

# **Rigid, Resilient, or Redundant? Thinking Ahead on GVC Trade Post-COVID**

**GTAP – June 23, 2021**

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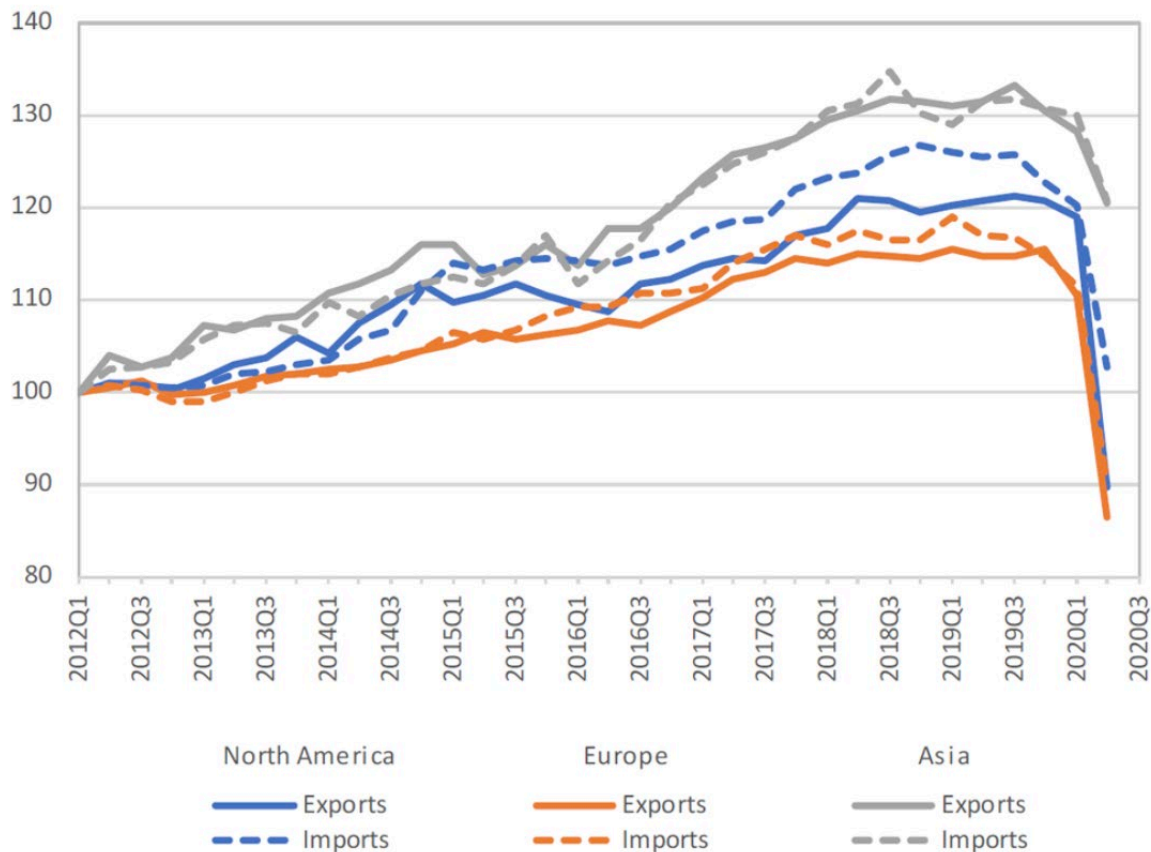
Tuck School of Business at Dartmouth College; CEPR; CES Ifo



# The COVID trade collapse was dramatic...

Chart 3: Merchandise exports and imports by region, 2012Q1-2020Q2

Volume index, 2012Q1=100



Source: WTO and UNCTAD.

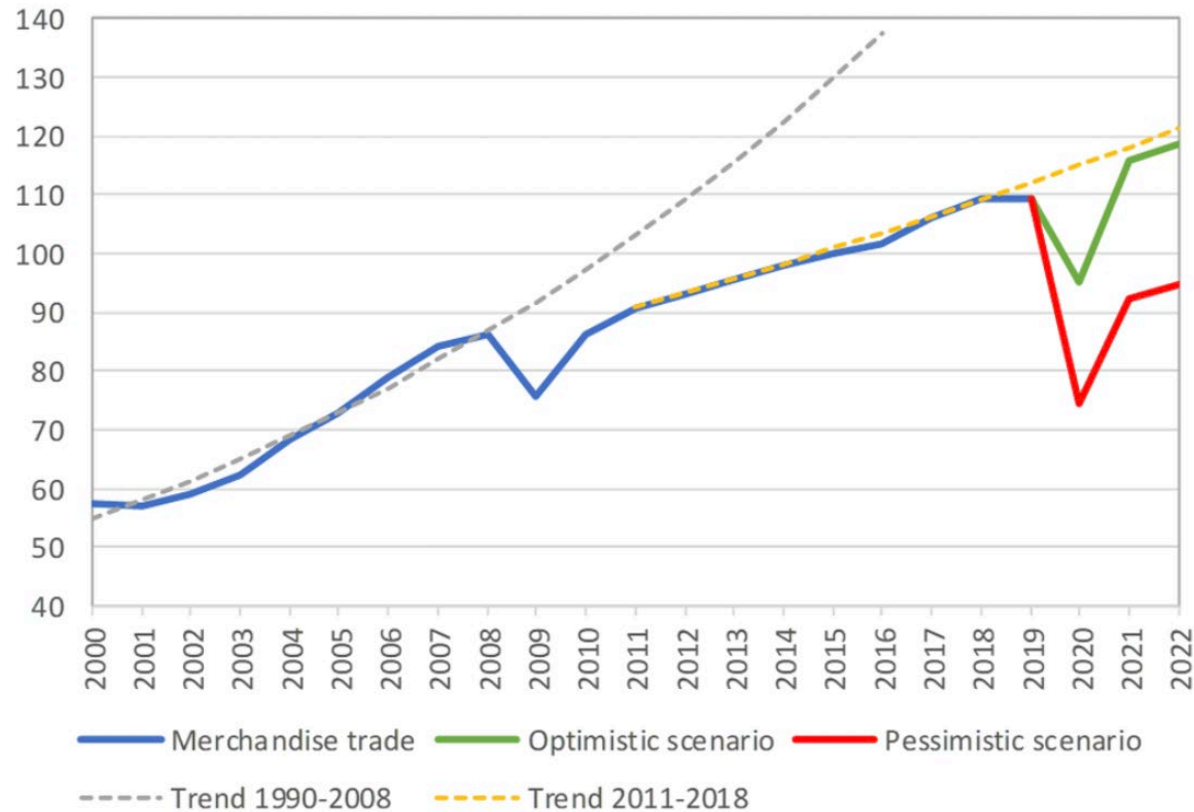
[WTO Press Release 862 10-6-2020](#)



# ...if not as bad as initially feared

Chart 1 - World merchandise trade volume, 2000-2022

Index, 2015=100



Source: WTO Secretariat.



**Still: Disruptions have been  
widespread...**

# **THE WALL STREET JOURNAL.**

**Everywhere You Look, the Global Supply Chain Is a Mess**

# **The New York Times**

***How the World Ran Out of Everything***



# And globalization – especially via GVCs – is un- fire.

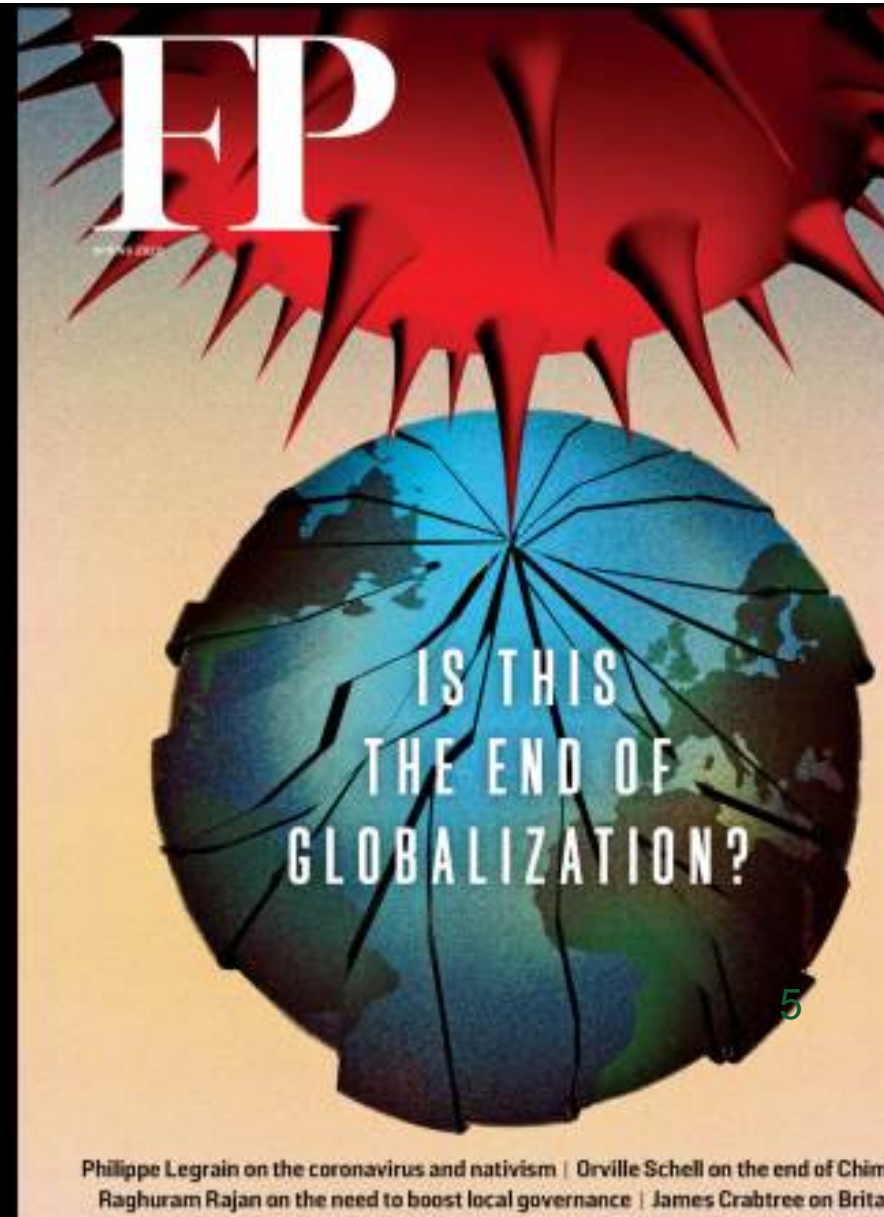
**The  
Economist**

On the blink—the EU's bad crisis  
Covid nostra: crime and the pandemic  
Starting a business in a slump  
The Mekong dries up

MAY 16TH–22ND 2020

## Goodbye globalisation

The dangerous lure of self-sufficiency



# So: What will the future hold for GVCs?

## *Outline for Today's Talk:*

- First: Context.
- Next: A framework for understanding (and modeling) GVC risk, rigidity, and resilience.
  - Example: Semiconductors
- Then: Policy perspective. Will governments learn the wrong lessons from COVID-19?
- Last: What will firms do? Reading the tea



# Context: Many Faces of the COVID Shock

Different dimensions (and different lessons) from the pandemic:

- (Temporary) Disruption
- Accelerant
- Catalyst



# COVID-19 as a Temporary Disruption

*In some sectors of the global economy, COVID-19 has been a stark - but plausibly temporary - disruption.*

- e.g. short-term shifts in ag. markets; just-in-time GVCs; simultaneous demand and supply shocks for PPE, ventilators, vaccines; sudden global shift in demand toward certain goods (mountain bikes and ring lights) and away from others (business attire, entertainment, leisure travel).
- Here, the pandemic underscores long-known “lessons,” esp the value of diversification and





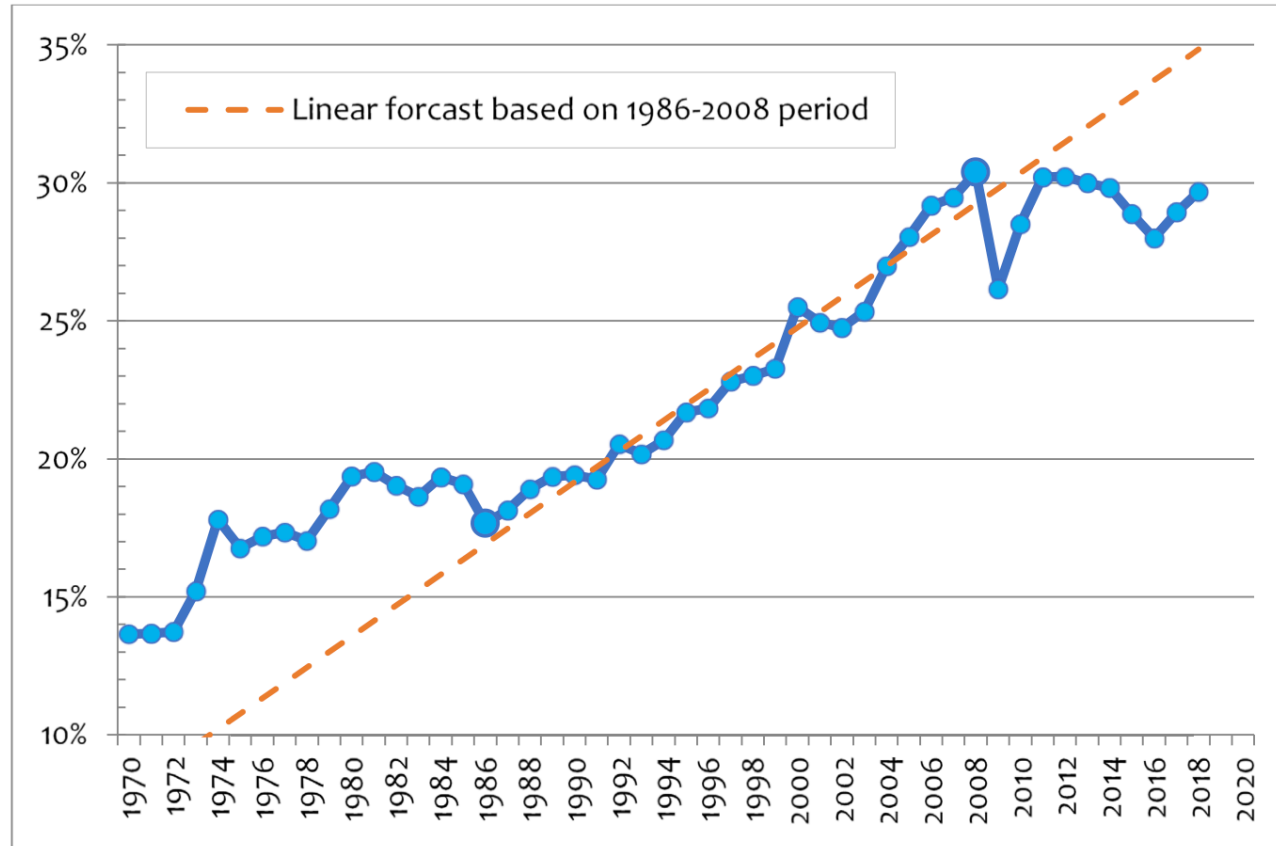
# Context: COVID as an Accelerant

- GVC expansion had started to slow, and economic nationalism had started to grow *before* COVID.



# “Slowbalization” Predates COVID

Chart 1. World Trade over World GDP (1970-2018)



Source: World Bank's World Development Indicators ([link](#))

From [Antràs \(2020\)](#)

# Context: COVID as an Accelerant

- GVC expansion had started to slow, and economic nationalism had started to grow *before* COVID.
- Why?
  - Low-hanging “GVC fruit” may have been picked
  - Automation ↓ returns to offshoring/fragmentation
  - Uncertainty costs of rising economic nationalism (Brexit, Trump Tariffs, Sino-US Trade War)



# COVID-19 as a Catalyst

*In other ways, the pandemic may induce otherwise-unlikely tipping-point changes:*

- e.g. business travel → videoconferencing; JIT production → inventorying; New public health norms, initiatives, surveillance, and coordination.
  - At the same time, there has been a profound overhaul of how firms and governments evaluate risk and resilience in the global economy. New acknowledgement of “Tail risks.”
- Big question: will governments give in to the temptation of economic nationalism and the



# Upshot:

- Whatever the pre-existing conditions, the future of globalization in general – and GVC expansion in particular – was already unclear in 2019.
- Implication for firms, analysts, and academics: it's time to sharpen the imagination and update the toolbox.

# A Framework for Assessing GVC Risk

- Guiding Principle #1:

*Allow for butterfly effects.*

- Guiding Principle #2:

*Measure what can be, not just what is.*

- Guiding Principle #3:

*Appreciate the diversity of risk.*



# 1. Allow for Butterfly Effects.

*Imagine matrices of GVC exposure and pass-through rates, up, down, and across the value chain.*

- Allow for positive and negative linkages, via supply-side and demand-side complements and substitutes.
  - For example: a shortage of apples (an input for apple pie) could cause the demand for cream to fall (because butter is a supply-side complementary input to apple pie, or because ice cream is a demand-side complement to pie) or rise (because ice cream is a demand-side substitute for pie).



## 2. Measure Possibility, Not Reality.

*Input-Output tables based on observed (historical) trade flows are imperfect metrics of exposure.*

- Think in terms of *elasticities* (possible adjustments in sourcing, sales, technique, or timing), not just volumes.
- Beware of extrapolation: are the consequences of a small shock simply a linear multiple of the consequences of a large shock?





# Example: GVCs are Still Mostly

## Regional

		Factory North America			Factory Europe							Factory Asia											
		usa	can	mex	deu	gbr	fra	ita	esp	tur	nld	che	chn	jpn	kor	ind	tw	aus	idn	bra	rus	sau	
Factory North America	usa	1.0	1.6	1.6	1.0								6.5	1.2	1.0								
	can	14.1	1.0		1.2	0.5							7.2	1.2	1.1		0.5						
	mex	15.5	1.0	1.0	1.7			0.6	0.6				14.3	2.3	2.6	0.7	1.1			0.6			
Factory Europe	deu	1.6			1.0	2.0	1.9	1.1	0.6	1.3	1.0		4.6	0.9	0.6							0.8	
	gbr	2.6	0.5		3.9	1.6	1.2	1.0	0.6	1.0			4.8	0.6	0.6	0.6							
	fra	2.4			5.7	1.2	2.3	1.9		0.8	0.6		4.1	0.6								0.5	
	ita	1.1			4.9	0.8	2.3	1.6	0.8	0.8	0.6		4.6		0.7	0.6						1.2	
	esp	1.2			4.5	1.2	3.3	2.3	0.6	0.8			4.6	0.6	0.6	0.6							
	tur	1.1			2.1	0.6	0.8	1.2	0.8				5.0		1.3	1.0						2.0	
	nld	1.8			5.0	1.2	1.2	0.9	0.7				3.7	0.7								0.9	
che	2.4			8.2	1.6	1.9	3.1	1.1	0.6	0.7		5.2	0.9		0.5								
Factory Asia	chn	1.5			0.9									1.9	3.0		1.9						
	jpn	1.4			0.7								6.3		1.2		0.6						
	kor	2.9			1.8		0.5						16.4	4.4		0.6	1.8				0.6		
	ind	2.1			0.9	0.5							7.2	0.9	1.5		0.5				0.7	0.5	
	tw	2.7			1.3								13.8	6.4	3.4	0.6			0.8		0.6		
	aus	1.8			1.0								7.1	2.2	1.5		0.5						
	idn	0.9			0.5							7.4	2.1	1.9	0.6	0.7							
	bra	2.2			1.0							4.6	0.5	0.6	0.6								
	rus	1.0			1.9		0.6	0.8				5.7	0.8	0.8									
	sau	1.3			1.8	0.9	0.5					3.8	0.6	1.0	1.0								

Source: Authors' elaboration of OECD Inter-Country Input Output Tables (available online at

<https://www.oecd.org/sti/ind/inter-country-input-output-tables.htm>).

From [Freeman and Baldwin \(2020\)](#)

**\*\* But how elastic are “off diagonal” flows??**



# 3. Appreciate the Diversity of Risk

*Expecting (or at least codifying) the Unexpected:*

- **Cause:** Demand vs. Supply vs. “Market Wedge”
  - *e.g. tariffs, shipping...*
- **Scope:** correlated v. idiosyncratic; local v. global?
  - *Aggregate price effects to magnify or mitigate?*
- **Source:** Political vs. Economic vs. Environmental



# Example: Semiconductors

- **Cause:** Demand and Supply and Market Wedge
  - *Demand: COVID electronics demand surge, then COVID Recovery*
  - *Supply: Factory Fires in Japan, Draught in Taiwan*
  - *Market Wedge: US trade restrictions → Chinese stockpiling; air freight ↓*
- **Scope:** correlated, global
  - *With aggregate prices – and delays – to magnify disruption.*
- **Source:** Political and Economic and Environmental



# Policy Perspective

*A hunch: the greatest uncertainties for the future of GVCs may be political, not economic or exogenous.*

- How will governments respond to COVID supply chain disruptions?
  - June 8, 2021: US outlines extensive plans to “strengthen American supply chains to promote **economic security, national security, and good-paying union jobs** at home.”

# Ultimately, Firms Will Decide.

*Here's the thing: Governments can change the incentives, and they might change the rules, but ultimately, firms are still in charge of their decisions.*

- How will firms respond to COVID-19 and the political reckoning it has spurred?:
- A few of the tea leaves I'll be reading:
  - inventory practices;
  - investment decisions (greenfield, acquisition, expansion);
  - intra- vs. inter-firm trade flows;



**Thanks for your interest and your questions.**

