ASPEN ECONOMIC STRATEGY GROUP

aspen institute

CHAPTER

# Manufacturing Resilience: The US Drive to Reorder Global Supply Chains

by Mary E. Lovely



**Suggested Citation:** Lovely, Mary E.. November 8, 2023. "Manufacturing Resilience: The US Drive to Reorder Global Supply Chains" In *Building a More Resilient US Economy*, edited by Melissa S. Kearney, Justin Schardin, and Luke Pardue. Washington, DC: Aspen Institute.

# Manufacturing Resilience: The US Drive to Reorder Global Supply Chains

**AUTHOR**

**Mary E. Lovely***

**ABSTRACT**

Global supply chains—the network through which products and services move from initial producers to final consumers—have become increasingly complex over the past several decades. Recent disruptions caused by the COVID-19 pandemic, along with the threat of further interruptions from rising geopolitical risks, have exposed the fragility of today's supply chains. To build more resilient networks, US policymakers have taken three main approaches: increasing domestic manufacturing capacity ("reshoring"), building new supply chains among foreign partners aligned with US interests ("friendshoring"), and reducing dependence on trade partners considered untrustworthy ("derisking"). This paper evaluates these strategies, weighing the likelihood that each will reduce the potential of future disruptions against the costs to taxpayers and consumers. Reshoring builds domestic capacity but is costly and only tenable in a few critical sectors. Friendshoring balances the efficiencies of trade while preventing reliance on rival states but can ultimately result in longer and less transparent networks. Finally, derisking our relationship with China will allow the US to diversify critical supply chains but is complicated by the country's dominant role in world trade and by ongoing political tensions.

* Anthony M. Solomon Senior Fellow, Peterson Institute for International Economics

*Acknowledgements:* The author received helpful feedback on earlier drafts from Melissa S. Kearney, Justin Schardin, and Luke Pardue. She thanks the trade team at the Peterson Institute for insightful conversation on the issues addressed in this paper and Abigail Dahlman for excellent research assistance.

## 1. Introduction

Spurred by technological advances in shipping and communications and aided by a liberal world-trading environment, deepening global supply chains (GSCs) have for four decades lowered costs and increased the variety of goods available to consumers around the world. GSCs are complex networks of manufacturers, suppliers, warehouses, distributors, and shippers who move products and services from one location to another. Supporting these activities are orchestrated flows of blueprints, technology, people, and data across multiple countries and organizations. According to the World Trade Organization (2019), prior to the COVID-19 pandemic, more than two-thirds of world trade occurred through supply chains in which production crossed at least one border, and typically many borders, before final assembly.

*Since the onset of the COVID-19 pandemic, however, supply chains once seen as exemplars of economic efficiency are increasingly portrayed as unacceptable sources of collective risk.*

Since the onset of the COVID-19 pandemic, however, supply chains once seen as exemplars of economic efficiency are increasingly portrayed as unacceptable sources of collective risk. Concerns about their resilience deepened as a series of external shocks continued to disrupt trade in the pandemic's wake. Fragmentation has made GSCs long and thus subject to shocks emanating anywhere along the chain, while geographic concentration has made them heavily dependent on certain locations (and thus to shocks hitting specific parts of the world). In contrast to idiosyncratic shocks like the 2011 Tōhoku earthquake and tsunami, headline supply shocks since 2020 have been global and cross-sectional—hitting many countries and industries simultaneously. Adding to concerns about exogenous shocks, the weaponization of trade by China and Russia has raised the geopolitical risks of overdependence on unfriendly countries. In concert, public demands have grown louder for both government and private-sector actions to reduce supply vulnerabilities.

In the United States, the federal government has responded to widespread demands for domestic government action with new industrial and trade policies that promise a more resilient economy, defined as one that can better adapt to shocks and withstand geopolitical turmoil. Since taking office in 2020, President Joe Biden has prioritized efforts to enhance supply resilience. His administration has pursued policies designed to move some production onshore, expand commerce with "like-minded" countries, and reduce reliance on unfriendly states. This paper focuses on the administration's efforts to "reshore, friendshore, and derisk" the supply chains that serve American businesses and households. Now that two major federal statutes

promoting reshoring have passed a divided Congress, and the administration is deeply engaged in forming new partnerships, we may ask how effective these efforts are likely to be at reducing the risk of supply disruptions; what this new insurance will cost American taxpayers, businesses, and consumers; and how compatible they are with other US commitments. My early assessment suggests that supply chains are malleable and can be shifted in limited ways but that doing so is costly and often in conflict with other US objectives.

The US is in the early stages of efforts to boost supply resilience, and policies related to supply chains are taking shape in real time through the promulgation of implementation rules, ongoing international negotiations, and review of existing trade and investment policies. In this paper, I describe efforts to reorder the global supply chains that serve US importers, omitting discussion of export controls and investment restrictions. This omission does not imply that such efforts are unrelated to economic resilience, only that they are grounded in national security concerns and, thus, more appropriate for discussion in that context.

## 2. Shortages Sound the Alarm on Supply Resilience

Since taking office during a global pandemic, President Biden has used the power of the federal government to advance policies aimed at strengthening American economic resilience. The foundation of his push for resilience is an industrial strategy prioritizing American manufacturing, transitioning to cleaner energy sources, and US technological leadership in economically critical sectors.[1] He has prioritized American manufacturing by championing major public investments in infrastructure, workforce development, the domestic semiconductor industry, and renewable energy systems.

A core premise of the Biden resilience strategy is that reliance on foreign suppliers, especially from China, has undermined American manufacturing and made the US economy more vulnerable to external shocks.[2] His administration has stepped away from open trade (defined as nondiscriminatory trade with other members of the World Trade Organization [WTO]). In its place, the administration argues for deeper engagement with "like-minded" countries and for the imposition of "guardrails" on relations with countries that do not share American values. By shifting access to American markets away from countries viewed as hostile, the administration hopes

1 Then-director of the National Economic Council Brian Deese outlined the new "modern industrial strategy" in a major speech in April 2022.

2 Referring to a speech by National Security Council director Jake Sullivan (2023), US trade representative Katherine Tai (2023) noted her agreement with the conclusion that "the pursuit of efficiency and low costs above all else has led to vulnerable and high-risk supply chains."

to reduce exposure to geopolitical supply shocks while building networks with partners that share American labor and environmental standards.

President Biden's efforts to address supply vulnerabilities respond to domestic shortages experienced during the COVID-19 pandemic—shortages stemming from surges in demand, factory closures, and ruptures in transportation networks. As the virus spread silently through local communities in 2020, Americans were alarmed by daily reports of severe shortages of personal protective equipment (PPE) for front-line health workers. Televised interviews provided vivid images of exhausted doctors, nurses, and emergency personnel forced to reuse face shields, eye protection, gowns, and medical gloves as hospital stocks were depleted. With health-care workers falling victim to the virus, pressure mounted for government officials to fix America's broken supply chains.

Excessive dependence on imports from China became a common explanation for the domestic supply crisis.[3] Indeed, before the pandemic, China supplied 47 percent of the world's imports of PPE. Facing its own domestic health crisis in early 2020, China increased imports and decreased exports of PPE, making it more difficult for others to obtain supplies. In response, some countries banned exports of domestically produced PPE, threatening descent into an "every man for himself" situation.

PPE is not the only product that focused the public's attention on the need for enhanced supply resilience. Beginning in 2021, a worldwide semiconductor shortage became one of the biggest stories in the automotive industry. Manufacturers were forced to slash production schedules and bear massive revenue losses as dealers' lots were depleted of inventory. Auto buyers faced a set of unattractive choices: pony up for inflated markups on the few new cars available, get lucky in a raging used-car market, or give up. Semiconductor manufacturers, who had turned their factories over to make chips for the deluge of electronic devices demanded by those suddenly forced to work from home, faced intense scrutiny. Why were there so few manufacturers, and why were there so few factories in the United States?

Across the Atlantic, Russia's invasion of Ukraine in February 2022 immediately raised the specter of crippling energy shortages in Germany. Before the war, Europe's largest economy got as much as half of its supply of natural gas by pipeline from Russia (Fix and Kapp 2023). As sanctions took hold, Russia cut the supply to Germany, and then an explosion blew up one of the gas pipelines that had carried it. The lesson was clear: Germany had become too reliant on an untrustworthy trade partner. In the US,

3 As documented by Bown (2021b), China's net exports regained pre-pandemic levels for most PPE products by April 2020. Bown shows that China's export volumes for most products remained elevated through the remainder of 2020.

as concerns mounted about China's more aggressive military stance toward Taiwan, the Russian invasion heightened already-widely-held concerns about American overdependence on the region, especially for key inputs such as semiconductors, critical minerals, and renewable energy equipment.

While ample evidence indicates that businesses were already adjusting to the altered security environment (BCI 2021), each new shortage suggested that private-industry decisions had created GSCs that have too many nodes and are too vulnerable to breakdowns in any one location. "Just in time" inventory strategies left customers high and dry when supplies were delayed. Shih (2022), writing in the *Harvard Business Review*, raised the question that was implicit in such criticisms: had the risks of global supply chains started to outweigh the rewards? Calls for government action stressed the desirability of reshoring production or, if that proved infeasible, trading with those close to the US physically or politically. "The dominant policy rhetoric," as noted by Baldwin and Freeman (2022), reflects the belief that "shortages would have been less severe in the past or would be less severe in the future if GSCs were either shorter and more domestic or more diversified".

The Biden administration has embraced the view that the risks of supply disruption outweigh the efficiency gains that come from aligning economic activities with countries' individual comparative advantages. Trade of the sort embraced by the United States in years past through the WTO, one of the foundational principles of which is nondiscrimination, has been depicted by both the president's national security advisor and his trade representative as a dangerous source of instability. Moreover, the president's team implicitly rejects multilateral solutions to supply concerns, taking its efforts outside the WTO.[4] In the WTO's place, the administration is shaping US trade policy to complement efforts to build domestic manufacturing capacity, create networks that offer alternatives to current links in supply chains, and reduce exposure to China.

## 3. Policy Tools to Enhance Supply Resilience: Reshoring, Friendshoring, Derisking

Through major legislative achievements and trade-policy diplomacy, the Biden administration has merged its efforts at domestic economic renewal with attempts to reorder global supply chains. The US is deploying three policy objectives to meet

4 Tensions between WTO disciplines and US policy were on full display in recent rulings on American tariffs on steel and aluminum imports. These tariffs have been ruled WTO-inconsistent but the US refuses to remove the measures, citing national security concerns. See Assistant United States Trade Representative Adam Hodge's statement in response to the WTO's final public reports on the dispute: https://ustr.gov/about-us/policy-offices/press-office/press-releases/2022/december/statement-ustr-spokesperson-adam-hodge

these goals: reshoring, friendshoring, and derisking.[5] To further these objectives, the US is undertaking a host of new initiatives, examples of which are listed in table 1. Although the initiatives are new or in the process of being negotiated with foreign partners, we can consider the potential for each to significantly enhance supply resilience as well as the cost each is likely to have for American taxpayers, businesses, and consumers. This evaluation is based on the design of each initiative, evidence we have of the impact of policies that have already been enacted, and assessments of similar policies used in the past.

**Table 1. Policies to Reshape Global Supply Chains**

| | Reshore | Friendshore | Derisk |
|---|---|---|---|
| **Policy tools** | Use subsidy, tax, and regulatory policy to enhance domestic production in specific sectors. | Negotiate "high standard" agreements in effort to encourage supply chain reorientation and trade diversification. | Use sanctions and tariffs to reduce US reliance on suppliers located in countries that pose a security risk. |
| **Intended objectives** | Reduce reliance on foreign suppliers; increase American manufacturing base. | Encourage supply-chain linkages to countries other than China; raise social standards in partner countries. | Divert US purchases away from countries that pose security risks; diversify US import sources. |
| **Current examples** | CHIPS Act subsidies to semiconductor industry; domestic content requirements in the IRA. | Indo-Pacific Economic Framework; USMCA; Americas Partnership for Economic Prosperity. | Maintenance of Trump-era tariffs on US imports from China; export controls and investment restrictions. |

ASPEN ECONOMIC STRATEGY GROUP aspen institute

5 Grossman, Helpman, and Lhuillier (2021) find that surprisingly little academic research has addressed the optimal design of government policy to promote resilience or to encourage sourcing from safer locations. They offer a simple model with exogenous shocks to supply of a critical input and provide two lessons: (1) if firms mark up prices over cost, the government may need two instruments to intervene optimally; and (2) if the government cannot intervene optimally, the second-best policy may be a subsidy or a tax to encourage or discourage sourcing diversification. Obviously, as the authors note, more research is needed in this area.

Altering the arrangement of global supply chains is no easy task, calling into question the likely effectiveness of government attempts to move them. Production fragmentation allows multinational companies to assign tasks according to the comparative advantage of different host countries, thus lowering costs. Geographic concentration of production results from the cost-reducing benefits of concentrating production in one location, with suppliers clustered nearby. Especially in high-tech sectors, both multinational firms and their suppliers make significant relationship-specific investments that cannot be easily replicated in alternate locations. In short, the factors that make GSCs efficient also make them difficult and costly to alter.

### *3.a. Reshoring*

Reshoring is the practice of transferring a business operation that was moved overseas back to the country from which it was originally relocated. Both Japan and South Korea have programs designed to encourage reshoring by offering public subsidies to companies returning operations they previously moved to China.[6] However, the term "reshoring" is often used in a prospective context, as it is applied to operations that have not started yet or were never moved offshore, such as production of electric vehicles. In this sense, reshoring is prospective import substitution—ensuring that production of critical goods that would otherwise be imported happens at home instead. Reshoring pushes against market forces, and thus, its success depends on marshalling public incentives large enough to generate sufficient new private investment in the desired sectors.[7] Activities targeted for reshoring are generally those that lie at the core of production ecosystems deemed critical for economic resilience and growth. Such activities typically require a diverse set of co-located suppliers and promise to generate the domestic job creation needed to justify their big price tag for taxpayers.

Reshoring plays a crucial role in US efforts to build supply chain resilience. Indeed, as described by National Security Advisor Jake Sullivan, building the American economy is the first plank of the Biden administration's international economic policy. As discussed above, an important element of this plank is recovering parts of supply chains now located abroad or ensuring that new supply chains are built onshore. In 2022, the Biden administration and the US Congress agreed that there would be significant

6 The Japanese program was launched in response to pandemic related supply problems (see Denyer 2020). South Korea offers a variety of subsidies for companies who want to reshore manufacturing. See "Investment Guide: Support for Reshoring Companies," Invest Korea, accessed September 8, 2023, https://www.investkorea.org/jnbk-en/cntnts/i-2537/web.do.

7 In its coverage of the Japanese effort to reshore some activities from China, the New York Times notes that "the government's challenge is vast: It is as though Japan is tossing pennies to hold back economic tides." See Dooley and Inoue 2020.

value in investing in two critical, rapidly evolving sectors: semiconductors and new energy. Together, the CHIPS (Creating Helpful Incentives to Produce Semiconductors) and Science Act and the Inflation Reduction Act (IRA) created a menu of subsidies, tax credits, and domestic content rules that are now being used to promote private investment in onshore research, development, and manufacturing.

In evaluating the potential impact of these blockbuster pieces of legislation, we must consider their effectiveness in reducing supply risk, their budgetary cost, and their likely effect on domestic availability and prices. Given the importance of US allies and partners to supply chain restructuring, we must also consider each initiative's compatibility with other US objectives and commitments. Such an assessment must be viewed as preliminary, as the policies—and the responses of the private sector to them—are just taking shape. Further complicating assessment is that the US turn toward industrial policy and away from open trade has no easy comparisons in recent history.[8] A summary of these preliminary assessments is provided in table 2.

**Table 2. Evaluating Policies to Reshape Global Supply Chains**

| | Reshore | Friendshore | Derisk |
|---|---|---|---|
| **Effectiveness** | **High.** Induces investment via subsidies. Can lead to ecosystem development. | **Low.** Relies on coordination. No new market access or public investment. | **Moderate.** Moves final assembly but value added may remain concentrated in China. |
| **Cost** | **High.** Requires investment subsidies and tax credits; may also require user subsidies or tariffs. | **Low.** Lacks complementary development assistance and overseas project financing. | **Moderate.** Passes burden of higher-priced goods onto consumers. Reduces competitiveness of domestic manufacturers. |
| **Compatibility with other objectives** | **Problematic.** Incites subsidy race; may lead to supply glut. Violates WTO domestic-content rules. | **Favorable.** Encourages harmonization of labor, environment, digital, and product standards. | **Problematic.** Erodes US compliance with WTO disciplines. Creates tensions with partners who trade heavily with China. |

ASPEN ECONOMIC STRATEGY GROUP aspen institute

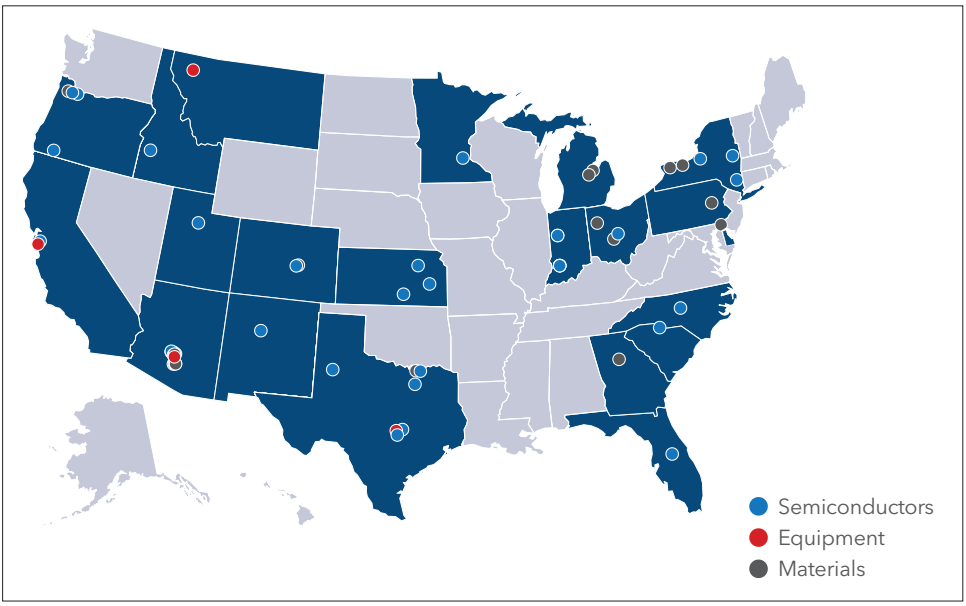
8 For example, the CHIPS Act is sometimes compared to the US response to Japanese industrial successes in the 1980s. Such comparisons must account for the vastly different global context in which today's semiconductor production occurs, rendering them of dubious value.

The CHIPS Act is designed to "bring back" to the US semiconductor manufacturing that is now concentrated in Asia. It provides roughly $53 billion in new funding for research on and manufacturing of semiconductors and workforce development, receiving bipartisan congressional support in line with the industry's unique character.[9] Semiconductors are vital to civilian and military technology, but in recent decades a growing share of their fabrication has moved to China, South Korea, and Taiwan, leaving the US dependent on geopolitically vulnerable locations.

The CHIPS Act subsidizes investment in semiconductor manufacturing, promising $39 billion of manufacturing incentives on top of 25 percent investment tax credits. This level of support appears to be attracting the industry's major fabricators and their suppliers to invest in the US. According to the Semiconductor Industry Association, between the bill's introduction in spring 2020 and June 2023, there were 67 announced new projects and expansions to existing US facilities in research and development, intellectual property and chip design software providers, chip design, semiconductor fabrication, and manufacturing by suppliers of semiconductor manufacturing equipment and materials. As seen in figure 1, these announced investments are spread across all regions of the US. Assessing how many of these projects are attracted because of CHIPS Act subsidies is difficult, in part because these funds have yet to be allocated, but also because some of these investments might have been otherwise made. And US controls on exports to China of advanced chips and the equipment and supplies needed to produce them have undoubtedly affected location decisions within the industry because they limit the materials that can be sent to China for fabricators there.

9 CHIPS Act funding described in White House Briefing Room fact sheet (2023).

**Figure 1. Semiconductor Supply Chain Investments Announced from May 2020 to June 2023**




**Source:** Semiconductor Industry Association (2023).

The mammoth IRA has multiple objectives aimed at enhancing economic resilience, including domestic production of clean energy supplies. Its allocation of $369 billion to clean energy and decarbonization projects is primarily focused on the production and implementation of clean energy technologies in the United States. Of note in the context of reshoring is the provision of subsidies to purchasers of electric vehicles (EVs) assembled in North America, a policy intended to ensure the maintenance of an American auto industry. The IRA encourages domestic development of the full EV supply chain by linking additional subsidies to the domestic sourcing of battery components and the critical minerals used in them.[10]

The White House reports that private companies have announced $133 billion in battery and EV manufacturing investment and another $103 billion in clean energy, including some funding committed prior to the bill's passage.[11] These investments reflect, in part, extensions of consumer tax credits and manufacturing tax credits

10 For details on the complex EV tax credits offered by the IRA, see Minott and Nguyen 2023.

11 The White House tally can be found at "President Joe Biden: Investing in America," Invest.gov, last updated August 29, 2023, Independent tracking of investments in the EV manufacturing supply chain are provided by Turner, Abliadzhyieva, and Chintalapudi (2023). https://www.whitehouse.gov/invest/?utm_source=www.invest.gov.

that already were spurring domestic activity. The Infrastructure Investment and Jobs Act, for example, allocated $7 billion to support battery and critical mineral supply chains in the US. The IRA builds on these efforts, adding substantial new funding and new investment credits and loan programs.

The government's initial outlays, under both the CHIPS Act and the IRA, may induce further private-sector investment by upstream suppliers (such as critical minerals mining and refining) and by downstream users (such as households installing solar panels on rooftops). Both Acts include incentives for innovation in the targeted sectors, and thus may lead to investment in new products and processes. Tracing through such effects will be difficult, but the legislation's supporters clearly hoped to ignite a virtuous cycle of investment in semiconductor-related activities and clean energy.

While onshore supplies of semiconductors, EVs, batteries, and critical materials offer some shelter from external shocks and geopolitical risks, reshoring offers little insurance against shocks that originate at home. Baby formula offers a powerful cautionary tale about relying only on domestic production to provide resilience. Formula became difficult to find on supermarket shelves in February 2022, following the closure of an Abbott Nutrition plant due to safety concerns raised by the Food and Drug Administration. The shortage reached a head in July, when more than 20 percent of all formula products—including more than 30 percent of powdered formulas—were missing from store shelves, according to industry data.[12] Unlike the shortage in PPE, however, import dependence played no role in the baby-formula crisis. Indeed, the shortage was exacerbated by lack of access to foreign suppliers. Attempts to buy formula made in foreign plants were stymied by public-procurement rules, regulatory differences across countries, and import tariffs, all of which had effectively isolated the US market and left it largely reliant on two domestic manufacturers. In response, the Biden administration invoked the Defense Production Act, temporarily waived regulatory red tape, and deployed government facilities to transport emergency shipments from foreign factories into the US. Where dependence on foreign suppliers was a destabilizing force in the market for PPE, dependence on a limited number of domestic suppliers was at the core of the baby-formula crisis.[13]

Despite the promise of the CHIPs Act and the IRA to build robust domestic supplies, the US will remain tied to foreign partners for product varieties not made at home, for

12 Industry data reported by McPhillips (2023).

13 It is important to note that imports of PPE helped to reduce the extent of the crisis. As Bown (2021b) documents, by April 2020 China's exports had mostly resumed, and over the rest of the year its export volumes of some products surged, more than doubling compared to pre-pandemic levels.

raw materials, and for imported manufactured components. Both statutes contain elements that restrict the global engagement of firms that receive federal subsidies, elements intended mainly to reduce US reliance on Chinese producers. Although they aim to reduce US vulnerabilities, these provisions reduce the set of suppliers able to meet American demands when there is a domestic shortage. Reshoring thus diminishes some sources of risk while introducing others.

The budgetary cost of reshoring initiatives is high and, as an expenditure on industrial policy by the US, largely unprecedented.[14] Together, the CHIPS Act and the IRA, in addition to the earlier infrastructure law, may permit nearly $100 billion in annual spending on industrial policy over the next five years.[15] Total spending under the CHIPS Act is expected to exceed $200 billion to support semiconductor industry and research in other fields. The IRA allocates $370 billion to combat climate change, directing nearly $400 billion in federal funding to clean energy, with the goal of substantially lowering the nation's carbon emissions by the end of this decade. Of the total, an estimated $23.4 billion will be used to develop a clean transportation industry.[16] Some observers consider estimates for the revenue and expenditure impact of the IRA as lower bounds because certain tax and investment credits are uncapped and total expenditures depend on take-up by firms and consumers.[17]

Visions vary widely for how these government interventions will affect the semiconductor, battery, and EV market over the near term. Once US activity reaches its full scale, the price of American-made products may be competitive with those made overseas. However, given higher labor, land, and regulatory costs in the US, there is concern that these industries will not be viable without long-term government support.

Similarly, it is likely that US-assembled EVs will be more costly to produce than those made in lower-cost locations. Although the IRA's subsidy, which can return rebates of up to $7500 to EV buyers if requisite sourcing conditions are met, can compensate for a higher retail price on US-made vehicles, it is unclear how the industry will fare when such subsidies are eliminated. It is reasonable to expect that there will be domestic political pressure to raise the tariff on imported vehicles if user subsidies are removed.

14 Particularly noteworthy is the use of "place-based" policies, which directs spending to distressed places. Bartik, Asquith and Bolter (2022) described the unprecedented use of such policy direction in the CHIPS Act.

15 See "Joe Biden's Industrial Policy is Big, Bold, and Fraught with Difficulty," *Economist*, September 13, 2022, https://www.economist.com/united-states/2022/09/13/joe-bidens-industrial-policy-is-big-bold-and-fraught-with-difficulty.

16 Revenue estimates compiled by McKinsey and Company, based on analysis by the Congressional Budget Office and the Joint Committee on Taxation. See "The Inflation Reduction Act: Here's What's In It," McKinsey and Company, October 24, 2022, https://www.mckinsey.com/industries/public-sector/our-insights/the-inflation-reduction-act-heres-whats-in-it.

17 One such concern is uncapped subsidies for battery production, where some independent estimates of federal budgetary outlays far exceed those estimated by the Congressional Budget Office (see McDaniel 2023).

As these new policies are being put into action, America's allies have raised loud objections, even though they share many of the same policy goals. They see the new industrial policy as an effort to move investment to the US at the expense of investment in their own economies. Subsidies in the CHIPS Act are only available to semiconductor fabricators located in the United States. The full IRA EV tax credit is only available to buyers of cars that are assembled in North America and whose batteries meet content requirements (or, given current Treasury implementation rules, to those who can lease the vehicle). Half the credit is contingent on the critical minerals for those batteries being extracted or processed in a country with which the United States has a free-trade agreement or made with materials recycled in North America, and the other half requires that increasing percentages of the batteries over time be manufactured or assembled in North America.

The CHIPS Act explicitly pulls investment by global semiconductor companies into the United States. It raises fears in other countries and regions that American industrial policy will hollow out their own tech industries. In response to the CHIPS Act, the EU, Taiwan, Japan, and South Korea have initiated or extended subsidy programs of their own. In 2022, the European Union launched the European Chips Act to ease government funding rules for semiconductor plants. In August 2023, TSMC announced plans to build a $11 billion chip manufacturing plant in Germany, in a deal that reportedly includes up to $5.5 billion in government subsidies.[18] Such investments heighten fears of a subsidy race, a glut of semiconductors, and falling world prices, even as the costs of production in the US exceed those in other locations.

Similar fears of a subsidy race have been raised regarding IRA subsidies for investments in new energy sectors, and in even louder tones. With over $300 billion worth of tax breaks and subsidies designed to boost green technology and deployment in the US, the IRA threatens to pull clean-energy companies away from other locations. The EU expressed its displeasure with what it saw as a challenge to its leading position in some clean-energy sectors and the beginning of a subsidy race that would unnecessarily raise the cost of its energy transition. In early 2023, the EU responded with its Green Deal Industrial Plan, combining regulatory reform, faster access to public financing, new investments in labor force development, and trade measures aimed at developing export markets for European producers. The European plan pointedly avoided domestic content requirements of the type objected to in the IRA, as the plan was designed to be consistent with WTO rules prohibiting them.

The IRA has also created significant concerns for South Korea, which views access to the US market as essential to the future of its own EV sector. Hyundai Motor Group is building Metaplant America, a 300,000-unit-per-year electric-vehicle factory in the

18 The plant will be the first for TSMC in Europe (see Bermingham 2023).

state of Georgia, to produce EVs for three brands—Hyundai, Kia, and Genesis. Until this factory comes online, its vehicles will not be eligible for the new EV tax credit unless customers lease instead of purchase.[19] Meanwhile, South Korea has implemented production incentives of its own at home: a consumer tax credit, expanded investment tax credits for EV manufacturers, and incentives for domestic battery production.

Despite these international responses, new semiconductor, EV, and battery factories are being built in the US. However, the approach is unlikely to be replicated in other sectors. The public subsidies and tax credits used to promote these industries are large, and uncapped incentives are expected to grow over time. Outlays of such magnitude necessarily limit the administration's ability to use public funds to reshore other industries, as additional compelling cases for government action must be made to a divided Congress. Moreover, it is not likely that long-term reshoring of domestic manufacturing will continue without further subsidies, as they are needed to alter firms' private location decisions based on comparative costs. Further, subsidy programs enacted by key US partners raise the potential for supply gluts in these highly cyclical industries. Finally, the domestic content requirements of the IRA as well as limits on critical mineral sourcing may violate the WTO obligations of the US, further distancing American policy from allies in Europe and Asia who want to maintain WTO protocols.

These features of reshoring imply that its ability to recapture activities now performed in China is limited. Even if federal subsidies were sufficiently large to move more manufacturing to the US, adding additional supported sectors is unlikely to provide tangible benefits to American workers. US imports from China are concentrated in activity with relatively low wages and low productivity. US production of these products would not be competitive in any markets outside its own, assuming tariffs on third countries created a protected home market. For this reason, it is in friendshoring, not reshoring, that the US places its hopes for diverting trade away from China.

### *3.b. Friendshoring*

US Treasury secretary Janet Yellen coined the term "friendshoring" in a speech, referring to it as a way to reduce supply chain risks linked to "unreliable countries (Yellen 2022)." She describes friendshoring as "deepening relationships and diversifying US supply chains with a greater number of trusted partners." Friendshoring is an explicit recognition that not all domestic needs can be met by

19 Bown (2023b) offers a cogent analysis of the problems posed by the IRA for South Korean automakers and how US Treasury implementation rules eased their pain by omitting content requirements for leased vehicles. The paper also discusses the tensions between accommodation of Korean concerns and Congressional intentions for including domestic production incentives in the legislation.

American production, that is, by reshoring pieces of supply chains. Unlike reshoring, friendshoring leverages trade to enhance resilience. Unlike open trade, however, friendshoring is based on the view that trade enhances resilience only when it is confined to a designated circle of "trusted partners."

Defining the criteria used to determine which states are trustworthy remains fraught with tradeoffs. Use of the term "like-minded" suggests an attempt to reduce geopolitical risks. This objective is greatly complicated by the reality that confining supply chains to democratic countries alone is impossible or unreasonable. If the Indo-Pacific Economic Framework (IPEF) excluded Vietnam, for example, based on its communist system of government, it would exclude the leading destination for investment in supply alternatives to China.

Current applications of the friendshoring strategy avoid this conundrum by focusing on regional network creation (IPEF in Southeast Asia; the Americas Partnership for Economic Prosperity in Central and South America; and the US-Mexico-Canada Agreement [USMCA] for North America) rather than systems of governance. This strategy may diversify supply lines away from China, but it also incidentally could increase risk arising from geographically concentrated production. For example, if medical device production becomes more concentrated in the Americas, a natural disaster that strikes the region may lead to a supply shortage of these critical products.

The promise and limitations of friendshoring are exemplified by US efforts to negotiate IPEF, one of the examples of friendshoring listed in table 1. The Biden administration's signature initiative in Asia, IPEF seeks to create a club of trusted suppliers committed to high labor, environmental, and social standards; to improved supply chain management; to the clean-energy transition; and to anti-corruption and fair taxation. The US hopes this club will provide alternatives to China's manufacturing capabilities and serve to reduce dependence on its exports.

Although IPEF only launched in late 2022, by May 2023 negotiators announced substantial conclusion of a supply chain agreement. Key pieces of the agreement position IPEF as an early warning system for potential disruptions. Specifically, the agreement promises to build a "collective understanding of significant supply chain risks, supported by each partner's identification and monitoring of its own critical sectors and key goods." It also seeks to "improve crisis coordination and response to supply chain disruptions and work together to support the timely delivery of affected goods during a crisis." To achieve these goals, the agreement sets up three councils to facilitate cooperation among IPEF members.[20]

20 The text of the IPEF supply chain agreement was released on September 7, 2023: https://www.commerce.gov/sites/default/files/2023-09/2023-09-07-IPEF-Pillar-II-Final-Text-Public-Release.pdf.

While the Biden administration can claim that it has concluded the first international supply-chain agreement, many question whether its provisions, even if faithfully implemented, can substantially improve supply chain resilience. The identification and monitoring of risk rely on the voluntary provision by private companies of information about their own operations. No IPEF provisions bind the actions of participating governments. In the event of a sudden supply shortage, governments will be under no obligation to abstain from the use of export bans that threatened to disrupt trade flows during the pandemic.

Whether success can be achieved in negotiating other parts of IPEF remains to be seen. The framework seeks to unite a diverse set of countries—Australia, Brunei, Fiji, India, Indonesia, Japan, the Republic of Korea, Malaysia, New Zealand, the Philippines, Singapore, Thailand, the United States, and Vietnam—separated by level of development, form of government, and intensity of ties to China. Some of the commitments desired by American negotiators, particularly on labor standards and digital rules, may be more than its less developed participants believe they can deliver.

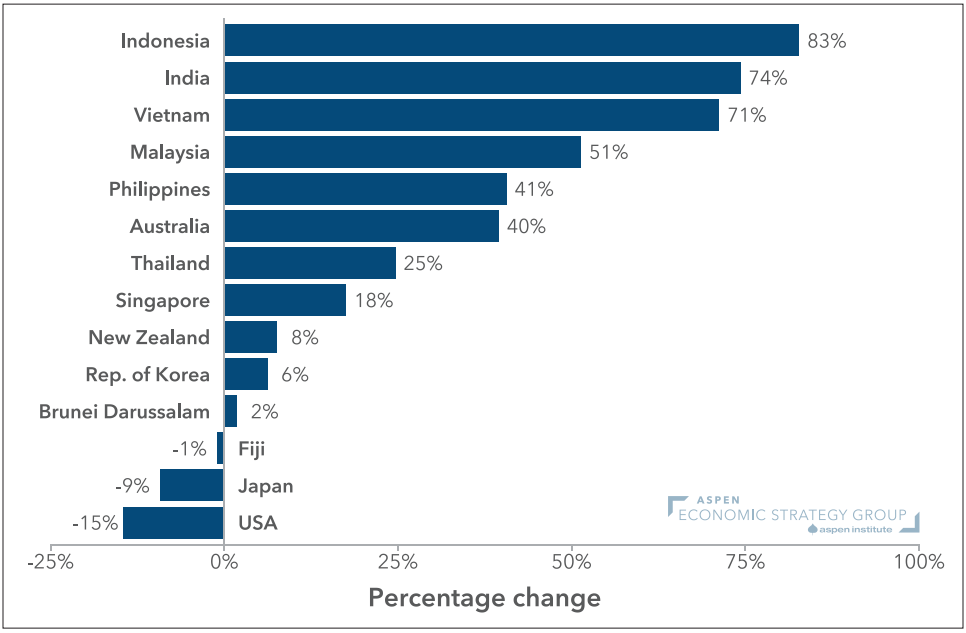
What IPEF won't contain is any new commitments to lower tariffs. South and Southeast Asian nations joined IPEF negotiations because they are eager for deeper economic engagement with the US. Many are also eager to reduce their dependence on China. However, without some tangible reward in the form of US tariff concessions and no obvious cost for failing to meet US demands, leaders in these countries have little leverage to overcome their own domestic opposition to US-preferred standards, which are likely to be viewed as eroding both their sovereignty and their competitiveness. Already, India has chosen to sit on the sidelines of the trade talks, anticipating that it will be unwilling to meet the conditions ultimately attached to participation by the US.

It is doubtful that such an agreement offers a sufficient incentive to move multinational production. With no new binding commitments, IPEF does little to change conditions that determine a region's ability to attract new investment. Moreover, reducing the extent to which global supply chains depend on China will not be simple. Most IPEF countries rely on both China and the US as trade partners. An essential but often overlooked feature of exports from IPEF nations is that they rely on intermediates and materials sourced from China.

Attempts to diversify trade flows in the region must confront China's dominance as the world's largest exporter of manufactured goods and as a central node in Asian production networks. Dahlman and Lovely (2023) calculate concentration indexes for the United States and its IPEF partners and find that import sources have become far less diverse since 2010 for almost all members. Only the two largest economies, the United States and Japan, as well as Fiji, experienced a decrease in

the concentration of their imports. Figure 2 illustrates these changes in measure of import concentration since 2010 for IPEF countries.[21] US diversification reflects a lower market share for China after 2018, when then-president Donald Trump's tariffs on many Chinese imports were put in place. Japan's diversification also reflects a lower market share for China, but the change was confined to labor intensive goods, such as apparel and footwear. The concentration index for all other IPEF countries rose. The import concentration index for Malaysia, Vietnam, India, and Indonesia increased by more than 50 percent. These changes mainly reflect an increase in the share of imports sourced from China.

**Figure 2. Percentage Change in Concentration of Import Sources of IPEF Countries, 2010-2021**




**Source:** Dahlman and Lovely (2023).

Because of its failure to include commitments that alter the relative costs of sourcing from China, IPEF is unlikely to be effective in expanding "friendshoring"; hence the summary assessment provided in table 2. The agreement is designed so that it will not need Congressional approval or budgetary outlays, and its cost to Americans is also low. Details of the agreement remain thin, however, and there is a possibility

21 Import concentration is calculated for each country in each year using a Herfindahl–Hirschman index, with the percentage change in concentration measured between 2010 and 2021.

that simply by setting common standards and procedures for trade and formal mechanisms for coordination, the agreement will expand trade among the partners. Indeed, some observers, such as South Korea's former trade minister Yeo Han-Koo, believe that with proper implementation of its general rules and institutional arrangements, IPEF can become an effective mechanism for enhancing supply chain resilience (see Yeo 2023).

### *3.c. Derisking*

US National Security Advisor Jake Sullivan (2023) has argued that current levels of integration with China are a major challenge to economic security and resilience. Beyond the White House, calls to reduce dependence on China come from within Congress and from both sides of the aisle as well as from allies abroad. In place of efforts to "decouple" from China, Biden administration officials now follow the lead of EU president Ursula von der Leyen and speak about the need to "derisk" the US relationship with China.[22] This new terminology reflects a desire to reduce bilateral tensions with China by diversifying trade flows rather than excluding China; it also reflects a change in focus away from all imports toward those where the risks from overdependence are most acute.

Three main economic (exclusive of national security) arguments are typically made to support the view that China's role in US supply chains must be reduced to increase economic resilience. The first concern is that China's dominating presence in global markets is itself a source of economic risk. China now accounts for about 17 percent of the world's manufactured good exports, with its share of some individual products exceeding three-quarters of the world total.[23] This geographic concentration of supply exposes all trade partners to economic shocks hitting the Chinese economy, with the PPE shortage a vivid example. At the G7 Leaders' meeting in Hiroshima in May 2023, without explicit mention of China, members established the diversification of trade relationships as an essential principle for resilient supply chains.

Secondly, despite China's compliance with most WTO dispute settlement rulings, US officials frequently state that China abuses the norms of the international trading

22 In addition to diversification of trade flows, EU president von der Leyen's (2023) description of derisking covers a broad set of strategies, including what the US calls reshoring and friendshoring. She also mentions the use of policies to combat unfair trade, defensive tools such as export controls, and alignment with partners through the Trade and Technology Council and other alliances.

23 Trade shares based on author's calculation using information on trade flows from the CEPII BACI dataset. China is defined to include Mainland China, Hong Kong, and Macao. See Gaulier and Zignago (2010) for details on the dataset.

system in ways that reduce the resilience of partner economies.[24] Because of the important role played by the state, both through state-owned enterprises and by state purchasing behavior and regulatory action, China's economy is increasingly directed by nonmarket practices rather than market forces, a point that Hanming Fang makes in his 2023 AESG paper. Foreign firms in sectors with such state dominance are unable to compete against Chinese firms, both at home and abroad, based on underlying capabilities and market conditions.

China is also accused of subsidizing its producers in ways that lack transparency and rig market signals in favor of Chinese firms. A further complaint is that China benefits unfairly from forced technology transfer and theft of intellectual property, both of which reduce the return to foreign innovation. Each of these claims of unfair practices is a serious charge that undermines the case for mutually gainful trade with China. Trade under these conditions is seen as predatory; economies are shaped not by comparative advantage but by the industrial policies of their trade partners.

A third argument sees the Chinese government itself as a source of supply shocks. Concern about the concentration of production in China has grown along with its propensity to use trade as an instrument of economic statecraft. In recent years, a growing number of US partners have been on the receiving end of China's leveraging trade to further its political goals.[25] In 2019, Canada was the target when China refused to accept its exports of canola oil following the arrest in Vancouver of a Huawei Technologies Co. executive. Australia was met with a ban on its exports of wine, coal, and barley after calling for inquiries into China's COVID-19 response in 2020. Most recently, Lithuania's 2022 decision to allow Taiwan to open a representative office was met with not only a Chinese ban on its exports but also pressure on EU companies operating out of other EU member states to remove Lithuanian inputs from their supply chains when exporting to China, a demand seen as a threat to the integrity of the EU single market. Although these headline cases of coercion have not changed targeted-government policies, they proved costly to exporters summarily removed from the Chinese market. They have led many countries to prioritize the identification of supply chain risks and the development of strategies to mitigate them.

24 A recent example of US views on the impact of China's economic policies on other economies is the statement released by the Office of the US Trade Representative following a WTO dispute settlement panel's rejection of China's argument that US Section 232 tariffs on steel and aluminum imports are permissible under WTO rules. United States Trade Representative spokesperson Sam Miche (2023) writes that "the United States condemns China's refusal to correct its severe and persistent nonmarket excess capacity for steel and aluminum that is at the heart of a global crisis that led to the U.C.S. Section 232 national security actions." The statement fails to note that a WTO panel found that US Section 203 tariffs on steel and aluminum could not be justified on national security grounds and were therefore impermissible under the terms of the General Agreement on Tariffs and Trade 1944. More details on that ruling can be found at "Dispute Settlement 544: United States—Certain Measures on Steel and Aluminium Products," World Trade Organization, panel report under appeal on January 26, 2023, https://www.wto.org/english/tratop_e/dispu_e/cases_e/ds544_e.htm.

25 A recent study by Reynolds and Goodman (2023) of eight cases of Chinese economic coercion directed at foreign governments identifies five cases in which China chose to restrict trade in response to a partner's policy decisions.

Finding ways to reduce the economic risks flowing from these behaviors is complicated by China's dominant role in global value chains. China is deeply embedded into the complex webs of cross-border transactions that characterize modern, fragmented production. Production of many goods subject to excess demand during the pandemic, such as personal protective equipment and electronic devices, was concentrated in China.

Identifying and reducing supply chain risks is a priority for many countries that trade with the US. Indeed, enhancing supply chain resilience was a major theme of the trilateral summit of President Biden, Japanese president Fumio Kishida, and South Korean president Yoon Suk Yeol at Camp David on August 18th, 2023.[26] One stumbling block for furthering cooperation, however, is US opposition to Chinese participation in supply chains. All three presidents at the Camp David summit stressed in their joint press conference that their efforts were not anti-China.[27]

Such tensions, however, are difficult to avoid. The pull of both the US and China are seen in Indonesia's bid to sign a free trade agreement with the US related to critical minerals supply. Without such an agreement, nickel from Indonesia will not meet US requirements for battery sourcing needed for a vehicle purchaser to receive the full $7500 subsidy offered by the IRA. A major barrier to a bilateral agreement between Indonesia and the US is China's role in Indonesian nickel processing and refining.

America's import sourcing became more diversified after 2017, when the US-China trade war reduced US imports of newly taxed goods from China. That experience is instructive as it shows the extent to which strong price signals may be needed to make meaningful changes in China's position in global supply chains. Reducing US reliance on imports from China was among the many objectives cited by the Trump administration for its trade war. After four rounds of tit-for-tat hikes, by the end of 2019, each side had levied average duties of around 20 percent against each other, with tariffs covering almost two-thirds of US imports from China and about 58 percent of Chinese imports from the United States, as listed in table 3.

26 See David E. Sanger's contemporaneous reporting from the summit, posted in "Camp David Summit," *New York Times,* August 18, 2023, https://www.nytimes.com/live/2023/08/18/us/biden-news-camp-david/76722c03-8390-5294-8fa3-5c700d17a9f9?smid=url-share.

27 See Edward Wong's contemporaneous reporting from the summit, posted in "Camp David Summit."

**Table 3. US-China Trade War by the Numbers**

| Share of Chinese exports covered by US tariffs | Average tariff levied by US on Chinese exports | Average tariff levied by the US on exports from other countries | Share of US exports covered by Chinese tariffs | Average tariff levied by China on US exports | Average tariff levied by China on exports from other countries |
|---|---|---|---|---|---|
| 66.4% | 19.3% | 3.0% | 58.3% | 21.1% | 6.5% |

ASPEN ECONOMIC STRATEGY GROUP aspen institute

**Source:** Numbers taken from Bown (2023a).

The trade war has been effective in reducing US reliance on direct imports from China, but also costly for US consumers and businesses, as reflected in the summary assessment in table 2. According to an influential academic study of the trade war, the value of newly taxed US imports fell by an estimated 32 percent.[28] To date, US Customs and Border Protection has collected $186 billion in tariff revenue from imports taxed by the trade war, an amount largely borne by American businesses and consumers.[29, 30] One effect of this burden is reduced competitiveness of US exporters who rely on Chinese imported intermediates. Handley, Kamal, and Monarch (2020) estimate that the burden on affected firms is equivalent to new duties of $900 per worker. The trade war shows how costly it would be to further reduce US imports from China using higher tariff rates.

The current US policy mix toward China implicitly relies on the private sector to decide how to alter supply chains given tariff levels, export controls, and other restrictions. The strategy leaves firms free to choose substitute sites for production, while initiatives like IPEF try to pave the way for investment in partners willing to accept certain obligations. These actions, plus heightened uncertainty about the future of US-China relations, are accelerating the movement of final assembly of electronics, textiles and apparel, toys, footwear, and other labor-intensive products toward alternative locations.

While the US may be willing to bear the cost of significant reduction in exposure to China, reducing direct US imports from China does not guard against risks originating there. China is the most important trade partner for almost all countries joining

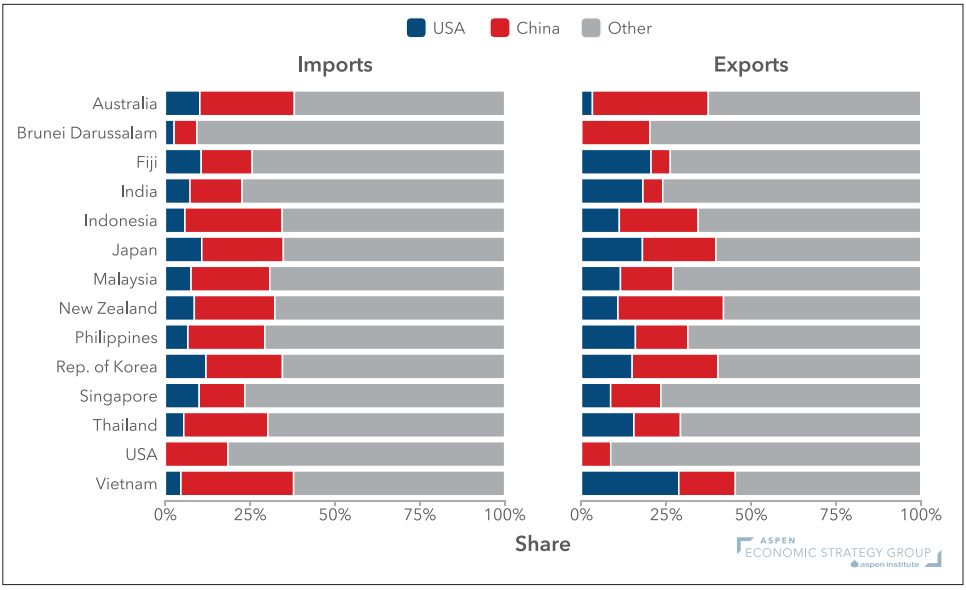
28 The reduction in US import value from trade-war tariffs is estimated by Fajgelbaum, Goldberg, Kennedy, and Khandelwal (2020). A discussion of economic studies of the trade war appears in Fajgelbaum and Khandelwal (2022).

29 Customs and Border reports revenue collected on imports from China under Section 301 separately. See "Trade Statistics," US Customs and Border Protection, accessed September 11, 2023, https://www.cbp.gov/newsroom/stats/trade.

30 Economists have used a diversity of data and methods to assess the impacts of the trade war on the United States, China, and other countries. Fajgelbaum and Khandelwal (2022) review what has been learned from this work.

the US in IPEF negotiations, as seen in figure 3. Indeed, 11 of these 13 countries are already members of the Association of Southeast Asian Nations–led Regional Comprehensive Economic Partnership (RCEP), which binds them to China through a preferential trade agreement. Importantly, generous rules of origin contained in RCEP encourage development of supply relations among its members. The upshot is that as the US relies more on IPEF partners, it continues to rely on China because of the intermediate goods IPEF countries use to produce the goods they ship to America.

**Figure 3. Import and Export Shares for IPEF Countries, by Selected Partners, 2021**

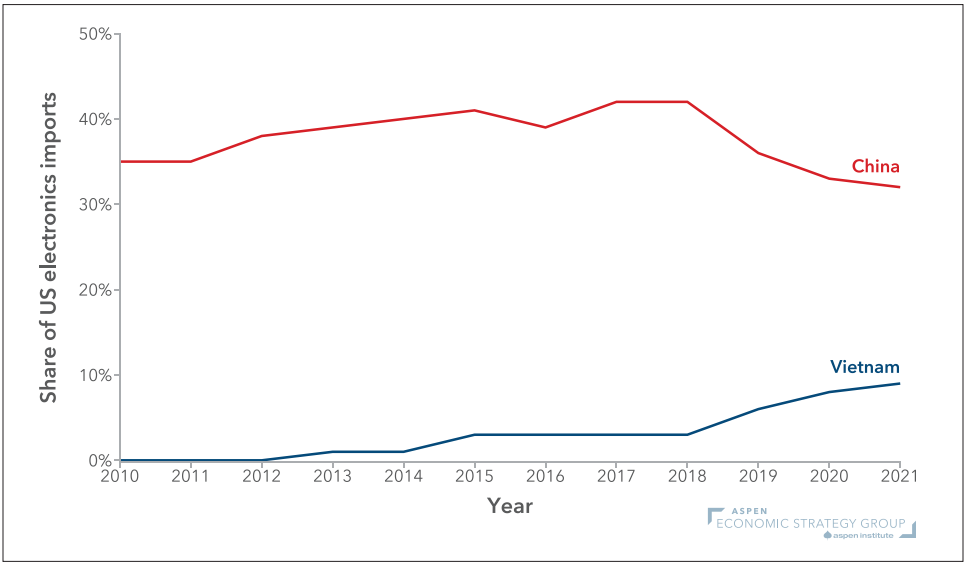



**Source:** UN Comtrade Database, calculations by author.

Tariffs reduced US imports directly but created longer supply chains linking China to countries such as Vietnam, which now assemble goods destined for the US using Chinese inputs. As shown in figure 4, as the Chinese share of the US market for electronics fell following the onset of the trade war in 2018, Vietnam's share rose almost in sync. At the same time, Chinese exports to Vietnam of intermediates used in the production of these goods also increased. China's share of Vietnam's imports of semiconductors, telephone parts, and other electronic components is now more than twice that of its closest rival, South Korea.[31] How much risk reduction is achieved by high tariffs on China when they create longer, less opaque but still China-dependent supply chains is thus in question, even if their costs to American consumers are not.

31 These trade shares for Vietnam's imports are for 2021 and are drawn from the Observatory of Economic Complexity: https://oec.world/profile/country/vnm?yearlyTradeFlowSelector=flow1.

**Figure 4. Share of US Electronics Imports for China and Vietnam, 2010-2021**




**Source:** US Census Bureau via USA Trade Online; calculations by author. "Electronics" is defined as HS Chapter 85.

Over time, as alternative sources of supply develop, America's Asian partners may reduce their reliance on China for parts and components as their own industrialization proceeds. Raising the domestic value added of manufactured exports is a key development goal across middle-income Asia, as well as in Latin America and Africa. With the US turning away from China, these countries seem ready to work with American negotiators to create conditions for expanding their manufacturing sectors. India, already benefiting from new investment from Apple, Goldman Sachs, IBM, and others, is participating in the supply chain pillar of IPEF talks and could rejoin the trade pillar once its obligations become clear. Helping these nations raise productivity and meet higher labor and environmental standards can be a valuable offshoot of diversifying GSCs.

## 4. Toward a More Friend-Friendly and Targeted Approach

While the Biden approach to resilience is still taking shape, we can begin to assess its potential to reduce risks emanating from global supply chains. No policy can insulate a country from every possible shock, but the US is taking action to reduce exposure to some sources of instability. Reshoring builds domestic capacity and, to the extent that the supply chain is located within the US, reduces exposure to shocks disturbing

the productive capacities of other partners. For critical materials, such as semiconductors and batteries, the case for reducing supply risk is persuasive and has garnered extraordinary federal support for reshoring.

*No policy can insulate a country from every possible shock, but the US is taking action to reduce exposure to some sources of instability.*

Reshoring cannot eliminate all risk, however, as supply chains are complex and rely on thousands of intermediate goods produced abroad. The budding US semiconductor industry will rely on the Netherlands and Japan, exclusive providers of the photolithography equipment necessary for mass-production of advanced chips. Silicon is produced by a larger set of countries, but the largest supplier by far is China. Even if the US completely removes China from the supply chains that serve domestic chip fabricators, it will remain connected by imports of legacy chips from foreign partners that trade with China.

The cost of self-reliance is high and only tenable in a few critical sectors. Friendshoring implicitly recognizes that the US cannot go it alone, as it attempts to balance the efficiencies of trade with trusted partners while preventing reliance on rival states that may do long-term harm. But the US has not yet fully embraced a cooperative approach with its allies to building supply resilience, in part because reshoring's promise of domestic investment and employment was necessary to garner congressional support for both the IRA and the CHIPS Act. Lack of cooperation with partners, however, has raised the risk of a self-defeating subsidy race. Indeed, even though they actively coordinate with the US through the Trade and Technology Council, the EU quickly responded to new US subsidies by permitting member states to offer investors "matching aid" to compete with outside countries.

A more cooperative approach would reduce pressures for a subsidy race by allowing the adoption of critical technology produced outside the US, even if that scope is limited to technology produced by "friends." Kamin and Kysar (2023) note that most of the IRA's clean energy production and investment tax credits already reflect this approach, as they are available to US producers regardless of where those producers get the technology they use. Opening the US clean energy drive to foreign technology may seem risky or even contrary to development of a domestic industry. But without such openness, the US risks failing to adopt the most promising technology, while raising the cost of the energy transition.

In addition to providing a clear role for allies, the effectiveness of US efforts to reduce supply risks would be enhanced by better targeting policy toward the supply chains it seeks to move. To date, the Biden administration has refused to place limits on its

desire to alter supply chains, leaving open-ended the US push to alter its commercial policies. US Treasury secretary Janet Yellen, an official known for her support for international engagement, notably has failed to provide insight into the extent of the administration's ambition. During her visit to India in November 2022, Secretary Yellen said, "The United States is pursuing an approach called 'friend-shoring' to diversify away from countries that present geopolitical and security risks to our supply chain," offering no insights into whether boundaries would be set on this attempt to alter supply chains (Rappeport and Swanson 2022). This stance creates uncertainty about the future of US trade policy, at the cost of reduced investment by the private sector and growing anxiety among trade partners.

The recent promise of a 10 percent across-the-board tariff by former president Donald Trump, if he is reelected, feeds into fears that the US is closing itself off. In recent months, as they seek to reduce tensions with China, Biden administration officials have softened their rhetoric. Notably, during her July 2023 visit to China, Yellen sought to allay China's concerns that the United States wanted to decouple, avoiding any mention of derisking. "There is an important distinction between decoupling, on the one hand, and on the other hand, diversifying critical supply chains or taking targeted national security actions," she said (Bradsher 2023).

A meaningful way in which the US can clearly signal its desire to diversify, rather than decouple, would be to reform the Trump administration's tariffs on China. These tariffs tax flows of all kinds of goods, from household sundries to electronics, with no clear link to any of the issues the US claims to want China to address. While politically difficult, tariff reform could be done in the context of bilateral negotiations that simultaneously reduce Chinese tariffs on US exports. Tariffs could be retained where the US identifies an overdependence on Chinese suppliers.

China is not sitting idly by as the US campaigns for supply chain reordering. At the August summit of BRICS countries in South Africa, Chinese president Xi Jinping urged the gathered leaders to work together and reject efforts to isolate China (Grove and Ramzy 2023). Unless the US works more cooperatively with allies and clarifies the extent to which it wants to move supply chains away from China, it will face increasing resistance from countries it wishes to include as new suppliers. Even as China's share of US trade has fallen, its share of world trade has not. America's partners wait to see how far the US wants to diverge from a global economy of which China is an integral part.

## References

Baldwin, Richard, and Rebecca Freeman. 2022. "Risks and Global Supply Chains: What We Know and What We Need to Know." *Annual Review of Economics* 14, no. 1: 153–80.

Bartik, Timothy, Brian Asquith, and Kathleen Bolter. 2022. "The CHIPS and Science Act offers funding for place-based policies unparalleled in U.S. history." Research Highlights, W. E. Upjohn Institute for Employment Research. https://www.upjohn.org/research-highlights/chips-and-science-act-offers-funding-place-based-policies-unparalleled-us-history.

BCI (Business Continuity Institute). 2021. *Supply Chain Resilience Report 2021*. Caversham, UK: BCI. https://www.thebci.org/uploads/assets/e02a3e5f-82e5-4ff1-b8bc61de9657e9c8/BCI-0007h-Supply-Chain-Resilience-ReportLow-Singles.pdf.

Bermingham, Finbarr. 2023. "TSMC to Build US$11 Billion Chip Manufacturing Plant in Germany." SCMP.com, August 9. https://www.scmp.com/news/china/article/3230440/tsmc-build-us11-billion-chip-manufacturing-plant-germany.

Bown, Chad P. 2021a. "The US–China Trade War and Phase One Agreement." PIIE Working Paper 21-2, February. Washington, DC: Peterson Institute for International Economics. https://www.piie.com/publications/working-papers/us-china-trade-war-and-phase-one-agreement.

Bown, Chad P. 2021b. "How COVID-19 Medical Supply Shortages Led to Extraordinary Trade and Industrial Policy." PIIE Working Paper 21-11, July. Washington, DC: Peterson Institute for International Economics. https://www.piie.com/publications/working-papers/how-covid-19-medical-supply-shortages-led-extraordinary-trade-and.

Bown, Chad P. 2023a. "US-China Trade War Tariffs: An Up-to-Date Chart." Peterson Institute for International Economics, April 6. https://www.piie.com/research/piie-charts/us-china-trade-war-tariffs-date-chart.

Bown, Chad P. 2023b. "How the United States Solved South Korea's Problems with Electric Vehicle Subsidies under the Inflation Reduction Act." PIIE Working Paper 23-6, July. Washington, DC: Peterson Institute for International Economics. https://www.piie.com/publications/working-papers/how-united-states-solved-south-koreas-problems-electric-vehicle.

Bradsher, Keith. 2023. "3 Takeaways from Janet Yellen's Trip to Beijing." *New York Times,* July 9. https://www.nytimes.com/2023/07/09/business/janet-yellen-china-trip.html?smid=nytcore-ios-share&referringSource=articleShare.

Dahlman, Abigail, and Mary E. Lovely. 2023. "US-led effort to diversify Indo-Pacific supply chains away from China runs counter to trends." Realtime Economics. Washington, DC: Peterson Institute for International Economics. https://www.piie.com/blogs/realtime-economics/us-led-effort-diversify-indo-pacific-supply-chains-away-china-runs-counter

Deese, Brian. 2022. "Remarks on a Modern American Industrial Strategy." As prepared for delivery to the Economic Club of New York, April 20. https://www.whitehouse.gov/briefing-room/speeches-remarks/2022/04/20/remarks-on-a-modern-american-industrial-strategy-by-nec-director-brian-deese/.

Denyer, Simon. 2020. "Japan Helps 87 Companies to Break from China after Pandemic Exposed Overreliance." *Washington Post*, July 21. https://www.washingtonpost.com/world/asia_pacific/japan-helps-87-companies-to-exit-china-after-pandemic-exposed-overreliance/2020/07/21/4889abd2-cb2f-11ea-99b0-8426e26d203b_story.html.

Dooley, Ben, and Makiko Inoue. 2020. "Japan Is Paying Firms to Make Things at Home. But China's Pull Is Still Strong." *New York Times*, September 26. https://www.nytimes.com/2020/09/26/business/japan-onshoring.html.

Fajgelbaum, Pablo D., Pinelopi K. Goldberg, Patrick J. Kennedy, and Amit K. Khandelwal. 2020. "The Return to Protectionism." *Quarterly Journal of Economics* 135, no. 1: 1–55.

Fajgelbaum, Pablo D., and Amit K. Khandelwal. 2022. "The Economic Impacts of the US–China Trade War." *Annual Review of Economics* 14: 205–28.

Fang, Hanming. 2023. "Where Is China's Economy Headed?" In Building a More Resilient US Economy, edited by Melissa S. Kearney, Luke Pardue, and Justin Schardin, 225-267. Washington, DC: Aspen Economic Strategy Group.

Fix, Liana, and Caroline Kapp. 2023. "One Year After: How Putin Got Germany Wrong." Council on Foreign Relations, February 17. https://www.cfr.org/in-brief/one-year-after-how-putin-got-germany-wrong.

Gaulier, Guillaume, and Soledad Zignago. 2010. "BACI: International Trade Database at the Product-Level. The 1994-2007 Version." CEPII Working Paper 2010-23, October. Paris, France: CEPII. https://econpapers.repec.org/paper/ciicepidt/2010-23.htm.

Grossman, Gene M., Elhanan Helpman, and Hugo Lhuillier. 2021. "Supply Chain Resilience: Should Policy Promote Diversification or Reshoring?" NBER Working Paper no. 29330, October. Cambridge, MA: National Bureau of Economic Research. https://www.nber.org/papers/w29330.

Grove, Thomas, and Austin Ramzy. 2023. "China, Russia Deliver Broadsides against the West at Brics Summit." *Wall Street Journal,* August 23. https://www.wsj.com/world/china-russia-deliver-broadsides-against-the-west-at-brics-summit-f8dd0efd?mod=world_lead_pos1.

Handley, Kyle, Fariha Kamal, and Ryan Monarch. 2020. "Rising Import Tariffs, Falling Export Growth: When Modern Supply Chains Meet Old-Style Protectionism." NBER Working Paper no. 26611, January. Cambridge, MA: National Bureau of Economic Research. https://www.nber.org/papers/w26611.

Kamin, David, and Rebecca Kysar. 2023. "The Perils of the New Industrial Policy: How to Stop a Global Race to the Bottom." *Foreign Affairs*, (May/June).

McDaniel, Christine. 2023. "The Cost of Battery Production Tax Credits Provided in the IRA." *Forbes*, February 1. https://www.forbes.com/sites/christinemcdaniel/2023/02/01/the-cost-of-battery-production-tax-credits-provided-in-the-ira/?sh=37a006d679ef.

McPhillips, Deirdre. 2023. "A Year Later, Formula Stock Has Recovered from the Shortage, but Parents Haven't." CNN, February 17. https://edition.cnn.com/2023/02/17/health/formula-shortage-one-year-later/index.html.

Miche, Sam. 2023. "Statement from USTR Spokesperson Sam Michel on Today's WTO Panel Ruling." Office of the United States Trade Representative, August 16. https://ustr.gov/about-us/policy-offices/press-office/press-releases/2023/august/statement-ustr-spokesperson-sam-michel-todays-wto-panel-ruling.

Minott, Owen, and Helen Nguyen. 2023. "IRA EV Tax Credits: Requirements for Domestic Manufacturing." Bipartisan Policy Center, February 24. https://bipartisanpolicy.org/blog/ira-ev-tax-credits/.

Rappeport, Alan, and Ana Swanson. 2022. "U.S. Seeks Closer Ties with India as Tension with China and Russia Builds." *New York Times,* November 11. https://www.nytimes.com/2022/11/11/business/us-india-relations.html.

Reynolds, Matthew, and Matthew P. Goodman. 2023. *Deny, Deflect, Deter: Countering China's Economic Coercion.* Center for Strategic and International Studies: Washington, DC.

Semiconductor Industry Association. 2023. *2023 State of the U.S. Semiconductor Industry.* Washington, DC: Semiconductor Industry Association. https://www.semiconductors.org/2023-state-of-the-u-s-semiconductor-industry/.

Shih, Willy C. 2022. "Are the Risks of Global Supply Chains Starting to Outweigh the Rewards?" *Harvard Business Review,* March 21, 2022. https://hbr.org/2022/03/are-the-risks-of-global-supply-chains-starting-to-outweigh-the-rewards

Sullivan, Jake. 2023. "Remarks by National Security Advisor Jake Sullivan on Renewing American Economic Leadership." As delivered at the Brookings Institution, Washington, DC, April 27. https://www.whitehouse.gov/briefing-room/speeches-remarks/2023/04/27/remarks-by-national-security-advisor-jake-sullivan-on-renewing-american-economic-leadership-at-the-brookings-institution/.

Tai, Katherine. 2023. "Ambassador Katherine Tai's Remarks on Supply Chain Resilience." As delivered at the National Press Club, Washington, DC, June 15. https://ustr.gov/about-us/policy-offices/press-office/speeches-and-remarks/2023/june/ambassador-katherine-tais-remarks-national-press-club-supply-chain-resilience.

Turner, Jay, Arzy Abliadzhyieva, and Pranathi Chintalapudi. "Tracking The Post-IRA Boom In The US EV Supply Chain." *Cleantechnica*, February 21, 2023. https://cleantechnica.com/2023/02/21/tracking-the-post-ira-boom-in-the-us-ev-supply-chain/#:~:text=Investments%20in%20the%20domestic%20EV%20industry%20grew%20after,billion%20in%20capital%20investment%20and%2020%2C000%20new%20jobs.

von der Leyen, Ursula. 2023. "Speech by President von der Leyen on EU-China Relations." Addressed to the Mercator Institute for China Studies and the European Policy Centre, Berlin, March 30. https://ec.europa.eu/commission/presscorner/detail/en/speech_23_2063.

White House Briefing Room. 2023. "Fact Sheet: One Year after the CHIPS and Science Act, Biden-Harris Administration Marks Historic Progress in Bringing Semiconductor Supply Chains Home, Supporting Innovation, and Protecting National Security." White House Statements and Releases, August 9. https://www.whitehouse.gov/briefing-room/statements-releases/2023/08/09/fact-sheet-one-year-after-the-chips-and-science-act-biden-harris-administration-marks-historic-progress-in-bringing-semiconductor-supply-chains-home-supporting-innovation-and-protecting-national-s/.

World Trade Organization. 2019. *Global Value Chain Development Report: Technological Innovation, Supply Chain Trade, and Workers in a Globalized World*. Geneva, Switzerland: World Trade Organization. https://documents.worldbank.org/en/publication/documents-reports/documentdetail/384161555079173489/global-value-chain-development-report-2019-technological-innovation-supply-chain-trade-and-workers-in-a-globalized-world.

Yellen, Janet. 2022. "Remarks by Secretary of the Treasury Janet L. Yellen on Way Forward for the Global Economy." As delivered at the Atlantic Council on April 13. https://www.atlanticcouncil.org/news/transcripts/transcript-us-treasury-secretary-janet-yellen-on-the-next-steps-for-russia-sanctions-and-friend-shoring-supply-chains/.

Yeo, Han-Koo. 2023. "It's Time IPEF Countries Take Action on Supply Chain Resilience." Peterson Institute for International Economics, July 5. https://www.piie.com/blogs/realtime-economics/its-time-ipef-countries-take-action-supply-chain-resilience.

## ABOUT THE AUTHOR

**Mary E. Lovely**

*Anthony M. Solomon Senior Fellow, Peterson Institute for International Economics*

Mary E. Lovely is the Anthony M. Solomon Senior Fellow at the Peterson Institute for International Economics. She held the 2022 Carnegie Chair in US-China Relations with the Kluge Center at the Library of Congress. Lovely is professor emeritus of economics at Syracuse University's Maxwell School of Citizenship and Public Affairs, where she was Melvin A. Eggers Economics Faculty Scholar. She served as co-editor of the China Economic Review during 2011–15. Lovely earned her PhD in economics at the University of Michigan, Ann Arbor and an MA in city and regional planning from Harvard University.

## About the Aspen Economic Strategy Group

The Aspen Economic Strategy Group (AESG), a program of the Aspen Institute, is composed of a diverse, bipartisan group of distinguished leaders and thinkers with the goal of promoting evidence-based solutions to significant U.S. economic challenges. Co-chaired by Henry M. Paulson, Jr. and Timothy F. Geithner, the AESG fosters the exchange of economic policy ideas and seeks to clarify the lines of debate on emerging economic issues while promoting bipartisan relationship-building among current and future generations of policy leaders in Washington.