression
 - Fixed effects are essentially the only controls
 - Equation fits terribly; $R^2 \approx 0$
 - This may be OK: Baxter-Kouparitsas find only trade effect insensitive
- All OLS
 - Simultaneity a big issue originally, since countries may choose monetary policy to raise trade *and* BCS
 - Ex: fixed exchange rates/currency union ...

- Nature of trade (especially North-South) varies a lot over time
 - Ignored here (almost by necessity)
- Robust covariance matrices? Much dependence!
- No slope heterogeneity; only intercepts

4 Data Quibbles

- Sectors treated symmetrically, yet some have much protection
 - Agriculture; textiles; footwear ...
- BCS here covers only manufacturing, small part of GDP
 - No services at all
 - Critical for output; growing for trade
- 1997 US IO matrix used: does not vary by time or across country (some sensitivity analysis on latter)

- Dis-aggregated enough?
 - Intra-industry trade varies systematically with degree of aggregation
 - Cheap shot, but compare UPC to sectoral level; is either aggregation or composition bias important?
 - Is level of aggregation appropriate for production linkages?
 - Hard to answer such questions without structure

Issue 1: What is the Thought Experiment in the Empirics?

- Raise random bilateral bisectoral (sector x sector x country x country) trade, ask what happens to bilateral bisectoral BCS
 - Example: Exports of food products from Australia to Bangladesh and/or exports of beverages from Bangladesh to Australia (relative to Australian/Bangladeshi GDP) rise (over thirty years); what happens to the (time-series) correlation of Australian food and Bangladeshi beverage production?

- A somewhat narrow question
- Key finding 1 (Table 3): β rises for sectors which use each other intensively (parameterized with IO matrix)
 - What causes trade to rise? Protection on a bilateral bisectoral basis? Transport costs on a bilateral bisectoral basis? Do we need to know?

Issue 2: Interpretation

- Key finding 2 (Table 6): 29% of BCS/trade linkage is due to vertical production linkages
 - Is this big/small? What's the benchmark?

Issue 3: Is Dis-Aggregation the Obvious Way Ahead?

- Motivation for empirical strategy?
- Would prefer more structural assumptions/tests
- Nature of link *should* change with shocks/trade motivation
 - Many types of trade: a) factor proportions; b) intra-industry; c) offshoring ...
 - Many types of Business Cycle Shocks: a) sectoral/national; and b) productivity/preferences ...

- Not obvious that structural issues can be tested more effectively with dis-aggregated data
- Would like to be able to better link results to economically interesting questions

Issue 4: Motivation

- *Why do we care* about BCS-trade link?
- Original idea was to see if currency unions could be endogenous because OCA criteria simultaneously determined.
 1. Join CU (eliminate monetary trade barrier) so
 2. Trade rises so
 3. BCS rises so
 4. Need for independent monetary policy drops

- How do we learn about endogeneity of currency unions from this research?
 - If discard original motivation, what's the other reason why we care about BCS-trade relationship?