Discussion of "Changing Global Input-Output Linkages and Demand Spillover"

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[2] The views expressed here are those of the author and are not necessarily reflective of views of the Federal Reserve Bank of Dallas, and the Federal Reserve System.

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  5. Key theme: sectoral heterogeneity in shocks, and extent of linkages, matters for aggregates.

Outline

- Excellent paper!
  - Key contribution is studying evolution of linkages and spillovers across sectors and countries over five decades
- Four comments
  1. Describe pros and cons of input-output methodology vs. calibrated structural model
  2. Bring in global value chains (GVCs) to analysis
  3. Provide conjecture about why linkages have not increased by more over time
  4. Link evolution of linkages to structural change

Overview of Methodology

- Accounting framework with global input-output (I-O) tables covering many countries and sectors:

$$VA = v\text{GO} = v(I - A)^{-1}FD \tag{1}$$

- I-O tables link final demand (FD) to gross output (GO) and value-added (VA) via the *Leontieff inverse*, in which A is the matrix of intermediate input use
  - When A=0, then direct mapping from change in final demand to change in value-added
  - More generally, intermediate input use determines how changes to final demand affect gross output and value-added
  - Sectoral heterogeneity in linkages (A) and demand shocks (FD) matters for aggregate outcomes
- Further implication: Exposure to foreign demand shocks depends on share of GDP absorbed in foreign final demand, not on export share of GDP

Pros and Cons of I-O Methodology (vs. Calibrated Structural Model)

- Pros
  - Easily scalable to address many questions, as well as many countries and sectors
  - Easy to see effects of final demand and intermediate input linkages across countries in response to demand shocks
  - Fewer parametric assumptions

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- Cons
  - Cannot analyze “fundamental" shocks, e.g., to productivity, trade barriers, etc.
  - Difficult to tease out intuition, e.g., substitution, income, comparative advantage, productivity effects
  - Cannot do welfare analysis

Investigate Implications of Rise in Global Value Chains (GVCs)

- Johnson and Noguera (2017) show that foreign value-added embodied in countries' exports almost doubled between 1970 and 2008, especially in latter half of period
  - Share of foreign value-added embodied in manufacturing exports increased from 35 to 55 percent
- GVC metrics also typically calculated with I-O tables
  - Change in final demand in one country affects exports AND imports in another country. Imports affected if they are used to make goods that are then exported to country, i.e., if there is a GVC
  - Hence, some linkages/spillovers are directly tied to GVCs
- How much of increased spillovers and linkages over time can be attributed to increased prevalence of GVCs?

Why Haven't Spillovers Increased by Even More?

Conjecture: Structural Change

- Spillovers in manufacturing are larger than before ("within"), but manufacturing is smaller share of economy now ("between")
  - Share of manufacturing value-added in global GDP fell from 29 percent in 1970s and 1980s to 24 percent in the 2000s and 2010s
- Change in linkages over time reflects both forces

Link Structural Change to Evolution of Linkages/Spillovers

- As countries develop, input-output linkages evolve (cf. Sposi, 2018):
  - Use more intermediates in agriculture
  - Use more services in all sectors
- Past research has studied how evolving linkages affects structural change – this paper (or extension) could look at how structural change affects linkages and spillovers

Summary

- Main contribution: study evolution over half-century of aggregate and sectoral spillovers from demand shocks
- Future work:
  - Add years up to the present
  - Link results to evolution of GVCs
  - Link structural change to evolution of linkages over time