



# Pandemics and the Future of Globalization

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# Poll Results

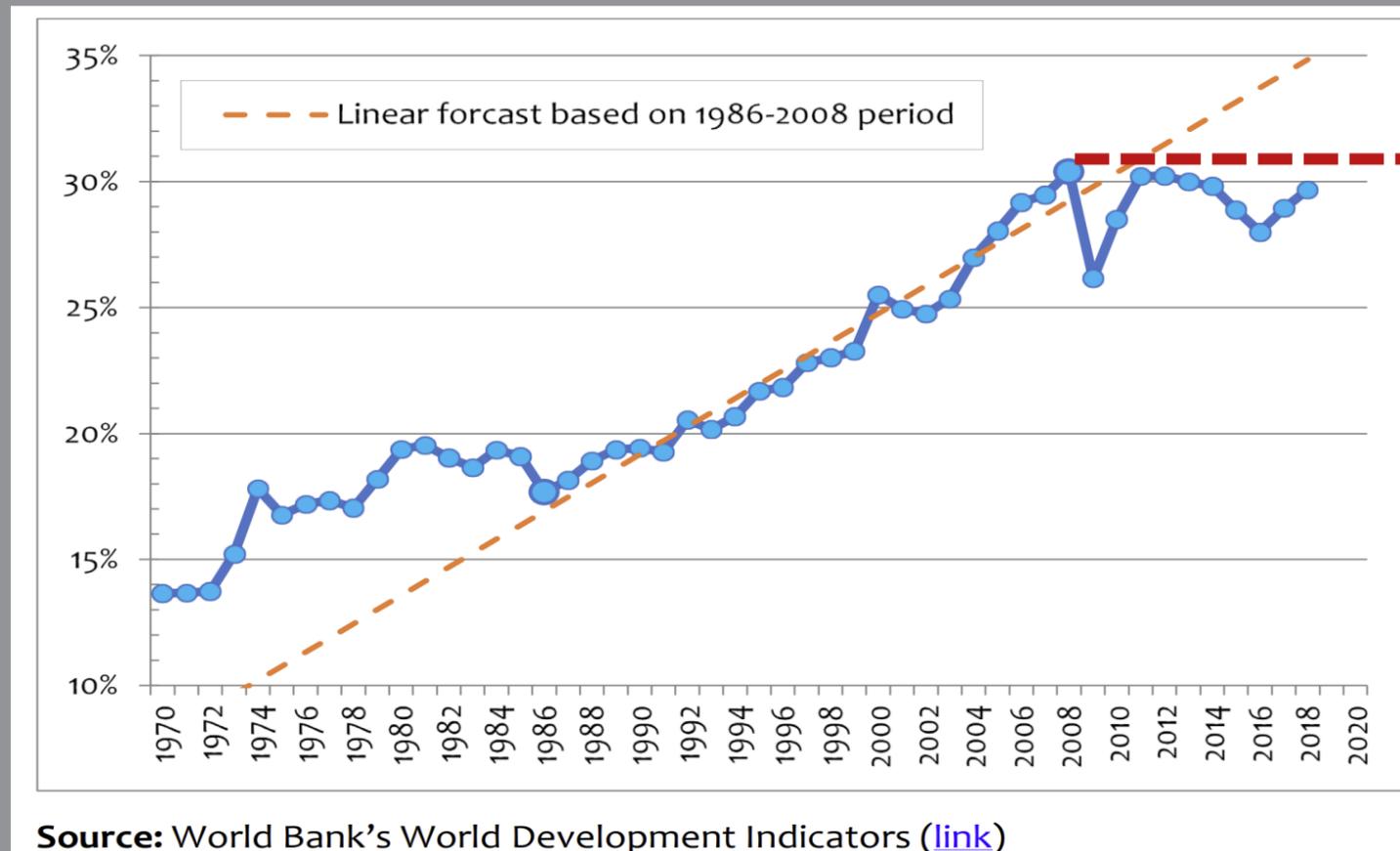
1. Does increased globalization
  - a. Increase the likelihood and severity of pandemics
  - b. Decrease the likelihood and severity of pandemics
  - c. Have no effect on the likelihood and severity of pandemics
  
2. Will social distancing during the COVID-19 pandemic
  - a. Increase the ratio of trade to GDP
  - b. Decrease the ratio of trade to GDP
  - c. Have no effect on the ratio of trade to GDP
  
3. In the aftermath of the COVID-19 pandemic, will there be
  - a. Increased globalization
  - b. Reduced globalization
  - c. No change in the level of globalization



Stephen Redding

# Markus' intro on Globalization

- Not De-globalization, but Slowabilization “Pol Antras Hypothesis” (ECB Sintra 2020)



- **Technology** versus
- Robotics, 3D printing
- Digitization, Blockchains
- Fixed costs  $\Rightarrow$  no reshoring

- Politics**
- trade wars
- driver: inequality

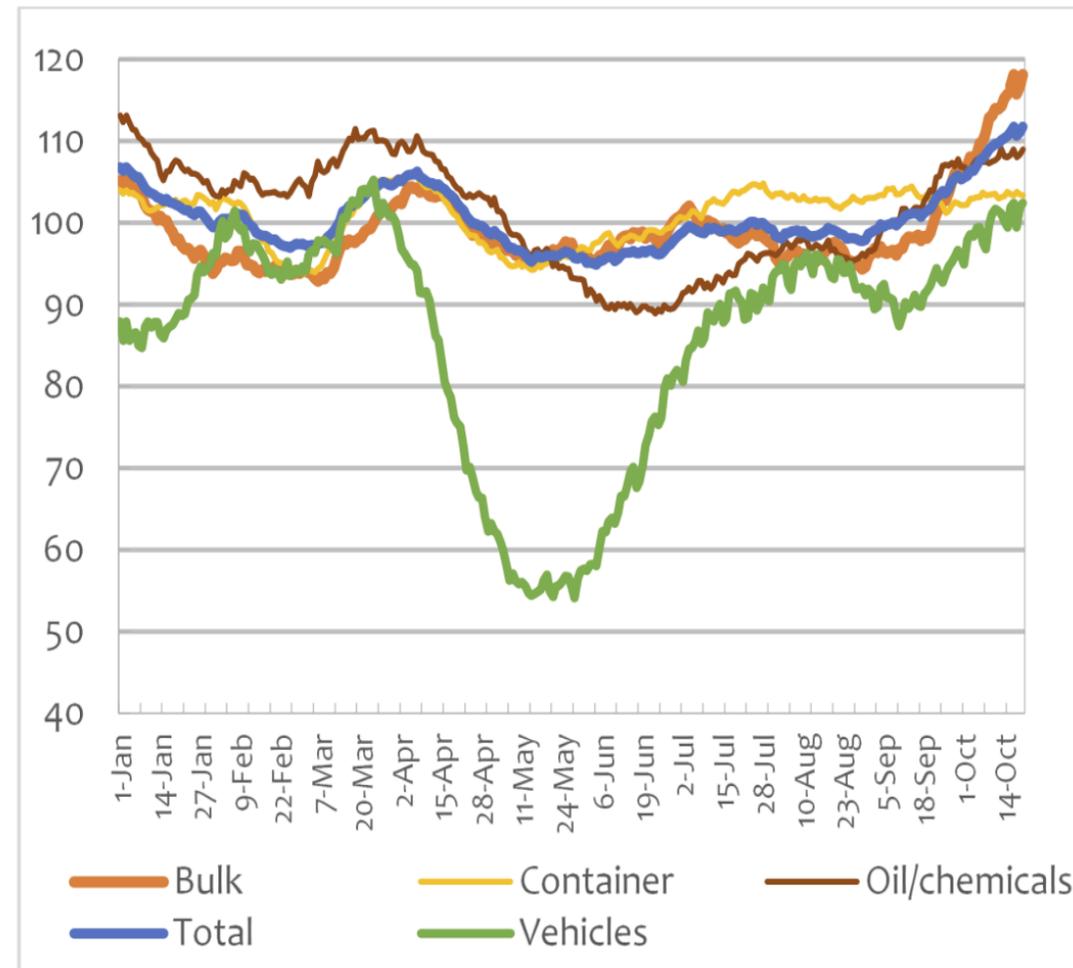
# COVID halted trade but **fast recovery**

Panel A. World Trade and World Industrial Production  
(Index July 2019 = 100)



Source: CPB World Trade Monitor ([link](#))

Panel B. Estimated Metric Tons of World Exports  
(30-day moving average in ratio to 2017-19 average)



Source: Cerdeiro, Komaromi, Liu and Saeed (2020); AIS data collected by MarineTraffic ([link](#))

## COVID infection

- (i) Meeting frequency
- (ii) NYC vs. North Dakota
  - Population density vs. household size

Pol Antras (ECB Sintra 2020)

# Markus' intro on **Globalization**

- From **cost minimization** to
  - **Just-in-Time**



- **Resilience**
- **Just-in-Case**



Poly-poly toy

- Cheap
- Cheapest supplier/country

Reliable/sustainable

3 different suppliers (dual sourcing)  
from 3 different continents



# How Great Powers Compete Economically

1. Global infrastructure – power projection -



Berlin-Bagdad Railway



Belt Road Initiative

historical comparison:

imperial Germany vs. UK in late 19<sup>th</sup> century

Brunnermeier, Doshi, James  
Washington Quarterly 2018

[https://scholar.princeton.edu/sites/default/files/markus/files/chinagermanyrise14\\_01.pdf](https://scholar.princeton.edu/sites/default/files/markus/files/chinagermanyrise14_01.pdf)

2. Finance: Weaponization of dollar,  
digital money tech (digital RMB, Libra, ...)

3. Standard setting: GSM, 5G, ...

4. Digital borders – privacy considerations

# Pandemics and the Future of Globalization

Pol Antràs

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*Princeton University and NBER*

Esteban Rossi-Hansberg

*Princeton University and NBER*



## Motivation

- Globalization and pandemics have been closely intertwined in history
  - Black Death arrived in Europe in October 1347 when twelve ships from the Black Sea docked at the Sicilian port of Messina
  - “Quarantine” comes from the Italian word for the forty-day isolation period for ships and crews during the Black Death pandemic
  - First human-to-human COVID-19 infections in Europe occurred in Starnberg, Germany, when a local car parts supplier (Webasto) organized a training session with a Chinese colleague from Wuhan, China

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  - Does globalization make societies more vulnerable to pandemics?
  - How do pandemics affect the volume and pattern of trade?

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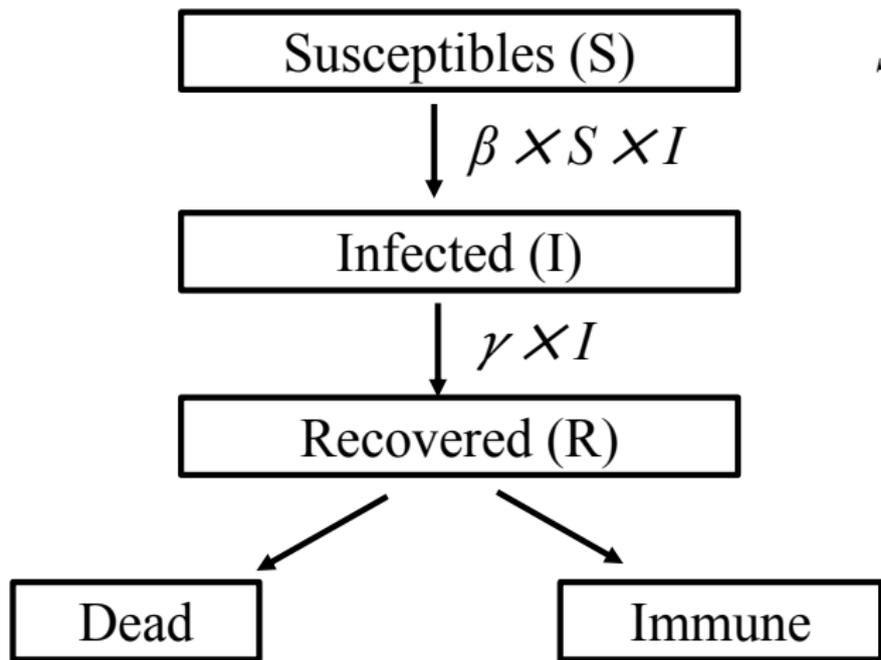
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  - Globalization → Pandemics
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- ① Develop a framework to study two-way interactions between globalization and pandemics
  - Globalization  $\longrightarrow$  Pandemics
  - Globalization  $\longleftarrow$  Pandemics
- ② Take a longer-term perspective and examine the implications of COVID-19 for the future of globalization

# Globalization & Pandemics

## Closed Economy Epidemic (SIR Model)

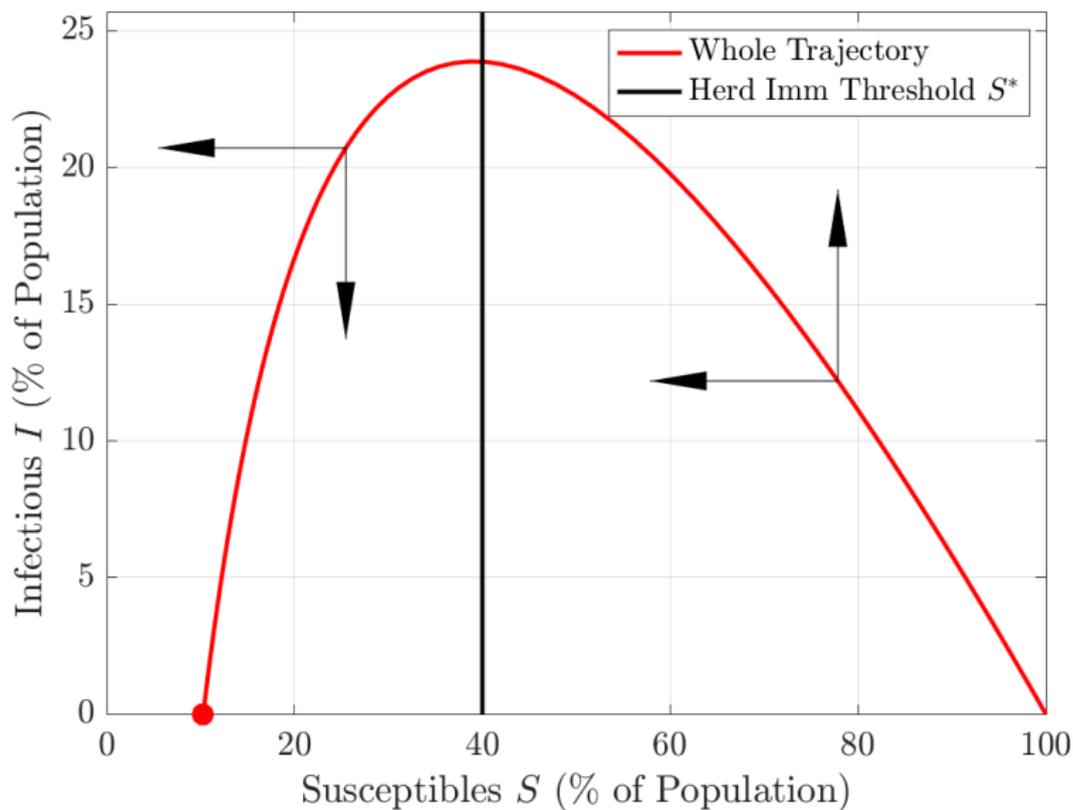


$$S + I + R = I$$

$$R_0 = \frac{\beta}{\gamma}$$

$R_0 > 1$  : Epidemic

## Closed Economy Epidemic

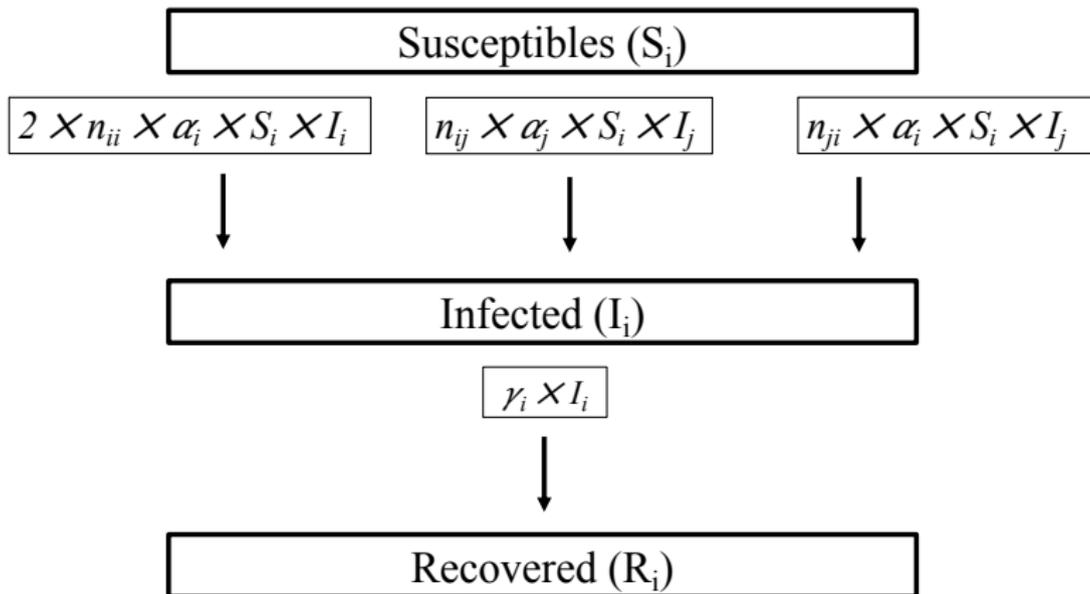


## Open Economy Pandemic

- Consider a world of two countries (can consider many countries)
- Each country contains many households
- Household consume the goods supplied by other households (both in the home and the foreign country)
- Each household is formed of two individuals
  - *Buyer* : in charge of procuring goods for consumption from other households in each country
  - *Seller* : in charge of producing and selling the household's own good to other households
- Each household in country  $i$  chooses to consume  $n_{ii}$  goods from the home country and  $n_{ij}$  goods from the foreign country  $j$
- When the susceptible and infected meet, disease transmission depends on the local disease environment ( $\alpha_i, \alpha_j$ )
- Assume to begin with that initially no deaths from the disease and households are unaware of the threat of infection
- Later introduce deaths and allow households to be aware of the threat of infection (social distancing)

# Open Economy Pandemic

- Standard “day” in a household in country  $i$ 
  - Buyer in  $i$  leaves the house and visits  $n_{ii}$  sellers in  $i$  and  $n_{ij}$  sellers in  $j$
  - Seller in  $i$  sells own goods to  $n_{ii}$  domestic visitors and  $n_{ji}$  foreign visitors
  - Buyers travel separately and do not meet one another along the way
  - Perfect disease transmission within the household



## Open Economy $\mathcal{R}_0$

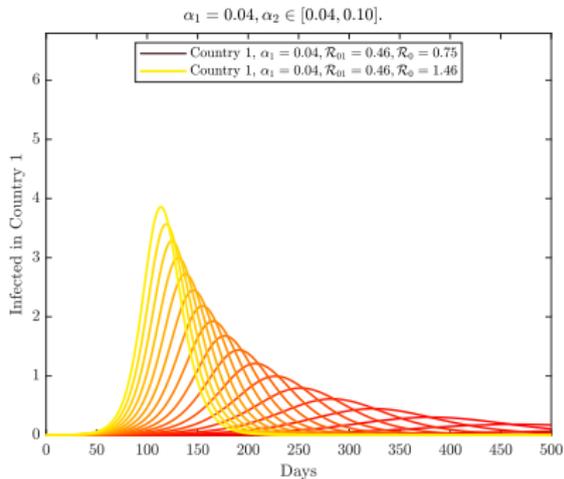
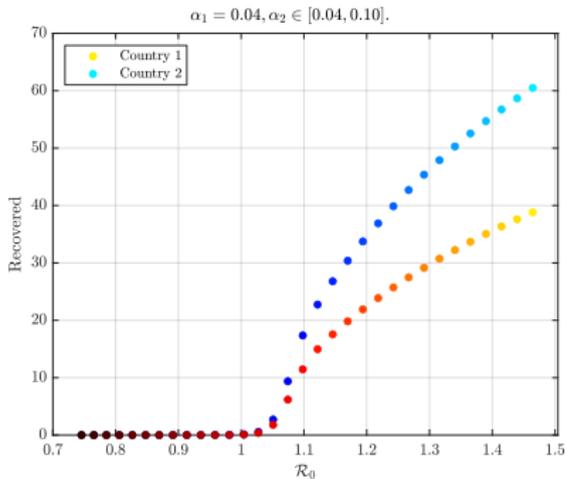
- Epidemiological externalities between countries
  - The condition for a pandemic to be self-sustaining depends on disease conditions in the country with the worst disease environment

$$\mathcal{R}_0 \geq \max \left\{ \frac{2\alpha_i n_{ii}}{\gamma_i}, \frac{2\alpha_j n_{jj}}{\gamma_j} \right\}.$$

- Even if a country would not have an epidemic in the closed economy because it has a healthy disease environment, it can experience a pandemic in the open economy if its trade partner has an unhealthy disease environment

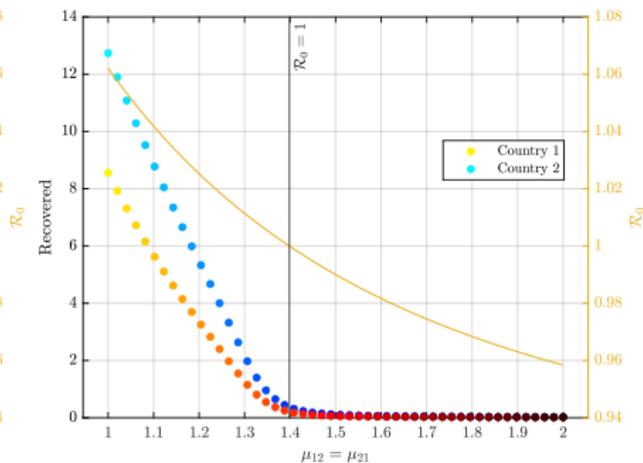
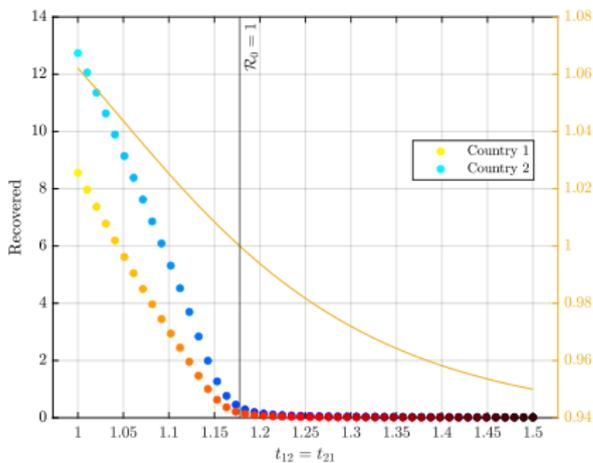
# Open Economy Pandemic

- If  $\mathcal{R}_0 \leq 1$ , there is no pandemic
- If  $\mathcal{R}_0 > 1$ , a pandemic occurs
- Hold constant  $\alpha_1$  and vary  $\alpha_2$  (contact rates)
- Even though nothing is changing in country 1, a worsening disease environment in country 2 leads to a global pandemic



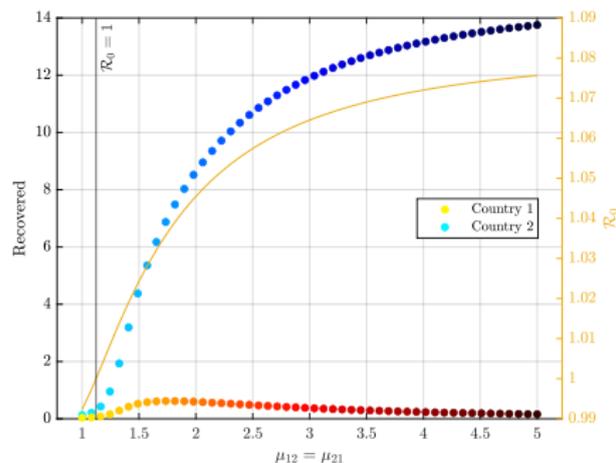
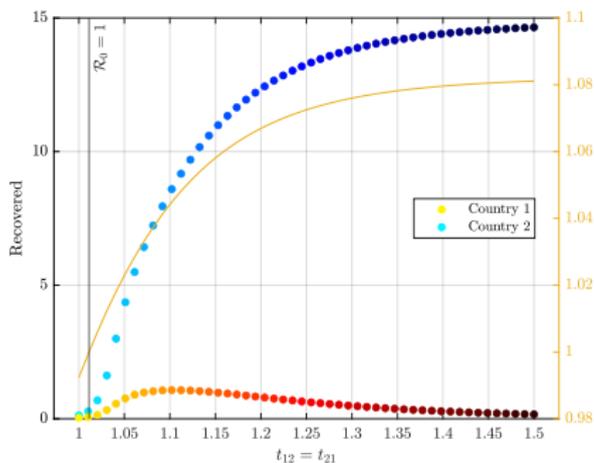
# Globalization Can Create Pandemics

- A reduction in barriers to trade or mobility increases interactions abroad and reduces interactions at home
- If countries are symmetric, a reduction in barriers to trade or mobility increases the total number of interactions (domestic + foreign)
- Therefore, when countries are sufficiently similar to one another, globalization makes pandemics more likely and more severe
- Reduce **trade** ( $t_{12} = t_{21}$ ) or **mobility** ( $\mu_{12} = \mu_{21}$ ) frictions



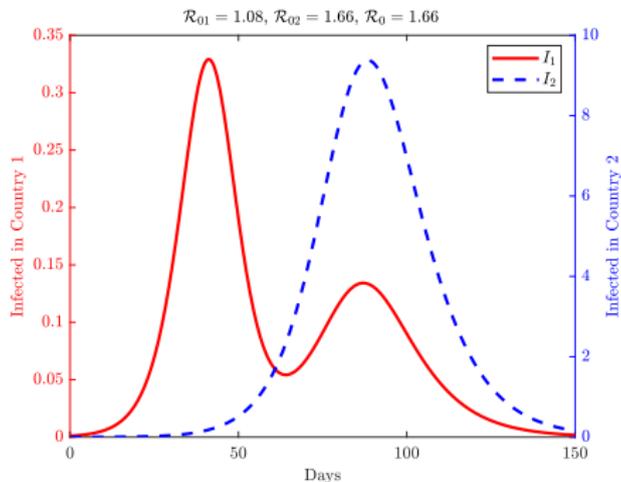
# Globalization Can Prevent Pandemics

- A reduction in barriers to trade or mobility increases interactions abroad and reduces interactions at home
- Suppose country 1 has a healthy disease environment (low  $\alpha_1$ ) and country 2 has an unhealthy disease environment (high  $\alpha_2$ )
- Globalization implies that more of country 2's interactions occur in a healthy disease environment than an unhealthy disease environment
- Reduce **trade** ( $t_{12} = t_{21}$ ) or **mobility** ( $\mu_{12} = \mu_{21}$ ) frictions



## Open Economy Second Waves

- Closed economy: single wave in the absence of a lockdown
- Open economy: multiple waves without lockdowns
  - Different **timings of epidemics** and different **country sizes**
  - Small country has a rapid epidemic in the closed economy
  - Large country has a slower epidemic in the closed economy
  - In the open economy, small country has a first wave driven by its own epidemic, and a second wave driven by the large country's epidemic

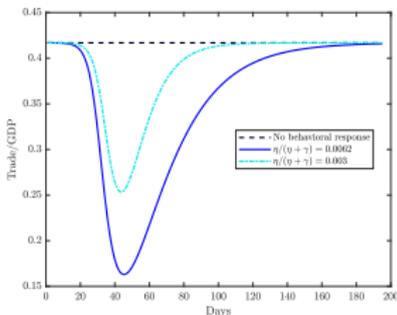
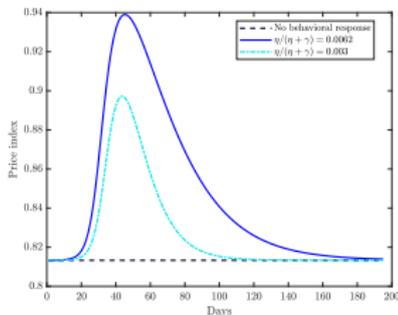
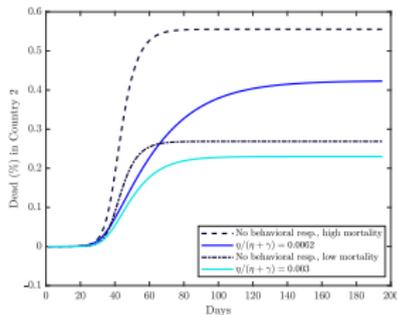
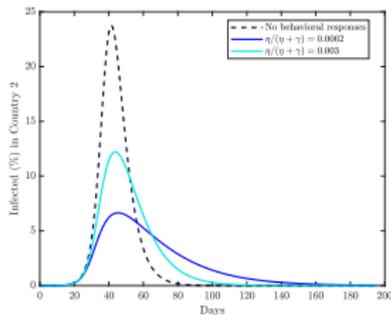


# Behavioral Responses

- Households realize that deaths are related to the pandemic
- In response to the threat of infection, households engage in purposeful social distancing
- Following Farboodi et al. (2020), we assume that infected agents are asymptomatic so that households do not know their own health status
  - Household behavior is independent of their specific health status
  - Actual behavior is shaped by their expectation of the probability of being Susceptible (S), Infected (I) or Recovered (R)
  - Rational expectations using the model and observed deaths

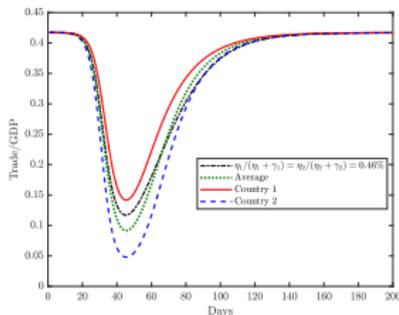
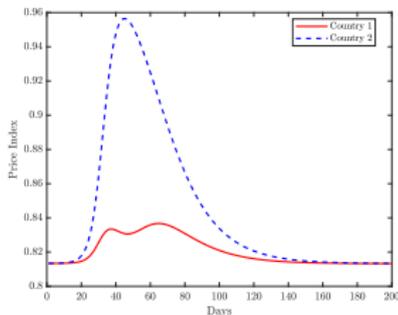
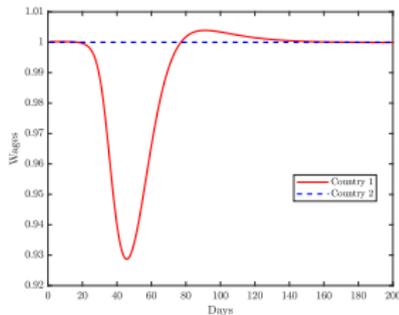
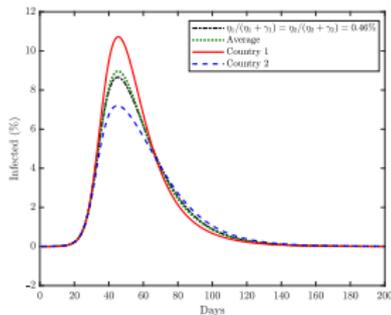
## Behavioral Responses (Country Symmetry)

- Reduction in interactions flattens the curve of infections
- Less death, higher price index, and lower trade / GDP
- Foreign interactions fall more because have higher marginal cost



## Behavioral Responses (Asymmetric Countries)

- Country 1 low mortality (0.3%), Country 2 high mortality (0.62%)
- Country 1 has more infections initially, then later Country 2 has more
- Country with **more infections** has a **fall** in its relative relative wage

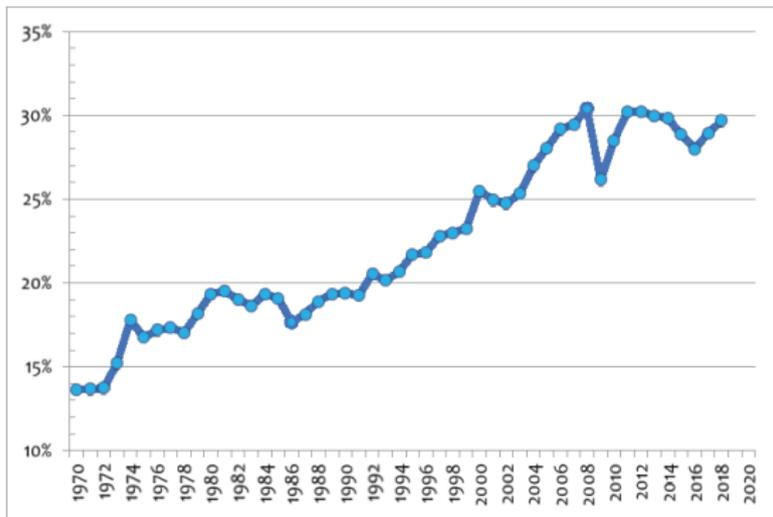


# Future of Globalization

# Prospects for Future Globalization?

- Begin with a longer-term view of globalization

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



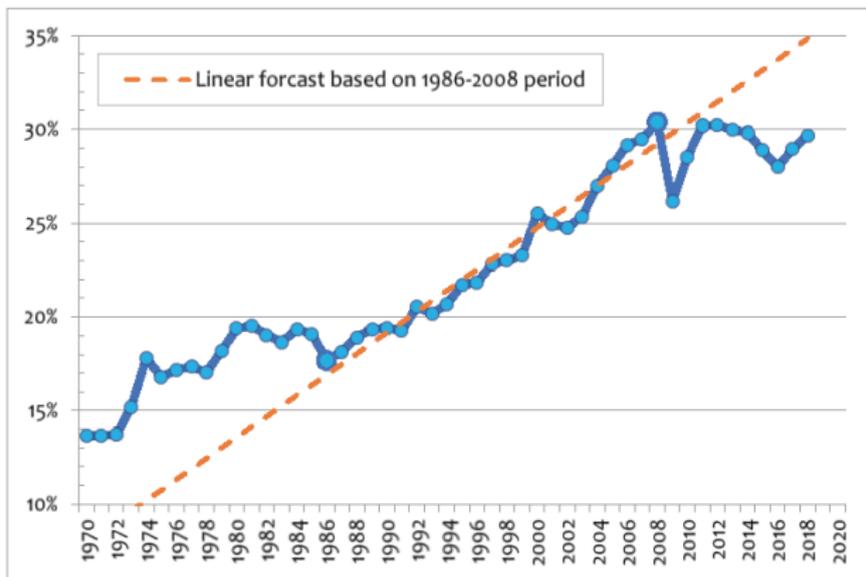
Source: World Bank's World Development Indicators ([link](#))

- Antràs, Pol (2020) “De-Globalisation? Global Value Chains in the Post-COVID-19 Age,” Harvard University

# World Trade

- Hyper-globalization 1986-2008
  - Policy liberalization (China, India and Fall of Iron Curtain)
  - New technologies facilitating Global Value Chains (GVCs)

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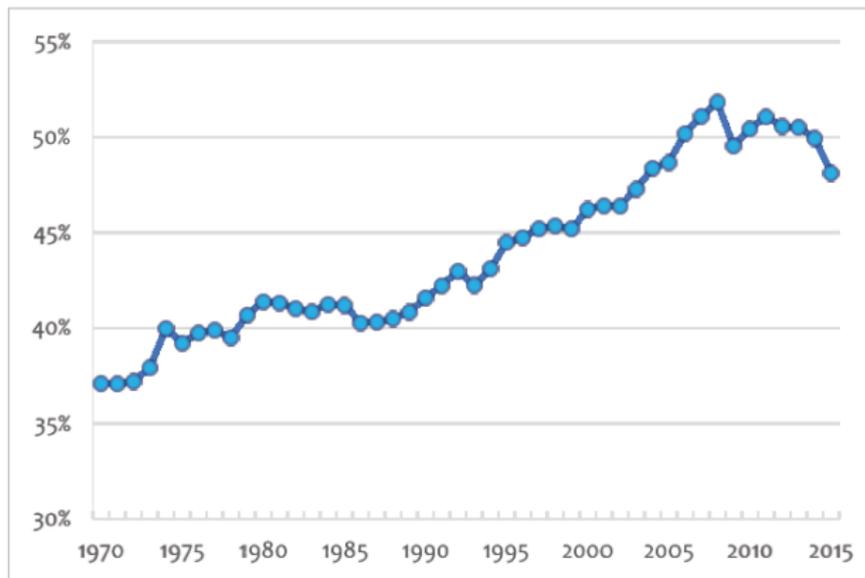


Source: World Bank's World Development Indicators ([link](#))

# Global Value Chains

- Slackening growth of Global Value Chains (GVCs)

Chart 2. GVC Trade as Percentage of World Trade

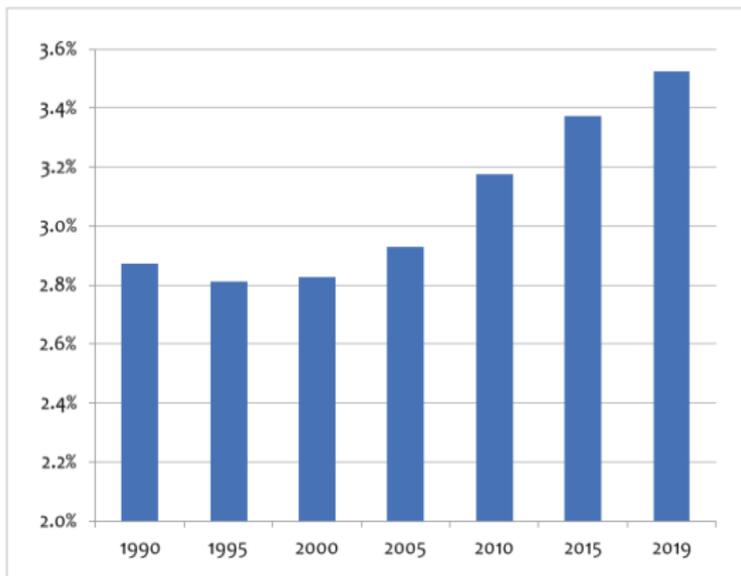


Source: Borin and Mancini (2019), as reported in World Development Report (2020)

# Migration

- Despite changes in the policy environment (e.g. United States), international migrant stock has not fallen

Chart 3. International Migrant Stock as Percentage of World Population

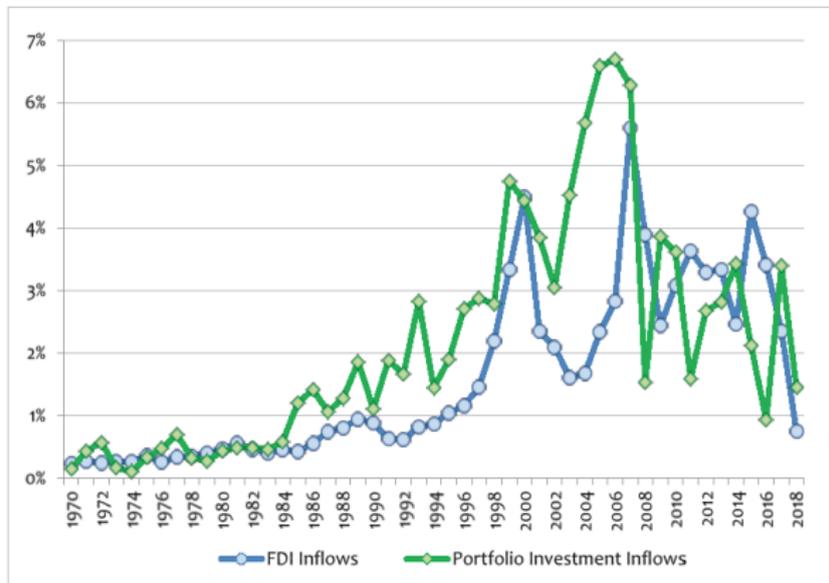


Source: United Nations ([link](#)).

# Capital Flows

- Foreign Direct Investment (FDI) and portfolio investment flows have fallen in the aftermath of the 2008 financial crisis

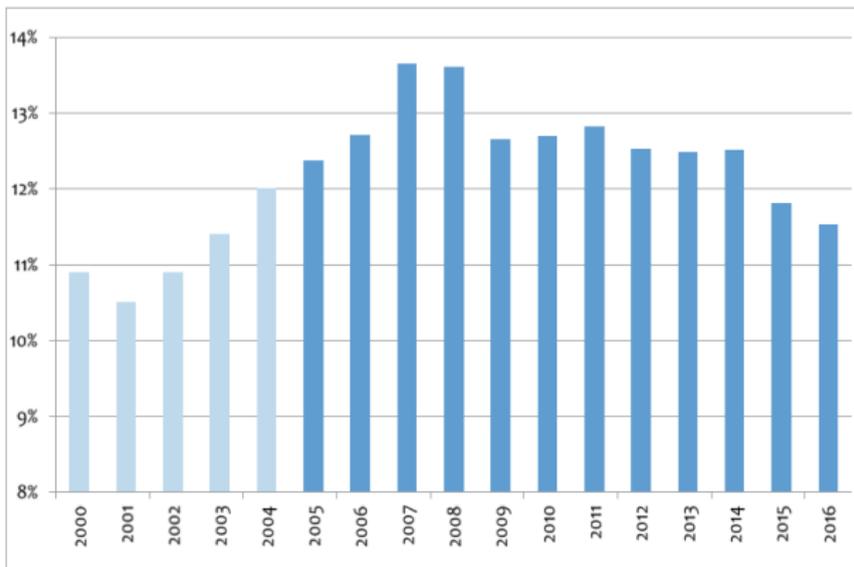
Chart 4. FDI Inflows and Portfolio Investment Inflows as Share of GDP (1970-2018)



# Multinational Activity

- Multinational activity as a share of global production has fallen in the aftermath of the 2008 financial crisis

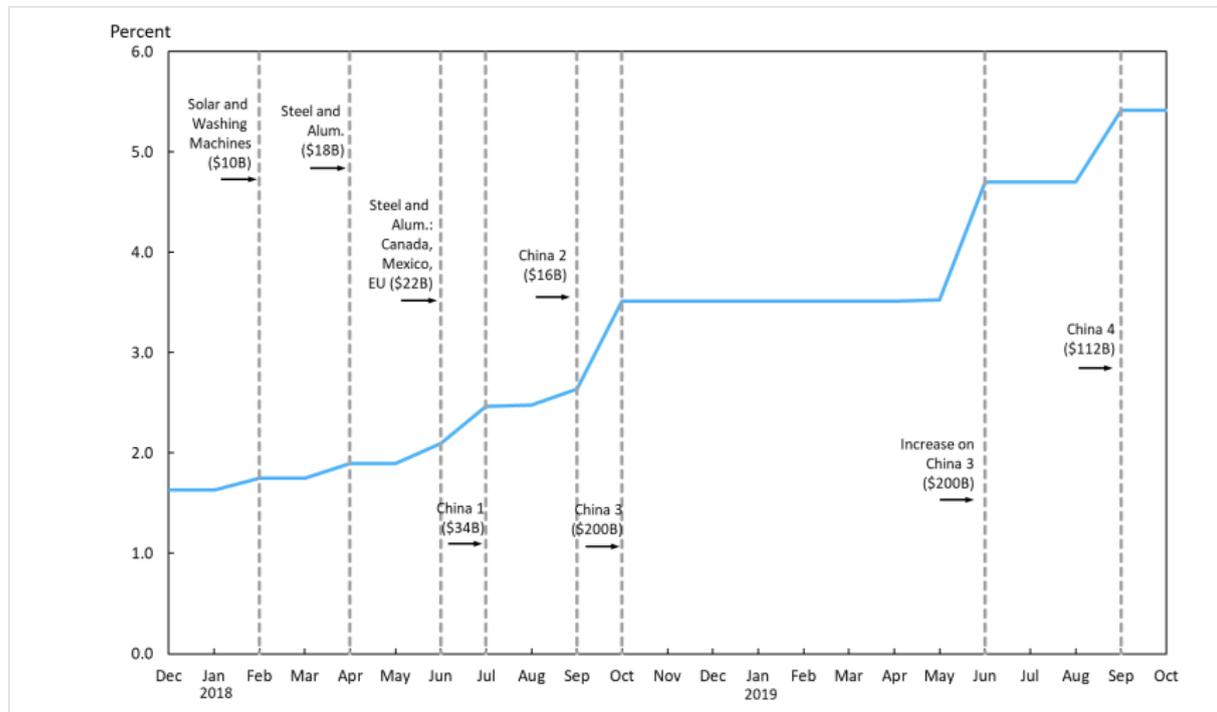
Chart 5. Foreign Affiliates' Gross Output as Share in Global Output (2005-2016)



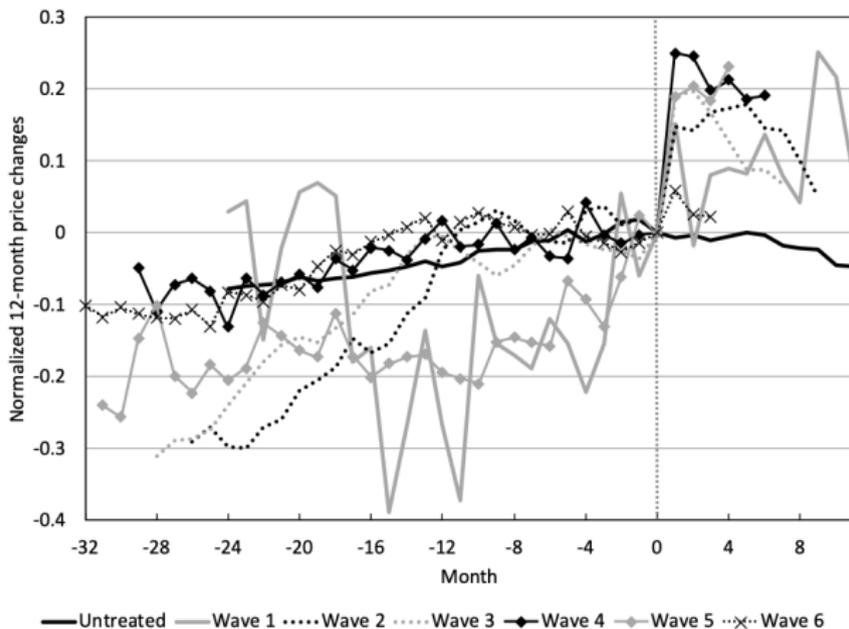
Source: OECD, Analytical AMNE database ([link](#)) for 2005-2016, and Cadestin et al. (2018) for 2000-05.

# US Average Tariffs

- US tariffs changed substantially under the Trump Administration

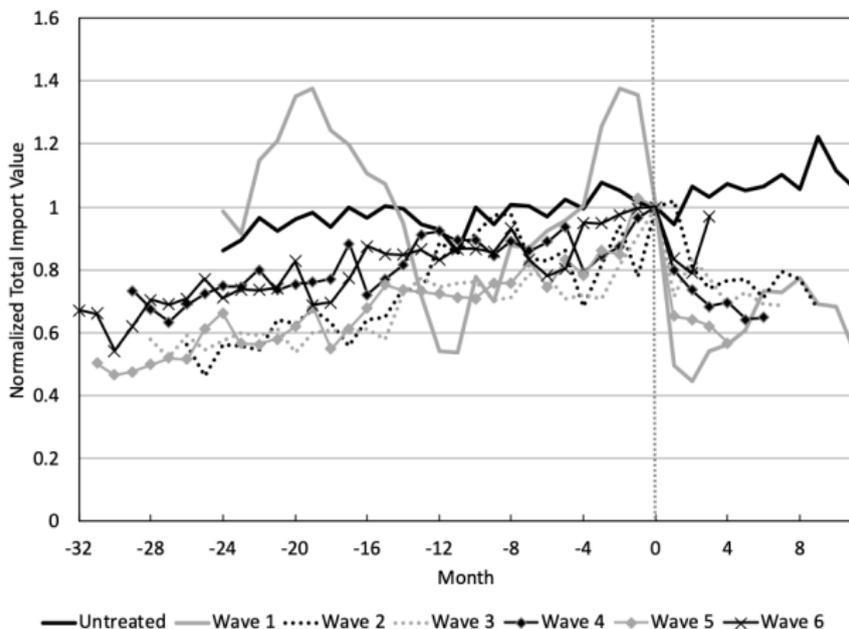


## US Import Prices



- Amiti, Mary, Stephen Redding and David Weinstein (2019) “The Impact of the 2018 Trade War on U.S. Prices and Welfare,” *Journal of Economic Perspectives*, 33(4), 187-210.

## US Import Values

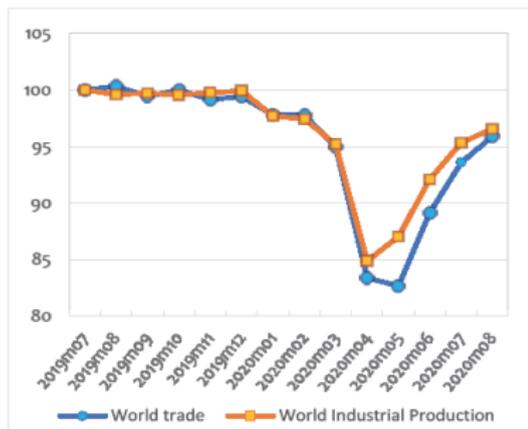


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# COVID-19 and Trade

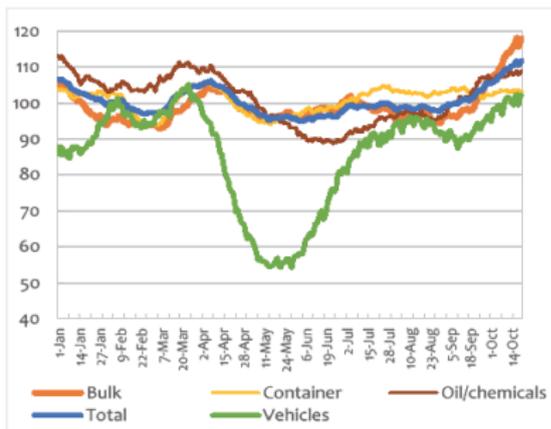
**Chart 16. The Impact of COVID-19 On World Trade**

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Panel B. Estimated Metric Tons of World Exports  
(30-day moving average in ratio to 2017-19 average)



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## Taking Stock

- No conclusive evidence of significant de-globalization in recent years
- Case for “Slowbalization” is clearer
- But observed slowdown in globalization is a natural sequel to the unsustainable increase in in 1986-2008
- Policy threats to globalization
  - National changes to trade policy (e.g. Trump Administration)
  - Threats to the international trade architecture (World Trade Organization (WTO))
  - Long-term threats to trade relationships from the collapse of business travel because of COVID-19
- Political economy threats to globalization
  - Distributional consequences of globalization across local labor markets
  - Even if much of the rise in inequality is driven by technology, globalization can be a convenient source to blame