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Rethinking Global Value Chains (GVC) During COVID-19

Ana Maria Santacreu

Federal Reserve Bank of St. Louis

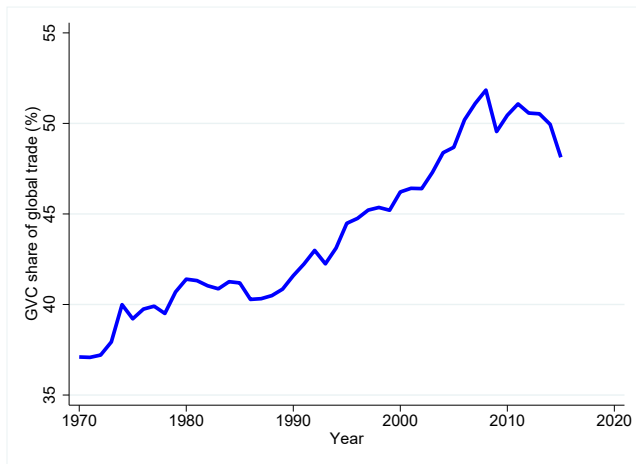
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What are GVC?

- ▶ **“Made in the World”**: Production has become globalized (fragmented) across the world
- ▶ GVC is a series of stages in the production of a good or service involving at least two countries
 - ▶ BMW works with 12,000 suppliers in 70 countries
 - ▶ Apple’s iPhone is made with hundreds of parts sourced in 43 countries, and assembled in China
 - ▶ Pfizer/BioNTech vaccine: 280 different components, manufactured in 86 different sites in 19 countries

GVC have become more important over time



Source: World Development Report 2020, World Bank GVC trade includes: (i) transactions in which a country's exports embody value added previously imported from abroad (backward GVC participation), and (ii) transactions in which a country's exports are not fully absorbed in the importing country, but embodied in the importing country's exports to third countries (forward GVC participation)

GVC Benefits and Risks

- ▶ GVC are characterized by
 1. Hyper-specialization
 2. Long-term relations between firms involved
- ▶ GVC benefit from comparative advantage
 - ▶ Specialization brings productivity gains and lower prices
- ▶ But there are risks...
 - ▶ Propagate shocks across industries and countries
 - ▶ Shocks: trade barriers, natural disasters, pandemics, ...

The current debate on GVC

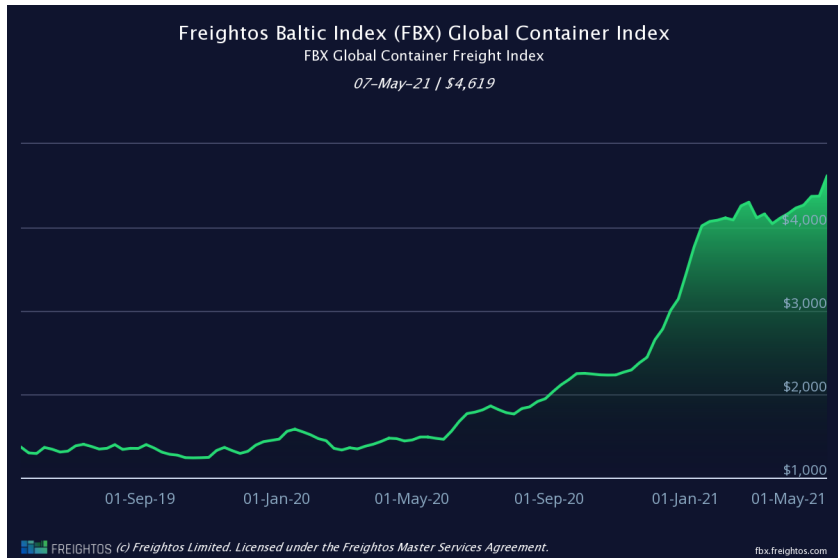
- ▶ The COVID-19 crisis has revived a debate about the international fragmentation of production
 - ▶ Shipping costs have increased (shortages of containers, limited staffing, pandemic-related delays)
 - ▶ Export curbs on essential medical goods (Leibovici and Santacreu, 2021)
 - ▶ Global lockdowns have impacted disproportionately more those industries that rely heavily on GVC (Santacreu, Leibovici and LaBelle, 2021)

Shipping Costs

- ▶ March 23rd: Giant container ship Ever Given gets stuck in Suez Canal
- ▶ By March 29th: Hundreds of ships waiting to pass through
- ▶ Global supply chains disruptions



Shipping Costs

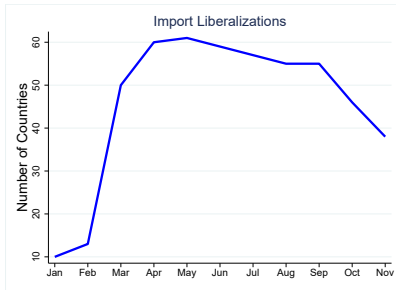
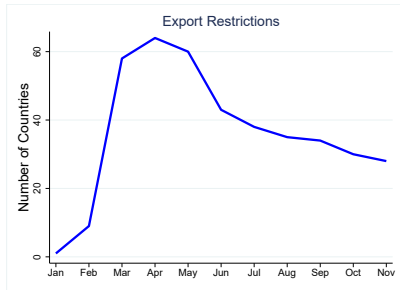


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Trade Policy During COVID-19

Temporary trade restrictions caused supply shortages of active pharmaceutical ingredients and essential medical equipment



Source: Leibovici and Santacreu, 2020. Data from Global Trade Alert

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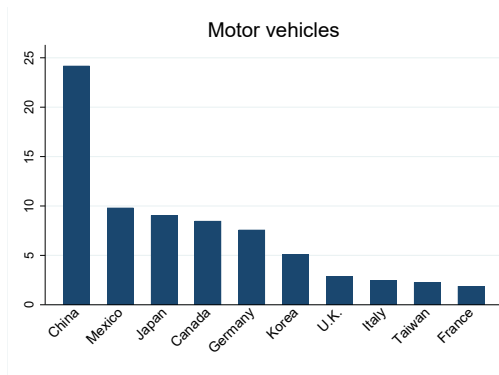
Global Lockdown, GVC, and U.S. Economic Activity

In Santacreu, Leibovici and LaBelle (2021), we measure an industry's exposure to foreign shocks via GVC with:

- ▶ **Intensity of GVC:** What percentage of an industry's exports are composed of foreign value added?
 - ▶ Raw materials (e.g., aluminum); intermediate inputs (e.g., car parts); tasks (e.g., back-office services)
- ▶ **Concentration of GVC:** What is the market share of the suppliers of foreign value added? (Herfindahl index)
 - ▶ Are GVC diversified across many suppliers or concentrated in a few of them?

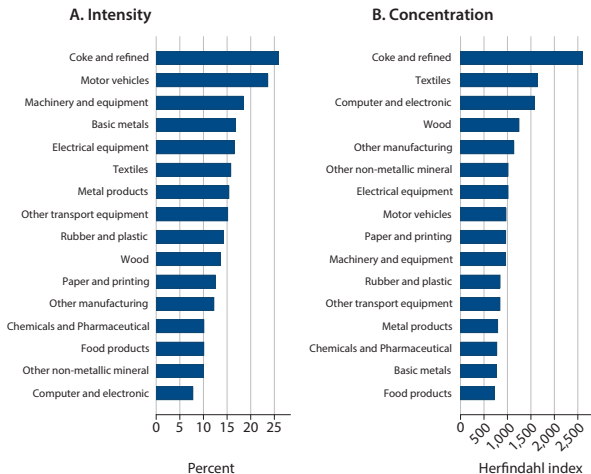
An Example: Foreign Value Added Content in Motor Vehicle Industry

- ▶ 24% of exports embody foreign value added
- ▶ Main suppliers: China, Mexico, Japan and Canada (Herfindahl > 900)



Source: OECD, TIVA

Intensity and Diversification of GVC

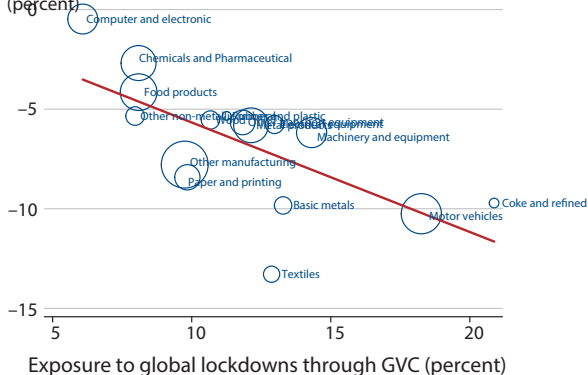


Source: Santacreu, Leibovici and LaBelle (2021). Data from OECD, TIVA

Global Lockdowns During COVID-19

A. Employment and foreign exposure

Employment growth January to June 2020
(percent)



- ▶ How can the stability and resilience of GVC increase without losing efficiency gains?
 1. Perfect diversification to hedge the risks
 2. Re-shoring or re-nationalization
- ▶ Re-structuring GVC is costly
 - ▶ High fixed costs of establishing relationships between firms
 - ▶ Some imported inputs are specific to particular suppliers or regions (rare metals from China needed for semiconductors)
 - ▶ It may be difficult to scale-up production quickly

- ▶ The policy challenge to ensure robustness and resilience is complex
- ▶ **Short-term solutions.** When a crisis hits...
 1. Temporary measures in times of crisis (Defense Production Act to scale-up production of essential medical equipment)
 2. International cooperation
- ▶ **Medium-term solutions.** Before a crisis hits...
 1. Stockpiling: having a local or global reserve of essential goods
 2. Build-up domestic supply chains of critical sectors
 3. International cooperation