Comments on papers on "Measurement Implications of Imported Intermediate Inputs"

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Overview

- Two interesting papers addressing measurement issues involving imported intermediate inputs:
  - Jarmin, Krizan and Tang about an interesting new set of measures in the Census of Manufacturing about offshoring and oursourcing
  - Eldridge and Harper explore implications of changes in imported intermediate inputs for alternative productivity measures
- First paper from the bottom up...second paper from the top down...

Measuring Offshoring and Outsourcing

- Makes sense to take this new data for a ride...
- Some sensible patterns:
  - Connection to importing
  - Relationship with size
- One area of emphasis is classifying manufacturers by type:
  - Traditional, Manufacturing Service Providers, Factoryless Goods Providers
  - Matching concept to data here a challenge
    - Largest group is “Others” – so difficult to draw inferences and interpret statements like “only a third is in traditional (too narrowly defined?)

Covariates of those offshoring and outsourcing

- Simple correlations show those outsourcing and offshoring reducing employment relative to others
- But even simple multivariate raises some puzzles:
  - Outsourcers have higher employment growth
  - Authors appropriately cautious
    - Missing controls: Industry?

Big payoff will be with data integration

- Connecting new queries with:
  - Changing workforce composition
    - Use LEHD data
  - Reallocation
    - For outsourcing we should be seeing reallocation
      - Within region/between region?
      - Same workers (just new firm/boss?)
      - Use LBD, BDS and LEHD data
  - Adoption of technology
    - Adoption of IT and other advanced technologies more or less likely
  - Local labor force
    - Is wave of local skill workers (immigrants) in local area a substitute for outsourcing/offshoring?

Turning to Productivity Implications

- Primary focus – how to think about imported intermediate inputs in productivity measures
  - For detailed sectors (and even up to MFG) sectoral output approach with KLEMS approach so relatively straightforward to explore
    - Amounts to decomposing M and S into domestic and imported
    - Useful to do this decomposition as helps us understand nature of substitution
      - Also useful precursor to helping us explore Houseman (2007, 2008) concerns
        - Some discussion of the latter imported price concerns but no new evidence – exploring these concerns should be a high priority

Applying these ideas at Economy-Wide Level?

- At economy-wide level, traditional BLS approach is on value-added production function for private, business sector
  - No direct way of assessing role of imported intermediates (II)
  - But note that price mismeasurement will still yield mismeasurement of valued added growth and thus productivity
- They propose alternative approach at private business sector level:

$$Y_S = Y_{BLS} + II = f(K, L, II, t)$$

Add Imported Intermediates back into Private Sector Business Output and then also include as an input

Conceptual Issues?

- Somewhat difficult to think about this notion of sectoral output at this level of aggregation
- Sectoral output notion becomes conceptually more difficult to interpret the higher the level of aggregation
  - Sectoral output at a detailed industry is essentially the gross output measure that we can easily conceive of and measure and is closely tied to production theory
    - Careful to avoid double counting from intra-industry transfers
    - E.g., Number or value of cars produced by automobile assembly industry
- When in doubt...appeal to Domar (1961)...

At the end of Domar's Classic article on different residuals at different levels of aggregation...

"Any reader who has managed to get this far will undoubtedly sympathise with Schumpeter's reported remark that methodology is the last refuge of the scoundrel"

Page 729, Domar (1961))

Comparisons to VA based approach at aggregate level?

- In any event, residual from value added approach is different both conceptually and in practice from sectoral output approach

$$A_{BLS} \neq A_{S}$$

  - Direct comparisons need to be treated with caution
  - What do we learn by comparing differences in growth rates of productivity of these two alternatives (apples and oranges?)
- Which productivity measure is the more relevant for welfare (see, e.g., recent work by Basu et. al (2009))?
  - Maximizing GDP per capita more closely aligned with maximizing welfare than maximizing Private Sector “Sectoral” output per capita.

Still useful to track domestic vs. imported intermediates....

- But likely most interesting at a detailed sectoral level – otherwise we may be missing too much of the story anyway.
  - Aren't we interested in knowing that auto assembly plants are increasingly getting their machine tools from offshore?
  - Only impacts productivity measurement directly given mismeasurement issues like prices
- But this is too limited a view – lots of substitution going on suggests dynamics, restructuring, reallocation – adjustment costs
  - Current measurement methodology not well suited to capturing the impact of these factors on productivity growth (see Houseman (2007, 2008))
  - This important area of research related to the first paper