

# **International Trade, Covid-19 and Supply Chain Disruptions**

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# Introduction

**International supply-chains/networks** account for substantial share of international trade in goods

- Efficiency gains through specialization on core competences and economies of scale
- Just-in-time production can save inventory costs

**International trade** can also generally be beneficial for firms

- Market access → specialization on core competences and scale economies
- Access to different/better inputs → improve scope and quality of own production
- Learning effects from international marketing and competition experiences

Broadly supported in empirical studies; mainly for goods-producing industries

# Introduction

**Potential risks** of relying on international trade and supply-networks

**Externalities!**

- Politics, natural disasters and accidents, pandemics, ...
- Just-in-time production can add to potential vulnerability

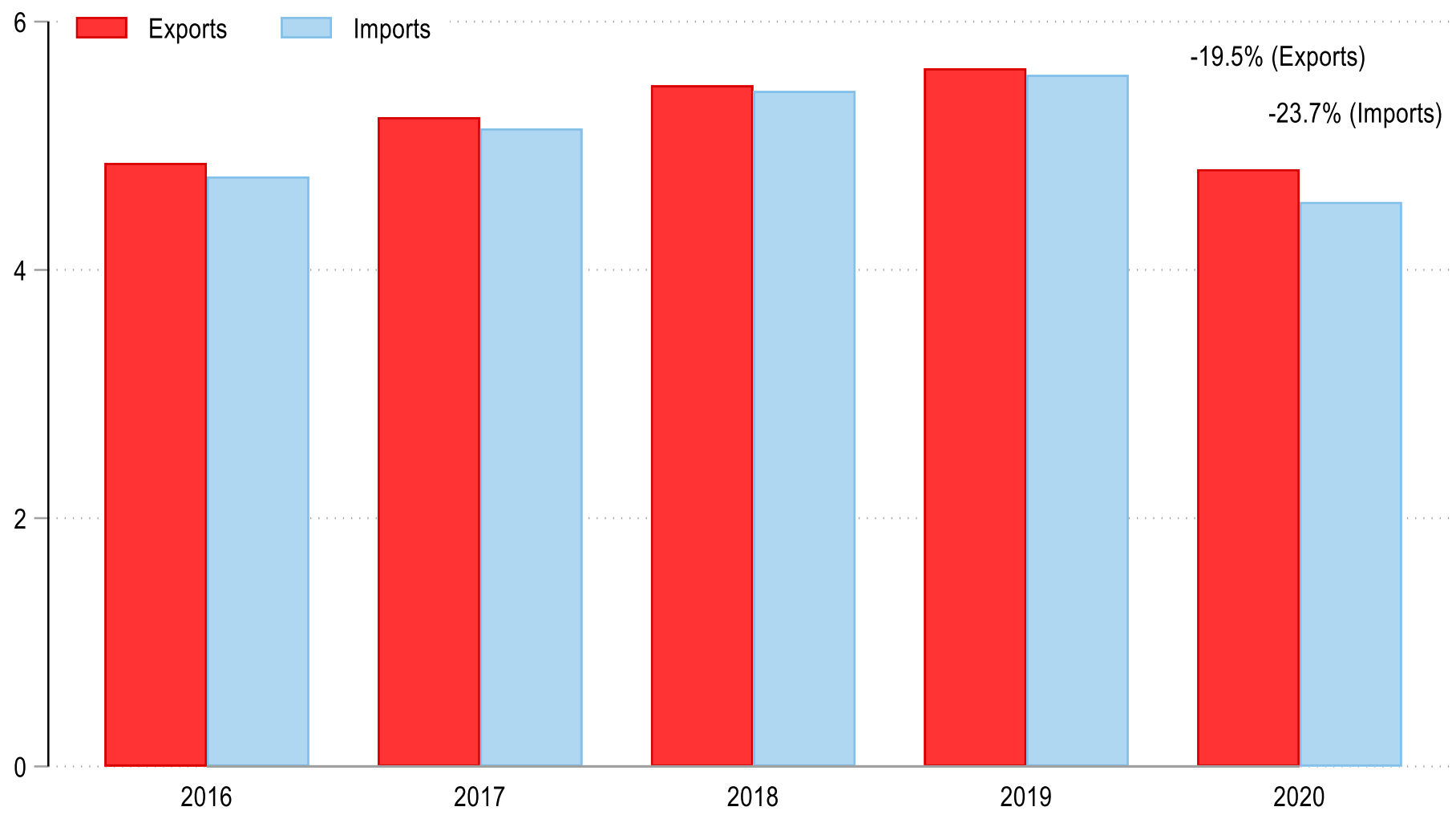
**Covid-19 pandemic** raised concerns of excessive “external dependence”

- Disruption of supply chains delay production, threaten firms' sales/contracts and eventually jobs
- Many recent examples suggest that also recovery becomes a challenge
- Scarcity of critical inputs as key-suppliers/inputs “moved on

**This talk:** present early *ex-post* evidence on trade adjustments to Covid19 and implications for firm performance

# No doubt, trade collapsed during pandemic

EU28 merchandise trade 2016-2020, trn. EUR



Data: Eurostat, own calculations. Note: EU28 = pre-Brexit composition of the EU. Calculated reduction based on linear projection of pre-trend.

# Potential implications of trade collapse for supply chains

## Repercussions depend on underlying/dominant mechanism at work

### Demand shocks

- Fewer goods are imported (exported) because domestic (foreign) demand declined during pandemic
- Producers cannot sell their goods → lower sales, profits, etc.

### Supply shocks

- Fewer goods are imported (exported) because foreign (domestic) supply was disrupted
- Producers face input supply shortages, production delays, rising costs
- **Inventories** and **trade partner substitution** might cushion effects
- Possibility of **contagion** through propagation to downstream industries

High complexity of transmission mechanisms – int'l trade captures only part of it

# Case study Netherlands I

Börschemeier and Mau (2021) "Supply shocks and trade partner substitution in a small open economy"; preliminary

Estimate **import adjustments to lockdowns** in source countries

- Compare 2020 to pre-pandemic years 2017-19
- Monthly observations of product-level imports from about 150 countries

**Total imports down by 13-15 percent**, less than EU average

- 1/3 and 2/3 of observed reduction explained by foreign lockdowns (supply side)

**Disruptive effects partly depend on product and market characteristics**

- Weaker for medical supplies (e.g. PPE) and consumer goods, stronger for inputs
- Stronger if goods sourced from few or mainly from very dominant partners

→ Increasing market concentration also found as outcome of disrupted supply  
→ Might be only a temporary effect, remains to be seen

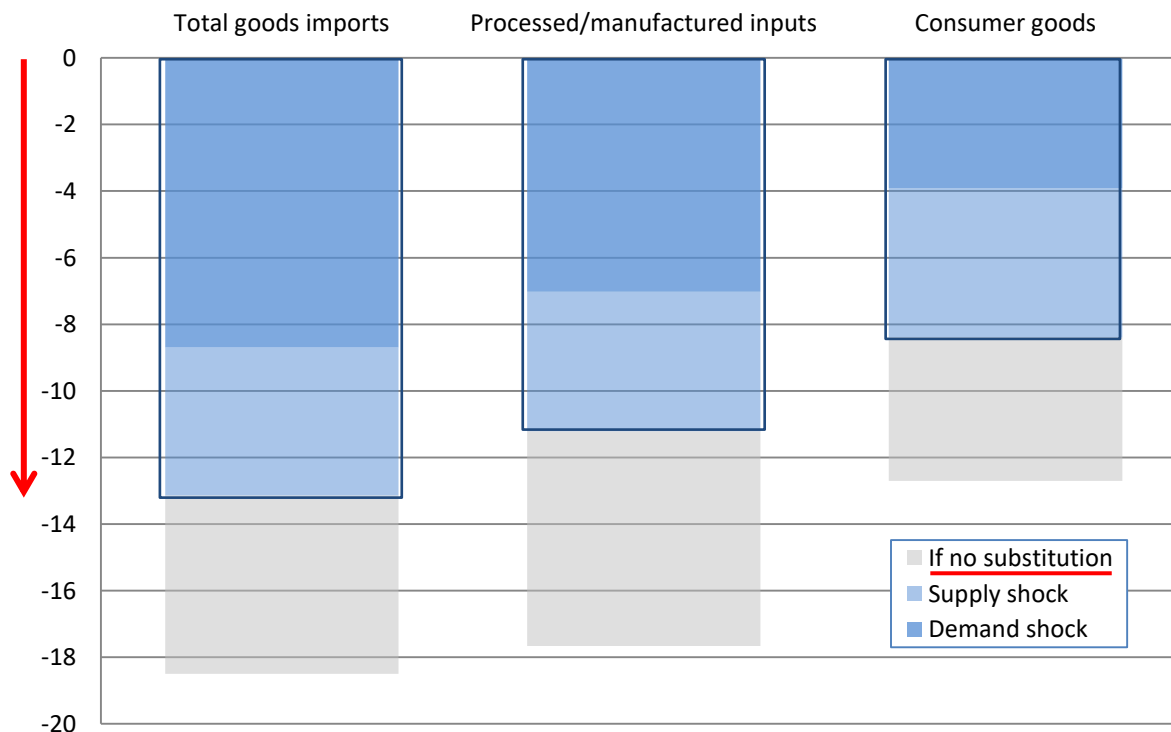
# Case study Netherlands II

Börschemeier and Mau (2021) "Supply shocks and trade partner substitution in a small open economy"; preliminary

## Significant churning (substitution of suppliers)

- Especially in intermediate goods and in 2nd half of 2020

Estimated reduction in 2020 imports, in % by type of shock



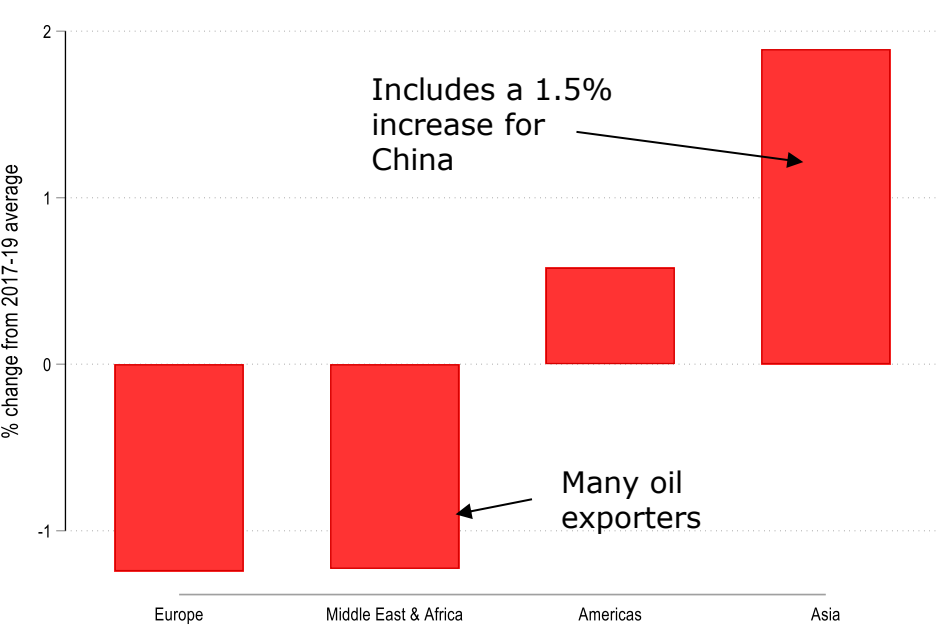
- Suggests some flexibility of the economy in terms of import market access
- Firm-level adjustments not observable here

Did specific countries/suppliers gain from lockdowns and substitution?

# Case study Netherlands III

Börschemeier and Mau (2021) "Supply shocks and trade partner substitution in a small open economy"; preliminary

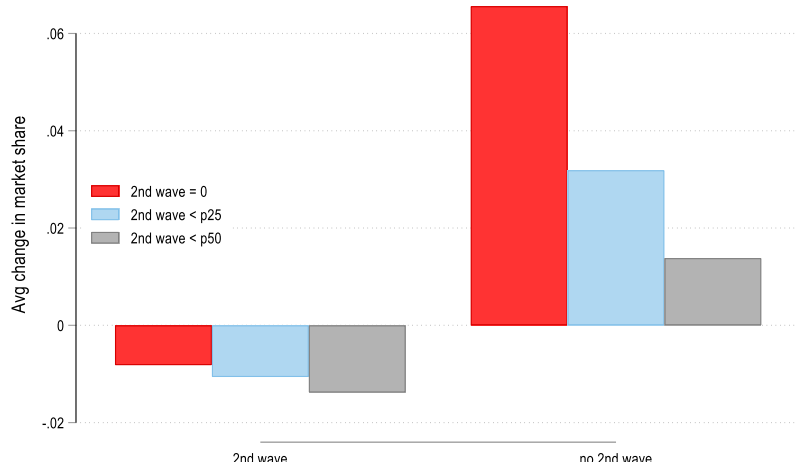
## Market shares in Dutch imports shifted towards Americas and especially Asia



Import market shares 2020	
Europe	53.6%
Asia	30.1%
Americas	12.0%
Middle East & Africa	4.3%

- A priori unclear whether driven by demand or supply side
- Decomposition suggests small aggregate contribution of substitution effects to changes in market shares

## Second wave in 2020 seems to have played a role



Note: Second wave defined as incidence rates exceeding peak that was reached during first 150 days of 2020, weighted by fraction of days on which first peak was exceeded and the corresponding population-weighted number of reported cases.



# Case study France I

Guillou, Mau, Treibich (2021) "Trade and the heterogeneous exposure of French firms to Covid-19"; preliminary

## Increased bankruptcy risk due to Covid19 and trade

- Model different transmission channels to quantify shocks on demand and supply side, using firm-level data for France

### Demand side:

- overall contraction in destination markets
- redistribution of market shares due to changing needs/necessities during pandemic

### Supply side

- Less labor can be employed, due to sanitary/safety regulations and lockdown effects
- Less inputs can be sourced, due to supply-chain disruptions

### Productivity effect

- Workplaces have to be re-organized and tasks might change; potential negative effect

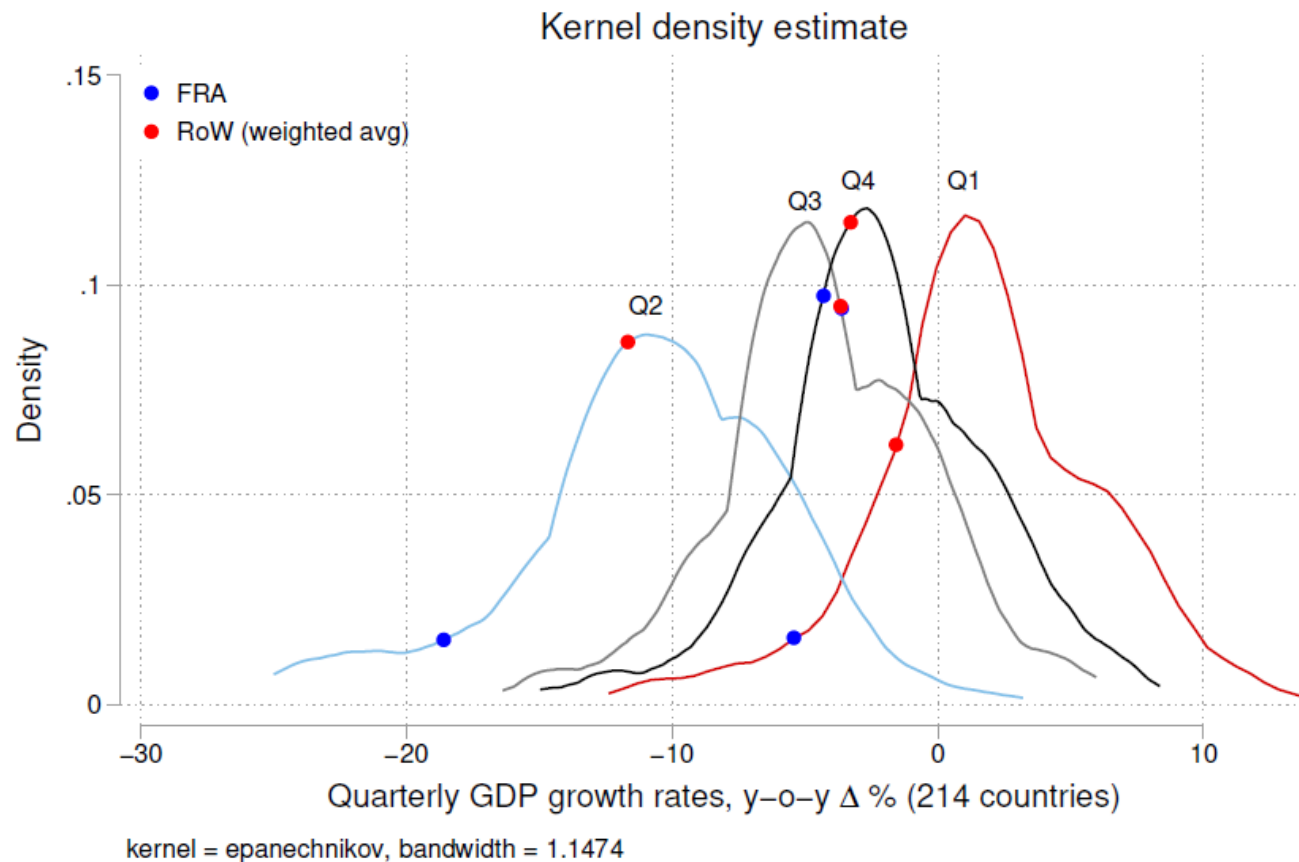
No ultimate results yet, some aggregate stylized patterns for industries

# Case study France II

Guillou, Mau, Treibich (2021) "Trade and the heterogeneous exposure of French firms to Covid-19"; preliminary

## Demand side effects

Strong economic contraction in France implies that exporters might be better off regarding demand-shock

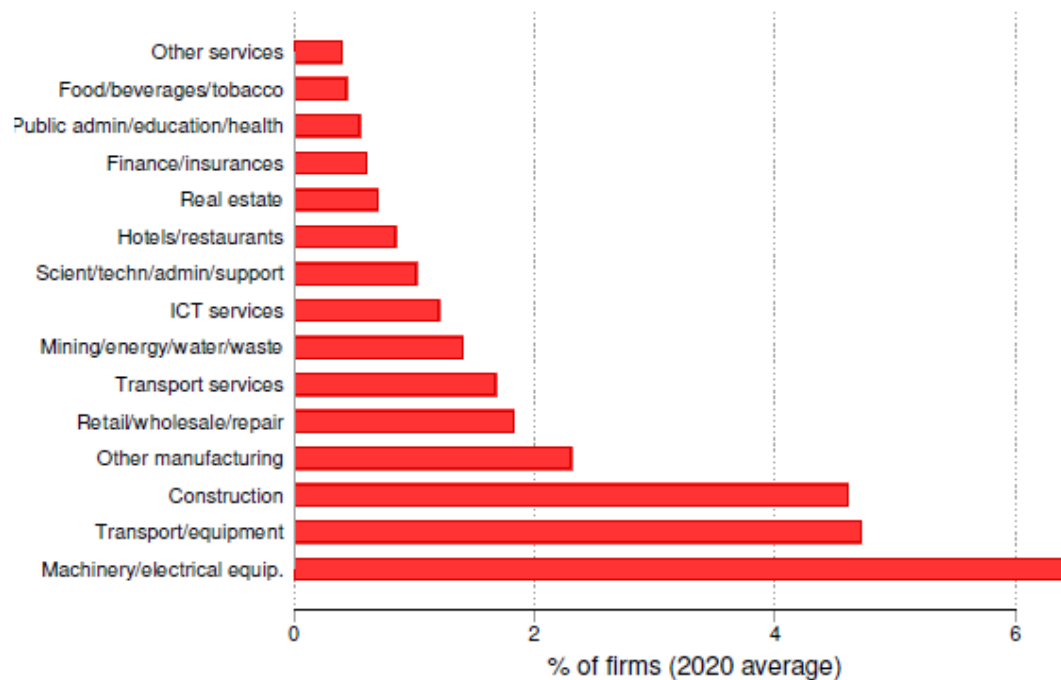


# Case study France III

Guillou, Mau, Treibich (2021) "Trade and the heterogeneous exposure of French firms to Covid-19"; preliminary

## Supply side

- Labor supply shortages most relevant in non-manuf/trade sectors
- Intermediate input supply mostly felt in machinery/electronics; construction; general manufacturing
- Overall not very relevant channel during 2020, more so in 2021



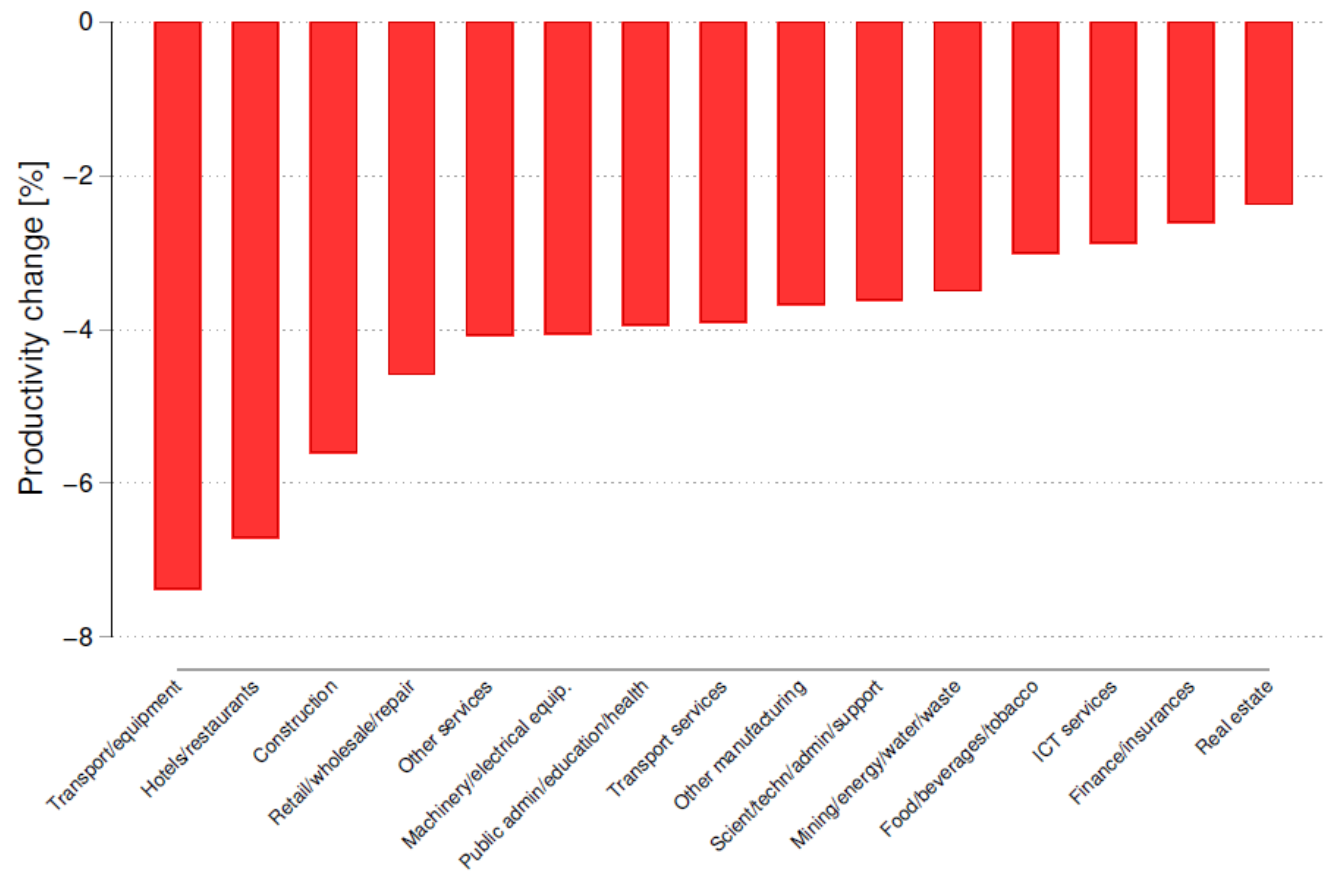
Larger/more export intensive firms have more diversified sourcing networks → lower exposure to supply-sided disruptions

# Case study France IV

Guillou, Mau, Treibich (2021) "Trade and the heterogeneous exposure of French firms to Covid-19"; preliminary

## Productivity effect

- Adverse impacts mostly reported in sectors where remote work is difficult/not feasible
- Not very surprising, but interesting to study possible process innovations, IT adoption, etc. – no obvious role for trade



# Conclusions

## **Covid-19 entailed major economic disruptions**

- Highly complex adjustments through various channels
- Role of international trade / internationalization in the transmission of shocks not easy to evaluate
- While international supply chains are obviously exposed to external shocks, an international orientation can also contribute to risk-diversification
- Empirical evidence accordingly presents a mixed picture
- Overall, pandemic seems to have hurt mostly industries that do not produce physical goods and are also not directly exposed to int'l supply chain disruptions

# **Thank you!**

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