

Reshoring Global Supply Chains*

Abigail Vaughn[†]

Ryan Weldzius[‡]

September 22, 2021

Abstract

The COVID-19 lockdowns caused myriad disruptions in international trade, leaving strategically important industries vulnerable to a break in their global supply chains. Despite a decade-long retreat from globalization, only three governments allocated funds to re-shore these vulnerable supply chains—Japan, South Korea, and the United States. What explains these governments’ decision to prioritize the re-shoring of vulnerable supply chains while other governments chose to maintain the status quo? We argue that a home government will allocate funds to incentive the re-shoring of foreign production from a country if (1) the home country is highly dependent on the foreign country for inputs, (2) the home government has a high level of distrust for this foreign government, and (3) the inputs are of strategic national importance. We test this argument using a comparative case study, matching cases on observable covariates. We find that home governments are more likely to allocate funds for high research and development sectors if the sector is dependent on an adversarial trading partner, but home governments are less likely to incentivize the re-shoring of vulnerable supply chains if the bilateral strategic relationship is strong.

Keywords: global supply chains, reshoring, supply chain vulnerability

Word Count: 7,032

*Prepared for 2021 annual meeting of the American Political Science Association. We thank Erica Owen, Deborah Seligsohn, and participants at the 2021 meeting of the Midwest Political Science Association for helpful comments and suggestions on an earlier version of this paper.

[†]Assistant Professor, Sam Nunn School of International Affairs, Georgia Tech; abigailvaughn.com; abigail.vaughn@inta.gatech.edu.

[‡]Assistant Professor, Department of Political Science, Villanova University; ryanweldzius.com; ryan.weldzius@villanova.edu.

1 Introduction

The COVID-19 pandemic highlighted numerous challenges to the “just-in-time” international trading system. With over 70% of trade involved in global supply chains (OECD, 2018), a disruption in one part of the chain had the ability to shut down an entire production network. Many producers—as well as countries—found themselves highly vulnerable to trade disruptions due to their over dependence on inputs from just a few countries. Despite a decade-long retreat from globalization following the 2008-9 global financial crisis, there is little empirical evidence of systematic re-shoring efforts by governments, however, in response to the COVID-19 trade shock. In only three countries—Japan, South Korea, and the United States—did government’s allocate funds to incentive the re-shoring of vulnerable supply chains; each of these plans targeted re-shoring from China specifically.¹ In several other countries that were just as, or even more vulnerable to supply chain disruptions—e.g., Argentina, Australia, Brazil, Canada, Czech Republic, Hong Kong, India, Mexico, and New Zealand, among others—governments maintained the status quo production networks. What explains this variation in re-shoring incentives for global supply chains?

In answering this research question, we focus on a particular category of supply chain, namely those supply chains involved in high research and development (R&D) sectors. This scope condition limits our analysis to sectors that are of strategic importance for domestic governments—in particular, air and space related machinery, pharmaceuticals, and computer and electronic products (which includes semiconductors). We argue that a home government will allocate funds to incentive the re-shoring of high R&D inputs from country X if (1)

¹Note that the US funds have been allocated by the Senate but is awaiting a vote in the House of Representatives. Taiwan also enacted a re-shoring program, but this began prior to the COVID-19 trade shock as a reaction to the US-China trade war in 2018.

the home country is highly dependent on country X for high R&D inputs and (2) the home government has a high level of distrust for country X's government. For the former condition we expect a curvilinear relationship between supply chain dependence and probability of re-shoring: governments whose domestic producers are too highly dependent on a single country will find the costs of re-shoring production too immense. Of course, it is also the case that a country that is overly dependent on a single country for high R&D inputs should have a relatively high level of trust for the foreign government; however, this relationship is dynamic and external factors can put severe stresses on this relationship.

We test our argument using a comparative case study, where we match cases on observable covariates (including supply chain dependence) but allow our treatment variable (bilateral trust) to vary. Our primary measure of trust is the existence (or lack) of a bilateral strategic partnership. In robustness checks we also include the number of militarized interstate disputes between the trading partners and public opinion on the bilateral relationship. Our positive re-shoring cases include Japan, South Korea, and the United States, which we matched to New Zealand, Czech Republic, and Australia, respectively. We find that governments whose domestic producers have mid- to high-level dependence on a single country for high R&D inputs (15 to 20% of imported inputs) and no strategic partnership with the foreign government tend to implement direct re-shoring policies, while countries with similar supply chain dependence or higher (15 to 40%) tend to maintain the status quo production network conditional on the existence of a strategic partnership.

Our contribution to the extant literature on trade politics is twofold: First, we provide a theoretical framework for examining why a government may allocate funds to incentive firms to re-shore parts of their supply chain. While the literature on the politics of offshoring

production to developing countries is vast (see, e.g., [Büthe and Milner, 2008](#); [Jensen et al., 2012](#); [Kerner, 2014](#); [Pandya, 2016](#); [Owen, 2017](#); [Colantone and Stanig, 2018](#); [Autor et al., 2020](#)), we are unfamiliar with a similar treatment of the reversal.² Second, we provide evidence, albeit suggestive, that the level of trust between governments can explain why domestic governments would choose to allocate funds to re-shore a vulnerable supply chain.

In the following section, we overview the existing literature in the social sciences and industrial organization on re-shoring of global supply chains. Section 3 develops our theoretical framework for examining the recent re-shoring phenomenon, followed by our research design in Section 4. In Section 5 we describe the matched cases of Japan-New Zealand, South Korea-Czech Republic, and the United States-Australia. We discuss alternative explanations in Section 6 and conclude with some implications of re-shoring after the COVID-19 global pandemic.

2 Re-shoring the Off-shored

Offshoring, or the migration of jobs from advanced, high-wage economies to developing, low-wage economies — re-shoring simply being the reversal of this process —, began in earnest in the 1960s in the throes of the information and communications technology (ITC) revolution. The dramatic reduction in communication costs allowed firms to move routine-task jobs to lower-wage countries within their region, and as transportation costs continued to decrease in the 1980s and 90s, these supply chains stretched globally ([Gereffi, 2006](#); [Baldwin,](#)

²[Solingen \(2021\)](#) has an edited volume on the geopolitics of supply chains in East Asia, and she ends the volume with some thoughts on re-shoring supply chains post COVID-19. This is the closest treatment of re-shoring we have found in the political science literature to date.

2016). This “trading in tasks” created more jobs in the global economy, but had distributional consequences domestically (Grossman and Rossi-Hansberg, 2008) leading to political repercussions for incumbent governments.

In the early 1990s, politicians in advanced industrialized countries started highlighting the domestic impact of offshoring on local labor markets. Famously, during the 1992 US presidential campaign, Ross Perot described the impact of the Bush administration’s proposed North American Free Trade Agreement on US jobs as a “giant sucking sound” (Porter, 2019). This sentiment of American labor losing from globalization certainly resounded in Donald Trump’s 2016 presidential campaign and, at a global level, was the focus of recent research on the larger backlash against globalization (Broz, Frieden, and Weymouth, 2021; Walter, 2021).

Recent work on how offshoring impacts public opinion in advanced industrialized countries has used observational data or experiments to show a positive relationship between offshoring and protectionist attitudes. Bisbee et al. (2020) find that workers in routine-task occupations—i.e., highly offshorable—tend to be more protectionist. Kerner and Sumner (2020) isolate the causes of this link between offshoring and trade protectionism with an experiment, finding that indeed the offshorability of a job matters for individual’s trade preferences, but also the perceptions of the offshoring firm.

How these changing preferences translate into electoral outcomes has received far greater attention in recent years and can help us in understanding why China has received much of this ire from governments. Most of these studies leverage the “China shock” identification strategy of Autor, Dorn, and Hanson (2013), where greater import penetration from China predicts domestic electoral outcomes. In US districts where this China shock was strongest

or there is a greater percentage of low-skilled workers, there is a strong anti-incumbent effect and voters tended to elect fewer moderate candidates (Jensen, Quinn, and Weymouth, 2017; Autor et al., 2020). This helps in explaining a second trend in American politics, the increasingly hostile rhetoric towards China (Kuk, Seligsohn, and Zhang, 2018). While the anti-incumbent effect can be buffered with redistributive policies to assist those hurt by offshoring (Margalit, 2011), the overall trend towards protectionism continues as the risk of offshoring remains (Owen and Johnston, 2017). While these strands of work provide us with an understanding for increased barriers to trade, they do not explain why particular governments would allocate funds to subsidize firms that bring these jobs back within domestic borders.

A final strand of literature is in supply chain management and industrial organization, fields that have been wrestling with the topic of re-shoring since the 2008-9 global financial crisis. Delis, Driffield, and Temouri (2019) find that firms in advanced industrialized economies began reshoring parts of their supply chains after the financial crisis, but the likelihood of reshoring *decreased* as the distance between the parent and subsidiary company grew. Moving from the firm to the country-level, Barbieri et al. (2020) suggest that nearshoring initiatives—moving distant supply chains closer to home—may prove more likely than attempts to move entire supply chains within domestic borders. The authors recognize the long-term trajectory of such decisions, suggesting more cooperation with countries in close “macro-regions.” This literature tends to focus on firm-level decisions, which is interesting in its own right, but does not explain the recent trend in state-level re-shoring decisions. We attempt to fill this gap in the literature by exploring why some governments decide to bring vulnerable supply chains back within domestic borders.

3 Politics of Re-shoring

Increasing volatility and vulnerability is not a glitch of the global economy, but rather a feature. Governments constantly strive to balance the potential benefits from economic openness with safeguards that smooth the impact of increased vulnerability. When an economic shock hits, leaders and firms alike are forced to reevaluate their positions relative to the global economy (Lipsy, 2020). Despite this retrospection and the political space to enact policy following a crisis, not all state leaders choose to respond. In general, we are interested in understanding what explains this variation in responses to economic shocks. In particular, we aim to uncover why some leaders choose to earmark funds for re-shoring vulnerable supply chains while others do not.

Shocks to the global system can magnify existing domestic trends and create new sources of domestic political pressure by revealing structural vulnerabilities. This forces leaders to reconsider their relationship with the global economy. Rather than only responding retroactively to the existing crisis, these shocks create motives for leaders to look ahead in order to prevent future ones. The structural vulnerabilities revealed by the crisis inform leaders' estimation of the extent of exposure to future crises, as well as the costs of inaction. The supply chain disruptions caused by the COVID-19 lockdowns revealed vulnerabilities to domestic production, vulnerabilities that were in existence prior to the crises, but were magnified by the shock. These vulnerabilities stem from an over-reliance on few countries for inputs in domestic production.

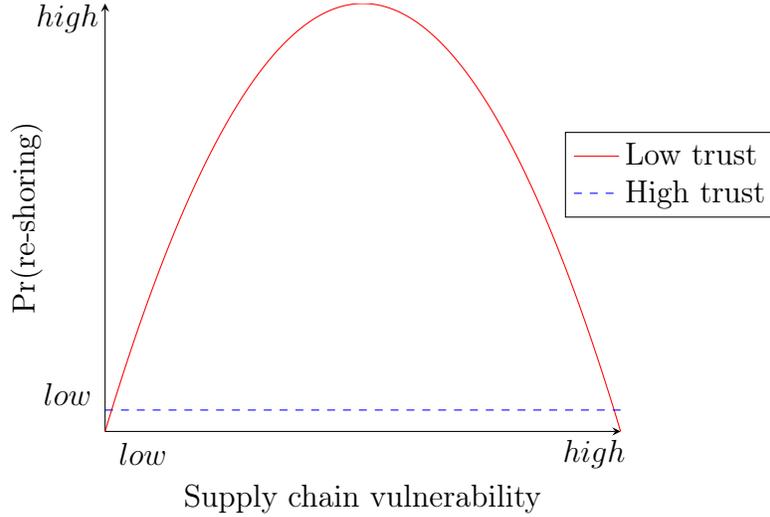
While supply chain vulnerability helps explain what factors may motivate a leader to *want* to act, it does not explain why leaders *chose* to act following a trade shock. Another recent

trend in the global economy that helps us understand this decision to re-shore is heightened bilateral distrust, especially between China and advanced industrialized countries. This lack of trust between these bilateral trading partners is evidenced in increased protectionism, trade disputes, and maritime skirmishes. If a leader is increasingly pessimistic about her ability to resolve future bilateral tensions, then she is more likely to create initiatives on her own that resolve future dilemmas preemptively. It is the confluence of these two factors that best explains a leader's decision to re-shore supply chains. Where supply chain vulnerability is high *and* bilateral distrust is high, the probability of re-shoring is at its peak. However, not all supply chains will follow this logic; the type of supply chain also matters.

We differentiate between high research and development (R&D) supply chains and low R&D supply chains. Sectors involved in high R&D matter more for national security; these sectors include air and spacecraft manufacturing, pharmaceuticals, and the production of computers and electronic goods (including semiconductors). Low R&D supply chains—e.g., textile, food, and furniture production—are interesting in their own right, but the re-shoring concerns of governments and firms for these sectors seem more focused on reducing costs or credit claiming by domestic politicians and less about national security. We argue that vulnerable supply chains of strategic national importance will lead to *direct* re-shoring policies from governments — e.g., allocation of government funds —, whereas vulnerable supply chains of little strategic importance will lead to *indirect* re-shoring policies from governments³ or none at all.

³Several advanced industrialized countries had started reshoring campaigns as early as 2012—e.g., the US launched the Advanced Manufacturing National Program in 2012 and incentivized reshoring with the “Tax Cuts and Jobs Act” in 2017; the UK launched “Reshore UK” in 2014; Italy and Germany launched Industrialization 4.0; all of these plans sought to strengthen low R&D manufacturing sectors at home, mostly through automated manufacturing. See [Wan et al. \(2019\)](#) for more on each of these programs. In addition to Germany and Italy’s Industry 4.0 incentive programs to re-shore (and automate) textile manufacturing,

Figure 1: Theoretical Framework for Re-shoring Decisions



Together, these three factors best explain a leader’s decision to re-shore supply chains. First, a government will only consider using scarce tax-payer funds to incentive the re-shoring of strategically important supply chains; this scope condition restricts our theory and analysis to high R&D sectors. Second, where supply chain vulnerability is high and the bilateral distrust is high, the probability of re-shoring is at its peak. We do not believe, however, that this relationship is linear. Where supply chain dependence is *very* high, the costs of re-shoring may be too high for policymakers. This may be due to the high fixed costs of high R&D sectors or due to the costs of escalating a trade rift with a trading partner that provides a high percentage of strategically-important inputs. Thus, we expect a curvilinear relationship between supply chain vulnerability and and the probability of re-shoring for low trust trading partners (see red line in Figure 1), whereas we expect a uniform low probability of re-shoring supply chains, irrespective of vulnerability, for high trust trading partners (blue line).

see also the EU’s recent white paper on re-shoring the production of medical products needed during the COVID-19 pandemic (Raza et al., 2021), both of which do not explicitly allocate government funds.

In summary, we argue that a shock magnifies vulnerabilities that are already in place, in particular, supply chain vulnerabilities due to over-reliance on a single trading partner and bilateral tensions with this trading partner. Together, this provides the necessary conditions under which leaders would re-shore these vulnerable supply chains. However, this is insufficient to account for the types of policies governments will enact: supply chains of strategic national importance (high R&D) will receive *direct* re-shoring initiatives through the allocation of government funds. It should follow that highly vulnerable low R&D supply chains with a low-trust trading partner would lead to *indirect* re-shoring initiatives. We do not directly test this hypothesis as this is beyond the scope of our theory and analysis as stated earlier; however, we look forward to future research that considers these particular types of supply chains.

4 Research Design

Our goal is to understand under what conditions governments will respond to economic shocks by promoting the re-shoring of global supply chains. The trade disruptions that occurred due to the COVID-19 lockdowns provide a useful lens to analyze this phenomenon not only because they exposed vulnerabilities in countries' global supply chain positions, but also because their impact was far-reaching, affecting most countries. This common shock enables us to make comparisons across countries. Unfortunately, the recent occurrence of these trade disruptions impedes our ability to conduct a large cross-sectional quantitative analysis. Due to these data constraints, we take the next best approach and examine our proposed framework through a careful consideration of qualitative case studies. While there

are a range of cases we can examine, we limit our analysis to six most-likely cases given the countries' high vulnerability to supply chain disruptions. Three of these countries passed direct re-shoring initiatives to bring high R&D supply chains within domestic borders — Japan, South Korea, and the United States. We then matched these positive cases with three similar, most-likely cases according to observable covariates; these cases include New Zealand, Czech Republic, and Australia, respectively. Importantly, the cases selected face similar domestic pressures that might motivate governments to create re-shoring initiatives, however, they vary in the key explanatory variables identified in the theory.

For our dependent variable, we are interested in government policies that are explicitly intended to promote re-shoring as a response to perceived global supply chain vulnerabilities. Re-shoring initiatives can vary in form ranging from indirect measures — such as providing information or technical advice ⁴ — to direct support measures that commit financial assistance to the actual act of re-shoring — such as tax credits, deductions, and subsidies. We focus our analysis on these direct support measures for several reasons. First, indirect measures tend to be broad and bundle different policy issues together, making it difficult to distinguish whether the true intent of the policy is to promote re-shoring. For example, Germany's Industrie 4.0 initiative is designed to strengthen its existing domestic manufacturing sector.⁵ While the program may have an indirect effect of facilitating re-shoring, it is not the program's main objective and it does not commit any financial resources directly to the re-shoring effort. Second, our focus on direct measures is well supported by existing studies in supply chain management that identify government incentives as an important

⁴See France's Colbert 2.0 program for an example.

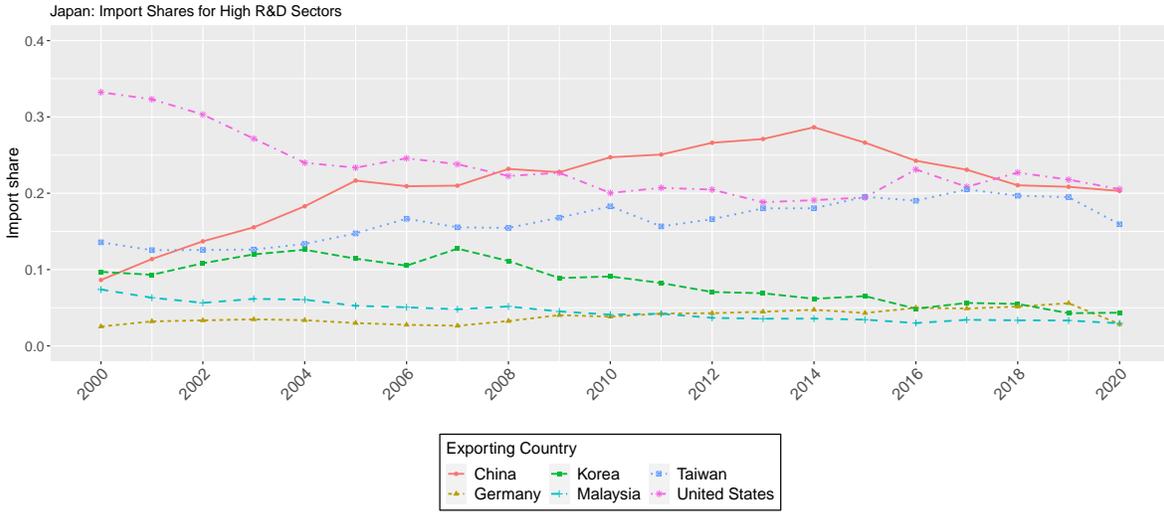
⁵De Backer et al. (2016).

consideration for a firm’s decision to re-shore.⁶ Finally, and perhaps most importantly, because direct measures are costly, we are able to distinguish between cheap political rhetoric and actual intent. Direct measures represent the clearest signal of government intent. When governments commit financial resources to re-shoring initiatives, they incur a cost by re-allocating critical resources away from other public services. The potential domestic backlash from reallocating public funds serves as a costly signal of the government’s true motivation.

The main predictor variable for the probability of re-shoring is the vulnerability to supply chain disruptions. There are several ways to interpret vulnerability in a supply chain, ranging from distance between trading partners to the number of nodes in the supply chain. We instead focus on the over-reliance on a single trading partner. This lack of diversification in the supply chain increases the significance of any disruption to the trading network. We can calculate the lack of diversification in two ways: First, we can measure the over-reliance on a few trading partners in the supply chain by calculating a Herfindahl-Hirschman Index (HHI). This is done by summing across all bilateral trading partners the squared share of intermediate imports from that country. Thus, a higher HHI denotes less diversity and more reliance on a few (or one) trading partner for these imported inputs. Each of our positive case study countries is around the sample mean of this index; most of the matched cases are also within one standard deviation of the sample mean, with the exception of Australia, which is an outlier with very high reliance on a single country for imported inputs. The inclusion of Australia allows us to test if there is indeed a curvilinear relationship between supply chain dependence and the probability of re-shoring.

⁶Gray et al. (2013); Fratocchi et al. (2014); Stentoft, Mikkelsen, and Jensen (2016); Di Mauro et al. (2018); Wan et al. (2019).

Figure 2: Japan’s supply chain vulnerability, high R&D sectors



Our second measure of supply chain vulnerability is the over-reliance on a single country. This is certainly picked up using an HHI, but the HHI does not differentiate by trading partner, which we require for our moderating variable. To choose cases of mid- to high-levels of supply chain vulnerability, we plot the entire corpus of countries and their top-six trading partners for imported inputs and choose cases that show a strong dependence on a single country (or more), defined as over 20% of imported inputs from a single source. For example, Figure 2 illustrates Japan’s dependence on three different sources for on average 20% each of high R&D inputs: China, Taiwan, and the United States (the Appendix includes plots for all countries in the case study). This figures illustrates Japan’s vulnerability to a supply chain disruption from one (or more) of the high-dependence countries; but just as it important, it also motivates the rationale for a moderating variable to explain Japan’s re-shoring campaign of high R&D inputs from China exclusively.

In addition to a government’s estimation of its country’s supply chain vulnerability, we

also take into account a government's perception of its ability to resolve future negative externalities by measuring the level of trust between our country cases. Our primary measure of bilateral trust is the existence of a strategic partnership between the trading partners. We think of these partnerships as proxies for the "intentions" of the parties to cooperate and the depth of that cooperation. As China is the main adversarial trading partner in our three positive cases, we focus our attention on the existence of strategic partnerships between our case countries and China. China forms different types of partnerships with countries which help us in assessing the level of bilateral trust (Strüver, 2017). For adversaries of China, we would expect no partnership between the countries. Thus, the absence of a partnership signifies the lowest levels of trust. A "cooperative partnership" is the next tier of trust; these are essentially an opening of diplomatic dialogue without the exchange of political benefits between partners. The highest levels of trust come from the next two tiers of partnerships: (1) Strategic partnerships signify deeper cooperation between partner countries and thus higher levels of trust. China tends to form strategic partnerships where more formalized mechanisms of cooperation already exist, but these partnerships build additional channels for intergovernmental communication and cooperation on military matters, cultural exchanges, and research and development. (2) Comprehensive strategic partnerships are the highest level of cooperation, establishing formal channels of communication between top government officials, including meetings at multilateral events.

We also consider that strategic partnerships may not entirely capture trust between governments and thus also consider measures of state behavior as well as public opinion. For the former, we include the number of militarized interstate disputes between 2000 and 2014, the latest year for which data exists. We think this measure may be more reflective of

actual behavior; we only include as a robustness check as the data ends in 2014, years before governments incentivize re-shoring of the vulnerable supply chains. Finally, we use public opinion data as an indirect way of showing increased domestic resentment towards China.

5 Cases of Supply Chain Reshoring

Our case selection strategy is to identify cases that have similar initial domestic economic conditions on average, thereby controlling for the extent of preexisting domestic pressure governments may face regarding reshoring. Therefore, any additional source of domestic pressure comes from variation in the country’s exposure to supply chain vulnerability. Furthermore, importantly for this study, the cases should vary in their foreign economic partnerships, which impact how leaders evaluate future likelihood of disruption, which provides the facilitating condition for successful re-shoring measures. This enables us to compare like cases while isolating the primary explanatory variables in our theory. We choose three positive re-shoring cases — Japan, South Korea, and the United States — and match these cases along a set of observable covariates with three treatment cases, where the moderating variable, bilateral trust, varies between the control and treatment cases. Importantly, all of our matched cases have similar levels of development, measured as GDP per capita. This is important as studies have shown that it is easier for firms to reshore to wealthier countries due to resources that reduce a firm’s transaction costs.⁷ In addition to matching on levels of development, we also match our cases on levels of trade openness, financial openness, rule of law, control over corruption, and manufacturing share of GDP. Japan is most similar to New

⁷Wan et al. (2019).

Zealand, South Korea to the Czech Republic, and the United States to Australia. In the following subsections, we explore each pair, isolating the level of trust between the respective countries and China.

5.1 Case 1: Japan and New Zealand

Japan's global value chain is highly dependent on China, making Japan highly vulnerable. Its bilateral relationship with China, its largest trading partner has gradually deteriorated over time; moreover, Japan does not have a strategic partnership with China. Conversely, New Zealand has similar vulnerability to a supply chain disruption with China, but since 2014 the government has been in a Comprehensive Strategic Partnership with China. Given these characteristics, our theory would predict that Japan should be more likely to propose direct re-shoring policy measures, while New Zealand should be more likely to maintain the status quo. Indeed, we find that our theory matches the outcome for these two cases.

Approximately 24% of Japan's high R&D inputs in their supply chain comes from China (see Table 1), making them highly dependent on a continued positive relationship with China compared to their other economic partners. However, Japan and China's relationship has deteriorated with particular flare-ups in the years immediately preceding the pandemic. Japan has filed two complaints against the China in the WTO in the last ten years. This is significant when compared to the complete absence of any complaint filed against Australia, another of Japan's significant trading partners. Japanese politicians have also expressed concern that China is an unreliable partner alluding to China's punitive trade sanctions against Australia for its support of the World Health Organization's investigation into the

origins of the pandemic.⁸

In addition to these rising trade tensions, Japan and China maintain long-standing territorial disputes, which were particularly heated from 2012 through 2013. These tensions have only magnified in recent years as the Chinese air incursions have prompted Japan's military responses more in 2018 and 2019 than any other year.⁹ While tensions seemed to ease momentarily with Abe's state visit to China in 2018, it remains clear from public sentiment that their earlier tensions have not diminished the political discord. According to a 2019 Pew survey, 81% of Japanese respondents lacked confidence that the Chinese President, Xi Jinping, would do the right thing in world affairs. Likewise, unfavorable perceptions of China have increased from a mere 42% in 2002 to over 86% in 2020.

Shortly after the pandemic prompted massive shortages and froze supply chains, Japan announced 220 billion yen to support companies shifting production back to Japan and an additional 23.5 billion yen for companies to nearshore.¹⁰ This initiative primarily targets small and medium sized companies, with subsidies covering up to three-fourths of their relocation costs. Japan's policy response clearly aligns with our theoretical predictions. In particular, in describing the motivation for the initiative, Japanese officials emphasized the same factors identified in our theory. Japan's Economy, Trade, and Industry Ministry stated that the policy is intended to avoid the risks associated with heavy reliance on production and importantly, also noted China's tariff war with the U.S. and rising anti-Japanese demonstrations as contributing factors.¹¹ Additionally, policy experts also noted how COVID-19

⁸The Japan Times. "Japan prods firms to leave China, affecting ties with Beijing and Washington" May 8, 2020.

⁹Global Conflict Tracker. Council on Foreign Relations.

¹⁰The Japan Times. "Japan to help shift manufacturing to ASEAN from China after virus disrupts supply chains." May 5, 2020.

¹¹Ibid.

Table 1: Matching covariates for Case 1: Japan and New Zealand

Covariate	Japan	New Zealand*
High R&D dependence [†]	0.24	0.22
HHI (high R&D) [†]	2.17	1.15
GDP per capita (thousand USD) [‡]	40.1	41.8
Exports/GDP [‡]	17.6	27.0
Imports/GDP [‡]	17.4	27.1
Unemployment [†]	3.0	4.5
Financial openness	2.0	2.0
Growth rate [†]	0.3	1.0
Rule of law	90.4	98.0
Control of corruption	89.9	97.6
Manufacturing (share of GDP)	0.21	0.12

*: For the case of New Zealand, we focus on its dependence on the semiconductor industry only, which is a portion of the high R&D classification and makes up a more strategically important sector for the country which has a small air manufacturing sector. [†]: Average between 2010 and 2020. [‡]: Value in 2020.

highlighted China’s underlying fragility and weakened Japan’s trust in the Chinese government.¹²

New Zealand is similar to Japan on its dependence for Chinese inputs, but here we focus on where New Zealand is most vulnerable: semiconductor supply chains. During the height of the COVID-19 pandemic, New Zealand’s import share of Chinese semiconductor inputs fell from 40% of all semiconductor inputs to near zero; a complete shutdown in trade with its largest trading partner. Despite this extreme vulnerability and heightened tensions between Australia and China, New Zealand’s trade minister insisted the government would continue to expand its trading relationship with Beijing despite recent “ructions.”¹³ This squares with our predictions due to the high level of trust exhibited between Beijing and

¹²The Japan Times. “Japan prods firms to leave China, affecting ties with Beijing and Washington.” May 8, 2020.

¹³The Financial Times. “New Zealand looks to UK and EU to diversify market beyond China.” June 16, 2021.

Wellington with the highest level of strategic partnerships created in 2014. Of course, a counterargument could be that New Zealand simply doesn't have the manufacturing base to absorb the semiconductor factories currently based in China (note that only 12% of the New Zealand economy is in manufacturing). Thus, in our next case study, we purposefully match the case of South Korea, a known manufacturing center, with the Czech Republic, and equally strong manufacturing hub for the region.

5.2 Case 2: South Korea and Czech Republic

Out of the three positive cases of re-shoring, South Korea's global supply chain is the most vulnerable. Moreover, South Korea's relations with its two largest trading partners has deteriorated significantly in recent years. Despite having a Strategic Cooperative Partnership with Beijing since 2008, this agreement merely signifies an intention for friendly cooperation, thus is not on par with a Strategic Partnership or Comprehensive Strategic Partnership. The high levels of exposure and low trust in partners should increase the likelihood that South Korea places a high priority on direct re-shoring initiatives. Similar to South Korea, the Czech Republic is also highly dependent on China for high R&D inputs. However, in 2016, the Czech government signed a Strategic Partnership with the Chinese government, signalling a higher level of trust than in South Korea.

According to our measure, 29% of South Korea's high R&D inputs comes from China with Japan following at 10%. In addition, South Korea's relationship with both trading partners has soured in recent years. In 2016, South Korea filed an official WTO complaint with China over claims of illegal fishing. However, the largest point of contention between

the two countries was China's opposition to South Korea's acquiescence to the United State's THAAD program. This diplomatic dispute spilled over to the economic sphere with Chinese citizens boycotting South Korean companies, cancelling planned tourist trips, and physically removing South Korean goods from most supermarkets.¹⁴ General public opinion also reflects this hostile relationship. In 2019, 66% of South Koreans viewed economic ties between their country and China as bad and 74% reported no confidence in the Chinese leader to do the right thing in world affairs.¹⁵ It is not only high levels of distrust, but the relationship continues on a downward trend worsening over time. In 2002, 31% of South Koreans reported unfavorable views of China; this number jumped to 75% by 2020.¹⁶

South Korea has faced similar tensions with its second largest trading partner, Japan. South Korea's most recent case in the WTO was filed against Japan in September of 2019. In addition, the two countries had a major diplomatic row in 2018 that was described by South Korea's ruling Democratic Party as an "all out declaration of economic war."¹⁷ A dispute over a South Korean court ruling regarding reparations for comfort women culminated in economic boycotts and tit-for-tat trade sanctions and even a threat to end military intelligence sharing between the two countries.¹⁸ South Korean President Moon noted how these diplomatic tensions would negatively impact the economy stating "Tokyo's selfish act will inflict tremendous damage on the world economy by disrupting global supply chains."¹⁹

Facing increasingly hostile relations abroad and high exposure from the structure of their global supply chains, South Korean officials were highly motivated to enact re-shoring

¹⁴BBC News. "South Korea and Japan's feud explained." December 2, 2019.

¹⁵Pew Global Attitudes Spring 2019.

¹⁶Pew Global Attitudes Summer 2020.

¹⁷BBC News. "Japan to strike South Korea off trusted export list as rift deepens." August 2, 2019.

¹⁸BBC News. "South Korea and Japan's feud explained." December 2, 2019.

¹⁹BBC News. "Japan to strike South Korea off trusted export list as rift deepens." August 2, 2019.

policies. In early June 2020, South Korea announced its New Deal initiative that among other policy measures, commits financial assistance to firms relocating to South Korea.²⁰ In particular, the measure provides subsidies of 20 billion won per business for re-shoring investments and relocation costs. The initiative also contains a tax cut available for re-shoring companies. Statements describing the rationale for the policy reflect similar factors proposed in our theory. For instance, South Korea's Trade, Industry, and Energy minister said that "the pandemic is an opportunity for South Korea to consolidate its position as a control tower in Asia supplying core parts and materials."²¹ Furthermore, the First Vice Minister of Economy and Finance suggested that the initiative was driven by fear that trade tensions would worsen in the near future as conflict escalates between the U.S. and China over responsibility for the pandemic.²² These motivations reveal that policymakers do weigh the prospective health of their economic relationships in their policy-making decisions.

The Czech government, in contrast to South Korea, has a relatively good relationship with Beijing. The Strategic Partnership created in 2016 allows for more formalized mechanisms of cooperation between government leaders, especially with regards to economic cooperation. This increases the overall trust between governments, thus making the probability of re-shoring relatively low. Public opinion in the Czech Republic towards China tends to be more favorable than South Korea. For example, 41% of individuals surveyed stated that China was the world's leading economic power, compared to just 12% in South Korea (South Korean's tend to overwhelmingly see the US as the leading economic power, 82%).²³ Finally,

²⁰Though the re-shoring measures are part of a larger policy initiative, the re-shoring measures still fit the criteria for our dependent variable as the policy commits financial resources with the explicit intent of re-shoring.

²¹Bloomberg News. "Korea Warns of Trade Pain that will Shift Supply Chains." May 11, 2020.

²²The Korea Times. "Korea urged to promote manufacturing reshoring." May 7, 2020.

²³Pew Research Center 2019, Global Attitudes Survey.

Table 2: Matching covariates for Case 2: South Korea and Czech Republic

Covariate	Korea	Czech Republic
High R&D dependence [†]	0.29	0.29
HHI (high R&D) [†]	1.59	1.41
GDP per capita (thousand USD) [‡]	31.5	22.8
Exports/GDP [‡]	36.9	71.5
Imports/GDP [‡]	33.2	64.6
Unemployment [†]	4.1	2.9
Financial openness	2.0	2.0
Growth rate [†]	-1.0	-5.6
Rule of law	86.1	81.7
Control of corruption	76.9	68.8
Manufacturing (share of GDP)	0.26	0.23

[†]: Average between 2010 and 2020. [‡]: Value in 2020.

the Czech military has not been in any militarized interstate disputes with China in the previous 10 years, whereas South Korea has been in five. Together, this adds support to our argument that low trust between governments will increase the probability of re-shoring highly vulnerable supply chains.

5.3 Case 3: United States and Australia

Our final comparative case study highlights two countries with similarly high tensions with China, but they differ on overall vulnerability to supply chain disruptions and the existence of a strategic partnership.

In the summer of 2021, the U.S. Senate approved legislation that would fund the re-shoring of semiconductor manufacturing from China to the US. The \$52 billion funding package was approved with bipartisan support and is waiting on House approval; most likely the funding would be included in any budget reconciliation that goes through the House

this year. This is a clear indication of the US government allocating funds for re-shoring a vulnerable supply chain from China. While the dependence is only about 13% on average (much smaller than our other countries at 20%), it still fits the theoretical predictions.²⁴

On the contrary, Australia is highly dependent on China for semiconductor inputs, with almost half (46%) of all inputs coming from China. This extreme dependence allows us to test if highly dependent countries are less likely to re-shore given their vulnerability to trade disruptions. We should note here that this story is ongoing since the recent AUKUS framework heightened tensions between Australia and China. However, Australia and China have been in a strategic partnership since 2013, with this partnership elevating to a Comprehensive Strategic Partnership in 2014. Given these close ties between Australia and China, we would predict that Australia would not re-shore supply chains from China, despite the Australian government's current tensions with Beijing and their high vulnerability to supply chain disruptions.

As a robustness check, we can look at the number of militarized disputes between the case countries and China as well as public opinion. The US has been involved in nine militarized interstate disputes with China in the last 10 years, whereas Australia has only been involved in one. Similarly, the US has filed 23 WTO disputes against China, while Australia has only filed two. Finally, public opinion towards China tends to be much warmer in Australia than in China. For example, in 2019, 41% of Americans surveyed thought that the economic ties between their country and China were good, compared to 80% in Australia. Similarly,

²⁴Pre-analysis plan caveat: when starting this project, our theory focused exclusively on high R&D inputs, of which the US is highly vulnerable to China at 20% of inputs. However, in the production of this paper, the Senate passed this legislation that focused exclusively on semiconductors, thus shifting our focus to one sector within the category of high R&D. While the 13% dependency share is lower than our 20% cutoff, we still think this to be a high amount considering the average dependence is about 2% with other trading partners.

Table 3: Matching covariates for Case 3: United States and Australia

Covariate	US	Australia
Semiconductor dependence [†]	0.13	0.46
HHI (semiconductors) [†]	1.12	3.29
GDP per capita (thousand USD) [‡]	63.5	51.8
Exports/GDP [‡]	11.7	23.9
Imports/GDP [‡]	14.6	20.1
Unemployment [†]	8.3	6.6
Financial openness	2.0	2.0
Growth rate [†]	-3.5	-0.3
Rule of law	89.9	93.3
Control of corruption	84.6	94.2
Manufacturing (share of GDP)	0.12	0.08

*: We focus on semiconductor dependencies for this case study, a particular sector within the high R&D category. [†]: Average between 2010 and 2020. [‡]: Value in 2020.

60% of Americans surveyed had an unfavorable opinion of China, compared to just 27% in Australia.

As tensions between Australia and China continue to increase with the recent AUKUS partnership, our theory would predict the Australian to allocate funds for re-shoring only if the Comprehensive Strategic Partnership ends. Given the high dependence on Chinese producers for semiconductor inputs, the Australian government would need to provide a considerable amount of funds to incentive re-shoring, or potentially depend on the US for these vulnerable inputs.

6 Discussion

While it is clear that COVID-19's economic shock provided the initial impetus for governments to reevaluate their level of supply chain exposure, whether governments responded

to the shock with rhetoric or actually transformed the rhetoric into direct re-shoring policies is conditional on their expectation of future trust in their foreign partners. All of our cases highlight the trust condition as a driving factor behind direct re-shoring initiatives. In addition, there is initial evidence that the findings are not simply a China phenomenon. The South Korea case showed perhaps an even greater deterioration in trust with its second largest source of exposure, Japan, which was also a motivating factor in its policy-making. Overall, the cases show that in order to understand re-shoring in response to COVID-19, a complete framework must be able to explain not only the factors that motivate a government to respond, but also detail the conditions under which we expect them to act.

While case studies are useful for tracing the underlying theoretical mechanism, they often face several potential challenges to inference. A common concern is that there is some other variable we have not accounted for that explains the variation in government policy responses. To account for this bias, we consider whether potential alternative explanations better explain the pattern of behavior we observe in our case studies. One potential alternative is that the variation in policy responses may be explained by differences in government capacity. If this argument were true, we would expect to see the capacity of Australia, New Zealand, and the Czech Republic to be lower than both Japan's, South Korea's, and the United States' in order to explain the lack of direct re-shoring measures. However, this prediction does not match the empirical evidence. Measuring government capacity as annual tax revenue as a percentage of GDP, both Japan and South Korea had access to around 19% for 2018, the most recent year data was available, while the US had access to 10% in 2019.²⁵ On the other hand, Australia and New Zealand had access to 23.3% and 28.2% of GDP

²⁵World Development Indicators, World Bank.

in tax revenues, respectively in 2019; the Czech Republic had tax revenues of just 14.8%. Despite having the greatest capacity out of the six countries, we do not see the Australia and New Zealand committing financial support for re-shoring efforts and thus, can discount government capacity as a potential explanation.

Next, we consider whether our outcome of interest is simply a reflection of variation in the impact of COVID-19 on a country's domestic economic conditions. For instance, it is plausible that countries that experienced a more rapid and severe decline in employment as a result of the pandemic may face significant public pressure to enact re-shoring policies to prevent shortages of critical equipment in the future. However, the data also does not support this argument. At the very start of the pandemic, unemployment in the US was 3.7% and 5.2% in Australia. This increased to 8.1% in 2020 for the US and 6.5% in Australia. Japan's unemployment pre-pandemic was just 2.4%, increasing to 2.8% in 2020; similarly, New Zealand saw only a small increase in unemployment between 2019 and 2020, increasing from 4.1% to 4.6%. Both can be attributed to the early containment of the virus in the two countries. The same comparison can be made between South Korea and the Czech Republic: South Korea saw unemployment increase from 3.8% to just 3.9%, and the Czech unemployment rate increased from 2% to just 2.6%. If the argument were true, we would expect that the United States, followed by Australia, would be most likely to enact re-shoring measures but the pattern does not emerge; only the United States passes legislation.

Finally, we consider the argument that COVID-19's shock is unique and thus, generated unusual policy responses, including initiatives to re-shore. First, this argument does not attempt to explain variation in government responses even assuming that COVID-19 creates a unique economic shock. Second, while it is true the pandemic is unprecedented in modern

history, government re-shoring rhetoric following economic shocks have a long-standing history. We are interested in explaining not only the domestic pressures governments face to enact such policies, but also the factors that lead governments to pass policies in response to this particular shock. Major natural disasters have disrupted global supply chains in a comparable manner to COVID-19's present shock. For instance, Japan's earthquake in Tohoku in 2011 almost completely shut down production of the world's semiconductors, which are critical components for electronic devices. A study found that the nine months it took before global semiconductor production picked up cost Japan's economy 0.41% of its GDP (Tokui, Kawasaki, and Miyagawa, 2017). While COVID-19's economic shock is more far-reaching, it is clear that similar shocks have devastated and exposed global supply chains before. It is noteworthy that despite Japan having experienced a similar level of economic shock in the earthquake, we only observe re-shoring initiatives in the present case. As described in the section above, this change can be explained by Japan's deteriorating trust in their main economic partner. The assertion that COVID-19 is a unique shock does not appear to bear out under further scrutiny. By evaluating the most likely alternative arguments, we gain confidence that our theoretical framework is a useful starting point to explain direct re-shoring policy measures.

7 Conclusion

Volatility will continue to remain a defining feature of the current global landscape. In this system, governments often struggle to balance the potential gains from openness to the world economy and the negative externalities that volatility imposes on the welfare of its

constituents. Previous literature has shown how economic shocks force leaders and firms to reevaluate their relationship to the world economy. COVID-19 represents a similar shock. Despite this retrospection, there is significant variation in whether countries take costly steps to respond. Most studies on re-shoring tend to solely focus on demand-side domestic pressure, paying scant attention to what factors lead politicians to actually supply policy response. In this paper, we offered a framework to understand the conditions under which governments will respond to economic shocks. Through the examination of initiatives in Japan, South Korea, and the United States, and comparing them to the lack of initiatives in Australia, Czech Republic, and New Zealand, it is clear that bilateral trust and supply chain vulnerability are important drivers of direct re-shoring measures.

One implication from our study is that countries increasingly perceive current global governance institutions as inadequate forums to overcome fractures in their economic partnerships. A common assumption in international relations is that international institutions enable politicians to counter-balance the domestic pressure for protectionism. The re-shoring initiatives from Japan, South Korea, and the United States should prompt scholars to reevaluate this claim. Furthermore, as more elected officials take up the mantle of protectionism, the repercussions of such moves will vary as well. [Weldzius \(2021\)](#) finds that increased reliance on these global supply chains has decreased the use of currency manipulation by policymakers to gain advantage in international trade. Thus, re-shoring could also bring this *beggar-thy-neighbor* tool back into fashion. This could also lead to more anti-dumping cases being filed as there is less domestic opposition from the supply chain dependent firms that opposed these filings before — a reversal from the findings in [Kim and Spilker \(2019\)](#). Finally, this may have national security related repercussions as suggested by [Dollar \(2020\)](#),

where government's use the cover of national security for their protectionist policies, thus blurring the difference between security policy and domestic politics.

While the repercussions of COVID-19's economic shock are still being felt, we believe our framework provides a useful starting point to guide future research, especially as more data becomes available. One possible line of inquiry should more closely analyze sub-national characteristics such as electoral conditions as well as industry-specific geographic variation. Another potential avenue is to explore whether countries are strategically responding to the re-shoring efforts of major allies or adversaries. Finally, researchers in social science should join ongoing efforts in supply chain management research to analyze what types of firms respond to these initiatives, if at all. Based on anecdotal evidence alone, the ability of re-shoring efforts to "bring jobs home" is unfortunately vastly overstated.

References

- Autor, David, David Dorn, Gordon Hanson, and Kaveh Majlesi. 2020. "Importing political polarization? The electoral consequences of rising trade exposure." *American Economic Review* 110(10): 3139–83.
- Autor, David H., David Dorn, and Gordon H. Hanson. 2013. "The China syndrome: Local labor market effects of import competition in the United States." *American Economic Review* 103(6): 2121–68.
- Baldwin, Richard. 2016. *The great convergence*. Harvard University Press.
- Barbieri, Paolo, Albachiara Boffelli, Stefano Elia, Luciano Fratocchi, Matteo Kalchschmidt, and Danny Samson. 2020. "What can we learn about reshoring after Covid-19?" *Operations Management Research* 13(3): 131–136.
- Bisbee, James, Layna Mosley, Thomas B. Pepinsky, and B. Peter Rosendorff. 2020. "Decompensating domestically: the political economy of anti-globalism." *Journal of European Public Policy* 27(7): 1090–1102.
- Broz, J. Lawrence, Jeffrey Frieden, and Stephen Weymouth. 2021. "Populism in Place: The Economic Geography of the Globalization Backlash." *International Organization* p. 1–31.
- Büthe, Tim, and Helen V Milner. 2008. "The politics of foreign direct investment into developing countries: increasing FDI through international trade agreements?" *American journal of political science* 52(4): 741–762.
- Colantone, Italo, and Piero Stanig. 2018. "Global competition and Brexit." *American political science review* 112(2): 201–218.
- De Backer, Koen, Carlo Menon, Isabelle Desnoyers-James, and Laurent Moussiégt. 2016. "Reshoring: Myth or reality?"
- Delis, Agelos, Nigel Driffield, and Yama Temouri. 2019. "The global recession and the shift to re-shoring: Myth or reality?" *Journal of Business Research* 103: 632–643.
- Di Mauro, Carmela, Luciano Fratocchi, Guido Orzes, and Marco Sartor. 2018. "Offshoring and backshoring: A multiple case study analysis." *Journal of Purchasing and Supply Management* 24(2): 108–134.
- Dollar, David. 2020. "The future of global supply chains: What are the implications for international trade?" In *Reimagining the global economy: Building back better in a post-COVID-19 world*, ed. Brahim S. Coulibaly, Kemal Derviş, Homi Kharas, and Zia Qureshi. Global Economy and Development at Brookings chapter 6, pp. 46–51.
- Fratocchi, Luciano, Carmela Di Mauro, Paolo Barbieri, Guido Nassimbeni, and Andrea Zanoni. 2014. "When manufacturing moves back: Concepts and questions." *Journal of Purchasing and Supply Management* 20(1): 54–59.
- Gereffi, Gary. 2006. *The new offshoring of jobs and global development*. International labour organization.

- Gray, John V, Keith Skowronski, Gökçe Esenduran, and M Johnny Rungtusanatham. 2013. “The reshoring phenomenon: what supply chain academics ought to know and should do.” *Journal of Supply Chain Management* 49(2): 27–33.
- Grossman, Gene M, and Esteban Rossi-Hansberg. 2008. “Trading tasks: A simple theory of offshoring.” *American Economic Review* 98(5): 1978–97.
- Jensen, J Bradford, Dennis P Quinn, and Stephen Weymouth. 2017. “Winners and losers in international trade: The effects on US presidential voting.” *International Organization* 71(3): 423–457.
- Jensen, Nathan, Glen Biglaiser, Quan Li, Edmund Malesky, Pablo Pinto, and Joseph Staats. 2012. *Politics and foreign direct investment*. University of Michigan Press.
- Kerner, Andrew. 2014. “What we talk about when we talk about foreign direct investment.” *International Studies Quarterly* 58(4): 804–815.
- Kerner, Andrew, and Jane L Sumner. 2020. “Salvation by good works? Offshoring, corporate philanthropy, and public attitudes toward trade policy.” *Economics & Politics* 32(1): 1–27.
- Kim, Soo Yeon, and Gabriele Spilker. 2019. “Global value chains and the political economy of WTO disputes.” *The Review of International Organizations* 14(2): 239–260.
- Kuk, John Seungmin, Deborah Seligsohn, and Jiakun Jack Zhang. 2018. “From Tiananmen to outsourcing: the effect of rising import competition on congressional voting towards China.” *Journal of Contemporary China* 27(109): 103–119.
- Lipsy, Phillip Y. 2020. “COVID-19 and the Politics of Crisis.” *International Organization* pp. 1–30.
- Margalit, Yotam. 2011. “Costly jobs: Trade-related layoffs, government compensation, and voting in US elections.” *American Political Science Review* pp. 166–188.
- OECD. 2018. “Trade in value added.”
- Owen, Erica. 2017. “Exposure to offshoring and the politics of trade liberalization: debate and votes on free trade agreements in the US House of Representatives, 2001–2006.” *International Studies Quarterly* 61(2): 297–311.
- Owen, Erica, and Noel P Johnston. 2017. “Occupation and the political economy of trade: Job routineness, offshorability, and protectionist sentiment.” *International Organization* 71(4): 665–699.
- Pandya, Sonal S. 2016. “Political economy of foreign direct investment: Globalized production in the twenty-first century.” *Annual Review of Political Science* 19: 455–475.
- Porter, Eduardo. 2019. “Ross Perot’s Warning of a ‘Giant Sucking Sound’ on Nafta Echoes Today.” *New York Times* Jul 9, 2019.
- Raza, W, J Grumiller, H Grohs, J Essletzbichler, and N Pintar. 2021. “Post Covid-19 value chain: options for reshoring production back to Europe in a globalised economy.” *Brussels: European Union–Directorate General for External Policies of the Union* .
- Solingen, Etel (ed.). 2021. *Geopolitics, Supply Chains, and International Relations in East Asia*. Cambridge University Press.

- Stentoft, Jan, Ole Stegmann Mikkelsen, and Jesper Kronborg Jensen. 2016. "Offshoring and backshoring manufacturing from a supply chain innovation perspective." *Supply Chain Forum: An International Journal* 17(4): 190–204.
- Strüver, Georg. 2017. "China's Partnership Diplomacy: International Alignment Based on Interests or Ideology." *The Chinese Journal of International Politics* 10(1): 31–65.
- Tokui, Joji, Kazuyasu Kawasaki, and Tsutomu Miyagawa. 2017. "The economic impact of supply chain disruptions from the Great East-Japan earthquake." *Japan and the World Economy* 41: 59–70.
- Walter, Stefanie. 2021. "The Backlash against Globalization." *Annual Review of Political Science* 33.
- Wan, Li, Guido Orzes, Marco Sartor, and Guido Nassimbeni. 2019. "Reshoring: Does home country matter?" *Journal of Purchasing and Supply Management* 25(4): 100551.
- Weldzius, Ryan. 2021. "The End of Currency Manipulation? Global Production Networks and Exchange Rate Outcomes." *Economics and Politics* 00: 1–19.

A Appendix

Figure 3: Japan's supply chain vulnerability, high R&D sectors

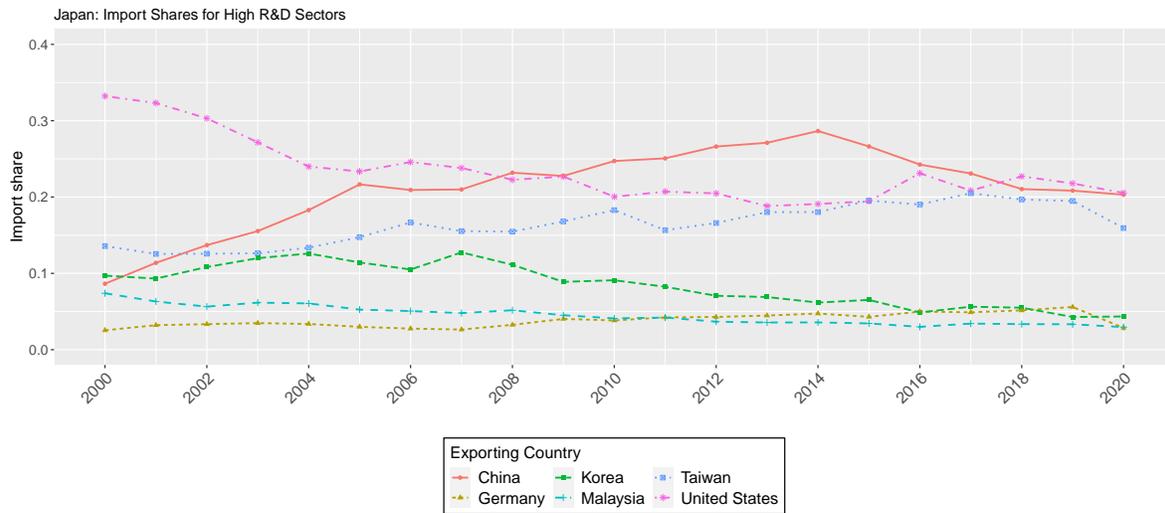


Figure 4: New Zealand's supply chain vulnerability, semiconductor sector

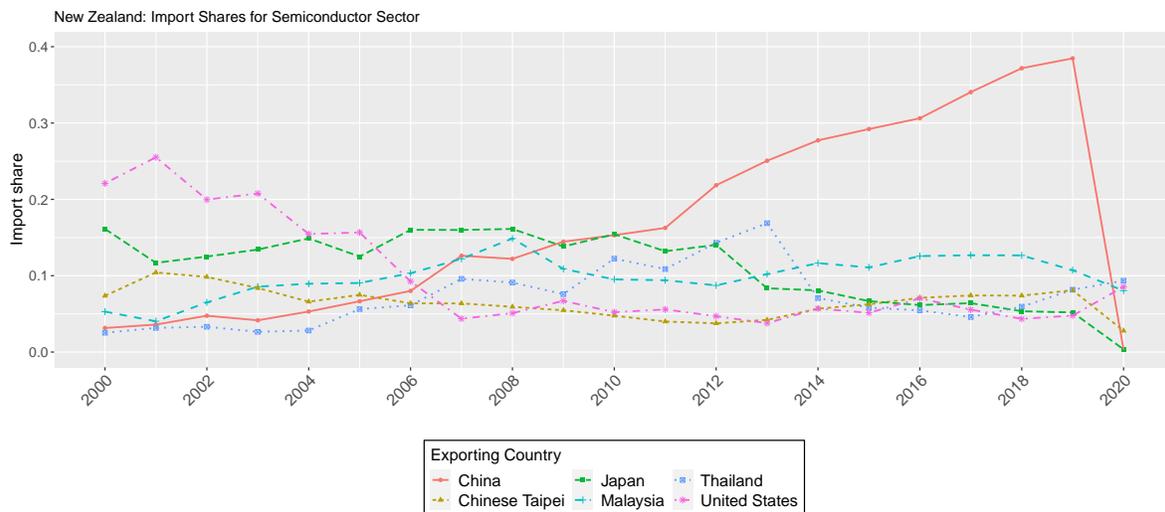


Figure 5: South Korea's supply chain vulnerability, high R&D sectors

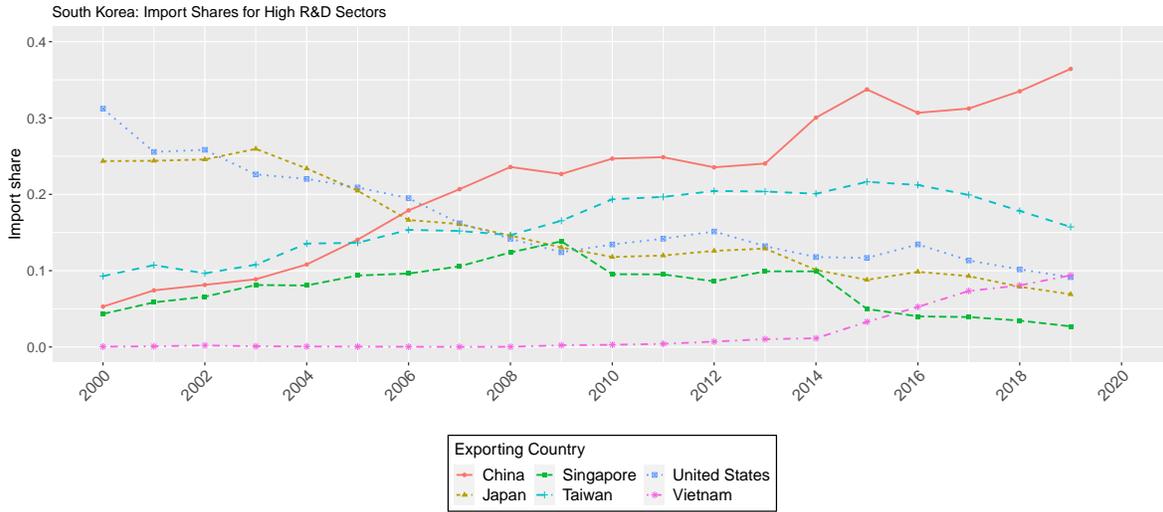


Figure 6: Czech Republic's supply chain vulnerability, high R&D sectors

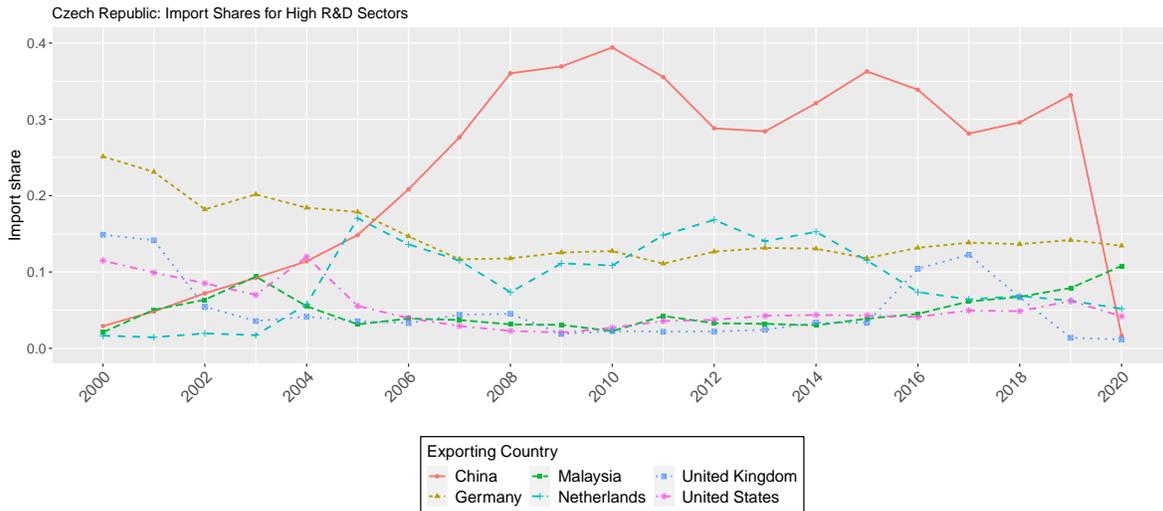


Figure 7: United States' supply chain vulnerability, semiconductor sector

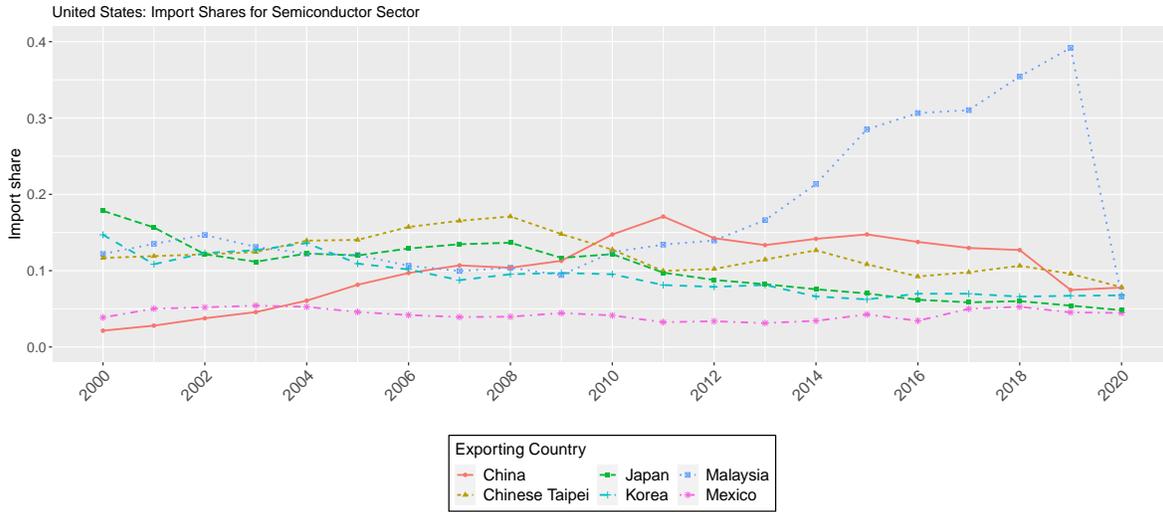


Figure 8: Australia's supply chain vulnerability, semiconductor sector

