Supply Chain and Business Investment Decisions

Research Perspective Panel

Laura Alfaro
Harvard Business School
NBER & CPER

Background-Concerns Protectionism Global Value Chains

- Firms have been re-evaluating GVC strategies even before the pandemic
  - Degree of reliance on supply-chain in China (hyper-specialization, trade wars, etc.).

- Governments: Unilateral actions / announcements explicitly reduce this dependence.
  - On "retaliatory" grounds: The blame-game over the origins of the virus.
  - On national security grounds: N95 masks, ventilators, and essential medical equipment.
  - On production stimulus ground: Japan's 04/20 stimulus package: 220 bn yen for firms to move production home, 23.5 bn yen move to other countries (ASEAN)
  - US chips; EV policy, etc.

Protectionism and Globalization

Where Does the US Public Opinion Stand?

Alfaro, Chen, Chor (2022)

SURVEY:	Round 1, 2018-19 (N=2,277)	Round 2, 2020 (N=6,009)	Round 3, 2021 (N=4,058)	Round 4, 2022 (N=4,186)
Do you support placing more limits on imports?	0.57 [0.49]	0.62 [0.49]	0.59 [0.49]	0.58 [0.49]
Would you support an increase in the US tariff rate?	0.28 [0.45]	0.25 [0.43]	0.25 [0.43]	0.32 [0.46]
Prefer: Higher tariff rates on foreign countries?	0.44 [0.50]	0.50 [0.50]	0.47 [0.50]	0.47 [0.50]
Prefer: More progressive taxes?	0.68 [0.46]	0.65 [0.48]	0.68 [0.47]	0.68 [0.47]
Would you support signing more FTAs?	0.68 [0.47]	0.65 [0.48]	0.65 [0.48]	0.64 [0.48]
Would you support a minimum wage?	0.78 [0.41]	0.80 [0.40]	0.74 [0.44]	0.77 [0.42]

Protectionism and Globalization

Can Information Change Public Opinion?

Alfaro, Chen, Chor (2022)

- Can research-based information shift attitudes towards trade policy?
  - **Annual** survey experiments from **2018-2022** that contain **randomized** information treatments (representative sample US population)
- Each treatment provides a concise statement of economics research findings on how openness to trade has affected labor market outcomes or prices.
  - **Trade Hurts Jobs:** Based on Autor et al (2013): Import competition from China weakened manufacturing employment and low-skill wages in the U.S.
  - **Trade Helps Jobs**: Amiti et al. 2017, Caliendo et al.(2019): Trade with China enabled the U.S. to specialize in service sectors in which it is particularly productive; total jobs in the U.S. economy grew substantially.
  - **Trade Helps Prices**: Based on BLS price data: Imports from China are accompanied by falling goods prices in the U.S. (specific examples: Durables, Apparel).
  - **Tariff Hurts Prices**: Based on Amiti et al.(2019): 2018 tariffs on imports from China raised the prices of tariff-related goods and lowered U.S. real income by $1.4 billion per month.

Effect of Information Treatments on Preferences Towards Trade Policy

(Round 1, 2018-2019)

Trade Policy Questions:	(1) More limits on imports	(2) US tariff rate increase	(3) Support higher tariff	(4) Support more FTAs	(5) Most Pref.: More limits on Imports	(6) First principal component
	Logit	Logit	Logit	Logit	Logit	OLS
Treatment dummies:						
Trade Hurts Jobs	0.060*	0.045*	0.083***	-0.046	0.080***	0.282***
	[0.032]	[0.026]	[0.032]	[0.030]	[0.024]	[0.076]
Trade Helps Jobs	0.007	0.033	0.064	0.017	0.04	0.135
	[0.035]	[0.034]	[0.041]	[0.032]	[0.027]	[0.098]
Trade Helps Prices	0.057*	0.018	0.071*	-0.007	0.069**	0.211**
	[0.034]	[0.030]	[0.039]	[0.032]	[0.028]	[0.089]
Most Pref., Randomization Order					-0.003	0.003
					[0.003]	[0.011]
Last Pres. Election: Supported Democrat	-0.042	-0.043*	-0.043	0.091***	-0.064***	-0.259***
	[0.029]	[0.022]	[0.026]	[0.027]	[0.019]	[0.075]
Last Pres. Election: Supported Republican	0.224***	0.147***	0.219***	-0.034	0.092***	0.728***
	[0.030]	[0.028]	[0.029]	[0.029]	[0.023]	[0.081]
Individual, county, week controls?	Y	Y	Y	Y	Y	Y
Observations	2,277	2,277	2,277	2,277	2,277	2,277
(Pseudo) R-squared	0.0970	0.103	0.0742	0.0746	0.0783	0.183
Log Likelihood	-1403	-1214	-1448	-1318	-1138	---

Exploring the Jobs and Price Treatments

Pooled: Round 2, 2020; Round 3, 2021; Round 4, 2022

Trade Policy Questions:	(0) Did information affect views?	(1) More limits on imports	(2) US tariff rate increase	(3) Support higher tariff	(4) Support more FTAs	(5) Most Pref.: More limits on Imports	(6) First principal component
	Ordered logit	Logit	Logit	Logit	Logit	Logit	OLS
Treatment dummies:							
Trade Hurts Jobs	0.048***	0.088***	0.072***	0.034**	-0.038**	0.034**	0.237***
	[0.015]	[0.017]	[0.016]	[0.017]	[0.018]	[0.016]	[0.043]
Trade Helps Jobs	0.032*	0.021	0.023	0.025	-0.004	0.009	0.076*
	[0.017]	[0.018]	[0.016]	[0.018]	[0.020]	[0.016]	[0.045]
Trade Hurts sans China	0.026*	0.052*	0.070**	-0.007	-0.024	0.002	0.152**
	[0.025]	[0.029]	[0.027]	[0.030]	[0.027]	[0.024]	[0.072]
Trade Helps sans China	0.021	0.057	0.064*	0.015	0.023	-0.006	0.123
	[0.025]	[0.029]	[0.026]	[0.032]	[0.028]	[0.024]	[0.076]
Trade Policy Questions:	(0) Did information affect views?	(1) More limits on imports	(2) US tariff rate increase	(3) Support higher tariff	(4) Support more FTAs	(5) Most Pref.: More limits on Imports	(6) First principal component
	Ordered logit	Logit	Logit	Logit	Logit	Logit	OLS
Treatment dummies:							
Trade Helps Prices	0.026*	0.056***	0.029**	-0.004	-0.004	0.030**	0.113***
	[0.015]	[0.017]	[0.014]	[0.017]	[0.018]	[0.015]	[0.042]
Trade Helps Prices sans China	0.004	0.051**	0.043***	-0.007	-0.033*	0.026	0.130***
	[0.016]	[0.020]	[0.016]	[0.019]	[0.020]	[0.017]	[0.048]
Trade Helps Prices sans Cheaper	0.015	0.069***	0.048***	0.021	-0.025	0.028	0.172***
	[0.016]	[0.021]	[0.018]	[0.019]	[0.020]	[0.017]	[0.050]
Tariff Hurts Prices	0.046***	0.040**	0.023	0.019	-0.008	0.023	0.105**
	[0.016]	[0.017]	[0.015]	[0.017]	[0.017]	[0.016]	[0.043]
Most Pref., Randomization Order						-0.010***	-0.020***
						[0.002]	[0.006]
Last Pres. Election: Supported Democrat	0.094***	-0.003	0.014	-0.040***	0.123***	-0.031**	-0.126***
	[0.014]	[0.015]	[0.012]	[0.015]	[0.014]	[0.012]	[0.038]
Last Pres. Election: Supported Republican	0.081***	0.174***	0.113***	0.141***	-0.038**	0.146***	0.601***
	[0.014]	[0.016]	[0.014]	[0.015]	[0.015]	[0.014]	[0.041]
Individual, county, week controls?	Y	Y	Y	Y	Y	Y	Y
Observations	8,542	8,542	8,542	8,542	8,542	8,542	8,542
(Pseudo) R-squared	0.0484	0.0703	0.0746	0.0451	0.0723	0.0761	0.145
Log Likelihood	-9696	-5378	-4526	-5643	-5127	-4591	---

Protectionism and Globalization
Where Does the Public Opinion Stand?
Alfaro, Chen, Chor (2022)

1. Information treatment influences trade policy preferences
2. Information highlighting the link between trade and manufacturing job losses significantly raises expressed preferences for more limits on trade.
3. Strikingly (and paradoxically), positive information on job and price benefits of trade (or the cost of tariffs) also induces protectionist policy choices.

- Mechanism? Direct question
  - Effects are driven partly by how the received information interacts with respondents' priors, including their perceptions of the economic impact of trade, social concerns, political identity,
    - **Concerns over trade with China.**

Direct Question: Why Limit Imports?
Role of China

Dependent variable: (5=Strongly agree, 1=Strongly disagree)	Imports often lower quality	Imports often compete for US jobs	Imports potential threat to National security	Concerned about imports from China	Other more important concerns
	Ordered logit	Ordered logit	Ordered logit	Ordered logit	Ordered logit
Trade Hurts Jobs	0.087	0.067	-0.003	0.045	0.076
	[0.055]	[0.042]	[0.052]	[0.040]	[0.052]
Trade Helps Jobs	0.106*	0.043	0.089	0.113***	0.053
	[0.057]	[0.045]	[0.055]	[0.039]	[0.055]
Trade Hurts Helps Jobs	0.048	0.002	-0.015	0.030	-0.034
	[0.055]	[0.043]	[0.052]	[0.041]	[0.056]
Trade Helps Hurts Jobs	0.125**	0.046	0.029	0.062	0.002
	[0.054]	[0.043]	[0.052]	[0.042]	[0.050]
Trade Helps Prices	0.097*	0.058	-0.019	0.033	0.096*
	[0.051]	[0.041]	[0.052]	[0.040]	[0.049]
Trade Helps Prices China	0.114**	0.095**	0.122**	0.070*	0.073
	[0.055]	[0.041]	[0.055]	[0.041]	[0.053]
Trade Helps Prices Cheaper	0.094*	0.072*	0.043	0.067	0.088*
	[0.054]	[0.042]	[0.054]	[0.041]	[0.052]
Tariff Hurts Prices	0.061	0.022	0.038	0.078**	0.031
	[0.058]	[0.043]	[0.056]	[0.039]	[0.053]
Individual, county, week, randomization order controls?	Y	Y	Y	Y	Y
Observations	2,141	2,141	2,141	2,141	2,141
(Pseudo) R-squared	0.0353	0.0642	0.0341	0.0799	0.0337
Log Likelihood	-2897	-2557	-2972	-2486	-2719

Where Does the US Public Opinion Stand?
Role of China
Alfaro, Chen, Chor (2022)

- Individuals' preferences over trade policies are not formed in isolation from the **identity of the US key trading countries,**
  - Information that focuses solely on communicating the benefits of trade is unlikely to succeed unless it **addresses broader concerns tied to U.S.-China relations**

- Implications? Why does it Matter?
  - Firms have been re-evaluating GVC strategies even before the pandemic
    - Degree of reliance on supply chain in China (cost, hyper-specialization, trade wars, etc.).
  - Governments: actions to explicitly reduce this dependence

- Qn: Has the coronavirus (covid-19) pandemic affected your views on trade policy (i.e., the use of tariffs or limits on imports)?
  - 51.5% responded "Yes"

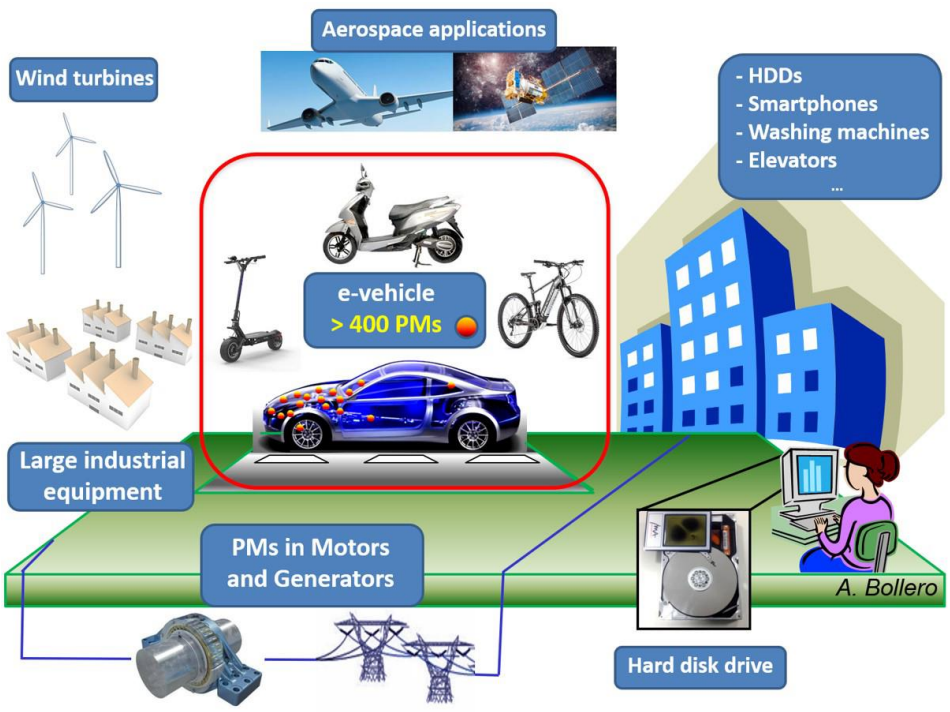
- Can't we just near/re-shore key supply chains?

Key Supply Chains? Rare Elements

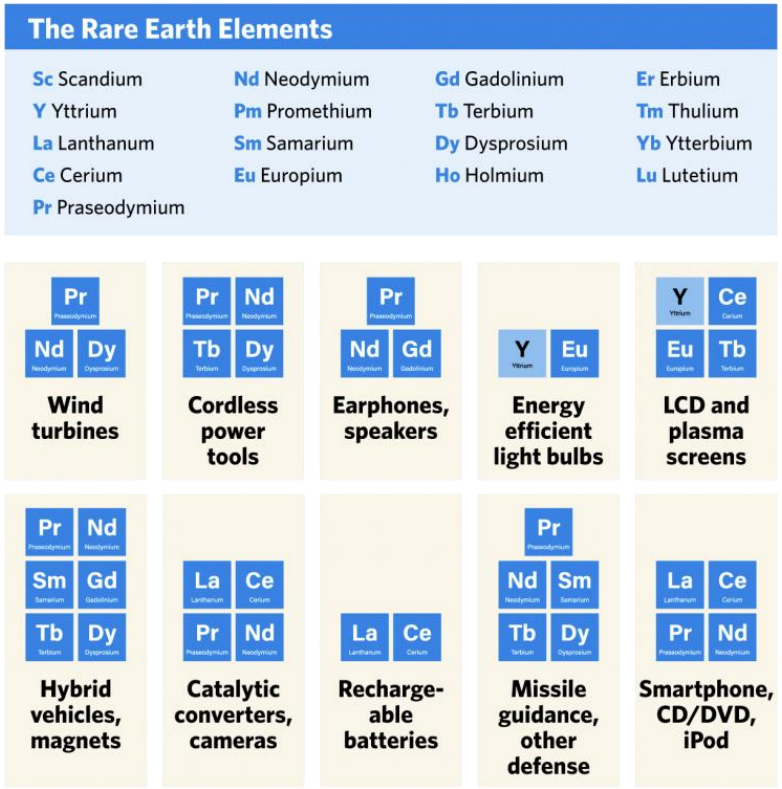
Alfaro, Fadinger, Schymik (2022)

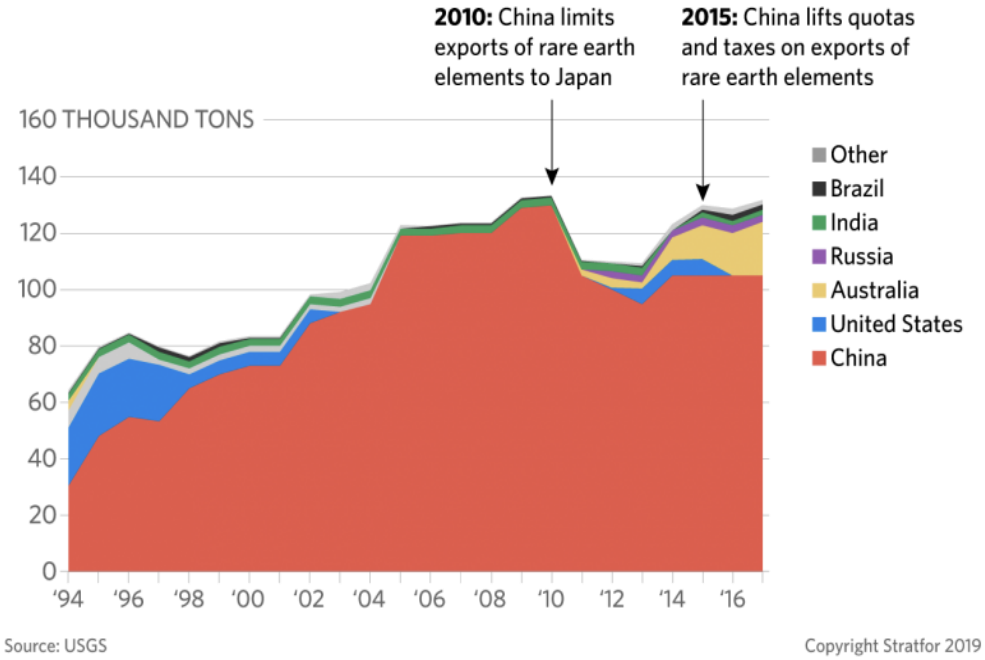
The Rare Earth Elements

Sc Scandium	Nd Neodymium	Gd Gadolinium	Er Erbium
Y Yttrium	Pm Promethium	Tb Terbium	Tm Thulium
La Lanthanum	Sm Samarium	Dy Dysprosium	Yb Ytterbium
Ce Cerium	Eu Europium	Ho Holmium	Lu Lutetium
Pr Praseodymium			



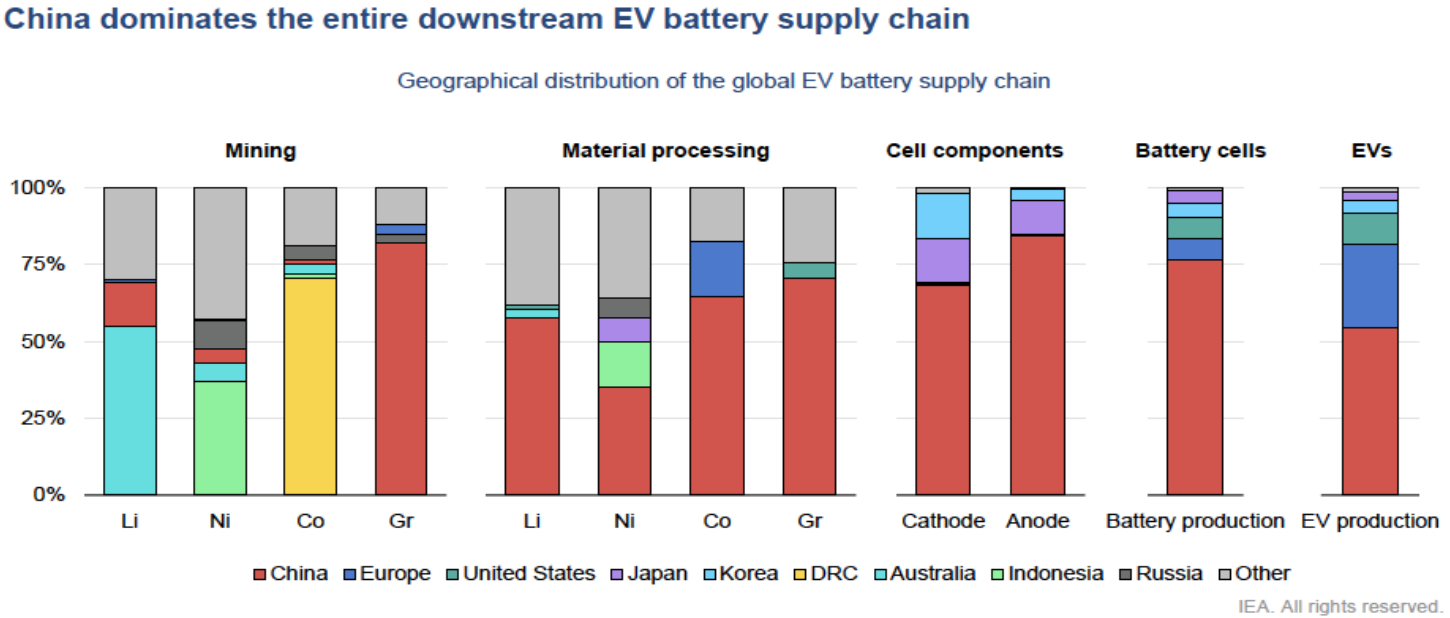
What are These Supply Chains?
Rare Elements: Role of China





Rare Elements: Role of China

Climate Change



Notes: Li = lithium; Ni = nickel; Co = cobalt; Gr = graphite; DRC = Democratic Republic of Congo. Geographical breakdown refers to the country where the production occurs. Mining is based on production data. Material processing is based on refining production capacity data. Cell component production is based on cathode and anode material production capacity data. Battery cell production is based on battery cell production capacity data. EV production is based on EV production data. Although Indonesia produces around 40% of total nickel, little of this is currently used in the EV battery supply chain. The largest Class 1 battery-grade nickel producers are Russia, Canada and Australia.

Sources: IEA analysis based on: EV Volumes; US Geological Survey (2022); Benchmark Mineral Intelligence; Bloomberg NEF.

Diversification?

China--Major risks to our forecast: EIU Two Way Risk

Scenarios, Q2 2022	Probability	Impact	Intensity
Foreign companies are targeted by regulators amid international tensions	**Very high**	**High**	**20**
Adherence to "zero-covid" policies undermines government effectiveness	High	Very high	20
A coronavirus outbreak in the second half of 2022 derails Chinese growth beyond expectations	High	High	16
A property sector crash increases pressure on developers and local governments	High	High	16
Intermittent power outages interrupt industrial production, prompting power rationing and a rise in prices	High	High	16

World Outlook

Table 1. Overview of the *World Economic Outlook* Projections

(Percent change, unless noted otherwise)

	Year over Year					
			Projections		Difference from April 2022 WEO Projections 1/	
	2020	2021	2022	2023	2022	2023
World Output	**–3.1**	**6.1**	**3.2**	**2.9**	**–0.4**	**–0.7**
Advanced Economies	**–4.5**	**5.2**	**2.5**	**1.4**	**–0.8**	**–1.0**
United States	–3.4	5.7	2.3	1.0	–1.4	–1.3
Euro Area	–6.3	5.4	2.6	1.2	–0.2	–1.1
Germany	–4.6	2.9	1.2	0.8	–0.9	–1.9
France	–7.9	6.8	2.3	1.0	–0.6	–0.4
Italy	–9.0	6.6	3.0	0.7	0.7	–1.0
Spain	–10.8	5.1	4.0	2.0	–0.8	–1.3
Japan	–4.5	1.7	1.7	1.7	–0.7	–0.6
United Kingdom	–9.3	7.4	3.2	0.5	–0.5	–0.7
Canada	–5.2	4.5	3.4	1.8	–0.5	–1.0
Other Advanced Economies 3/	–1.8	5.1	2.9	2.7	–0.2	–0.3
Emerging Market and Developing Economies	**–2.0**	**6.8**	**3.6**	**3.9**	**–0.2**	**–0.5**
Emerging and Developing Asia	–0.8	7.3	4.6	5.0	–0.8	–0.6
China	2.2	8.1	3.3	4.6	–1.1	–0.5
India 4/	–6.6	8.7	7.4	6.1	–0.8	–0.8
ASEAN-5 5/	–3.4	3.4	5.3	5.1	0.0	–0.8
Emerging and Developing Europe	–1.8	6.7	–1.4	0.9	1.5	–0.4
Russia	–2.7	4.7	–6.0	–3.5	2.5	–1.2
Latin America and the Caribbean	–6.9	6.9	3.0	2.0	0.5	–0.5
Brazil	–3.9	4.6	1.7	1.1	0.9	–0.3
Mexico	–8.1	4.8	2.4	1.2	0.4	–1.3
Middle East and Central Asia	–2.9	5.8	4.8	3.5	0.2	–0.2
Saudi Arabia	–4.1	3.2	7.6	3.7	0.0	0.1
Sub-Saharan Africa	–1.6	4.6	3.8	4.0	0.0	0.0
Nigeria	–1.8	3.6	3.4	3.2	0.0	0.1
South Africa	–6.3	4.9	2.3	1.4	0.4	0.0

WEO, IMF, July 2022

Thanks