

Webinar:
**International trade and
supply chains after COVID-19**

WITH PINELOPI GOLDBERG
PROFESSOR , YALE ECONOMICS

Friday, April 17, 12:30 PM ET
Pre-Registration Required



Intro: MARKUS BRUNNERMEIER

Twitter: @MarkusEconomist

Website: bcf.Princeton.edu

Markus' intro

■ Previous webinars

- Olivier Blanchard: fiscal policy
- Tyler Cowen: social and political implications
 - Speeds up previous trend, US federalism
- Angus Deaton: deaths of despair and COVID
 - COVID-harvesting, suicide



■ Past/future speakers



The 3 crises

■ Health crisis

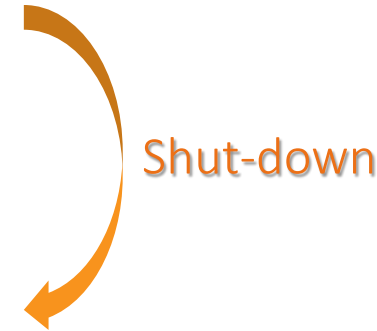
- Health contagion
- Gaining time

■ Economy crisis

- Supply (chains), demand (hoarding)
- Lockdown

■ Financial crisis

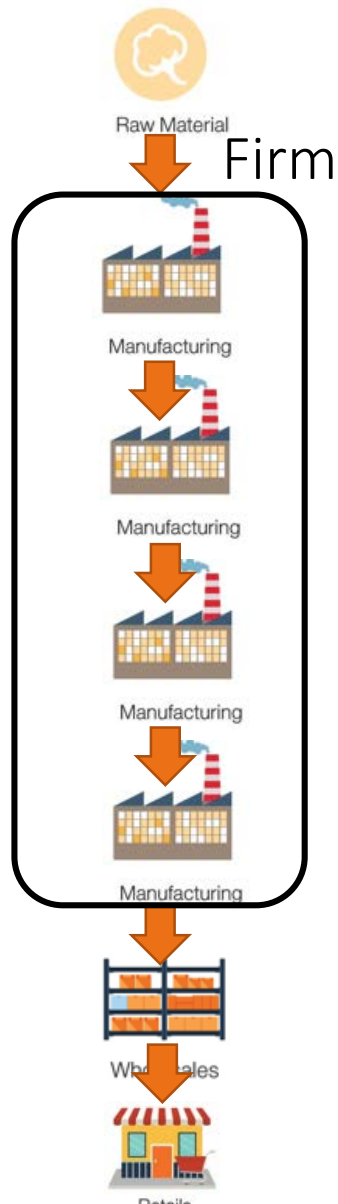
- Liquidity, solvency contagion



Production chain



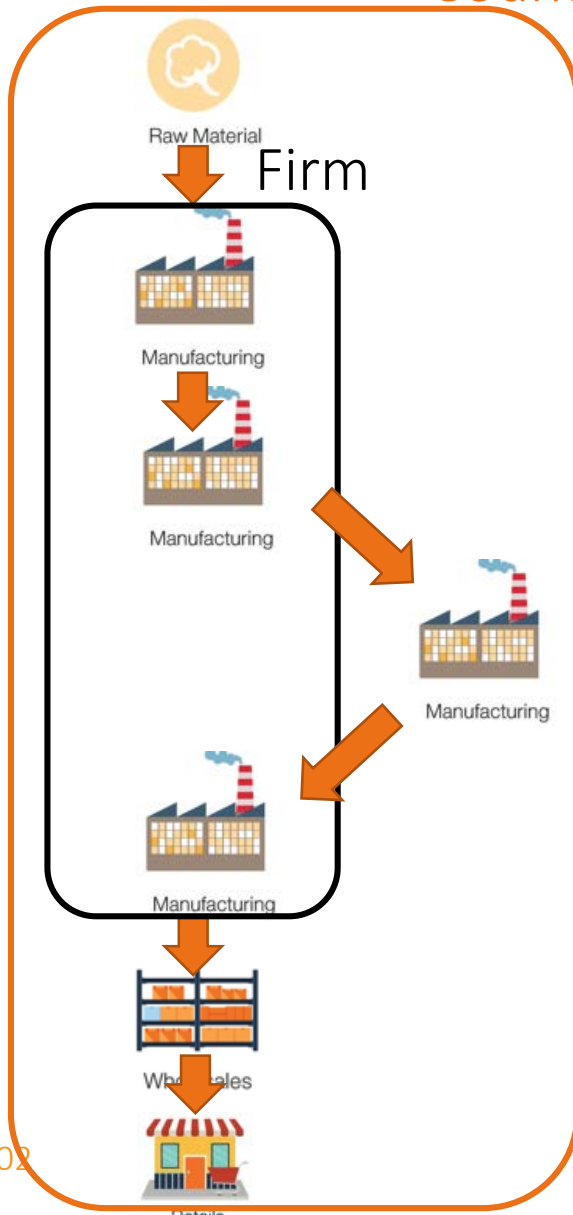
Production chain



- Span of control within a firm

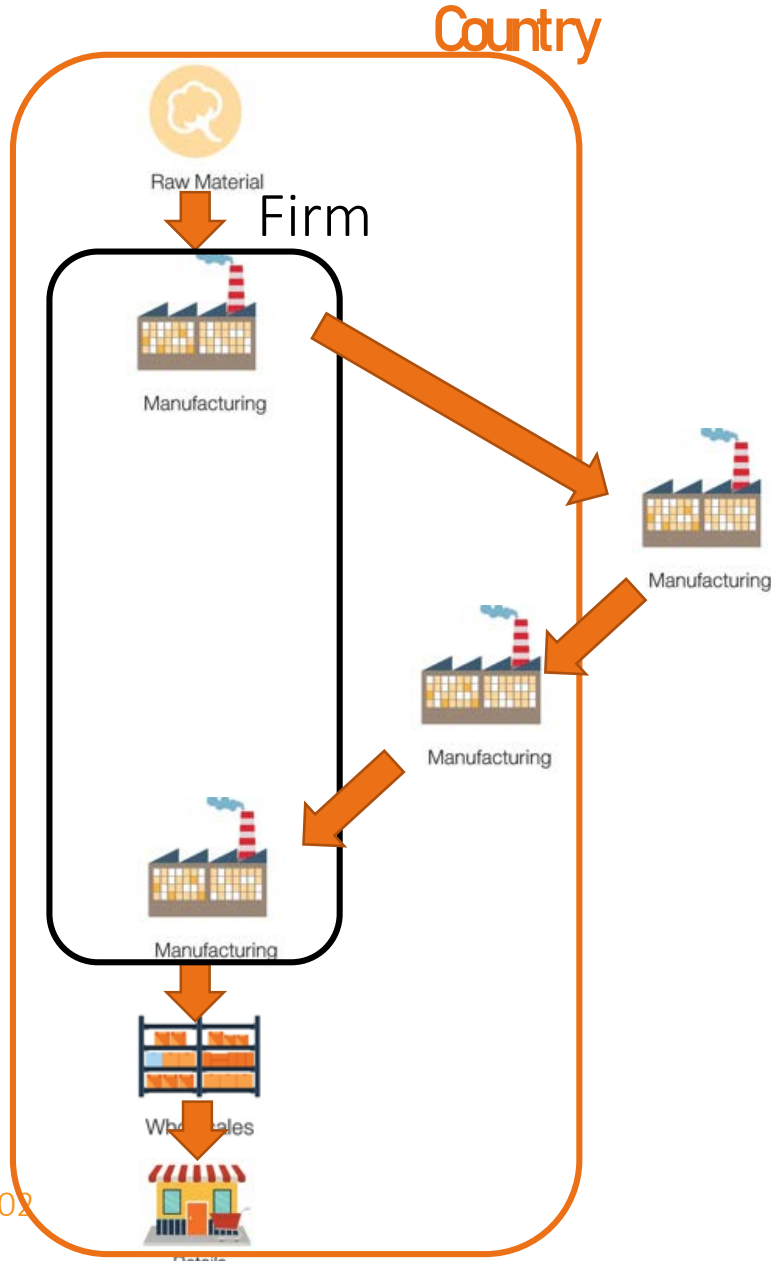
Production chain

Country



- Span of control within a firm
- Outsourcing
 - Within country

Production chain



- Span of control within a firm
- Outsourcing
 - Within country
 - International
 - Sustainability
 - "data protection area"
 - Currency area
 - Transport risk
- Insourcing
- "Backsourcing"/Reshoring

“Backsourcing” & Robots

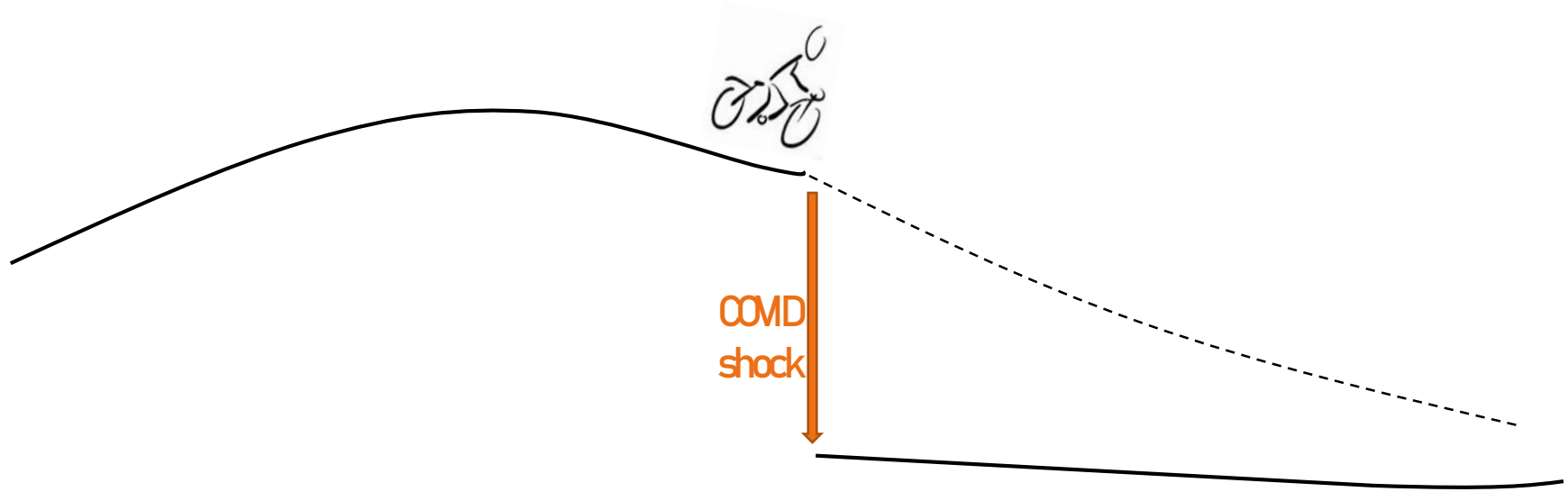
Bot Index vs. S & P 500



COVID shock & reshoring trend



- Speeds up existing trend or not?



Poll 01

- Size of firms will
 - Increase due to “reshoring” and vertical integration
 - Decrease due to lower global focus
- COVID shock
 - Speeds up existing trends
 - Leads to fundamentally different future
- Efficiency gains are mostly due to
 - More granular specialization
(including allocation to low labor costs countries)
 - Better inventory management

Risk & inventory management

- Buffers = Inventories vs. just-in-time
 - Within firms
 - Across firms inside global value chains (GVC)
- Diversification
 - Multiple supplies
 - Multiple locations
- Control
- Blockchain technology will improve just-in-time coordination and reduce risk

Poll 02: Exit from lockdown

- Exit from lockdown should be
 - Symmetric across countries due to GVC
 - Non-symmetric in order to experiment in certain regions
 - Sector specific

- COVID crisis affects car industry
 - Very negatively
(car body crosses Mexican US border 7 times)
 - Positively

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*Since ride-sharing will
significantly decline*

Technology transfer via GVC

- GVC lead to technology transfers



- Industrial development of emerging economies (EMEs)



- Convergence – poverty reduction
 - Provided EME has sufficient infrastructure (electricity, ...)

“Are GVC are better than aid?”

- Debt moratorium for IDA countries (with support of China)

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Global Value Chains, COVID-19, and the Future of Trade

Pinelopi K. Goldberg

Yale University

April 17, 2020

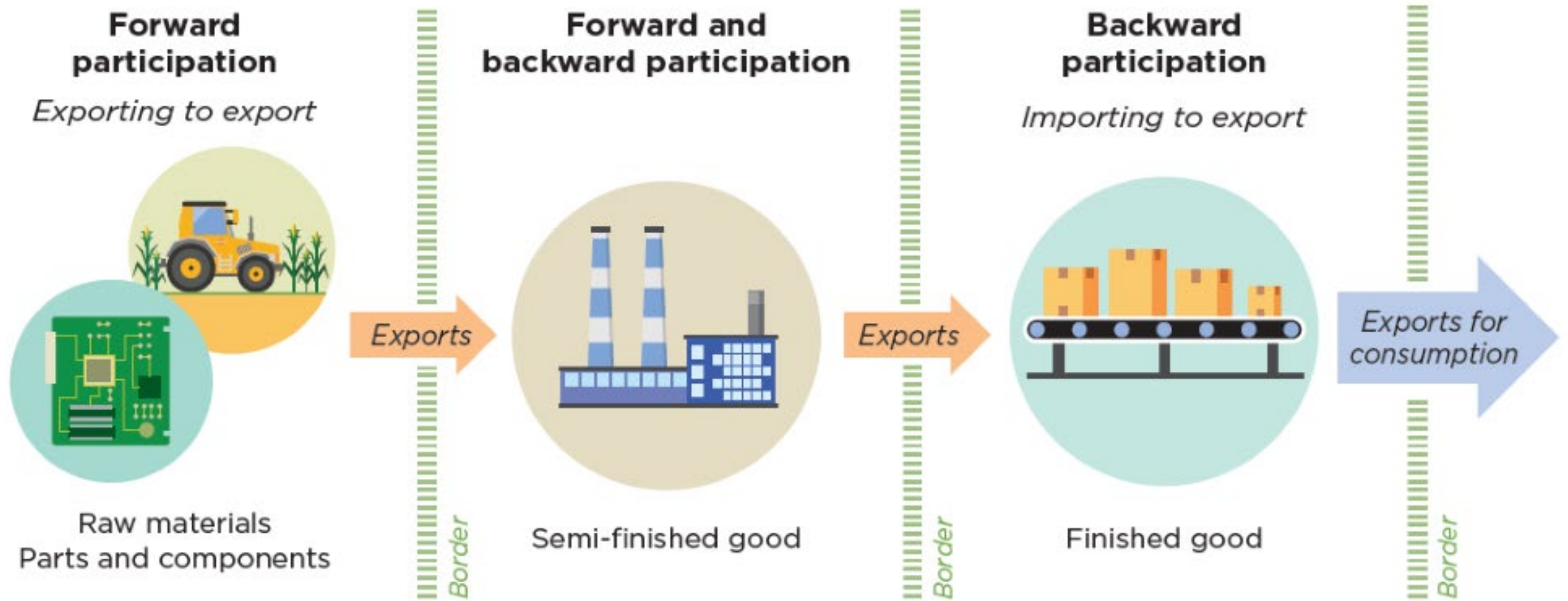
COVID-19 and Trade

- COVID-19 is a pandemic → crosses borders
- By definition, closely connected to cross-border movement of goods (i.e., trade) and people (i.e., immigration)
- Here focus on trade
- And in particular, a specific form of trade: trade through Global Value Chains (GVCs) → the modern face of trade
- COVID-19 connected to trade in:
 - Transmission phase
 - Crisis management phase
 - Recovery phase
 - Short run
 - Long run → Change in attitudes and policies

Road Map for this talk

- Preliminaries → why GVCs have received so much attention
- Transmission
- Crisis Management
- Economic Implications of GVCs
- Long Run Effects → The future of trade and globalization

What is a Global Value Chain?

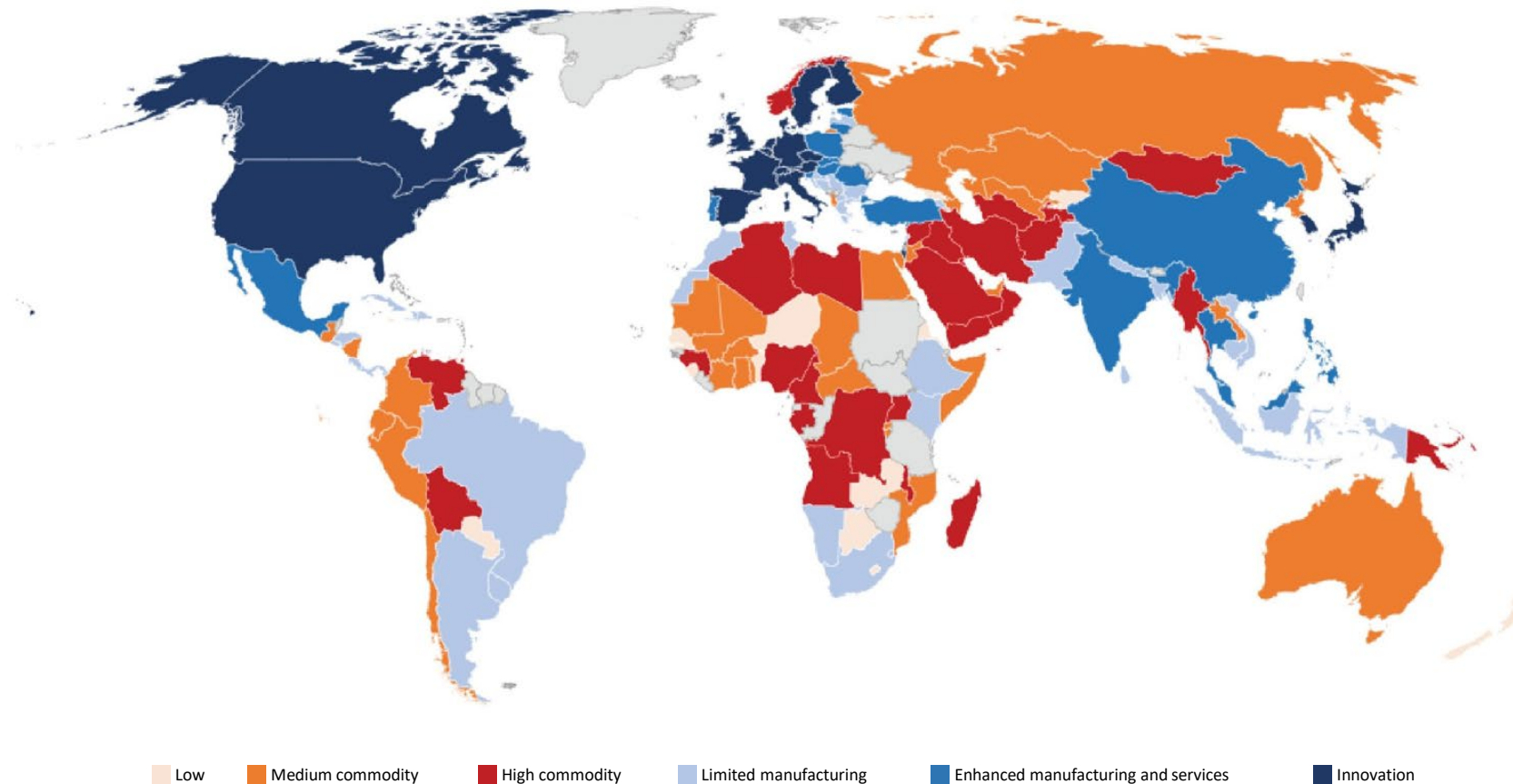


What is a Global Value Chain? (contd.)

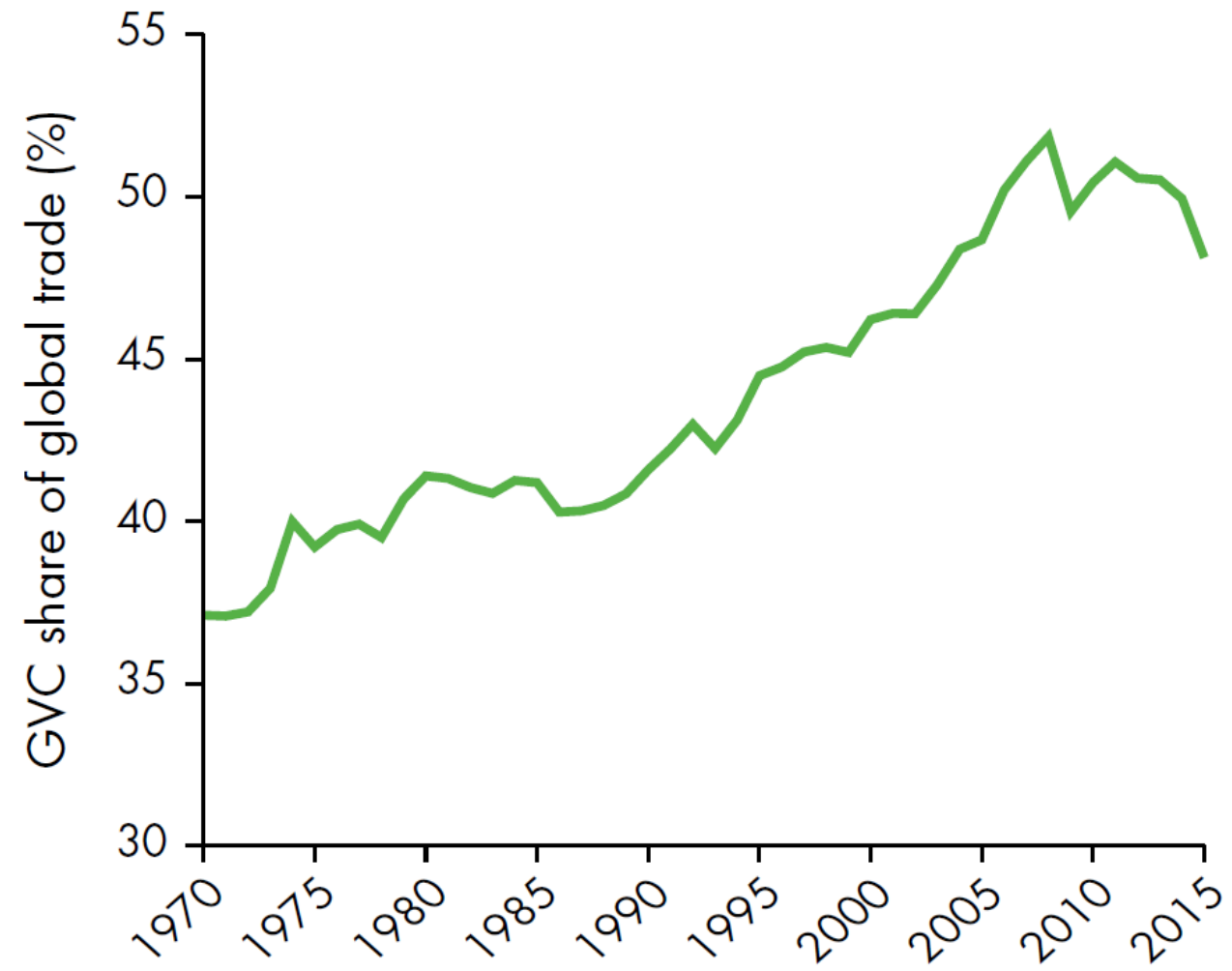
TWO defining characteristics of GVCs:

1. Fragmentation of production and associate hyper-specialization
→ Economics literature
2. Firm-to-firm relationships (i.e., relational as opposed to anonymized trade)
→ Sociology literature

All countries participate—but in different ways (2015)

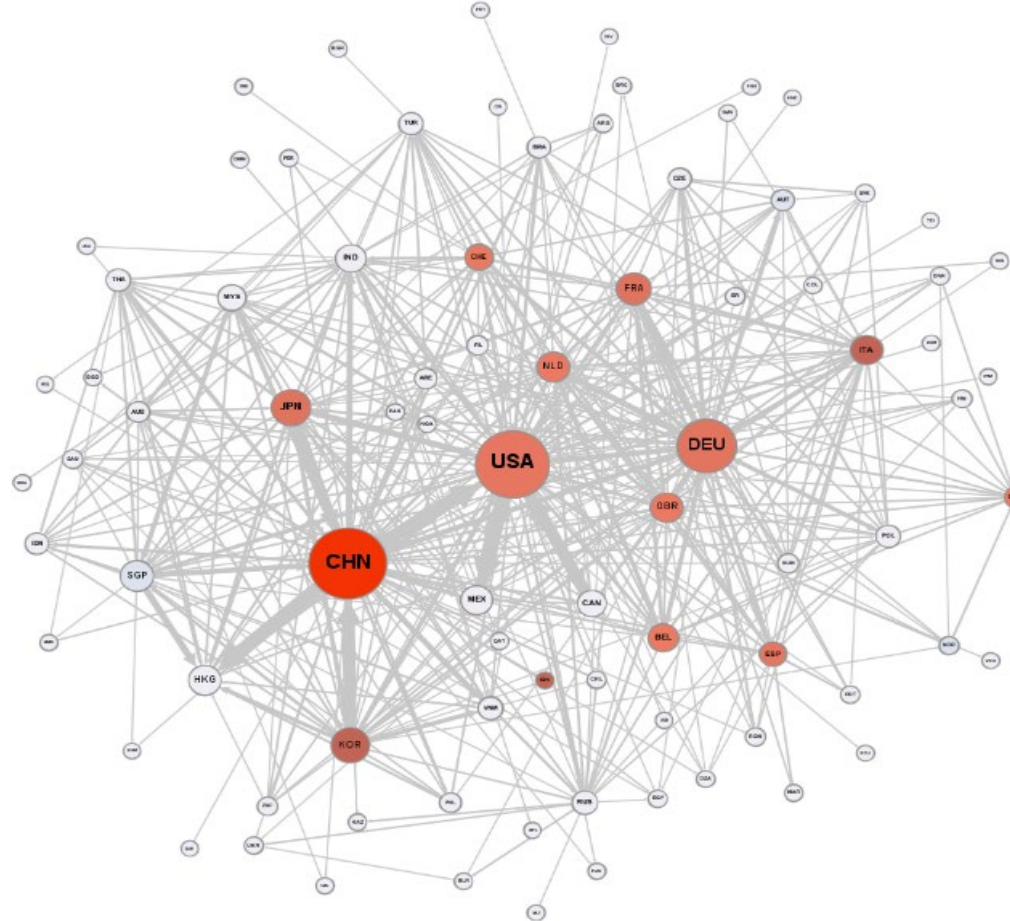


GVC Expansion in the last four decades



Transmission Phase

The global network of intermediates trade



Source: Comtrade database and World Bank staff calculations.

Note: The connecting lines illustrate the strongest trade flows in intermediates for each node (country). The most connected countries—the central nodes, or “roots” of the tree—are the main trade partners for several countries, distinguished from the peripheral countries, or the “leaves.” The size of the node represents a country’s centrality to the network, and countries strongly connected with each other appear clustered together. Dots in red indicate countries with more than 100 cases of Coronavirus registered as of March 9, 2020. Trade data are from 2018.

Transmission Phase (contd.)

- COVID-19 hit almost simultaneously the largest world economies.
- The most affected countries account for about 70% of global trade
- Include the major nodes of the global trade system
- More granular evidence regarding transmission highlights importance of business relationships emphasized in the GVC literature (anecdotal evidence):
 - China: Wuhan is a major industrial center, especially for the automotive, electronics and pharmaceuticals sectors
 - Korea: Gumi Industrial Complex near city of Daegu: 85% of the country's 8,413 cases
 - Germany: First case in Stockdorf, Bavaria. Automotive plant connected to Shanghai
 - Italy: Milan is major industrial center
 - U.S.A: Detroit has come as a surprise to many

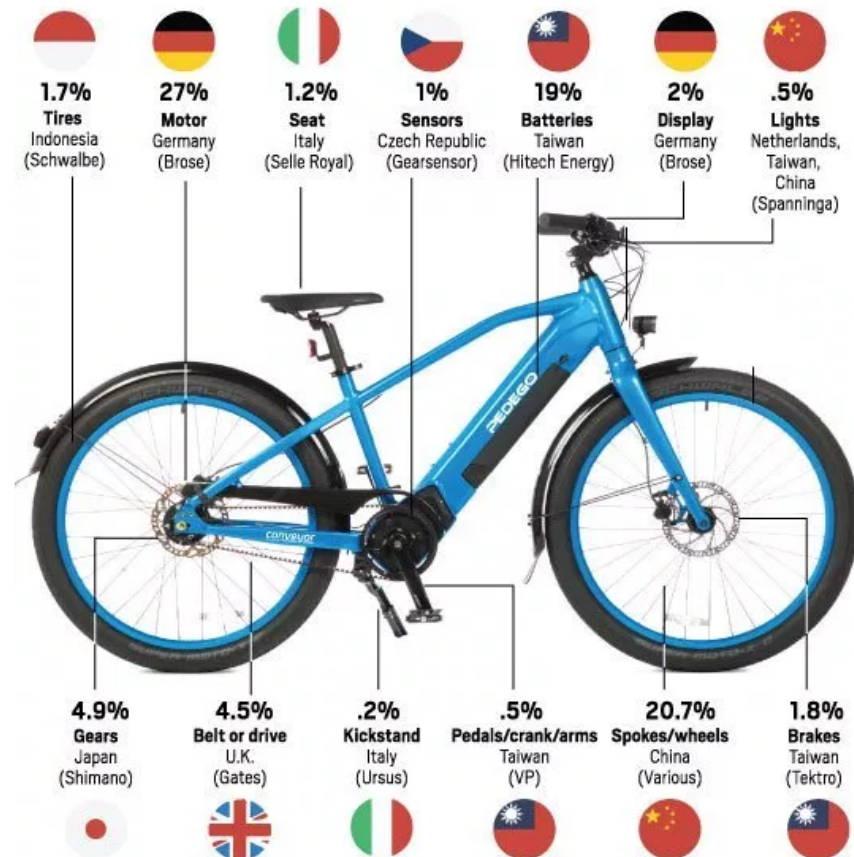
Trade, GVCs, and Crisis Management

- Claim: GVCs are responsible for shortages of critical PPE
 - Peter Navarro: Globalization is the “original sin”
 - [Noah Smith of Bloomberg](#)
- Main focus on two products: N95 masks and Ventilators
- Arguments:
 1. Because of offshoring, no domestic capacity to meet increased demand
 2. Export restrictions by other countries restricted global supply
 3. Reluctance of multinational companies (M3) to comply with DPA and U.S. export restrictions
 4. Sourcing of parts from multiple countries (→GVCs) makes quick ramping up production difficult if not impossible
 - ventilators (no picture of ventilator, but let’s look at an e-bike)

What a GVC product looks like

Electric bike diversity

The Pedego Conveyor, a \$4,995 commuter bike, is among the newest of the Fountain Valley company's 12 models. It is manufactured outside Shanghai, with about three-quarters of its 50 components from China and the remainder from other Asian and European countries. Components from outside China account for 60 percent of the bike's cost. With the U.S. imposing tariffs on goods from China, production will move to Vietnam this month using the same components. Here's how the component costs break down.



Source: Pedego Electric Bikes

SCNG

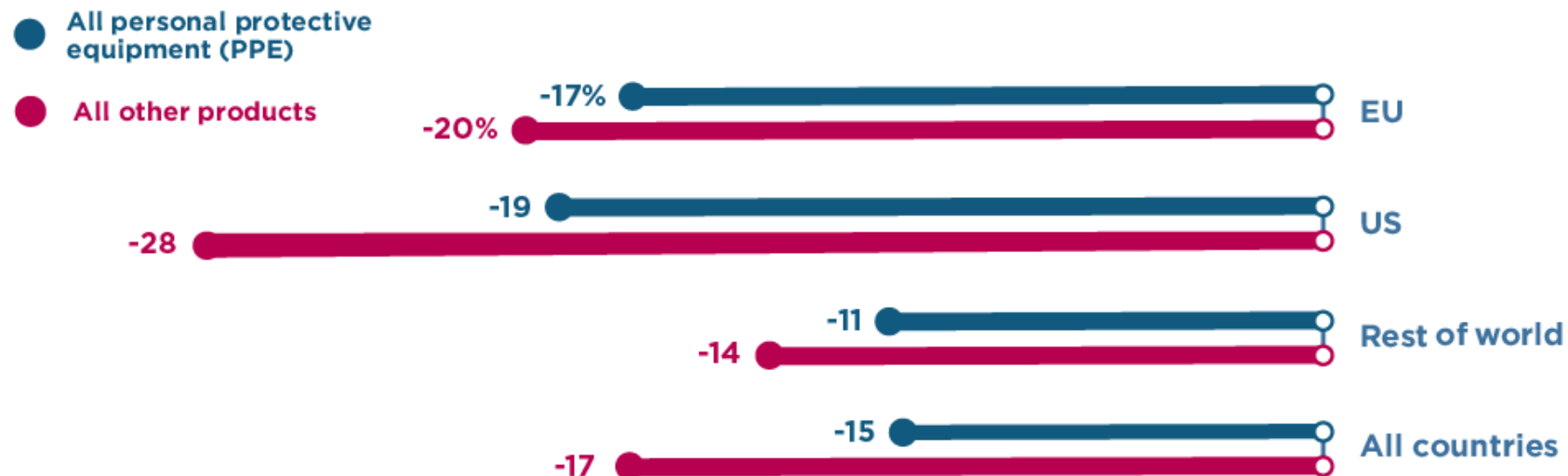
Trade, GVCs, and Crisis Management (contd.)

Note:

1. Facts are not always consistent with claims
 - [Chad Bown of Peterson](#): China's export supply of PPE is actually alleviating global shortages (see PIIE Chart next slide; [NYT](#): China is producing 12 times its mask supply prior to covid)
2. Countries' behavior consistent with WTO rules
 - WTO bans export restrictions, but makes an exception for "essential" products
3. From a moral perspective, behavior seems acceptable during a national emergency
4. However: Behavior not "smart"
 - [Chad Bown](#): Retaliation and input-output linkages make export restrictions potentially harmful, 3M example

China's exports of protective medical equipment fell less than its exports of all other products

China's export growth in January and February 2020 relative to January and February 2019, by product and trading partner



#PIIECharts

Learn more at piie.com/research/piie-charts



EU = European Union; US = United States

Note: All other products are exports of all products, not only other medical products.

Source: Constructed by the author with 6-digit export data from Chinese customs matched to personal protective equipment definitions from Commission Implementing Regulation (EU) 2020/402 of 14 March 2020 making the exportation of certain products subject to the production of an export authorization, *Official Journal of the European Union*, L 0771, 15 March 2020.

Trade, GVCs, and Crisis Management (contd.)

Counterarguments :

1. Competition for PPE was local (at least in the U.S.). Issue was not international specialization
→ U.S.A: state against state; hospital against hospital
2. Counterfactual?
 - a. Reshoring → Domestic Value Chains.
 - Example: Food supply
 - BUT: Food supply chains have started to experience similar shortages
 - b. Diversification: Source from multiple countries
 - Helps in the case of an epidemic or other country-specific shock
 - Less helpful in the case of a pandemic
3. Nature of shock?
 - Many shocks are not correlated across space (e.g. natural disasters)
 - International diversification may increase resilience if shocks are not correlated
 - Not helpful in the case of pandemic. But would cushion the blow in many other cases

Need for Global Coordination

- PPE export restrictions, ventilator production bottlenecks make the need for global coordination clear
- Calls for a global authority to coordinate allocation of critical products (PPE, drugs, vaccines)
- BUT:
 - Who would this authority be? (not WHO)
 - Global allocation during crisis infeasible. Cooperation would break down
 - Moral hazard
- Global coordination has to happen BEFORE the crisis
 - Build resilience
- Building resilience should take into account:
 - the interdependence of countries and localities
 - national reserves are less helpful when virus crosses borders
 - countries' capability to build resilience on their own
 - need for assistance to the poorer countries
- We should think of resilience as a global concept, taking local political economy constraints into account

Economic Effects of GVCs

- Global supply chain disruptions are not new:
 - Japanese earthquake and tsunami (2011); Global financial crisis (2007-08)
- Lesson from previous disruptions: GVCs amplify the effects on trade
- Earlier shocks hit individual countries or subset of countries
- They could be classified as primarily demand or supply shocks

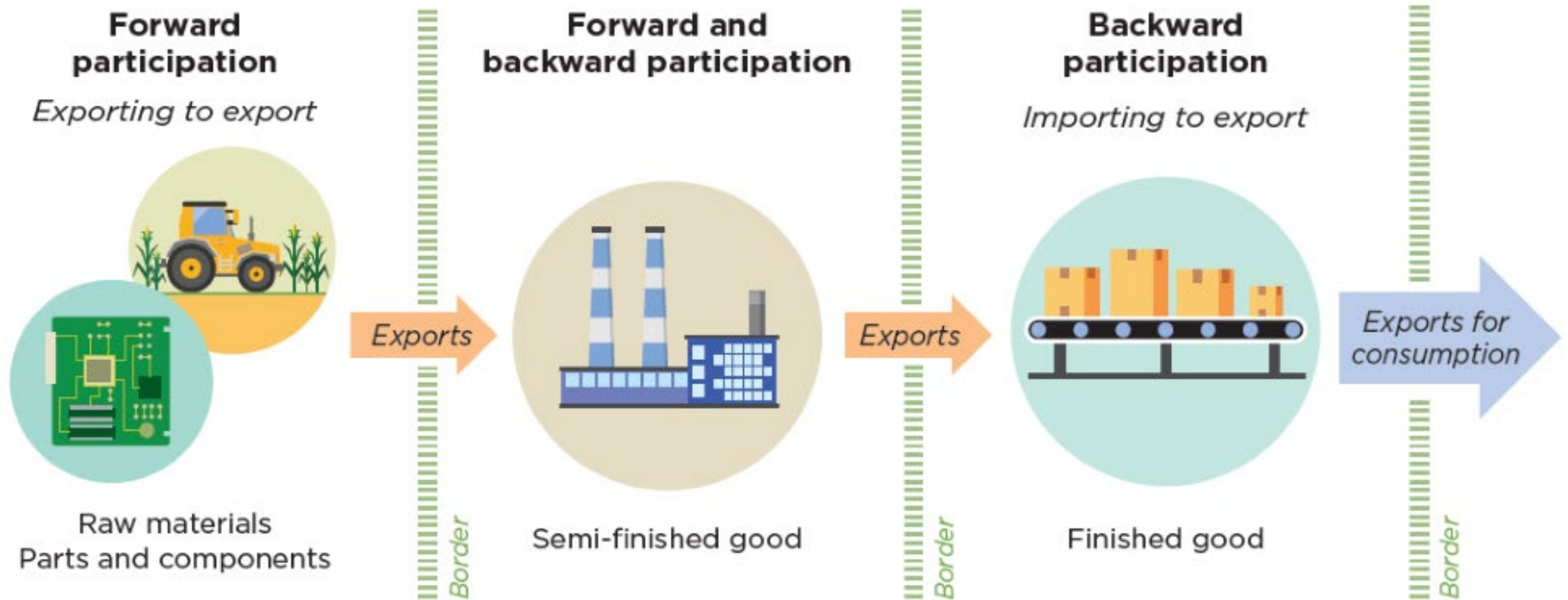
What is different now:

- Pandemic presents countries with simultaneous supply and demand shocks
- It hits many (all?) countries, particularly major global economic centers, almost simultaneously.
- Duration uncertain. Economic policy takes the back seat relative to public health policy.

The Nature of the Shocks

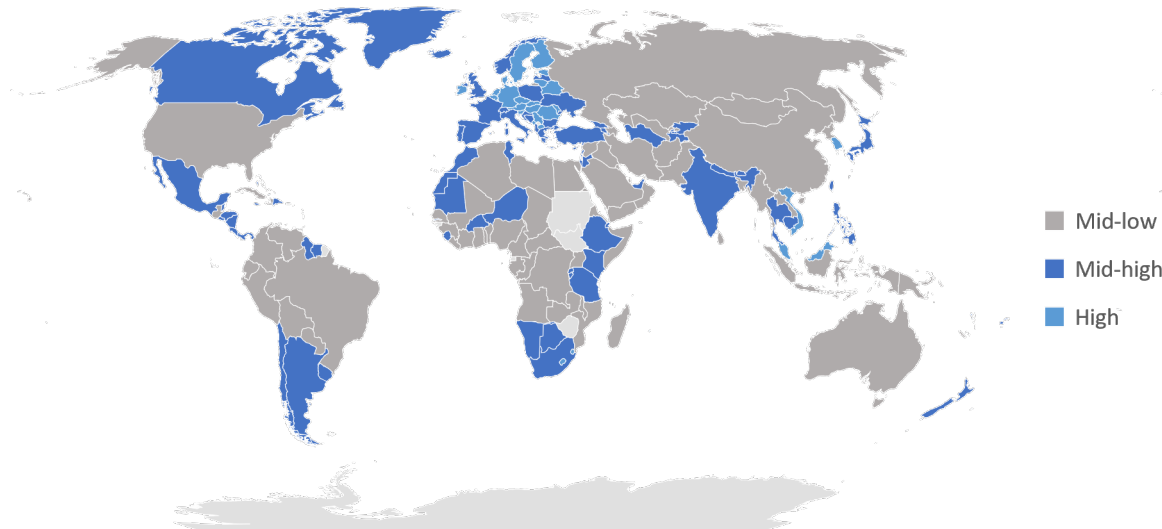
- Supply shock. Due to response, not virus itself
 - Lockdowns and physical distancing → Labor shortages as people cannot get to work
 - Business closures → Shortages of inputs to other sectors
- Demand shock. Due to lower expected demand
 - Rise in unemployment, recession
 - Postponement of purchase of durables
 - Postponement of investment by businesses
- Through GVCs, shocks propagate through the domestic and global economy:
 - Richard Baldwin: [Supply-side contagion and reinfection](#)
- Waves of contagion
 - China: At first, supply shock. Now demand shock

Effects on countries will depend on where countries are located in the global value chain



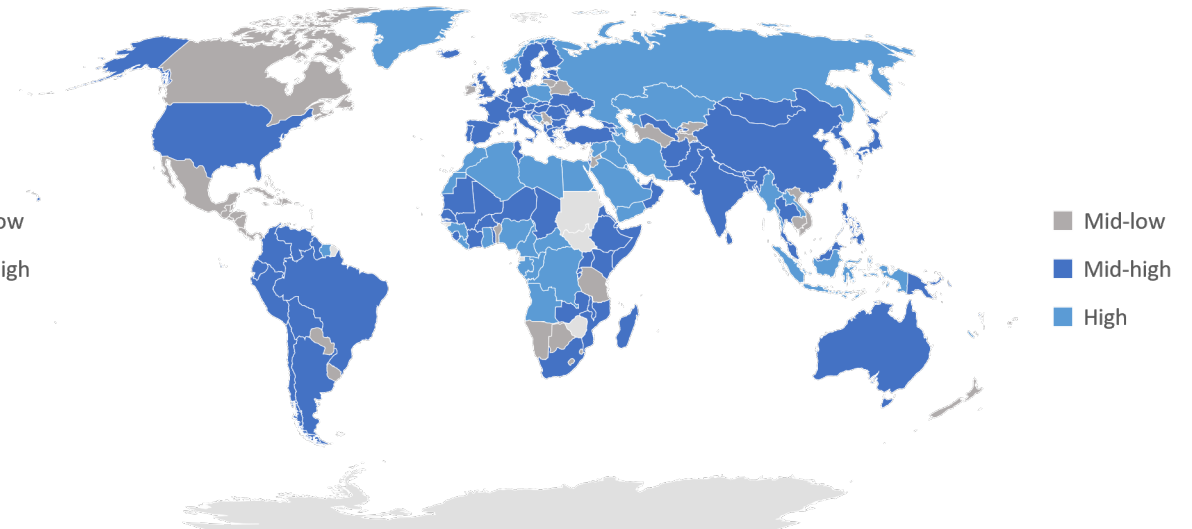
Not all countries are exposed in the same way, and this matters for whether they should fear more supply or demand shocks

EXPOSURE TO GVCS (BACKWARD):
MORE PRONE TO SUPPLY SHOCKS



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EXPOSURE TO GVCS (FORWARD):
MORE PRONE TO DEMAND SHOCKS

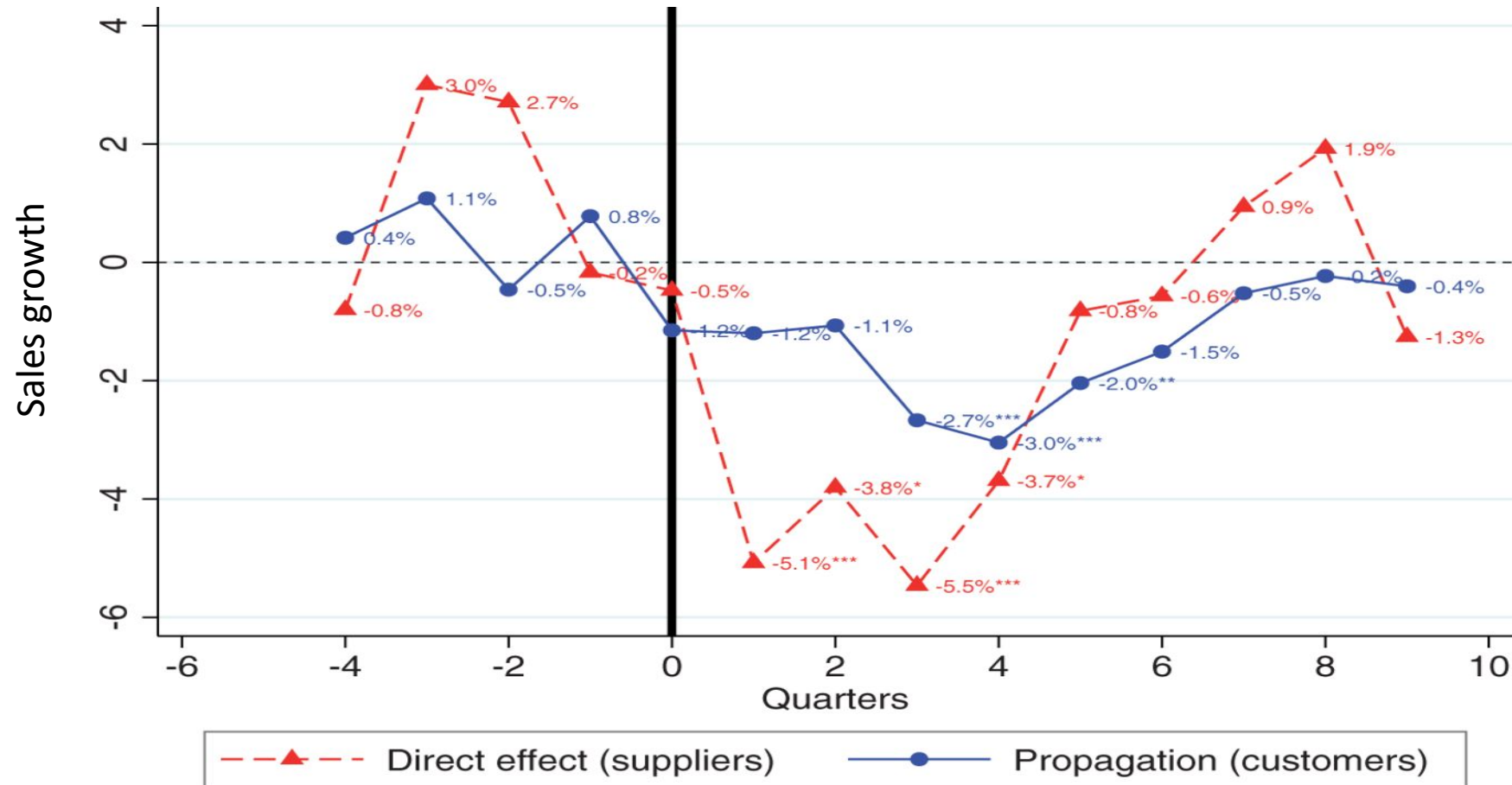


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Source: EORA.

Note: Data are in millions of current US dollars. All the measures of GVC participation are computed using `icio`, a new Stata command for value-added trade and global value chains analysis (Belotti et al, 2020).

Natural disasters propagate to business partners, with longer lasting effects



Expected Economic Effects in the GVC Era

- Understanding countries' backward and forward linkages is necessary to characterize the demand and supply shocks.
- Evidence from past episodes needs to be taken with caution:
 - Reasons it may lead us to overstate the effects:
Temporary nature of shock. No industrial capacity destroyed. Low mortality rate
 - Reasons it may lead us to understate the effects:
Mutual amplification of impacts due to synchronization of shocks and interdependence
Restrictions on movement of people affect trade in services
 - Export restrictions and surge of protectionism may amplify the costs for all
- GVCs increase the gains from coordinated action to mitigate the effects

How resilient are GVCs?

- GVCs had developed resilience as a result of the trade war
- Prepared to deal with country-specific shocks
 - e.g., Korea moved production some Samsung production to Vietnam
- Claim: Geographical diversification = key to resilience
- Perhaps, one COVID-19 seemed like a “China Shock”. But NOT true when COVID-19 became a pandemic.
- Appropriate long-run response?
 - Moving away from GVCs would not address the problem. Would make countries more vulnerable to domestic or country-specific shocks.
 - Resilience depends on substitutability of inputs. Most GVCs source inputs from multiple sources (backup suppliers)
 - Diversification away from China was already on the way as China was increasing its domestic value
 - Geographical diversification does not help in a pandemic.

Long Run Implications

- Change in attitudes towards open borders and globalization (both trade and immigration)
- COVID-19 is likely to be exploited politically and provide ammunition to protectionists and nationalists. Surge in protectionism and immigration restrictions likely
 - justified by health concerns not labor market
- Will accelerate the de-globalization trend that started a few years ago
- Trade environment had already become unstable and uncertain
- Developed countries have been turning inward for the past few years.
- Developing countries relying on trade and FDI will pay the highest price in the future

Long Run Implications (contd).

- Yet the tradeoff is NOT between an open and a closed economy
- It is between static and dynamic efficiency
- Static efficiency calls for just-in-time production; minimizing idle capacity; minimizing inventories; hyper-specialization
- It is this focus on static efficiency that has generated the fast aggregate growth of the past few decades
- But this focus becomes a liability when we face a tail event. In this case, redundancy and (static) inefficiency become a plus
- How do we find the right balance between efficiency and resilience?
- As economists we are trained to think in terms of *expected* outcomes; not *worst-case* scenarios
- Pandemics, data breaches, hurricanes, tsunamis and the feared consequences of climate change may expose us more and more to what we once considered “tail events”

Long Run Implications (contd).

- This may require a new way of thinking in which resilience will feature as prominently as efficiency
- In the context of international trade and GVCs, it may imply that a certain degree of redundancy may be optimal from a dynamic efficiency point of view
- Will have to distinguish between “critical goods” for which we may want to hold reserves domestically (perhaps at a very local level), and “other goods”.
- But return to protectionism and closing of the border is not the answer!

Thank you!