Rewiring Supply Chains Through Uncoordinated Climate Policy

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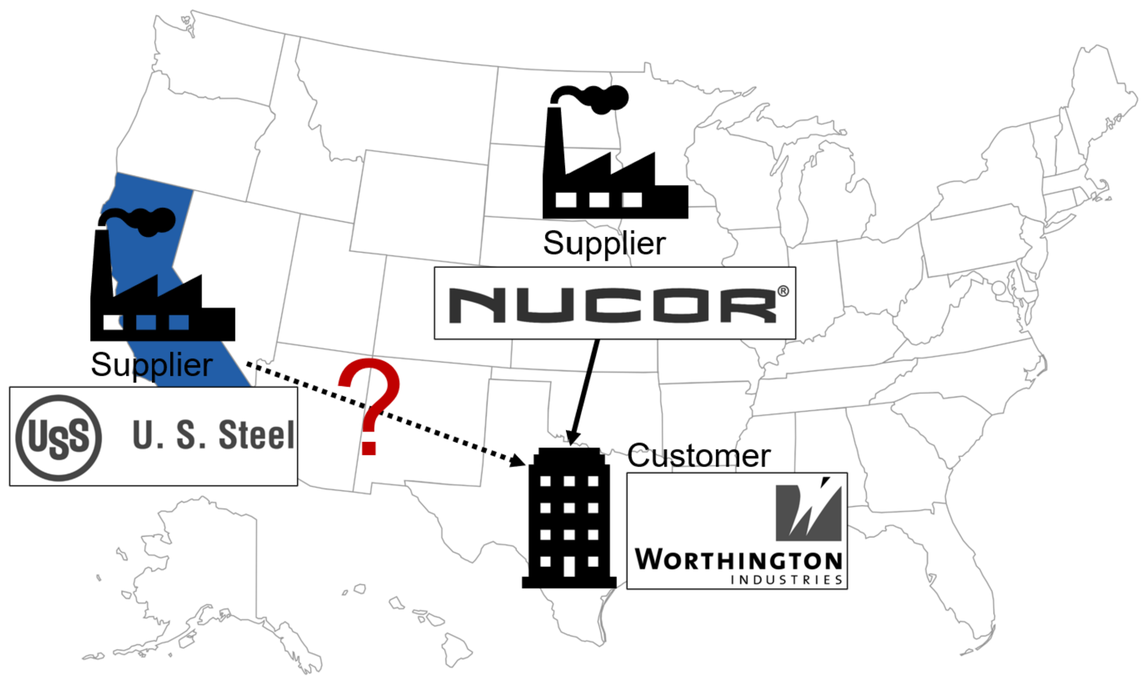
We ask: Are suppliers subject to climate policies more likely to suffer the termination of their customer relationships relative to their peers operating outside climate policy regimes?

- Climate policies are heterogeneous and bounded within legal jurisdictions, but through their supply chains, firms operate globally and over several climate policy regimes.
- Supply chains, and their emissions, might shift away from climate policy regimes, resulting in **carbon leakage** (Ben-David et al., 2021; Bartram et al., 2022):
  - **Why:** To avoid potential supply chain disruptions, customers might rewire away from suppliers exposed to climate transition risks while favoring their peers operating outside climate policy regimes (Pankratz and Schiller, 2023).
  - **Why not:** Cutting ties with suppliers can be costly (Barrot and Sauvagnat, 2016).

We study: Supply chains in the context of uncoordinated climate action in the U.S.

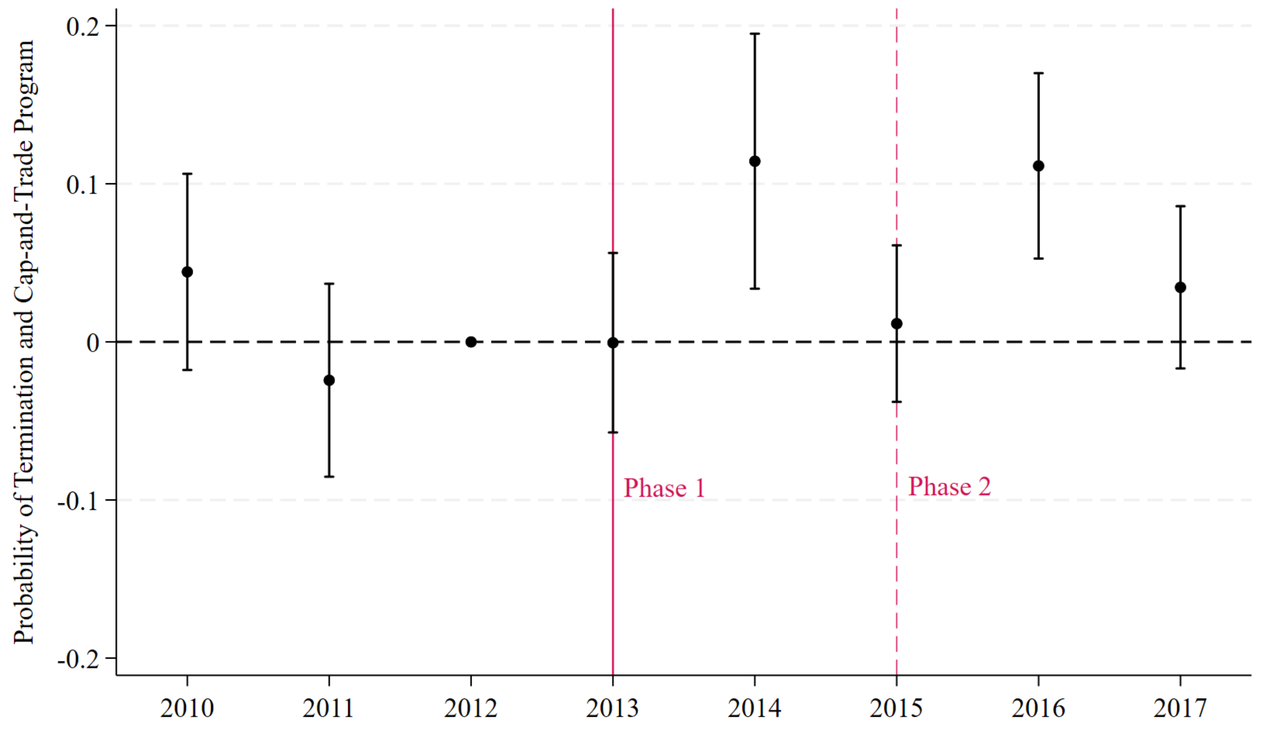
- **Event:** Introduction of the California cap-and-trade program in 2013 exposes affected suppliers to climate transition risks.
- **California cap-and-trade program:** Imposes a declining cap on GHG emissions produced by industrial plants, electricity generation and imports and (from 2015) distributors of petroleum and natural gas in California and requires firms to buy and sell emission allowances to comply with the cap.
- **Treated suppliers:** Suppliers subject to the cap-and-trade program produce at least 25'000 tCO2e in their plants in California.
- **Control suppliers:** Non-treated supplier peers (e.g., no plants in California) are matched on industry, size and profitability; in some specifications, peers are required to share customers to control for demand effects.
- **Data:** EPA GHG Reporting Program (plant-firm-level emissions); FactSet Revere (supplier-customer pairs).



We find: Supply chains rewire away from suppliers subject to the California cap-and-trade program

- **Methodology:** DiD on supplier-customer-year (s-c-t) panel: $Ending_{s,c,t+1} = \beta Treated_s \times Post_t + Controls + FixedEffects + \epsilon_{s,c,t}$;
  $Ending_{s,c,t+1}$ equals 1 when s-c relationship terminates, equals 0 as long as s-c relationship continues.

	Linear Probability Model Ending	
Treated × Post	0.082*	0.051**
	(0.046)	(0.021)
Controls		Yes
Matched supplier	Yes	Yes
Year FE	Yes	
Supplier FE	Yes	Yes
Customer FE	Yes	
Customer × Year FE		Yes
Observations	110,048	76,220
R^2	0.317	0.839



- Supply chains with suppliers in highly competitive industries and producing standardized goods are more heavily affected.
- Supply chains with customers paying low attention to climate change are more heavily affected.

Environmental implications of uncoordinated climate action: Differential increase in supply chain and upstream scope 3 emission intensity.

Barrot, Jean-Noël, and Julien Sauvagnat, 2016, Input specificity and the propagation of idiosyncratic shocks in production networks, *Quarterly Journal of Economics* 131, 1543–1592.

Bartram, Söhnke, Kewei Hou, and Sehoon Kim, 2022, Real effects of climate policy: Financial constraints and spillovers, *Journal of Financial Economics* 143, 668–696.

Ben-David, Itzhak, Yeejin Jang, Stefanie Kleimeier, and Michael Viehs, 2021, Exporting pollution: Where do multinational firms emit CO2?, *Economic Policy* 36, 377–437.

Pankratz, Nora, and Christoph Schiller, 2023, Climate change and adaptation in global supply-chain networks, *Review of Financial Studies* 37, 1729–1777.

To the draft: