



# Imports Work for American Workers

May 2021

PREPARED BY:  
**Trade Partnership Worldwide LLC**

AT THE REQUEST OF:

 U.S. GLOBAL VALUE CHAIN COALITION



UNITED STATES  
FASHION INDUSTRY ASSOCIATION



RETAIL INDUSTRY  
LEADERS ASSOCIATION





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## About the Authors

This report was prepared by Laura M. Baughman and Dr. Joseph F. Francois of Trade Partnership Worldwide, LLC. ([www.tradepartnership.com](http://www.tradepartnership.com)). TPW is an international trade and economic consulting firm with a global outlook and reach through a network of international economists. Baughman is President of TPW. She holds degrees in economics from Columbia and Georgetown Universities. Dr. Francois is Managing Director of TPW, and Professor of Economics, University of Bern, Department of Economics and Managing Director, World Trade Institute. He also holds numerous research fellowships and professorships at think tanks and universities around the world. Dr. Francois formerly was the head of the Office of Economics at the U.S. International Trade Commission, and a research economist at the World Trade Organization. Dr. Francois holds a PhD in economics from the University of Maryland, and economics degrees from the University of Virginia. Questions and comments can be directed to them at [Baughman@tradepartnership.com](mailto:Baughman@tradepartnership.com).

## About the Sponsors

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The American Apparel & Footwear Association (AAFA) is the national trade association representing apparel, footwear and other sewn products companies, and their suppliers, which compete in the global market. Representing more than 1,000 world famous name brands, we are the trusted public policy and political voice of the apparel and footwear industry, its management and shareholders, its nearly four million U.S. workers, and its contribution of more than \$400 billion in annual U.S. retail sales. AAFA provides exclusive expertise in trade, brand protection, and supply chain & manufacturing to help our members navigate the complex regulatory environment and lower costs. Members gain unparalleled access to information and exclusive insights on regulation and policy, and premier opportunities for networking and collaboration.

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RILA is the U.S. trade association for leading retailers. We convene decision-makers, advocate for the industry, and promote operational excellence and innovation. Our aim is to elevate a dynamic industry by transforming the environment in which retailers operate. RILA members include more than 200 retailers, product manufacturers, and service suppliers, which together account for more than \$1.5 trillion in annual sales, millions of American jobs, and more than 100,000 stores, manufacturing facilities, and distribution centers domestically and abroad.

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The United States Fashion Industry Association (USFIA) is dedicated to fashion made possible by global trade. USFIA represents brands, retailers, importers, and wholesalers based in the United States and doing business globally. Founded in 1989, USFIA works to eliminate tariff and non-tariff barriers that impede the fashion industry's ability to trade freely and create jobs in the United States. Headquartered in Washington, D.C., USFIA is the voice of the fashion industry in front of the U.S. government as well as international governments and stakeholders. With constant, two-way communication, USFIA staff and counsel serve as the eyes and ears of our members in Washington and around the world, enabling them to stay ahead of the regulatory challenges of today and tomorrow.

#### **U.S. Global Value Chain Coalition**

The U.S. Global Value Chain (USGVC) Coalition is on a mission to educate policymakers and the public about the American jobs and the domestic economic growth our companies generate through their value chains. We advocate, educate, conduct research, and engage on policies that support American workers and their families through U.S. global value chains.

# Imports Work for American Workers

## Executive Summary

The benefits of imports to Americans — as citizens, families, and consumers — are widely acknowledged. Notably, imports lower costs of many goods, both inputs to U.S. production and products bought by American families. Less understood are the full benefits of imports on American workers. Few studies consider all the ways in which imports support U.S. economic activity and therefore American jobs. This comprehensive study measures the net effects of imports on the U.S. economy. We find that:

- *Imports support more than 21 million net American jobs across the country, including a net positive number in every U.S. state.*
- *Imports from key trading partners — including Canada, China, the European Union, and Mexico — support a net positive number of U.S. jobs.*
- *Import-related jobs are often good jobs: They pay good wages and provide employment to millions of workers represented by unions, as well as minorities and women.*
- *Imports support small businesses. Most import-related jobs are found at small- to medium-sized employers.*
- *U.S. trade policies, many now pending before Congress and the Administration, have the potential to both support and hurt these jobs. Changes that impose new barriers to imports would have a negative impact on import-related jobs, while changes that make it harder to impose those restrictions would preserve jobs.*

Increasingly, policymakers recognize the importance of import-related jobs. This new research demonstrates that these jobs must be fully considered in U.S. trade policy decisions.



## I. Introduction

The last several years have seen a growing public awareness of the importance of imports to the U.S. economy. Imports lower costs of production for U.S. manufacturers. Imported consumer goods help American families make ends meet. The imposition since 2018 of tariffs on an ever-increasing number of products imported from around the world – and especially from China – kept imports front and center in the news and in policy circles. Supporters of the tariffs argued they were creating new job opportunities in protected U.S. manufacturing sectors like steel and aluminum. Opponents of the tariffs countered that they were increasing costs of production and thereby costing jobs in manufacturing sectors that rely on imports to make other goods in the United States (e.g., steel-consuming manufacturers), **and** making important consumer goods too costly for American families.

The benefits of imports to American families and other consumers are widely acknowledged. Briefly, imports enable consumers to choose from a wider variety of goods than would be available in the absence of imports. And they help to keep the costs of those goods affordable. Additionally, imports support exports: Imported raw materials and other inputs to production make U.S. goods more competitive in international markets.

Today, many policy makers want to focus on the impacts of trade on jobs. How does trade policy affect workers, and in particular, workers who have been “left behind” by previous trade policy initiatives? More specifically, how have imports contributed to job losses in the United States, particularly among minority workers and those without college degrees?

While no one disputes the notion that competition from imports can cost some U.S. workers their jobs, what tends to happen in the public debate is that the



broader job picture is not considered. Yes, some workers lose jobs, and those workers matter. But at the same time other workers owe their jobs to imports, and they should figure into the public policy debate as well.

This study focuses on a full assessment of the net impacts of imports on U.S. jobs in 2018.<sup>1</sup> In other words, it considers not only the jobs lost to imports but also those supported by imports. It also considers all the ways in which job losses and job gains multiply through the economy as they impact other sectors. The study focuses on 2018 because it is the last full recent year before the tariffs imposed by the last Administration began to take full effect (in 2019) and before the impacts of the global pandemic (2020). It thus provides a cleaner recent picture of employment related to imports that is not as skewed by those events.

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<sup>1</sup> It updates Chapter 4 of an earlier assessment prepared by Trade Partnership Worldwide of the employment impacts of imports. See Trade Partnership Worldwide, LLC, "[Imports Work for American](#)," prepared for Consumer Technology Association, the National Retail Federation, the United States Chamber of Commerce, and the American Apparel and Footwear Association, May 2013.

## II. Imports and American Workers: A Net Win

There is no doubt that products imported into the United States have an impact on U.S. jobs. But attention tends to focus on charges that imports cause U.S. job losses. While this is true for some jobs, it is by no means universally true.

In brief, and as detailed in this chapter, the positive side of the import story is simply this:

- Goods and services imports supported more than 21 million net jobs in 2018, and every state has a net positive stake in importing.
- Import-related jobs are “good jobs” — they often pay well, and many are held by union members, minorities or women.
- Small businesses are major employers of workers whose jobs depend on imports.

### *Import-Related Jobs Are Everywhere*

The story of the employment benefits of imports is told infrequently. The government collects and publishes data detailing U.S. jobs tied to exports, but not imports. The closest the U.S. government comes to counting jobs related to imports is tallying those “dislocated” by imports and certified for assistance under the Trade Adjustment Assistance (TAA) program. The Department of Labor reports that the total number of workers certified for TAA benefits over the last 10 years, from 2011-2020, was 891,291.<sup>2</sup> Largely on the basis of this data, the public concludes that imports cost jobs.

But direct job losses are not the whole story. The need for a fuller assessment of the range of

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<sup>2</sup> U.S. Department of Labor, Employment and Training Administration, [TAA Data Overview](#).

American jobs directly and indirectly linked to importing goods into the United States is clear. Certain types of jobs are more obviously linked to imports than others. For example, long before imported goods ever reach U.S. shores, U.S. designers develop products, and importers and producers arrange for financing through U.S. and foreign banks. When the goods arrive, dock workers are mobilized, customs agents process the shipments, and truckers and other transportation workers take the goods to warehouses or other points of distribution. Wholesalers deliver the goods to manufacturers or retailers. Advertising account executives devise campaigns to sell the goods. In addition, cross-border supply chains mean that U.S. production uses imported inputs. This has a mixed effect on jobs: Imported inputs may replace domestically-produced inputs, costing jobs. In other cases, lower cost imported inputs keep domestic production competitive, preserving or even increasing jobs.

In addition to these jobs, there are millions of others that are not so obvious. The workers in other sectors of the economy provide goods and services to the workers in the more obvious import-related jobs, whether it's food at a local lunch spot, clothing and footwear to wear to work, subway/bus fares or parking fees to get to work, and other less visible activities that generate jobs. Workers with manufacturers, wholesalers and retailers place orders with U.S. and foreign suppliers for products ranging from paper boxes to coat hangers or computers and cash registers needed to sell the imported goods.

There's still more: Because imports lower the costs of goods, consumers have more money to spend on other goods and services, including for

### Retail Workers Depend on Imports

Retailers are best known as the means by which American families buy the affordably priced goods they need for their daily lives. Some of those goods are imported. But the retail contribution to the economy and jobs extends well beyond the important role sales associates play at stores (or, increasingly, online). In total, the U.S. retail industry [supports](#) one in four American jobs and accounts for \$1 trillion in direct labor income, and all of them benefit from imports.

Today's retail value chain [includes](#) more than 7 million workers doing important non-sales jobs within the retail industry, including U.S.-based product designers, R&D specialists, wholesale and retail buyers, logistics and supply chain analysts, product compliance officers, marketing managers, software developers, and management analysts, for example.\* Each of these activities adds U.S. value – jobs and economic activity – to every imported product sold by U.S. retailers.

\* According to the Bureau of Labor Statistics [data](#), in 2019 54% of total retail employment was held by workers in sales occupations; 46% was therefore held by workers in non-sales occupations.

### Apparel

Most consumers believe it is next to impossible to find clothing any more that says "Made in America." They may be right that finding such a label is hard, but that doesn't mean the apparel they see in stores doesn't have a lot of America in it. For example, even though a product says "Made in China," because that is where it was assembled, most of the value of the apparel is American. An ITC [study](#) found that more than 54 percent of what the consumer pays for imported apparel is U.S.-produced value, including wages paid to U.S. workers. Another [study](#) focusing on a sample of individual imported apparel products found that U.S. value (again, including U.S. wages) can be much higher, representing more than 70 percent of the retail prices of those products.

The U.S. value comes from U.S.-based product design, marketing, logistics and sales to consumers. Bottom line: No matter where the label places the origin of the apparel product, the fact remains that it likely includes a lot of content from U.S. workers, in the United States.

example education and leisure activities. The expanded business in these sectors supports jobs. Finally, the greater economic efficiencies that result from the availability of lower-cost imports boost U.S. productivity that in turn stimulates job-sustaining activity across the economy.

### *Millions of Americans Owe Their Jobs to Imports*

As we noted at the outset of this chapter, it has been difficult to put a number on the full range of jobs related to importing because no official government data exists that count them. But just as methodologies have been devised to measure the number of U.S. jobs related to exporting, so too a (different, more comprehensive) methodology can be devised to measure the number of jobs that exist because the United States

### *More than 21 million net American jobs depend on imports*

imports.

Such a methodology is described in the Appendix, and the results are presented in [Table 1](#). We find that in 2018, U.S. imports supported more than 21 million *net* direct and indirect American jobs, representing over 10 percent of total U.S. employment.

The results show that one of the greatest and most widely acknowledged benefits of

**Table 1**

#### **American Jobs Supported by Imports, 2018**

Sector	Number of Jobs	Share of Sector Employment
<b>Services Producing</b>	<b>17,395,787</b>	<b>10.2%</b>
Wholesale and retail trade	6,200,996	14.4
Business services	2,088,477	5.0
Consumer services (leisure, hospitality and other similar services)	1,559,165	15.3
Finance, insurance	622,676	6.0
Transportation & warehousing	104,488	1.1
Utilities	71,371	12.1
Other (e.g., education, health care, social assistance, government)	6,748,615	12.1
<b>Goods Producing</b>	<b>4,013,999</b>	<b>13.7</b>
Construction	5,909,411	53.9
Manufacturing	(1,154,445)	8.6
Agriculture, forestry, fisheries	(527,341)	14.8
Mining	(213,626)	15.8
<b>Net Total</b>	<b>21,409,785</b>	<b>10.7</b>

Source: Trade Partnership Worldwide LLC

imports – their contribution to lowering costs and providing American families with greater spending power – has enormous job-supporting impacts as well. Many jobs that exist because of imports are found in sectors that benefit from this increased spending power: leisure activities, including entertainment and restaurants, which are part of “consumer services.” Other jobs that exist because we import include those tied to greater economic activity generated by imports, including the need for

#### **Important Note About the Results**

The jobs estimates represent jobs that exist – or do not exist – because of U.S. goods imports in 2018. We refer to these jobs as “import-related jobs” or, net “jobs supported by imports.” ***The negative estimates for some sectors should not be described as job losses in those sectors.*** They represent jobs that did not exist in those sectors in 2018 because the United States imported \$3 trillion in goods and services.

infrastructure (e.g., utilities, construction). Thus, sectors that many believe are not impacted by trade – health care, education, leisure services – in fact are.

### *Imports from Key Trading Partners Support a Net Positive Number of U.S. Jobs*

**Table 2**  
**American Jobs Supported by Imports from Leading U.S. Trading Partners, 2018**

Trading Partners	Number of Jobs	Share of Total Jobs Supported by Imports
Canada	978,818	4.6%
Mexico	12,928	0.1
China	653,343	3.1
Japan	932,374	4.4
Korea	904,881	4.2
United Kingdom	1,280,334	6.0
European Union (27)	7,300,438	34.1
Other	9,346,670	43.6
Net Total	21,409,785	100.0

Source: Trade Partnership Worldwide LLC

Imports from key U.S. trading partners have a net positive impact on U.S. employment. [Table 2](#) shows that imports from the European Union and the United Kingdom support the most net jobs in the United States – 8.6 million, or 40 percent of the total. But importantly, a net positive number of U.S. jobs exist because of imports from China, Japan and Korea.

It is worth repeating, as noted above, that our estimates account for both jobs supported by imports as well as those lost to imports. Thus, for example, our analysis shows that, on balance, imports from China have a net positive impact on U.S. employment when one considers

### **U.S. Auto Employment and NAFTA**

Excerpts from Eduardo Porter, “NAFTA May Have Saved Many Autoworkers’ Jobs,” *New York Times*, March 2016.

“...[A]utoworkers’ animosity [toward NAFTA] is aiming at the wrong target. There are still more than 800,000 jobs in the American auto sector. And there is a good case to be made that without NAFTA, there might not be much left of Detroit at all. ‘Without the ability to move lower-wage jobs to Mexico we would have lost the whole industry,’ said Gordon Hanson of the University of California, San Diego, who has been studying the impact of NAFTA on industries and workers since its inception more than two decades ago...

“The truth is that autoworkers in Detroit were not just competing with cheap workers in Mexico. They were also competing with American workers in the union-averse South, where many car companies set up shop. They were competing with robots and more efficient Japanese and Korean automakers. Detroit responded by cutting as many costly factory jobs as it could. [It integrated]... production across countries with complementary labor forces — cheaper workers in Mexico to perform many basic tasks, with more highly paid and productive engineers and workers in the United States — turned out to play [a central role](#) in reviving the auto industry in North America.

“In the final analysis, NAFTA might have saved hundreds of thousands of jobs. By offering a low-wage platform, Mexican plants increased the scale of production in North America, allowing domestic and foreign automakers to amortize their large fixed costs. Carmakers and parts suppliers tend to cluster relatively close together. So assembly plants in Mexico help sustain a robust auto-parts industry across North America...

“This regional integration gave the United States-based auto industry a competitive edge that was critical to its survival. ‘There was a concern 20 years ago that an auto industry production chain would develop across Asia, including China and Taiwan and Southeast Asia,’ Professor Hanson said. ‘Maybe NAFTA saved us from that.’”

all the ways in which those imports interact throughout the economy. Nearly all other assessments of the employment impacts of imports from China do not consider these full effects, and thus they clearly leave out a lot of jobs.

### *Import-Related Jobs Are Spread Across the United States*

*Workers in every state owe their jobs to imports*

Import-related jobs are spread across the United States; every state has a net positive number of jobs that depend on imports (see [Table 3](#)). Not surprisingly, a number are concentrated in states along U.S. coasts or borders, which benefit from significant port trade and related warehousing and transportation services. The 10 states accounting for the largest number of import-related jobs in 2018 were California, Florida, Georgia, Illinois, New Jersey, New York, Ohio, Pennsylvania, Texas, and Virginia. Thus, the benefits of imports touch a wide variety of local economies.

**Table 3**  
**State Distribution of Import-Related Jobs, 2018**  
(Net Number and Percent)

	Number of Import- Related Jobs	Share of Total State Employment		Number of Import- Related Jobs	Share of Total State Employment
Alabama	284,482	10.6%	Montana	79,391	11.4%
Alaska	42,844	9.3	Nebraska	137,219	10.3
Arizona	424,864	11.0	Nevada	220,766	12.0
Arkansas	168,945	10.2	New Hampshire	97,662	10.9
California	2,471,411	10.2	New Jersey	586,178	10.5
Colorado	437,170	11.3	New Mexico	122,174	11.0
Connecticut	251,991	10.8	New York	1,401,900	11.0
Delaware	67,272	11.3	North Carolina	652,471	10.8
DC	100,414	11.0	North Dakota	58,369	10.0
Florida	1,453,048	11.7	Ohio	728,640	10.3
Georgia	676,906	10.8	Oklahoma	224,049	9.6
Hawaii	111,078	11.9	Oregon	264,147	10.2
Idaho	112,898	10.9	Pennsylvania	827,029	10.6
Illinois	805,738	10.1	Rhode Island	68,770	10.6
Indiana	383,018	9.7	South Carolina	308,673	10.9
Iowa	211,818	10.1	South Dakota	64,714	10.6
Kansas	186,632	9.6	Tennessee	436,232	10.6
Kentucky	256,780	10.1	Texas	1,879,262	10.7
Louisiana	320,259	11.7	Utah	224,808	10.9
Maine	89,871	10.6	Vermont	51,344	11.7
Maryland	445,930	11.9	Virginia	600,350	11.3
Massachusetts	526,292	10.8	Washington	504,722	11.1
Michigan	579,851	10.1	West Virginia	100,220	11.1
Minnesota	381,006	10.0	Wisconsin	371,148	9.9
Mississippi	169,222	10.5	Wyoming	41,719	10.3
Missouri	399,119	10.6	Net Total	21,409,785	10.7

Source: Trade Partnership Worldwide LLC

## Detroit Workers Depend on Imports

Import-related jobs are located in economically hard-hit areas of the country, like Detroit. The Port of Detroit, the largest seaport in the state of Michigan, employs 6,000 workers who process steel, aluminum, and other cargoes that support the manufacturing community in Southeast Michigan. Overall, the Detroit/Wayne Port Authority [estimates](#) that the port supports 14,824 jobs in the region and over \$1 million in personal income. The Bureau of Labor Statistics [reports](#) that workers providing water transportation support services in Wayne County made on average over \$54,000 annually. In 2018, Port workers handled \$137.4 million in imports, two-thirds from Canada. About half the value of total imports through the Port of Detroit in 2018 was raw materials or components used to manufacture other goods in the United States.

### *Import-Related Jobs Are Good Jobs<sup>3</sup>*

Jobs related to imports are the very kinds of so-called “good jobs” that critics of imports seek to maintain in the United States – high-paying jobs that enable workers with a high school education to live a “middle class” lifestyle, jobs held by union workers, jobs available to minorities and women.

#### *Wages*

Import-related jobs contribute significant value to the U.S.

economy. The mean annual wage of import-dependent jobs 2018

is estimated to equal \$51,000 (see [Table 4](#)). More than 14 million (net) import-dependent jobs paid annual wages within the Pew Research Center’s definition of the “middle class” in 2018<sup>4</sup> – two of every three net import-related jobs pay middle class wages. Actually, the share is much higher, given anomalies in the way the government collects employment and wage data today (see box, next page). The relatively lower average wages for consumer services and wholesale/retail workers are certainly much higher than the official data, reported in Table 4, suggest for all workers who consider themselves employed by firms in these sectors.

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#### *Import-related jobs pay good wages*

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<sup>3</sup> The analysis in this section assumes that the salary averages and the union, minority, women and small business shares of import-related jobs held by workers mirror those for each sector for the U.S. workforce generally. The shares for totals (“Services Producing,” “Goods Producing” and “Net Total”) in each table reflect the relative weight of the import-related jobs in each sector.

<sup>4</sup> Pew Research Center suggests that “middle-income households” are “those with an income that is two-thirds to double the U.S. median household income – had incomes ranging from about \$48,500 to \$145,500 in 2018.” See Pew Research Center, “Are you in the American middle class? Find out with our income calculator,” Factank, July 23, 2020, <https://www.pewresearch.org/fact-tank/2020/07/23/are-you-in-the-american-middle-class/>.



**Table 4**  
**American Jobs Supported by Imports, 2018**

Sector	Number of Jobs	Mean Annual Wage
<b>Services Producing</b>	<b>17,395,787</b>	<b>\$47,004</b>
Wholesale and retail trade	6,200,996	40,103
Business services	2,088,477	64,527
Consumer services (leisure, hospitality and other similar services)	1,559,165	28,514
Finance, insurance	622,676	73,170
Transportation & warehousing	104,488	48,960
Utilities	71,371	79,290
Other (e.g., education, health care, social assistance, government)	6,748,615	55,273
<b>Goods Producing</b>	<b>4,013,999</b>	<b>\$58,462</b>
Construction	5,909,411	55,290
Manufacturing	(1,154,445)	53,020
Agriculture, forestry, fisheries	(527,341)	32,300
Mining	(213,626)	64,710
<b>Net Total</b>	<b>21,409,785</b>	<b>51,001</b>

Source: Trade Partnership Worldwide LLC and Bureau of Labor Statistics, Occupational Employment and Wage Statistics, May 2018.

Manufacturing has long been considered a sector in which workers without college degrees can earn salaries that give their families a “ticket to the middle class.” This has certainly been true for many manufacturing jobs. What is also true is that such jobs exist as well in several of the sectors that have a net positive stake in importing. In 2018, for example, 46 percent of construction jobs required no formal education credentials or at best a high school diploma;

in finance and insurance, the share was 50 percent; in utilities, 59 percent. In all three of these sectors, the mean wage exceeds that of manufacturing.<sup>5</sup>

### Important Note about Employment and Wage Data

The average wage data for wholesale/retail and consumer services workers in Table 4 understates the actual averages for these sectors, perhaps by a lot, although it’s difficult to know the true value. Take retail employment and wages: As far as the Bureau of Labor Statistics is concerned, if you work for a retailer, but don’t work in a building where selling goods is the main activity, you don’t count as a retail employee. That means retail CEOs who work in headquarters buildings that are not also stores are not counted as retail employees; neither are accountants, marketers, HR, IT or any other employees. If your paycheck comes from a retailer but you work in warehousing, transportation, a call center or headquarters, you’re not categorized as a retail employee. This means that the official data for retail worker wages, shown in Table 4, is biased downward because it does not include the high wages of all these other workers. The same goes for restaurant worker wages as well as wages of workers at hotels, included in consumer services.

<sup>5</sup> Derived from Bureau of Labor Statistics Occupational Employment and Wage Statistics, “Typical entry-level educational requirement data sets,” May 2018, <https://www.bls.gov/oes/additional.htm>.

## Union Representation

*Millions of union jobs exist because of imports.*

Some of the most vocal critics of importing are American labor unions.

And yet, workers represented by unions hold many import-related jobs. Table 4 suggests that on

net, 2.5 million workers

represented by unions have jobs

thanks to imports – nearly 12

percent of U.S. jobs that exist

because of imports. Some sectors

with a large number of jobs that

exist because of imports have

higher union membership rates

than manufacturing: government

(37.2 percent, and included in

“Other” in Table 5),

transportation and warehousing

(17.9 percent), construction (13.8

percent) and utilities (20.5

percent), for example.

It is notable that sectors that are

relatively highly unionized – e.g., government, construction and utilities, as noted above, as well as education and health (9.3 percent) and information (10.3 percent) – and not thought to be directly impacted by trade in fact are because of the ripple effects of imports through the economy. The impacts from imports on these workers is positive. Thus, unions representing these workers have a positive stake trade policies that liberalize U.S. barriers to imports, and a negative stake in measures like tariffs that raise the costs of imports.

**Table 5**

### American Jobs Supported by Imports, 2018

Sector	Number of Jobs	Share of Sector Represented by Unions
<b>Services Producing</b>	<b>17,395,787</b>	<b>10.7%</b>
Wholesale and retail trade	6,200,996	5.0
Business services	2,088,477	3.7
Consumer services (leisure, hospitality and other similar services)	1,559,165	3.5
Finance, insurance	622,676	2.0
Transportation & warehousing	104,488	17.9
Utilities	71,371	20.5
Other (e.g., education, health care, social assistance, government)	6,748,615	20.2
<b>Goods Producing</b>	<b>4,013,999</b>	<b>16.9</b>
Construction	5,909,411	13.8
Manufacturing	(1,154,445)	9.7
Agriculture, forestry, fisheries	(527,341)	2.6
Mining	(213,626)	5.3
<b>Net Total</b>	<b>21,409,785</b>	<b>11.9</b>

Source: Trade Partnership Worldwide LLC and Bureau of Labor Statistics, Labor Force Statistics (CPS), “Table 3: Union affiliation of employed wage and salary workers by occupation and industry,” 2018.

## Minorities and Women

Imports provide employment opportunities for minorities and women (Table 6). Nearly 8 million of the jobs related to importing are held by minorities. Most of these jobs are in the sectors of the economy that benefit indirectly from imports: Services producing sectors employed 6.2 million minority workers in jobs that exist because of imports. Nearly 9.4 million women held these import-dependent services jobs in 2018. The sectors that benefit from spending enabled by imports provided the greatest number of jobs to women: consumer services and education and health care services. Also significant are high-paying jobs in business services.

<b>Table 6</b> <b>American Jobs Supported by Imports, 2018</b>			
<b>Sector</b>	<b>Number of Jobs</b>	<b>Share of Sector Jobs Held by Minorities*</b>	<b>Share of Sector Jobs Held by Women</b>
<b>Services Producing</b>	<b>17,395,787</b>	<b>35.7%</b>	<b>53.6%</b>
Wholesale and retail trade	6,200,996	35.5	44.7
Business services	2,088,477	34.3	41.1
Consumer services (leisure, hospitality and other similar services)	1,559,165	43.3	51.5
Finance, insurance	622,676	30.3	52.6
Transportation & warehousing	104,488	43.0	24.4
Utilities	71,371	**	**
Other (e.g., education, health care, social assistance, government)	6,748,615	35.0	66.9
<b>Goods Producing</b>	<b>4,013,999</b>	<b>41.9</b>	<b>2.0</b>
Construction	5,909,411	29.9	9.9
Manufacturing	(1,154,445)	38.9	29.2
Agriculture, forestry, fisheries	(527,341)	35.9	25.9
Mining	(213,626)	30.2	13.8
<b>Net Total</b>	<b>21,409,785</b>	<b>36.9</b>	<b>43.9</b>
<small>**Black or African American, Asian, Hispanic and Latino.  *** part of transportation/warehousing.  Source: Trade Partnership Worldwide LLC and Bureau of Labor Statistics, Labor Force Statistics (CPS), "Tables 17 and 18: Employed persons by industry, sex, race and occupation; Hispanic or Latino Ethnicity," 2018.</small>			

### Minority Workers Are Hurt by Tariffs

The U.S. construction industry employs more than 4 million minority workers or 39% of all the Americans working in the sector. Construction is widely seen as an entirely "U.S.-based" industry. While most activity happens state-side, construction depends on imports: imported lumber, aluminum fittings, steel products of all kinds. Just look at the impact raising the cost of those inputs with tariffs had. The U.S. Chamber of Commerce/USG Corporation Q2 2018 [Commercial Construction Index](#) found that 86 percent of respondents surveyed expected "moderate to severe impacts on their business in the next three years from recently imposed tariffs" on steel that had just been imposed. Tariff increases on softwood lumber imports also imposed substantial costs on the construction sector beginning in late 2017 and into the following year. These higher costs undoubtedly pumped the brakes on the sector's expansion and hiring of minority workers and others – in 2018 and beyond.

## *Small Businesses*

While it may be presumed that imports matter most to large companies, in fact it is small and medium-sized businesses (those employing fewer than 500 workers) and their employees who care the most about importing. In 2018, 96 percent of companies that reported they import were small or medium-sized businesses imported.<sup>6</sup> Overall, in 2014 (the latest year for which these data are [available](#) from the Small Business Administration), these firms accounted for 83 percent of total private U.S. employment. If that share of total employment applies equally to import-related

employment, small businesses employed 17.8 million of the 21 million workers who owe their jobs to imports.

## **Auto Care Industry Workers Depend on Imports**

The auto care industry, also commonly referred to as the automotive aftermarket, depends on global supply chains, including imports from overseas suppliers with which U.S. firms have worked to develop products that meet high standards of safety and quality. U.S. firms and workers in this industry rely on a network of suppliers to manufacture, remanufacture and distribute all vehicle replacement parts and products to service and repair 290 million cars and trucks on U.S. roads today. The U.S. auto care industry includes 538,000 businesses – nearly all (98 percent) of them small businesses (less than 100 employees) – that form a coast-to-coast network of independent manufacturers, distributors, retailers and repair shops. [According](#) to the Auto Care Association, more than 70 percent of the sector's total employment of 4.7 million work at these small firms. Notable as well: This is an industry that operates on global platforms with products being designed, manufactured, assembled and sold in multiple countries. Imported raw materials, semi-finished and finished goods support an industry that is a large employer of maintenance and repair technicians: jobs that pay middle class wages to workers, many with only a high school education. In 2018, 904,400 worked at general repair shops, vehicle dealerships and gasoline service stations earning on average \$18.42 per hour. When tariffs are imposed on imports, the impact often ripples back to these workers who, facing higher costs of importer parts, may see reduced demand for now more expensive repair services. Small businesses have less cushion to absorb such reductions in demand, and workers more often than not pay a price.

## **Consumer Technology and Imports**

The U.S. consumer technology industry – from startups to global brands – supports more than 18 million American jobs. The industry represents 175,327 high-tech startups in the U.S. and nearly 30 percent of all U.S. manufacturing exports. One such manufacturing business is AudioControl, a Pacific Northwest company that makes consumer electronic products for cars and homes. The company has manufacturing facilities in Washington state, with locations in Seattle and Spokane, employing 60 workers from the region. “We have an absolutely amazing and diverse workforce – equally split between women and men, with varying education levels and backgrounds, and approximately two-thirds of whom work in the manufacturing process,” said Alex Camara, chief executive of AudioControl. The company's employees are the lifeblood of this business, which sources over half of the component parts needed from the United States and imports the rest from global sources. “From my employees' perspective, we are a positive ‘Made in the USA’ story and the parts we import are transformed in the United States into entertainment products that are exported all over the world.” Like many small businesses in the consumer technology sector, American workers benefit from imports, particularly when the finished products are made in the U.S.

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<sup>6</sup> Derived from U.S. Census Bureau, “Profile of U.S. Importing and Exporting Companies, 2018-2019,” Table 1e, “2018 Imports by Company Type and Employment Size,” <https://www.census.gov/foreign-trade/Press-Release/edb/2019/index.html>.

### Imports and Job Losses

It is true that some American jobs are lost to competition from imports. What about these workers? Shouldn't their jobs be protected?

While the benefits of international trade are large, we should be candid about the fact that not everyone shares in these benefits. We should assess with clear eyes who suffers genuine harm due to competition from imports, and they should be helped.

But the answer to a worker losing their job at a typewriter factory is not to force the factory to keep making typewriters. Rather, it's to make sure that workers can move from a 20th century job to a 21st century job.

While it may seem to be the compassionate thing to do, hiding uncompetitive industries behind import barriers imposes costs on other workers and on consumers, particularly low-income consumers. Diverting resources — investment dollars, for example — into an otherwise uncompetitive industry comes at the expense of more competitive industries that could use those dollars to invest and create new jobs. Research shows protection stunts productivity in protected sectors and increases the costs of their products, as well as those imported products that manage to find their way into the U.S. marketplace or are used by manufacturers as inputs to domestic production.

The number of good import-related jobs that would be negatively affected if the United States were to erect barriers to imports must also be factored into the equation. Who is to say that these jobs are any less important to those who hold them than workers feeling competition from imports? Indeed, American workers did lose jobs when the United States imposed tariffs in 2018 on inputs from several U.S. trading partners that are used to make steel or aluminum products in the United States. Moody's Analytics estimated that the tariff war with China which started in 2018 likely cost the United States 900,000 jobs.

Instead, the United States should — and does — provide safety nets to assist workers who have lost a job due to imports to train for and transition to another job. The current import-focused program is called "Trade Adjustment Assistance" (TAA), and has been in effect since the early 1960s (it will partially expire June 30, 2021). It is a matter of debate whether TAA is up to the task, or even whether it is appropriate to have a program targeted at trade-related job losses rather than job losses generally, given that it may be unclear whether a job was lost due to imports or some other cause, such as technology. If TAA is renewed, its substance should recognize not only that some workers lose jobs to imports but that others lose jobs to protection from imports.

### III. U.S. Policy and Imports

Imports promote competition within the U.S. marketplace. This competition lowers prices and spurs U.S. innovation. Imports of raw materials and components help American farmers and manufacturers cut costs and improve productivity. Lower prices of the resulting finished products spur sales, both at home and abroad. Increased sales fuel U.S. employment opportunities (or, if the economy is at full employment, more hours of work and higher wages).

Now suppose that imports are restricted in some way. Some or all of the benefits of imports would begin to erode. Prices would rise, innovation would slow, and sales would decline, as would employment (or wages) in more competitive sectors. Significantly, exports would also decline: Because foreign customers earn income to buy U.S. goods and services by exporting their goods and services to the United States, any reduction in imports by extension reduces exports.

Proposed changes to U.S. trade programs or policies are typically offered in every session of Congress. Some would raise barriers to U.S. imports, directly with tariffs or indirectly, such as with legislation that changes trade remedy rules making antidumping or countervailing duty rates higher. Some would lower U.S. barriers to imports.

Because trade policies affect the role imports play in the U.S. economy, these changes would have employment impacts.

#### *Measures Before Congress*

Some legislative initiatives recently or currently before Congress that would impact import-related employment include:

- **Renewal of the U.S. Generalized System of Preferences program.**

The Generalized System of Preferences (GSP) program eliminates U.S. import tariffs on qualifying products from nearly 120 developing countries. First authorized in 1974, GSP is the oldest U.S. preference program. GSP covers approximately 3,400 non-sensitive imported products, with imports from least-developed GSP beneficiaries receiving duty-treatment for about 1,400 more tariff lines. “Sensitive” products excluded from GSP include textiles, apparel, certain watches, steel, agricultural, and glass products. GSP eliminated nearly \$900 million in tariffs on over \$16 billion in imports in 2020 but expired December 31, 2020. One estimate of the U.S. employment impact of GSP [found](#) that nearly 82,000 jobs were linked to the program in 2005. Congress is in the process of developing GSP reauthorization legislation, which could include changes that both increase and decrease benefits available. These changes could impact import-related American jobs.

- **Passage of a “Miscellaneous Tariff Bill.”**

Miscellaneous tariff bills (MTBs) provide for the temporary reduction or suspension of U.S. import tariffs on certain imports. Typically, each duty reduction or suspension should be “noncontroversial,” i.e., there is no competing domestic production of the imported product subject to the tariff or, if there is, the U.S. producers(s) do not object. In addition, the forgone tariff revenue for each imported product cannot exceed \$500,000 annually. The last MTB, the Miscellaneous Tariff Bill Act of 2018, covered more than 3,000 products but expired December 31, 2020. In its [assessment](#) of the economic impact of the 2018 MTB, the U.S. International Trade Commission concluded that U.S. employment expanded as a result of the duty suspensions (the ITC did not quantify the number of jobs benefiting from these duty-free imports). Congress is in the process of reviewing the products recommended by the ITC to include in new MTB legislation.

### **Chemical Industry Workers Depend on Imports**

U.S. chemical producers and their workers – over half of which are small to medium-sized companies (SMEs) – are the largest users of duty suspensions available in the Miscellaneous Tariff Bill (MTB). The U.S. International Trade Commission (ITC) found, in its [assessment](#) of the 2018 program, that chemical firms accounted for nearly two-thirds of products imported under the MTB. Most of these imports were intermediate chemicals used to produce final products in the United States, including paints, pesticides, pharmaceuticals, personal care products and other downstream chemicals, and still other products like textiles. Firms use the lower-cost imports to maintain or increase the competitiveness of U.S. manufacturers and to encourage further investment in U.S. manufacturing and product development. The cost savings is particularly valuable to SMEs because the savings represent a larger share of the company’s business. Firms surveyed by the ITC reported that duty-savings for chemicals imports increased employment and wages at their firms, and those employment and wage increases extended as well to their customers.



- Changes to U.S. trade remedy laws.

Members of Congress routinely introduce legislation that would modify U.S. trade remedy laws, principally U.S. antidumping and countervailing duty statutes, typically making it more likely that such duties would be imposed on imports of affected products. Recent years also saw bills that would change the Sections 201, 232 and 301 statutes, in some cases restricting the President's authority to impose tariffs on imports using these statutes.<sup>7</sup> Changes that make it easier to impose new tariffs on imports of selected products from selected countries (or even specific foreign manufacturers) would have a negative impact on import-related jobs; changes that make it harder to impose duties on imports would preserve those jobs.

### *Measures Before the Administration*

The Biden administration has before it several trade policy decisions that would have impacts on import-related employment:

- Continuation of tariffs and other barriers to U.S. imports.

Since 2018 there have been new tariffs and quotas (and sometimes tariff-rate quotas) imposed on imports from a number of U.S. trading partners in response to Section 201, 232 and 301 investigations launched by the Trump administration, affecting thousands of different products imported from all countries except for a few (Australia, Canada, Korea and Mexico). Nearly all of those tariffs remain in effect and the Biden administration is in a position to terminate them – or not. In some instances, the Biden administration has proposed adding new tariffs to those imposed by the Trump administration. Pending are possible additional tariffs imposed under Section 301 investigations involving Vietnam (currency and timber) and Austria, India, Italy, Spain, Turkey and the United Kingdom (digital services taxes).

Economists from the Federal Reserve Board [estimated](#) that the tariffs imposed by President Trump had a net negative impact on U.S. employment – and had no positive impact on the U.S. manufacturers that produced goods that competed with the tariffed imports. The tariffs likely cut manufacturing employment by 0.6 percent, or by 769,000 based on 2019 levels. Keeping these tariffs in effect maintains that employment loss; new tariffs on new imports would simply

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<sup>7</sup> A summary of legislation introduced in the 116<sup>th</sup> Congress that would amend some of these tariff authorities can be found in Table 11 of Congressional Research Service, "Trump Administration Tariff Actions: Frequently Asked Questions," Updated December 15, 2020, [R45529](#).

expand it.

- Negotiation of new trade agreements.

Trade agreements – be they bilateral, regional or multilateral – have the potential to expand U.S. employment. Because some goods cross multiple borders as they make their way through global supply chains, the costs of tariffs and other barriers get magnified each time goods move from one country to another. U.S. duties are not the only tariff cost added to imported products; tariffs imposed by other countries on cross-border trade between them in parts and components also find their way into the costs of products ultimately imported into the United States. Goods that are produced by several countries in a global supply chain can be burdened by a good deal of trade costs by the time finished products enter the United States.<sup>8</sup>

Trade agreements that eliminate tariffs on intermediate goods used in global supply chains would thus be highly beneficial to American producers and consumers, expanding jobs as trade increases. In its last assessment of U.S. trade agreements, the ITC [found](#) that the Uruguay Round agreements plus 15 bilateral and regional trade agreements in effect in 2012 together had a net positive impact on U.S. employment of nearly 160,000 workers.

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<sup>8</sup> See, for example, Michael J. Farrentino, “Using Supply Chain Analysis to Examine the Costs of Non-Tariff Measures (NTMs) and the Benefits of Trade Facilitation,” U.S. International Trade Commission, Office of Economics Working Paper, No. 2012-01A, January 2012.

## IV. Conclusions

Imports benefit the U.S. economy in a number of ways. It is widely accepted that imports provide consumers of all income brackets with a greater variety of goods at lower prices. Imports encourage manufacturers to constantly improve quality and innovate while providing them with needed inputs at lower prices.

It is less widely known that imports create millions of high-wage jobs for U.S. workers — good jobs that often pay above average wages. Although some jobs are lost to import competition (and, more significantly, technological advancement), millions of Americans owe their jobs to imports.

These Americans must be considered fully in the policy calculus going forward. Trade policy initiatives have the potential to impact a large number of American workers, many of whom are typically not thought to be affected by those policies because they work in sectors that are indirectly affected by trade.

## Appendix

### Methodology for Estimating Employment Effects of Imports

We applied a multi-sector multi-country computable general equilibrium (CGE) model of the U.S. economy to estimate the impacts of trade on U.S. employment. CGE models use regional and national input-output, employment and trade data to link industries in a value-added chain from primary goods to intermediate processing to the final assembly of goods and services for consumption. Inter-sectoral linkages may be direct, like the input of steel in the production of transport equipment, or indirect, via intermediate use in other sectors (e.g., energy used to make steel that is used in turn in the transport equipment sector). Our CGE model captures these linkages by incorporating firms' use of direct and intermediate inputs. The most important aspects of the model can be summarized as follows: (i) it covers all world trade and production; and (ii) it includes intermediate linkages between sectors within each country.

#### *The Model*

The specific model used was the Global Trade Analysis Project (GTAP) model, with the most recent GTAP database, GTAP v10.1, released December 2020. The structure of the v10 database is outlined by Aguiar et al (2019). 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, and U.S. International Trade Commission, European Commission), international institutions (e.g., the Asian Development Bank, Organization for Economic Cooperation and Development, the World Bank, 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.<sup>9</sup>

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<sup>9</sup> 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.

Products from different regions are assumed to be imperfect substitutes in accordance with the so-called “Armington” assumption. Armington elasticities are taken directly from the GTAP v. 10 database, as are substitution elasticities for value added.<sup>10</sup>

We are interested in the impact of trade on the U.S. and state economies given the U.S. wage structures in 2018 (i.e., given the prevailing wage structure of the labor force in a given year, how many jobs in the U.S. economy and in each state’s economy were linked either directly or indirectly to trade?). As such, the model employs a labor market closure (equilibrium conditions) where wages are fixed at prevailing levels, and employment levels are forced to adjust. This provides a model-generated estimate of the U.S. jobs supported, at current wage levels, by the 2017 level of trade.

## *Data*

The model incorporates data from a number of 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. We have updated the trade and national accounts data to 2018.

For the 2018 simulation, social accounting data are drawn directly from the most recent version of the GTAP dataset, version 10.1 (released December 2020). Trade data (both exports and imports) exclude re-exports.<sup>11</sup> This dataset is benchmarked to 2014 and includes detailed national input-output, trade, and final demand structures for 140 countries across 56 sectors (see Table A-1).

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 10.1 database. For the purposes of the modeling exercise, the aggregation of the GTAP database includes 10 regions and 34 sectors.<sup>12</sup>

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<sup>10</sup> Technically trade demand equation in the GTAP model is quite general, with the non-nested version corresponding analytically to a recent type of model known as an Eaton-Kortum model. See Bekkers et al (2018) for further technical discussion and derivations.

<sup>11</sup> See <https://www.gtap.agecon.purdue.edu/databases/contribute/reexports.asp>.

<sup>12</sup> 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.

The GTAP model sectors were concorded to state-level employment data from the Commerce Department's Bureau of Economic Analysis (BEA). This allowed us to map nationwide effects to individual states. ***It is important to emphasize that we distribute the employment impacts of trade at the national level to employment at the state level. We are therefore reporting state-level employment related to trade nationally. We are not reporting the state level employment impacts of state-level trade.***

Based on the availability of employment data as well as the size of some of the sectors, some sectors were combined into one sector (e.g., individual food products into one sector, "Food Products," or individual transportation modes into one sector, "Transportation"). BEA does not disclose state-level employment data for certain sectors for confidentiality reasons. For some of these sectors, we were able to use Moody's Analytics state-level employment estimates to estimate the missing national employment to undisclosed sectors in these states. However, because we mixed employment data from two sources (BEA and Moody's), the sum of the employment effects for the states may not add perfectly to the total for the United States.

For purposes of the modeling exercise here, the 147 countries/regions in the standard GTAP database were placed in 10 distinct groupings of countries (the U.S. and nine trading partners) for the purpose of examining the impact of U.S. trade with those countries: Canada, Mexico, China, Japan, Korea, the United Kingdom, the European Union (excluding the UK), India, Brazil, and rest-of-world. We also aggregated the standard GTAP model sectors into those shown in Table A-1.

**Table A-1: Model Sectors**

Primary agriculture	Other transport equipment
Forestry	Electronic equipment
Fishing	Other machinery
Mining	Other goods
Oil and gas	Utilities
Processed Foods	Construction
Beverages and tobacco	Trade and distribution (Wholesale, retail, accommodation and food services)
Textiles	Air transport
Clothing	Water transport
Footwear, leather	Other transport
Wood, paper	Communications (Information, postal, delivery services)
Paper products, publishing	Financial services
Petroleum and coal products	Insurance
Chemicals, rubber, plastics	Business and professional services
Non-metallic mineral products	Personal and recreational services (Arts, entertainment, and recreation services)
Primary metals	Other services (Education, health care, social assistance, government services)
Metal products	
Mineral products	
Motor vehicles and parts	

## *Model-based Simulations*

The simulation conducted with our GTAP-based CGE model involves imposing changes in U.S. trade, in this instance a hypothetical elimination of all U.S. imports of goods and services by imposing prohibitive trade costs against goods and services imports with the United States.<sup>13</sup>

Our results tell us how much U.S. and state output and employment would decline were the United States to cease importing goods and services, tracing changes at the border as they work through the U.S. economy. The net negative (or positive, in some cases) impacts on output and jobs from an absence of imports serve as a proxy for the opposite: the net positive (or negative) impacts on U.S. output and employment *because* of imports.

We report the results from this second perspective in this paper.

## *References*

Aguilar, 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., & Rojas-Romagosa, H. (2018). Melting ice caps and the economic impact of opening the Northern Sea Route. *The Economic Journal*, 128(610), 1095-1127.

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.

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.

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<sup>13</sup> We have modeled an extreme shock to the economy to show the extent to which sectors of the economy are tied to trade. We are not suggesting that prohibitive trade costs or tariffs are a serious policy option. Rather, the present approach provides a more generalized estimate of import linkages to US production and employment, when compared to strict input-output accounting.