Value added in exports: Accounting for processing trade

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Presentation outline

- Extent of processing trade in Latin America

- Adjusting for processing trade when calculating domestic and foreign value added in exports is important
  - How much does this change the results for Mexico?
  - What factors are causing the difference?

- What can you do if you don't have a processing IO table?
  - What's the process of estimating such a table?
  - How accurate is it likely to be?

Processing trade is pervasive in the world and in Latin America

- Processing trade accounts for 18% of global developing-country exports (Maurer and Degain, 2010)
- Important to trade (and sometimes employment) in Latin America

Country	EPZ share of employment 2002	EPZ share of exports 2002	2006
Brazil	0.1	—	—
Colombia	0.1	9.3	40
Costa Rica	2.1	50	52
Dominican Republic	5.5	80	80
El Salvador	2.9	—	—
Haiti	—	50	50
Honduras	4.7	—	—
Jamaica	1.9	—	—
Mexico	3.5	92	85
Panama	1.4	—	—
Venezuela	0.6	—	—

Source: Milberg (2007); De La Cruz et al. (2011)

Accounting for processing trade when calculating foreign content in exports

- Standard assmumption: production for exports uses the same share of foreign inputs as production for domestic use
- But with processing trade, foreign content can be much higher in exports
- Adjustment dramatically improves level and trends of estimates
- Adjustment avoids overstating value of exports to domestic economy

Foreign value added in Mexican manufacturing exports (%)

	Unadjusted HIY method			Adjusted for processing exports		
	2000	2003	2006	2000	2003	2006
Foreign value added	46.9	46.6	46.3	70.0	66.2	63.8

Adjusted estimate is **upper bound**; processing includes Maquila and PITEX trade.
Source: De La Cruz, Koopman, and Wang, 2011, using 2003 benchmark processing IO table produced by INEGI.

Why do the two estimates differ?

- Three main factors
  - Imported intermediate inputs used in processing vs. normal exports
  - Share of processing exports in total exports
  - Sector composition of exports from processing vs. normal exports
- Effects of these factors change over time
- Can't use a simple rule of thumb to estimate the correct amount of foreign content in exports

What can you do if you don't have a processing IO table for your country?

- Combine standard IO table with detailed processing trade statistics
  - Imports of intermediates used by processing regime in each sector
  - Exports produced by processing regime in each sector
- Use constrained optimization to populate IO coefficients subject to IO accounting identities
- Some coefficients constrained to zero

Example: China

Foreign value added in Chinese manufacturing exports (%)

	Unadjusted HIY method			Adjusted, estimate		
	2000	2003	2006	2000	2003	2006
Foreign value added	46.9	46.6	46.3	54.5	52.4	52.5

Source: Koopman, Wang, and Wei, 2008

- How accurate are the resulting value-added estimates? Depends on what you're looking at:
  - National estimates very close to true values (±1-2%)
  - Sectoral estimates highly correlated with true values, but vary much more: differences of 15% or more are common

Questions/Comments?

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- Sources
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