Discussion of: **"The Price of Delay: Supply Chain Disruptions, Pass-Through, and Firm Heterogeneity"**

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5 May 2025
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Backdrop

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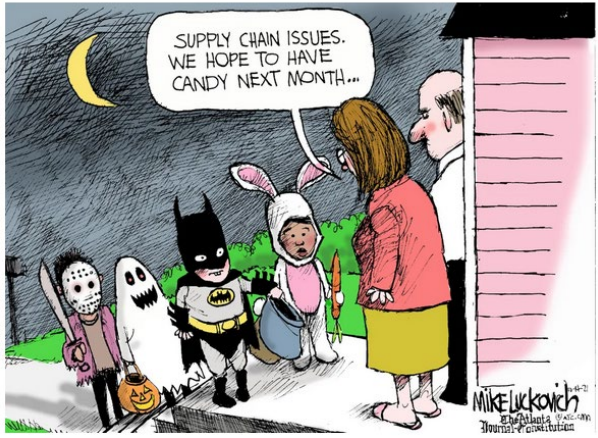

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Backdrop

Since 2010-ish, a slew of supply chain disruption events:

- Trump 1.0 tariffs
- Covid-19 pandemic
- Natural disasters, climate change (Tohoku earthquake, Thai floods)
- Geopolitical events (Russia-Ukraine war, Houthi Red Sea attacks)
- Transport snafus (Ever Given)
- Export restrictions
- Trump 2.0 tariffs
- ...

Clear demand for research-driven insights on how disruptions have affected supply chain outcomes, such as delivery times, output, and prices.

"Supply Chain Disruptions, Pass-Through, and Firm Heterogeneity"

- This paper takes on a **BIG** question, with both research and policy relevance.
- Taps into novel data sources that have a LOT of potential:
  - Panjiva Bills of Lading
  - Numerator price data

  (although there are key limitations).

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- Grounds the estimating equation in the model of price setting with strategic complementarities from Amiti, Itskhoki and Koenings (ReStud 2019).

  Own-firm price changes are explained by: (i) marginal cost shocks; (ii) "stock-in" shifters (new!); and (iii) reactions to competitors' prices.

$$\Delta p_{ft} = f(\Delta mc_{ft}, \Delta \tau_{ft}, \Delta mc_{-ft}, \Delta \tau_{-ft})$$

Big-picture reactions

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1. Sharpen the contribution in the writing
2. Clarify (address?) potential limitations in the underlying data and in the proposed supply chain disruption measure (+ other methodological comments)
3. Tie this back to the trade war tariff pass-through literature

1. Sharpening the contribution

- A lot to parse through in the title and introduction!
- "The Price of Delay: Supply Chain Disruptions, Pass-Through, and Firm Heterogeneity"

  "This paper develops and tests a unified framework showing how global supply-chain disruptions drive consumer-price inflation through firms' joint inventory and pricing decisions."

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- What's the main contribution you'd like readers to focus on?
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  - Measurement of supply chain disruptions?
  - Pass-through estimates on prices?
  - The role of inventories, aka the "stock-in" shifters?
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2. Data Questions

- The data requirements for empirical analysis are high. Need data on:
  - Own-firm prices, Δp_{ft}
  - Marginal cost shocks, Δmc_{ft}
  - Other-firm price shocks Δp_{-ft}
  - ... as well as supply chain disruptions

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- Big Positive: Novel and promising price data from Numerator (for Δp_{ft}, Δp_{-ft})
  - From actual consumer purchase receipts, both physical and digital
  - But: Limited to just goods that are sold direct to household consumers?

    What is missing after the merge with the Bills of Lading data? Products that tend to be intermediate inputs? Products that change multiple hands between consignee/shipper and US-based end-user? (Be more upfront with a discussion of such caveats.)

2. Data Questions (cont.)

- More worrying: Reliance on Bills of Lading data for information on Δmc_{ft}
  - No information on use of domestic inputs $\longrightarrow$ *De facto*, assuming no shock to cost of domestic inputs (or: such shocks safely go into the error term)?
  - Imported inputs assumed to be a constant, common share of unit costs. $\longrightarrow$ At a minimum, allow for cross-sectoral heterogeneity in this import intensity.
  - Lack of direct information on prices; import values inferred from quantities based on conversion factors from 2019 US Census trade data $\longrightarrow$ In the presence of inflation, understating actual unit value increases over time?
  - Merge rate of $\approx 50\%$ with Numerator $\longrightarrow$ Check: Are marginal cost shocks and import delivery shortfalls systematically more or less severe for merged versus unmerged firms?

2. Data Questions: Delivery Shortfalls

In the empirics, "stock-in" shifters are captured by the import delivery "shortfall" measure:

$$\text{Delivery Shortfall}_{f,j,t}(k) = \frac{\sum_{m=t-k}^{t} D_{f,j,m} - \sum_{m=t-k,2019}^{t,2019} D_{f,j,m}}{\left(\sum_{m=t-k}^{t} D_{f,j,m} + \sum_{m=t-k,2019}^{t,2019} D_{f,j,m} \right) /2}$$

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- Is 2019 an appropriate, "disruption-free" benchmark year?
- This resembles a growth rate. How are we to disentangle true delivery shortfalls from secular growth over time on the demand or supply sides?
- More broadly: How crucial is it to flag out the "inventories" and "delays" interpretation of this shifter? (The model does not carry inventories around as a firm-specific state variable.)
- Why not use a measure of supply chain disruptions or delivery shortfalls directly as an instrumental variable for Δmc_{ft}?

  (Right now, the estimating equation views Δp_{ft} to be a function of Δmc_{ft} and "delivery shortfalls", $\Delta \tau_{ft}$.)

2. Data Questions: IVs

Remarks about the instruments:

- For shift-share instruments, spell out and defend whether identification is coming from the orthogonality of the initial shares (Goldsmith-Pinkham et al. 2020) or the shifters (Borusyak et al. 2023)
- Construction of the firm-level import delivery shortfall measure seems very close to that of its IV.
- Very much like the "Dwell Exposure" measure:
  - But container ships can dwell outside a port while being mothballed during a period of low demand. Finetune this measure to use only dwell times for ships with actual container loads (as opposed to empty ships)?

3. What do we learn?

How do we reconcile the findings here with the tariff pass-through literature (Amiti et al. 2019, Fagjelbaum et al. 2020), which has reported close to complete pass-through from the US' tariffs on China?

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- Are tariff-induced disruptions different from other supply chain disruption events?
  - Firms are more willing to bear some of the pain from idiosyncratic supply chain shocks. But tariffs, in principle, are a common shock to all firms in the same industry, and so firms tend to pass these shocks through to consumers in unison?
- Or could the estimates in this paper reflect a more medium-term adjustment to shocks, since the data run through to 2023? Whereas the tariff pass-through estimates reflect shorter-term adjustments?

Conclusion

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