Accounting for Firm Heterogeneity within U.S. Industries: Extended Supply-Use Tables and Trade in Value Added using Enterprise and Establishment Level Data

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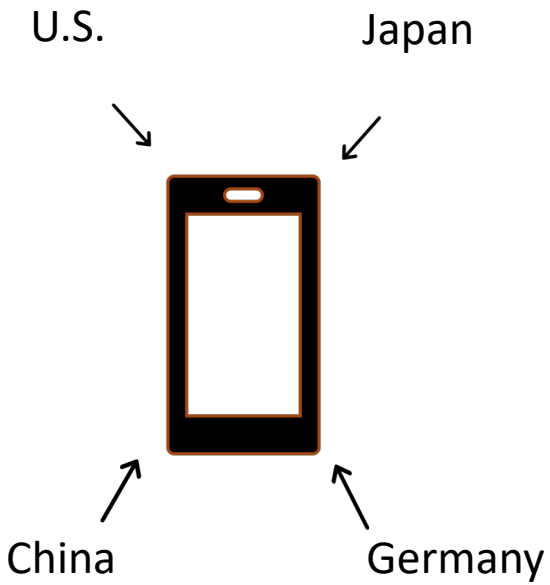
Outline

- Motivation
- Data sources
- Methodology of extended SUTs
- Results: Firm heterogeneity in domestic and foreign content (imported content in this paper) of exports
  - U.S. MNEs account for bulk of domestic and foreign content in goods industries
  - Non-MNEs account for about two-thirds of domestic and foreign content in service industries
  - Foreign-MNE domestic production concentrated in a few industries
- Conclusion and next steps

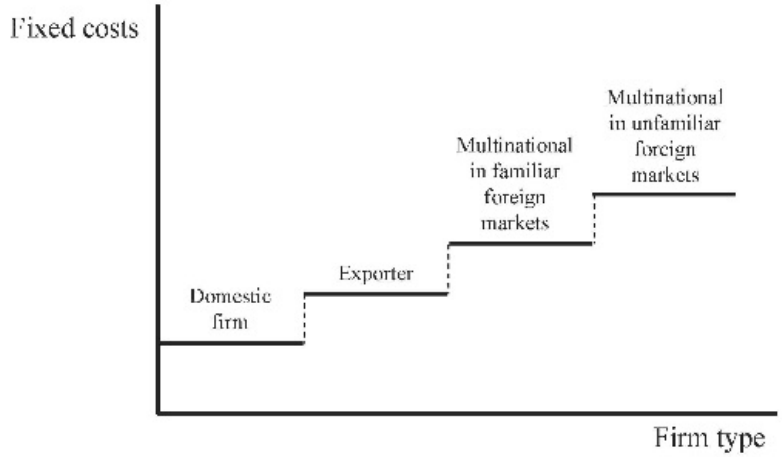
Motivation

Fragmentation in production



Intraindustry heterogeneity in the literature

The Productivity Sorting Model



Theory: Melitz (2003)
Empirics: Zeile (1998) and Helpman, Melitz, and Yeaple (2004)

Dimensions of Firm Heterogeneity

Ownership	Export orientation	Import orientation	Firm size class
Foreign-owned MNE	Exporter	Importer	Small
			Medium
			Large
		Non-Importer	Small
			Medium
			Large
	Non-Exporter	Importer	Small
			Medium
			Large
		Non-Importer	Small
			Medium
			Large
Domestic-owned MNE	Exporter	Importer	Small
			Medium
			Large
		Non-Importer	Small
			Medium
			Large
	Non-Exporter	Importer	Small
			Medium
			Large
		Non-Importer	Small
			Medium
			Large
Non-MNE	Exporter	Importer	Small
			Medium
			Large
		Non-Importer	Small
			Medium
			Large
	Non-Exporter	Importer	Small
			Medium
			Large
		Non-Importer	Small
			Medium
			Large

Source: OECD Expert Group on Extended Supply-Use Tables: Terms of Reference, table 2.

Data for Extended SUTs

- BEA SUTs based mainly on
  - Economic Census data
  - Census and BEA trade data
- BEA AMNE data for MNE classification
- Experimental tables (2005 and 2012)
  - Combines SUTs and AMNE data at the industry level
- Microdata linking
  - Combines underlying firm level AMNE, establishment level Census of Manufactures, and firm level trade data

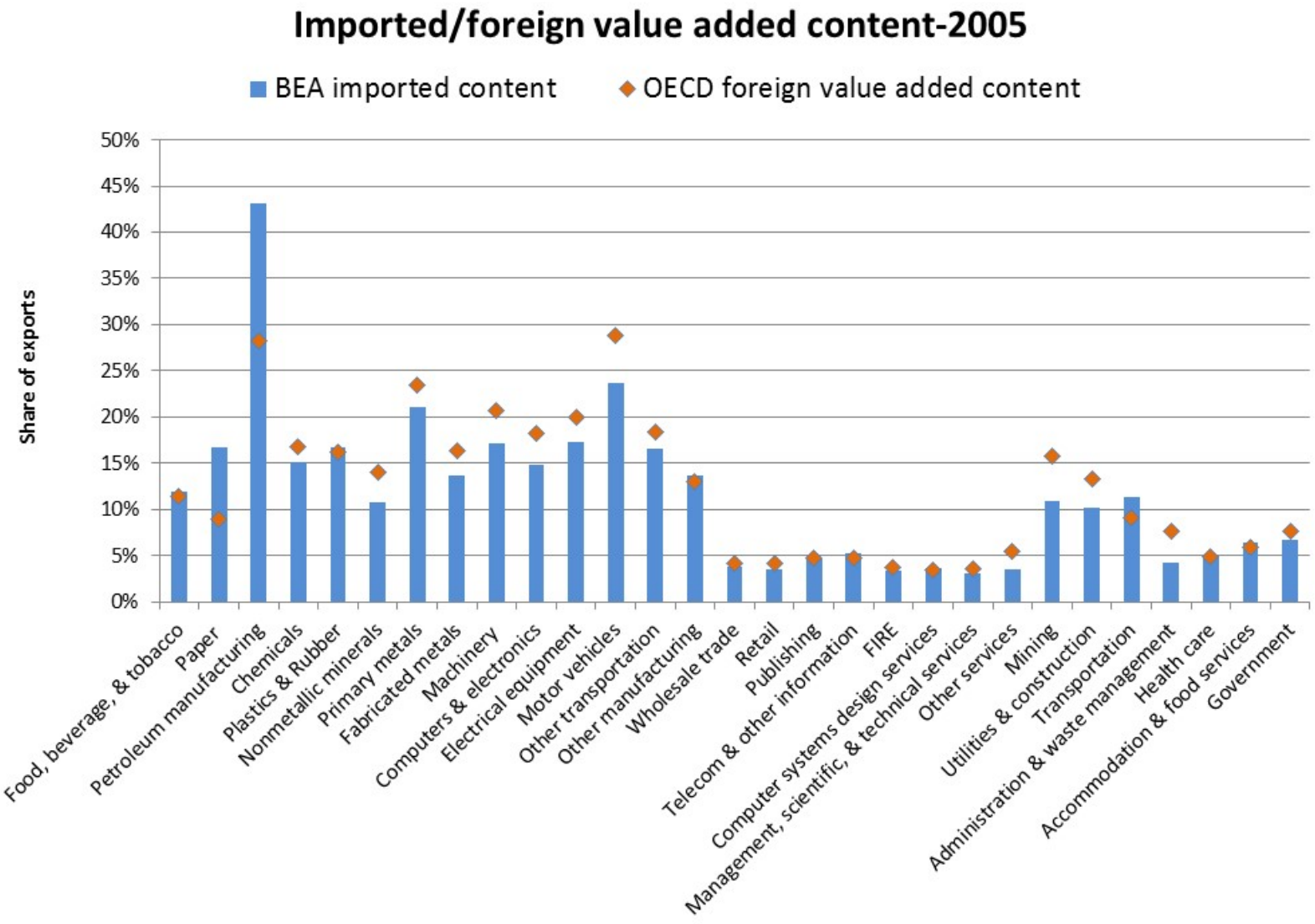
Incorporation of AMNE Data

- Two types of AMNE data
  - U.S. parent firms
  - Majority-owned U.S. affiliates of foreign parent firms
- Overlap between U.S. parents and U.S. affiliates removed
- Employment based enterprise to establishment conversion matrix
- Non-MNE calculated as a residual

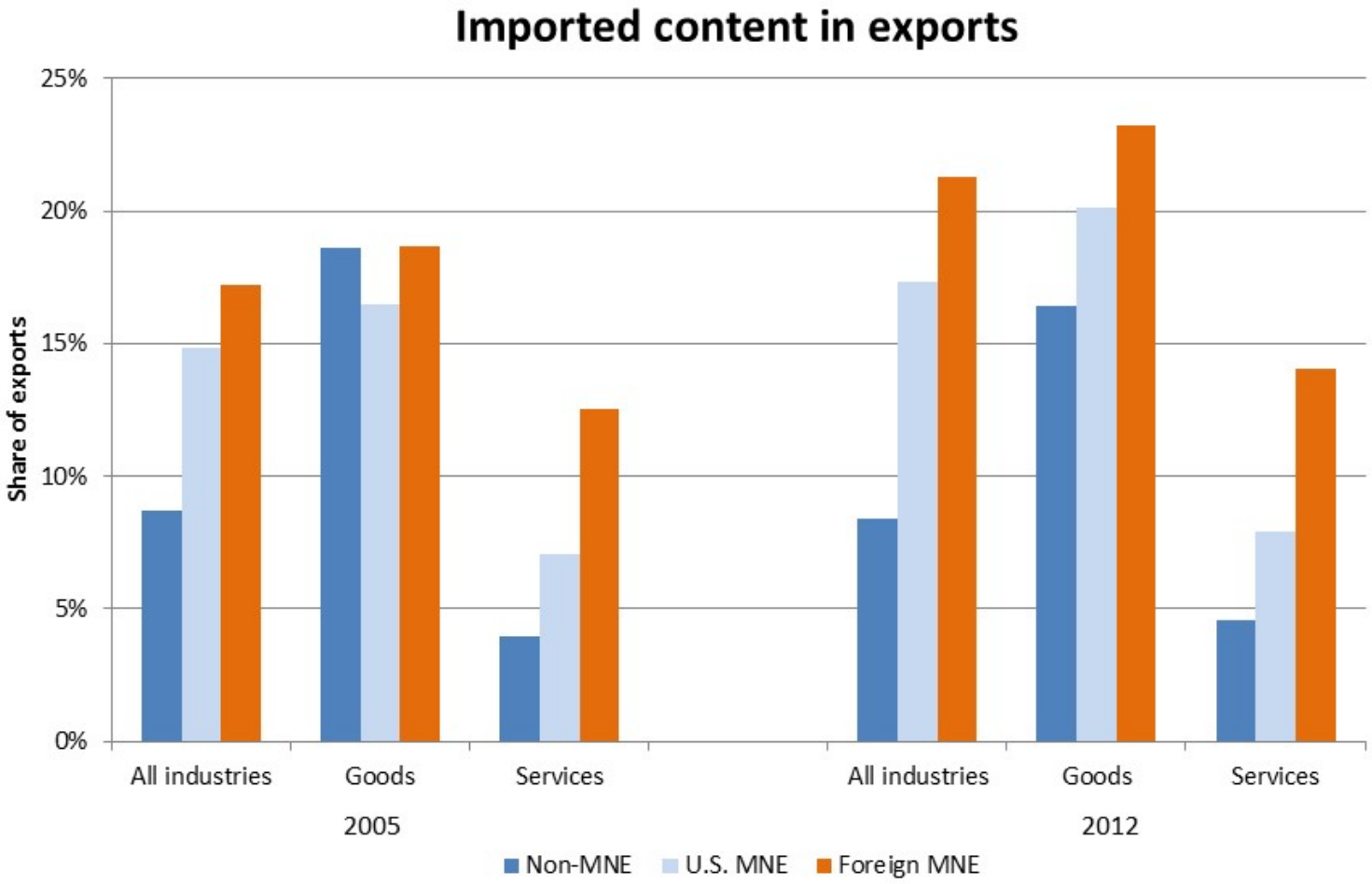
Input-Output Accounting

- Converted use table from purchaser prices to basic prices
- Converted ESUTs to input-output tables
- TiVA indicators using Leontief inverse
- TiVA indicators
  - Typically decompose trade or final demand on a value added basis
  - Focus on import content and domestic value added in exports

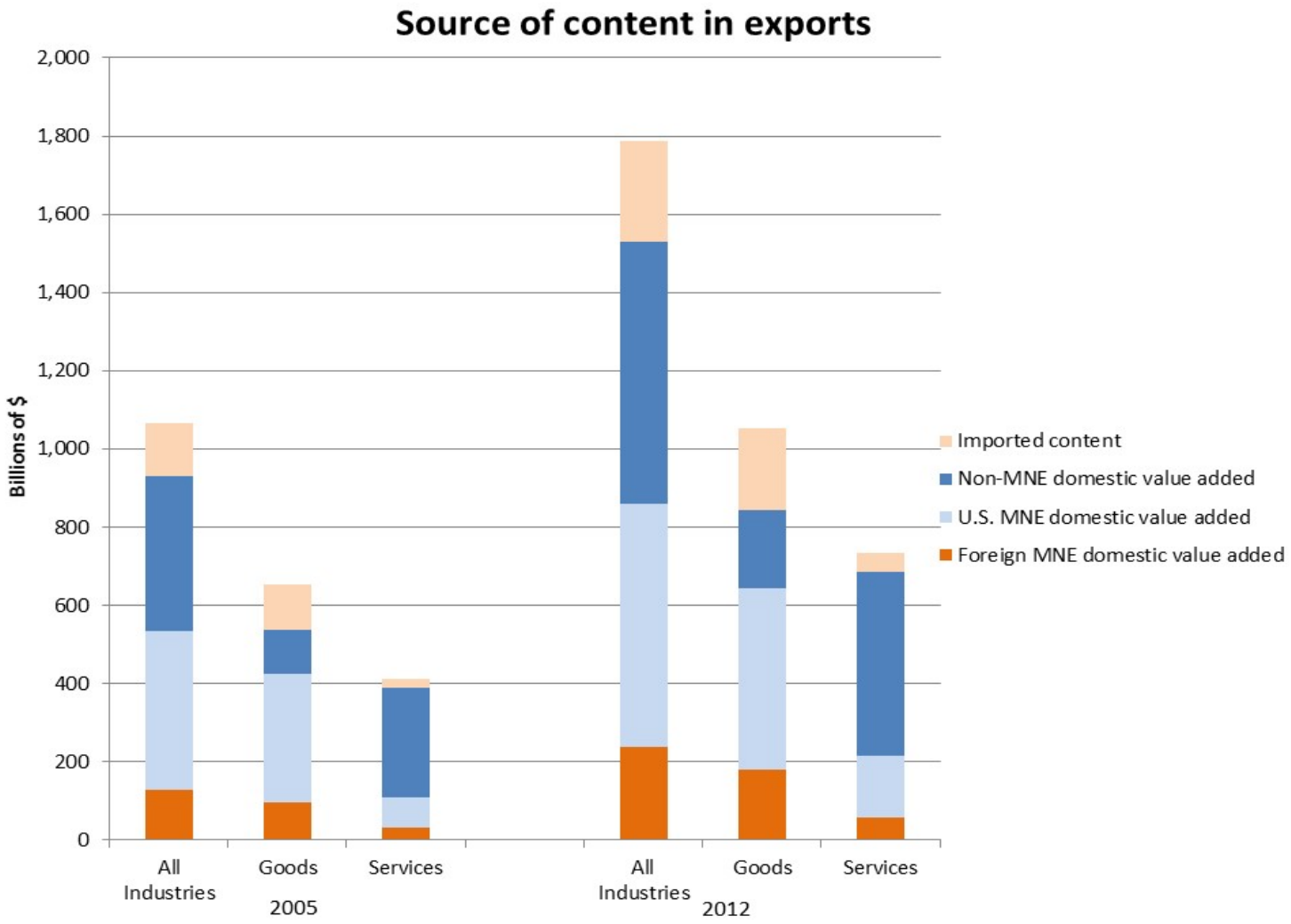
Import Content Similar to OECD Estimates



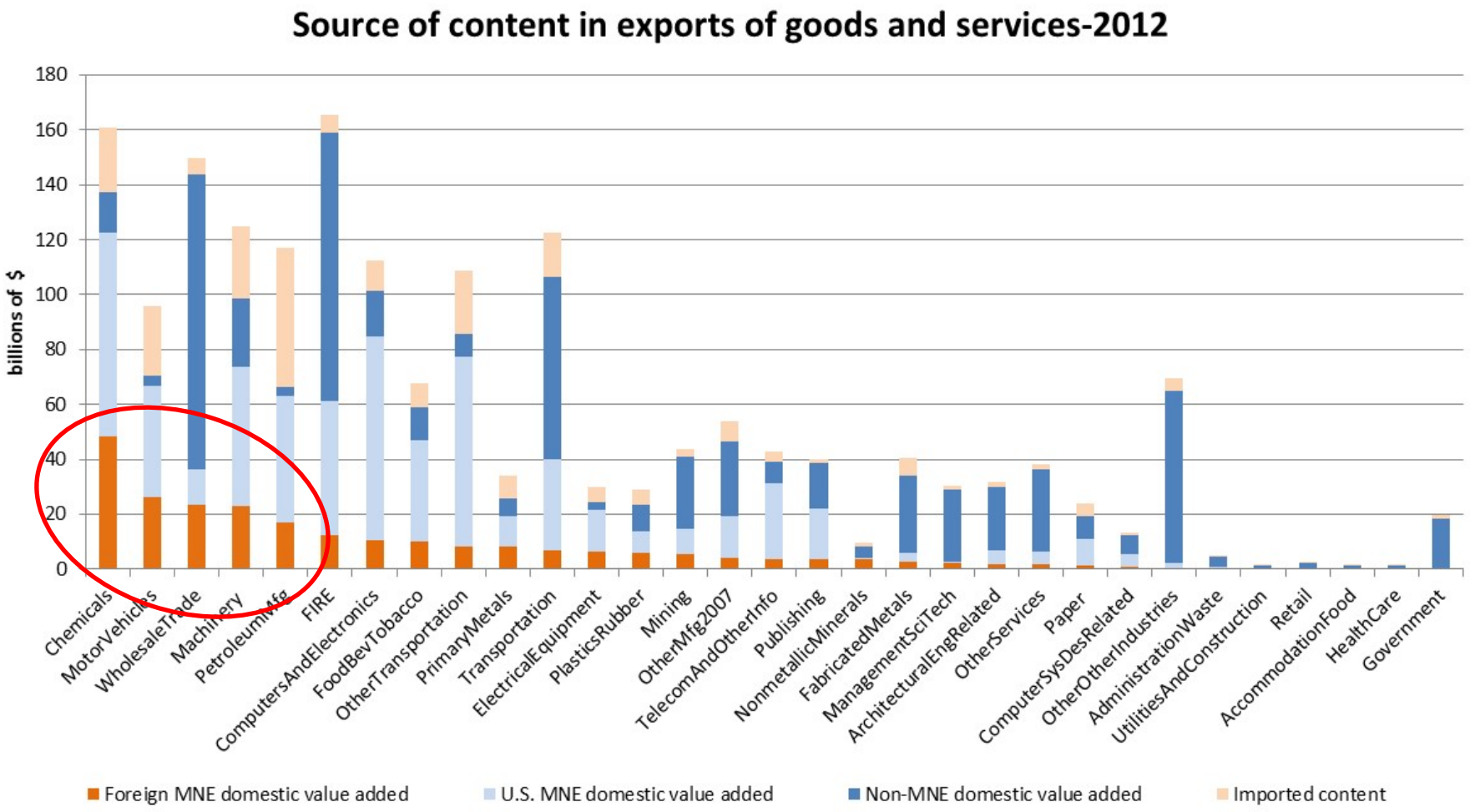
Firm Heterogeneity in Imported Content



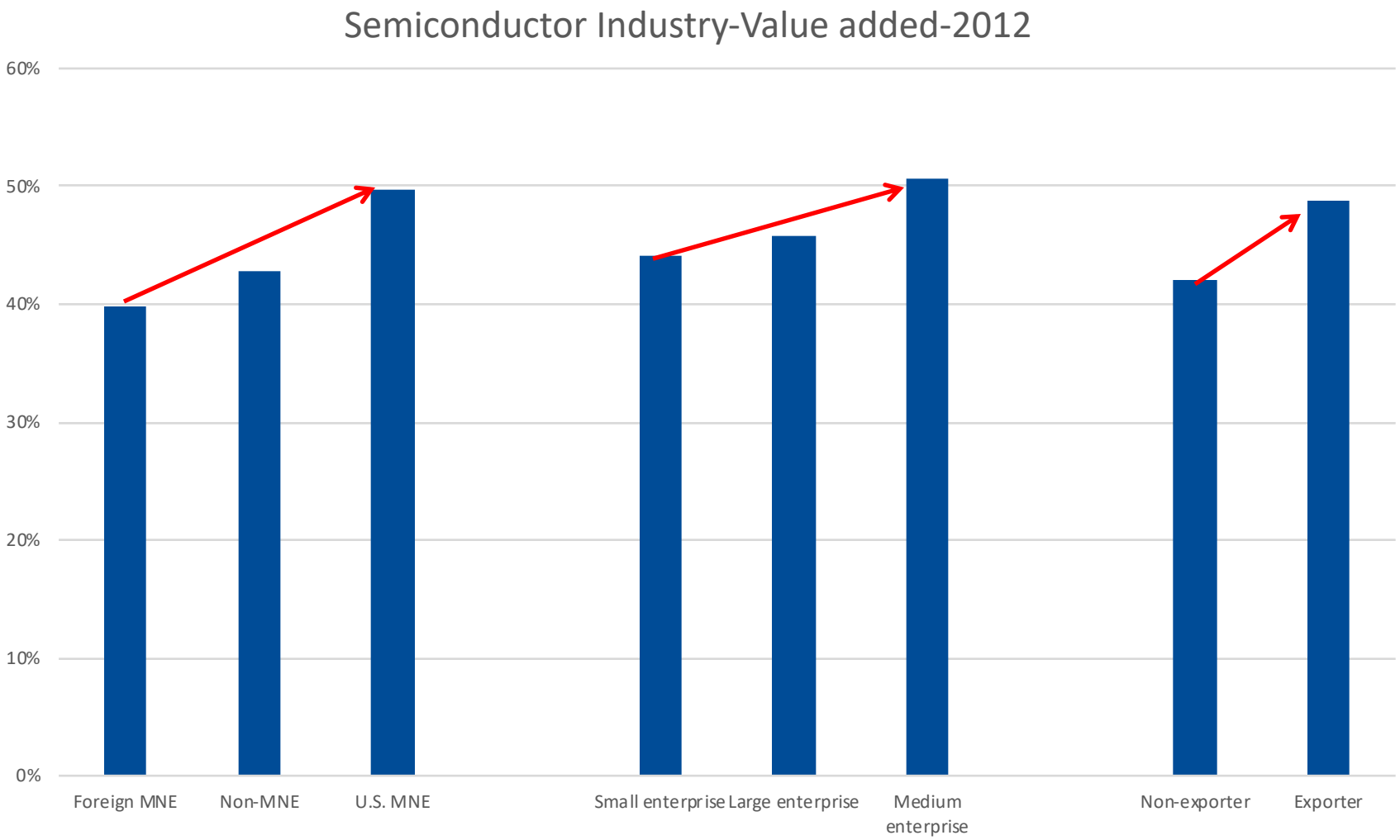
Source of Content: Goods vs. Services



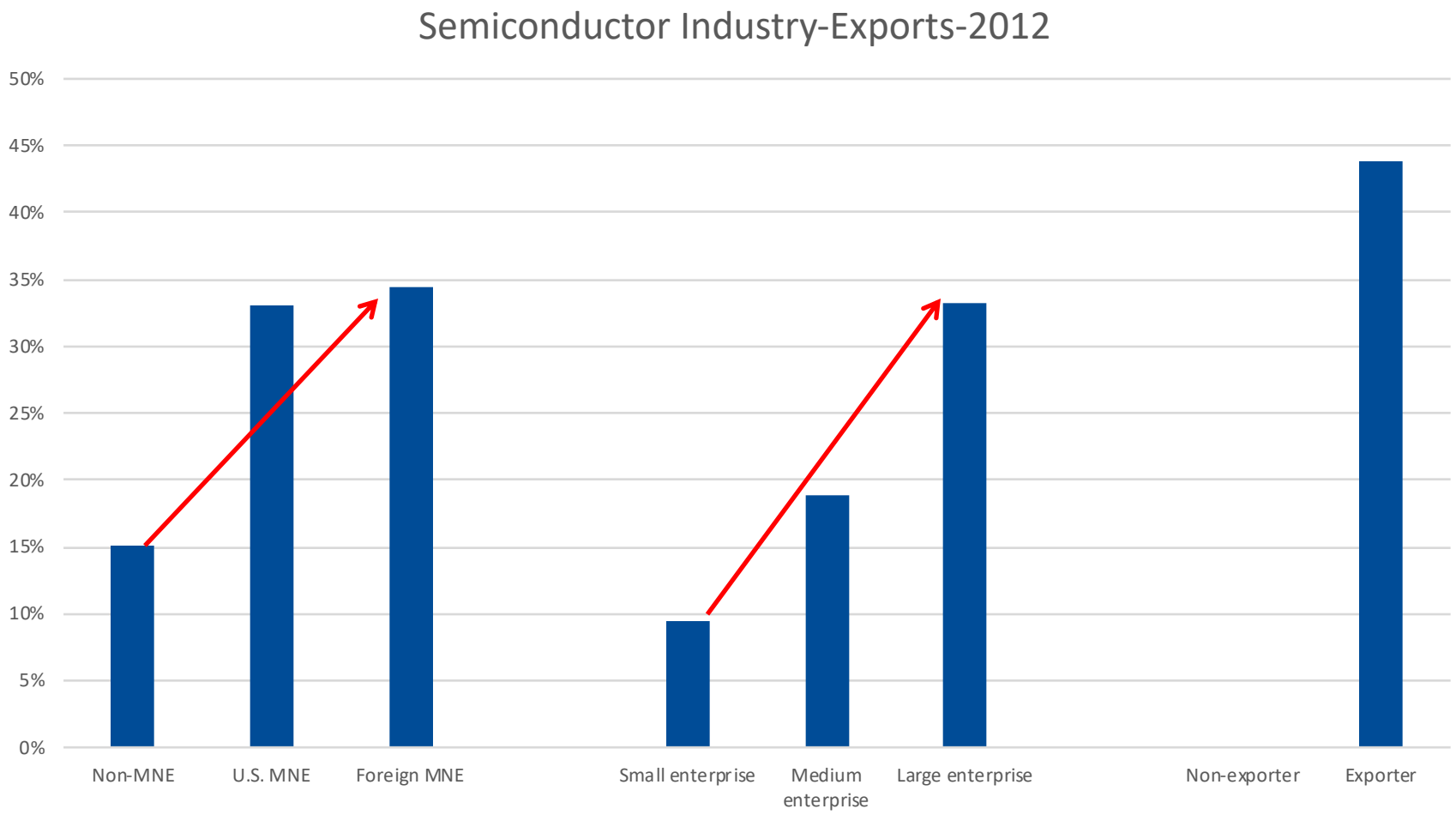
Foreign MNE Content Concentrated in a Few Industries



Value-Added Share of Gross Output



Export Share of Gross Output



Conclusion

- Accounting for heterogeneity by ownership looks most promising and is theoretically grounded
- Better understanding of role of MNEs in global and domestic value chains in the U.S.
  - U.S. MNEs account for the bulk of domestic and foreign content in goods industries
  - Close to two-thirds of domestic and foreign content in service industries is from non-MNEs
  - Foreign-MNE domestic production is concentrated in a few industries

Next Steps

- Enhancements to supply-use tables
  - Consider publication of SUT sub-matrices used in TiVA calculations
- Incorporate establishment-level AMNE data
- Work with other countries to reconcile bilateral asymmetries in source data
- APEC initiative and North America Regional SUTs