The Economic Effects of Proposed Action in the Section 301 Investigation of China's Maritime, Logistics, and Shipbuilding Policies and Practices

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Prepared By

Trade Partnership Worldwide, LLC

For

An *Ad Hoc* Coalition of Farmers, Manufacturers and Retailers, Logistics and Transportation Services Providers

About the Authors

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About the Study Sponsors

This study was sponsored by a group of organizations representing the range of sectors that would be adversely affected by the proposed remedies. The organizations came together specifically to seek comprehensive analysis of the net (positive as well as negative) impacts to the economy broadly and their sectors specifically should any one (or more) of the remedies be imposed. The group includes:

Agriculture Transportation Coalition—known as "the principal voice of agriculture exporters in US transportation policy" and comprised of U.S. agriculture and forest products exporters and importers nationwide — all commodities, in every state in the country. AgTC's mission is to make the agriculture export supply chain affordable and dependable, assuring transportation service which allows U.S. ag exporters to be competitive in the international market.

Alliance for Chemical Distribution—supports and champions the chemical distribution experts the world depends on to safely, reliably, responsibly, and sustainably move the chemical products essential to our daily lives. ACD's more than 400 chemical distribution industry members are primarily small, multi-generational, family-owned businesses. Due to limited manufacturing, the U.S. is reliant on critical chemicals imported by ACD members that are essential to every industry, including public safety, infrastructure, agriculture, and transportation.

American Apparel & Footwear Association—the national trade association representing apparel, footwear and other sewn products companies and their suppliers, which compete in the global market. Representing more than 1,100 world famous brands, AAFA is the trusted public policy and political voice of the apparel and footwear industry, its management, and shareholders, its more than 3.5 million U.S. workers, and its contribution of more than $509 billion in annual U.S. retail sales.

American Association of Port Authorities—the unified voice of the seaport industry in the Americas, representing more than 130 public port authorities in the U.S., Canada, the Caribbean and Latin America. For more than a century, AAPA membership has empowered port authorities and their maritime industry partners to serve global customers and create economic and social value for their communities. Our events, resources and partnerships connect, inform and unify seaport leaders and maritime professionals who deliver prosperity around the western hemisphere.

American Chemistry Council—advocates for the people, policy, and products of chemistry that make the United States the global leader in innovation and manufacturing. To achieve this, we champion science-based policy solutions across all levels of government; drive continuous performance improvement to protect employees and communities through Responsible Care®; foster the development of sustainability practices throughout ACC member companies; and communicate authentically with communities about challenges and solutions for a safer, healthier and more sustainable way of life. Our vision is a world made better by chemistry, where people live happier, healthier, and more prosperous lives, safely and sustainably—for generations to come.

American Fuel & Petrochemical Manufacturers—represents high-tech American manufacturers that supply 96% of the refined petroleum products made in the United States, such as gasoline, diesel, jet fuel, as well as petrochemical building blocks that are used in manufacturing supply chains throughout the world. The association's members are responsible for the employment of more than 3 million Americans in 43 states and the District of Columbia and contribute more than $800 billion to the U.S. economy.

American Petroleum Institute—the only national trade association representing all facets of the oil and natural gas industry. Our more than 600 members include large integrated companies as well as exploration and production, refining, marketing, pipeline, and marine businesses, and oilfield equipment manufacturers, service, and supply companies.

American Trucking Associations—the voice of the industry America depends on most to move our nation's freight. We are a 90-year old federation with state trucking association affiliates in all 50 states. We represent every sector of the industry, from LTL to truckload, agriculture and livestock to auto haulers, and from large motor carriers to small mom-and-pop operations. ATA, through our Intermodal Motor Carrier Conference, also represents a subset of ATA member companies who operate at our nation's ports and inland intermodal facilities.

Association of Equipment Manufacturers—the North America-based trade group representing off-road equipment manufacturers and suppliers with more than 1,100 member companies and more than 200 product lines in the agriculture, mining, forestry, and construction-related industry sectors worldwide.

Auto Care Association—dedicated to helping the auto care industry to keep vehicles moving and lasting longer, performing better, and keeping drivers safe. Our global member companies manufacture, distribute, and sell every single part and component, and perform service, maintenance, and repairs on every class of vehicle on the road.

Consumer Technology Association—As North America's largest technology trade association, CTA is the tech sector. Our members are the world's leading innovators – from startups to global brands – helping support more than 18 million American jobs. CTA owns and produces CES® – the most powerful tech event in the world. Find us at CTA.tech. Follow us @CTAtech.

Footwear Distributors & Retailers of America—the footwear industry's trade and business association, representing more than 500 footwear companies and brands across the U.S. This includes the majority of U.S. footwear manufacturers and over 97 percent of the industry. FDRA has served the footwear industry for 80 years, and our members include a broad and diverse cross section of the companies that make and sell shoes, from small family-owned businesses to global brands that reach consumers around the world.

Gemini Shippers Association—a non-profit shippers association, provides our over 300-member companies with the insight and capacity to achieve greater supply chain efficiency through volume rate and service agreements with shipping lines by leveraging the power of cooperative procurement.

Intermodal Association of North America—the only trade organization representing the collective interests of the intermodal freight supply chain. With members from Canada, Mexico and the United States from over 1,000 corporations, including railroads, ocean carriers, ports, motor carriers, logistics firms, and industry suppliers, IANA serves as the unified voice of the intermodal transportation industry.

International Dairy Foods Association—represents the nation's dairy manufacturing and marketing industry, which supports more than 3.2 million jobs that generate $49 billion in direct wages and $794 billion in overall economic impact. IDFA's diverse membership ranges

from multinational organizations to single-plant companies, from dairy companies and cooperatives to food retailers and suppliers, all on the cutting edge of innovation and sustainable business practices. Together, they represent most of the milk, cheese, ice cream, yogurt and cultured products, and dairy ingredients produced and marketed in the United States and sold throughout the world.

International Fresh Produce Association—the largest and most diverse association serving the entire fresh produce and floral supply chain worldwide and the only one to seamlessly integrate advocacy and industry-facing support. IFPA proudly represents member companies, from small family businesses to large corporations, throughout the fresh fruit and vegetable supply chain, including growers, shippers, fresh-cut processors, wholesalers, distributors, retailers, food service operators, industry suppliers, and allied associations.

The International Housewares Association—the 86-year-old voice of the home and housewares industry, dedicated to bringing buyers and sellers together. IHA hosts the world's premier exposition of products for the home, The Inspired Home Show, bringing more than 2,000 unique brands together with both global and domestic buyers – U.S.-based attendees alone represent more than 100,000 retail locations and over $64 billion in buying power. The not-for-profit, full-service Association offers member companies a wide range of services including industry and government advocacy; export assistance; trend reports; executive management peer groups; group buying discounts; and an independent news and information platform, HomePageNews.com.

International Housewares Shippers Association—its team of experienced transportation executives, independent of any shipping line, works tirelessly to secure the most competitive ocean freight rates and services for our members.

International Wood Products Association—the leading trade association for the international wood products industry in North America. We bring together every segment of the global supply chain, from producers and service providers to importers, distributors, manufacturers, and retailers. IWPA is committed to supporting the legal and sustainable harvesting of wood products from around the world.

NCBFAA Shippers Association—a dedicated advocate, leveraging our extensive network and executive-level expertise to deliver substantial cost savings because navigating the complexities of ocean freight requires deep industry knowledge and strong carrier relationships.

National Fisheries Institute—the nation's largest commercial seafood trade association, representing every facet of the seafood value chain. U.S. seafood producers, many of which are small businesses, contribute significantly to the nation's economy and provide sustainable, high-quality finfish and shellfish for American families and customers worldwide. In the process, these companies support approximately 1.6 million American jobs. On behalf of those companies, NFI advocates for effective trade policy, responsible regulation, and nutrition policy that reflects the many health benefits of a seafood-rich diet.

National Foreign Trade Council—organized in 1914, is an association of U.S. business enterprises engaged in all aspects of international trade and investment. Our membership covers the full spectrum of industrial, commercial, financial, and service activities, accounting for over $6 trillion in revenue and employing nearly 6 million people in the United States.

National Grain and Feed Association—represents and provides services for grain, feed and related commercial businesses. Its activities focus on enhancing the growth and economic performance of U.S. agriculture.

National Mining Association—the only national trade organization that serves as the voice of the U.S. mining industry and the hundreds of thousands of American workers it employs before Congress, the federal agencies, the judiciary, and the media, advocating for public policies that will help America fully and responsibly utilize its vast natural resources. We work to ensure America has secure and reliable supply chains, abundant and affordable energy, and the American-sourced materials necessary for U.S. manufacturing, energy, infrastructure, and national and economic security priorities – all delivered under world-leading environmental, safety, and labor standards. The NMA has a membership of nearly 300 companies and organizations involved in every aspect of mining, from producers and equipment manufacturers to service providers.

National Pork Producers Council—represents 43 state producer organizations and the domestic and global interests of more than 60,000 U.S. pork operations. The U.S. pork industry is a major value-added enterprise in the U.S. agricultural economy and a significant contributor to the overall U.S. economy, producing more than 28 billion pounds of high-quality, safe, and affordable pork in 2024. We advocate for the social, environmental and economic sustainability of U.S. pork producers and their partners by fighting for reasonable public policy, advancing our freedom to operate and expanding access to global markets.

National Retail Federation—passionately advocates for the people, brands, policies and ideas that help retail succeed. Retail is the nation's largest private-sector employer, contributing $5.3 trillion to annual GDP and supporting more than one in four U.S. jobs — 55 million working Americans. NRF empowers the industry that powers the economy.

Promotional Products Association International—the industry's largest not-for-profit trade association, representing over 15,000 companies. Since 1903, PPAI has worked to unite and advance the promotional products marketplace while ensuring businesses have the resources and insights needed to navigate evolving trade and supply chain policies. Our message is clear: Promotional Products Work!

Retail Industry Leaders Association—the U.S. trade association for leading retailers. Our members include more than 200 retailers, product manufacturers, and service suppliers, which together account for more than $2.7 trillion in annual sales, millions of American jobs, and

hundreds of thousands of stores, manufacturing facilities, and distribution centers domestically and abroad.

The Fertilizer Institute—the leading voice of the nation's fertilizer industry. Tracing its roots back to 1883, TFI's membership includes fertilizer producers, wholesalers, retailers, and trading firms. In the US, the fertilizer industry contributes $140 billion to the economy, supports nearly 500,000 jobs, and generates over $36 billion in income for American workers.

The Sulfur Institute—an international industry trade association representing over 60 members that produce, consume, market, and distribute elemental sulphur and sulphuric acid in the energy, agriculture, mining, and chemical sectors of the economy.

Toy Shippers Association—a leading logistics voice in the shipping industry since 1990. We work closely with an extensive portfolio of global and regional carriers. Our primary goal is to provide ocean freight savings for our members.

United States Fashion Industry Association—dedicated to fashion made possible by global trade. USFIA represents textile and apparel brands, retailers, importers, and wholesalers based in the United States and doing business globally; working to eliminate tariff and non-tariff barriers that impede the industry's ability to trade freely and create economic opportunities in the United States and abroad with the goal of doing what we can to make the world a better place for our customers, our colleagues, and our suppliers.

Executive Summary

On March 12, 2024, five unions filed a petition with the Office of the U.S. Trade Representative (USTR) charging that certain acts, policies and practices of China prevent the U.S. commercial shipbuilding industry from competing internationally. They asked that the United States assess a fee on every Chinese-made ship that calls at a U.S. port, and that the fees collected be used to subsidize the U.S. shipbuilding industry. On February 27 the Office of the U.S. Trade Representative (USTR) issued a set of remedy recommendations that included port fees and export restrictions, some more extensive than that sought by petitioners, to penalize ocean carriers that use Chinese-built ships and to support the U.S. shipbuilding sector.

This study aims to assess not only the potential benefits to U.S. shipbuilders and their suppliers of the economic subsidy sought, but also the negative ripple effects of the added transportation costs across the rest of the U.S. economy of a subset of the remedy recommendations suggested by USTR. For the five options we examined, we find:

- Overall, the proposed remedies would have a **net negative** impact on the U.S. economy. Each option examined would subtract from U.S. output at a time when the administration is seeking to grow the economy an annual rate of 3%. For every remedy option examined, U.S. exports would decline, potentially contributing to a worsening of the U.S. trade deficit.

- While the U.S. shipbuilding industry (manufacturers and workers) would benefit from the remedy proposals, many other sectors of the economy (farmers, manufacturers and services providers, including their workers) would be harmed, and frequently significantly so.

- U.S. agriculture exporters and workers would be particularly hard-hit, with exports of major agriculture products like wheat, rice, corn, oilseeds and cotton dropping dramatically — by double digits in the cases of wheat, rice and soybeans. U.S. exporters will lose competitiveness to exporters in Brazil, Canada, Russia and Australia.

- Important energy exports like coal, oil, natural gas and goods exports from numerous manufacturing industries would also suffer declines in output and employment because of increased shipping costs and reductions in trade.

- U.S. ports and related sectors would experience net negative impacts on both output and employment.

- As the impacts of the remedies filter still further along supply chains, U.S. manufacturers, importers and retailers would feel the effects. Wholesale and retail trade, hospitality, and consumer services industries and other supply chain stakeholders would all experience declines in output.

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I. Introduction

On March 12, 2024, five unions filed a petition with the Office of the U.S. Trade Representative (USTR) charging that certain acts, policies and practices of China prevent the U.S. commercial shipbuilding industry from competing internationally.[1] They asked for financial support to lower the costs of U.S.-built ships so they can compete with Chinese-made ships. They proposed that, in the event the acts, policies and practices of China are not terminated, the United States assess a fee on every Chinese-made ship that calls at a U.S. port, and that the fees collected be used to subsidize the U.S. shipbuilding industry.[2] Petitioners did not advise USTR how high the fee needed to be to raise the (unspecified) amount of money needed to make the U.S. industry competitive, but offered a "hypothetical" example of a fee of $1 million.[3]

Based on the allegations, USTR initiated a formal Section 301 investigation on April 17, requested comments from the public, and the Section 301 Committee held a public hearing May 29. On January 16, 2025, USTR released a report[4] supporting the determination that China's "targeting of the maritime, logistics, and shipbuilding sectors for dominance is unreasonable and burdens or restricts U.S. commerce and thus is actionable." On February 27, USTR published a *Federal Register* notice offering a menu of **one or more** actions it

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[1] The United Steel, Paper and Forestry, Rubber, Manufacturing, Energy, Allied Industrial and Service Workers International Union, AFL-CIO CLC (USW), the International Association of Machinists and Aerospace Workers (IAM), the International Brotherhood of Boilermakers, Iron Ship Builders, Blacksmiths, Forgers and Helpers, AFL-CIO/CLC (IBB), the International Brotherhood of Electrical Workers (IBEW), and the Maritime Trades Department, AFL-CIO (MTD), "China's Policies in the Maritime, Logistics, and Shipbuilding Sector," Petition for Relief under Section 301 of the Trade Act of 1974, As Amended, March 12, 2024, https://ustr.gov/sites/default/files/Section%20301%20Petition%20-%20Maritime%20Logisitics%20and%20Shipbuilding%20Sector.pdf, hereafter "Petition."

[2] *Ibid.*, p. 114 and 116-118.

[3] *Ibid.*, p. 116.

[4] Office of the U.S. Trade Representative, *Report on China's Targeting of the Maritime, Logistics, and Shipbuilding Sectors for Dominance*," January 16, 2025, https://ustr.gov/sites/default/files/enforcement/301Investigations/USTRReportChinaTargetingMaritime.pdf.

believed would "create leverage to obtain the elimination" of the offending shipbuilding sector practices.[5]

The proposed remedies are comprised of U.S. port entry fees applicable to inbound trade (imports) and vessel origin requirements directed at exports (but also affecting imports). The proposed port entry fees are grouped into three categories:

(1) A fee assessed on Chinese maritime transport operators each time a ship in their fleet (wherever built) lands at a U.S. port of entry. The fee could be "up to" $1 million per entry, or "up to" $1,000 per net ton of the vessel's capacity.
(2) A fee assessed on maritime transport operators (of any nationality) with fleets comprised of Chinese-built ships each time a Chinese-built ship in their fleet lands at a U.S. port of entry. The fee could be "up to" $1.5 million per entry or "up to" various amounts (from $500 000 to $1 million) depending on the percentage of Chinese-built vessels in that operator's fleet.
(3) A fee assessed on maritime transport operators (of any nationality) with orders for Chinese-built ships to be delivered over the next 24 months each time a vessel (of any origin) in their fleet lands at a U.S. port of entry. The fee ranges from $500,000 to $1 million per vessel entry, depending on the operator's share of Chinese orders in their total vessel orders. An alternative suggested is a fee of "up to" $1 million per vessel entry (of any origin) if Chinese ship orders account for 25% or more of the operator's total ship orders for delivery over the next 24 months.

USTR suggests a "fee remission" for maritime transport operators (of any nationality) of "up to" $1 million per entry if the operator uses a U.S.-built ship.

Each of the fee recommendations will impact U.S. exports indirectly (as we show in this study). The additional remedy recommendation that impacts U.S exports directly is a requirement that specified shares of U.S. exports, increasing over time, be transported on U.S.-flagged and -operated vessels, and eventually U.S.-flagged, U.S.-operated and U.S.-built vessels. The requirement would apply to "all" U.S. goods, "such as capital goods, consumer goods, agricultural products, and chemical, petroleum, or gas products…" As ships that

[5] Office of the U.S. Trade Representative, "Proposed Action in Section 301 Investigation of China's Targeting of Maritime, Logistics, and Shipbuilding Sectors for Dominance," *Federal Register*, Vol. 90, No. 38, Feb. 27, 2025, https://ustr.gov/sites/default/files/files/Issue_Areas/Enforcement/Ships%20Proposed%20Action%20FRN.pdf.

go out of U.S. ports typically return carrying imports, this remedy recommendation would indirectly impact imports as well. The two options suggested by USTR are:

(1) Beginning on the effective date of the remedy action, "at least" 1% of U.S. products (per calendar year) that are exported by vessel must be exported on U.S.-flagged, U.S.-operated ships. Two years from the effective date of the remedy action, at least 3% must be so exported. Three years from the effective date, 5% of goods must be exported on U.S.-flagged and U.S.-operated ships, of which 3% must b be U.S.-flagged, U.S.-built and U.S.-operated. By year seven, at least 15% of U.S. goods is restricted to export on U.S.-flagged, U.S.-operated **and U.S.-built ships**.

(2) An alternative option is that all U.S. goods must be exported on U.S.-flagged, U.S.-built ships (no mention that they be U.S.-operated), but may be "approved" for export on a non-U.S. built vessel (no mention of who flags or operates the vessel) if the maritime operator demonstrates that at least 20% of U.S. products per year that the operator will transport by ship will be transported on U.S.-flagged, U.S.-built ships.

A final recommendation for action suggests restrictions on use of China's National Transportation and Logistics Public Information Platform (LOGINK).

The purpose of this research is to quantify the full range of effects from the imposition of some of the proposed fees on port calls and export restrictions recommended so that U.S. policymakers can better evaluate their net impacts on the U.S. supply chain and the economy generally.

The purpose of this research is to quantify the economic effects of a selection of the remedies proposed by USTR. We employ a model of the global economy that quantifies the full range of effects arising from the proposed remedies. The analysis captures all the gains and losses so that U.S. policymakers can better evaluate the net impacts of the proposed remedies. Only armed with a thorough, comprehensive assessment of these economic effects can U.S. policymakers make the informed decisions about whether it is in the overall U.S. economic interest to support the U.S. shipbuilding industry with the remedies suggested.

Our analysis is built on an earlier study prepared in August 2024 assessing the economic effects of the petitioners' proposed remedy of a $1 million per entry port fee. In that study,[6] we reviewed the shipping supply chain, and the various headwinds facing the sector that would impact its ability to adjust to the fees should they be imposed. We also quantified the economy-wide impacts of the fees, including their probable impacts on employment along the supply chain.

Here we provide an update of the 2024 analysis. We begin with an overview of the shipbuilding and shipping services supply chain, largely repeated (and updated) from our earlier study. We then detail our assessments of the potential impacts of the selected proposed remedies on the U.S. economy broadly and the shipbuilding and shipping supply chain specifically. We use the same model and data (the base year was 2023) employed in the previous research, and, given available data, select three port fee remedy options and one export requirement remedy option to evaluate. The USTR notice suggests any individual remedy option could be selected, or multiple options imposed simultaneously. Therefore, we evaluate the remedy options selected individually, and then in combination. An appendix details our methodological approach.

[6] Trade Partnership Worldwide, LLC, "The Economic Effects of Proposed Port Fees on Chinese-Made Ships," prepared for the China Shipowners' Association, August 2024.

II. The U.S. Commercial Shipbuilding Supply Chain[7]

Ocean-going ships and shipping services are an often overlooked but key component of the smooth operation of every American farm, manufacturing facility, and household. Most U.S. trade is delivered by ship.[8] Many raw materials and consumer goods are transported on container ships; cars and other vehicles on "roll on, roll off" (Ro-Ro) ships. U.S. agricultural commodities travel by dry bulk ships, and oil is transported on bulk ships called tankers.[9]

The delivery of goods via commercial ships to customers in the United States (imports) or abroad (exports) is a complex and multi-sector effort.

The delivery of goods via commercial ships to customers in the United States (imports) or abroad (exports) is a complex and multi-sector effort. The supply chain includes the U.S. shipbuilding and repair industry, U.S. and foreign raw material and equipment suppliers, foreign commercial shipbuilders, commercial shipping services (carriers), ports and other transportation service providers (trucks and rail), U.S. exporters, and U.S. importers and retailers. This section profiles each briefly and explains several of the factors that impede the competitiveness of the U.S. shipbuilding industry and constrain its export capacity.

A. U.S. Shipbuilding and Repair Industry and Suppliers

The U.S. shipbuilding and repair industry (NAICS 336611) is composed of shipyards with drydocks and fabrication equipment capable of building ships, repairing ships, or converting or modifying them,

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[7] This chapter reproduces and updates, where possible, the description of the shipbuilding and shipping services supply chain detailed in our earlier research (see *ibid*.)

[8] According to the U.S. Department of Transportation, in 2023 (the most recent year available), 41.5% of the total value of U.S. goods trade (exports plus imports), and 65.9% of the volume of that trade was delivered by water. U.S. Department of Transportation, *Transportation Statistics, Annual Report 2024*, Table 3-6 and Table 3-7, https://www.bts.gov/sites/bts.dot.gov/files/2025-03/TSAR-2024_dot_79039_DS1.pdf. .

[9] See Clarksons for a description of the various types of commercial vessels (https://www.clarksons.com/glossary/types-of-cargo-ships-clarksons-ultimate-guide/) and the various sizes of bulk ships (https://www.clarksons.com/glossary/a-guide-to-bulk-vessel-sizes/).

among other related activities. Examples of products manufactured include barges, cargo ships, drilling and production platforms, floating oil and gas platforms, passenger ships and submarines. Average tonnage of U.S. commercial ships is substantially smaller than what is needed to reduce total average shipping costs.

The industry has two market sectors: military and commercial, with the U.S. Navy the primary customer of the industry. The most recent Census data available (through 2016) show that sales to the Navy accounted for 74% of total shipbuilding sales and 76% of repair services revenues.[10] According to a 2001 national security assessment of the industry, ship construction and procurement methods in the two markets are quite different and generally incompatible.[11] Commercial ships are typically less complex than military vessels to build and repair.[12]

Heavy Navy demand for warships has put significant constraints on capacity for commercial shipbuilding. The U.S. government's recently published 30-Year Shipbuilding Plan for building U.S. Navy vessels calls for the construction of hundreds of vessels by 2054.[13] According to the Congressional Research Service (CRS), "industrial base capacity constraints for building Navy ships are present at both shipyards and supplier firms, and arise from limits on production facilities (i.e., numbers and ages of production spaces and equipment) and …workforce challenges." CRS notes significant delays in construction and delivery.[14]

This competition for supply from military customers and the bottlenecks already facing that supply do not bode well for the industry's ability to increase output in the short run. As of 2023, just

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[10] Shipbuildinghistory.com, "Revenues in U.S. Shipbuilding and Repair Since 1987" (most recent update: April 30, 2021), http://shipbuildinghistory.com/statistics/bocrevs.htm.

[11] U.S. Department of Commerce, Bureau of Export Administration, Office of Strategic Industries and Economic Security, Strategic Analysis Division, "National Security Assessment of the U.S. Shipbuilding and Repair Industry," May 2001, file:///Users/apple_owner/Desktop/PB2001108035.pdf, p. 10.

[12] *Ibid*., pp. 10-11.

[13] U.S. Congressional Budget Office, "An Analysis of the Navy's 2025 Shipbuilding Plan," Congressional Budget Office, January 2025, https://www.cbo.gov/publication/61155#_idTextAnchor014.

[14] "Navy Force Structure and Shipbuilding Plans: Background and Issues for Congress," Congressional Research Service, May 2024, https://sgp.fas.org/crs/weapons/RL32665.pdf.

Table 1. Size of Leading Makers of Container and Bulk Ships, and United States, 2023

	Container (TEUs)		Bulk* (DWT)	
Country	**Ave.**	**Max.**	**Ave.**	**Max.**
China	5,729	15,536	59,960	210,950
Korea	8,335	16,652	61,895	181,258
Japan	8,997	14,052	56,185	209,854
Poland	2,552	4,444	46,844	48,077
Germany	1,994	5,936	Nil	Nil
Denmark	8,465	11,008	182,060	182,060
U.S.	2,296	3,620	Nil	Nil

*Panamax (capacity 65,000-80,000 DWT) can pass through the Panama Canal; Aframax (80,000 to 120,000 DWT) carry oil; Suezmax (160,000 DWT) carry oil and can pass through the Suez Canal; Handymax (35,000-50,000 DWT); Capesize (170,000 DWT); Chinamax (up to 400,000 DWT) (source: Clarksons).
Sources: Containers from Alphaliner Service Search; Bulk from Clarksons.

five U.S. shipyards constructed large commercial cargo ships.[15] Between 2010 and 2023, only 10 container ships were built in U.S. shipyards.[16] Constructing a containership without delays takes approximately three years.[17] Furthermore, only a small number of U.S. shipyards are capable of building large commercial cargo vessels, and these are already operating at or near capacity with military contracts and Jones Act vessels. That said, all current U.S.-built ships exist are used for domestic commerce (none is available for international commerce) and no U.S. ship more than 3,620 TEUs has been built. Moreover, the cost of U.S.-built ships remains very high compared ships built abroad.[18] "None of the U.S.-flag international trading fleet is domestically built. No overseas purchase of large U.S.-built ships has occurred in decades because U.S.-built ships can be four or more times the world price. Differences in wage rates, particularly for welders, and currency exchange rate policy are factors leading to higher prices in the United States. The lack of [ship] exports prevents U.S. shipyards from achieving

[15] John Fritelli, "U.S. Commercial Shipbuilding in a Global Context," In Focus, Congressional Research Service, Nov. 15, 2023, https://crsreports.congress.gov/product/pdf/IF/IF12534, hereafter "CRS 2023".

[16] *Ibid*.

[17] Niraj Chokshi, "How Giant Ships Are Built," *The New York Times*, June 17, 2020, https://www.nytimes.com/interactive/2020/06/17/business/economy/how-container-ships-are-built.html.

[18] In 1992, a study by the U.S. International Trade Commission found that U.S. bid prices for commercial vessels averaged 97% more than comparable world bids for similar ships: *Shipbuilding Trade Reform Act of 1992: Likely Economic Effects of Enactment*, Rep. to the Committee on Ways and Means, Inv. No. 332-316, USITC Pub. No. 2495, June 1992, https://www.usitc.gov/publications/332/pub2495.pdf, p. xi.

economies of scale."[19] Further, the average operating cost of a U.S.-flag ship is more than 2.7 times that of a foreign-flag ship.[20]

Other recent developments in the market and some longstanding problems have imposed and continue to inflate the costs of U.S.-made ships. The costs of steel and aluminum (both domestic and foreign) are inflated by the imposition of Section 232 and 301 tariffs on imports, [21] as well as a host of antidumping and countervailing duties affecting (largely) steel imports. Steel costs are rising: 2023 prices for U.S.-made fabricated metal plate work were 48.7% higher than they were in 2018, when the Section 232 and 301 tariffs were imposed.[22] While most of these inputs are sourced domestically, estimates from the Organization for Economic Cooperation and Development suggest that in 2015 about 14% of the total value of U.S. shipbuilding production was composed of imported inputs.[23] Raw material and machinery cost increases are particularly challenging as shipyards tend to employ fixed price contracts.[24] These cost increases, coupled with raw material and

Labor constraints also contribute to the high cost of U.S.-made ships and the ability of commercial shipbuilders to deliver ships in a timely manner.

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[19] CRS 2023, *op. cit*.

[20] U.S. Maritime Administration study cited by John Frittelli, "Shipping Under the Jones Act: Legislative and Regulatory Background," Congressional Research Service, CRS. Report R45725, November 21. 2019, file:///Users/apple_owner/Downloads/R45725.5.pdf. See also Panteia, "Cost Figures for Freight Transport – final report," January 2023, for typical cost shares between fixed and variable costs, file:///Users/apple_owner/Downloads/Cost+figures+for+freight+transport_def.pdf.

[21] See U.S. International Trade Commission, *Economic Impact of Section 232 and 301 Tariffs on U.S. Industries*, Inv. No. 332-591, Pub. No. 5405, March 2023, Table E.S.1, p. 22, https://www.usitc.gov/publications/332/pub5405.pdf.

[22] Derived from Bureau of Labor Statistics, "Producer Price Index" data for fabricated plate work (stacks and weldments), downloaded June 28, 2024.

[23] Karin Gourdon and Christian Steidl, "Global value chains and the shipbuilding industry," OECD Science, Technology and Industry Working Papers 2019/08, Figure 8, p. 19, https://www.oecd-ilibrary.org/docserver/7e94709a-en.pdf?expires=1719422851&id=id&accname=guest&checksum=4E2133DB2E0DF614ECB01F8898D9B60C.

[24] Eric Haun, "2023 US Shipbuilding Report," *Marine News*, April 17, 2023, https://www.marinelink.com/news/us-shipbuilding-report-504422 (hereafter, Huan 1) and Eric Huan, "2022 US

equipment delivery delays, are making it difficult for U.S. shipbuilders to move forward with the orders they currently have.

Labor constraints also contribute to the high cost of U.S.-made ships and the ability of commercial shipbuilders to deliver ships in a timely manner. The average annual wage of production workers in the shipbuilding industry was 20.4% higher in 2023 than it was in 2018.[25] As a result, in 2023, U.S. commercial ship prices were 21.6% higher than in 2018.[26]

B. Foreign Commercial Shipbuilders

China, Korea and Japan account for most of the 2019-2023 average gross tonnage of ships built per year, followed by 11 other countries, and then the United States.[27] Table 1 above demonstrates the wide range in the average and maximum sizes of ships made by each country, relative to U.S. vessel manufacturers. Yet, "…even the most successful shipbuilding firms in Korea and Japan often operate at a loss. According to an annual market review, ship sale prices seldom exceed their building costs."[28] Foreign government subsidies often come to the rescue. These subsidies have been the target of repeated discussion at the OECD, with renewed interest in new negotiations.[29]

C. Commercial Shipping Services

Shipbuilding Report," *Marine News*, March 11, 2022, https://www.marinelink.com/news/us-shipbuilding-report-494956 (hereafter, Huan 2).

[25] Derived from Bureau of Labor Statistics, Occupational Employment and Wage Statistics, May 2023 and May 2021, downloaded June 28, 2024.

[26] Derived from Bureau of Labor Statistics, "Producer Price Index" data for new, non-military ship construction, downloaded June 28, 2024.

[27] U.N. Conference on Trade and Development, "Ships build by country of building, annual," https://unctadstat.unctad.org/datacentre/dataviewer/U.S.ShipBuilding and https://infogram.com/1pe2xex137m1nzcm2v9rlwydv3cledmjr5y?live.

[28] CRS 2023, *op. cit*.

[29] "OECD Agrees On Need To Commence New Ship Building Negotiations," *Inside U.S. Trade*, March 2025. https://insidetrade.com/content/oecd-agrees-need-commence-new-ship-building-negotiations.

Ocean carriers purchase and operate oceangoing commercial ships. They provide waterborne transportation services for people (cruises) and for importing goods into the United States and exporting goods from the United States (e.g., shippers). In addition to the transportation of goods, the services they provide may also include logistical services — the transportation of the goods after entry into the United States (warehousing, and truck or rail services to the next destination).

Table 3. Top 10 Ocean Carriers, 2022

	Total TEUs	Ships	Ave. Size
Mediterranean Shipping Co. (MSC) (Switzerland)	4,337,384	662	6,551
Maersk (Denmark)	4,279,760	737	5,807
CMA CGM Group (France)	3,274,775	578	5,666
COSCO Group (China)	2,928,114	475	6,164
Hapag-Lloyd (Germany)	1,741,980	246	7,081
ONE (Ocean Network Express) (Japan)	1,526,937	209	7,306
Evergreen Line (Taiwan)	1,504,564	200	7,523
HMM Co. Ltd. (Korea)	820,520	76	10,796
Yang Ming Marine Transport Corp. (Taiwan)	666,164	93	7,163
Zim (Israel)	451,855	125	3,615

Source: American Journal of Transportation, https://www.ajot.com/premium/ajot-2022-top-50-ocean-carriers

Carriers typically negotiate fixed one- to two-year contracts governing the terms, conditions and prices of shipping goods with their larger customers (shippers of exports or imports, e.g., major retailers, agricultural exporters). These contracts usually include volume commitments (shippers agree to ship a certain volume of goods over the course of the contract term) and commitments from the carriers for timely delivery of products. For the retail sector, for example, contracts typically run from May 1 to April 30, with the contract negotiation period occurring two months prior.

Some of the larger carriers have considerable market power and can typically pass on new or unexpected cost increases to their customers.

Smaller shippers may collectively participate in contracts negotiated by shipper associations. Or a small shipper may contract with a non-vessel operating common carrier (NVOCC), which buys space from carriers and then sells it to shippers. Purchasing shipping services on the spot market is never preferred as those rates can be volatile.

Some of the larger carriers have considerable market power and can typically pass on new or unexpected cost increases to their customers. They may try to do this before the expiration of the contract, or certainly when it is time to renegotiate the contract.

D. U.S. Port Services and Related Sectors

Terminal operators at the ports manage the landing, unloading and reloading of ships that dock in the United States. They also manage the storage of goods awaiting pickup and a truck and rail transportation stream to move goods out of their port area to nearby warehouses or onward to warehouses or customers across the country. Ports may be operated by governments (federal, state or local) or private entities. The United States has over 150 deep-draft ports (those that can handle ocean-going ships).[30]

Marine cargo handlers include individuals who load and unload ships at ports and harbors, and provide longshoreman services, marine cargo handling services, ship hold cleaning services, and stevedoring services. Tens of thousands of these workers are represented by unions (including the International Longshore and Warehouse Union representing workers on the West Coast and Hawaii, and the International Longshoremen's Association (ILA) representing workers on the East and Gulf Coasts). These unions negotiate employment contracts with organizations representing the management groups for terminal operators and carriers (the Pacific Maritime Association

[30] U.S. Environmental Protection Agency, "Port Primer: 3.1 Port Operations," https://www.epa.gov/community-port-collaboration/ports-primer-31-port-operations.

(PMA) on the West Coast, and the United States Maritime Alliance (USMX) representing the East and Gulf Coast ports). PMA members employed more than 16,400 registered longshore workers at 29 West Coast ports.[31] East and Gulf Coast dockworkers represented by the ILA total 45,000.[32]

Table 4. Number of Commercial Ship Calls at U.S. Ports, 2023

Liquid bulk cargo ships	22,585
Liquid petroleum gas ships	3,035
Liquid natural gas ships	1,601
Dry bulk cargo ships	14,487
Dry breakbulk cargo ships	7,368
Roll-on, roll-off ships	6,068
Container ships	19,418
Passenger ships	193,375
All ships	267,937

U.S. ports manage hundreds of thousands of port calls annually. Most are passenger (cruise) ships, followed by liquid bulk cargo ships (which carry wet bulk cargo such as crude or certain refined oil products, or other liquid cargo except for liquefied gas) and container ships.[33]

U.S. ports are increasingly challenged by the need to handle larger ships. U.S. and other country ports have responded by adjusting the ability of their key ports to service these increasingly large vessels. In response to this, the governments of Panama and Egypt have completed major expansion projects of the Panama and Suez Canals. The Panama Canal expansion, completed in 2016, allows for the passage of the larger class of New Panamax ships.[34] Beyond canal expansion, billions of dollars have been spent to dredge ports to permit access to larger ships and to install cranes and other infrastructure on land capable of

[31] Pacific Maritime Association, "Propelling West Coast Ports Forward," https://www.pmanet.org/west-coast-ports/.

[32] Paul Berger, "East Coast, Gulf Coast Dockworker Talks Are Starting Under Threat of a Strike," *The Wall Street Journal*, March 11, 2024, https://www.wsj.com/articles/east-coast-gulf-coast-dockworker-talks-are-starting-under-threat-of-a-strike-9787ef96.

[33] Very likely none of the passenger cruise ships were made in China. China built its first cruise ship for delivery in December 2023. "China's First Domestically Built Cruise Ship Delivered," *MarineLink,* July 8, 2024, https://www.marinelink.com/news/chinas-first-domestically-built-cruise-510297.

[34] The $2.3 billion financing package includes funds from the Japan Bank for International Cooperation (35%), the European Investment Bank (21%) and the World Bank Group and regional development banks (44%). "Financing deal for Panama Canal expansion signed," Ordons News. 24 December 2008.

loading and unloading them. **Yet just 10 U.S. ports can currently handle ships of 8,000 TEU or greater**.[35]

U.S. agricultural exports, transportation equipment, chemicals and energy products are among those heavily reliant on ocean shipping services.

Some U.S. ports, notably those on the West Coast but also the East Coast, compete with ports in Canada and Mexico. If the cost of calling a U.S. port is suddenly much higher, some carriers may feel pressure to divert U.S.-bound ships facing those higher costs to a Mexican or Canadian port instead, forcing their customers to transport their goods by truck or rail from there to U.S. destinations. The ability to do this, however, is also constrained by the infrastructure and prevailing business load at these ports.

Intrinsic to port infrastructure are connecting rail and truck services as well as warehouse operators, which ensure that goods that are offloaded from ships or are pending loading for export are moving goods quickly and efficiently to their final destinations.

E. U.S. Exporters

U.S. exports also depend heavily on a stable and affordable supply of ocean transportation vessels and services. Nine categories of exports, spanning the sectors of the U.S. economy, accounted for over 75% of total U.S. exports in 2023: transportation equipment, chemicals, oil and gas, nonelectrical machinery, petroleum and coal products, computer and electronic equipment, food and related products, agricultural products, and primary metal products.[36] U.S. agricultural exports are concentrated in four products: grains and feeds; oilseeds and products; animals (e.g. livestock and poultry), meats, and products; and horticultural products. Most of these exports are shipped on commercial vessels out of U.S. ports. For agriculture, based on volume, 55% of waterborne trade moves in bulk vessels;

[35] Transport Geography, "Channel Depth at Major North American Container Ports," https://transportgeography.org/contents/chapter6/port-terminals/channel-depth-ports-north-america/.

[36] U.S. Census Bureau, USATradeOnline, 2023 U.S. FAS exports, data download July 22, 2024.

45% in container vessels.[37] U.S. agriculture is particularly sensitive to increases in shipping costs.[38]

According to an annual Journal of Commerce survey, the top 10 exporters of containerized products were Koch Industries (212,660 TEUs, varied products), Dow (196,488 TEUs, chemicals), International Paper (177,998 TEUs, paper and packaging), ExxonMobil Chemical (136,323 TEUs, chemicals), DeLong (123,045 TEUs, animal feed and grain), International Forest Products (120,089 TEUs, packaging, paper products, pulp, forest products, recyclables), America Chung Nam (110,898 TEUs, paper and plastics recyclables), Winfibre (99,696 TEUs, paper and recyclables), Newport CH International (84,347 TEUs, paper, metals and plastics recyclables), and Shintech (79,718 TEUs, chemicals).[39]

F. U.S. Importers and Retailers

U.S. importers (also referred to as consignees) are the entities that take title to goods imported on ocean carriers. They may be manufacturers, retailers, or wholesalers or other middlemen that then sell the goods to manufacturers, wholesalers or retailers. In 2023, the 10 largest direct importers of containerized freight (by TEUs) were: The Home Depot (475,000), Target (400,000), Dole Food (230,269), Lowe's (228,974), LG Group (210,368), Chiquita Brands International (179,033), Ashley Furniture (171,168), Samsung America (157,615), Dollar Tree (150,000), and Fresh Del Monte Produce (136,188).[40]

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[37] U.S. Department of Agriculture, "U.S. Agricultural Port Profiles," https://agtransport.usda.gov/stories/s/U-S-Agricultural-Port-Profiles/7vku-v3nn/.

[38] See Md Deluair Hossen, Andrew Muhammad, Bart Kenner, James Kaufman, "Unraveling the impacts of freight rates on US containerized agricultural trade," *Journal of the Agricultural and Applied Economics Association*, February 5, 2024, https://onlinelibrary.wiley.com/doi/full/10.1002/jaa2.105; Michael K. Adjemian, Delmy L. Salin, and William W. Wilson, "Implications of Rising Ocean Freight Rates for Agri-food Product Markets, USDA Agricultural Marketing Services, 2023, https://agecon.uga.edu/content/dam/caes-subsite/ag-econ/documents/cvs/Ocean%20Transport%20Cost%20Shocks-Adjemian%20Salin%20and%20Wilson%202023.pdf and Jane Korinek and Patricia Sourdin, "Clarifying Trade Costs: Maritime Transport and its Effect on Agricultural Trade", *OECD Trade Policy Papers*, No. 92, OECD Publishing, Paris, September 28 2009 https://doi.org/10.1787/220157847513.

[39] *Journal of Commerce*, "Top 100 Importer/Exporter Rankings: Biggest shippers rise in down year," May 20, 2024. Walmart is traditionally the largest importer but the Journal could not verify Walmart's total for 2023 so did not include it in the 2023 ranking.

[40] *Ibid.*

This segment of the supply chain is currently not able to absorb higher shipping costs of the goods they import. Retail industry profits are currently just 3.4%[41]

[41] Data for the first quarter 2024, for retailers with total assets of $50 million and over; Income after income taxes as a share of net sales from U.S. Census Bureau, *Quarterly Financial Report*, T84_0-2024Q1, https://www.census.gov/econ/qfr/hist_financial.html. Prior to the pandemic, during the first quarter of 2019, retail profitability was 3.9%.

III. Estimated Economic Effects of a Selection of Proposed Section 301 Remedy Actions on the U.S. Shipbuilding Supply Chain

This section describes briefly the model we used to comprehensively estimate the impacts of four proposed remedy options. For two of these, we look at the impacts under two scenario options: (1) carriers do not have time to adjust to the fee by diverting some ships and cargo to Canadian or Mexican ports, and (2) carriers make those adjustments over time. We examine the four remedy options individually, and then we combine all four as the USTR notice suggests that one or more may be selected and imposed at once. We report the estimated impacts along the shipbuilding supply chain described in Section II given basic data required for the analysis and economic assumptions about the U.S. labor market.

We estimate the direct and indirect effects of four remedy options on trade, U.S. output and jobs.

A. Model Summary

A comprehensive assessment of the potential impacts of the proposed remedies on the U.S. economy must use a methodological approach that captures the full range of the many ways in which those impacts are experienced by farmers, manufacturers, services providers, workers and consumers. It must consider the positive impacts (e.g., on U.S. shipbuilders and their suppliers) and the negative impacts (e.g., on those farther down the supply chain). This study uses such an approach, which is detailed in Appendix A.

Briefly, we estimate the direct and indirect effects of four proposed remedies on trade, U.S. output and jobs. The model captures the direct effects changes plus all the related up- and downstream impacts, including spending increases or decreases as company sales and worker incomes change.[42] It reflects the differences in price,

[42] For example, as one sector expands, it spends more on raw materials and other inputs, which creates new business and jobs in those sectors. The expanding sectors hire more workers at higher wages and those workers spend more money at restaurants or on vacations, which in turn supports added business and employment in

quantity and quality between imported goods and U.S.-produced goods. It also captures the jobs directly and indirectly related to the process of importing or exporting goods and services (e.g., jobs associated with transporting imports from the ports to warehouses, jobs at the warehouses, or retail jobs that sell the traded goods if they are finished consumer products). Finally, our methodology considers the positive *and* negative effects of trade on jobs, and results reported are therefore "net" job impacts.

B. Scenarios

As detailed in the Introduction above, USTR has asked for input on a range of fee proposals, and an export-specific proposal. Given data constraints and the short time in which to offer input, we have selected three fee scenarios for which we have been able to obtain the needed input data, and one export scenario. They are:

(1) A $1 million fee assessed on Chinese maritime transport operators each time a ship in their fleet (wherever built) lands at a U.S. port of entry. We further examine two scenarios: First, carriers continue to use Chinese-made ships to make U.S. port calls, and to continue to deliver all U.S.-bound cargo to U.S. ports. It is the scenario most likely in the first (if not the second) year of the imposition of the fee, before carriers have had time to make adjustments to mitigate some of the cost of the fee on their customers. Second, some carriers adjust ports serviced to attempt to lower the costs to them of the fee. It is not possible to know at this time the precise degree to which carriers might make those adjustments. For the purposes of this analysis, based on conversations with those representing international carriers, we assume that 5% of carriers' U.S. port calls are transferred to ports in Canada or Mexico.
(2) A $1.5 million fee assessed on maritime transport operators (of any nationality) with fleets comprised of Chinese-built ships each time a Chinese-built ship in their fleet lands at a U.S. port of entry. Here as well we examine the additional non-adjustment/adjustment strategy described in (1) above.
(3) A $1 million fee each time a vessel (of any origin) in their fleet lands at a U.S. port of entry assessed on maritime transport

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those sectors. The reverse is also true: Contracting sectors buy fewer inputs and lay off workers, who cut spending at restaurants and on vacations until they can find new employment. Thus, a fee on shipping services will affect spending and employment in seemingly unrelated industries, such as entertainment, health care and education.

operators (of any nationality) if Chinese ship orders account for 25% or more of the operator's total ship orders for delivery over the next 24 months. We also examine the additional adjustment strategy described in (1) above.

(4) All U.S. goods must be exported on U.S.-flagged, U.S.-built ships, but may be "approved" for export on a non-U.S. built vessel if the maritime operator demonstrates that at least 20% of U.S. products per year that the operator will transport by ship will be transported on U.S.-flagged, U.S.-built ships. In effect, this places a 20% requirement on U.S. exports being on U.S.-built ships. As broadly speaking the same ships bring goods to the United States and from the United States, this also places a carriage requirement on U.S. imports. Our adjustment scenario mirrors those of the fee remedy options: 5% of U.S. trade is diverted to Canadian or Mexican ports to avoid the export requirement. [We have modeled this scenario as suggested by USTR even though industry experts report that **it would take decades for the U.S. industry to build enough ships of the right size to handle current U.S. trade**. For container ships alone, these experts estimate that the U.S.-built fleet would need over 125 6,000 TEU vessels to handle current levels of containerized exports.[43] There are currently 30 U.S.-built active liner vessels (none of which is available for international commerce as they transport cargo for U.S. domestic trades). The need for additional vessels is higher considering other vessel types are also needed. If USTR were to implement this remedy option with even a one to three year phase in, it would amount to, in effect, a restriction of U.S. exports out of U.S. ports, a very different scenario than the one we model here. In that event, the results we provide below would be many multiples greater than what we show for the scenario as proposed by USTR, which essentially assumes that the 125+ containerships and all the other new vessels needed to implement it exist. Nevertheless, we have proceeded with the scenario as proposed by USTR in the highly unlikely event that the U.S. shipbuilding industry could in fact deliver a sufficient number of U.S.-built ships of sizes appropriate to deliver U.S. exports of at

[43] Their calculations are as follows: On average, approximately 1,000 container vessels operate on liner services calling at US ports, with an average capacity of around 6,000 TEU. These vessels transport containerized imports and exports, which in 2024 totaled 38,780,000 TEU, according to PIERS data. Of this, imports accounted for 27.6 million TEU, while exports totaled 11.19 million TEU. Assuming that 20% of this trade takes place across six round trips per year in 6,000 TEU vessels, with each able to carry exports at 50% loaded capacity (a high assumption) and imports are at 100% capacity (a high assumption), yields the (low end) estimate of 125 container ships needed for 20% of current U.S. containerized exports.

least 20% of current totals in a very, very short timeframe. If USTR elects to proceed with this option, we recommend it first undertake a thorough analysis of the technical capabilities of shipbuilding in the United States (including the time requirements for building out an appropriately sized fleet) combined with an analysis of the economic costs associated with building the number of U.S. ships that would be required to handle current levels of trade.]

We run each scenario individually, and then we run all four simultaneously in the event USTR decides to impose multiple remedy options simultaneously. We do not suggest that these should or will be the remedies chosen and that all four should or will be imposed simultaneously.

C. Data and Market Assumptions

1. Scenario 1 data and experiment

Table 5. Estimation of Chinese Carriers' Share of Total U.S. Commercial Ship Port Calls

Ship Type	All Port Calls, All Carriers: Average 2018-23	All Port Calls, All Carriers: 2023	Chinese Carriers' share	Chinese Carriers' Port Calls
Passenger ships	194,920	193,375	0.00%	0
Liquid bulk carriers	21,793	22,585	4.5%	1,009
Container ships	19,424	19,418	11.7%	2,270
Dry breakbulk carriers	7,486	7,368	6.6%	484
Dry bulk carriers	15,026	14,487	12.5%	1,809
Roll-on, roll-off ships	6,431	6,068	0.3%	17
Liquefied petroleum gas carriers	2,423	3,035	5.2%	158
Liquefied natural gas carriers	1,031	1,601	1.0%	16
Total	268,534	267,937	2.1%	5,762

Sources: Derived from UNCTAD and OECD data, Navigation and Civil Works Decision Support (NDC) Library, waterborne commerce statistics.

The $1 million fee in Scenario 1 applies to Chinese-owned carriers. Leaving aside the appropriate definition of "owned," we relied on data for this category of shippers from the United Nations Conference on Trade and Development (UNCTAD) and the Organization for Economic Cooperation and Development (OECD), as well as the Navigation and Civil Works Decision Support Library, as shown in Table 5. It shows that overall, affected port calls for this remedy option would total about 5,800, to which a fee of $1 million each is applied. The adjustment scenario posits that 5%of

these port calls are transferred to Canada or Mexico and thus avoid the fee.

2. Scenario 2 data and experiment

Table 6. Estimation of Chinese-Built Ships' Share of Total U.S. Commercial Ship Port Calls

Ship Type	Average 2018-23	2023	China share	China port calls
Passenger ships	194,920	193,375	0.00%	0
Liquid bulk carriers	21,793	22,585	30.0%	6,776
Container ships	19,424	19,418	26.0%	5,049
Dry breakbulk carriers	7,486	7,368	40.4%	2,977
Dry bulk carriers	15,026	14,487	53.0%	7,678
Roll-on, roll-off ships	6,431	6,068	20.0%	1,214
Liquefied petroleum gas carriers	2,423	3,035	9.1%	276
Liquefied natural gas carriers	1,031	1,601	9.1%	146
Total	268,534	267,937	8.9%	23,846

Sources: Derived from UNCTAD and OECD data. See Table 2 and discussion for share basis.

The $1.5 million fee in Scenario 2 applies to Chinese-built ships. Official government or even private sector data reporting the number of Chinese-made ships calling at U.S. ports does not exist and therefore must be estimated to evaluate the impacts of the second remedy option. We applied China's share of global ships by type, irrespective of the nationality of the carrier (Table 2 above, from the OECD) to the average over six years of total U.S. port call data (all ships, all countries (from UNCTAD previously in Table 4), as detailed in Table 6. This yields a total estimate of 24,000 port calls by Chinese-made ships to which we applied a fee of $1.5 million per call. The adjustment scenario posits that 5% of these port calls are transferred to Canada or Mexico and thus avoid the fee.

3. Scenario 3 data and experiment

This scenario applies to carriers of any nationality with orders of 25% or more for Chinese-built ships. Based on counts of ships from Alphaliner for orders of Chinese-built ships across carriers, we calculate that 29.8% of U.S. International liner transport operators have orderbooks for ships from China more than 25% of their total orders. We apply that rate to total port calls to estimate the number of port calls that could be affected.[44] We then apply a $1 million fee

[44] This is a conservative estimate but is not ideal. Based purely on tonnage, the estimate would be higher but that means assuming that higher tonnage ships make more landings. In the absence of more detailed data, we have applied the more conservative estimate here.

to each of those calls. The adjustment scenario posits that 5% of these port calls are transferred to Canada or Mexico and thus avoid the fee.

4. Scenario 4 data

This scenario is in effect the application of the Jones Act to global shipping. In assessing the cost effects of the Jones Act on domestic shipping, analysts have estimated that U.S.-built ships cost four to five times the cost of foreign built ships, and operating costs for U.S. ships are at least 2.7 times more to build than foreign ships (see Section 2.A above). Other data suggest that fixed costs represent about 25% of total costs, and variable costs about 75% of the total. This suggests that overall, the cost of U.S.-built and U.S.-operated ships is about 3.275 times the similar cost of foreign built and operated ship. This effectively means that the cost of shipping (exports or imports) on a U.S.-built ship is akin to an additional tax of on trade realized through higher shipping costs. We apply that "tax" to 20% of U.S. trade (exports and imports, since the U.S.-built ships would return to the United States with goods destined for the U.S. market) by increasing the cost of shipping for exports and imports (measured by the difference between the f.o.b. and c.i.f. values of trade) by 3.275 times). We examine the effects for the period before carriers adjust to the fee by diverting trade to Canada or Mexico, and after they make those diversions.

5. Overall market assumptions

We assume that the U.S. economy is operating at full employment. This means that the impact of the fee will be felt in changes to U.S. wages rather than in net gains or losses in total U.S. employment. There is very little employment "slack" currently in the United States (although that may change this year) so changes in supply and demand resulting from the fee will be felt by existing workers moving around to new jobs in other sectors in response to higher wage offerings, rather than people currently unemployed moving into the labor force or those employed losing their jobs.

6. Other model set up data

The base year for our analysis is 2023 so the modeling reflects the imposition of Section 301 and 232 tariffs in effect as of that year only. Change estimates provided are off values for each economic variable in 2023. We employ the static version of GTAP, before the capital

stock has time to adjust to the higher costs associated with the fee and commensurate changes in output, exports and imports.

D. Results

Our results are detailed below. Again, "no adjustment" refers to the immediate impacts, before carriers have had time to change their usage of affected ships (if they choose to do so). "Some adjustment" refers to the period after which 5% of port landings have shifted to Canada or Mexico. The percent changes represent increases or decreases from 2023 levels for each variable. Also, again, we assume the economy is at full employment so at the national level employment impacts of the remedy proposals would be zero, although they would vary by sector as workers move from an industry that "gains" from one that "loses" in response to changes in relative wages.

1. Aggregate Results for Scenario 1: $1 million fee per port call for ships operated by Chinese carriers

Overall (across all sectors), U.S. goods exports and imports decline because of the port fees assessed on ships operated by Chinese carriers. U.S. GDP declines and notably farm household incomes also decline.

	No Adjustment	Some Adjustment
Exports (goods and services)	-0.80%	-0.79%
- Exports of goods only	-0.89	-0.85
Imports	+0.52	+0.54
- Imports of goods only	-1.29	-1.22
GDP	-0.02	-0.02
Employment	0	0
Farm household income	-4.32	-4.23

2. Aggregate Results for Scenario 2: $1.5 million fee per port call for Chinese-made ships operated by any carrier

Overall (across all sectors), U.S. exports and imports decline because of the port fees assessed on ships operated by Chinese carriers. U.S. GDP and farm household incomes decline.

	No Adjustment	Some Adjustment
Exports (goods and services)	-2.83%	-2.72
- Exports of goods only	-5.26	-5.03
Imports	-1.07	-0.98
- Imports of goods only	-7.47	-7.17
GDP	-0.04	-0.04
Employment	0	0
Farm household income	-11.50	-11.14

3. Aggregate Results for Scenario 3: $1 million fee per port call for operators with orders for Chinese-built ships

Overall (across all sectors), U.S. exports and imports decline because of the port fees assessed on ships operated by Chinese carriers. U.S. GDP declines and farm household incomes decline.

	No Adjustment	Some Adjustment
Exports (goods and services)	-1.90%	-1.83
- Exports of goods only	-2.53	-2.41
Imports	-0.40	-0.34
- Imports of goods only	-3.65	-3.45
GDP	-0.03	-0.03
Employment	0	0
Farm household income	-6.52	-6.34

4. Aggregate Results for Scenario 4: Certain exports must be transported on U.S.-built/-flagged ships

Overall (across all sectors), U.S. exports and imports decline because of the port fees assessed on ships operated by Chinese carriers. U.S. GDP and farm household incomes decline.

	No Adjustment	Some Adjustment
Exports (goods and services)	-3.64%	+0.21
- Exports of goods only	-4.48	-0.86
Imports	-2.18	-4.07
- Imports of goods only	-4.87	-6.19
GDP	-0.19	-0.36
Employment	0	0
Farm household income	-4.81	-2.25

5. Aggregate Results for Scenario 5: Scenarios 1-4 simultaneously

Overall (across all sectors), U.S. exports and imports decline because of the port fees assessed on ships operated by Chinese carriers. U.S. GDP and farm household incomes decline.

	No Adjustment	Some Adjustment
Exports (goods and services)	-7.48%	-7.24
- Exports of goods only	-11.97	-11.56
Imports	-5.21	-5.01
- Imports of goods only	-14.57	-14.13
GDP	-0.24	-0.23
Employment	0	0
Farm household income	-15.76	-15.38

6. Supply Chain Results: U.S. Shipbuilders and Repair Industry, Supplier Industries

Subsidizing the U.S. shipbuilding industry with port fees and/or export requirements would benefit the industry substantially. Output of the "transportation equipment" sector (which includes shipbuilding) would increase by 46-52%. (The sector also includes trucks, rail cars and other types of ships and boats in addition to ocean-going commercial ships.)

Transportation Equipment (excluding Motor Vehicles and Parts): Percent Change in Output

No Adjustment					Some Adjustment				
1	2	3	4	5	1	2	3	4	5
51.05	49.66	50.27	48.44	45.56	51.06	49.74	50.32	51.78	45.69

1 $1m; Chinese carriers; ships built anywhere
2 $1.5m; any carrier; ships built in China
3 $1m; any carrier, Chinese ships on order
4 20% of trade on U.S.-built, -operated ships
5 1 through 4 together

Most of the supplier industries would be negatively impacted by the fees, before carriers have a chance to adjust. Some experience output gains from the mandate to use U.S.-built ships in Scenario 4. Each of these sectors suffer declines in exports because of the higher costs of exporting imposed by the proposed remedies.

Shipbuilding Suppler Sectors: Percent Change in Output

	No Adjustment					Some Adjustment				
	1	2	3	4	5	1	2	3	4	5
Ferrous metals	-0.67	-0.41	-0.51	1.23	1.82	-0.67	-0.42	-0.52	3.75	1.72
Metals nec	-3.28	-4.18	-3.74	-3.89	-5.55	-3.27	-4.13	-3.71	0.36	-5.52
Metal products	-0.44	-0.28	-0.34	0.70	1.04	-0.44	-0.29	-0.34	2.30	0.98
Computer, electronic & optical products	-3.71	-3.93	-3.75	-2.10	-2.34	-3.71	-3.92	-3.75	2.49	-2.43
Electrical equipment	-3.15	-3.01	-3.01	-1.21	-0.76	-3.15	-3.02	-3.02	2.33	-0.86
Machinery and equipment	-2.11	-2.21	-2.15	-1.37	-1.50	-2.11	-2.21	-2.14	1.03	-1.55

1 $1m; Chinese carriers; ships built anywhere
2 $1.5m; any carrier; ships built in China
3 $1m; any carrier, Chinese ships on order
4 20% of trade on U.S.-built, -operated ships
5 1 through 4 together

Shipbuilding Suppler Sectors: Percent Change in Exports

	No Adjustment					Some Adjustment				
	1	2	3	4	5	1	2	3	4	5
Ferrous metals	-2.86	-3.81	-3.42	-4.82	-6.79	-2.85	-3.76	-3.38	-2.05	-6.68
Metals nec	-4.77	-7.58	-6.35	-11.48	-16.97	-4.74	-7.42	-6.24	-6.67	-16.63
Metal products	-4.33	-5.44	-4.89	-6.49	-8.69	-4.31	-5.38	-4.85	-2.33	-8.60
Computer, electronic & optical products	-5.31	-7.62	-6.52	-10.02	-14.59	-5.29	-7.48	-6.44	-4.48	-14.33
Electrical equipment	-4.33	-5.93	-5.17	-7.52	-10.64	-4.31	-5.83	-5.11	-3.04	-10.47
Machinery and equipment	-4.50	-6.55	-5.61	-9.22	-13.25	-4.48	-6.43	-5.53	-4.58	-13.02

1 $1m; Chinese carriers; ships built anywhere
2 $1.5m; any carrier; ships built in China
3 $1m; any carrier, Chinese ships on order
4 20% of trade on U.S.-built, -operated ships
5 1 through 4 together

7. Supply Chain Results: U.S. Ports and Related Sectors

Business would decline at U.S. ports and related services sectors because of the imposition of the fees and export requirements. Output in the “Transportation, nec” sector (which includes ports, and the trucking and rail transportation sectors) would be reduced by 0.11-0.44%; output in the warehousing and transport support services (including longshoremen) also declines, by 0.12-0.35%. As noted above, the remedy proposals would drive down both goods exports and imports.

Ports and Related Sectors: Percent Change in Output

	No Adjustment					Some Adjustment				
	1	2	3	4	5	1	2	3	4	5
Transport nec	-0.11	-0.14	-0.15	-0.26	-0.32	-0.11	-0.14	-0.15	-0.45	-0.31
Warehousing and support	-0.35	-0.34	-0.35	-0.29	-0.27	-0.35	-0.34	-0.35	-0.27	-0.28

Nec = not elsewhere classified (i.e., excluding domestic water transport and air transport).

1 $1m; Chinese carriers; ships built anywhere
2 $1.5m; any carrier; ships built in China
3 $1m; any carrier, Chinese ships on order
4 20% of trade on U.S.-built, -operated ships
5 1 through 4 together

Consequently, employment would be negatively impacted, particularly for equipment operators.

Ports and Related Sectors: Percent Change in Employment of Equipment Operators

	No Adjustment					Some Adjustment				
	1	2	3	4	5	1	2	3	4	5
Transport nec	-0.53	-0.58	-0.57	-0.91	-1.02	-0.53	-0.57	-0.57	-1.52	-0.99
Warehousing and support	-0.76	-0.76	-0.75	-0.92	-0.94	-0.76	-0.76	-0.75	-1.35	-0.93

Nec = not elsewhere classified (i.e., excluding domestic water transport and air transport).

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2 $1.5m; any carrier; ships built in China
3 $1m; any carrier, Chinese ships on order
4 20% of trade on U.S.-built, -operated ships
5 1 through 4 together

In all scenarios, port traffic would face higher transportation costs and there would be fewer options to move cargo, increased time to market and reduced shelf life for perishable goods – all reflected in the output decline estimates.

8. Supply Chain Results: U.S. Exporters

U.S. agricultural exports, output and employment would contract significantly because of the higher shipping costs resulting from the proposed remedies. Large declines in exports (and output) would be borne by U.S. wheat, corn, oilseed, cotton and other farmers. U.S. agriculture exporters and workers would be particularly hard-hit, with exports of major agriculture products like wheat, rice, and oilseed dropping dramatically. U.S. exporters will lose competitiveness to exporters in Brazil, Canada, and Australia.

As noted earlier, U.S. agricultural exports are highly sensitive to cost increases,[45] and the proposed remedies increase the transportation cost of U.S. agriculture exports.

Agriculture: Percent Change in Output

	No Adjustment					Some Adjustment				
	1	2	3	4	5	1	2	3	4	5
Wheat	-5.23	-22.53	-10.06	-7.03	-32.83	-5.03	-21.65	-9.64	-5.24	-31.90
Rice	-2.35	-8.50	-4.23	-3.37	-12.06	-2.27	-8.20	-4.07	-2.27	-11.76
Corn	-0.85	-2.43	-1.26	-0.60	-3.57	-0.84	-2.33	-1.22	-0.31	-3.42
Soybeans	-2.64	-11.42	-5.00	-3.13	-18.17	-2.55	-10.92	-4.79	-1.76	-17.43
Cotton	-3.41	-16.83	-7.25	-5.81	-25.28	-3.24	-15.99	-6.92	-5.54	-24.06
Vegetables, fruit, nuts	0.00	1.53	0.43	0.42	2.73	-0.01	1.45	0.39	1.11	2.62
Plant-based fibers	-0.26	0.44	-0.25	-1.44	-0.80	-0.27	0.41	-0.26	-0.84	-0.80
Crops nec	1.09	9.59	3.27	3.15	19.17	1.01	9.08	3.07	3.97	18.22

1 $1m; Chinese carriers; ships built anywhere
2 $1.5m; any carrier; ships built in China
3 $1m; any carrier, Chinese ships on order
4 20% of trade on U.S.-built, -operated ships
5 1 through 4 together

Agriculture: Percent Change in Exports

	No Adjustment					Some Adjustment				
	1	2	3	4	5	1	2	3	4	5
Wheat	-8.98	-41.61	-17.71	-14.94	-64.39	-8.62	-39.86	-16.93	-11.55	-62.33
Rice	-7.16	-31.91	-14.10	-12.98	-50.12	-6.88	-30.61	-13.49	-9.78	-48.48
Corn	-1.20	-4.79	-2.09	-1.96	-8.78	-1.16	-4.56	-2.01	-0.52	-8.33
Soybeans	-5.00	-24.67	-9.89	-8.50	-42.23	-4.80	-23.50	-9.45	-5.85	-40.39
Cotton	-7.42	-23.81	-15.83	-12.67	-55.70	-7.07	-22.69	-15.11	-12.08	-53.10
Vegetables, fruit, nuts	-0.59	0.20	-0.61	-2.57	-1.89	-0.60	0.17	-0.62	-0.51	-1.87
Plant-based fibers	-1.07	-0.33	-1.21	-4.01	-3.68	-1.08	-0.36	-1.21	-1.27	-3.63
Crops nec	-8.36	-38.08	-16.90	-14.41	-56.67	-7.99	-36.63	-16.16	-11.48	-55.06

1 $1m; Chinese carriers; ships built anywhere
2 $1.5m; any carrier; ships built in China
3 $1m; any carrier, Chinese ships on order
4 20% of trade on U.S.-built, -operated ships
5 1 through 4 together

[45] "On average, 10% higher shipping costs reduce U.S. agricultural export values by 0.58% and import values by 1.72%. For exports, we find a significant negative impact for several product categories." Md Deluair Hossen, Andrew Muhammad, Bart Kenner, James Kaufman, "Unraveling the impacts of freight rates on US containerized agricultural trade," Journal of the Agricultural and Applied Economics Association, February 5, 2024, https://onlinelibrary.wiley.com/doi/full/10.1002/jaa2.105. See also Michael K. Adjemian, Delmy L. Salin, and William W. Wilson, "Implications of Rising Ocean Freight Rates for Agri-food Product Markets, USDA Agricultural Marketing Services, 2023, https://agecon.uga.edu/content/dam/caes-subsite/ag-econ/documents/cvs/Ocean%20Transport%20Cost%20Shocks-Adjemian%20Salin%20and%20Wilson%202023.pdf and Jane Korinek and Patricia Sourdin, ""Clarifying Trade Costs: Maritime Transport and its Effect on Agricultural Trade", *OECD Trade Policy Papers*, No. 92, OECD Publishing, Paris, September 28 2009 https://doi.org/10.1787/220157847513.

Agriculture: Percent Change in Farm Workers

	No Adjustment					Some Adjustment				
	1	2	3	4	5	1	2	3	4	5
Wheat	-5.85	-24.17	-11.02	-7.80	-34.88	-5.64	-23.25	-10.57	-5.84	-33.91
Rice	-2.77	-9.48	-4.83	-3.91	-13.38	-2.69	-9.15	-4.66	-2.76	-13.05
Corn	-1.23	-3.30	-1.79	-1.03	-4.78	-1.21	-3.18	-1.74	-0.65	-4.59
Soybeans	-3.10	-12.60	-5.67	-3.66	-19.78	-3.00	-12.07	-5.45	-2.16	-19.01
Vegetables, fruit, nuts	-0.32	0.85	0.00	0.05	1.81	-0.34	0.79	-0.03	0.85	1.72
Plant-based fibers	-0.63	-0.35	-0.76	-1.94	-1.97	-0.64	-0.36	-0.75	-1.22	-1.95
Crops nec	0.82	9.31	2.99	2.93	19.05	0.74	8.80	2.80	3.86	18.08

1 $1m; Chinese carriers; ships built anywhere
2 $1.5m; any carrier; ships built in China
3 $1m; any carrier, Chinese ships on order
4 20% of trade on U.S.-built, -operated ships
5 1 through 4 together

Energy products are important high-value U.S. exports. Coal, oil, natural gas and petroleum exports and output decline under all scenarios. Both products are highly sensitive to shipping costs and are especially hard-hit in Scenario 5, the simultaneous implementation of four remedy options.

Coal, Oil and Gas: Percent Change in Output

	No Adjustment					Some Adjustment				
	1	2	3	4	5	1	2	3	4	5
Coal	-0.45	-2.10	-0.83	-0.54	-3.88	-0.43	-1.99	-0.80	-0.50	-3.66
Oil	-0.17	-0.28	-0.24	-0.08	-0.25	-0.17	-0.27	-0.23	0.08	-0.25
Natural gas	-0.14	-0.21	-0.31	-0.63	-0.93	-0.14	-0.20	-0.30	-0.47	-0.89
Petroleum, coal products	-0.23	-0.92	-0.78	-1.49	-2.62	-0.23	-0.88	-0.75	-1.48	-2.52

1 $1m; Chinese carriers; ships built anywhere
2 $1.5m; any carrier; ships built in China
3 $1m; any carrier, Chinese ships on order
4 20% of trade on U.S.-built, -operated ships
5 1 through 4 together

Coal, Oil and Gas: Percent Change in Exports

	No Adjustment					Some Adjustment				
	1	2	3	4	5	1	2	3	4	5
Coal	-2.68	-12.99	-5.10	-5.46	-24.54	-2.58	-12.35	-4.88	-3.90	-23.25
Oil	-1.01	-7.00	-4.80	-7.54	-18.57	-0.99	-6.68	-4.59	-6.23	-17.69
Natural gas	-0.74	-0.95	-1.14	-3.98	-5.19	-0.74	-0.94	-1.11	-2.80	-4.89
Petroleum, coal products	-0.79	-3.26	-2.53	-3.74	-8.11	-0.78	-3.14	-2.44	-2.29	-7.76

1 $1m; Chinese carriers; ships built anywhere
2 $1.5m; any carrier; ships built in China
3 $1m; any carrier, Chinese ships on order
4 20% of trade on U.S.-built, -operated ships
5 1 through 4 together

Other leading exporters would also see declines in trade and output because of the proposed remedies. Particularly adversely affected would be exports of dairy products, apparel, leather products (including footwear), wood products, chemicals and fertilizers, and pharmaceuticals. The model is "general equilibrium," meaning that resources are shifted from sectors most adversely hurt by shipping cost increases (wheat, rice, corn, soybeans, oil, gas, coal) to sectors that are not hurt as badly by shipping cost increases. This means that even as overall GDP falls, some sectors will expand, but only because they pick up resources from sectors more adversely affected – e.g., the grain, soybean, and energy sectors.

Other Goods Sectors: Percent Change in Output

	No Adjustment					Some Adjustment				
	1	2	3	4	5	1	2	3	4	5
Livestock	-0.33	0.34	-0.14	-0.29	0.70	-0.34	0.30	-0.15	-0.41	0.66
Animal products nec	-0.34	0.34	-0.18	-0.64	0.30	-0.35	0.30	-0.20	-0.53	0.26
Beef	-0.40	0.09	-0.27	-0.45	0.26	-0.41	0.06	-0.28	-0.58	0.23
Other meat products	-0.53	-0.06	-0.45	-1.04	-0.45	-0.54	-0.08	-0.46	-0.77	-0.47
Vegetable oils and fats	-0.53	1.01	-0.34	-0.50	1.73	-0.55	0.93	-0.37	0.35	1.65
Dairy products	-0.34	-0.19	-0.30	-0.52	-0.31	-0.34	-0.19	-0.31	-0.85	-0.31
Fishing	-0.11	-0.08	-0.10	-0.02	0.03	-0.11	-0.09	-0.10	0.03	0.03
Wearing apparel	-4.42	-3.14	-3.63	1.25	4.40	-4.44	-3.22	-3.68	6.44	4.08
Leather products	-4.49	-3.16	-3.76	0.65	3.81	-4.50	-3.24	-3.81	5.85	3.49
Wood products	-0.04	0.21	0.08	0.68	1.14	-0.04	0.19	0.07	1.55	1.09
Paper products, publishing	-0.87	-0.83	-0.86	-0.66	-0.62	-0.87	-0.83	-0.86	-0.05	-0.63
Chemicals (ex fertilizer)	-1.83	-2.63	-2.39	-2.01	-3.38	-1.82	-2.59	-2.36	0.03	-3.31
Fertilizer	-0.75	-3.78	-1.61	-1.28	-5.97	-0.71	-3.62	-1.53	-1.22	-5.76
Basic pharmaceutical products	-2.67	-2.67	-2.65	-1.56	-1.53	-2.67	-2.67	-2.65	1.08	-1.59
Motor vehicles and parts	-1.22	-1.21	-1.20	-0.70	-0.66	-1.22	-1.21	-1.20	0.35	-0.69

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3 $1m; any carrier, Chinese ships on order
4 20% of trade on U.S.-built, -operated ships
5 1 through 4 together

Other Goods Sectors: Percent Change in Exports

	No Adjustment					Some Adjustment				
	1	2	3	4	5	1	2	3	4	5
Livestock	-0.61	0.90	-0.36	-2.05	-0.05	-0.63	0.82	-0.39	0.40	-0.11
Animal products nec	-0.81	0.47	-0.68	-2.69	-1.27	-0.83	0.40	-0.70	-0.24	-1.29
Beef	-3.02	-2.97	-3.51	-7.29	-8.24	-3.02	-2.96	-3.49	-2.76	-8.13
Other meat products	-3.03	-2.30	-3.25	-6.39	-6.08	-3.04	-2.33	-3.24	-1.00	-6.07
Vegetable oils and fats	-1.23	-0.94	-2.95	-5.55	-5.94	-1.27	-0.97	-2.90	-1.33	-5.65
Dairy products	-3.55	-4.06	-4.12	-6.82	-8.25	-3.54	-4.02	-4.08	-1.39	-8.16
Fishing	-0.76	-1.46	-1.09	-1.90	-3.29	-0.75	-1.42	-1.06	0.04	-3.21
Wearing apparel	-5.15	-6.71	-5.94	-8.04	-11.17	-5.14	-6.62	-5.89	-1.41	-11.02
Leather products	-5.25	-7.01	-6.24	-9.41	-13.04	-5.23	-6.91	-6.17	-3.02	-12.84
Wood products	-3.79	-5.03	-4.50	-7.36	-9.91	-3.78	-4.95	-4.45	-3.17	-9.75
Paper products, publishing	-2.89	-3.93	-3.49	-5.61	-7.78	-2.88	-3.87	-3.45	-1.96	-7.65
Chemicals (ex fertilizer)	-3.04	-7.46	-6.04	-7.86	-15.42	-3.03	-7.23	-5.88	-3.90	-14.84
Fertilizer	-4.23	-21.18	-9.14	-7.28	-35.12	-4.02	-20.88	-8.71	-6.93	-33.83
	No Adjustment					Some Adjustment				
	1	2	3	4	5	1	2	3	4	5
Basic pharmaceutical products	-4.45	-6.72	-5.72	-9.83	-14.53	-4.43	-6.58	-5.64	-4.23	-14.26
Motor vehicles and parts	-2.30	-3.28	-2.83	-4.40	-6.40	-2.29	-3.22	-2.79	-1.79	-6.29

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2 $1.5m; any carrier; ships built in China
3 $1m; any carrier, Chinese ships on order
4 20% of trade on U.S.-built, -operated ships
5 1 through 4 together

9. U.S. Importers and Retailers

Imports would decline for many products, contributing to declines in output for Trade (which covers the wholesale and retail sectors) in many scenarios. Imports of most food and beverage products drop under both scenarios, as do imports of apparel and leather products. These declines would be due in part to the higher costs associated with importing as well as the declines in national income (and related consumer spending) associated with the fees.

Percent Change in Consumer Goods Imports

	No Adjustment					Some Adjustment				
	1	2	3	4	5	1	2	3	4	5
Wearing apparel	0.07	-0.50	-0.25	-0.35	-1.63	0.08	-0.47	-0.23	-1.39	-1.59
Leather products	0.28	-0.56	-0.19	-0.88	-2.74	0.29	-0.51	-0.15	-2.17	-2.66
Wood products	3.43	1.18	2.19	-2.04	-6.40	3.45	1.31	2.27	-5.08	-6.09
Paper products, publishing	2.22	0.50	1.24	-2.30	-5.70	2.24	0.61	1.30	-4.69	-5.44
Computer, electronic and optical products	1.71	0.68	1.08	-0.71	-2.93	1.72	0.74	1.12	-2.14	-2.80
Electrical equipment	1.43	0.40	0.81	-1.04	-3.21	1.44	0.46	0.85	-2.35	-3.08
Motor vehicles and parts	1.14	0.41	0.69	-0.64	-2.16	1.15	0.46	0.72	-1.82	-2.06

1 $1m; Chinese carriers; ships built anywhere
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4 20% of trade on U.S.-built, -operated ships
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Increases of imports of other products are in part due to the transfer of sourcing to manufacturers in Canada and Mexico, or to the need to buy more lower cost imports in place of now-higher cost U.S. output. (U.S. companies forced to absorb some of the port fees from their suppliers may try to pass on the added cost to their customers, for example.) Additionally, as some sectors would be hurt directly more than others by higher shipping costs, this is reflected in the uneven pattern of output and trade effects across sectors. Those sectors hurt relatively less in direct terms by higher shipping costs benefit somewhat in labor markets in terms of relative competitiveness when compared to sectors hurt relatively more in direct terms.

The higher costs associated with importing coupled with the broader economic costs associated with the proposed remedies negative effects wholesale and retail trade sales.

Percent Change in Wholesale and Retail Trade Output

	No Adjustment					Some Adjustment				
	1	2	3	4	5	1	2	3	4	5
Trade	-0.01	0.00	-0.01	-0.11	-0.09	-0.01	0.00	-0.01	-0.57	-0.09
Accommodation, Food Services	-0.42	-0.35	-0.38	-0.39	-0.28	-0.42	-0.35	-0.38	-0.53	-0.28

1 $1m; Chinese carriers; ships built anywhere
2 $1.5m; any carrier; ships built in China
3 $1m; any carrier, Chinese ships on order
4 20% of trade on U.S.-built, -operated ships
5 1 through 4 together

D. Conclusion

Therefore, even using conservative data and assumptions about the market and the industry favorable to the position of petitioners, a comprehensive assessment of the various remedies suggested by USTR finds that in every case they would result in net losses for the U.S. economy, U.S. trade, and most of the U.S. shipbuilding supply chain. The proposed remedies, individually and in aggregate, would reduce U.S. GDP and likely worsen the overall U.S. trade deficit.

Appendix A: Methodology

The Model

The specific model used was the Global Trade Analysis Project (GTAP) model, with the most recent GTAP database, GTAP v11, released in April 2023. The structure of the v11 database is outlined by Aguiar et al (2019). We have updated the data here based on 2023 data. The model and its associated data are developed and maintained by a network of researchers and policymakers coordinated by the Center for Global Trade Analysis at the Department of Agricultural Economics at Purdue University. Guidance and base-level support for the model and associated activities are provided by the GTAP Consortium, which includes members from government agencies (e.g., the U.S. Department of Commerce, U.S. Department of Agriculture, U.S. Environmental Protection Agency, U.S. International Trade Commission, and the European Commission), international institutions (e.g., the Asian Development Bank, Organization for Economic Cooperation and Development, the World Bank, the United Nations, and the World Trade Organization), the private sector and academia. Dr. Francois is a member of the Consortium.

The model assumes that capital stocks are fixed at a national level. Firms are assumed to be competitive and employ capital and labor to produce goods and services subject to constant returns to scale.[46] Products from different regions are modeled in terms of production and trade under an Armington-Eaton-Kortum framework. Trade elasticities are taken directly from the GTAP v. 11 database, as are substitution elasticities for value added.[47]

As the U.S. economy is essentially at full employment, we model labor market adjustment through changes in labor allocation and wages rather than total employment.

Data

The model incorporates data from several sources. Data on production and trade are based on input-output, final demand, and trade data from the GTAP database (see Aguiar, Narayanan & McDougall 2019). These data provide important information on cross-border linkages in industrial production, related to trade in parts and components. For the 2023 simulation, social accounting data are drawn directly from the most recent version of the GTAP dataset, version 11 (released April 2023). Trade data (both exports and imports) exclude re-exports.[48] This

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[46] Compared to dynamic CGE models and models with alternative market structures, the present assumption of constant returns to scale with a fixed capital stock is closest in approach to older studies based on pure input-output modeling of trade and employment linkages. In the present context, it can be viewed as generating a lower-bound estimate of effects relative to alternative CGE modeling structures.

[47] Technically the model corresponds analytically to a recent type of model known as an Eaton-Kortum model. See Bekkers et al (2018) and Bekkers et al (2023) for further technical discussion and derivations.

[48] See https://www.gtap.agecon.purdue.edu/databases/contribute/reexports.asp.

dataset is benchmarked to 2017 and includes detailed national input-output, trade, and final demand structures for 160 countries and regions across 65 sectors. We have updated the trade and national accounts data to 2023.

The basic social accounting and trade data are supplemented with data on tariffs and non-tariff barriers from the World Trade Organization's integrated database and from the UNCTAD/World Bank WITS dataset. All tariff information has been concorded to GTAP model sectors within the version 11 database.[49]

Model Sectors

Wheat	Petroleum, coal products
Rice	Chemical products
Corn	Basic pharmaceutical products
Oilseeds	Rubber and plastic products
Vegetables, fruit, nuts	Mineral products nec
Plant-based fibers	Ferrous metals
Crops nec	Metals nec
Livestock	Metal products
Animal products nec	Computer, electronic and optical products
Beef	Electrical equipment
Other meat products	Machinery and equipment
Vegetable oils and fats	Motor vehicles and parts
Dairy products	Transport equipment nec (ships etc.)
Sugar	Manufactures nec
Food products nec	Utilities
Beverages and tobacco products	Construction
Forestry	Trade
Fishing	Accommodation, food and service activities
Coal	Transport nec
Oil	Water transport
Gas	Air transport
Minerals nec	Warehousing and support
Textiles	Communication
Wearing apparel	Finance, insurance, real estate
Leather products	Business services nec
Wood products	Consumer services
Paper products, publishing	Public services

[49] The GTAP database includes relatively more detail in sectors, particularly in agricultural, primary production, and processed foods than we can use here when mapping model results by sector to state employment data by sector. State employment data for most of these sectors are not available.

References

Aguiar, A., Chepeliev, M., Corong, E., McDougall, R., & van der Mensbrugghe, D. (2019). The GTAP Data Base: Version 10. *Journal of Global Economic Analysis*, 4(1), 1-27. Retrieved from https://www.jgea.org/ojs/index.php/jgea/article/view/77

Bekkers, E., Francois, J. F. and Rojas-Romagosa, H. (2018). Melting Ice Caps and the Economic Impact of Opening the Northern Sea Route. *Economic Journal*. doi:10.1111/ecoj.12460

Bekkers, E., E. Corong, J. Francois, and H. Rojas-Romagosa (2023). "A Ricardian trade structure in CGE: Modeling Eaton-Kortum based trade with GTAP." Journal of Global Economic Analysis. 8(2), 1-59. https://www.jgea.org/ojs/index.php/jgea/article/download/231/244.

Hertel, T. (2013). "Global Applied General Equilibrium Analysis Using the Global Trade Analysis Project Framework," in P. B. Dixon and D. W. Jorgenson eds. *Handbook of Computable General Equilibrium Modeling*. Amsterdam: Elsevier, 815-76.

Netherlands Institute for Transport Policy Analysis (KiM) (2023). Cost Figures for Freight Transport – final report. Zoetermeer, January 2023.

Reinert, K.A.. and D.W. Roland-Holst (1997), "Social Accounting Matrices," in Francois, J.F. and K.A. Reinert, eds. (1997), *Applied methods for trade policy analysis: a handbook*, Cambridge University Press: New York.

Appendix B: Detailed Tables

Note:

1 Scenario 1: A $1 million fee assessed on Chinese maritime transport operators each time a ship in their fleet (wherever built) lands at a U.S. port of entry

2 Scenario 2: A $1.5 million fee assessed on maritime transport operators (of any nationality) with fleets comprised of Chinese-built ships each time a Chinese-built ship in their fleet lands at a U.S. port of entry.

3 Scenario 3: A $1 million fee each time a vessel (of any origin) in their fleet lands at a U.S. port of entry assessed on maritime transport operators (of any nationality) if Chinese ship orders account for 25% or more of the operator's total ship orders for delivery over the next 24 months.

4 Scenario 4: All U.S. goods must be exported on U.S.-flagged, U.S.-built ships, but may be "approved" for export on a non-U.S. built vessel if the maritime operator demonstrates that at least 20% of U.S. products per year that the operator will transport by ship will be transported on U.S.-flagged, U.S.-built ships.

5 Scenarios 1-4 run simultaneously

No adjustment: The remedy is applied, and carriers do not make any adjustments to mitigate the cost.

Some adjustment: The remedy is applied, and carriers shift 5% of their U.S. bound trade to Canadian or Mexican ports.

Output Impacts

(Percent Change)

	No Adjustment					Some Adjustment				
	1	2	3	4	5	1	2	3	4	5
Wheat	-5.23	-22.53	-10.06	-7.03	-32.83	-5.03	-21.65	-9.64	-5.24	-31.90
Rice	-2.35	-8.50	-4.23	-3.37	-12.06	-2.27	-8.20	-4.07	-2.27	-11.76
Corn	-0.85	-2.43	-1.26	-0.60	-3.57	-0.84	-2.33	-1.22	-0.31	-3.42
Soybeans	-2.64	-11.42	-5.00	-3.13	-18.17	-2.55	-10.92	-4.79	-1.76	-17.43
Vegetables, fruit, nuts	0.00	1.53	0.43	0.42	2.73	-0.01	1.45	0.39	1.11	2.62
Plant-based fibers	-0.26	0.44	-0.25	-1.44	-0.80	-0.27	0.41	-0.26	-0.84	-0.80
Crops nec	1.09	9.59	3.27	3.15	19.17	1.01	9.08	3.07	3.97	18.22
Livestock	-0.33	0.34	-0.14	-0.29	0.70	-0.34	0.30	-0.15	-0.41	0.66
Animal products nec	-0.34	0.34	-0.18	-0.64	0.30	-0.35	0.30	-0.20	-0.53	0.26
Beef	-0.40	0.09	-0.27	-0.45	0.26	-0.41	0.06	-0.28	-0.58	0.23
Other meat products	-0.53	-0.06	-0.45	-1.04	-0.45	-0.54	-0.08	-0.46	-0.77	-0.47
Vegetable oils and fats	-0.53	1.01	-0.34	-0.50	1.73	-0.55	0.93	-0.37	0.35	1.65
Dairy products	-0.34	-0.19	-0.30	-0.52	-0.31	-0.34	-0.19	-0.31	-0.85	-0.31
Sugar	-0.26	-0.03	-0.16	-0.09	0.28	-0.26	-0.05	-0.17	-0.53	0.27
Food products nec	-0.42	-0.11	-0.31	-0.22	0.29	-0.42	-0.12	-0.32	-0.41	0.27
Beverages and tobacco products	-0.24	-0.21	-0.22	-0.27	-0.22	-0.24	-0.21	-0.22	-0.83	-0.22
Forestry	-0.75	-1.75	-1.04	-0.73	-2.43	-0.74	-1.69	-1.02	-0.02	-2.36
Fishing	-0.11	-0.08	-0.10	-0.02	0.03	-0.11	-0.09	-0.10	0.03	0.03
Coal	-0.45	-2.10	-0.83	-0.54	-3.88	-0.43	-1.99	-0.80	-0.50	-3.66
Oil	-0.17	-0.28	-0.24	-0.08	-0.25	-0.17	-0.27	-0.23	0.08	-0.25
Gas	-0.14	-0.21	-0.31	-0.63	-0.93	-0.14	-0.20	-0.30	-0.47	-0.89
Minerals nec	0.31	0.18	0.23	0.13	-0.11	0.31	0.19	0.23	-0.04	-0.10
Textiles	-2.29	-1.96	-2.09	0.03	0.82	-2.29	-1.98	-2.11	3.03	0.72
Wearing apparel	-4.42	-3.14	-3.63	1.25	4.40	-4.44	-3.22	-3.68	6.44	4.08
Leather products	-4.49	-3.16	-3.76	0.65	3.81	-4.50	-3.24	-3.81	5.85	3.49
Wood products	-0.04	0.21	0.08	0.68	1.14	-0.04	0.19	0.07	1.55	1.09
Paper products, publishing	-0.87	-0.83	-0.86	-0.66	-0.62	-0.87	-0.83	-0.86	-0.05	-0.63
Petroleum, coal products	-0.23	-0.92	-0.78	-1.49	-2.62	-0.23	-0.88	-0.75	-1.48	-2.52
Fertilizers	-0.75	-3.78	-1.61	-1.28	-5.97	-0.71	-3.62	-1.53	-1.22	-5.76
Chemicals (ex. Fertilizers)	-1.83	-2.63	-2.39	-2.01	-3.38	-1.82	-2.59	-2.36	0.03	-3.31
Basic pharmaceutical pro	-2.67	-2.67	-2.65	-1.56	-1.53	-2.67	-2.67	-2.65	1.08	-1.59
Rubber and plastic products	-1.12	-0.97	-1.06	-0.10	0.23	-1.13	-0.98	-1.07	1.31	0.18
Mineral products nec	-1.00	-0.68	-0.85	0.12	0.76	-1.01	-0.70	-0.86	1.14	0.69
Ferrous metals	-0.67	-0.41	-0.51	1.23	1.82	-0.67	-0.42	-0.52	3.75	1.72
Metals nec	-3.28	-4.18	-3.74	-3.89	-5.55	-3.27	-4.13	-3.71	0.36	-5.52
Metal products	-0.44	-0.28	-0.34	0.70	1.04	-0.44	-0.29	-0.34	2.30	0.98
Computer, electronic & optical products	-3.71	-3.93	-3.75	-2.10	-2.34	-3.71	-3.92	-3.75	2.49	-2.43
Electrical equipment	-3.15	-3.01	-3.01	-1.21	-0.76	-3.15	-3.02	-3.02	2.33	-0.86
Machinery and equipment	-2.11	-2.21	-2.15	-1.37	-1.50	-2.11	-2.21	-2.14	1.03	-1.55
Motor vehicles and parts	-1.22	-1.21	-1.20	-0.70	-0.66	-1.22	-1.21	-1.20	0.35	-0.69
Transport equipment nec (ships etc.)	51.05	49.66	50.27	48.44	45.56	51.06	49.74	50.32	51.78	45.69
Manufactures nec	-1.70	-1.24	-1.41	0.21	1.15	-1.71	-1.27	-1.43	1.61	1.05
Utilities	-0.12	0.12	-0.09	-0.28	0.11	-0.12	0.10	-0.09	-0.58	0.10
Construction	0.67	0.66	0.63	0.30	0.26	0.67	0.66	0.63	-0.43	0.27
Trade	-0.01	0.00	-0.01	-0.11	-0.09	-0.01	0.00	-0.01	-0.57	-0.09

	No Adjustment					Some Adjustment				
	1	2	3	4	5	1	2	3	4	5
Accommodation, Food services	-0.42	-0.35	-0.38	-0.39	-0.28	-0.42	-0.35	-0.38	-0.53	-0.28
Transport nec	-0.11	-0.14	-0.15	-0.26	-0.32	-0.11	-0.14	-0.15	-0.45	-0.31
Water transport	-0.23	-0.54	-0.41	-0.61	-1.20	-0.22	-0.52	-0.40	-0.33	-1.16
Air transport	-0.61	-0.84	-0.77	-1.03	-1.46	-0.61	-0.83	-0.76	-0.78	-1.42
Warehousing and support	-0.35	-0.34	-0.35	-0.29	-0.27	-0.35	-0.34	-0.35	-0.27	-0.28
Communication	-0.19	-0.18	-0.18	-0.28	-0.27	-0.19	-0.18	-0.18	-0.54	-0.27
Finance, insurance, real	-0.22	-0.21	-0.21	-0.27	-0.26	-0.22	-0.21	-0.21	-0.65	-0.26
Business services nec	-0.04	-0.05	-0.05	-0.10	-0.12	-0.04	-0.05	-0.05	-0.14	-0.12
Consumer services	-0.08	-0.03	-0.05	-0.21	-0.12	-0.08	-0.03	-0.05	-1.14	-0.12
Public services	-0.07	-0.04	-0.05	-0.21	-0.15	-0.08	-0.04	-0.05	-0.91	-0.14
Total (GDP)	-0.02	-0.04	-0.03	-0.19	-0.24	-0.02	-0.04	-0.03	-0.36	-0.23

1 $1m; Chinese carriers; ships built anywhere
2 $1.5m; any carrier; ships built in China
3 $1m; any carrier, Chinese ships on order
4 20% of trade on U.S.-built, -operated ships
5 1 through 4 together

Export Impacts

(Percent Change)

	No Adjustment					Some Adjustment				
	1	2	3	4	5	1	2	3	4	5
Wheat	-8.98	-41.61	-17.71	-14.94	-64.39	-8.62	-39.86	-16.93	-11.55	-62.33
Rice	-7.16	-31.91	-14.10	-12.98	-50.12	-6.88	-30.61	-13.49	-9.78	-48.48
Corn	-1.20	-4.79	-2.09	-1.96	-8.78	-1.16	-4.56	-2.01	-0.52	-8.33
Soybeans	-5.00	-24.67	-9.89	-8.50	-42.23	-4.80	-23.50	-9.45	-5.85	-40.39
Vegetables, fruit, nuts	-0.59	0.20	-0.61	-2.57	-1.89	-0.60	0.17	-0.62	-0.51	-1.87
Plant-based fibers	-1.07	-0.33	-1.21	-4.01	-3.68	-1.08	-0.36	-1.21	-1.27	-3.63
Crops nec	-8.36	-38.08	-16.90	-14.41	-56.67	-7.99	-36.63	-16.16	-11.48	-55.06
Livestock	-0.61	0.90	-0.36	-2.05	-0.05	-0.63	0.82	-0.39	0.40	-0.11
Animal products nec	-0.81	0.47	-0.68	-2.69	-1.27	-0.83	0.40	-0.70	-0.24	-1.29
Beef	-3.02	-2.97	-3.51	-7.29	-8.24	-3.02	-2.96	-3.49	-2.76	-8.13
Other meat products	-3.03	-2.30	-3.25	-6.39	-6.08	-3.04	-2.33	-3.24	-1.00	-6.07
Vegetable oils and fats	-1.23	-0.94	-2.95	-5.55	-5.94	-1.27	-0.97	-2.90	-1.33	-5.65
Dairy products	-3.55	-4.06	-4.12	-6.82	-8.25	-3.54	-4.02	-4.08	-1.39	-8.16
Sugar	-2.75	-3.03	-3.04	-4.43	-5.27	-2.74	-3.01	-3.02	-0.50	-5.23
Food products nec	-1.87	-2.10	-2.13	-3.41	-4.14	-1.87	-2.08	-2.11	-0.67	-4.10
Beverages and tobacco products	-1.29	-1.65	-1.48	-1.94	-2.72	-1.29	-1.63	-1.46	0.15	-2.69
Forestry	-1.63	-1.66	-2.07	-5.95	-6.87	-1.63	-1.65	-2.05	-3.35	-6.72
Fishing	-0.76	-1.46	-1.09	-1.90	-3.29	-0.75	-1.42	-1.06	0.04	-3.21
Coal	-2.68	-12.99	-5.10	-5.46	-24.54	-2.58	-12.35	-4.88	-3.90	-23.25
Oil	-1.01	-7.00	-4.80	-7.54	-18.57	-0.99	-6.68	-4.59	-6.23	-17.69
Gas	-0.74	-0.95	-1.14	-3.98	-5.19	-0.74	-0.94	-1.11	-2.80	-4.89
Minerals nec	-1.83	-6.12	-2.89	-2.28	-10.22	-1.79	-5.85	-2.79	-0.78	-9.74
Textiles	-3.84	-5.50	-4.77	-7.27	-10.55	-3.83	-5.40	-4.71	-2.30	-10.35
Wearing apparel	-5.15	-6.71	-5.94	-8.04	-11.17	-5.14	-6.62	-5.89	-1.41	-11.02
Leather products	-5.25	-7.01	-6.24	-9.41	-13.04	-5.23	-6.91	-6.17	-3.02	-12.84
Wood products	-3.79	-5.03	-4.50	-7.36	-9.91	-3.78	-4.95	-4.45	-3.17	-9.75
Paper products, publishing	-2.89	-3.93	-3.49	-5.61	-7.78	-2.88	-3.87	-3.45	-1.96	-7.65
Petroleum, coal products	-0.79	-3.26	-2.53	-3.74	-8.11	-0.78	-3.14	-2.44	-2.29	-7.76
Fertilizers	-4.23	-21.18	-9.14	-7.28	-35.12	-4.02	-20.88	-8.71	-6.93	-33.83
Chemicals (ex. Fertilizers)	-3.04	-7.46	-6.04	-7.86	-15.42	-3.03	-7.23	-5.88	-3.90	-14.84
Basic pharmaceutical products	-4.45	-6.72	-5.72	-9.83	-14.53	-4.43	-6.58	-5.64	-4.23	-14.26
Rubber and plastic products	-2.91	-3.93	-3.52	-5.17	-7.23	-2.90	-3.87	-3.48	-1.73	-7.11
Mineral products nec	-3.61	-4.41	-4.09	-5.65	-7.35	-3.60	-4.37	-4.05	-1.93	-7.28
Ferrous metals	-2.86	-3.81	-3.42	-4.82	-6.79	-2.85	-3.76	-3.38	-2.05	-6.68
Metals nec	-4.77	-7.58	-6.35	-11.48	-16.97	-4.74	-7.42	-6.24	-6.67	-16.63
Metal products	-4.33	-5.44	-4.89	-6.49	-8.69	-4.31	-5.38	-4.85	-2.33	-8.60
Computer, electronic and optical products	-5.31	-7.62	-6.52	-10.02	-14.59	-5.29	-7.48	-6.44	-4.48	-14.33
Electrical equipment	-4.33	-5.93	-5.17	-7.52	-10.64	-4.31	-5.83	-5.11	-3.04	-10.47
Machinery and equipment	-4.50	-6.55	-5.61	-9.22	-13.25	-4.48	-6.43	-5.53	-4.58	-13.02
Motor vehicles and parts	-2.30	-3.28	-2.83	-4.40	-6.40	-2.29	-3.22	-2.79	-1.79	-6.29
Transport equipment nec (ships etc.)	95.42	89.38	92.06	80.46	68.15	95.48	89.74	92.29	91.27	68.91

	No Adjustment					Some Adjustment				
	1	2	3	4	5	1	2	3	4	5
Manufactures nec	-5.38	-7.68	-6.61	-10.52	-15.13	-5.36	-7.54	-6.52	-4.41	-14.87
Utilities	-2.83	0.34	-2.13	-1.78	3.75	-2.85	0.15	-2.19	2.39	3.40
Construction	-2.81	-2.90	-2.83	-2.03	-2.28	-2.81	-2.90	-2.83	1.26	-2.32
Trade	-2.82	-2.98	-2.87	-2.03	-2.42	-2.82	-2.97	-2.86	2.04	-2.45
Accommodation, Food services	-2.31	-2.26	-2.26	-1.26	-1.24	-2.31	-2.26	-2.26	2.70	-1.30
Transport nec	-1.53	-1.74	-1.64	-1.20	-1.64	-1.53	-1.73	-1.64	1.15	-1.64
Water transport	-1.09	-1.73	-1.44	-1.35	-2.59	-1.09	-1.70	-1.42	0.62	-2.54
Air transport	-1.54	-1.95	-1.78	-1.57	-2.34	-1.54	-1.92	-1.77	0.64	-2.33
Warehousing and support	-2.59	-2.79	-2.70	-2.17	-2.67	-2.58	-2.78	-2.69	1.41	-2.68
Communication	-2.63	-2.76	-2.66	-1.87	-2.19	-2.63	-2.75	-2.66	2.05	-2.22
Finance, insurance, real	-2.57	-2.67	-2.58	-1.67	-1.93	-2.57	-2.67	-2.58	2.36	-1.97
Business services nec	-2.65	-2.80	-2.69	-1.85	-2.22	-2.65	-2.79	-2.69	2.19	-2.25
Consumer services	-2.56	-2.66	-2.56	-1.48	-1.71	-2.56	-2.66	-2.56	2.88	-1.75
Public services	-2.61	-2.83	-2.66	-1.71	-2.20	-2.61	-2.81	-2.66	2.92	-2.23
Total (Goods & Services)	-0.80	-2.83	-1.90	-3.64	-7.48	-0.79	-2.72	-1.83	0.21	-7.24
Total (Goods Only)	-0.89	-5.26	-2.53	-4.48	-11.97	-0.85	-5.03	-2.41	-0.86	-11.56

1 $1m; Chinese carriers; ships built anywhere
2 $1.5m; any carrier; ships built in China
3 $1m; any carrier, Chinese ships on order
4 20% of trade on U.S.-built, -operated ships
5 1 through 4 together

Import Impacts

(Percent Change)

	No Adjustment					Some Adjustment				
	1	2	3	4	5	1	2	3	4	5
Wheat	-4.11	-20.73	-9.39	-8.79	-32.27	-3.90	-19.94	-8.95	-8.19	-31.38
Rice	-6.91	-34.63	-14.89	-7.74	-51.86	-6.56	-33.27	-14.20	-8.56	-50.10
Corn	-3.57	-15.43	-7.17	-4.47	-23.67	-3.43	-14.84	-6.87	-3.85	-22.87
Soybeans	-7.45	-31.37	-15.33	-11.65	-45.69	-7.13	-30.30	-14.70	-10.65	-44.49
Vegetables, fruit, nuts	-0.96	-3.46	-1.87	-2.28	-6.54	-0.93	-3.32	-1.80	-2.26	-6.36
Plant-based fibers	-1.10	-5.92	-3.11	-6.42	-14.59	-1.04	-5.66	-2.96	-7.38	-14.20
Crops nec	-4.04	-17.23	-7.91	-3.04	-24.08	-3.88	-16.58	-7.58	-2.46	-23.36
Livestock	-1.03	-4.57	-2.34	-3.61	-9.50	-0.99	-4.38	-2.24	-4.23	-9.21
Animal products nec	-0.74	-4.93	-2.42	-4.94	-11.94	-0.70	-4.70	-2.29	-5.96	-11.58
Beef	1.94	-2.87	-0.24	-6.00	-14.10	1.99	-2.60	-0.08	-9.78	-13.59
Other meat products	2.45	-3.41	-0.18	-6.52	-16.04	2.51	-3.09	0.01	-10.54	-15.44
Vegetable oils and fats	-0.35	-10.28	-5.02	-6.62	-22.18	-0.28	-9.77	-4.72	-7.88	-21.27
Dairy products	3.14	-1.24	0.99	-6.22	-13.97	3.18	-0.99	1.14	-11.52	-13.46
Sugar	1.68	-0.47	0.56	-3.43	-7.50	1.70	-0.34	0.64	-7.12	-7.22
Food products nec	0.86	-1.06	-0.05	-2.26	-5.83	0.88	-0.95	0.02	-4.25	-5.62
Beverages and tobacco products	0.50	-0.25	0.06	-0.96	-2.56	0.50	-0.20	0.09	-2.39	-2.49
Forestry	-0.45	-4.48	-2.08	-4.53	-11.54	-0.41	-4.25	-1.96	-5.67	-11.19
Fishing	-0.62	-0.84	-0.79	-0.92	-1.52	-0.62	-0.82	-0.78	-1.57	-1.51
Coal	-17.74	-66.60	-34.88	-26.38	-85.01	-16.97	-64.81	-33.51	-26.38	-83.68
Oil	-1.03	-5.92	-4.30	-5.08	-13.88	-1.01	-5.67	-4.12	-4.17	-13.26
Gas	-0.81	-0.85	-0.63	5.02	4.64	-0.81	-0.85	-0.64	5.67	4.50
Minerals nec	-2.28	-13.75	-5.63	-1.84	-21.49	-2.15	-13.14	-5.35	-1.06	-20.66
Textiles	1.87	0.34	0.99	-2.33	-5.59	1.88	0.43	1.05	-4.86	-5.39
Wearing apparel	0.07	-0.50	-0.25	-0.35	-1.63	0.08	-0.47	-0.23	-1.39	-1.59
Leather products	0.28	-0.56	-0.19	-0.88	-2.74	0.29	-0.51	-0.15	-2.17	-2.66
Wood products	3.43	1.18	2.19	-2.04	-6.40	3.45	1.31	2.27	-5.08	-6.09
Paper products, publishing	2.22	0.50	1.24	-2.30	-5.70	2.24	0.61	1.30	-4.69	-5.44
Petroleum, coal products	-0.57	-3.44	-2.23	-0.99	-6.25	-0.55	-3.29	-2.14	-0.90	-5.96
Fertilizers	-4.05	-20.98	-8.77	-6.98	-33.93	-3.86	-20.09	-8.36	-6.65	-32.67
Chemicals (ex. Fertilizers)	1.32	-4.45	-2.27	-3.82	-13.43	1.34	-4.15	-2.08	-5.41	-12.75
Basic pharmaceutical products	1.80	-0.05	0.73	-3.16	-7.03	1.82	0.06	0.80	-6.45	-6.77
Rubber and plastic products	2.15	0.39	1.19	-2.54	-6.14	2.17	0.49	1.26	-4.82	-5.91
Mineral products nec	2.10	0.22	1.08	-2.36	-6.13	2.12	0.33	1.15	-4.76	-5.88
Ferrous metals	2.46	1.01	1.62	-0.83	-3.86	2.48	1.10	1.68	-1.39	-3.69
Metals nec	0.34	-1.30	-0.63	-3.14	-6.38	0.36	-1.20	-0.56	-2.41	-6.20
Metal products	4.24	1.92	2.85	-2.26	-6.83	4.26	2.06	2.95	-5.21	-6.50
Computer, electronic and optical equipment	1.71	0.68	1.08	-0.71	-2.93	1.72	0.74	1.12	-2.14	-2.80

	No Adjustment					Some Adjustment				
	1	2	3	4	5	1	2	3	4	5
Electrical equipment	1.43	0.40	0.81	-1.04	-3.21	1.44	0.46	0.85	-2.35	-3.08
Machinery and equipment	2.87	1.08	1.78	-2.13	-5.81	2.89	1.19	1.85	-4.72	-5.56
Motor vehicles and parts	1.14	0.41	0.69	-0.64	-2.16	1.15	0.46	0.72	-1.82	-2.06
Transport equipment nec (ships etc.)	-39.33	-41.07	-40.36	-44.05	-47.47	-39.31	-40.97	-40.29	-45.66	-47.23
Manufactures nec	2.85	0.81	1.62	-3.15	-7.31	2.87	0.93	1.71	-7.08	-7.00
Utilities	2.02	-1.98	0.77	-0.03	-6.80	2.06	-1.75	0.87	-1.50	-6.41
Construction	2.58	2.60	2.54	1.88	1.98	2.57	2.60	2.54	-0.93	2.01
Trade	3.97	3.83	3.87	3.36	3.17	3.97	3.84	3.87	1.29	3.20
Accommodation, Food services	1.64	1.46	1.54	0.61	0.31	1.64	1.47	1.55	-2.70	0.37
Transport nec	1.56	1.77	1.71	1.48	1.89	1.56	1.76	1.71	-1.18	1.88
Water transport	-0.22	-0.30	-0.25	-0.20	-0.35	-0.22	-0.29	-0.25	-0.40	-0.35
Air transport	1.14	1.38	1.32	1.14	1.58	1.14	1.37	1.31	-0.88	1.56
Warehousing and support	1.41	1.15	1.29	0.80	0.36	1.42	1.17	1.30	-1.37	0.41
Communication	2.22	2.25	2.18	1.44	1.54	2.22	2.24	2.18	-1.85	1.57
Finance, insurance, real estate	2.06	2.07	2.05	1.32	1.37	2.06	2.07	2.05	-2.40	1.41
Business services nec	2.61	2.62	2.55	1.63	1.69	2.61	2.62	2.55	-2.05	1.73
Consumer services	2.16	2.15	2.11	1.10	1.10	2.16	2.15	2.11	-2.50	1.16
Public services	2.00	2.06	2.00	1.15	1.31	2.00	2.05	2.00	-2.79	1.36
Total (Goods & Services)	0.52	-1.07	-0.40	-2.18	-5.21	0.54	-0.98	-0.34	-4.07	-5.01
Total (Goods Only)	-1.29	-7.47	-3.65	-4.87	-14.57	-1.22	-7.17	-3.48	-6.19	-14.13

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Employment Impacts: Professionals and Managers

(Percent Change)

	No Adjustment					Some Adjustment				
	1	2	3	4	5	1	2	3	4	5
Wheat	-5.77	-24.10	-10.95	-7.68	-34.79	-5.56	-23.18	-10.50	-5.57	-33.83
Rice	-2.64	-9.35	-4.70	-3.70	-13.18	-2.56	-9.02	-4.53	-2.29	-12.85
Corn	-1.15	-3.22	-1.71	-0.90	-4.65	-1.13	-3.10	-1.66	-0.36	-4.46
Soybeans	-3.02	-12.53	-5.60	-3.54	-19.67	-2.92	-12.00	-5.37	-1.88	-18.90
Vegetables, fruit, nuts	-0.24	0.94	0.08	0.18	1.95	-0.25	0.88	0.05	1.14	1.86
Plant-based fibers	-0.55	-0.27	-0.68	-1.81	-1.84	-0.55	-0.28	-0.67	-0.93	-1.81
Crops nec	0.91	9.40	3.07	3.07	19.21	0.82	8.89	2.88	4.16	18.23
Livestock	-0.61	-0.34	-0.53	-0.58	-0.21	-0.61	-0.36	-0.54	-0.47	-0.23
Animal products nec	-0.62	-0.35	-0.59	-0.95	-0.65	-0.63	-0.36	-0.59	-0.60	-0.66
Beef	-0.29	0.20	-0.16	-0.25	0.45	-0.30	0.17	-0.17	0.04	0.42
Other meat products	-0.45	0.03	-0.38	-0.88	-0.30	-0.45	0.00	-0.38	-0.16	-0.32
Vegetable oils and fats	-0.48	1.04	-0.31	-0.40	1.80	-0.50	0.96	-0.34	0.95	1.73
Dairy products	-0.41	-0.44	-0.43	-0.57	-0.64	-0.41	-0.44	-0.43	-0.60	-0.63
Sugar	-0.28	-0.18	-0.23	-0.08	0.11	-0.28	-0.18	-0.23	-0.24	0.10
Food products nec	-0.32	-0.01	-0.22	-0.04	0.46	-0.33	-0.03	-0.23	0.21	0.43
Beverages and tobacco products	-0.19	-0.18	-0.19	-0.17	-0.15	-0.19	-0.18	-0.19	-0.23	-0.15
Forestry	-0.87	-2.01	-1.20	-0.83	-2.79	-0.85	-1.95	-1.17	0.02	-2.71
Fishing	-0.22	-0.18	-0.20	-0.03	0.06	-0.22	-0.18	-0.20	0.15	0.05
Coal	-1.08	-4.82	-1.99	-1.29	-8.43	-1.04	-4.59	-1.90	-1.12	-8.00
Oil	-0.37	-0.61	-0.53	-0.18	-0.55	-0.37	-0.60	-0.52	0.28	-0.55
Gas	-0.36	-0.52	-0.77	-1.54	-2.26	-0.35	-0.51	-0.75	-1.04	-2.17
Minerals nec	0.42	0.25	0.31	0.20	-0.13	0.42	0.26	0.32	0.04	-0.11
Textiles	-2.15	-1.82	-1.96	0.27	1.07	-2.16	-1.85	-1.98	3.76	0.96
Wearing apparel	-4.25	-2.96	-3.46	1.56	4.73	-4.26	-3.04	-3.51	7.22	4.40
Leather products	-4.36	-3.03	-3.64	0.88	4.05	-4.37	-3.11	-3.69	6.60	3.72
Wood products	0.09	0.33	0.19	0.91	1.35	0.09	0.32	0.19	2.27	1.30
Paper products, publishing	-0.75	-0.72	-0.76	-0.47	-0.43	-0.76	-0.73	-0.76	0.65	-0.45
Petroleum, coal products	-0.21	-0.91	-0.78	-1.42	-2.59	-0.21	-0.88	-0.75	-0.83	-2.49
Fertilizers	-0.75	-3.78	-1.61	-1.28	-5.97	-0.71	-3.62	-1.53	-1.22	-5.76
Chemicals (ex. Fertilizers)	-1.78	-2.60	-2.36	-1.91	-3.30	-1.78	-2.56	-2.33	0.71	-3.23
Basic pharmaceutical products	-2.64	-2.65	-2.64	-1.48	-1.48	-2.64	-2.65	-2.64	1.75	-1.54
Rubber and plastic products	-1.01	-0.87	-0.96	0.10	0.42	-1.02	-0.88	-0.97	2.02	0.37
Mineral products nec	-0.90	-0.58	-0.76	0.30	0.94	-0.90	-0.60	-0.77	1.84	0.86
Ferrous metals	-0.60	-0.34	-0.44	1.38	1.95	-0.60	-0.36	-0.45	4.47	1.84
Metals nec	-3.20	-4.11	-3.67	-3.73	-5.41	-3.19	-4.06	-3.64	1.05	-5.39
Metal products	-0.32	-0.16	-0.22	0.92	1.26	-0.32	-0.17	-0.23	3.02	1.19

	No Adjustment					Some Adjustment				
	1	2	3	4	5	1	2	3	4	5
Computer, electronic and	-3.63	-3.85	-3.68	-1.94	-2.20	-3.62	-3.84	-3.67	3.20	-2.29
Electrical equipment	-3.04	-2.91	-2.91	-1.01	-0.57	-3.04	-2.92	-2.92	3.05	-0.68
Machinery and equipment	-2.01	-2.11	-2.05	-1.18	-1.32	-2.00	-2.11	-2.04	1.74	-1.37
Motor vehicles and parts	-1.13	-1.13	-1.12	-0.54	-0.51	-1.13	-1.13	-1.13	1.04	-0.55
Transport equipment nec (ships etc.)	51.21	49.80	50.41	48.72	45.82	51.22	49.89	50.46	52.84	45.94
Manufactures nec	-1.57	-1.11	-1.29	0.45	1.39	-1.57	-1.14	-1.30	2.33	1.29
Utilities	-0.05	0.17	-0.03	-0.16	0.22	-0.05	0.16	-0.04	0.07	0.20
Construction	0.87	0.85	0.81	0.62	0.59	0.87	0.85	0.82	0.53	0.59
Trade	0.01	0.02	0.00	-0.04	-0.03	0.01	0.01	0.00	0.02	-0.03
Accommodation, Food services	-0.44	-0.38	-0.42	-0.37	-0.27	-0.44	-0.38	-0.42	-0.02	-0.28
Transport nec	0.00	-0.04	-0.05	-0.06	-0.13	0.00	-0.04	-0.05	0.35	-0.12
Water transport	-0.16	-0.48	-0.36	-0.47	-1.08	-0.16	-0.46	-0.35	0.50	-1.04
Air transport	-0.52	-0.77	-0.70	-0.86	-1.31	-0.52	-0.75	-0.69	0.03	-1.27
Warehousing and support	-0.23	-0.22	-0.23	-0.07	-0.05	-0.23	-0.22	-0.23	0.53	-0.06
Communication	-0.14	-0.14	-0.14	-0.17	-0.18	-0.14	-0.14	-0.14	0.08	-0.18
Finance, insurance, real estate	-0.23	-0.23	-0.23	-0.26	-0.27	-0.23	-0.23	-0.23	-0.20	-0.26
Business services nec	-0.04	-0.05	-0.06	-0.08	-0.11	-0.04	-0.05	-0.06	0.15	-0.11
Consumer services	-0.08	-0.05	-0.06	-0.19	-0.13	-0.08	-0.05	-0.07	-0.60	-0.13
Public services	-0.08	-0.04	-0.06	-0.20	-0.14	-0.08	-0.04	-0.06	-0.74	-0.14
Total	0	0	0	0	0	0	0	0	0	0

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Employment Impacts: Technicians, Skilled Workers

(Percent Change)

	No Adjustment					Some Adjustment				
	1	2	3	4	5	1	2	3	4	5
Wheat	-5.76	-24.09	-10.94	-7.66	-34.77	-5.54	-23.17	-10.49	-5.56	-33.81
Rice	-2.61	-9.33	-4.67	-3.66	-13.16	-2.53	-9.00	-4.50	-2.27	-12.83
Corn	-1.14	-3.21	-1.69	-0.88	-4.63	-1.11	-3.09	-1.64	-0.35	-4.44
Soybeans	-3.00	-12.52	-5.58	-3.52	-19.65	-2.90	-11.98	-5.36	-1.87	-18.88
Vegetables, fruit, nuts	-0.22	0.95	0.09	0.20	1.97	-0.24	0.89	0.07	1.15	1.88
Plant-based fibers	-0.53	-0.26	-0.66	-1.79	-1.82	-0.54	-0.27	-0.66	-0.92	-1.80
Crops nec	0.92	9.42	3.09	3.09	19.23	0.84	8.91	2.89	4.17	18.26
Livestock	-0.59	-0.33	-0.52	-0.55	-0.19	-0.59	-0.34	-0.52	-0.46	-0.21
Animal products nec	-0.61	-0.34	-0.57	-0.93	-0.63	-0.61	-0.35	-0.58	-0.59	-0.64
Beef	-0.22	0.26	-0.09	-0.16	0.53	-0.23	0.23	-0.10	0.09	0.50
Other meat products	-0.38	0.09	-0.31	-0.79	-0.22	-0.38	0.07	-0.31	-0.12	-0.24
Vegetable oils and fats	-0.41	1.11	-0.24	-0.31	1.89	-0.44	1.02	-0.27	1.00	1.81
Dairy products	-0.37	-0.40	-0.39	-0.52	-0.59	-0.37	-0.40	-0.39	-0.58	-0.59
Sugar	-0.24	-0.14	-0.19	-0.03	0.16	-0.24	-0.15	-0.19	-0.22	0.15
Food products nec	-0.25	0.05	-0.15	0.05	0.55	-0.26	0.03	-0.16	0.26	0.52
Beverages and tobacco products	-0.12	-0.12	-0.11	-0.08	-0.06	-0.12	-0.12	-0.12	-0.19	-0.06
Forestry	-0.85	-2.00	-1.19	-0.82	-2.77	-0.84	-1.94	-1.16	0.02	-2.69
Fishing	-0.21	-0.16	-0.18	-0.02	0.07	-0.21	-0.17	-0.19	0.16	0.06
Coal	-1.07	-4.81	-1.97	-1.27	-8.42	-1.03	-4.58	-1.89	-1.11	-7.99
Oil	-0.36	-0.60	-0.52	-0.16	-0.54	-0.35	-0.59	-0.51	0.29	-0.54
Gas	-0.34	-0.51	-0.76	-1.52	-2.24	-0.34	-0.49	-0.74	-1.04	-2.15
Minerals nec	0.43	0.26	0.32	0.21	-0.11	0.43	0.27	0.33	0.05	-0.10
Textiles	-2.08	-1.76	-1.88	0.37	1.16	-2.08	-1.78	-1.90	3.81	1.05
Wearing apparel	-4.17	-2.89	-3.38	1.66	4.83	-4.19	-2.97	-3.43	7.27	4.50
Leather products	-4.29	-2.96	-3.56	0.98	4.14	-4.30	-3.04	-3.61	6.65	3.82
Wood products	0.17	0.40	0.27	1.01	1.45	0.16	0.39	0.27	2.32	1.40
Paper products, publishing	-0.68	-0.65	-0.68	-0.36	-0.33	-0.68	-0.66	-0.68	0.70	-0.35
Petroleum, coal products	-0.13	-0.84	-0.70	-1.32	-2.50	-0.13	-0.81	-0.67	-0.78	-2.39
Fertilizers	-0.75	-3.78	-1.61	-1.28	-5.97	-0.71	-3.62	-1.53	-1.22	-5.76
Chemicals (ex. Fertilizers)	-1.70	-2.53	-2.28	-1.81	-3.21	-1.70	-2.49	-2.25	0.76	-3.14
Basic pharmaceutical products	-2.56	-2.58	-2.56	-1.38	-1.38	-2.56	-2.58	-2.56	1.80	-1.45
Rubber and plastic products	-0.94	-0.80	-0.88	0.20	0.52	-0.94	-0.81	-0.89	2.07	0.46
Mineral products nec	-0.83	-0.51	-0.68	0.40	1.03	-0.83	-0.53	-0.69	1.89	0.96
Ferrous metals	-0.52	-0.27	-0.36	1.48	2.05	-0.52	-0.29	-0.37	4.52	1.94
Metals nec	-3.12	-4.04	-3.59	-3.63	-5.32	-3.11	-3.99	-3.56	1.10	-5.30
Metal products	-0.24	-0.09	-0.14	1.02	1.35	-0.24	-0.10	-0.15	3.07	1.28
Computer, electronic and optical equipment	-3.55	-3.79	-3.60	-1.84	-2.10	-3.55	-3.77	-3.60	3.25	-2.19

	No Adjustment					Some Adjustment				
	1	2	3	4	5	1	2	3	4	5
Electrical equipment	-2.96	-2.84	-2.84	-0.91	-0.47	-2.96	-2.85	-2.84	3.10	-0.58
Machinery and equipment	-1.93	-2.04	-1.97	-1.08	-1.22	-1.93	-2.04	-1.97	1.79	-1.27
Motor vehicles and parts	-1.06	-1.06	-1.05	-0.43	-0.42	-1.06	-1.06	-1.05	1.09	-0.45
Transport equipment nec (ships etc.)	51.33	49.91	50.53	48.87	45.96	51.34	49.99	50.58	52.92	46.08
Manufactures nec	-1.49	-1.04	-1.21	0.55	1.49	-1.50	-1.07	-1.23	2.38	1.38
Utilities	0.03	0.24	0.05	-0.05	0.31	0.02	0.23	0.04	0.12	0.30
Construction	0.95	0.93	0.90	0.74	0.69	0.95	0.93	0.90	0.58	0.70
Trade	0.11	0.11	0.11	0.10	0.09	0.11	0.11	0.11	0.09	0.09
Accommodation, Food services	-0.34	-0.29	-0.31	-0.23	-0.15	-0.34	-0.29	-0.31	0.04	-0.15
Transport nec	0.10	0.06	0.05	0.08	0.00	0.10	0.06	0.05	0.41	0.00
Water transport	-0.05	-0.39	-0.25	-0.33	-0.95	-0.05	-0.37	-0.24	0.56	-0.92
Air transport	-0.42	-0.67	-0.59	-0.72	-1.18	-0.42	-0.66	-0.58	0.09	-1.15
Warehousing and support	-0.13	-0.12	-0.13	0.07	0.08	-0.13	-0.12	-0.13	0.59	0.07
Communication	-0.06	-0.07	-0.06	-0.07	-0.08	-0.06	-0.07	-0.06	0.13	-0.09
Finance, insurance, real estate	-0.15	-0.16	-0.15	-0.15	-0.17	-0.15	-0.16	-0.15	-0.15	-0.17
Business services nec	0.03	0.02	0.02	0.02	-0.02	0.03	0.02	0.02	0.20	-0.02
Consumer services	-0.01	0.02	0.02	-0.08	-0.04	-0.01	0.02	0.01	-0.56	-0.03
Public services	0.00	0.03	0.02	-0.10	-0.05	0.00	0.03	0.02	-0.70	-0.04
Total	0	0	0	0	0	0	0	0	0	0

1 $1m; Chinese carriers; ships built anywhere
2 $1.5m; any carrier; ships built in China
3 $1m; any carrier, Chinese ships on order
4 20% of trade on U.S.-built, -operated ships
5 1 through 4 together

Employment Impacts: Shopkeeping, Service Workers

(Percent Change)

	No Adjustment					Some Adjustment				
	1	2	3	4	5	1	2	3	4	5
Wheat	-5.75	-24.09	-10.93	-7.67	-34.78	-5.54	-23.17	-10.48	-5.60	-33.82
Rice	-2.60	-9.32	-4.67	-3.68	-13.17	-2.52	-8.99	-4.49	-2.35	-12.84
Corn	-1.13	-3.20	-1.69	-0.89	-4.64	-1.11	-3.08	-1.64	-0.40	-4.45
Soybeans	-3.00	-12.51	-5.58	-3.52	-19.66	-2.90	-11.98	-5.35	-1.91	-18.89
Vegetables, fruit, nuts	-0.22	0.96	0.10	0.20	1.96	-0.23	0.90	0.07	1.10	1.87
Plant-based fibers	-0.53	-0.25	-0.66	-1.80	-1.83	-0.53	-0.26	-0.65	-0.97	-1.80
Crops nec	0.93	9.42	3.09	3.08	19.22	0.85	8.91	2.90	4.12	18.25
Livestock	-0.58	-0.32	-0.51	-0.56	-0.20	-0.59	-0.34	-0.52	-0.51	-0.22
Animal products nec	-0.60	-0.33	-0.57	-0.94	-0.64	-0.61	-0.34	-0.57	-0.64	-0.65
Beef	-0.20	0.28	-0.07	-0.20	0.49	-0.20	0.26	-0.08	-0.13	0.46
Other meat products	-0.35	0.11	-0.28	-0.83	-0.26	-0.36	0.09	-0.29	-0.33	-0.28
Vegetable oils and fats	-0.39	1.13	-0.22	-0.35	1.84	-0.41	1.04	-0.25	0.78	1.77
Dairy products	-0.35	-0.39	-0.38	-0.54	-0.62	-0.35	-0.39	-0.38	-0.70	-0.61
Sugar	-0.23	-0.13	-0.17	-0.05	0.13	-0.23	-0.14	-0.18	-0.34	0.12
Food products nec	-0.23	0.07	-0.13	0.01	0.51	-0.23	0.05	-0.13	0.04	0.48
Beverages and tobacco products	-0.10	-0.10	-0.09	-0.12	-0.11	-0.10	-0.10	-0.09	-0.40	-0.10
Forestry	-0.85	-2.00	-1.18	-0.82	-2.78	-0.84	-1.93	-1.16	-0.01	-2.70
Fishing	-0.21	-0.16	-0.18	-0.02	0.07	-0.21	-0.16	-0.18	0.12	0.06
Coal	-1.06	-4.81	-1.97	-1.28	-8.43	-1.03	-4.57	-1.89	-1.15	-8.00
Oil	-0.35	-0.60	-0.51	-0.17	-0.55	-0.35	-0.59	-0.50	0.25	-0.54
Gas	-0.34	-0.50	-0.76	-1.53	-2.25	-0.34	-0.49	-0.73	-1.07	-2.16
Minerals nec	0.43	0.27	0.33	0.21	-0.12	0.44	0.28	0.33	0.01	-0.10
Textiles	-2.05	-1.73	-1.86	0.33	1.11	-2.05	-1.75	-1.87	3.56	1.01
Wearing apparel	-4.15	-2.87	-3.35	1.62	4.78	-4.16	-2.94	-3.41	7.01	4.45
Leather products	-4.26	-2.94	-3.54	0.94	4.09	-4.27	-3.02	-3.59	6.39	3.77
Wood products	0.19	0.43	0.30	0.97	1.40	0.19	0.41	0.29	2.08	1.35
Paper products, publishing	-0.65	-0.63	-0.66	-0.40	-0.38	-0.65	-0.63	-0.66	0.46	-0.40
Petroleum, coal products	-0.10	-0.82	-0.67	-1.36	-2.55	-0.10	-0.78	-0.64	-1.02	-2.44
Fertilizers	-0.75	-3.78	-1.61	-1.28	-5.97	-0.71	-3.62	-1.53	-1.22	-5.76
Chemicals (ex. Fertilizers)	-1.68	-2.51	-2.25	-1.85	-3.25	-1.67	-2.46	-2.22	0.52	-3.18
Basic pharmaceutical products	-2.54	-2.56	-2.53	-1.42	-1.43	-2.53	-2.56	-2.53	1.56	-1.49
Rubber and plastic products	-0.91	-0.77	-0.86	0.16	0.47	-0.91	-0.78	-0.86	1.83	0.42
Mineral products nec	-0.80	-0.49	-0.65	0.36	0.99	-0.80	-0.50	-0.66	1.65	0.91
Ferrous metals	-0.49	-0.25	-0.34	1.44	2.00	-0.49	-0.26	-0.35	4.27	1.89
Metals nec	-3.10	-4.02	-3.57	-3.67	-5.36	-3.09	-3.97	-3.53	0.86	-5.34
Metal products	-0.21	-0.06	-0.12	0.98	1.30	-0.21	-0.07	-0.12	2.82	1.24
Computer, electronic and optical equipment	-3.52	-3.76	-3.58	-1.88	-2.15	-3.52	-3.75	-3.57	3.00	-2.24

	No Adjustment					Some Adjustment				
	1	2	3	4	5	1	2	3	4	5
Electrical equipment	-2.94	-2.82	-2.81	-0.95	-0.52	-2.94	-2.82	-2.82	2.85	-0.63
Machinery and equipment	-1.90	-2.02	-1.94	-1.12	-1.27	-1.90	-2.01	-1.94	1.54	-1.32
Motor vehicles and parts	-1.03	-1.04	-1.02	-0.47	-0.46	-1.03	-1.04	-1.02	0.85	-0.50
Transport equipment nec (ships etc.)	51.37	49.95	50.57	48.81	45.89	51.38	50.03	50.62	52.55	46.02
Manufactures nec	-1.46	-1.02	-1.18	0.51	1.44	-1.47	-1.04	-1.20	2.14	1.34
Utilities	0.05	0.27	0.07	-0.09	0.26	0.05	0.25	0.07	-0.12	0.25
Construction	0.98	0.96	0.93	0.69	0.64	0.98	0.96	0.93	0.32	0.65
Trade	0.15	0.14	0.14	0.05	0.03	0.15	0.14	0.14	-0.23	0.03
Accommodation, Food services	-0.30	-0.26	-0.28	-0.29	-0.21	-0.30	-0.26	-0.28	-0.28	-0.21
Transport nec	0.14	0.09	0.08	0.02	-0.07	0.14	0.09	0.09	0.09	-0.06
Water transport	-0.02	-0.35	-0.22	-0.39	-1.02	-0.01	-0.34	-0.21	0.24	-0.97
Air transport	-0.38	-0.64	-0.56	-0.77	-1.25	-0.38	-0.63	-0.55	-0.22	-1.21
Warehousing and support	-0.09	-0.09	-0.09	0.01	0.01	-0.09	-0.09	-0.09	0.27	0.01
Communication	-0.03	-0.04	-0.04	-0.11	-0.13	-0.03	-0.04	-0.04	-0.11	-0.13
Finance, insurance, real estate	-0.12	-0.14	-0.12	-0.19	-0.22	-0.12	-0.13	-0.12	-0.39	-0.21
Business services nec	0.06	0.04	0.04	-0.02	-0.07	0.06	0.04	0.05	-0.04	-0.06
Consumer services	0.02	0.04	0.04	-0.12	-0.09	0.02	0.04	0.04	-0.79	-0.08
Public services	0.03	0.05	0.05	-0.14	-0.10	0.03	0.05	0.05	-0.93	-0.09
Total	0	0	0	0	0	0	0	0	0	0

1 $1m; Chinese carriers; ships built anywhere
2 $1.5m; any carrier; ships built in China
3 $1m; any carrier, Chinese ships on order
4 20% of trade on U.S.-built, -operated ships
5 1 through 4 together

Employment Impacts: Clerical Workers

(Percent Change)

	No Adjustment					Some Adjustment				
	1	2	3	4	5	1	2	3	4	5
Wheat	-5.77	-24.10	-10.95	-7.67	-34.78	-5.56	-23.18	-10.50	-5.57	-33.82
Rice	-2.64	-9.35	-4.70	-3.69	-13.18	-2.56	-9.02	-4.52	-2.29	-12.85
Corn	-1.15	-3.22	-1.71	-0.90	-4.65	-1.13	-3.10	-1.66	-0.36	-4.46
Soybeans	-3.02	-12.53	-5.60	-3.53	-19.66	-2.92	-12.00	-5.37	-1.88	-18.90
Vegetables, fruit, nuts	-0.24	0.94	0.08	0.19	1.96	-0.25	0.88	0.05	1.14	1.86
Plant-based fibers	-0.55	-0.27	-0.68	-1.81	-1.84	-0.55	-0.28	-0.67	-0.93	-1.81
Crops nec	0.91	9.40	3.07	3.07	19.21	0.83	8.89	2.88	4.16	18.24
Livestock	-0.60	-0.34	-0.53	-0.57	-0.21	-0.61	-0.36	-0.54	-0.47	-0.23
Animal products nec	-0.62	-0.35	-0.59	-0.94	-0.65	-0.63	-0.36	-0.59	-0.60	-0.66
Beef	-0.29	0.20	-0.15	-0.23	0.46	-0.29	0.17	-0.17	0.04	0.43
Other meat products	-0.44	0.03	-0.37	-0.86	-0.29	-0.44	0.00	-0.38	-0.16	-0.31
Vegetable oils and fats	-0.48	1.04	-0.30	-0.38	1.81	-0.50	0.96	-0.33	0.95	1.74
Dairy products	-0.40	-0.44	-0.43	-0.56	-0.63	-0.40	-0.44	-0.43	-0.60	-0.63
Sugar	-0.28	-0.18	-0.22	-0.07	0.11	-0.28	-0.18	-0.23	-0.25	0.11
Food products nec	-0.32	-0.01	-0.21	-0.02	0.48	-0.32	-0.03	-0.22	0.21	0.45
Beverages and tobacco products	-0.19	-0.18	-0.18	-0.15	-0.13	-0.19	-0.18	-0.18	-0.24	-0.13
Forestry	-0.86	-2.01	-1.20	-0.83	-2.79	-0.85	-1.95	-1.17	0.02	-2.71
Fishing	-0.22	-0.18	-0.19	-0.03	0.06	-0.22	-0.18	-0.20	0.15	0.05
Coal	-1.08	-4.82	-1.99	-1.28	-8.43	-1.04	-4.59	-1.90	-1.12	-8.00
Oil	-0.37	-0.61	-0.53	-0.17	-0.55	-0.37	-0.60	-0.52	0.28	-0.55
Gas	-0.35	-0.52	-0.77	-1.53	-2.25	-0.35	-0.51	-0.75	-1.04	-2.16
Minerals nec	0.42	0.25	0.31	0.20	-0.13	0.42	0.26	0.32	0.04	-0.11
Textiles	-2.14	-1.82	-1.95	0.29	1.08	-2.15	-1.84	-1.97	3.76	0.97
Wearing apparel	-4.24	-2.96	-3.45	1.58	4.75	-4.25	-3.03	-3.50	7.21	4.41
Leather products	-4.35	-3.03	-3.63	0.90	4.06	-4.37	-3.11	-3.68	6.59	3.74
Wood products	0.10	0.33	0.20	0.93	1.37	0.09	0.32	0.20	2.27	1.31
Paper products, publishing	-0.75	-0.72	-0.75	-0.44	-0.41	-0.75	-0.72	-0.75	0.65	-0.43
Petroleum, coal products	-0.20	-0.91	-0.77	-1.40	-2.58	-0.20	-0.88	-0.74	-0.83	-2.47
Fertilizers	-0.75	-3.78	-1.61	-1.28	-5.97	-0.71	-3.62	-1.53	-1.22	-5.76
Chemicals (ex. Fertilizers)	-1.77	-2.60	-2.35	-1.88	-3.29	-1.77	-2.56	-2.32	0.70	-3.22
Basic pharmaceutical pro	-2.63	-2.65	-2.63	-1.46	-1.47	-2.63	-2.65	-2.63	1.75	-1.53
Rubber and plastic products	-1.01	-0.87	-0.95	0.12	0.43	-1.01	-0.88	-0.96	2.02	0.38
Mineral products nec	-0.89	-0.58	-0.75	0.33	0.95	-0.90	-0.60	-0.76	1.84	0.88
Ferrous metals	-0.59	-0.34	-0.43	1.40	1.96	-0.59	-0.36	-0.44	4.46	1.86
Metals nec	-3.19	-4.11	-3.66	-3.71	-5.39	-3.18	-4.06	-3.63	1.05	-5.37
Metal products	-0.31	-0.16	-0.21	0.94	1.27	-0.31	-0.17	-0.22	3.02	1.20
Computer, electronic and	-3.62	-3.85	-3.67	-1.92	-2.18	-3.62	-3.84	-3.66	3.19	-2.27
Electrical equipment	-3.03	-2.91	-2.90	-0.99	-0.55	-3.03	-2.92	-2.91	3.04	-0.66

	No Adjustment					Some Adjustment				
	1	2	3	4	5	1	2	3	4	5
Machinery and equipment	-2.00	-2.11	-2.04	-1.16	-1.30	-2.00	-2.11	-2.03	1.73	-1.35
Motor vehicles and parts	-1.13	-1.13	-1.11	-0.51	-0.50	-1.13	-1.13	-1.12	1.04	-0.53
Transport equipment nec (ships etc.)	51.22	49.80	50.42	48.75	45.84	51.24	49.89	50.48	52.84	45.96
Manufactures nec	-1.56	-1.11	-1.28	0.47	1.40	-1.56	-1.14	-1.29	2.33	1.30
Utilities	-0.04	0.17	-0.02	-0.13	0.23	-0.05	0.16	-0.03	0.06	0.22
Construction	0.88	0.85	0.82	0.65	0.60	0.88	0.85	0.83	0.52	0.61
Trade	0.02	0.02	0.02	0.00	-0.02	0.02	0.02	0.02	0.02	-0.02
Accommodation, Food and	-0.43	-0.38	-0.40	-0.34	-0.25	-0.43	-0.38	-0.41	-0.03	-0.26
Transport nec	0.01	-0.04	-0.04	-0.03	-0.11	0.01	-0.03	-0.04	0.34	-0.11
Water transport	-0.15	-0.48	-0.35	-0.44	-1.06	-0.14	-0.46	-0.33	0.49	-1.02
Air transport	-0.51	-0.76	-0.68	-0.82	-1.29	-0.51	-0.75	-0.67	0.02	-1.25
Warehousing and support	-0.22	-0.22	-0.22	-0.04	-0.03	-0.22	-0.22	-0.22	0.52	-0.04
Communication	-0.13	-0.14	-0.13	-0.15	-0.17	-0.13	-0.14	-0.13	0.07	-0.17
Finance, insurance, real estate	-0.22	-0.23	-0.22	-0.23	-0.25	-0.22	-0.23	-0.22	-0.21	-0.25
Business services nec	-0.03	-0.05	-0.05	-0.06	-0.10	-0.03	-0.05	-0.05	0.15	-0.10
Consumer services	-0.07	-0.05	-0.05	-0.16	-0.12	-0.07	-0.05	-0.06	-0.61	-0.11
Public services	-0.07	-0.04	-0.05	-0.18	-0.13	-0.07	-0.04	-0.05	-0.75	-0.13
Total	0	0	0	0	0	0	0	0	0	0

1 $1m; Chinese carriers; ships built anywhere
2 $1.5m; any carrier; ships built in China
3 $1m; any carrier, Chinese ships on order
4 20% of trade on U.S.-built, -operated ships
5 1 through 4 together

Employment Impacts: Equipment Operators, Farm Workers

(Percent Change)

	No Adjustment					Some Adjustment				
	1	2	3	4	5	1	2	3	4	5
Wheat	-5.85	-24.17	-11.02	-7.80	-34.88	-5.64	-23.25	-10.57	-5.84	-33.91
Rice	-2.77	-9.48	-4.83	-3.91	-13.38	-2.69	-9.15	-4.66	-2.76	-13.05
Corn	-1.23	-3.30	-1.79	-1.03	-4.78	-1.21	-3.18	-1.74	-0.65	-4.59
Soybeans	-3.10	-12.60	-5.67	-3.66	-19.78	-3.00	-12.07	-5.45	-2.16	-19.01
Vegetables, fruit, nuts	-0.32	0.85	0.00	0.05	1.81	-0.34	0.79	-0.03	0.85	1.72
Plant-based fibers	-0.63	-0.35	-0.76	-1.94	-1.97	-0.64	-0.36	-0.75	-1.22	-1.95
Crops nec	0.82	9.31	2.99	2.93	19.05	0.74	8.80	2.80	3.86	18.08
Livestock	-0.69	-0.43	-0.61	-0.71	-0.35	-0.69	-0.44	-0.62	-0.76	-0.37
Animal products nec	-0.71	-0.43	-0.67	-1.08	-0.79	-0.71	-0.45	-0.67	-0.88	-0.79
Beef	-0.65	-0.16	-0.51	-0.82	-0.15	-0.65	-0.19	-0.52	-1.21	-0.16
Other meat products	-0.80	-0.33	-0.72	-1.45	-0.89	-0.80	-0.36	-0.73	-1.40	-0.90
Vegetable oils and fats	-0.83	0.68	-0.66	-0.97	1.20	-0.86	0.60	-0.69	-0.31	1.14
Dairy products	-0.61	-0.64	-0.63	-0.89	-0.98	-0.61	-0.64	-0.63	-1.31	-0.96
Sugar	-0.48	-0.38	-0.42	-0.40	-0.23	-0.48	-0.38	-0.42	-0.94	-0.23
Food products nec	-0.67	-0.37	-0.56	-0.61	-0.13	-0.68	-0.39	-0.57	-1.04	-0.15
Beverages and tobacco products	-0.55	-0.54	-0.53	-0.74	-0.74	-0.55	-0.54	-0.53	-1.48	-0.72
Forestry	-0.93	-2.08	-1.26	-0.93	-2.89	-0.92	-2.01	-1.23	-0.21	-2.81
Fishing	-0.29	-0.24	-0.26	-0.13	-0.05	-0.29	-0.24	-0.26	-0.08	-0.06
Coal	-1.14	-4.89	-2.05	-1.39	-8.53	-1.11	-4.65	-1.96	-1.34	-8.10
Oil	-0.43	-0.68	-0.59	-0.28	-0.66	-0.43	-0.66	-0.58	0.06	-0.66
Gas	-0.42	-0.58	-0.83	-1.64	-2.36	-0.42	-0.57	-0.81	-1.26	-2.27
Minerals nec	0.35	0.19	0.25	0.10	-0.23	0.36	0.20	0.26	-0.18	-0.22
Textiles	-2.54	-2.22	-2.34	-0.38	0.39	-2.54	-2.24	-2.36	2.31	0.30
Wearing apparel	-4.63	-3.35	-3.83	0.91	4.03	-4.64	-3.43	-3.88	5.71	3.72
Leather products	-4.74	-3.42	-4.01	0.23	3.35	-4.75	-3.50	-4.06	5.10	3.05
Wood products	-0.31	-0.08	-0.19	0.26	0.68	-0.31	-0.09	-0.20	0.84	0.64
Paper products, publishing	-1.15	-1.13	-1.14	-1.10	-1.09	-1.15	-1.13	-1.15	-0.76	-1.10
Petroleum, coal products	-0.61	-1.32	-1.16	-2.06	-3.24	-0.60	-1.28	-1.13	-2.22	-3.12
Fertilizers	-0.75	-3.78	-1.61	-1.28	-5.97	-0.71	-3.62	-1.53	-1.22	-5.76
Chemicals (ex. Fertilizers)	-2.17	-2.99	-2.73	-2.54	-3.94	-2.17	-2.95	-2.70	-0.71	-3.86
Basic pharmaceutical products	-3.03	-3.04	-3.01	-2.11	-2.14	-3.02	-3.04	-3.01	0.33	-2.18
Rubber and plastic products	-1.41	-1.27	-1.35	-0.54	-0.25	-1.41	-1.28	-1.35	0.59	-0.29
Mineral products nec	-1.30	-0.98	-1.14	-0.34	0.27	-1.30	-1.00	-1.15	0.41	0.21
Ferrous metals	-0.99	-0.75	-0.83	0.72	1.27	-0.99	-0.76	-0.84	3.00	1.18
Metals nec	-3.58	-4.50	-4.04	-4.35	-6.04	-3.57	-4.45	-4.01	-0.36	-6.00
Metal products	-0.71	-0.56	-0.61	0.27	0.58	-0.71	-0.57	-0.62	1.58	0.53
Computer, electronic and optical equipment	-4.01	-4.24	-4.05	-2.57	-2.85	-4.01	-4.23	-4.05	1.75	-2.92

	No Adjustment					Some Adjustment				
	1	2	3	4	5	1	2	3	4	5
Electrical equipment	-3.42	-3.30	-3.29	-1.65	-1.23	-3.42	-3.31	-3.30	1.60	-1.32
Machinery and equipment	-2.40	-2.51	-2.43	-1.82	-1.98	-2.39	-2.50	-2.42	0.31	-2.01
Motor vehicles and parts	-1.53	-1.53	-1.51	-1.17	-1.17	-1.53	-1.53	-1.51	-0.38	-1.19
Transport equipment nec (ships etc.)	50.61	49.20	49.83	47.76	44.85	50.62	49.28	49.88	50.70	44.99
Manufactures nec	-1.96	-1.51	-1.67	-0.20	0.71	-1.96	-1.54	-1.69	0.90	0.63
Utilities	-0.45	-0.24	-0.42	-0.80	-0.45	-0.45	-0.25	-0.42	-1.33	-0.45
Construction	0.42	0.40	0.38	-0.10	-0.16	0.42	0.40	0.38	-1.04	-0.14
Trade	-0.52	-0.53	-0.51	-0.89	-0.92	-0.52	-0.52	-0.51	-1.84	-0.90
Accommodation, Food services	-0.97	-0.92	-0.93	-1.22	-1.16	-0.97	-0.92	-0.93	-1.89	-1.14
Transport nec	-0.53	-0.58	-0.57	-0.91	-1.02	-0.53	-0.57	-0.57	-1.52	-0.99
Water transport	-0.69	-1.02	-0.87	-1.32	-1.96	-0.68	-1.00	-0.86	-1.38	-1.90
Air transport	-1.05	-1.30	-1.21	-1.70	-2.18	-1.05	-1.29	-1.20	-1.84	-2.13
Warehousing and support	-0.76	-0.76	-0.75	-0.92	-0.94	-0.76	-0.76	-0.75	-1.35	-0.93
Communication	-0.53	-0.54	-0.53	-0.81	-0.85	-0.53	-0.54	-0.53	-1.33	-0.83
Finance, insurance, real estate	-0.62	-0.63	-0.61	-0.90	-0.93	-0.62	-0.63	-0.61	-1.60	-0.91
Business services nec	-0.44	-0.46	-0.45	-0.73	-0.78	-0.44	-0.46	-0.45	-1.25	-0.77
Consumer services	-0.48	-0.46	-0.45	-0.83	-0.80	-0.48	-0.46	-0.45	-2.00	-0.78
Public services	-0.47	-0.45	-0.44	-0.84	-0.81	-0.47	-0.45	-0.44	-2.14	-0.79
Total	0	0	0	0	0	0	0	0	0	0

1 $1m; Chinese carriers; ships built anywhere
2 $1.5m; any carrier; ships built in China
3 $1m; any carrier, Chinese ships on order
4 20% of trade on U.S.-built, -operated ships
5 1 through 4 together