Evaluating Estimates of Materials Offshoring from U.S. Manufacturing

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Overview

- "Import Comparability" Assumption
  - When materials offshoring is measured by estimating imported intermediate inputs, it is assumed that an industry's imports of each input, relative to its total demand, is the same as the economy-wide imports relative to total demand
- Examine two alternative approaches:
  - Feenstra and Hanson for Intermediates
  - Firm-level microdata

Feenstra and Hanson

- The offshoring measure described in Feenstra and Hanson (1996, 1999) is defined for any industry *k* purchasing inputs *j* as:

$$= \frac{\sum_j (\text{industry k purchases of good j}) \left(\frac{\text{imports of good j}}{\text{total domestic consumption of j}} \right)}{\sum_j (\text{industry k purchases of good j})}$$

- More precisely, for each of the industry classifications (SIC or NAICS), there will be *multiple* 10-digit Harmonized System (HS) imported products. .

$$= \frac{\sum_j (\text{industry k purchases of good j}) \left(\frac{\text{sum over imports } i \in I_j}{\text{total domestic consumption } i \in I_j} \right)}{\sum_j (\text{industry k purchases of good j})}$$

Feenstra and Hanson for Intermediates

- We restrict attention to HS goods with corresponding end-use codes that are indeed *intermediate inputs,* as defined by their corresponding end-use classifications:

$$\bar{I}_j \equiv \{\text{HS goods i within the industry j that are also intermediate inputs}\}$$

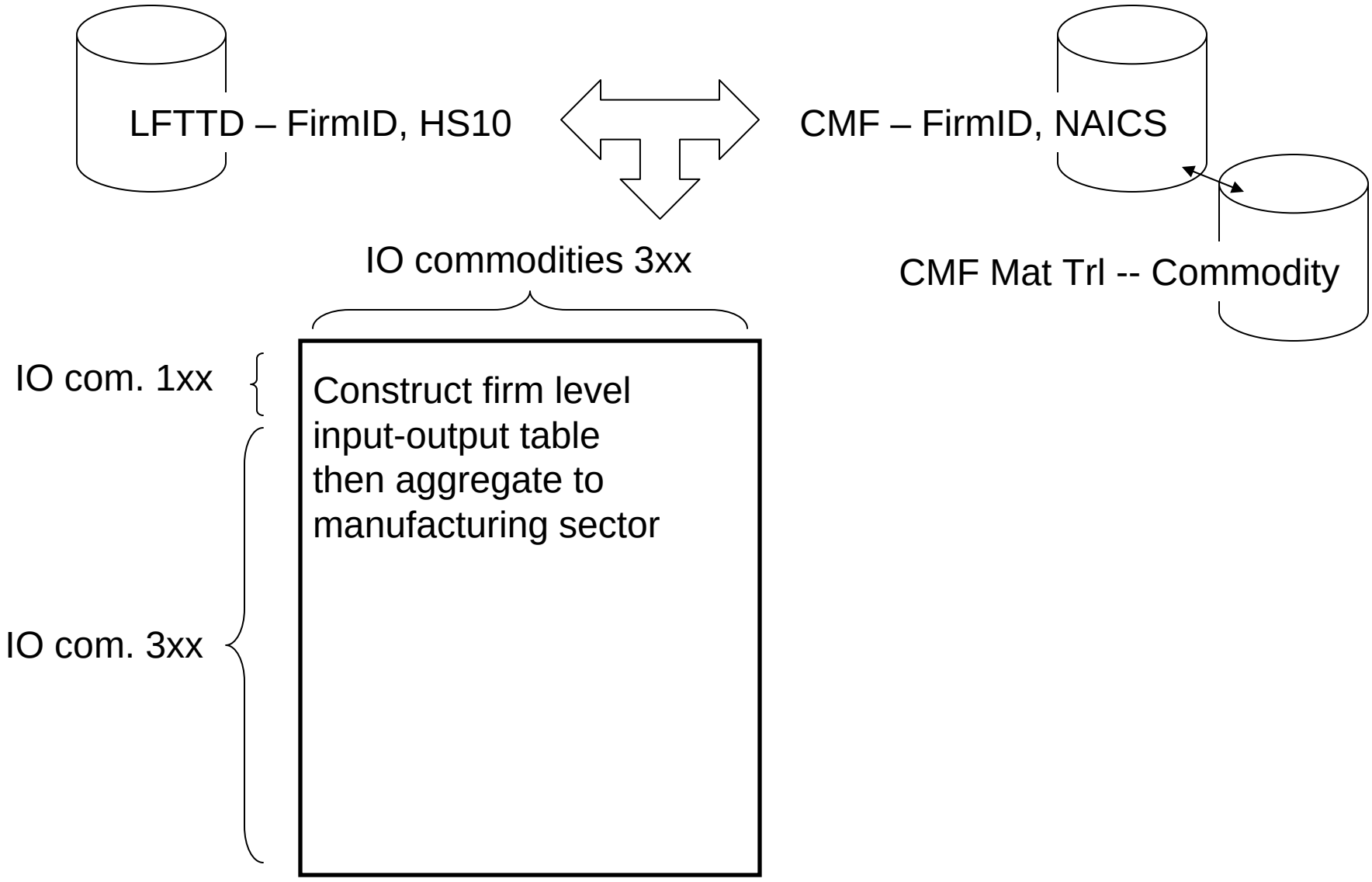
$$\frac{\sum_j (\text{industry k purchases of good j}) \left(\frac{\text{sum over imports i} \in \bar{I}_j}{\text{total domestic consumption i} \in \bar{I}_j} \right)}{\sum_j (\text{industry k purchases of good j})}$$

Feenstra and Hanson for Intermediates

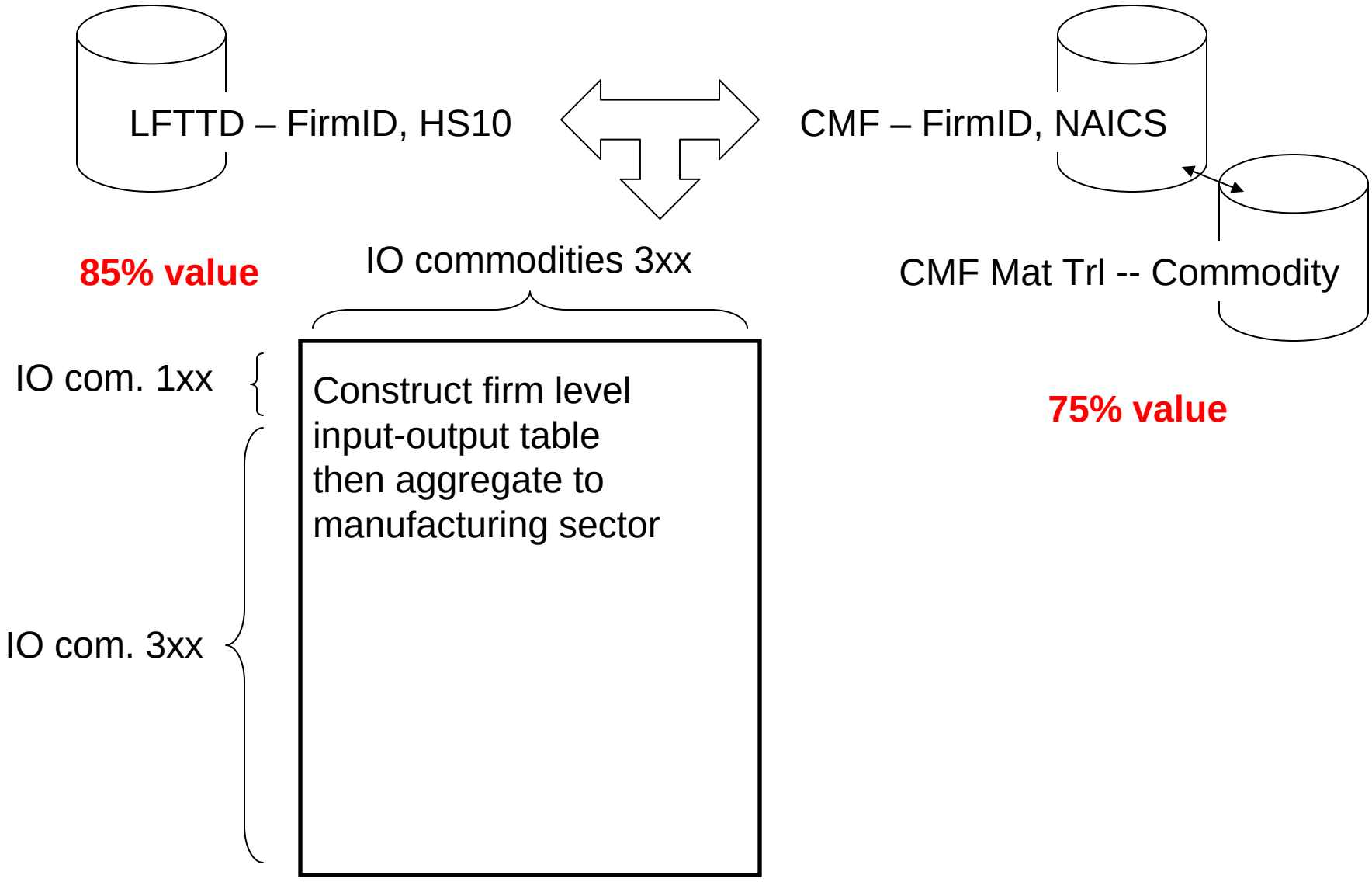
Year	Narrow Measure	Broad Measure	Broad minus Narrow Measure
1980	0.047	0.071	0.024
1990	0.067	0.123	0.055
2000	0.103	0.228	0.124
2006	0.129	0.282	0.152

	With Investment Goods Included		Without Investment Goods	
Year	Narrow Measure	Broad Measure	Narrow Measure	Broad Measure
1980	0.032	0.066	0.032	0.065
1990	0.054	0.121	0.049	0.122
2000	0.091	0.197	0.083	0.204
2006	0.119	0.270	0.105	0.274

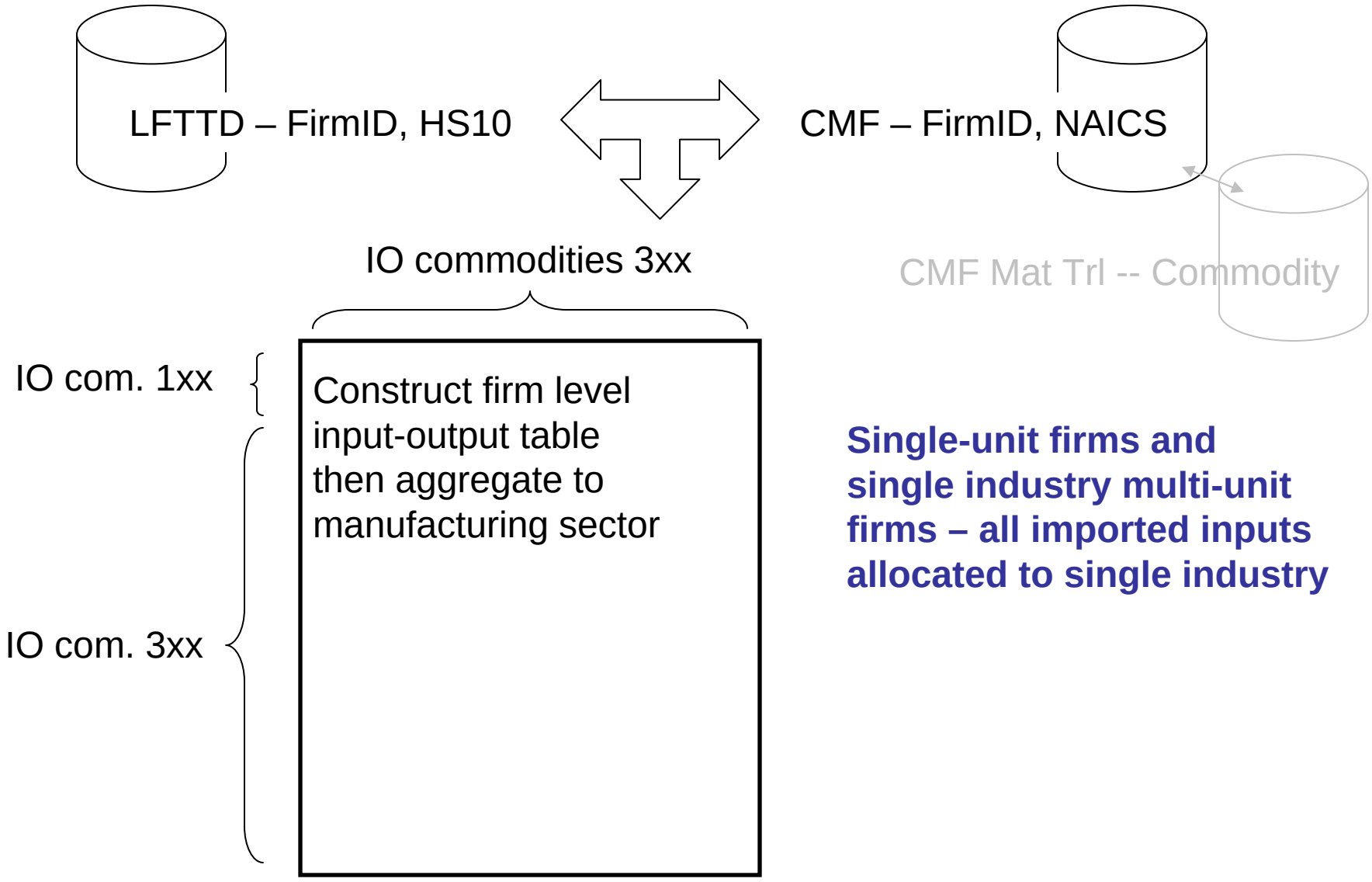
Microdata Approach



Microdata Approach

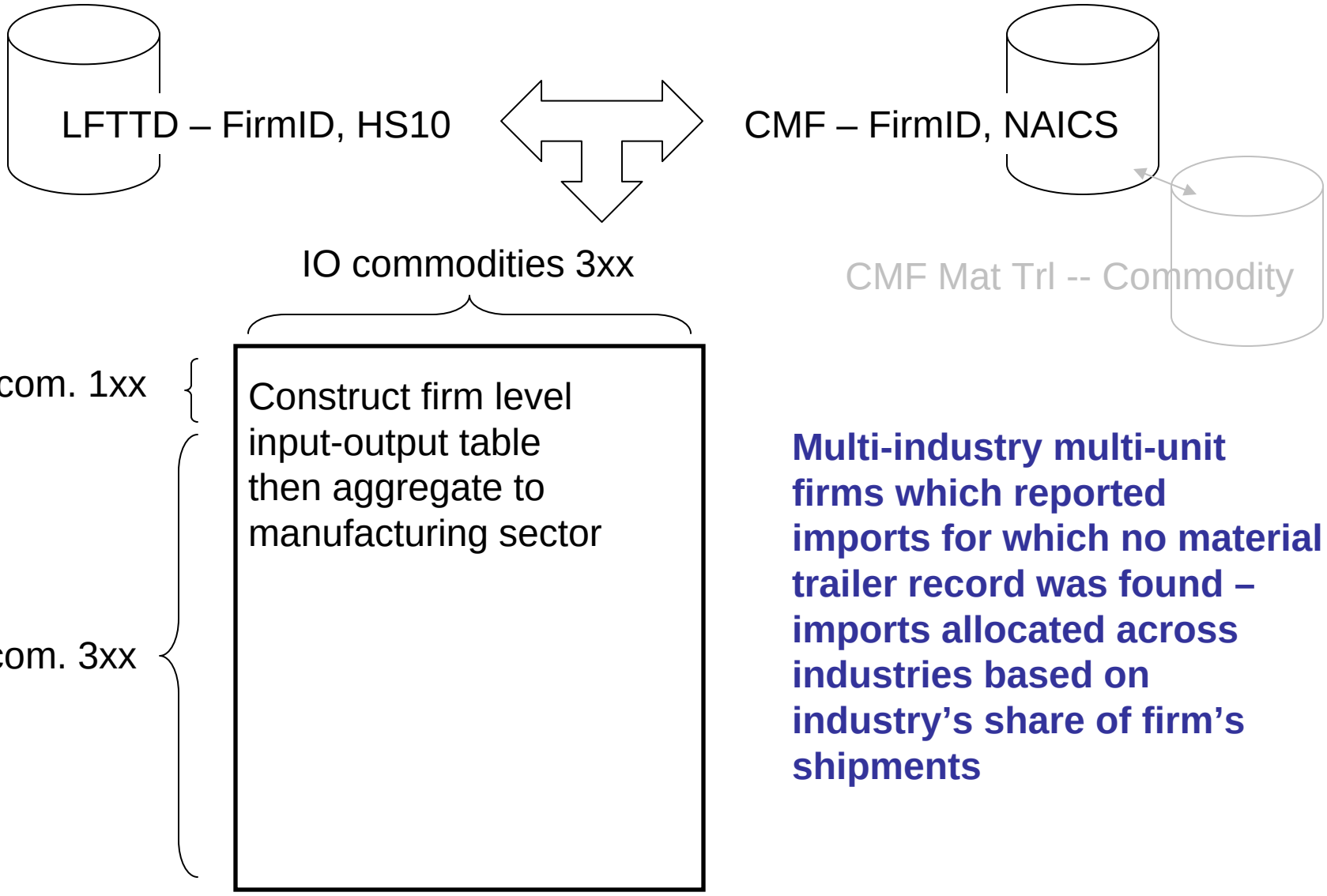


Microdata Approach



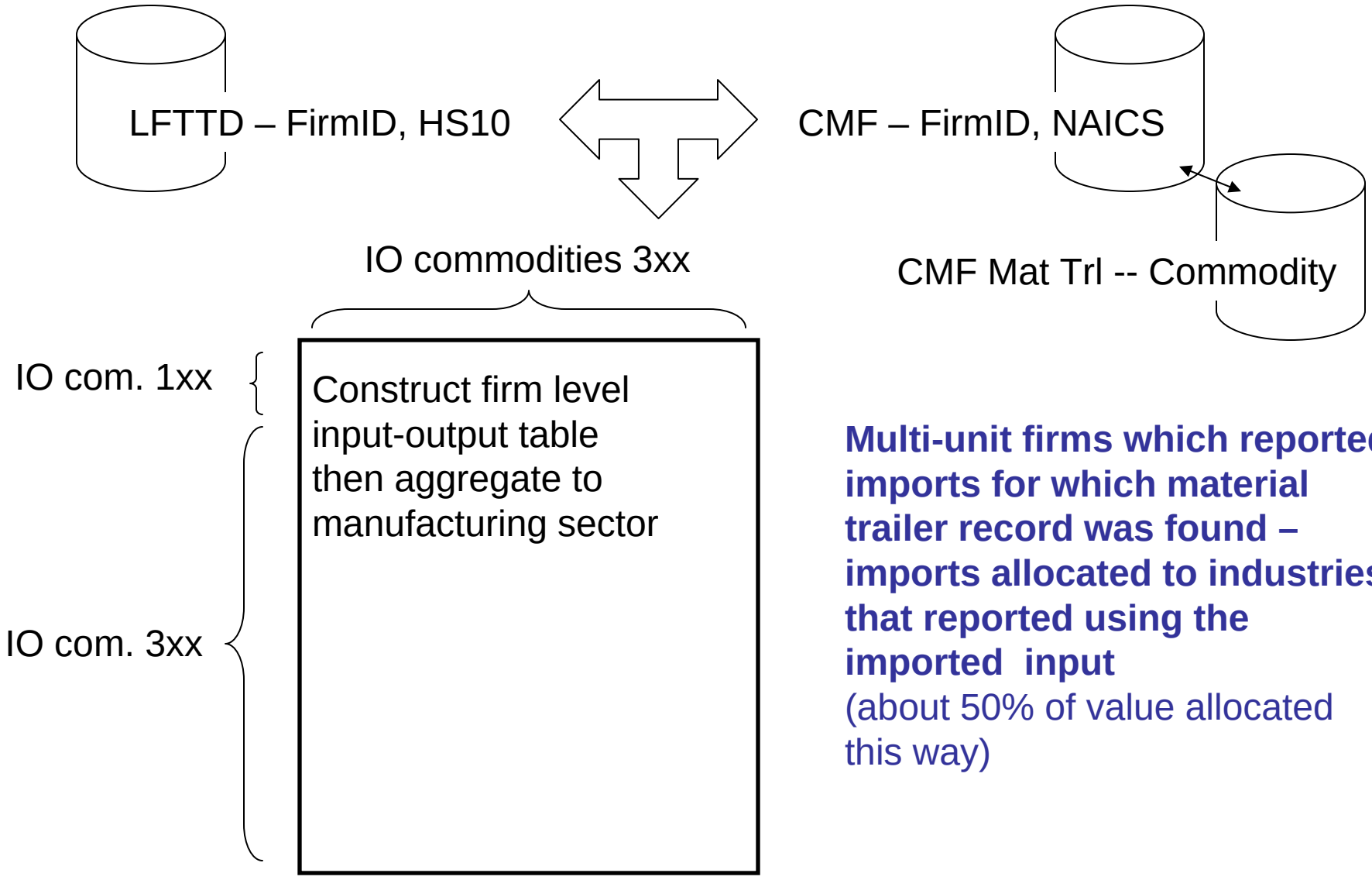
Single-unit firms and single industry multi-unit firms – all imported inputs allocated to single industry

Microdata Approach



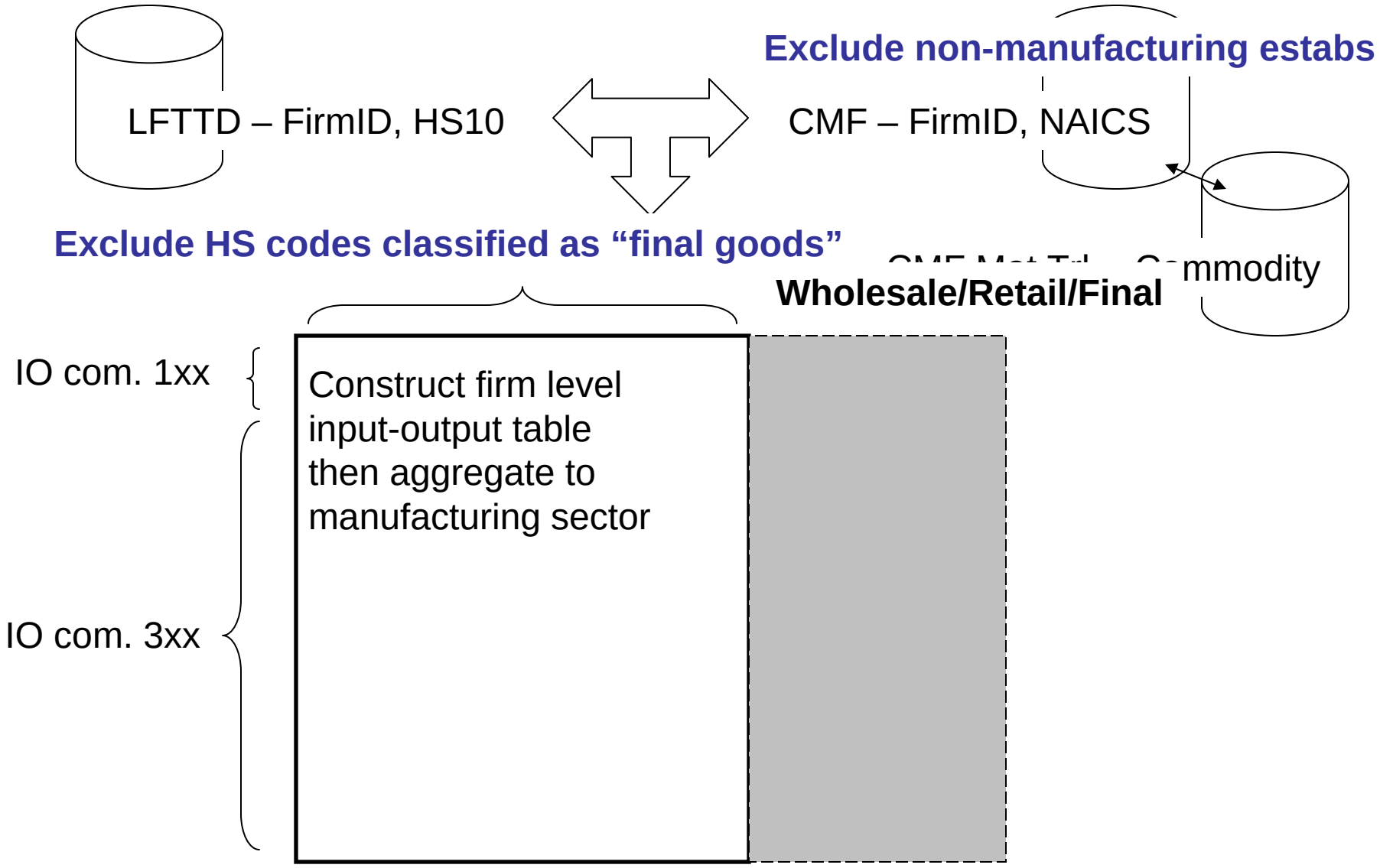
Multi-industry multi-unit firms which reported imports for which no material trailer record was found – imports allocated across industries based on industry's share of firm's shipments

Microdata Approach

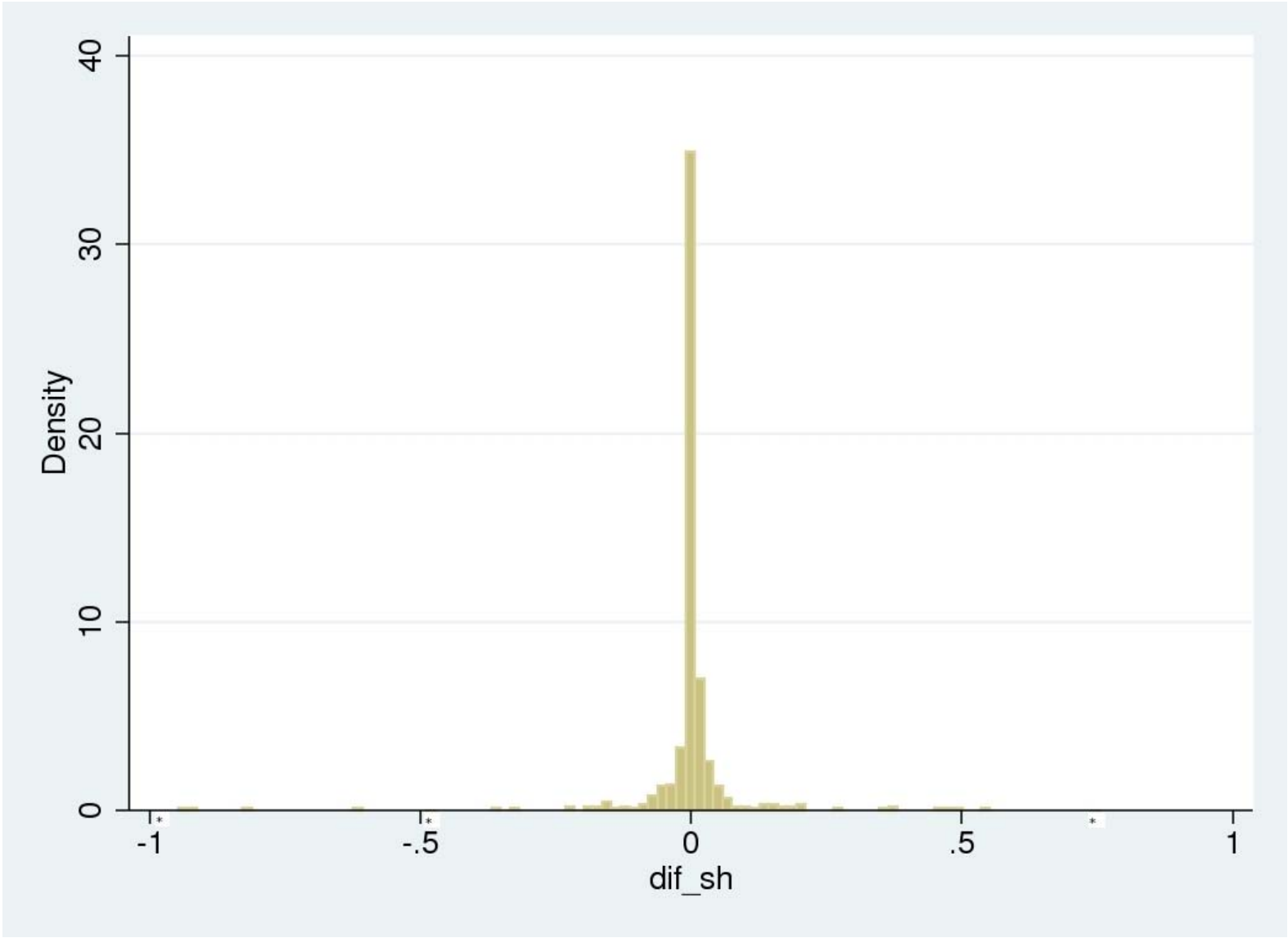


Multi-unit firms which reported imports for which material trailer record was found – imports allocated to industries that reported using the imported input
(about 50% of value allocated this way)

Microdata Approach



Unweighted distribution of share differences



Value-weighted distribution of share differences

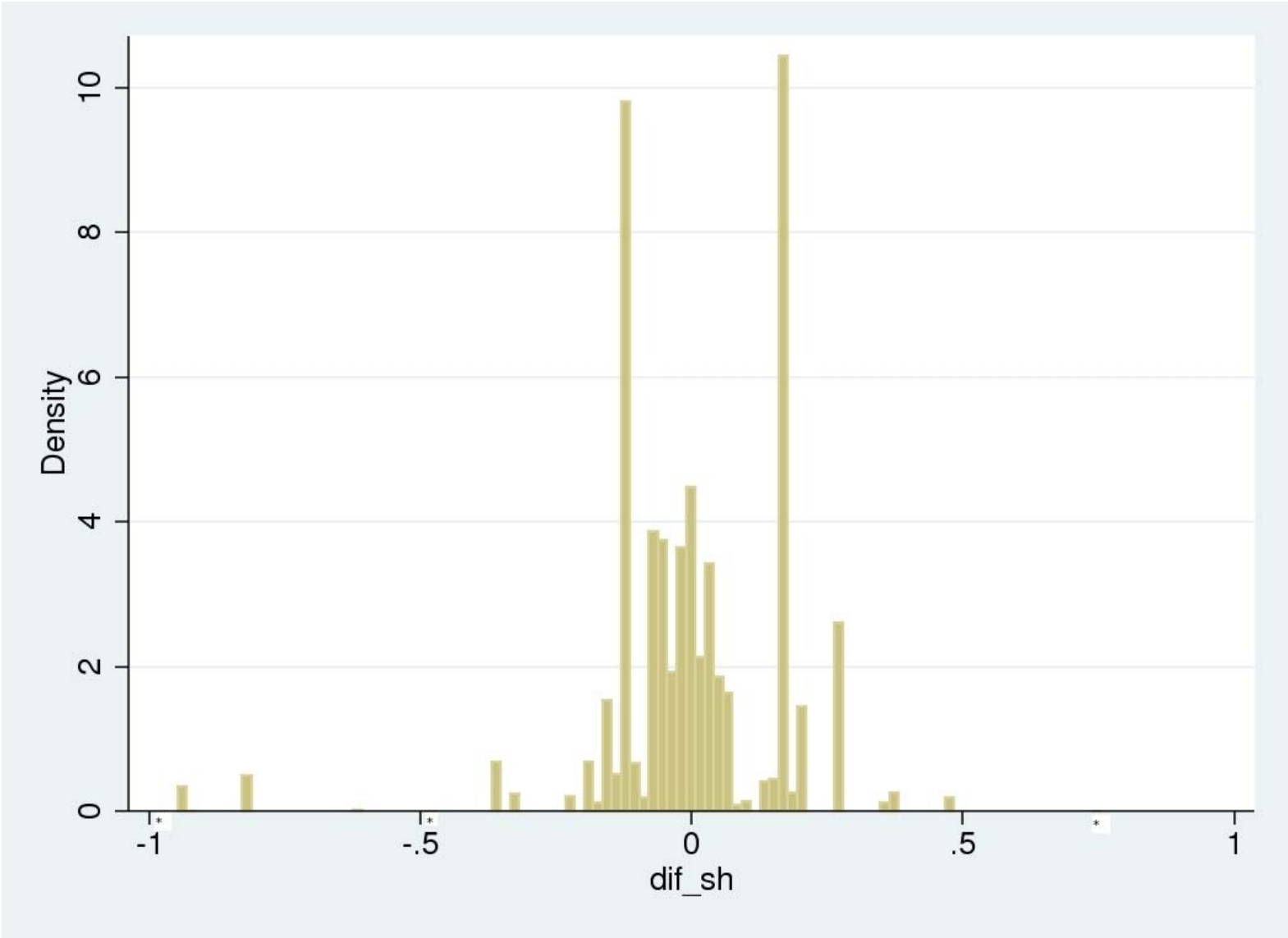


Table 4

IO Commodity IO Industry Cells with Largest Share Differences				
3-digit IO Commodity Group	3-digit IO Industry Group	Alt. Share	BEA Share	Share Difference
337 Furniture and Related Products	337 Furniture and Related Products	0.50	0.01	0.50
324 Petroleum and Coal Products	324 Petroleum and Coal Products	0.82	0.34	0.48
315 Apparel	316 Leather and Allied Products	0.46	0.00	0.46
326 Plastics and Rubber Products	326 Plastics and Rubber Products	0.56	0.18	0.38
323 Printing and Related Support Activities	334 Computer and Electronic Products	0.38	0.01	0.37
316 Leather and Allied Products	316 Leather and Allied Products	0.61	0.26	0.35
325 Chemicals	325 Chemicals	0.73	0.46	0.28
335 Electrical Equipment and Components	335 Electrical Equipment and Components	0.40	0.20	0.20
3-digit IO Commodity Group	3-digit IO Industry Group	Alt. Share	BEA Share	Share Difference
337 Furniture and Related Products	321 Wood Products	0.06	0.98	-0.92
114 Fishing, Hunting, and Trapping	311 Food	0.18	1.00	-0.82
323 Printing and Related Support Activities	323 Printing and Related Support Activities	0.12	0.73	-0.62
311 Food	312 Beverage and Tobacco Products	0.00	0.36	-0.36
324 Petroleum and Coal Products	325 Chemicals	0.13	0.46	-0.32
316 Leather and Allied Products	314 Textile Products	0.00	0.22	-0.22
316 Leather and Allied Products	323 Printing and Related Support Activities	0.00	0.22	-0.22

Note: This table lists the 3-digit IO Commodity IO Industry cells with the largest share differences (both positive and negative). The table lists 8 of the top 10 positive differences and 7 of the top 10 negative differences. The remaining cells were suppressed to prevent disclosure.

Conclusions

- This stuff is hard…
- And messy….
  - How to think about firms with manufacturing operations importing products coded to their industry
    - Are these “final goods” or “intermediate inputs”?
  - How to think about firms importing products they don’t report using
    - Are these “final goods” or “intermediate inputs”?
- Need to better understand the role of large, multi-activity firms
  - Role of manufacturing and wholesale/retail operations

Thank you