Global Supply Chains

BEA Advisory Committee

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Three items from the perspective of an IO user/modeler

- Wow! Great enhancement of available IO and bilateral trade data.
- TIVA? Interpretation and presentation.
- Next… Interest in value chain concepts provide opportunity to enhance IO, trade, and other industry data.

BEA Global Value Chain Data

- New information is a great advance for the Input-Output Accounts and US trade data.
- Industrial/commodity detail (granularity): A+
  - From 81 to 138 industries
  - Utilities, Retail, Wholesale, Health Care ….
- Timeliness: B+
  - Revisions?
- Integration with other data: A (for continuous improvement)
- Time Length: B (1998)
- Frequency: ?
- Nominal/Real: NA

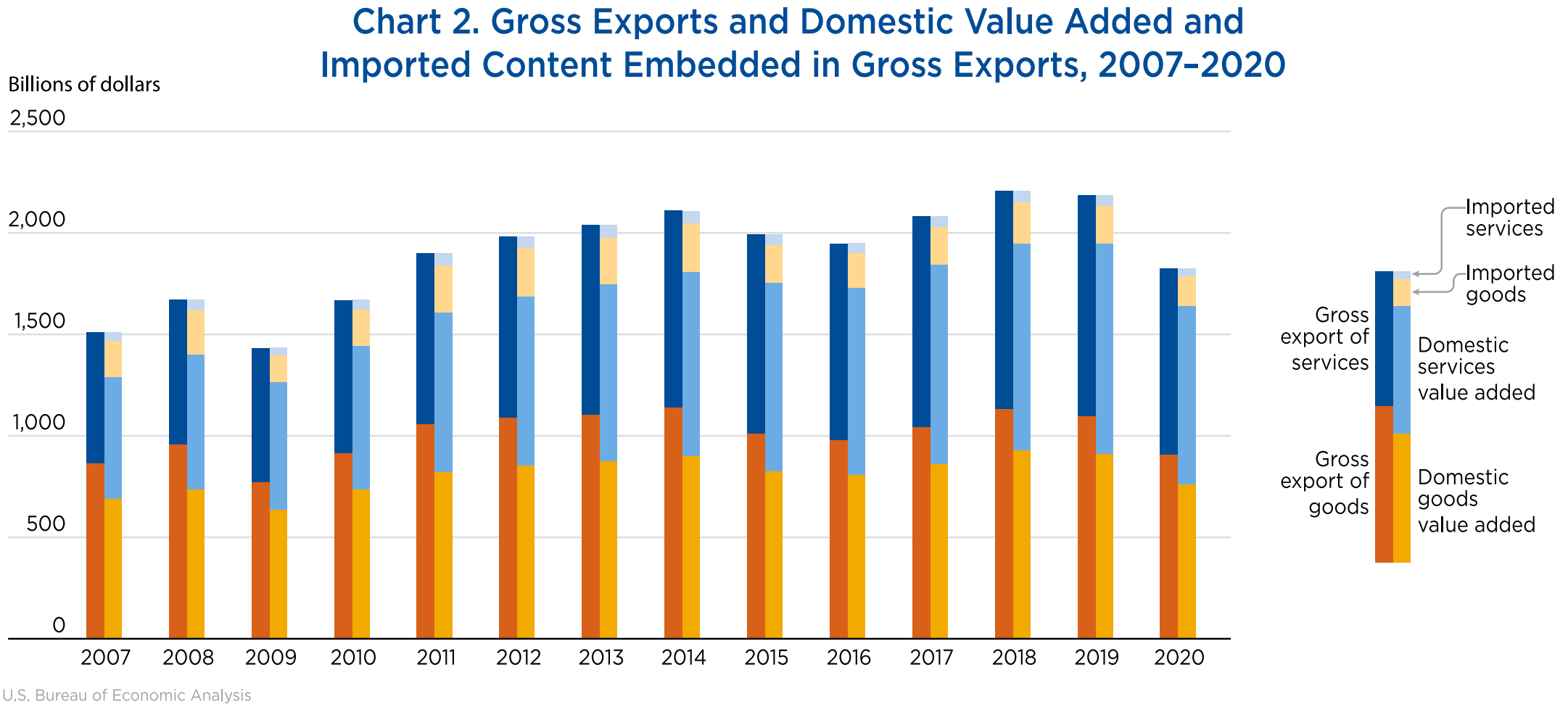
Input-Output Analysis

- “Businessmen, they drink my wine, plowmen dig my earth. None of them along the line know what any of it is worth.”
  - Bob Dylan, All Along the Watchtower

Interpretation and application of TIVA.

- Great application of IO methods, provides important information.
- Provides excellent information on individual commodities and trade relationships across industries, partners and time (dynamics).
- “Gross” Trade Balance = Value Added Trade Balance
  - By itself TIVA doesn’t provide information on aggregate competitiveness.
- Partner foreign dependence by expenditure limited by single-country approach.
- Provides only indirect and impartial information on “supply chain” issues. (e.g., PPE)

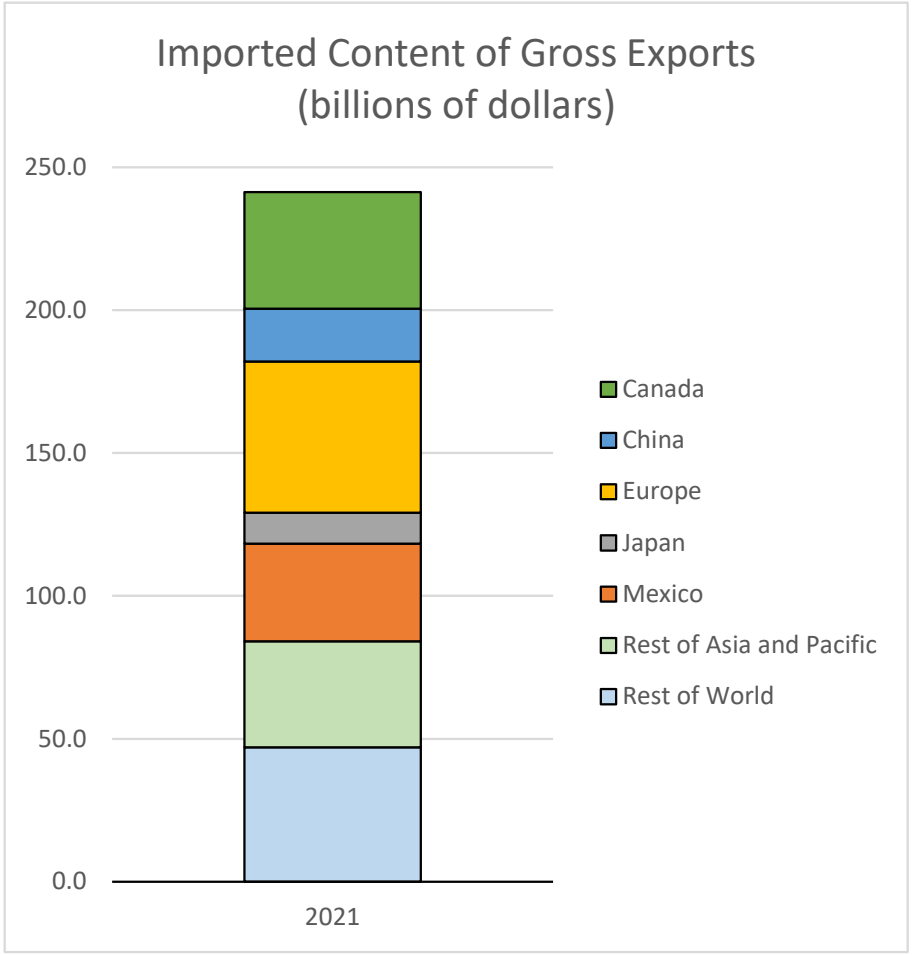
What does this mean?



Source: National Trade in Value Added Statistics: Uses and Applications

By Jason Chute, Connor Franks, Jiemin Guo, and Tom Howells | February 15, 2023

Much potential here, but also indicates advantage of multi-country account.



Each industry has a story.

Table 2. Top-Five Industries by Share of Imported Content Embedded in Exports by Purchasing Region, 2007–2020

[Percent of industry gross exports]

Exporting industry and originating sector		2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Petroleum and coal products	**Total**	**44.7**	**51.4**	**44.7**	**48.0**	**47.5**	**45.3**	**40.3**	**39.4**	**31.5**	**31.6**	**31.6**	**30.1**	**28.4**	**27.0**
	Canada	7.1	7.7	5.6	6.0	5.7	5.1	4.6	5.2	4.4	4.3	3.8	3.8	3.4	3.1
	China	3.0	2.8	2.4	2.4	2.0	1.7	1.5	1.4	1.4	1.3	1.5	1.2	1.0	1.1
	Europe	7.9	11.7	9.7	8.6	10.3	9.6	8.4	7.1	5.7	5.2	4.3	4.0	3.5	3.3
	Mexico	8.2	8.9	7.4	9.3	9.4	8.6	6.9	6.8	5.9	7.1	7.4	7.7	7.5	6.5
	Rest of world	18.5	20.3	19.6	21.7	20.1	20.4	18.9	19.0	14.1	13.8	14.6	13.4	13.0	13.1
Motor vehicles, bodies and trailers, and parts	**Total**	**27.9**	**30.0**	**29.2**	**29.1**	**31.4**	**30.2**	**30.5**	**32.0**	**30.7**	**29.0**	**29.3**	**29.9**	**29.1**	**27.0**
	Canada	14.9	14.0	13.8	13.5	13.5	13.1	13.0	13.4	11.8	11.2	11.4	13.1	12.6	9.3
	China	0.6	0.7	0.8	1.4	1.8	1.8	2.6	3.2	2.6	2.6	3.2	2.1	1.9	2.0
	Europe	4.1	5.0	3.9	3.1	3.8	3.2	3.3	3.8	4.6	4.9	4.6	3.9	4.4	6.2
	Mexico	3.7	4.3	4.8	4.9	5.2	5.1	5.1	5.3	5.6	5.0	4.8	5.3	4.9	4.2
	Rest of world	4.7	6.0	5.9	6.3	7.1	6.9	6.5	6.3	6.1	5.3	5.3	5.5	5.2	5.3
Pharmaceutical and medicine manufacturing	**Total**	**7.4**	**8.3**	**4.4**	**6.4**	**7.6**	**11.4**	**14.4**	**12.1**	**18.8**	**20.0**	**20.0**	**21.4**	**19.9**	**22.9**
	Canada	1.0	1.2	0.6	0.9	1.2	1.5	1.9	1.1	1.5	1.5	1.4	1.3	1.3	1.6
	China	0.1	0.1	0.1	0.1	0.2	0.3	0.4	0.5	0.7	0.8	1.0	1.1	1.1	1.6
	Europe	3.0	3.4	1.7	2.4	2.9	4.6	5.7	5.6	8.9	8.9	9.3	9.7	9.5	10.8
	Mexico	0.2	0.3	0.2	0.2	0.2	0.5	0.5	0.4	0.5	0.4	0.4	0.5	0.4	0.5
	Rest of world	3.1	3.3	1.8	2.7	3.1	4.5	5.9	4.6	7.2	8.3	7.9	8.8	7.7	8.4
Primary metals	**Total**	**26.7**	**28.3**	**22.6**	**26.0**	**29.7**	**26.1**	**25.9**	**25.4**	**23.2**	**21.5**	**24.3**	**25.1**	**23.0**	**22.6**
	Canada	8.0	7.8	5.5	7.0	8.0	7.3	7.2	7.2	6.1	5.6	6.1	5.9	5.0	5.5
	China	1.9	2.3	2.2	2.4	2.2	2.2	1.9	1.8	1.4	1.2	1.3	1.5	1.0	1.3
	Europe	5.1	5.6	4.3	4.8	5.3	4.2	3.9	3.8	3.8	3.5	4.5	4.8	5.0	5.2
	Mexico	4.7	4.7	3.8	4.6	5.7	5.7	6.1	6.4	6.3	5.7	6.6	7.0	6.3	5.2
	Rest of	7.0	7.0	6.7	7.3	8.5	6.8	6.8	6.2	5.7	5.4	5.8	5.9	5.6	5.5

What's next?

- I would prioritize work that further enhances underlying industry and trade data.
- Granularity: Industry stories underrated
  - 400 commodity/industry IO table preferred but constrained by uncertainty.
- Timeliness
  - Gross output with GDP is great, but don't sacrifice (initial) precision for speed.
- Frequency
  - Quarterly Make/Use is intriguing, but …
- Employment/wages by industry (with BLS).
- Real IO tables: Holy Grail or big can of worms?
  - Heterogeneity, aggregation, index numbers, big relative price changes…
  - Overall methodology remains under discussion.
- Intra-firm trade
- Other BEA priorities (CBO): Well-Being, Health Care Prices, Distribution…