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Growing China trade deficit cost 3.7 million American jobs between 2001 and 2018

Jobs lost in every U.S. state and congressional district

Report • By Robert E. Scott and Zane Mokhiber • January 30, 2020

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Summary and key findings

The United States has a massive trade deficit with China. The growth of the U.S. annual trade deficit with China, which has increased by more than $150 billion since the beginning of the Great Recession, is a significant reason why manufacturing employment has not fully recovered along with the rest of the economy. And the growing trade deficit with China isn't just a post-recession phenomenon hitting manufacturing: it has cost the U.S. millions of jobs throughout the economy since China entered the World Trade Organization (WTO) in 2001, a finding validated by numerous studies.

This report underscores the ongoing trade and jobs crisis by updating EPI's research series on the jobs impact of the U.S.–China trade deficit. The most recent of these reports (Kimball and Scott 2014; Scott 2017a; and Scott and Mokhiber 2018) look at the effect of the U.S. trade deficit with China since China entered the WTO in 2001. Our model examines the job impacts of trade by subtracting the job opportunities lost to imports from those gained through exports. As with our previous analyses, we find that because imports from China have soared while exports to China have increased much less, the United States is both losing jobs in manufacturing (in electronics and high tech, apparel, textiles, and a range of heavier durable goods industries) and missing opportunities to add jobs in manufacturing (in exporting industries such as transportation equipment, agricultural products, computer and electronic parts, chemicals, machinery, and food and beverages).

The growing trade deficit with China since China entered the WTO affects different regions in different ways. Some regions are devastated by layoffs and factory closings while others are surviving but not growing the way they could be if new factories were opening and existing plants were hiring more workers. This slowdown in manufacturing job generation is also contributing to stagnating wages of typical workers and widening income inequality.

Following are the key highlights of this report:

SECTIONS

U.S. jobs lost are spread throughout the country but are concentrated in manufacturing, including in industries in which the United States has traditionally held a competitive advantage.

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- **The growth of the U.S. trade deficit with China between 2001 and 2018 was responsible for the loss of 3.7 million U.S. jobs,** including 1.7 million jobs lost since 2008 (the first full year of the Great Recession, which technically began at the end of 2007). Three-fourths (75.4%) of the jobs lost between 2001 and 2018 were in manufacturing (2.8 million manufacturing jobs lost due to the growth in the trade deficit with China).
- **Trade deficits with China and resulting jobs losses continued to grow during the first two years of the Trump administration**—despite the administration's heated rhetoric and imposition of tariffs. The U.S. trade deficit with China rose from $347 billion in 2016 to $420 billion in 2018, an increase of 21.0%. U.S. jobs displaced by China trade deficits increased from nearly 3.0 million in 2016 to 3.7 million in 2018,—a total of more than 700,000 jobs lost or displaced in the first two years of the Trump administration.
- **The growing trade deficit with China has cost jobs in all 50 states and in every congressional district in the United States.** The 10 hardest-hit states, when looking at job loss as a share of total state employment, were New Hampshire, Oregon, California, North Carolina, Minnesota, Massachusetts, Wisconsin, Vermont, and Indiana, and Idaho. Job losses in these states ranged from 2.82% (in Idaho) to 3.66% (in New Hampshire) of total state employment. The five hardest-hit states based on total jobs lost were California (654,100 jobs lost), Texas (334,800), New York (185,100), Illinois (162,400), and Florida (150,700).
- **The trade deficit in the computer and electronic parts industry grew the most, and that is reflected in job losses:** 1,340,600 jobs were lost in that industry, accounting for 36.2% of the 2001–2018 total jobs lost. Not surprisingly, the hardest-hit congressional districts (those ranking in the top 20 districts in terms of jobs lost as a share of all jobs in the district) included districts in California, Massachusetts, Minnesota, Oregon, and Texas, where jobs in that industry are concentrated. One district in Georgia and two others in North Carolina were also especially hard hit by trade-related job displacement in a variety of manufacturing industries, including computer and electronic parts, textiles and apparel, and furniture.
- **Surging imports of steel, aluminum, and other capital-intensive products threaten hundreds of thousands of jobs** in key industries such as primary metals, machinery, and fabricated metal products as well. These three sectors, alone, have already lost 372,700 jobs due to growing trade deficits with China between 2001 and 2018.
- **Global trade in advanced technology products—often discussed as a source of comparative advantage for the United States—is instead dominated by China.** This broad category of high-end technology products includes the more advanced elements of the computer and electronic parts industry as well as other sectors such as biotechnology, life sciences, aerospace, and nuclear technology. In 2018, the United States had a $134.6 billion trade deficit in advanced technology products with

China, and this deficit was responsible for 32.1% of the total U.S.–China goods trade deficit that year. In contrast, the United States had a $6.5 billion trade surplus in advanced technology products with the rest of the world in 2018. The U.S. balance of trade in advanced technology products declined by $132.7 billion between 2001 and 2018.

- **China is exporting goods to the U.S. through other countries.** Although the bilateral trade deficit with China has declined in 2019 (through November), the overall U.S. trade deficit in non-oil goods, which is dominated by trade in manufactured and farm products, has continued to increase, as has China's overall balance of trade with the rest of the world, suggesting that trade diversion (Chinese goods, and parts and materials being used in products, that the U.S. imports from other countries) has grown in importance. This is an important topic for future research.

Growing trade deficits are also associated with wage losses not just for manufacturing workers but for all workers economywide who don't have a college degree.

- **Between 2001 and 2011 alone, growing trade deficits with China reduced the incomes of directly impacted workers by $37 billion per year,** and in 2011 alone, growing competition with imports from China and other low wage-countries reduced the wages of all U.S. non–college graduates by a total of $180 billion. Most of that income was redistributed to corporations in the form of higher profits and to workers with college degrees at the very top of the income distribution through higher wages.

The U.S. trade deficit with China has increased since China entered into the WTO

U.S. proponents of admitting China into the World Trade Organization frequently claimed that letting China into the WTO would increase U.S. exports, shrink the U.S. trade deficit with China, and create jobs in the United States.[1] In 2000, President Bill Clinton claimed that the agreement then being negotiated to allow China into the WTO would create "a win-win result for both countries." Exports to China "now support hundreds of thousands of American jobs," said Clinton, and these figures "can grow substantially with the new access to the Chinese market the WTO agreement creates" (Clinton 2000, 9–10).

China's entry into the WTO in 2001 was supposed to bring it into compliance with an enforceable, rules-based regime that would require China to open its markets to imports from the United States and other nations by reducing Chinese tariffs and addressing nontariff barriers to trade. Promoters of liberalized U.S.–China trade argued that the United States would benefit because of increased exports to a large and growing consumer market in China. The United States also negotiated a series of temporary special safeguard measures designed to limit the disruptive effects of surging imports from China on domestic producers.

However, China's trade-distorting practices, aided by China's currency manipulation and misalignment and its suppression of wages and labor rights, resulted in a flood of dumped and subsidized imports that greatly exceeded the growth of U.S. exports to China. These trade-distorting practices included extending large subsidies to industries such as steel, glass, paper, concrete, and renewable energy industries and rapidly growing its state-owned enterprises, both of which generated a massive buildup of excess capacity in a range of these sectors. This excess capacity created a supply of goods far exceeding Chinese consumer demand, and China dealt with the oversupply by dumping the exports elsewhere, primarily in the United States (Scott 2017a, Scott and Mokhiber 2018).

The promised surge of U.S. exports to China was also hampered by China's failure to implement certain policies to increase domestic demand for goods, including goods produced by trading partners. Specifically, for China to become a better market for U.S. exports, it needed to stimulate the growth of domestic consumption through policies that would allow workers to organize and bargain collectively, thus raising wages. China also needed to increase domestic consumption through increased social spending and reductions to the country's massive savings rate (Scott 2017a). Such policies are all elements of a program of domestic, demand-led growth that the United States, other advanced countries, and international agencies have called on China to implement for many years. But none of these policies have been implemented at anywhere near a large enough scale, and China's national savings rate has actually increased significantly over the past 15 years (Setser 2016; IMF 2019), which has contributed to the growth of U.S. trade deficits (Bernstein 2016).

In addition, China's policies spurred foreign direct investment (FDI) in Chinese enterprises and the outsourcing of U.S. manufacturing plants, which has expanded China's manufacturing sector at the expense of the U. S. manufacturing sector, thereby affecting the trade balance between the two countries. Finally, the core of the WTO agreement failed to include any protections to maintain or improve labor or environmental standards or to prohibit currency manipulation. (The descriptions in this paragraph derive from Scott 2017a.)

As a result of these forces, the U.S. trade deficit with China soared after China entered the WTO.

Table 1 displays changes in the U.S.–China goods trade deficit and job displacement from 2001 to 2018 (when the term "trade deficit" is used in this report, it always refers to the goods trade deficit). As the table shows, imports from China increased dramatically in this period, rising from $102.3 billion in 2001 to $539.2 billion in 2018.[2] U.S. exports to China rose at a rapid rate from 2001 to 2018, but from a much smaller base, from $19.2 billion in 2001 to $120.1 billion in 2018. As a result, China's exports to the United States in 2018 ("U.S. general imports") were more than four times greater than U.S. exports to China. These trade figures make the China trade relationship the United States' most imbalanced trade relationship by far (authors' analysis of USITC 2019).

Overall, the U.S. goods trade deficit with China grew from $83.0 billion in 2001 to $419.5 billion in 2018, an increase of $336.5 billion. Put another way, since China entered the

Table 1

U.S.–China goods trade and job displacement, 2001–2018

	2001	2008	2018	Change ($billions) 2001–2018	Change ($billions) 2008–2018	Percent change 2001–2018	Percent change 2008–2018
U.S. goods trade with China ($billions, nominal)							
U.S. total exports*	$19.2	$71.5	$120.1	$100.9	$48.7	524.6%	68.1%
U.S. general imports	$102.3	$337.8	$539.7	$437.4	$201.9	427.6%	59.8%
U.S. trade balance	-$83.0	-$266.3	-$419.5	-$336.5	-$153.2	405.2%	57.5%
Average annual change in the trade balance				-$19.8	-$15.3	10.0%	
				Change (thousands of jobs)		**Percent change**	
U.S. trade-related jobs supported and displaced (thousands of jobs)							
U.S. total exports—jobs supported	175.8	561.9	885.9	710.1	324.0	403.9%	57.7%
U.S. general imports—jobs displaced	1,132.5	3,548.9	5,547.2	4,414.8	1,998.4	389.8%	56.3%
U.S. trade deficit—net jobs displaced	956.7	2,987.0	4,661.4	3,704.7	1,674.3	387.3%	56.1%
Average annual change in net jobs displaced				217.9	167.4	9.8%	

* Total exports as reported by the U.S. International Trade Commission include re-exports. The employment estimates shown here are based on total exports. See note 2 for additional details

Source: Authors' analysis of American Community Survey (ACS) data (U.S. Census Bureau 2019a and 2020a), USITC 2019, and Bureau of Labor Statistics Employment Projections program 2019a and 2019b. For a more detailed explanation of data sources and computations, see the appendix.

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WTO in 2001, the U.S. trade deficit with China has increased annually by $19.8 billion, or 10.0%, on average.[3] Although not shown in the table, we can also examine the trade deficit in another way—not by how much it grew annually, but by adding up what the total deficit was each year to produce a cumulative figure. The data reveal that the cumulative U.S. trade deficit with China over the 2002–2018 (post-WTO) era was $4.7 trillion (USITC 2019 and authors' calculations).

Between 2008 and 2018, the U.S. goods trade deficit with China increased $153.2 billion.

This 57.5% increase occurred despite the Great Recession–induced collapse in world trade between 2008 and 2009 and the 17.7% decline in the U.S. trade deficit with the rest of the world between 2008 and 2018. As a result, China's share of the overall U.S. goods trade deficit increased from 31.6% in 2008 to 47.2% in 2018. (The figures in this paragraph derive from the authors' analysis of USITC 2019 and U.S. Census Bureau 2019d.)

Although the bilateral trade deficit with China declined in 2019 (through November), the overall U.S. trade deficit in non-oil goods, which is dominated by trade in manufactured and farm products, has continued to increase (U.S. Census Bureau 2020c), as has China's overall balance of trade with the rest of the world (Setser 2019), suggesting that trade diversion—Chinese goods, and parts and materials being used in products, that the U.S. imports from other countries—has grown in importance. This is an important topic for future research.

The growing trade deficit with China has led to U.S. job losses

Each $1 billion in exports to another country from the United States supports some American jobs. However, each $1 billion in imports from another country leads to job loss—by eliminating existing jobs and preventing new job creation—as imports displace goods that otherwise would have been made in the United States by domestic workers.[4] The net employment effect of trade depends on the changes in the trade balance. An improving trade balance can support job creation, but a growing trade deficit usually results in growing net U.S. job displacement.

The model used in this report (described in the box below, and Methodology Appendix) estimates the amount of labor (number of jobs) required to produce a given volume of exports and the labor displaced when a given volume of imports is substituted for domestic output. The difference between these two numbers is essentially the jobs displaced by the growing trade deficit, holding all else equal.

The net change in the U.S.–China trade balance between 2001 and 2018 also reflects the effect of trade in intermediate products between the two countries on net trade flows and job losses (intermediate products are parts and materials used to assemble final products). This is what has occurred with China since it entered the WTO; the United States' widening trade deficit with China has been costing U.S. jobs. While some imports of parts and components from China have gone into the production of final goods, some of which have then been exported to China and the rest of the world, the overall U.S. trade deficit in manufactured products with China and with the world as a whole has grown substantially since China entered the WTO.

This paper describes the net effect of the growing U.S.–China goods trade deficit (hereafter referred to as the U.S.–China trade deficit) on employment as jobs "lost or displaced," with the terms "lost" and "displaced" used interchangeably.[5] The employment impacts of the growing U.S. trade deficit with China are estimated in this paper using an

input-output model that estimates the direct and indirect labor requirements of producing output in a given domestic industry. The model includes 205 U.S. industries, 76 of which are in the manufacturing sector (see the box titled **"Trade and employment models,"** as well as the appendix, for details on model structure and data sources). The Bureau of Labor Statistics Employment Projections program (BLS-EP) revised and updated its labor requirements model and related data in October 2019 (BLS-EP 2019a, 2019b). Our models have been revised and updated for this report using the latest available data.[6]

We have also updated all Census data used to allocated jobs by industry and congressional district, as described in the Methodology Appendix. The new estimates reflect the congressional districts in effect for the 115th Congress (which met between January 3, 2017 and January 3, 2019).

Trade and employment models

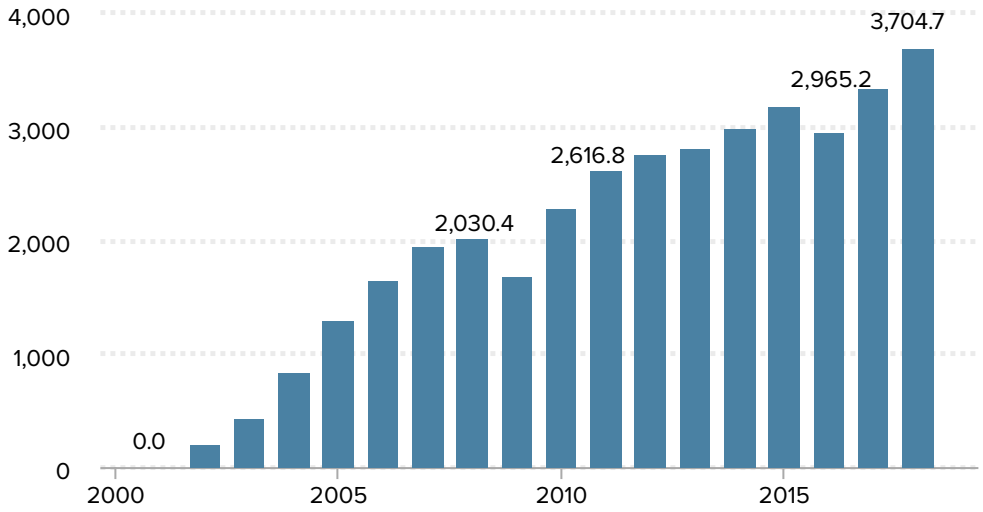
The Economic Policy Institute and other research entities have examined the job impacts of trade in recent years by subtracting the job opportunities lost to imports from those gained through exports. That general approach is used in this report. Specifically, this report uses standard input-output models and data to estimate the jobs displaced by trade. Many economists in the public and private sectors have used this type of all-but-identical methodology to estimate jobs gained or displaced by trade, including Groshen, Hobijn, and McConnell 2005 of the Federal Reserve Bank of New York and Bailey and Lawrence 2004 in the *Brookings Papers on Economic Activity.* The U.S. Department of Commerce has published estimates of the jobs supported by U.S. exports (Tschetter 2010). That study uses input-output and "employment requirements" tables from the Bureau of Labor Statistics Employment Projections program (earlier editions of BLS-EP 2019a), the same source used to develop job displacement estimates in this report. The Tschetter report represents the work of a panel of experts from 20 federal agencies.[7]

Jobs displaced by the United States' growing trade deficit with China are a net drain on employment in trade-related industries, especially those in manufacturing. Even if increases in demand in other sectors absorb all the workers displaced by trade (which is unlikely), job quality will likely suffer because many nontraded industries such as retail trade and home health care pay lower wages and have less comprehensive benefits than traded-goods industries (Scott 2013, Scott and Mokhiber 2018).

As shown in the bottom panel of Table 1, U.S. exports to China in 2001 supported 175,800 jobs, but U.S. imports displaced production that would have supported 1,132,500 jobs. Therefore, the $83.0 billion trade deficit in 2001 displaced 956,700 jobs in that year. Net job displacement rose to 2,987,000 jobs in 2008 and 4,661,400 jobs in 2018. As a result, since China's entry into the WTO in 2001 and through 2018, the increase in the U.S.–China trade deficit eliminated or displaced 3,704,700 U.S. jobs. Also shown in Table 1, the U.S. trade deficit with China increased by $153.2 billion (or 57.5%) between 2008 and 2018. During that period, the number of jobs displaced increased by 1,674,300 (or 56.1%).

Figure A

U.S. jobs displaced by the growing goods trade deficit with China since 2001 (in thousands of jobs)



Source: Authors' analysis of USITC 2019, and Bureau of Labor Statistics Employment Projections program 2019a and 2019b. For a more detailed explanation of data sources and computations, see the appendix.

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For comparative purposes, the growth of the U.S.–China trade deficit between 2001 and 2018 represents a direct loss of 1.6% of U.S. GDP in 2018 (authors' analysis of BEA 2019). Using a macroeconomic model with standard economic multipliers (see Appendix: Methodology in Scott and Glass 2016 for further details) yields an estimate of 3.4 million jobs displaced by a trade deficit of this magnitude, providing further support for the job displacement estimates shown in Table 1.[8]

Total jobs lost or displaced between 2008 and 2018 alone increased by 1,674,300 either by the elimination of existing jobs or by the prevention of new job creation through the displacement of domestic production by imports.

The total number of jobs displaced by the growing U.S.–China trade deficit, as estimated here, is thus directly proportional to the size of the total bilateral deficit, which has increased steadily throughout the 2001–2018 period, except for a sharp decline in the recession year of 2009 and a much smaller drop in 2016. **Figure A** shows visually how rising trade deficits have displaced a growing number of jobs every year since China joined the WTO, with the exception of 2009 (during the Great Recession) and 2016 (during a brief lull in imports from China). On average, 232,000 jobs per year have been lost or displaced since China's entry into the WTO (as shown in Table 1, last row, and data column four).

Trade deficits with China and the resulting jobs losses continued to grow during the first two years of the Trump administration—despite the administration's heated rhetoric and imposition of tariffs. The U.S. trade deficit with China rose from $347 billion in 2016 to $420 billion in 2018, an increase of 21.0%. U.S. jobs displaced by trade deficits with China

increased from nearly 3.0 million in 2016 to 3.7 million in 2018, resulting in more than 700,000 jobs lost or displaced in the first two years of the Trump administration, as shown in Figure A (Scott 2020).

The continuing growth of job displacement between 2008 and 2018 slightly outpaced the increase in the bilateral trade deficit in this period because of the relatively rapid growth of U.S. imports of computer and electronic parts from China, discussed below, and the fact that the price index for most of these products fell continuously throughout the study period. The share of U.S. imports from China accounted for by computer and electronic parts (in current, nominal dollars) increased from 32.0% in 2008 to 34.5% in 2018 (according to the authors' analysis of USITC 2019).

Unfortunately, growing job losses due to outsourcing and growing trade deficits with China are only part of the story.

Next we turn to analysis of direct China trade and job loss in more detail.

The trade deficit and job losses, by industry

The composition of imports from China is changing in fundamental ways, with significant, negative implications for certain kinds of high-skill, high-wage jobs once thought to be the hallmark of the U.S. economy. Since it entered the WTO in 2001, China has moved rapidly "upscale," from low-tech, low-skill, labor-intensive industries such as apparel, footwear, and basic electronics to more capital- and skills-intensive industries such as computers, electrical machinery, and motor vehicle parts. It has developed a rapidly growing trade surplus in these specific industries and in high-technology products in general.

Table 2 provides a snapshot of the changes in U.S.–China goods trade flows between 2001 and 2018, by industry, for imports, exports, and the trade balance. The rapid growth of the bilateral trade deficit in computer and electronic parts (including computer and peripheral equipment, semiconductors, and audio and video equipment) accounted for 44.3% of the $336.5 billion increase in the U.S. trade deficit with China between 2001 and 2018. In 2018, the total U.S. trade deficit with China was $419.5 billion—$168.2 billion of which was in computer and electronic parts (trade flows by industry in 2001 and 2018 are shown in **Supplemental Table 1**, available at the end of this document).

As evident in the increasing trade deficit and also shown in Table 2, imports from China far exceeded exports to China between 2001 and 2018. Table 2 further shows that the growth in manufactured goods imports explained virtually all (99.4%) of total growth in imports from China between 2001 and 2018 and included a wide array of products. Computer and electronic parts were responsible for 37.0% of the growth in imports in this period, including computer equipment ($51.6 billion, or 11.8% of the overall growth in imports) and communications, audio, and video equipment ($81.7 billion, or 18.7%). Other major importing sectors included electrical equipment ($41.0 billion, or 9.4%), machinery ($34.2

Table 2

Change in U.S. goods trade with China, by industry, 2001–2018

Industry*	U.S. imports		U.S. exports		Trade balance	
	Change ($billions, nominal)	Share of total change	Change ($billions, nominal)	Share of total change	Change ($billions, nominal)	Share of total change
Total change	437.4	100.0%	100.9	100.0%	-336.5	100.0%
Agriculture, forestry, fishing, and hunting	2.4	0.6%	7.0	6.9%	4.6	-1.4%
Mining	-0.1	0.0%	8.3	8.3%	8.4	-2.5%
Oil and gas	-0.1	0.0%	7.1	7.0%	7.2	-2.1%
Minerals and ores	0.1	0.0%	1.3	1.3%	1.2	-0.4%
Manufacturing	434.8	99.4%	82.6	81.8%	-352.2	104.7%
Nondurable goods	88.9	20.3%	21.8	21.6%	-67.2	20.0%
Food and kindred products	3.6	0.8%	2.2	2.2%	-1.4	0.4%
Beverage and tobacco products	0.1	0.0%	0.1	0.1%	0.0	0.0%
Textile mills and textile product mills	13.1	3.0%	0.4	0.4%	-12.7	3.8%
Apparel, leather, and allied product manufacturing	29.3	6.7%	0.5	0.5%	-28.8	8.6%
Paper	3.0	0.7%	2.2	2.2%	-0.8	0.2%
Printed matter and related products	2.3	0.5%	0.1	0.1%	-2.2	0.6%
Petroleum and coal products	0.5	0.1%	1.0	1.0%	0.5	-0.1%
Chemicals	19.6	4.5%	13.9	13.8%	-5.6	1.7%
Plastics and rubber products	17.5	4.0%	1.4	1.4%	-16.1	4.8%
Durable goods	345.8	79.1%	60.8	60.3%	-285.0	84.7%
Wood products	3.2	0.7%	1.5	1.5%	-1.7	0.5%
Nonmetallic mineral products	6.7	1.5%	0.7	0.7%	-5.9	1.8%
Primary metal	3.2	0.7%	2.9	2.8%	-0.3	0.1%
Fabricated metal products	22.5	5.1%	2.1	2.1%	-20.4	6.1%
Machinery	34.2	7.8%	8.6	8.5%	-25.7	7.6%
Computer and electronic parts	161.8	37.0%	12.7	12.6%	-149.1	44.3%
Computer and peripheral equipment	51.6	11.8%	0.7	0.7%	-50.9	15.1%
Communications, audio and video equipment	81.7	18.7%	0.5	0.5%	-81.2	24.1%
Navigational, measuring, electromedical, and control instruments	5.4	1.2%	5.0	4.9%	-0.5	0.1%
Semiconductor and other electronic components, and reproducing magnetic and optical media	23.1	5.3%	6.6	6.5%	-16.5	4.9%
Electrical equipment, appliances, and components	41.0	9.4%	2.9	2.9%	-38.1	11.3%
Transportation equipment	20.2	4.6%	24.9	24.7%	4.7	-1.4%
Motor vehicles and motor vehicle parts	17.2	3.9%	9.2	9.1%	-8.0	2.4%
Aerospace products and parts	0.9	0.2%	15.6	15.5%	14.7	-4.4%
Railroad, ship, and other transportation equipment	2.1	0.5%	0.1	0.1%	-2.1	0.6%
Furniture and related products	20.8	4.8%	0.2	0.2%	-20.7	6.1%
Miscellaneous manufactured commodities	32.1	7.3%	4.4	4.3%	-27.7	8.2%
Scrap and secondhand goods	0.2	0.1%	3.0	3.0%	2.7	-0.8%

* Excludes utilities, construction, and service sectors, which reported no goods trade in this period, and

Table 2 (cont.)

information, which reported negligible goods trade in this period.

Source: Authors' analysis of USITC 2019. For a more detailed explanation of the data sources and computations, see the appendix.

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billion, or 7.8%), apparel ($29.3 billion, or 6.7%) and miscellaneous manufactured commodities ($32.1 billion, or 7.3%).

As Table 2 shows, manufacturing was also the top sector exporting to China—81.8% of the growth in exports to China between 2001 and 2018 was in manufactured goods, totaling $82.6 billion. Within manufacturing, key export-growth industries included chemicals ($13.9 billion, or 13.8% of the growth in exports), aerospace products and parts ($15.6 billion, or 15.5%), motor vehicles and parts ($9.2 billion, or 9.1%), computer and electronic parts ($12.7 billion, or 12.6%), and machinery ($8.6 billion, or 8.5%). Scrap and secondhand goods industries—which support no production jobs, according to the models used in this report (BLS-EP 2019a)—accounted for 3.0% ($3.0 billion) of the growth in exports.[9]

Agricultural exports—dominated by corn, soybeans, and other cash grains—dropped sharply in 2018 (down $10.2 billion or 55.0%[10]) but increased $7.0 billion (6.9% of the total increase) between 2001 and 2018. Nonetheless, the overall scale of U.S. total exports to China in 2018 was dwarfed by imports from China in that year, which exceeded the value of exports by more than 4 to 1, as shown in Table 1.

The import data in Table 2 reflect China's rapid expansion into higher-value-added commodities once considered strengths of the United States, such as computer and electronic parts, which accounted for 34.5% ($186.2 billion) of U.S. imports from China in 2018 (as shown in Supplemental Table 1). This growth is apparent in the shifting trade balance in advanced technology products (ATP), a broad category of high-end technology goods trade tracked by the U.S. Census Bureau (but not broken out in Table 2, which uses U.S. International Trade Commission data).[11] ATP includes the more advanced elements of the computer and electronic parts industry as well as other sectors such as biotechnology, life sciences, aerospace, nuclear technology, and flexible manufacturing. The ATP sector includes some auto parts; China is one of the top suppliers of auto parts to the United States, having surpassed Germany (Scott and Wething 2012).

In 2018, the United States had a $134.6 billion trade deficit with China in ATP, reflecting more than a tenfold increase from $11.8 billion in 2002.[12] This ATP deficit was responsible for 32.1% of the total U.S.–China trade deficit in 2018. It dwarfs the $6.5 billion surplus in ATP that the United States had with the rest of the world in 2018. As a result of the U.S. ATP deficit with China, the United States ran an overall deficit in ATP products in 2018 (of $128.2 billion), as it has in every year since 2002 (U.S. Census Bureau 2019b). The U.S. balance of trade in advanced technology products declined by $132.7 billion between 2001 and 2018 (U.S. Census Bureau 2020b).

Job loss or displacement by industry is directly related to trade flows by industry, as shown in **Table 3**.[13] The growing trade deficit with China eliminated 2,793,200 manufacturing jobs between 2001 and 2018, nearly three-fourths (75.4%) of the total. By far the largest job

displacements occurred in the computer and electronic parts industry, which lost 1,340,600 jobs (36.2% of the 3.7 million jobs displaced overall). This industry includes computer and peripheral equipment (688,600 jobs lost, or 18.6% of the overall jobs displaced), semiconductors and components (337,300 jobs, or 9.1%), and communications, audio, and video equipment (293,700 jobs, or 7.9%).

Other hard-hit industries include apparel and leather products (205,700 jobs displaced, equal to 5.6% of the total), electrical equipment, appliances, and components (165,200 jobs, or 4.5%), fabricated metal products (193,800 jobs, or 5.2%), furniture and related products (146,400 jobs, or 4.0%), miscellaneous manufactured commodities (128,400 jobs, or 3.5%), textile mills and textile product mills (125,400 jobs, or 3.4%), plastics and rubber products (93,200 jobs, or 2.5%), and motor vehicles and motor vehicle parts (66,000 jobs, or 1.8%). In addition, surging imports of steel, aluminum, and other capital-intensive products threaten hundreds of thousands of jobs in key metal-using industries such as primary metals, machinery, and fabricated metal products (Stewart et al. 2014).

Several service industries, which provide key inputs to traded-goods production, experienced significant job displacement, including administrative and support and waste management and remediation services (173,400 jobs, or 4.7% of overall jobs displaced) and professional, scientific, and technical services (118,000 jobs, or 3.2%).

These job displacement estimates are based on changes in the real value of exports and imports. For example, while the share of U.S. imports accounted for by computer and electronic parts from China rose from 23.9% in 2001 to 34.5% in 2018 (to $186.2 billion, as shown in Supplemental Table 1), the average price indexes (deflators) for most of these products fell sharply between 2001 and 2018—47.4% on a trade-weighted basis. Thus, the real value of computer and electronic parts imports increased more than twelvefold in this period, rising from $15.2 billion in 2001 to $200.4 billion in 2018 in constant 2012 dollars (authors' analysis of real trade flows; see the methodology appendix for data sources and computational details).[14]

Missed opportunities to create more jobs through fair trade with China

The trade and jobs analysis in this report is focused on the actual jobs gained and lost due to increased trade with China over the past 17 years. This raises the question of what trade and employment could have looked like but for the massive growth of the U.S. trade deficit with China between 2001 and 2018. A full analysis of such scenarios at the level of employment impacts by industry and geographic area is beyond the scope of this report. But the broad outlines of one such scenario can be quickly sketched from the trade data in Table 2.

To have maintained a stable trade balance with China between 2001 and 2018, imports would have had to grow less rapidly or exports would have had to grow more rapidly—or some combination of the two. For example, had U.S. export growth to China matched the growth of China's exports to the United States dollar for dollar between 2001 and 2018,

Table 3

Net U.S. jobs created or displaced by goods trade with China, by industry, 2001–2018

	Total	Share of total jobs displaced
Total*	-3,704,700	100%
Subtotal, nonmanufacturing	-911,300	24.6%
Subtotal, manufacturing	-2,793,200	75.4%
Agriculture, forestry, fishing, and hunting	15,900	-0.4%
Mining	0	0.0%
Oil and gas	3,600	-0.1%
Minerals and ores	–3,600	0.1%
Utilities	–13.900	0.4%
Construction	-13,700	0.4%
Manufacturing	-2,793,200	75.4%
Nondurable goods	-536,800	14.5%
Food	-9,800	0.3%
Beverage and tobacco products	-100	0.0%
Textile mills and textile product mills	-125,400	3.4%
Apparel, leather, and allied products	-205,700	5.6%
Paper	-28,600	0.8%
Printed matter and related products	-33,600	0.9%
Petroleum and coal products	-1,300	0.0%
Chemicals	-39,100	1.1%
Plastics and rubber products	-93,200	2.5%
Durable goods	-2,256,400	60.9%
Wood products	-31,300	0.8%
Nonmetallic mineral products	-37,900	1.0%
Primary metals	-59,200	1.6%
Fabricated metal products	-193,800	5.2%
Machinery, except electronics	-119,700	3.2%
Computer and electronic parts	-1,340,600	36.2%
Computer and peripheral equipment	-688,600	18.6%
Communications, audio, and video equipment	-293,700	7.9%
Navigational, measuring, electromedical, and control instruments	-21,100	0.6%

Table 3 (cont.)

	Total	Share of total jobs displaced
Semiconductors and other electronic components, and reproducing magnetic and optical media	-337,300	9.1%
Electrical equipment, appliances, and components	-165,200	4.5%
Transportation equipment	-33,900	0.9%
Motor vehicles and motor vehicle parts	-66,000	1.8%
Aerospace products and parts	39,300	-1.1%
Railroad, ship, and other transportation equipment	-7,200	0.2%
Furniture and related products	-146,400	4.0%
Miscellaneous manufactured commodities	-128,400	3.5%
Wholesale trade	-176,600	4.8%
Retail trade	-57,500	1.6%
Transportation and warehousing	-76,000	2.1%
Information	-45,900	1.2%
Finance and insurance	-51,600	1.4%
Real estate and rental and leasing	-19,000	0.5%
Professional, scientific, and technical services	-118,000	3.2%
Management of companies and enterprises	-57,400	1.6%
Administrative and support and waste management and remediation services	-173,400	4.7%
Education services	-1,600	0.0%
Healthcare and social assistance	-1,700	0.0%
Arts, entertainment, and recreation	-10,400	0.3%
Accommodation and food services	-42,600	1.2%
Other services (except public administration)	-33,400	0.9%
Government	-34,500	0.9%

* Subcategory and overall totals may vary slightly due to rounding.

Note: Percentages are calculated using rounded totals.

Source: Authors' analysis of USITC 2019, and Bureau of Labor Statistics Employment Projections program 2019a and 2019b. For a more detailed explanation of data sources and computations, see the appendix.

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balanced trade would have required more than a fourfold increase in U.S. exports to China in 2018.[15] If actual 2018 exports in each industry (shown in Supplemental Table 1) had increased by this ratio (the specific ratio is 4.49-to-1), then the largest growth in exports would have occurred in transportation equipment ($111.9 billion), agricultural products ($31.4 billion), computer and electronic parts ($57.0 billion), chemicals ($62.5 billion), machinery ($38.5 billion), and food ($9.8 billion). In total, U.S. exports to China would have increased by $554.0 billion, $453.1 billion more than they actually did.[16]

If exports to China had increased at this pace, it would have supported the creation of millions of U.S. manufacturing jobs and prevented much of the collapse of overall U.S. manufacturing employment between December 2001 and December 2018, when 2.9 million U.S. manufacturing jobs were lost (BLS 2019a). This level of growth in U.S. exports to China could not have taken place without major structural changes in China's trade, industrial, macroeconomic, and labor policies. This analysis does illustrate the potential gains had China trade delivered on the promises made by China trade proponents when China entered the WTO in 2001.

Job losses by state

Growing U.S. trade deficits with China have reduced demand for goods produced in every region of the United States and have led to job displacement in all 50 states and the District of Columbia, as shown in **Table 4** and **Figure B**. (**Supplemental Table 2** ranks the states by the number of net jobs displaced, while **Supplemental Table 3** ranks the states by jobs displaced as a share of total state jobs and presents the states alphabetically.) Table 4 shows that jobs displaced from 2001 to 2018 due to the growing goods trade deficit with China ranged from 0.85% to 3.66% of total state employment.

The 10 hardest-hit states ranked by job shares displaced were New Hampshire, Oregon, California, North Carolina, Minnesota, Massachusetts, Wisconsin, Vermont, Indiana, and Idaho. This list includes states with high-tech industries (California, Massachusetts, Minnesota, Oregon, and Idaho) and manufacturing states (New Hampshire, North Carolina, Wisconsin, Vermont and Indiana). Job losses in these states ranged from 2.82% to 3.66% of total state employment. Other traditional manufacturing powers—such as Georgia, South Carolina, Illinois, Rhode Island, Ohio, Michigan, Alabama, and Tennessee—are among the top 20 hardest-hit states, as are Texas and Colorado, also high-tech hubs.

As shown in Supplemental Table 2, the top 10 states in terms of total jobs lost were California (654,100 jobs lost), Texas (334,800), New York (185,100), Illinois (162,400), Florida (150,700), North Carolina (147,700), Pennsylvania (137,300), Ohio (136,700), Georgia (123,200), and Michigan (112,400).

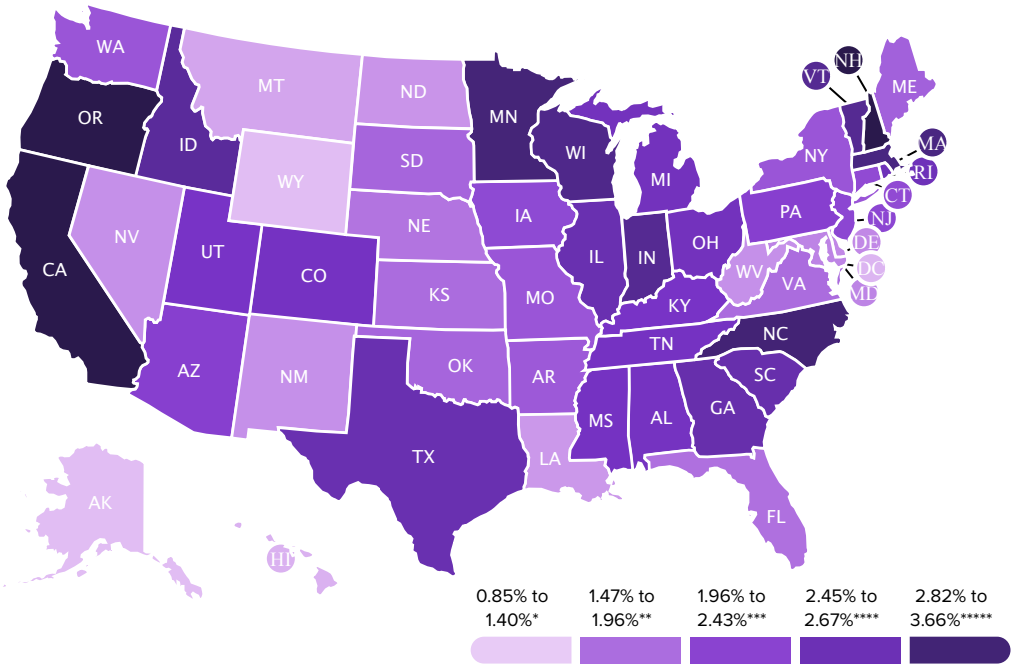
The map in Figure B shows the broad impact of the growing trade deficit with China across the United States, with no areas exempt from job displacement. The 3.7 million U.S. jobs displaced due to the growing trade deficit with China between 2001 and 2018 represented 2.46% of total U.S. employment.

Job losses by congressional district

This study also reports the employment impacts of the growing U.S. goods trade deficit with China in every congressional district and in the District of Columbia. **Table 5** lists the top 20 hardest-hit congressional districts (those with the largest job losses as a share of overall district employment). **Figure C** shows job displacement as a share of total district

Figure B

Net U.S. jobs displaced due to the goods trade deficit with China as a share of total state employment, 2001–2018



* 10 least-affected states, plus D.C.
** 10 next-least-affected states
*** 10 middle affected states
**** 10 next-most-affected states
***** 10 most-affected states

Totals may vary slightly due to rounding.

Note: Percentages are calculated using rounded totals.

Source: Authors' analysis of American Community Survey (ACS) data (U.S. Census Bureau 2019a and 2020a), USITC 2019, and Bureau of Labor Statistics Employment Projections program 2019a and 2019b. For a more detailed explanation of data sources and computations, see the appendix.

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employment in all 435 congressional districts plus the District of Columbia. (**Supplemental Table 4** shows net job displacement and displacement as a share of total district employment, ranked by net jobs displaced; **Supplemental Table 5** provides the same data sorted alphabetically by state; and **Supplemental Table 6** ranks the districts by jobs displaced as a share of total district employment.) Because the largest growth in the goods trade deficits with China from 2001 to 2018 occurred in the computer and electronic parts industry, 17 of the 20 hardest-hit districts were in California, Massachusetts, Minnesota, Oregon, and Texas, where remaining jobs in that industry are concentrated. Georgia (one district) and North Carolina (two districts), which suffered considerable job displacement in a variety of manufacturing industries, also each have at least one district in the top 20 hardest-hit districts.[17]

Specifically, of the 20 hardest-hit districts, nine were in California (in rank order, the 17th, 18th, 19th, 15th, 52nd, 40th, 34th, 45th, and 49th); three were in Texas (31st, 10th, and 3rd,);

Table 4

Net U.S. jobs displaced due to goods trade deficit with China, by state, 2001–2018 (ranked by jobs displaced as a share of total state employment)

Rank	State	Net jobs displaced	State employment (2013–2017 5-year ACS estimate)	Jobs displaced as a share of employment
1	*New Hampshire*	26,100	713,400	3.66%
2	*Oregon*	68,700	1,886,000	3.64%
3	*California*	654,100	17,993,900	3.64%
4	*North Carolina*	147,700	4,571,000	3.23%
5	*Minnesota*	92,400	2,904,100	3.18%
6	*Massachusetts*	109,300	3,525,700	3.10%
7	*Wisconsin*	88,900	2,939,900	3.02%
8	*Vermont*	9,600	327,300	2.93%
9	*Indiana*	85,800	2,934,500	2.92%
10	*Idaho*	21,100	748,700	2.82%
11	*Georgia*	123,200	4,606,300	2.67%
12	*South Carolina*	57,900	2,181,100	2.65%
13	*Texas*	334,800	12,689,000	2.64%
14	*Illinois*	162,400	6,181,700	2.63%
15	*Rhode Island*	13,400	526,100	2.55%
16	*Ohio*	136,700	5,488,200	2.49%
17	*Michigan*	112,400	4,524,900	2.48%
18	*Alabama*	50,700	2,055,500	2.47%
19	*Tennessee*	73,800	2,996,600	2.46%
20	*Colorado*	67,700	2,760,100	2.45%
21	*Mississippi*	29,700	1,221,800	2.43%
22	*Kentucky*	46,900	1,938,200	2.42%
23	*Utah*	33,900	1,412,200	2.40%
24	*Pennsylvania*	137,300	6,097,000	2.25%
25	*Arizona*	65,800	2,953,900	2.23%
26	*New Jersey*	95,000	4,388,000	2.16%
27	*Iowa*	33,900	1,599,700	2.12%
28	*Connecticut*	38,100	1,805,100	2.11%
29	*Washington*	67,400	3,418,100	1.97%

Table 4 (cont.)

Rank	State	Net jobs displaced	State employment (2013–2017 5-year ACS estimate)	Jobs displaced as a share of employment
30	*Missouri*	56,200	2,867,400	1.96%
31	*New York*	185,100	9,467,600	1.96%
32	*Arkansas*	24,400	1,276,500	1.91%
33	*Maine*	12,200	658,700	1.85%
34	*Oklahoma*	31,500	1,746,400	1.80%
35	*South Dakota*	7,800	438,300	1.78%
36	*Virginia*	70,500	4,084,000	1.73%
37	*Kansas*	24,200	1,420,100	1.70%
38	*Florida*	150,700	9,018,600	1.67%
39	*Nebraska*	16,200	987,200	1.64%
40	*Maryland*	44,800	3,040,800	1.47%
41	*Delaware*	6,200	441,500	1.40%
42	*West Virginia*	10,000	747,000	1.34%
43	*Nevada*	17,900	1,341,400	1.33%
44	*New Mexico*	11,500	879,200	1.31%
45	*North Dakota*	5,100	400,500	1.27%
46	*Louisiana*	24,900	2,031,200	1.23%
47	*Montana*	5,500	498,000	1.10%
48	*Hawaii*	6,600	671,800	0.98%
49	*DC*	3,300	357,700	0.92%
50	*Wyoming*	2,500	293,600	0.85%
51	*Alaska*	3,000	354,000	0.85%
Total*		3,704,700	150,409,500	2.46%

* Totals may vary slightly due to rounding.

Note: Percentages are calculated using rounded totals

Source: Authors' analysis of American Community Survey (ACS) data (U.S. Census Bureau 2019a), USITC 2019, and Bureau of Labor Statistics Employment Projections program 2019a and 2019b. For a more detailed explanation of data sources and computations, see the appendix.

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two each were in Massachusetts (the 3rd and 2nd), Minnesota (3rd and 2nd), and North Carolina (10th and 6th); and one each were in Oregon (1st), and Georgia (14th). Job losses in these districts ranged from 14,500 jobs to 78,700 jobs, and from 4.19% to 20.14% of total district jobs. These distributions reflect both the size of some states (e.g., California and Texas) and the concentration of the industries hardest hit by the growing U.S.–China trade deficit. We have already mentioned the prevalence of the computer and electronic parts industry in certain states; other industries with a presence in these districts include

Table 5

Twenty congressional districts hardest hit by U.S. goods trade deficit with China, 2001–2018 (ranked by jobs displaced as a share of district employment)

Rank	State	District	Net jobs displaced	District employment (2013–2017 5-year ACS estimate)	Jobs displaced as a share of employment
1	*California*	17	78,700	390,700	20.14%
2	*California*	18	48,400	372,700	12.99%
3	*California*	19	45,400	381,300	11.91%
4	*Texas*	31	30,600	376,600	8.13%
5	*Oregon*	1	31,800	408,300	7.79%
6	*California*	15	27,900	382,500	7.29%
7	*Georgia*	14	21,000	314,900	6.67%
8	*California*	52	21,000	377,300	5.57%
9	*Texas*	10	22,000	406,600	5.41%
10	*California*	40	16,600	306,800	5.41%
11	*Massachusetts*	3	20,800	387,100	5.37%
12	*Texas*	3	22,000	425,900	5.17%
13	*California*	34	17,500	354,700	4.93%
14	*California*	45	18,300	383,300	4.77%
15	*North Carolina*	10	15,400	339,200	4.54%
16	*North Carolina*	6	15,500	344,900	4.49%
17	*Massachusetts*	2	16,500	378,000	4.37%
18	*Minnesota*	3	16,400	381,900	4.29%
19	*California*	49	14,500	338,400	4.28%
20	*Minnesota*	2	16,000	381,700	4.19%

* Totals may vary slightly due to rounding.

Note: Percentages are calculated using rounded totals.

Source: Authors' analysis of American Community Survey (ACS) data (U.S. Census Bureau 2019a and 2020a), USITC 2019, and Bureau of Labor Statistics Employment Projections program 2019a and 2019b. For a more detailed explanation of data sources and computations, see the appendix.

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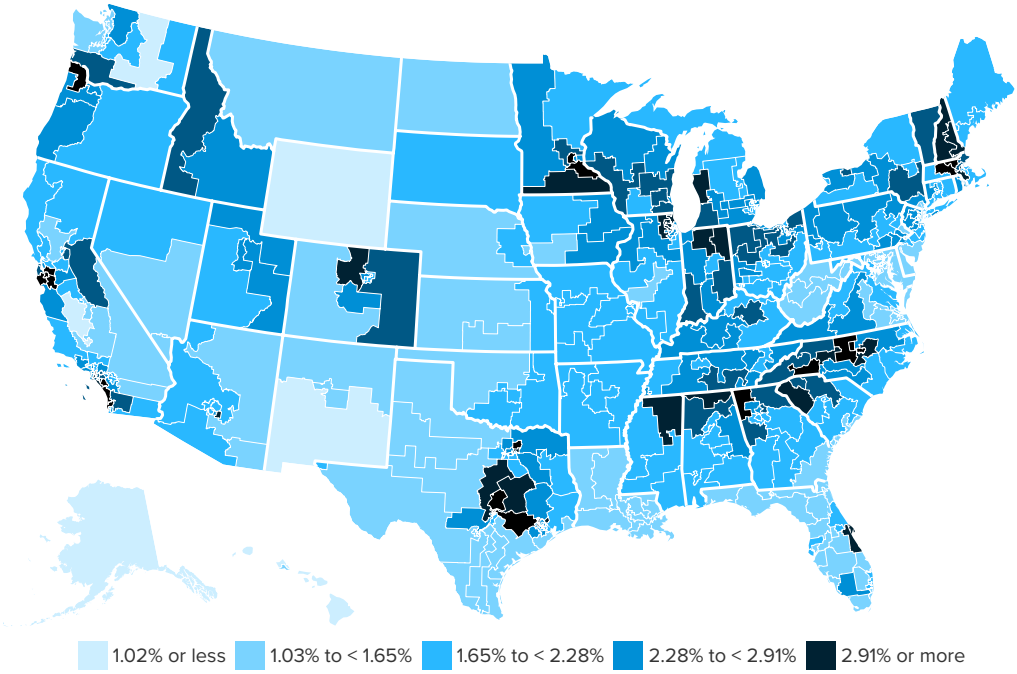
furniture, textiles, apparel, and other manufactured products.

The three hardest-hit congressional districts were all located in Silicon Valley (South Bay Area) in California, including the 17th Congressional District (encompassing Sunnyvale, Cupertino, Santa Clara, Fremont, Newark, North San Jose, and Milpitas), which lost 78,700 jobs, equal to 20.14% of all jobs in the district; the 18th Congressional District (including parts of San Jose, Palo Alto, Redwood City, Menlo Park, Stanford, Los Altos, Campbell,

Figure C

Net U.S. jobs displaced due to the goods trade deficit with China as a share of total congressional district employment, 2001–2018



* Totals may vary slightly due to rounding.

Note: Percentages are calculated using rounded totals.

Source: Authors' analysis of U.S. Census Bureau 2019a and 2020a, USITC 2019, and Bureau of Labor Statistics Employment Projections program 2019a and 2019b. For a more detailed explanation of data sources and computations, see the appendix.

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Saratoga, Mountain View, and Los Gatos), which lost 48,400 jobs, or 12.99%; and the 19th Congressional District (most of San Jose and other parts of Santa Clara County), which lost 45,400 jobs, or 11.91%.[18]

Although the San Francisco Bay Area has experienced rapid growth over the past decade in software and related industries, this growth has come at the expense of direct employment in the production of computer and electronic parts. The computer and electronic parts manufacturing sector has experienced more actual job losses than any other major manufacturing industry has since China joined the WTO.[19] There are substantial questions about the long-run ability of firms in the high-tech sectors to continue to innovate while offshoring most or all of the production in their industries (Shi 2010).

Other research confirms job losses from U.S.–China trade

Academic research has confirmed findings in this and earlier EPI research (e.g., Kimball

and Scott 2014, Scott 2017a, Scott and Mokhiber 2018) that the growing U.S.–China trade deficit has caused significant losses of U.S. jobs, especially in manufacturing. (For a further analysis of EPI research on trade and globalization, see Bivens 2017.)

For example, Acemoglu et al. (2014) find that import competition with China from 1999 to 2011 was responsible for up to 2.4 million net job losses (including direct, indirect, and respending effects).[20] This result compares with the finding in this paper that 2.6 million jobs were lost due to growing trade deficits with China between 2001 and 2011, as shown in Figure A. Thus, over a roughly comparable period, Acemoglu et al. estimate an employment impact that is roughly 90% as large as the estimate found in this study.[21]

Further academic confirmation of the impacts of China trade on manufacturing employment is provided by Pierce and Schott (2016). Pierce and Schott use an entirely different estimation technique based on differences in the pre- and post-China WTO entry maximum tariff rates, with and without permanent normal trade relations (PNTR) status, which the United States granted to China in the China–WTO implementing legislation. Pierce and Schott estimate the impacts of changes in U.S. international transactions between 1992 and 2008. They find that the grant of PNTR status to China "reduced relative employment growth of the average industry by 3.4 percentage points…after one year [and] 15.6 percentage points after 6 years" (following the grant of PNTR status to China in 2001). They do not translate percentage-point changes in employment into total jobs displaced, but data on changes in total manufacturing employment in this period provide a base of comparison.

The research in this paper looks at the total loss or displacement of jobs due to the growing trade deficit with China and the number of those lost jobs that are manufacturing jobs. We can check the consistency of this finding with a different approach—looking at the total loss of manufacturing jobs and estimating the number of those job losses that are due to growing trade deficits with China. The United States lost 2.9 million manufacturing jobs between December 2001 and December 2018, a decline of 18.9% in total manufacturing employment (BLS 2019). Drawing from Pierce and Schott 2016 above, if 15.6 percentage points of this 18.9% decline can be attributed to the growth of the U.S. trade deficit with China, this implies that about 82.5% (or 2.4 million) of the manufacturing jobs lost in this period were lost due to the growing trade deficit with China. This estimate is very similar to this study's estimated total manufacturing jobs displaced by the growing U.S.–China trade deficit (2.8 million net jobs displaced). Thus, two other recent academic studies have concluded that the growing U.S.–China trade deficit is responsible for the displacement of at least 2 million U.S. manufacturing jobs since 1990, with most jobs lost since China entered the WTO in 2001.

Lost wages from the increasing trade deficit with China

Growing trade-related job displacement has several direct and indirect effects on workers' wages. The direct wage effects are a function of the wages forgone in jobs displaced by

growing U.S. imports from China minus wage gains from jobs added in export-producing industries, and comparing this with the (lower) wages paid in alternative jobs in nontraded industries (U.S. workers displaced from traded-goods production in manufacturing industries who find jobs in nontraded goods industries experience permanent wage losses, as discussed below). Standard trade theory assumes that economic integration leads to "gains from trade" as workers move from low-productivity jobs in import-competing industries into higher-productivity jobs in export-competing industries. However, this assumption is proven incorrect in Scott 2013, which shows that import-competing jobs pay better than alternative jobs in export-producing industries. Specifically, Scott examines the gains and losses associated with direct changes in employment caused by growing U.S.–China trade deficits between 2001 and 2011, and finds that jobs displaced by imports from China actually paid 17.0% more than jobs exporting to China: $1,021.66 per week in import-competing industries versus $872.89 per week in exporting industries (Scott 2013, 24, Table 9a).[22] Therefore, simple trade expansion that increases total trade with no underlying change in the trade balance will result in a *net loss* to workers as they move from higher-paying jobs in import-competing industries to lower-paying jobs in exporting industries.

Furthermore, jobs in both import-competing and exporting industries paid substantially more than jobs in nontraded industries, which pay $791.14 per week (Scott 2013, Table 9a, 24). Between 2001 and 2011, growing exports to China supported 538,000 U.S. jobs, but growing imports displaced 3,280,200 jobs, for a net loss of 2.7 million U.S. jobs (Scott 2013, Table 5, 13). Thus, not only did workers lose wages moving from import-competing to exporting industries, but 2.7 million workers were displaced from jobs where they earned $1,021.66 per week on average. If they were lucky enough to find jobs, these 2.7 million workers were mostly pushed into jobs in nontraded industries paying an average of only $791.14 per week (a decline of 22.6%). In total, U.S. workers suffered a direct net wage loss of $37 billion per year (Scott 2013, 26, Table 9b) due to trade with China. But the direct wage losses are just the tip of the iceberg.

As shown by Josh Bivens in *Everybody Wins, Except for Most of Us* (Bivens 2008a, with results updated in Bivens 2013), growing trade with China and other low-wage exporters essentially puts all American workers without a college degree (roughly 100 million workers) in direct competition with workers in China (and elsewhere) making much less. He shows that trade with low-wage countries was responsible for 90% of the growth in the college wage premium since 1995 (the college wage premium is the percent by which wages of college graduates exceed those of otherwise-equivalent high school graduates). It is important to note that there are roughly 100 million non-college-educated workers whose wages were suppressed by China trade. The growth of China trade alone was responsible for more than half of the growth in the college wage premium in that period, Bivens finds. To put these estimates in macroeconomic terms, in 2011, trade with low-wage countries lowered annual wages by 5.5%—roughly $1,800 per worker for all full-time, full-year workers without a college degree. To provide comparable economywide impact estimates, assume that 100 million workers without a college degree suffered average losses of $1,800 per year, which yields a total national loss of $180 billion (Scott 2015). Therefore, the indirect, macroeconomic losses to U.S. workers without college degrees

caused by growing trade with low-wage nations were about five times as large as the $37 billion in direct wage losses in 2011 from trade with China, and about 40 times as many workers were affected indirectly due to globalization's wage-lowering effect (100 million) as were displaced by trade with China (2.7 million).[23] And China trade alone was responsible for about 51.6% of the increase in the overall college/noncollege wage gap between 1995 and 2011.[24]

Additionally, Autor, Dorn, and Hanson estimate that rising exposure to low-cost Chinese imports lowers labor force participation and reduces wages in local labor markets; in particular, they find that increased import competition has a statistically significant depressing effect on nonmanufacturing wages (Autor, Dorn, and Hanson 2012, abstract). This confirms the findings of Bivens (2008a, 2013). Autor, Dorn, and Hanson (2012) also find that "transfer benefits payments for unemployment, disability, retirement, and healthcare also rise sharply in exposed labor markets" and that "for the oldest group (50–64), fully 84% of the decline in [manufacturing] employment is accounted for by the rise in nonparticipation, relative to 71% among the prime-age group and 68% among the younger group" (Autor, Dorn, and Hanson 2012, abstract, 25). Thus, Autor, Dorn, and Hanson find that more than two-thirds of all workers displaced by growing competition with Chinese imports dropped out of the labor force. These results are explained, in part, by the finding that "9.9%…of those who lose employment following an import shock obtain federal disability insurance benefits [Social Security Disability Insurance (SSDI) benefits]." Additionally, "rising import exposure spurs a substantial increase in government transfer payments to citizens in the form of increased disability, medical, income assistance and unemployment benefits." Moreover, "these transfer payments vastly exceed the expenses of the TAA [Trade Adjustment Assistance] program, which specifically targets workers who lose employment due to import competition" (Autor, Dorn, and Hanson 2012, 25, 30). In Autor and Hanson 2014, the effects are totaled, and they find that "for regions affected by Chinese imports, the estimated dollar increase in per capita SSDI payments is more than 30 times as large as the estimated dollar increases in TAA payments."

The job and wage losses stemming from the growing U.S.–China trade deficit are real—and also increase demands on the social safety net

Some economists and others in the trade debate have argued that job loss numbers extrapolated from trade flows are uninformative because aggregate employment levels in the United States are set by a broad range of macroeconomic influences, not just by trade flows.[25] However, while the trade balance is but one of many variables affecting aggregate job creation, it plays a large role in explaining structural change in employment, especially in the manufacturing sector. As noted earlier, between December 2001 and December 2018, 2.9 million U.S. manufacturing jobs were lost (BLS 2019a). The growth of the U.S. trade deficit with China was responsible for the displacement of 2.8 million

manufacturing jobs in this period, or nearly all of the manufacturing jobs lost.

The employment impacts of trade identified in this paper can be interpreted as the "all else equal" effect of trade on domestic employment. The Federal Reserve, for example, may decide to cut interest rates to make up for job losses stemming from deteriorating trade balances (or any other economic influence), leaving net employment unchanged. This, however, does not change the fact that trade deficits by themselves are a net drain on employment. Even if macroeconomic policy is adjusted to offset the negative impact of the growing trade deficit with China on total employment, the structure of production and employment in the United States has been negatively affected (Scott 2017a, Scott and Mokhiber 2018).

The growing trade deficit with China has clearly reduced domestic employment in traded-goods industries, especially in the manufacturing sector, which has been pummeled by plant closings and job losses. Workers from the manufacturing sector displaced by trade have had particular difficulty securing comparable employment elsewhere in the economy. According to the most recent Bureau of Labor Statistics survey covering displaced workers (BLS 2018, Table 4), more than one-third (35.4%) of long-tenured (employed more than three years) manufacturing workers displaced from January 2015 to December 2017 were not working in January 2018, including 21.7% of long-tenured manufacturing workers displaced who were not in the labor force, i.e., no longer even looking for work, and 13.7% who were unemployed.

As noted above, U.S. workers who were directly displaced by trade with China between 2001 and 2011 lost a collective $37.0 billion in wages as a result of accepting lower-paying jobs in nontraded industries or industries that export to China assuming, conservatively, that those workers are reemployed in nontraded goods industries (Scott 2013).[26] Worse yet, growing competition with workers in China and other low-wage countries reduced the wages of all 100 million U.S. workers without a college degree, leading to cumulative losses of approximately $180 billion per year in 2011 (Bivens 2013; Scott 2015). The lost output of unemployed workers, especially that of labor force dropouts, can never be regained and is one of the larger costs of trade-related job displacement to the economy as a whole.[27]

The Trade Adjustment Assistance (TAA) program is a Department of Labor program to provide retraining and unemployment benefits to certain workers who have been displaced by growing imports. However, new research suggests that significant shares of displaced workers are signing up for disability and retirement benefits, other government income assistance, and government medical benefits, in addition to temporary trade adjustment assistance. Many of these workers, such as those on disability and retirement, are permanently dropping out of the labor force, resulting in permanent income losses to themselves and the economy. TAA benefits represent only a tiny share of the costs of adjustment. Examining only those costs for which workers actually qualify for government benefits, Autor, Dorn, and Hanson (2012, Figure 7 at 32) find that unemployment and TAA benefits represent only 6.3% of the total benefit costs associated with a $1,000 increase in imports per worker in "commuting zones" over the 1990–2007 period.[28] Given the low level of coverage of social safety net programs in the United States versus other

developed countries (such as those in the EU), actual adjustment costs for displaced workers are likely substantially larger than the actual U.S. benefits estimated by Autor, Dorn, and Hanson.

Conclusion

The growing U.S. goods trade deficit with China has displaced millions of jobs in the United States and has contributed heavily to the crisis in U.S. manufacturing employment, which has heightened over the last decade largely due to trade with China. Moreover, the United States is piling up foreign debt, losing export capacity, and facing a more fragile macroeconomic environment.

China and America are locked in destructive, interdependent economic cycles, and both can gain from rebalancing trade and capital flows. Although economic growth in China has been rapid, it is unbalanced and unsustainable. Growth in China slowed to 6.6% in 2018, and it is projected to fall to 5.5% in 2024 (IMF 2019). China's economy is teetering on the edge between inflation and a growth slump, and a soft landing is nowhere in sight. China needs to rebalance its economy by becoming less dependent on exports and more dependent on domestic demand led by higher wages and infrastructure spending. It also needs to reduce excessive levels of domestic savings to better align savings levels with domestic investment and government borrowing. The best ways to do this are to raise wages and to increase public spending on pensions, health care, and other aspects of the safety net. This will reduce private saving and increase Chinese domestic demand for both domestic and imported goods, reducing China's trade surplus (Scott 2017a).

The effects on the United States of China's destructive, rapidly growing trade surplus are outlined in this report. To summarize, the growing U.S. trade deficit with China has eliminated 3.7 million U.S. jobs between 2001 and 2018, including 1.7 million jobs lost since 2008 (the first full year of the Great Recession) and more than 700,000 jobs lost or displaced in the first two years of the Trump administration. Of the total jobs lost due to the growing U.S.—China trade deficit, 2.8 million, or 75.4% of the total jobs lost, were in manufacturing. These losses were responsible for nearly all of the 2.9 million U.S. manufacturing jobs lost between December 2001 and December 2018. The growing trade deficit with China has reduced wages of those directly displaced by $37 billion through 2011 alone, and it is largely responsible for the loss of roughly $1,800 per worker per year, due to wage suppression, for all non-college-educated workers in the United States. These losses have been extremely costly for the workers and communities affected, as shown in this report.

The U.S.–China trade relationship needs to undergo a fundamental change. Addressing unfair trade, weak labor, and environmental standards in China, and ending currency manipulation and misalignment, should be our top trade and economic priorities with China (Scott 2017a, Scott and Mokhiber 2018).

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Appendix: Methodology

The trade and employment analyses in this report are based on a detailed, industry-based study of the relationships between changes in trade flows and employment for each of approximately 205 individual industries of the U.S. economy, specially grouped into 44 custom sectors,[29] and using the North American Industry Classification System (NAICS) with data obtained from the U.S. Census Bureau (2019a and 2020a)) and the U.S. International Trade Commission (USITC 2019).

The number of jobs supported by $1 million of exports or imports for each of 205 different U.S. industries is estimated using a labor requirements model derived from an input-output table developed by the BLS-EP (2019a).[30] This model includes both the direct effects of changes in output (for example, the number of jobs supported by $1 million in auto assembly) and the indirect effects on industries that supply goods (for example, goods used in the manufacture of cars). So, in the auto industry for example, the indirect impacts include jobs in auto parts, steel, and rubber, as well as service industries such as accounting, finance, computer programming, and staffing and temporary help agencies

that provide inputs to the motor vehicle manufacturing companies. This model estimates the labor content of trade using empirical estimates of labor content and goods flows between U.S. industries in a given base year (an input-output table for the year 2001 was used in this study) that were developed by the U.S. Department of Commerce and the BLS-EP. It is not a statistical survey of actual jobs gained or lost in individual companies, or the opening or closing of particular production facilities (Bronfenbrenner and Luce 2004 is one of the few studies based on news reports of individual plant closings).

Nominal trade data used in this analysis are converted to constant 2012 dollars using industry-specific deflators. This is necessary because the labor requirements table is estimated using price levels in that year. Data on real trade flows are converted to constant 2012 dollars using industry-specific price deflators from the BLS-EP (2019b). Use of constant 2012 dollars is required for consistency with the other BLS models used in this study.

Estimation and data sources

Data requirements

Step 1. U.S.–China trade data are obtained from the U.S. International Trade Commission DataWeb (USITC 2019) in four-digit, three-digit, and two-digit NAICS formats. General imports and total exports are downloaded for each year.

Step 2. To conform to the BLS Employment Requirements tables (BLS-EP 2019a), trade data must be converted into the BLS industry classifications system. For NAICS-based data, there are 205 BLS industries. The data are then mapped from NAICS industries onto their respective BLS sectors. The trade data, which are in current dollars, are deflated into real 2012 dollars using published price deflators from the BLS-EP (2019b).

Step 3. Real domestic employment requirements tables are downloaded from the BLS-EP (2019a). These matrices are input-output industry-by-industry tables that show the employment requirements for $1 million in outputs in 2012 dollars. So, for industry *i* the *aij* entry is the employment indirectly supported in industry *i* by final sales in industry *j* and, where *i=j*, the employment directly supported.

Analysis

Step 1. Job equivalents. BLS trade data are compiled into matrices. Let $[T_{2001}]$ be the 205×2 matrix made up of a column of imports and a column of exports for 2001. $[T_{2018}]$ is defined as the 205×2 matrix of 2018 trade data. Finally, $[T_{2008}]$ is defined as the 205×2 matrix of 2008 trade data. Define $[E_{2001}]$ as the 205×205 matrix consisting of the real 2001 domestic employment requirements tables. To estimate the jobs displaced by trade, perform the following matrix operations:

$$[J_{2001}] = [T_{2001}] \times [E_{2001}]$$

$[J_{2008}] = [T_{2008}] \times [E_{2001}]$

$[J_{2018}] = [T_{2018}] \times [E_{2001}]$

$[J_{2001}]$ is a 205×2 matrix of job displacement by imports and jobs supported by exports for each of 205 industries in 2001. Similarly, $[J_{2008}]$ and $[J_{2018}]$ are 205×2 matrices of jobs displaced or supported by imports and exports (respectively) for each of 205 industries in 2008 and 2018, respectively.

To estimate jobs created/lost over certain time periods, we perform the following operations:

$[J_{nx01\text{-}18}] = [J_{2018}] - [J_{2001}]$

$[J_{nx01\text{-}08}] = [J_{2008}] - [J_{2001}]$

$[J_{nx08\text{-}18}] = [J_{2018}] - [J_{2008}]$

Step 2. State-by-state analysis. For states, pooled (5-year) estimates of employment-by-industry data are obtained from the Census Bureau's American Community Survey (ACS) data for the 2013–2017 period (U.S. Census Bureau 2019a) and are mapped into 44 unique census industries and seven aggregated total and subtotals, for a total of 52 sectors (including scrap, not part of the census analysis) (Data Planet 2019).[31]

Previous versions of this report (Kimball and Scott 2014, Scott and Mokhiber 2018) relied on single-year estimates, based on ACS 2011 data, of employment by industry, state and congressional district. This model has been completely reestimated in this version of the report with the ACS 5-year data referenced above. These date provide substantially better detail, and greatly improved accuracy, in the form of much lower levels of variance for employment estimates at every level of detail in the model. The new estimates also reflect congressional district boundaries for the 115th Congress for most districts in the country. Boundaries changed in only a few districts in Pennsylvania and Colorado between the 115th Congress and the current 116th Congress.[32]

We look at job displacement from 2001 to 2018 so from this point, we use $[J_{nx01\text{-}18}]$. In order to work with 44 sectors, we group the 205 BLS industries into a new matrix, defined as $[Jnew_{01\text{-}18}]$, a 44×2 matrix of job displacement numbers. We define $[St_{2013\text{-}2017}]$ as the 44×51 matrix of state employment shares (with the addition of the District of Columbia) of employment in each industry calculated from the ACS 5-year employment estimates. We calculate:

$[Stj_{nx01\text{-}18}] = [St_{2013\text{-}2017}]T\,[Jnew_{01\text{-}18}]$

where $[Stj_{nx01\text{-}18}]$ is the 44×51 matrix of job displacement/support by state and by industry. To get state total job displacement, we add up the subsectors in each state.

Step 3. Congressional district analysis. Employment by congressional district, by industry, and by state is obtained from the ACS 5-year employment estimates for the 2013–2017 period, which use geographic codings that match the district boundaries of the

115th Congress.[33] In order to calculate job displacement in each congressional district, we use the columns in [*Stj*nx01-18], which represent individual state job-displacement-by-industry estimates, and define them as [Stj_{01}], [Stj_{02}], [Stj_i]…[Stj_{51}], with *i* representing the state number and each matrix being 44×1.

Each state has *Y* congressional districts, so [Cd_i] is defined as the 44×*Y* matrix of congressional district employment shares for each state. Congressional district shares are calculated thus:

$$[Cdj_{01}] = [Stj_{01}]T\,[Cd_{01}]$$

$$[Cdj_i] = [Stj_i]_T\,[Cd_i]$$

$$[Cdj_{51}] = [Stj_{51}]_T\,[Cd_{51}]$$

where [Cdj_i] is defined as the 44x*Y* job displacement in state *i* by congressional district by industry.

To get total job displacement by congressional district, we add up the subsectors in each congressional district in each state.

Endnotes

1. The World Trade Organization, which was created in 1994, was empowered to engage in dispute resolution and to authorize imposition of offsetting duties if its decisions were ignored or rejected by member governments. It expanded the General Agreement on Tariffs and Trade (GATT) trading system's coverage to include a huge array of subjects never before included in trade agreements, such as food safety standards, environmental laws, social service policies, intellectual property standards, government procurement rules, and more (Wallach and Woodall 2004).

2. Tables 1 and 2 report U.S. general imports from China as measured by "customs value" (the value of imports as appraised by the U.S. Customs Service) and total exports to China as measured by "free alongside" or FAS value (the value of exports at the U.S. port, including the transaction price, inland freight, insurance, and other charges) to China. News releases from the U.S. Census Bureau and the Commerce Department usually emphasize general imports and total exports. The U.S. Internal Trade Commission (USITC) often refers to this netting out of general imports and total exports as the "broad" measure of the trade balance, as opposed to the "narrow" measure, which relies on imports for consumption and domestic exports. (For an example, see USITC 2014.) For an explanation of the difference between general imports and imports for consumption, see the U.S. Census Bureau's online trade glossary [2018b].) The key difference between these two measures is that total exports, as reported by the U.S. Census Bureau, include foreign exports (re-exports), i.e., goods produced in other countries and shipped through the United States, while domestic exports, as implied by the name, do not include re-exports. While a previous version of this report (Kimball and Scott 2014) relied on the narrow definition, using imports for consumption and domestic exports for the analysis, the broad measure was used in Scott 2017a. For 2017, imports for consumption were $504.0 billion, domestic exports were $120.0 billion, and the reported (narrow) trade balance was $384.0 billion. When we compare the trade deficit and job displacement estimates we obtained using the broad measure with the estimates we would have obtained using the narrow measure, we find the difference to be insignificant. The broad measure

delivers an estimate of 3.36 million net jobs displaced in 2017, whereas the narrow measure delivers an estimate of 3.44 million net jobs displaced in 2017, as reported in Scott and Mokhiber (2018). In this report, all estimates for trade and jobs gained and lost for prior years are based on the broad measure of the trade balance. Data for individual years, and for the change in net jobs displaced, are reported in Table 1, in Figure A, and in other exhibits in this report.

3. Average annual change note shown in Table 1. Total change divided by number of years deal is in effect is $336.5 divided by 17, which equals $19.8 billion per year.

4. While some small proportion of goods imported from China represent a category of goods that may not be produced in the United States, and thus would be "noncompeting" goods, the model used in this report produces an overall estimate of the net jobs displaced by the growing trade deficit. It is, in essence, an estimate of the jobs displaced by the growth of imports in excess of the growth of exports. Since virtually all U.S. imports from China are manufactured goods, as shown in Table 2 in this report, nearly all *could* be produced in the United States but for China's unfair trade and currency policies and its domestic "savings glut" (Setser 2016).

5. The term "displaced" would be appropriate to an economy that was at true full employment, where any displaced worker would immediately take a job in another sector of the economy. However, the workers displaced by goods trade are almost exclusively manufacturing workers, and these workers have not been successfully moving into different parts of the economy in recent years: more than one-third of manufacturing workers who were displaced between 2015 and 2017 and who had previously been employed for at least three years were either unemployed or out of the labor force in January 2018 (BLS 2018a). Thus, trade-related job displacement does result in at least some workers moving to a nonworking status, thus "lost" jobs, even if other workers are reemployed elsewhere in the economy (reemployment would result in a change in the composition, rather than the level, of employment).

6. The BLS updated its Employment Requirements Matrix in September 2019 (BLS-EP 2019a), as it normally does every two years. Those revisions have been taken into account in this update. There are 205 NAICS-based BLS industries in the 2019 BLS update (NAICS stands for North American Industry Classification System).

7. Updated in Rasmussen 2017. Employment requirements tables in that report are derived from BEA input-output data, which are the primary source of data used to estimate BLS employment requirement tables (BLS-EP 2019a).

8. The macroeconomic model developed in Scott and Glass 2016 assumes that a 1.6% decrease in GDP would reduce total direct and indirect U.S. employment by roughly 1.35%. There were, on average, 155.8 million people employed in the United States in 2019 (BLS 2019b), thus yielding 2.1 million direct and indirect jobs displaced. The macroeconomic model also assumes a respending multiplier of 0.6 and yields a total of 3.4 million direct and indirect and respending jobs displaced by a trade deficit of this magnitude.

9. Scrap and used or secondhand goods are industries 203 and 204, respectively, in the BLS model, and there are no jobs supported or displaced by the production of or trade in goods in these sectors, according to the BLS model. (The jobs supported or displaced by trade are counted in the year these goods are originally manufactured—that is, when they are new—not when they are traded in the secondhand market.)

10. Authors' calculations and USITC (2019); data not published in this report, available upon request.

11. ATPs are an amalgamation of products from a variety of industries and subsectors within the broad NAICS-based categories shown in Table 2. They consist of 10 categories of products

including biotechnology, life science, opto-electronics, information and communications, electronics, flexible manufacturing, advanced materials, aerospace, weapons, and nuclear technology (U.S. Census Bureau 2018a).

12. In total ATP trade with the world in 2018, the United States had exports of $368.4 billion, imports of $496.5 billion, and a trade deficit of $128.2 billion. In total ATP trade with China in 2018, the United States had exports of $39.1 billion, imports of $173.8 billion, and a trade deficit of $134.6 billion. This exceeded the overall U.S. ATP deficit of $128.2 billion. Thus, the United States had an ATP trade surplus with the rest of the world in 2018 of $6.5 billion ($128.2 billion − $134.6 billion) (U.S. Census Bureau 2019b). Data for trade in advanced technology products (ATP) by country are not available before 2002.

13. These results are derived from the trade and employment model described in the appendix to this report.

14. Deflators for many sectors in the computer and electronics parts industry fell sharply between 2001 and 2018 due to rapid productivity growth in those sectors. For example, the price index for computer and peripheral equipment fell from 3155.9 in 2001 to 850.9 in 2018, a decline of 73.0% (the price index is set at 1,000 in 2012, the base year). In order to convert exports or imports of computers and peripheral equipment from nominal to real values for 2018, the nominal value is multiplied by 1,000/850.9 (the price index adjustment 2018 = 1.175). Thus, the real value of computers and peripheral products, a subset of the computer and electronic parts industry, is 17.5% larger than the nominal value in 2018 (in constant 2012 dollars). Overall, the real value of all computer and electronic parts imports in 2018 exceeded nominal values in that year by 7.7%. See the appendix for source notes and deflation procedures used.

15. Total imports from China in 2018 exceeded exports by a factor of 4.49-to-1 (539.1/120.1, as shown in Table 1). Thus, exports to China would have had to be roughly four times larger than they actually were in 2018 to achieve balanced trade with China.

16. Data not shown in Table 2. Authors' analysis based on the change in exports shown, by industry, and the multiplier referred to in the previous note (4.49), based on analysis of data shown in Supplemental Table 1.

17. The computer and electronic parts industry's share of all jobs lost in Table 5 due to the growth in the U.S.–China trade deficit from 2001 to 2018 ranged from 12.1% in North Carolina's 10th District to 93.0% in California's 17th District (authors' analysis of U.S. Census Bureau 2019a and 2020b; USITC 2019; BLS-EP 2019a, 2019b), compared with the national average of 36.2% of jobs (Table 3). In these states the only exceptions—that is, districts where job losses were concentrated in industries other than computer and electronic parts—were California's 34th district, where jobs losses in the apparel industry were 68.6% (and computers and electronics only 6.3%) of jobs lost in that district (compared with the national average of apparel industry job losses accounting for 5.6% of jobs lost due to U.S.–China trade, as shown in Table 3). Georgia is also one of the states that are host to one of the 20 hardest-hit congressional districts; Georgia's 14th Congressional District's job losses due to the trade deficit include a very large share of jobs in manufacturing, overall, 91.8% of all jobs lost, according to unpublished data available upon request. Nationally, manufacturing accounted for a smaller, 75.4% share, of all jobs lost (Table 3). Overall, more than two-thirds (67.6%) of jobs lost in Georgia's 14th district were in textile mills and textile product mills alone. North Carolina's 6th and 10th districts also suffered large numbers of job losses in a wide range of manufacturing industries, totaling 87.3% to 88.0% of job losses in these district. These losses were spread over a large number of industries, including especially in textiles, apparel and leather products, and furniture manufacturing (47.8% to 48.1% of jobs lost in these two districts).

18. California's 17th Congressional District is home to Santa Clara University and corporate offices for Apple, Intel, Yahoo, and eBay (Wikipedia 2018). The 18th Congressional District is home to the headquarters of Google, Netflix, and HP, among others (Eshoo 2018).

19. The term "major manufacturing sector" refers here to employment by three-digit NAICS manufacturing industries. The computer and electronic parts industry lost 1,340,600 of the 2,793,200 U.S. manufacturing jobs lost due to growing China trade deficits between 2001 and 2018 (Table 3), more than six times as many jobs as were lost as in apparel, the next largest of the hardest-hit three-digit manufacturing industries. Trade-related job losses in these industries, shown in Table 3, reflect both potential jobs displaced by the growth of imports (which represents domestic consumption that could have been supplied by domestically produced goods) and by the failure of exports to grow, resulting in large trade deficits in these products.

20. In earlier research, Autor, Dorn, and Hanson "conservatively estimate" that growing "Chinese import competition…imply a supply-shock driven net reduction in U.S. manufacturing employment of 548 thousand workers between 1990 and 2000, and a further reduction of 982 thousand workers between 2000 and 2007." They note further that these results are based on microeconomic research "exploiting cross-market variation in import exposure" (Autor, Dorn, and Hanson 2012, 19–20, abstract). These estimates are conservative, for several reasons, as noted by the authors. They fail to account for the overall macroeconomic impacts of growing U.S. trade deficits with China, including the direct and indirect effects of growing China trade deficits on U.S. employment, as noted by Acemoglu et al. 2014. As shown in Table 3, the growing U.S. goods trade deficit with China displaced 2.8 million total manufacturing jobs between 2001 and 2018, and an additional 911,300 nonmanufacturing jobs. Thus, approximately 0.33 nonmanufacturing jobs were displaced for each manufacturing job displaced. Differences in parameter estimates notwithstanding, it is important to note that Autor, Dorn, and Hanson (2012) confirm that growing Chinese import competition is responsible for the displacement of approximately 1.5 million U.S. manufacturing jobs from 1990 to 2007, generally confirming the results of current and earlier EPI research.

21. Acemoglu et al. (2014) examine the impacts of U.S.–China trade from 1999 to 2011. The U.S. trade deficit with China increased from $68.7 billion in 1999 to $83.0 billion in 2001 to $295.2 billion in 2011 (U.S. Census Bureau 2019d). Thus, 93.6% of the growth of the U.S. trade deficits with China in the 1999–2011 period occurred after China entered the WTO in 2001.

22. Scott 2013 estimates are based on average wages from a three-year pooled sample of workers by industry from 2009–2011. These estimates are not updated in this report.

23. The $180 billion in income is redistributed to college-educated workers in the top third of the labor force and to owners of capital. Bivens and Mishel (2015, Figure C) find that for the period of 1973–2014, the loss in the labor share of income was responsible for 8.7 percentage points of the gap between net productivity and real median hourly compensation (a measure of the growth in inequality in this period).

24. Between 1995 and 2011, growing trade with China was responsible for 51.6 percent of the increase in the college/noncollege wage gap in the United States in this period (Bivens 2013, Table 1). Bivens (2013, 2) concludes that "growing trade with less developed countries" overall, according to "a standard model estimating the impact of trade on American wages," "lowered wages in 2011 by 5.5 percent—or roughly $1,800 for a full-time, full-year worker earning the average wage for workers without a four-year college degree. One-third of this effect is due to growing trade with just China."

25. One frequent criticism of trade and employment studies is the claim that the growth of imports

does not displace domestic production and thus that such imports do not actually cost jobs. In addition, some assert that if imports from China fell, they would be replaced by imports from some other low-wage country (see, for example, U.S.–China Business Council 2014). However, important empirical research by Autor, Dorn, and Hanson (2012, 4) has shown that "increased exposure to low-income country imports is associated with rising unemployment, decreased labor-force participation, and increased use of disability and other transfer benefits, as well as with lower wages." The bottom line is that "trade creates new jobs in exporting industries and destroys jobs when imports replace the output of domestic firms. Because *trade deficits* have risen over the past decade, more jobs have been displaced by imports than created by exports" (Bivens 2008b, 1, Bivens 2017).

26. This analysis refers to the wage impacts of net jobs lost due to the growth of the U.S.–China trade deficit between 2001 and 2011. It includes net wage gains in the 538,000 jobs supported by increased employment in export industries, less net wage losses in the 3.3 million jobs displaced by increased imports, assuming that all of the 2.7 million net displaced workers are rehired and receive average earnings in jobs in nontraded goods industries (Scott 2013, Table 9a). It is conservative in the sense that it assumes that all of the net displaced workers are rehired in jobs in nontraded goods industries; it excludes the wage losses absorbed by those displaced workers who are not reemployed (for example, the 35.4% of long-tenured workers in manufacturing who had been displaced between January 2015 and December 2017 and were not employed in January 2018, as estimated in the BLS Displaced Worker Survey [BLS 2018]).

27. These losses can never be regained in that the hours unemployed are a permanent loss to the economy, even if an individual worker later finds employment at wages equal to or higher than pre-displacement wages. Unemployment costs are a dead-weight loss to the economy, in the same way that unemployment during a recession generates a permanent loss in national economic output.

28. Autor, Dorn, and Hanson (2012) use an analytic technique that compares employment in import-sensitive industries in various geographic areas at a fairly disaggregated level (roughly, cities or counties), referred to in their research as "commuting zones." They use these zones and data on imports in each region over the study period to do their statistical analysis.

29. A previous edition of this research (Scott 2012) used data for 56 industries provided by the ACS. The Bureau of Labor Statistics' Employment Projections program (BLS-EP) consolidated several industries, including textiles and apparel, which required us to consolidate data for these industries in our ACS state and congressional district models. Other "not elsewhere classified" industries were consolidated with other industries (e.g., "miscellaneous manufacturing") or deleted (e.g., "not specified metal industries") to update and refine the crosswalk from BLS-EP to ACS industries. As a result of these consolidations, there are 44 unique industries in the ACS data set used for this study. The current iteration of the employment requirements tables used in this study (BLS-EP 2019a) breaks the economy down into 205 industries, including 76 manufacturing industries. The previous iteration of employment requirements tables, used in Scott 2017a, broke the economy down into 195 industries, including 77 manufacturing industries.

30. The model includes 205 NAICS industries. The trade data include only goods trade. Goods trade data are available for 85 commodity-based industries, plus information (publishing and software, NAICS industry 51), waste and scrap, used or secondhand merchandise, and goods traded under special classification provisions (e.g., goods imported from and returned to Canada; small, unclassified shipments). Trade in scrap, used, and secondhand goods has no impact on employment in the BLS model. Some special classification provision goods are assigned to miscellaneous manufacturing.

31. The U.S. Census Bureau uses its own table of definitions of industries. These are similar to NAICS-based industry definitions, but at a somewhat higher level of aggregation. For this study, we develop a crosswalk from NAICS to Census industries, and we use population estimates from the ACS for each cell in this matrix. The ACS data we obtain from the Census Bureau for this project includes 44 unique sectors, plus subtotals for manufacturing, and for total employment. Trade and job loss coefficients are estimated using data only for the 44 unique sectors, across states and congressional districts.

32. According to the U.S. Census Bureau, only Colorado and Pennsylvania had congressional district boundary changes for the 116th Congress.

33. ACS 5-year estimates for the 2014–2018 period, which include estimates for employment by congressional district for the 116th Congress (in session from January 3, 2019, through January 3, 2020) were released by the Census Bureau on December 19, 2019. Estimates of trade-related job loss by state and congressional district in this report will be revised using 116th Congress data and posted in the first quarter of 2020.

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Supplemental Table 1

U.S. goods trade with China, by industry, 2001–2018 (in billions of nominal dollars)

	2001			2018			Change 2001–2018			Percent change 2001–2018		
Industry*	U.S. imports	U.S. exports	Trade balance	U.S. imports	U.S. exports	Trade balance	Change in imports	Change in exports	Change in trade balance	Change in imports	Change in exports	Change in trade balance
Agriculture, forestry, fishing, and hunting	$0.8	$1.4	$0.6	$3.2	$8.3	$5.2	$2.4	$7.0	$4.6	325.5%	518.3%	759.3%
Mining	$0.3	$0.1	-$0.2	$0.2	$8.4	$8.2	-$0.1	$8.3	$8.4	-19.3%	NA	NA
Oil and gas	$0.1	$0.0	-$0.1	$0.0	$7.1	$7.1	-$0.1	$7.1	$7.2	-98.7%	NA	NA
Minerals and ores	$0.2	$0.1	-$0.1	$0.2	$1.4	$1.1	$0.1	$1.3	$1.2	40.7%	NA	NA
Manufacturing	$101.1	$16.7	-$84.4	$535.8	$99.3	-$436.6	$434.8	$82.6	-$352.2	430.2%	495.5%	417.3%
Nondurable goods	$29.5	$4.1	-$25.4	$118.5	$25.9	-$92.6	$88.9	$21.7	-$67.2	300.9%	529.8%	264.0%
Food	$0.6	$0.8	$0.2	$4.2	$3.0	-$1.3	$3.6	$2.2	-$1.4	613.5%	282.3%	-795.2%
Beverage and tobacco products	$0.0	$0.0	$0.0	$0.1	$0.1	$0.0	$0.1	$0.1	$0.0	259.0%	NA	-156.0%
Textile mills and textile product mills	$2.2	$0.1	-$2.1	$15.3	$0.5	-$14.8	$13.1	$0.4	$12.7	598.0%	387.0%	607.3%
Apparel, leather, and allied products	$21.3	$0.6	-$20.6	$49.8	$0.6	-$49.2	$29.3	$0.5	-$28.8	142.2%	364.2%	140.8%
Paper	$1.8	$2.2	$0.4	$3.7	$2.7	-$1.0	$3.0	$2.2	-$0.8	422.3%	417.5%	435.6%
Printed matter and related products	$2.7	$0.2	-$2.5	$0.7	$1.1	-$2.8	$2.3	$0.1	-$2.2	312.5%	122.6%	335.6%
Petroleum and coal products	$0.2	$0.1	-$0.1	$0.7	$1.1	$0.3	$0.5	$1.0	$0.5	260.3%	NA	-412.7%
Chemicals	$1.8	$2.2	$0.4	$21.4	$16.1	-$5.3	$19.6	$13.9	-$5.6	NA	630%	NA
Plastics and rubber products	$2.7	$0.2	-$2.5	$20.2	$1.6	-$5.3	$17.5	$1.4	-$16.1	646.7%	693.5%	642.8%
Durable goods	$71.5	$12.6	-$58.9	$417.3	$73.4	-$343.9	$345.8	$60.8	-$285.0	483.7%	484.2%	483.5%
Wood products	$0.9	$0.1	-$0.8	$4.1	$1.6	-$2.5	$3.2	$1.5	-$1.7	359.6%	NA	217.0%
Nonmetallic mineral products	$2.5	$0.2	-$2.3	$9.2	$0.9	-$8.2	$6.7	$0.7	-$5.9	267.6%	359.2%	259.3%
Primary metals	$0.9	$0.2	-$0.6	$4.0	$3.1	-$1.0	$3.2	$2.9	-$0.3	374%	NA	55.1%
Fabricated metal products	$3.9	$0.3	-$3.6	$26.4	@2.4	-$24.0	$22.5	$2.1	-$20.4	578.3%	708.2%	567.5%
Machinery	$4.5	$2.5	-$2.0	$38.8	$11.1	-$27.7	$34.2	$8.6	-$25.7	753.8%	339.6%	NA
Computer and electronic parts	$24.4	$5.3	-$19.1	$186.2	$18.0	-$168.2	$161.8	$12.7	-$149.1	664.5%	239.5%	782.7%
Computer and peripheral equipment	$8.2	$1.6	-$6.6	$59.8	$2.3	-$57.5	$51.6	$0.7	-$50.9	631.6%	43.2%	772.0%
Communications, audio, and video equipment	$9.4	$0.9	-$8.5	$91.1	$1.4	-$89.7	$81.7	$0.5	$81.2	865.7%	54.4%	953.4%

Supplemental Table 1 (cont.)

Industry*	2001 U.S. imports	2001 U.S. exports	2001 Trade balance	2018 U.S. imports	2018 U.S. exports	2018 Trade balance	Change 2001–2018 Change in imports	Change 2001–2018 Change in exports	Change 2001–2018 Change in trade balance	Percent change 2001–2018 Change in imports	Percent change 2001–2018 Change in exports	Percent change 2001–2018 Change in trade balance
Navigational, measuring, electromedical, and control instruments	$1.2	$1.0	-$0.3	$6.7	$6.0	-$0.7	$5.4	$5.0	-$0.5	435.7%	497.8%	188.3%
Semiconductor and other electronic components, and reproducing magnetic and optical media	$5.5	$1.8	-$3.7	$28.6	$8.4	-$20.2	$23.1	$6.6	-$16.5	419.9%	362.1%	448.2%
Electrical equipment, appliances, and components	$9.1	$0.5	-$8.6	$50.1	$3.4	-$46.7	$41.0	$2.9	$38.1	452.2%	599.0%	443.9%
Transportation equipment	$1.8	$2.9	$1.1	$22.1	$27.8	$5.8	$20.2	$24.9	$4.7	NA	858.4%	428.6%
Motor vehicles and motor vehicle parts	$1.0	$0.3	-$0.8	$18.2	$9.5	-$8.7	$17.2	$9.2	-$8.0	NA	NA	NA
Aerospace products and parts	$0.1	$2.6	$2.5	$1.0	$18.2	$17.2	$0.9	$15.6	$14.7	NA	598.9%	582.6%
Railroad, ship, and other transportation equipment	$0.7	$0.0	-$0.7	$2.8	$0.1	-$2.7	$2.1	$0.1	-$2.1	312.7%	412.4%	309.9%
Furniture and related products	$4.9	$0.0	-$4.9	$25.8	$0.2	-$25.6	$20.8	$0.2	-$20.7	421.6%	770.4%	420.0%
Miscellaneous manufactured commodities	$18.7	$0.5	-$18.2	$50.8	$4.9	-$45.9	$32.1	$4.4	-$27.7	172.2%	900.2%	152.7%
Scrap and secondhand goods	$0.2	$1.1	$0.9	$0.4	$4.1	$3.7	$0.2	$3.0	$2.7	127.3%	266.6%	295.8%
Total	$102.28	$19.23	-$83.0	$539.7	$120.1	-$419.5	$437.4	$100.9	-$336.5	427.6%	524.8%	405.2%

* Excludes utilities, construction, and service sectors, which reported no goods trade in this period, and information, which reported negligible goods trade in this period.

Note: NA denotes "not applicable" because growth rates in excess of 1,000% were calculated but these rates were generally due to small trade flows in the base year.

Source: Authors' analysis of USITC 2019. For a more detailed explanation of the data sources and computations, see the appendix.

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Supplemental Table 2

Net U.S. jobs displaced due to the goods trade deficit with China, by state, 2001–2018 (ranked by net jobs displaced)

Rank	State	Net jobs displaced	State employment (2013-2017 5-year ACS estimate)	Jobs displaced as share of state employment
1	*California*	654,100	17,993,900	3.64%
2	*Texas*	334,800	12,689,000	2.64%
3	*New York*	185,100	9,467,600	1.96%
4	*Illinois*	162,400	6,181,700	2.63%
5	*Florida*	150,700	9,018,600	1.67%
6	*North Carolina*	147,700	4,571,000	3.23%
7	*Pennsylvania*	137,300	6,097,000	2.25%
8	*Ohio*	136,700	5,488,200	2.49%
9	*Georgia*	123,200	4,606,300	2.67%
10	*Michigan*	112,400	4,524,900	2.48%
11	*Massachusetts*	109,300	3,525,700	3.10%
12	*New Jersey*	95,000	4,388,000	2.16%
13	*Minnesota*	92,400	2,904,100	3.18%
14	*Wisconsin*	88,900	2,939,900	3.02%
15	*Indiana*	85,800	2,934,500	2.92%
16	*Tennessee*	73,800	2,996,600	2.46%
17	*Virginia*	70,500	4,084,000	1.73%
18	*Oregon*	68,700	1,886,000	3.64%
19	*Colorado*	67,700	2,760,100	2.45%
20	*Washington*	67,400	3,418,100	1.97%
21	*Arizona*	65,800	2,953,900	2.23%
22	*South Carolina*	57,900	2,181,100	2.65%
23	*Missouri*	56,200	2,867,400	1.96%
24	*Alabama*	50,700	2,055,500	2.47%
25	*Kentucky*	46,900	1,938,200	2.42%
26	*Maryland*	44,800	3,040,800	1.47%
27	*Connecticut*	38,100	1,805,100	2.11%
28	*Iowa*	33,900	1,599,700	2.12%
29	*Utah*	33,900	1,412,200	2.40%

Supplemental Table 2 (cont.)

Rank	State	Net jobs displaced	State employment (2013-2017 5-year ACS estimate)	Jobs displaced as share of state employment
30	***Oklahoma***	31,500	1,746,400	1.80%
31	***Mississippi***	29,700	1,221,800	2.43%
32	***New Hampshire***	26,100	713,400	3.66%
33	***Louisiana***	24,900	2,031,200	1.23%
34	***Arkansas***	24,400	1,276,500	1.91%
35	***Kansas***	24,200	1,420,100	1.70%
36	***Idaho***	21,100	748,700	2.82%
37	***Nevada***	17,900	1,341,400	1.33%
38	***Nebraska***	16,200	987,200	1.64%
39	***Rhode Island***	13,400	526,100	2.55%
40	***Maine***	12,200	658,700	1.85%
41	***New Mexico***	11,500	879,200	1.31%
42	***West Virginia***	10,000	747,000	1.34%
43	***Vermont***	9,600	327,300	2.93%
44	***South Dakota***	7,800	438,300	1.78%
45	***Hawaii***	6,600	671,800	0.98%
46	***Delaware***	6,200	441,500	1.40%
47	***Montana***	5,500	498,000	1.10%
48	***North Dakota***	5,100	400,500	1.27%
49	***DC***	3,300	357,700	0.92%
50	***Alaska***	3,000	354,000	0.85%
51	***Wyoming***	2,500	293,600	0.85%
Total*		3,704,700	150,409,500	2.46%

* Totals may vary slightly due to rounding.

Note: Percentages are calculated using rounded totals.

Source: Authors' analysis of American Community Survey (ACS) data (U.S. Census Bureau 2019a), USITC 2019, and Bureau of Labor Statistics Employment Projections program 2019a and 2019b. For a more detailed explanation of data sources and computations, see the appendix.

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Supplemental Table 3

Net U.S. jobs displaced due to the goods trade deficit with China, by state, 2001–2018 (sorted alphabetically)

Rank (by jobs displaced as a share of total)	State	Net jobs displaced	State employment (2013–2017 5-year ACS estimate)	Jobs displaced as share of state employment
18	*Alabama*	50,700	2,055,500	2.47%
51	*Alaska*	3,000	354,000	0.85%
25	*Arizona*	65,800	2,953,900	2.23%
32	*Arkansas*	24,400	1,276,500	1.91%
3	*California*	654,100	17,993,900	3.64%
20	*Colorado*	67,700	2,760,100	2.45%
28	*Connecticut*	38,100	1,805,100	2.11%
49	*DC*	3,300	357,700	0.92%
41	*Delaware*	6,200	441,500	1.40%
38	*Florida*	150,700	9,018,600	1.67%
11	*Georgia*	123,200	4,606,300	2.67%
48	*Hawaii*	6,600	671,800	0.98%
10	*Idaho*	21,100	748,700	2.82%
14	*Illinois*	162,400	6,181,700	2.63%
9	*Indiana*	85,800	2,934,500	2.92%
27	*Iowa*	33,900	1,599,700	2.12%
37	*Kansas*	24,200	1,420,100	1.70%
22	*Kentucky*	46,900	1,938,200	2.42%
46	*Louisiana*	24,900	2,031,200	1.23%
33	*Maine*	12,200	658,700	1.85%
40	*Maryland*	44,800	3,040,800	1.47%
6	*Massachusetts*	109,300	3,525,700	3.10%
17	*Michigan*	112,400	4,524,900	2.48%
5	*Minnesota*	92,400	2,904,100	3.18%
21	*Mississippi*	29,700	1,221,800	2.43%
30	*Missouri*	56,200	2,867,400	1.96%
47	*Montana*	5,500	498,000	1.10%
39	*Nebraska*	16,200	987,200	1.64%
43	*Nevada*	17,900	1,341,400	1.33%

Supplemental Table 3 (cont.)

Rank (by jobs displaced as a share of total)	State	Net jobs displaced	State employment (2013–2017 5-year ACS estimate)	Jobs displaced as share of state employment
1	***New Hampshire***	26,100	713,400	3.66%
26	***New Jersey***	95,000	4,388,000	2.16%
44	***New Mexico***	11,500	879,200	1.31%
31	***New York***	185,100	9,467,600	1.96%
4	***North Carolina***	147,700	4,571,000	3.23%
45	***North Dakota***	5,100	400,500	1.27%
16	***Ohio***	136,700	5,488,200	2.49%
34	***Oklahoma***	31,500	1,746,400	1.80%
2	***Oregon***	68,700	1,886,000	3.64%
24	***Pennsylvania***	137,300	6,097,000	2.25%
15	***Rhode Island***	13,400	526,100	2.55%
12	***South Carolina***	57,900	2,181,100	2.65%
35	***South Dakota***	7,800	438,300	1.78%
19	***Tennessee***	73,800	2,996,600	2.46%
13	***Texas***	334,800	12,689,000	2.64%
23	***Utah***	33,900	1,412,200	2.40%
8	***Vermont***	9,600	327,300	2.93%
36	***Virginia***	70,500	4,084,000	1.73%
29	***Washington***	67,400	3,418,100	1.97%
42	***West Virginia***	10,000	747,000	1.34%
7	***Wisconsin***	88,900	2,939,900	3.02%
50	***Wyoming***	2,500	293,600	0.85%
Total*		3,704,700	150,410,200	2.46%

* Totals may vary slightly due to rounding.

Note: Percentages are calculated using rounded totals.

Source: Authors' analysis of U.S. Census Bureau 2019a, USITC 2019, and Bureau of Labor Statistics Employment Projections program 2019a and 2019b. For a more detailed explanation of data sources and computations, see the appendix.

Economic Policy Institute

Supplemental Table 4

Net U.S. jobs displaced due to the goods trade deficit with China, by congressional district, 2001–2018 (ranked by net jobs displaced)

Rank	State	State District	Net jobs displaced	District employment (2013–2017 5-year ACS estimate)	Jobs displaced as a share of employment
1	*California*	17	78,700	390,700	20.14%
2	*California*	18	48,400	372,700	12.99%
3	*California*	19	45,400	381,300	11.91%
4	*Oregon*	1	31,800	408,300	7.79%
5	*Texas*	31	30,600	376,600	8.13%
6	*California*	15	27,900	382,500	7.29%
7	*Texas*	3	22,000	425,900	5.17%
8	*Texas*	10	22,000	406,600	5.41%
9	*California*	52	21,000	377,300	5.57%
10	*Georgia*	14	21,000	314,900	6.67%
11	*Massachusetts*	3	20,800	387,100	5.37%
12	*North Carolina*	4	18,500	442,300	4.18%
13	*California*	45	18,300	383,300	4.77%
14	*Colorado*	2	17,600	426,500	4.13%
15	*California*	34	17,500	354,700	4.93%
16	*California*	40	16,600	306,800	5.41%
17	*Massachusetts*	2	16,500	378,000	4.37%
18	*Minnesota*	3	16,400	381,900	4.29%
19	*Minnesota*	2	16,000	381,700	4.19%
20	*Texas*	2	15,700	401,700	3.91%
21	*Illinois*	8	15,500	377,300	4.11%
22	*North Carolina*	6	15,500	344,900	4.49%
23	*California*	12	15,400	446,300	3.45%
24	*North Carolina*	10	15,400	339,200	4.54%
25	*North Carolina*	2	15,000	374,700	4.00%
26	*California*	48	14,600	371,500	3.93%
27	*Texas*	32	14,600	397,300	3.67%
28	*California*	49	14,500	338,400	4.28%
29	*Illinois*	6	14,500	378,100	3.83%

Supplemental Table 4 (cont.)

Rank	State	State District	Net jobs displaced	District employment (2013–2017 5-year ACS estimate)	Jobs displaced as a share of employment
30	***Massachusetts***	4	14,300	393,300	3.64%
31	***Arizona***	5	14,200	360,100	3.94%
32	***Texas***	25	14,200	341,900	4.15%
33	***North Carolina***	13	14,000	354,500	3.95%
34	***California***	14	13,900	400,000	3.48%
35	***California***	46	13,700	351,600	3.90%
36	***Illinois***	14	13,700	375,400	3.65%
37	***Minnesota***	1	13,500	352,900	3.83%
38	***Indiana***	3	13,400	327,000	4.10%
39	***New Hampshire***	1	13,300	364,800	3.65%
40	***Illinois***	10	13,200	349,900	3.77%
41	***Georgia***	7	13,100	384,500	3.41%
42	***Massachusetts***	5	13,100	415,100	3.16%
43	***Texas***	17	13,100	359,500	3.64%
44	***Mississippi***	1	12,900	326,500	3.95%
45	***Wisconsin***	3	12,900	366,000	3.52%
46	***Wisconsin***	5	12,900	385,600	3.35%
47	***New Hampshire***	2	12,800	348,700	3.67%
48	***Wisconsin***	6	12,600	364,900	3.45%
49	***Michigan***	2	12,400	347,700	3.57%
50	***Texas***	24	12,400	433,100	2.86%
51	***Florida***	8	12,300	301,800	4.08%
52	***Massachusetts***	6	12,300	401,000	3.07%
53	***Colorado***	4	12,200	385,200	3.17%
54	***New York***	25	12,100	353,300	3.42%
55	***Wisconsin***	1	12,100	358,300	3.38%
56	***California***	39	12,000	353,500	3.39%
57	***Idaho***	1	11,900	373,400	3.19%
58	***Oregon***	3	11,900	427,200	2.79%
59	***South Carolina***	3	11,800	289,700	4.07%
60	***Texas***	26	11,800	431,200	2.74%

Supplemental Table 4 (cont.)

Rank	State	State District	Net jobs displaced	District employment (2013–2017 5-year ACS estimate)	Jobs displaced as a share of employment
61	***Arizona***	9	11,600	406,100	2.86%
62	***Indiana***	8	11,600	329,300	3.52%
63	***Alabama***	5	11,500	319,300	3.60%
64	***Indiana***	2	11,400	317,800	3.59%
65	***South Carolina***	4	11,400	332,500	3.43%
66	***Georgia***	6	11,300	389,600	2.90%
67	***Ohio***	4	11,300	331,000	3.41%
68	***Ohio***	5	11,300	360,400	3.14%
69	***Minnesota***	6	11,100	380,100	2.92%
70	***New York***	19	11,100	331,900	3.34%
71	***North Carolina***	5	11,100	331,600	3.35%
72	***Texas***	21	11,100	398,100	2.79%
73	***California***	4	11,000	313,800	3.51%
74	***Iowa***	1	10,900	399,700	2.73%
75	***California***	7	10,800	335,700	3.22%
76	***California***	44	10,800	304,500	3.55%
77	***Georgia***	11	10,800	380,700	2.84%
78	***Kentucky***	6	10,800	363,000	2.98%
79	***North Carolina***	11	10,800	319,500	3.38%
80	***Ohio***	7	10,800	341,000	3.17%
81	***Ohio***	14	10,800	354,500	3.05%
82	***California***	32	10,700	334,100	3.20%
83	***Tennessee***	4	10,700	352,000	3.04%
84	***Texas***	7	10,700	394,000	2.72%
85	***Wisconsin***	8	10,700	375,800	2.85%
86	***California***	50	10,600	343,200	3.09%
87	***Minnesota***	5	10,500	391,800	2.68%
88	***Ohio***	16	10,400	366,800	2.84%
89	***South Carolina***	5	10,400	302,300	3.44%
90	***Illinois***	11	10,300	364,900	2.82%
91	***Illinois***	4	10,200	338,700	3.01%
92	***New Jersey***	9	10,200	363,600	2.81%

Supplemental Table 4 (cont.)

Rank	State	State District	Net jobs displaced	District employment (2013–2017 5-year ACS estimate)	Jobs displaced as a share of employment
93	***Utah***	4	10,200	377,400	2.70%
94	***Washington***	3	10,200	313,000	3.26%
95	***California***	47	10,100	346,300	2.92%
96	***Georgia***	3	10,100	318,400	3.17%
97	***Michigan***	11	10,100	369,200	2.74%
98	***Michigan***	6	10,000	336,700	2.97%
99	***New Jersey***	7	10,000	384,300	2.60%
100	***North Carolina***	12	10,000	435,100	2.30%
101	***California***	13	9,900	384,300	2.58%
102	***New Jersey***	5	9,900	378,700	2.61%
103	***Oregon***	5	9,900	371,200	2.67%
104	***Pennsylvania***	15	9,900	355,000	2.79%
105	***Pennsylvania***	16	9,900	352,300	2.81%
106	***Washington***	1	9,900	366,000	2.70%
107	***New York***	18	9,800	345,700	2.83%
108	***California***	38	9,700	328,100	2.96%
109	***Indiana***	6	9,700	311,900	3.11%
110	***Iowa***	2	9,700	387,900	2.50%
111	***Pennsylvania***	6	9,700	378,000	2.57%
112	***Tennessee***	6	9,700	335,500	2.89%
113	***California***	26	9,600	346,300	2.77%
114	***California***	43	9,600	338,100	2.84%
115	***Connecticut***	5	9,600	357,400	2.69%
116	***Michigan***	3	9,600	350,000	2.74%
117	***Minnesota***	4	9,600	364,200	2.64%
118	***Ohio***	8	9,600	344,300	2.79%
119	***Pennsylvania***	4	9,600	357,800	2.68%
120	***Vermont***	Statewide	9,600	327,300	2.93%
121	***Wisconsin***	7	9,600	348,900	2.75%
122	***California***	27	9,500	348,200	2.73%
123	***Colorado***	7	9,500	408,000	2.33%
124	***Georgia***	9	9,500	313,600	3.03%

Supplemental Table 4 (cont.)

Rank	State	State District	Net jobs displaced	District employment (2013–2017 5-year ACS estimate)	Jobs displaced as a share of employment
125	***New Jersey***	8	9,500	401,500	2.37%
126	***Texas***	8	9,500	357,000	2.66%
127	***California***	53	9,400	378,300	2.48%
128	***Texas***	22	9,400	406,800	2.31%
129	***New York***	27	9,300	354,200	2.63%
130	***California***	33	9,200	368,300	2.50%
131	***Illinois***	5	9,200	426,100	2.16%
132	***Oregon***	4	9,200	338,000	2.72%
133	***Wisconsin***	4	9,200	329,700	2.79%
134	***California***	42	9,100	335,800	2.71%
135	***Idaho***	2	9,100	375,200	2.43%
136	***Ohio***	13	9,100	329,400	2.76%
137	***Pennsylvania***	8	9,100	371,100	2.45%
138	***Wisconsin***	2	9,100	410,700	2.22%
139	***Alabama***	4	9,000	273,400	3.29%
140	***New Jersey***	11	9,000	386,100	2.33%
141	***New Jersey***	12	8,900	372,700	2.39%
142	***Virginia***	10	8,900	422,500	2.11%
143	***Michigan***	10	8,800	336,000	2.62%
144	***Minnesota***	7	8,800	334,900	2.63%
145	***New York***	2	8,800	369,400	2.38%
146	***North Carolina***	8	8,800	322,000	2.73%
147	***Washington***	7	8,800	438,000	2.01%
148	***California***	29	8,700	347,300	2.51%
149	***Massachusetts***	8	8,700	413,500	2.10%
150	***Michigan***	8	8,700	359,600	2.42%
151	***Tennessee***	3	8,700	313,600	2.77%
152	***California***	37	8,600	360,800	2.38%
153	***Colorado***	5	8,600	342,900	2.51%
154	***Indiana***	9	8,600	339,400	2.53%
155	***Michigan***	9	8,600	350,500	2.45%
156	***New Jersey***	6	8,600	365,000	2.36%

Supplemental Table 4 (cont.)

Rank	State	State District	Net jobs displaced	District employment (2013–2017 5-year ACS estimate)	Jobs displaced as a share of employment
157	***Texas***	33	8,600	316,400	2.72%
158	***Illinois***	9	8,500	361,000	2.35%
159	***Kentucky***	3	8,500	365,700	2.32%
160	***North Carolina***	9	8,500	337,700	2.52%
161	***Texas***	18	8,500	350,200	2.43%
162	***California***	10	8,400	309,600	2.71%
163	***Florida***	25	8,400	350,500	2.40%
164	***Indiana***	4	8,400	328,500	2.56%
165	***Kentucky***	2	8,400	335,300	2.51%
166	***Missouri***	3	8,400	380,700	2.21%
167	***Tennessee***	5	8,400	400,600	2.10%
168	***Utah***	1	8,400	343,000	2.45%
169	***California***	28	8,300	390,800	2.12%
170	***California***	35	8,300	320,800	2.59%
171	***Pennsylvania***	5	8,300	315,300	2.63%
172	***Utah***	3	8,300	346,200	2.40%
173	***Alabama***	3	8,200	295,600	2.77%
174	***Massachusetts***	7	8,200	424,900	1.93%
175	***Michigan***	7	8,200	320,400	2.56%
176	***New York***	24	8,200	336,400	2.44%
177	***California***	30	8,100	393,400	2.06%
178	***Illinois***	16	8,100	331,300	2.44%
179	***Kansas***	3	8,100	391,500	2.07%
180	***Colorado***	1	8,000	442,100	1.81%
181	***Illinois***	3	8,000	339,100	2.36%
182	***Kentucky***	4	8,000	352,100	2.27%
183	***New York***	22	8,000	319,400	2.50%
184	***North Carolina***	1	8,000	328,600	2.43%
185	***Pennsylvania***	3	8,000	318,100	2.51%
186	***Pennsylvania***	12	8,000	336,300	2.38%
187	***Pennsylvania***	18	8,000	350,800	2.28%
188	***Texas***	5	8,000	326,200	2.45%

Supplemental Table 4 (cont.)

Rank	State	State District	Net jobs displaced	District employment (2013–2017 5-year ACS estimate)	Jobs displaced as a share of employment
189	***Texas***	6	8,000	377,900	2.12%
190	***Arizona***	6	7,900	377,500	2.09%
191	***California***	20	7,900	327,700	2.41%
192	***Colorado***	6	7,900	412,200	1.92%
193	***Florida***	22	7,900	372,800	2.12%
194	***Maryland***	6	7,900	382,400	2.07%
195	***Washington***	8	7,900	351,900	2.24%
196	***Connecticut***	3	7,800	364,200	2.14%
197	***Illinois***	17	7,800	311,000	2.51%
198	***Indiana***	5	7,800	357,700	2.18%
199	***New York***	7	7,800	355,000	2.20%
200	***Ohio***	12	7,800	384,000	2.03%
201	***Oklahoma***	1	7,800	380,500	2.05%
202	***Pennsylvania***	11	7,800	338,200	2.31%
203	***South Dakota***	1	7,800	438,300	1.78%
204	***Texas***	12	7,800	377,100	2.07%
205	***Virginia***	5	7,800	333,800	2.34%
206	***Indiana***	7	7,700	312,200	2.47%
207	***Massachusetts***	1	7,700	350,200	2.20%
208	***New York***	12	7,700	450,100	1.71%
209	***Texas***	4	7,700	316,100	2.44%
210	***Texas***	35	7,700	379,900	2.03%
211	***Ohio***	1	7,600	346,300	2.19%
212	***Ohio***	9	7,600	325,900	2.33%
213	***Ohio***	10	7,600	328,800	2.31%
214	***Pennsylvania***	17	7,600	321,600	2.36%
215	***Texas***	9	7,600	376,000	2.02%
216	***Virginia***	9	7,600	296,600	2.56%
217	***Washington***	9	7,600	376,100	2.02%
218	***Massachusetts***	9	7,500	362,600	2.07%
219	***Tennessee***	7	7,500	317,500	2.36%
220	***Tennessee***	9	7,500	315,000	2.38%

Supplemental Table 4 (cont.)

Rank	State	State District	Net jobs displaced	District employment (2013–2017 5-year ACS estimate)	Jobs displaced as a share of employment
221	***California***	11	7,400	356,100	2.08%
222	***Connecticut***	4	7,400	364,700	2.03%
223	***Missouri***	7	7,400	355,500	2.08%
224	***New York***	1	7,400	353,800	2.09%
225	***Ohio***	2	7,400	345,600	2.14%
226	***South Carolina***	2	7,400	327,400	2.26%
227	***Arizona***	8	7,300	328,700	2.22%
228	***California***	41	7,300	320,900	2.27%
229	***Florida***	23	7,300	369,700	1.97%
230	***Kentucky***	1	7,300	290,900	2.51%
231	***Missouri***	2	7,300	394,300	1.85%
232	***Virginia***	6	7,300	353,200	2.07%
233	***Arizona***	7	7,200	323,700	2.22%
234	***Illinois***	7	7,200	334,500	2.15%
235	***Illinois***	15	7,200	316,300	2.28%
236	***Indiana***	1	7,200	310,600	2.32%
237	***Pennsylvania***	10	7,200	316,800	2.27%
238	***Tennessee***	1	7,200	304,000	2.37%
239	***California***	5	7,100	355,500	2.00%
240	***Georgia***	13	7,100	344,300	2.06%
241	***New York***	20	7,100	364,600	1.95%
242	***New York***	23	7,100	316,100	2.25%
243	***Tennessee***	8	7,100	315,200	2.25%
244	***Utah***	2	7,100	345,700	2.05%
245	***Arkansas***	3	7,000	355,500	1.97%
246	***Florida***	13	7,000	333,300	2.10%
247	***Georgia***	4	7,000	349,200	2.00%
248	***New York***	6	7,000	359,800	1.95%
249	***New York***	10	7,000	387,200	1.81%
250	***Pennsylvania***	13	7,000	352,600	1.99%
251	***Tennessee***	2	7,000	343,200	2.04%
252	***Georgia***	10	6,900	316,900	2.18%

Supplemental Table 4 (cont.)

Rank	State	State District	Net jobs displaced	District employment (2013–2017 5-year ACS estimate)	Jobs displaced as a share of employment
253	***Missouri***	6	6,900	369,100	1.87%
254	***Rhode Island***	1	6,900	258,800	2.67%
255	***Virginia***	1	6,900	381,800	1.81%
256	***California***	2	6,800	337,400	2.02%
257	***Maine***	1	6,800	353,300	1.92%
258	***Ohio***	15	6,800	358,700	1.90%
259	***Oklahoma***	5	6,800	373,200	1.82%
260	***Texas***	30	6,800	336,700	2.02%
261	***California***	25	6,700	316,900	2.11%
262	***Connecticut***	2	6,700	360,200	1.86%
263	***Illinois***	18	6,700	344,400	1.95%
264	***Iowa***	4	6,700	385,700	1.74%
265	***Missouri***	8	6,700	304,400	2.20%
266	***Texas***	16	6,700	303,100	2.21%
267	***California***	9	6,600	310,500	2.13%
268	***Connecticut***	1	6,600	358,600	1.84%
269	***Missouri***	5	6,600	372,400	1.77%
270	***New York***	3	6,600	352,800	1.87%
271	***California***	31	6,500	314,800	2.06%
272	***Georgia***	5	6,500	362,600	1.79%
273	***Iowa***	3	6,500	426,400	1.52%
274	***Michigan***	4	6,500	300,200	2.17%
275	***Michigan***	12	6,500	335,300	1.94%
276	***Minnesota***	8	6,500	316,600	2.05%
277	***Oklahoma***	4	6,500	354,700	1.83%
278	***Rhode Island***	2	6,500	267,300	2.43%
279	***Texas***	29	6,500	321,100	2.02%
280	***Florida***	10	6,400	392,200	1.63%
281	***Michigan***	14	6,400	284,400	2.25%
282	***Mississippi***	4	6,400	313,200	2.04%
283	***Missouri***	1	6,400	353,700	1.81%
284	***Missouri***	4	6,400	337,400	1.90%

Supplemental Table 4 (cont.)

Rank	State	State District	Net jobs displaced	District employment (2013–2017 5-year ACS estimate)	Jobs displaced as a share of employment
285	***New Jersey***	4	6,400	345,700	1.85%
286	***North Carolina***	7	6,400	336,800	1.90%
287	***Ohio***	6	6,400	298,000	2.15%
288	***Pennsylvania***	14	6,400	349,200	1.83%
289	***California***	6	6,300	327,200	1.93%
290	***New Jersey***	1	6,300	358,100	1.76%
291	***Ohio***	3	6,300	378,500	1.66%
292	***Pennsylvania***	7	6,300	360,600	1.75%
293	***South Carolina***	7	6,300	294,900	2.14%
294	***Alabama***	2	6,200	283,200	2.19%
295	***Delaware***	Statewide	6,200	441,500	1.40%
296	***Florida***	7	6,200	371,700	1.67%
297	***Maryland***	8	6,200	403,600	1.54%
298	***New York***	26	6,200	337,500	1.84%
299	***Pennsylvania***	9	6,200	308,300	2.01%
300	***California***	24	6,100	346,200	1.76%
301	***Florida***	14	6,100	372,100	1.64%
302	***Florida***	21	6,100	339,800	1.80%
303	***Kansas***	2	6,100	341,700	1.79%
304	***Nebraska***	1	6,100	334,900	1.82%
305	***New Jersey***	3	6,100	355,500	1.72%
306	***Virginia***	11	6,100	424,000	1.44%
307	***Florida***	4	6,000	374,600	1.60%
308	***Illinois***	12	6,000	303,800	1.97%
309	***Nevada***	2	6,000	334,100	1.80%
310	***Alabama***	6	5,900	327,900	1.80%
311	***Arkansas***	4	5,900	285,900	2.06%
312	***Mississippi***	3	5,900	316,200	1.87%
313	***New York***	14	5,900	352,300	1.67%
314	***Ohio***	11	5,900	295,100	2.00%
315	***Oregon***	2	5,900	341,400	1.73%
316	***Virginia***	7	5,900	387,300	1.52%

Supplemental Table 4 (cont.)

Rank	State	State District	Net jobs displaced	District employment (2013–2017 5-year ACS estimate)	Jobs displaced as a share of employment
317	***Arkansas***	1	5,800	289,200	2.01%
318	***Arkansas***	2	5,800	345,900	1.68%
319	***Florida***	12	5,800	314,200	1.85%
320	***Maryland***	3	5,800	398,300	1.46%
321	***Michigan***	5	5,800	279,200	2.08%
322	***New York***	17	5,800	362,600	1.60%
323	***Georgia***	12	5,700	284,200	2.01%
324	***North Carolina***	3	5,700	304,200	1.87%
325	***Washington***	5	5,700	308,000	1.85%
326	***California***	51	5,600	283,900	1.97%
327	***Florida***	20	5,600	350,900	1.60%
328	***Illinois***	1	5,600	306,600	1.83%
329	***Maryland***	1	5,600	361,700	1.55%
330	***Maryland***	2	5,600	375,600	1.49%
331	***Nebraska***	2	5,600	342,100	1.64%
332	***New York***	21	5,600	312,100	1.79%
333	***Virginia***	8	5,600	454,000	1.23%
334	***Washington***	2	5,600	348,300	1.61%
335	***Florida***	15	5,500	345,500	1.59%
336	***Michigan***	1	5,500	298,800	1.84%
337	***Montana***	Statewide	5,500	498,000	1.10%
338	***New Jersey***	10	5,500	345,900	1.59%
339	***New York***	4	5,500	363,400	1.51%
340	***Arizona***	3	5,400	312,700	1.73%
341	***Florida***	6	5,400	300,400	1.80%
342	***Florida***	27	5,400	382,100	1.41%
343	***Illinois***	2	5,400	290,900	1.86%
344	***Maine***	2	5,400	305,300	1.77%
345	***South Carolina***	6	5,400	273,400	1.98%
346	***Texas***	1	5,400	301,300	1.79%
347	***Virginia***	4	5,400	352,500	1.53%
348	***Georgia***	2	5,300	253,500	2.09%

Supplemental Table 4 (cont.)

Rank	State	State District	Net jobs displaced	District employment (2013–2017 5-year ACS estimate)	Jobs displaced as a share of employment
349	***Oklahoma***	2	5,300	293,700	1.80%
350	***South Carolina***	1	5,300	360,800	1.47%
351	***Illinois***	13	5,200	332,400	1.56%
352	***Michigan***	13	5,200	256,800	2.02%
353	***Texas***	20	5,200	356,200	1.46%
354	***Texas***	36	5,200	312,900	1.66%
355	***Alabama***	7	5,100	266,300	1.92%
356	***Florida***	16	5,100	330,200	1.54%
357	***Kansas***	1	5,100	343,000	1.49%
358	***Louisiana***	6	5,100	377,800	1.35%
359	***North Dakota***	Statewide	5,100	400,500	1.27%
360	***Florida***	18	5,000	330,200	1.51%
361	***Maryland***	7	5,000	335,600	1.49%
362	***New York***	11	5,000	329,800	1.52%
363	***Oklahoma***	3	5,000	344,400	1.45%
364	***Texas***	14	5,000	324,700	1.54%
365	***Alabama***	1	4,900	289,900	1.69%
366	***California***	1	4,900	281,000	1.74%
367	***Georgia***	8	4,900	285,800	1.71%
368	***Kansas***	4	4,900	344,000	1.42%
369	***New Mexico***	1	4,900	317,200	1.54%
370	***Pennsylvania***	1	4,900	316,300	1.55%
371	***Florida***	24	4,800	329,900	1.45%
372	***New York***	8	4,800	346,600	1.38%
373	***California***	3	4,700	309,100	1.52%
374	***Louisiana***	1	4,700	376,500	1.25%
375	***New York***	16	4,700	350,500	1.34%
376	***Texas***	11	4,700	338,700	1.39%
377	***Virginia***	2	4,700	341,300	1.38%
378	***Mississippi***	2	4,600	265,900	1.73%
379	***Nebraska***	3	4,600	310,200	1.48%
380	***Nevada***	3	4,600	376,500	1.22%

Supplemental Table 4 (cont.)

Rank	State	State District	Net jobs displaced	District employment (2013–2017 5-year ACS estimate)	Jobs displaced as a share of employment
381	***New York***	13	4,600	360,600	1.28%
382	***Washington***	10	4,600	318,700	1.44%
383	***Arizona***	4	4,500	265,500	1.69%
384	***California***	36	4,500	281,400	1.60%
385	***Maryland***	4	4,500	394,100	1.14%
386	***New Jersey***	2	4,500	331,000	1.36%
387	***New York***	5	4,500	369,400	1.22%
388	***Texas***	13	4,500	319,100	1.41%
389	***Texas***	27	4,500	331,000	1.36%
390	***California***	16	4,400	265,300	1.66%
391	***Florida***	26	4,400	361,200	1.22%
392	***Maryland***	5	4,400	389,700	1.13%
393	***Texas***	23	4,400	310,600	1.42%
394	***Florida***	9	4,300	353,200	1.22%
395	***Louisiana***	3	4,300	351,600	1.22%
396	***Texas***	15	4,300	300,600	1.43%
397	***Virginia***	3	4,300	336,900	1.28%
398	***New York***	9	4,200	349,600	1.20%
399	***California***	22	4,100	315,500	1.30%
400	***Florida***	19	4,100	316,600	1.30%
401	***Florida***	3	4,000	304,300	1.31%
402	***Georgia***	1	4,000	308,300	1.30%
403	***Kentucky***	5	4,000	231,100	1.73%
404	***New Mexico***	3	4,000	286,700	1.40%
405	***Arizona***	1	3,900	274,800	1.42%
406	***California***	8	3,900	262,500	1.49%
407	***Colorado***	3	3,900	343,100	1.14%
408	***Florida***	1	3,900	322,600	1.21%
409	***Washington***	6	3,900	292,900	1.33%
410	***Arizona***	2	3,800	304,800	1.25%
411	***Louisiana***	2	3,800	343,800	1.11%
412	***Nevada***	1	3,800	319,500	1.19%

Supplemental Table 4 (cont.)

Rank	State	State District	Net jobs displaced	District employment (2013–2017 5-year ACS estimate)	Jobs displaced as a share of employment
413	***Texas***	19	3,800	324,200	1.17%
414	***Florida***	5	3,700	309,500	1.20%
415	***West Virginia***	2	3,700	268,500	1.38%
416	***Hawaii***	1	3,600	348,600	1.03%
417	***Louisiana***	4	3,600	297,800	1.21%
418	***Nevada***	4	3,500	311,300	1.12%
419	***Texas***	28	3,500	294,000	1.19%
420	***West Virginia***	1	3,500	265,200	1.32%
421	***Louisiana***	5	3,400	283,700	1.20%
422	***New York***	15	3,400	283,700	1.20%
423	***Pennsylvania***	2	3,400	298,500	1.14%
424	***DC***	Statewide	3,300	357,700	0.92%
425	***Florida***	2	3,300	285,600	1.16%
426	***Florida***	11	3,300	239,200	1.38%
427	***Florida***	17	3,200	264,500	1.21%
428	***Texas***	34	3,200	265,100	1.21%
429	***California***	23	3,100	290,200	1.07%
430	***Washington***	4	3,100	305,200	1.02%
431	***Alaska***	Statewide	3,000	354,000	0.85%
432	***Hawaii***	2	2,900	323,100	0.90%
433	***West Virginia***	3	2,800	213,300	1.31%
434	***New Mexico***	2	2,600	275,300	0.94%
435	***Wyoming***	Statewide	2,500	293,600	0.85%
436	***California***	21	2,000	253,900	0.79%
Total*			3,704,700	150,409,500	2.46%

* Totals may vary slightly due to rounding.

Note: Percentages are calculated using rounded totals.

Source: Authors' analysis of American Community Survey (ACS) data (U.S. Census Bureau 2019a and 2020a), USITC 2019, and Bureau of Labor Statistics Employment Projections program 2019a and 2019b. For a more detailed explanation of data sources and computations, see the appendix.

Economic Policy Institute

Supplemental Table 5

Net U.S. jobs displaced due to the goods trade deficit with China, by congressional district, 2001–2018 (sorted alphabetically by state)

State	State District	Net jobs displaced	District employment (2013–2017 5-year ACS estimate)	Jobs displaced as a share of employment
Alabama	1	4,900	289,900	1.69%
Alabama	2	6,200	283,200	2.19%
Alabama	3	8,200	295,600	2.77%
Alabama	4	9,000	273,400	3.29%
Alabama	5	11,500	319,300	3.60%
Alabama	6	5,900	327,900	1.80%
Alabama	7	5,100	266,300	1.92%
Alaska	Statewide	3,000	354,000	0.85%
Arizona	1	3,900	274,800	1.42%
Arizona	2	3,800	304,800	1.25%
Arizona	3	5,400	312,700	1.73%
Arizona	4	4,500	265,500	1.69%
Arizona	5	14,200	360,100	3.94%
Arizona	6	7,900	377,500	2.09%
Arizona	7	7,200	323,700	2.22%
Arizona	8	7,300	328,700	2.22%
Arizona	9	11,600	406,100	2.86%
Arkansas	1	5,800	289,200	2.01%
Arkansas	2	5,800	345,900	1.68%
Arkansas	3	7,000	355,500	1.97%
Arkansas	4	5,900	285,900	2.06%
California	1	4,900	281,000	1.74%
California	2	6,800	337,400	2.02%
California	3	4,700	309,100	1.52%
California	4	11,000	313,800	3.51%
California	5	7,100	355,500	2.00%
California	6	6,300	327,200	1.93%
California	7	10,800	335,700	3.22%
California	8	3,900	262,500	1.49%
California	9	6,600	310,500	2.13%

Supplemental Table 5 (cont.)

State	State District	Net jobs displaced	District employment (2013–2017 5-year ACS estimate)	Jobs displaced as a share of employment
California	10	8,400	309,600	2.71%
California	11	7,400	356,100	2.08%
California	12	15,400	446,300	3.45%
California	13	9,900	384,300	2.58%
California	14	13,900	400,000	3.48%
California	15	27,900	382,500	7.29%
California	16	4,400	265,300	1.66%
California	17	78,700	390,700	20.14%
California	18	48,400	372,700	12.99%
California	19	45,400	381,300	11.91%
California	20	7,900	327,700	2.41%
California	21	2,000	253,900	0.79%
California	22	4,100	315,500	1.30%
California	23	3,100	290,200	1.07%
California	24	6,100	346,200	1.76%
California	25	6,700	316,900	2.11%
California	26	9,600	346,300	2.77%
California	27	9,500	348,200	2.73%
California	28	8,300	390,800	2.12%
California	29	8,700	347,300	2.51%
California	30	8,100	393,400	2.06%
California	31	6,500	314,800	2.06%
California	32	10,700	334,100	3.20%
California	33	9,200	368,300	2.50%
California	34	17,500	354,700	4.93%
California	35	8,300	320,800	2.59%
California	36	4,500	281,400	1.60%
California	37	8,600	360,800	2.38%
California	38	9,700	328,100	2.96%
California	39	12,000	353,500	3.39%
California	40	16,600	306,800	5.41%
California	41	7,300	320,900	2.27%

Supplemental Table 5 (cont.)

State	State District	Net jobs displaced	District employment (2013–2017 5-year ACS estimate)	Jobs displaced as a share of employment
California	42	9,100	335,800	2.71%
California	43	9,600	338,100	2.84%
California	44	10,800	304,500	3.55%
California	45	18,300	383,300	4.77%
California	46	13,700	351,600	3.90%
California	47	10,100	346,300	2.92%
California	48	14,600	371,500	3.93%
California	49	14,500	338,400	4.28%
California	50	10,600	343,200	3.09%
California	51	5,600	283,900	1.97%
California	52	21,000	377,300	5.57%
California	53	9,400	378,300	2.48%
Colorado	1	8,000	442,100	1.81%
Colorado	2	17,600	426,500	4.13%
Colorado	3	3,900	343,100	1.14%
Colorado	4	12,200	385,200	3.17%
Colorado	5	8,600	342,900	2.51%
Colorado	6	7,900	412,200	1.92%
Colorado	7	9,500	408,000	2.33%
Connecticut	1	6,600	358,600	1.84%
Connecticut	2	6,700	360,200	1.86%
Connecticut	3	7,800	364,200	2.14%
Connecticut	4	7,400	364,700	2.03%
Connecticut	5	9,600	357,400	2.69%
Delaware	Statewide	6,200	441,500	1.40%
DC	Statewide	3,300	357,700	0.92%
Florida	1	3,900	322,600	1.21%
Florida	2	3,300	285,600	1.16%
Florida	3	4,000	304,300	1.31%
Florida	4	6,000	374,600	1.60%
Florida	5	3,700	309,500	1.20%
Florida	6	5,400	300,400	1.80%

Supplemental Table 5 (cont.)

State	State District	Net jobs displaced	District employment (2013–2017 5-year ACS estimate)	Jobs displaced as a share of employment
Florida	7	6,200	371,700	1.67%
Florida	8	12,300	301,800	4.08%
Florida	9	4,300	353,200	1.22%
Florida	10	6,400	392,200	1.63%
Florida	11	3,300	239,200	1.38%
Florida	12	5,800	314,200	1.85%
Florida	13	7,000	333,300	2.10%
Florida	14	6,100	372,100	1.64%
Florida	15	5,500	345,500	1.59%
Florida	16	5,100	330,200	1.54%
Florida	17	3,200	264,500	1.21%
Florida	18	5,000	330,200	1.51%
Florida	19	4,100	316,600	1.30%
Florida	20	5,600	350,900	1.60%
Florida	21	6,100	339,800	1.80%
Florida	22	7,900	372,800	2.12%
Florida	23	7,300	369,700	1.97%
Florida	24	4,800	329,900	1.45%
Florida	25	8,400	350,500	2.40%
Florida	26	4,400	361,200	1.22%
Florida	27	5,400	382,100	1.41%
Georgia	1	4,000	308,300	1.30%
Georgia	2	5,300	253,500	2.09%
Georgia	3	10,100	318,400	3.17%
Georgia	4	7,000	349,200	2.00%
Georgia	5	6,500	362,600	1.79%
Georgia	6	11,300	389,600	2.90%
Georgia	7	13,100	384,500	3.41%
Georgia	8	4,900	285,800	1.71%
Georgia	9	9,500	313,600	3.03%
Georgia	10	6,900	316,900	2.18%
Georgia	11	10,800	380,700	2.84%

Supplemental Table 5 (cont.)

State	State District	Net jobs displaced	District employment (2013–2017 5-year ACS estimate)	Jobs displaced as a share of employment
Georgia	12	5,700	284,200	2.01%
Georgia	13	7,100	344,300	2.06%
Georgia	14	21,000	314,900	6.67%
Hawaii	1	3,600	348,600	1.03%
Hawaii	2	2,900	323,100	0.90%
Idaho	1	11,900	373,400	3.19%
Idaho	2	9,100	375,200	2.43%
Illinois	1	5,600	306,600	1.83%
Illinois	2	5,400	290,900	1.86%
Illinois	3	8,000	339,100	2.36%
Illinois	4	10,200	338,700	3.01%
Illinois	5	9,200	426,100	2.16%
Illinois	6	14,500	378,100	3.83%
Illinois	7	7,200	334,500	2.15%
Illinois	8	15,500	377,300	4.11%
Illinois	9	8,500	361,000	2.35%
Illinois	10	13,200	349,900	3.77%
Illinois	11	10,300	364,900	2.82%
Illinois	12	6,000	303,800	1.97%
Illinois	13	5,200	332,400	1.56%
Illinois	14	13,700	375,400	3.65%
Illinois	15	7,200	316,300	2.28%
Illinois	16	8,100	331,300	2.44%
Illinois	17	7,800	311,000	2.51%
Illinois	18	6,700	344,400	1.95%
Indiana	1	7,200	310,600	2.32%
Indiana	2	11,400	317,800	3.59%
Indiana	3	13,400	327,000	4.10%
Indiana	4	8,400	328,500	2.56%
Indiana	5	7,800	357,700	2.18%
Indiana	6	9,700	311,900	3.11%
Indiana	7	7,700	312,200	2.47%

Supplemental Table 5 (cont.)

State	State District	Net jobs displaced	District employment (2013–2017 5-year ACS estimate)	Jobs displaced as a share of employment
Indiana	8	11,600	329,300	3.52%
Indiana	9	8,600	339,400	2.53%
Iowa	1	10,900	399,700	2.73%
Iowa	2	9,700	387,900	2.50%
Iowa	3	6,500	426,400	1.52%
Iowa	4	6,700	385,700	1.74%
Kansas	1	5,100	343,000	1.49%
Kansas	2	6,100	341,700	1.79%
Kansas	3	8,100	391,500	2.07%
Kansas	4	4,900	344,000	1.42%
Kentucky	1	7,300	290,900	2.51%
Kentucky	2	8,400	335,300	2.51%
Kentucky	3	8,500	365,700	2.32%
Kentucky	4	8,000	352,100	2.27%
Kentucky	5	4,000	231,100	1.73%
Kentucky	6	10,800	363,000	2.98%
Louisiana	1	4,700	376,500	1.25%
Louisiana	2	3,800	343,800	1.11%
Louisiana	3	4,300	351,600	1.22%
Louisiana	4	3,600	297,800	1.21%
Louisiana	5	3,400	283,700	1.20%
Louisiana	6	5,100	377,800	1.35%
Maine	1	6,800	353,300	1.92%
Maine	2	5,400	305,300	1.77%
Maryland	1	5,600	361,700	1.55%
Maryland	2	5,600	375,600	1.49%
Maryland	3	5,800	398,300	1.46%
Maryland	4	4,500	394,100	1.14%
Maryland	5	4,400	389,700	1.13%
Maryland	6	7,900	382,400	2.07%
Maryland	7	5,000	335,600	1.49%
Maryland	8	6,200	403,600	1.54%

Supplemental Table 5 (cont.)

State	State District	Net jobs displaced	District employment (2013–2017 5-year ACS estimate)	Jobs displaced as a share of employment
Massachusetts	1	7,700	350,200	2.20%
Massachusetts	2	16,500	378,000	4.37%
Massachusetts	3	20,800	387,100	5.37%
Massachusetts	4	14,300	393,300	3.64%
Massachusetts	5	13,100	415,100	3.16%
Massachusetts	6	12,300	401,000	3.07%
Massachusetts	7	8,200	424,900	1.93%
Massachusetts	8	8,700	413,500	2.10%
Massachusetts	9	7,500	362,600	2.07%
Michigan	1	5,500	298,800	1.84%
Michigan	2	12,400	347,700	3.57%
Michigan	3	9,600	350,000	2.74%
Michigan	4	6,500	300,200	2.17%
Michigan	5	5,800	279,200	2.08%
Michigan	6	10,000	336,700	2.97%
Michigan	7	8,200	320,400	2.56%
Michigan	8	8,700	359,600	2.42%
Michigan	9	8,600	350,500	2.45%
Michigan	10	8,800	336,000	2.62%
Michigan	11	10,100	369,200	2.74%
Michigan	12	6,500	335,300	1.94%
Michigan	13	5,200	256,800	2.02%
Michigan	14	6,400	284,400	2.25%
Minnesota	1	13,500	352,900	3.83%
Minnesota	2	16,000	381,700	4.19%
Minnesota	3	16,400	381,900	4.29%
Minnesota	4	9,600	364,200	2.64%
Minnesota	5	10,500	391,800	2.68%
Minnesota	6	11,100	380,100	2.92%
Minnesota	7	8,800	334,900	2.63%
Minnesota	8	6,500	316,600	2.05%
Mississippi	1	12,900	326,500	3.95%

Supplemental Table 5 (cont.)

State	State District	Net jobs displaced	District employment (2013–2017 5-year ACS estimate)	Jobs displaced as a share of employment
Mississippi	2	4,600	265,900	1.73%
Mississippi	3	5,900	316,200	1.87%
Mississippi	4	6,400	313,200	2.04%
Montana	Statewide	5,500	498,000	1.10%
Missouri	1	6,400	353,700	1.81%
Missouri	2	7,300	394,300	1.85%
Missouri	3	8,400	380,700	2.21%
Missouri	4	6,400	337,400	1.90%
Missouri	5	6,600	372,400	1.77%
Missouri	6	6,900	369,100	1.87%
Missouri	7	7,400	355,500	2.08%
Missouri	8	6,700	304,400	2.20%
Nebraska	1	6,100	334,900	1.82%
Nebraska	2	5,600	342,100	1.64%
Nebraska	3	4,600	310,200	1.48%
Nevada	1	3,800	319,500	1.19%
Nevada	2	6,000	334,100	1.80%
Nevada	3	4,600	376,500	1.22%
Nevada	4	3,500	311,300	1.12%
New Hampshire	1	13,300	364,800	3.65%
New Hampshire	2	12,800	348,700	3.67%
New Jersey	1	6,300	358,100	1.76%
New Jersey	2	4,500	331,000	1.36%
New Jersey	3	6,100	355,500	1.72%
New Jersey	4	6,400	345,700	1.85%
New Jersey	5	9,900	378,700	2.61%
New Jersey	6	8,600	365,000	2.36%
New Jersey	7	10,000	384,300	2.60%
New Jersey	8	9,500	401,500	2.37%
New Jersey	9	10,200	363,600	2.81%
New Jersey	10	5,500	345,900	1.59%
New Jersey	11	9,000	386,100	2.33%

Supplemental Table 5 (cont.)

State	State District	Net jobs displaced	District employment (2013–2017 5-year ACS estimate)	Jobs displaced as a share of employment
New Jersey	12	8,900	372,700	2.39%
New Mexico	1	4,900	317,200	1.54%
New Mexico	2	2,600	275,300	0.94%
New Mexico	3	4,000	286,700	1.40%
New York	1	7,400	353,800	2.09%
New York	2	8,800	369,400	2.38%
New York	3	6,600	352,800	1.87%
New York	4	5,500	363,400	1.51%
New York	5	4,500	369,400	1.22%
New York	6	7,000	359,800	1.95%
New York	7	7,800	355,000	2.20%
New York	8	4,800	346,600	1.38%
New York	9	4,200	349,600	1.20%
New York	10	7,000	387,200	1.81%
New York	11	5,000	329,800	1.52%
New York	12	7,700	450,100	1.71%
New York	13	4,600	360,600	1.28%
New York	14	5,900	352,300	1.67%
New York	15	3,400	283,700	1.20%
New York	16	4,700	350,500	1.34%
New York	17	5,800	362,600	1.60%
New York	18	9,800	345,700	2.83%
New York	19	11,100	331,900	3.34%
New York	20	7,100	364,600	1.95%
New York	21	5,600	312,100	1.79%
New York	22	8,000	319,400	2.50%
New York	23	7,100	316,100	2.25%
New York	24	8,200	336,400	2.44%
New York	25	12,100	353,300	3.42%
New York	26	6,200	337,500	1.84%
New York	27	9,300	354,200	2.63%
North Carolina	1	8,000	328,600	2.43%

Supplemental Table 5 (cont.)

State	State District	Net jobs displaced	District employment (2013–2017 5-year ACS estimate)	Jobs displaced as a share of employment
North Carolina	2	15,000	374,700	4.00%
North Carolina	3	5,700	304,200	1.87%
North Carolina	4	18,500	442,300	4.18%
North Carolina	5	11,100	331,600	3.35%
North Carolina	6	15,500	344,900	4.49%
North Carolina	7	6,400	336,800	1.90%
North Carolina	8	8,800	322,000	2.73%
North Carolina	9	8,500	337,700	2.52%
North Carolina	10	15,400	339,200	4.54%
North Carolina	11	10,800	319,500	3.38%
North Carolina	12	10,000	435,100	2.30%
North Carolina	13	14,000	354,500	3.95%
North Dakota	Statewide	5,100	400,500	1.27%
Ohio	1	7,600	346,300	2.19%
Ohio	2	7,400	345,600	2.14%
Ohio	3	6,300	378,500	1.66%
Ohio	4	11,300	331,000	3.41%
Ohio	5	11,300	360,400	3.14%
Ohio	6	6,400	298,000	2.15%
Ohio	7	10,800	341,000	3.17%
Ohio	8	9,600	344,300	2.79%
Ohio	9	7,600	325,900	2.33%
Ohio	10	7,600	328,800	2.31%
Ohio	11	5,900	295,100	2.00%
Ohio	12	7,800	384,000	2.03%
Ohio	13	9,100	329,400	2.76%
Ohio	14	10,800	354,500	3.05%
Ohio	15	6,800	358,700	1.90%
Ohio	16	10,400	366,800	2.84%
Oklahoma	1	7,800	380,500	2.05%
Oklahoma	2	5,300	293,700	1.80%
Oklahoma	3	5,000	344,400	1.45%

Supplemental Table 5 (cont.)

State	State District	Net jobs displaced	District employment (2013–2017 5-year ACS estimate)	Jobs displaced as a share of employment
Oklahoma	4	6,500	354,700	1.83%
Oklahoma	5	6,800	373,200	1.82%
Oregon	1	31,800	408,300	7.79%
Oregon	2	5,900	341,400	1.73%
Oregon	3	11,900	427,200	2.79%
Oregon	4	9,200	338,000	2.72%
Oregon	5	9,900	371,200	2.67%
Pennsylvania	1	4,900	316,300	1.55%
Pennsylvania	2	3,400	298,500	1.14%
Pennsylvania	3	8,000	318,100	2.51%
Pennsylvania	4	9,600	357,800	2.68%
Pennsylvania	5	8,300	315,300	2.63%
Pennsylvania	6	9,700	378,000	2.57%
Pennsylvania	7	6,300	360,600	1.75%
Pennsylvania	8	9,100	371,100	2.45%
Pennsylvania	9	6,200	308,300	2.01%
Pennsylvania	10	7,200	316,800	2.27%
Pennsylvania	11	7,800	338,200	2.31%
Pennsylvania	12	8,000	336,300	2.38%
Pennsylvania	13	7,000	352,600	1.99%
Pennsylvania	14	6,400	349,200	1.83%
Pennsylvania	15	9,900	355,000	2.79%
Pennsylvania	16	9,900	352,300	2.81%
Pennsylvania	17	7,600	321,600	2.36%
Pennsylvania	18	8,000	350,800	2.28%
Rhode Island	1	6,900	258,800	2.67%
Rhode Island	2	6,500	267,300	2.43%
South Carolina	1	5,300	360,800	1.47%
South Carolina	2	7,400	327,400	2.26%
South Carolina	3	11,800	289,700	4.07%
South Carolina	4	11,400	332,500	3.43%
South Carolina	5	10,400	302,300	3.44%

Supplemental Table 5 (cont.)

State	State District	Net jobs displaced	District employment (2013–2017 5-year ACS estimate)	Jobs displaced as a share of employment
South Carolina	6	5,400	273,400	1.98%
South Carolina	7	6,300	294,900	2.14%
South Dakota	1	7,800	438,300	1.78%
Tennessee	1	7,200	304,000	2.37%
Tennessee	2	7,000	343,200	2.04%
Tennessee	3	8,700	313,600	2.77%
Tennessee	4	10,700	352,000	3.04%
Tennessee	5	8,400	400,600	2.10%
Tennessee	6	9,700	335,500	2.89%
Tennessee	7	7,500	317,500	2.36%
Tennessee	8	7,100	315,200	2.25%
Tennessee	9	7,500	315,000	2.38%
Texas	1	5,400	301,300	1.79%
Texas	2	15,700	401,700	3.91%
Texas	3	22,000	425,900	5.17%
Texas	4	7,700	316,100	2.44%
Texas	5	8,000	326,200	2.45%
Texas	6	8,000	377,900	2.12%
Texas	7	10,700	394,000	2.72%
Texas	8	9,500	357,000	2.66%
Texas	9	7,600	376,000	2.02%
Texas	10	22,000	406,600	5.41%
Texas	11	4,700	338,700	1.39%
Texas	12	7,800	377,100	2.07%
Texas	13	4,500	319,100	1.41%
Texas	14	5,000	324,700	1.54%
Texas	15	4,300	300,600	1.43%
Texas	16	6,700	303,100	2.21%
Texas	17	13,100	359,500	3.64%
Texas	18	8,500	350,200	2.43%
Texas	19	3,800	324,200	1.17%
Texas	20	5,200	356,200	1.46%

Supplemental Table 5 (cont.)

State	State District	Net jobs displaced	District employment (2013–2017 5-year ACS estimate)	Jobs displaced as a share of employment
Texas	21	11,100	398,100	2.79%
Texas	22	9,400	406,800	2.31%
Texas	23	4,400	310,600	1.42%
Texas	24	12,400	433,100	2.86%
Texas	25	14,200	341,900	4.15%
Texas	26	11,800	431,200	2.74%
Texas	27	4,500	331,000	1.36%
Texas	28	3,500	294,000	1.19%
Texas	29	6,500	321,100	2.02%
Texas	30	6,800	336,700	2.02%
Texas	31	30,600	376,600	8.13%
Texas	32	14,600	397,300	3.67%
Texas	33	8,600	316,400	2.72%
Texas	34	3,200	265,100	1.21%
Texas	35	7,700	379,900	2.03%
Texas	36	5,200	312,900	1.66%
Utah	1	8,400	343,000	2.45%
Utah	2	7,100	345,700	2.05%
Utah	3	8,300	346,200	2.40%
Utah	4	10,200	377,400	2.70%
Vermont	Statewide	9,600	327,300	2.93%
Virginia	1	6,900	381,800	1.81%
Virginia	2	4,700	341,300	1.38%
Virginia	3	4,300	336,900	1.28%
Virginia	4	5,400	352,500	1.53%
Virginia	5	7,800	333,800	2.34%
Virginia	6	7,300	353,200	2.07%
Virginia	7	5,900	387,300	1.52%
Virginia	8	5,600	454,000	1.23%
Virginia	9	7,600	296,600	2.56%
Virginia	10	8,900	422,500	2.11%
Virginia	11	6,100	424,000	1.44%

Supplemental Table 5 (cont.)

State	State District	Net jobs displaced	District employment (2013–2017 5-year ACS estimate)	Jobs displaced as a share of employment
Washington	1	9,900	366,000	2.70%
Washington	2	5,600	348,300	1.61%
Washington	3	10,200	313,000	3.26%
Washington	4	3,100	305,200	1.02%
Washington	5	5,700	308,000	1.85%
Washington	6	3,900	292,900	1.33%
Washington	7	8,800	438,000	2.01%
Washington	8	7,900	351,900	2.24%
Washington	9	7,600	376,100	2.02%
Washington	10	4,600	318,700	1.44%
West Virginia	1	3,500	265,200	1.32%
West Virginia	2	3,700	268,500	1.38%
West Virginia	3	2,800	213,300	1.31%
Wisconsin	1	12,100	358,300	3.38%
Wisconsin	2	9,100	410,700	2.22%
Wisconsin	3	12,900	366,000	3.52%
Wisconsin	4	9,200	329,700	2.79%
Wisconsin	5	12,900	385,600	3.35%
Wisconsin	6	12,600	364,900	3.45%
Wisconsin	7	9,600	348,900	2.75%
Wisconsin	8	10,700	375,800	2.85%
Wyoming	Statewide	2,500	293,600	0.85%
Total*		3704700	150,410,200	2.46%

* Totals may vary slightly due to rounding.

Note: Percentages are calculated using rounded totals.

Source: Authors' analysis of American Community Survey (ACS) data (U.S. Census Bureau 2019a and 2020a), USITC 2019, and Bureau of Labor Statistics Employment Projections program 2019a and 2019b. For a more detailed explanation of data sources and computations, see the appendix.

Economic Policy Institute

Supplemental Table 6

Net U.S. jobs displaced due to goods trade deficit with China, by congressional district, 2001–2018 (ranked by jobs displaced as a share of total district employment)

Rank	State	State District	Net jobs displaced	District employment (2013–2017 5-year ACS estimate)	Jobs displaced as a share of employment
1	*California*	17	78,700	390,700	20.14%
2	*California*	18	48,400	372,700	12.99%
3	*California*	19	45,400	381,300	11.91%
4	*Texas*	31	30,600	376,600	8.13%
5	*Oregon*	1	31,800	408,300	7.79%
6	*California*	15	27,900	382,500	7.29%
7	*Georgia*	14	21,000	314,900	6.67%
8	*California*	52	21,000	377,300	5.57%
9	*Texas*	10	22,000	406,600	5.41%
10	*California*	40	16,600	306,800	5.41%
11	*Massachusetts*	3	20,800	387,100	5.37%
12	*Texas*	3	22,000	425,900	5.17%
13	*California*	34	17,500	354,700	4.93%
14	*California*	45	18,300	383,300	4.77%
15	*North Carolina*	10	15,400	339,200	4.54%
16	*North Carolina*	6	15,500	344,900	4.49%
17	*Massachusetts*	2	16,500	378,000	4.37%
18	*Minnesota*	3	16,400	381,900	4.29%
19	*California*	49	14,500	338,400	4.28%
20	*Minnesota*	2	16,000	381,700	4.19%
21	*North Carolina*	4	18,500	442,300	4.18%
22	*Texas*	25	14,200	341,900	4.15%
23	*Colorado*	2	17,600	426,500	4.13%
24	*Illinois*	8	15,500	377,300	4.11%
25	*Indiana*	3	13,400	327,000	4.10%
26	*Florida*	8	12,300	301,800	4.08%
27	*South Carolina*	3	11,800	289,700	4.07%
28	*North Carolina*	2	15,000	374,700	4.00%
29	*Mississippi*	1	12,900	326,500	3.95%

Supplemental Table 6 (cont.)

Rank	State	State District	Net jobs displaced	District employment (2013–2017 5-year ACS estimate)	Jobs displaced as a share of employment
30	***North Carolina***	13	14,000	354,500	3.95%
31	***Arizona***	5	14,200	360,100	3.94%
32	***California***	48	14,600	371,500	3.93%
33	***Texas***	2	15,700	401,700	3.91%
34	***California***	46	13,700	351,600	3.90%
35	***Illinois***	6	14,500	378,100	3.83%
36	***Minnesota***	1	13,500	352,900	3.83%
37	***Illinois***	10	13,200	349,900	3.77%
38	***Texas***	32	14,600	397,300	3.67%
39	***New Hampshire***	2	12,800	348,700	3.67%
40	***Illinois***	14	13,700	375,400	3.65%
41	***New Hampshire***	1	13,300	364,800	3.65%
42	***Texas***	17	13,100	359,500	3.64%
43	***Massachusetts***	4	14,300	393,300	3.64%
44	***Alabama***	5	11,500	319,300	3.60%
45	***Indiana***	2	11,400	317,800	3.59%
46	***Michigan***	2	12,400	347,700	3.57%
47	***California***	44	10,800	304,500	3.55%
48	***Wisconsin***	3	12,900	366,000	3.52%
49	***Indiana***	8	11,600	329,300	3.52%
50	***California***	4	11,000	313,800	3.51%
51	***California***	14	13,900	400,000	3.48%
52	***Wisconsin***	6	12,600	364,900	3.45%
53	***California***	12	15,400	446,300	3.45%
54	***South Carolina***	5	10,400	302,300	3.44%
55	***South Carolina***	4	11,400	332,500	3.43%
56	***New York***	25	12,100	353,300	3.42%
57	***Ohio***	4	11,300	331,000	3.41%
58	***Georgia***	7	13,100	384,500	3.41%
59	***California***	39	12,000	353,500	3.39%
60	***North Carolina***	11	10,800	319,500	3.38%

Supplemental Table 6 (cont.)

Rank	State	State District	Net jobs displaced	District employment (2013–2017 5-year ACS estimate)	Jobs displaced as a share of employment
61	***Wisconsin***	1	12,100	358,300	3.38%
62	***North Carolina***	5	11,100	331,600	3.35%
63	***Wisconsin***	5	12,900	385,600	3.35%
64	***New York***	19	11,100	331,900	3.34%
65	***Alabama***	4	9,000	273,400	3.29%
66	***Washington***	3	10,200	313,000	3.26%
67	***California***	7	10,800	335,700	3.22%
68	***California***	32	10,700	334,100	3.20%
69	***Idaho***	1	11,900	373,400	3.19%
70	***Georgia***	3	10,100	318,400	3.17%
71	***Colorado***	4	12,200	385,200	3.17%
72	***Ohio***	7	10,800	341,000	3.17%
73	***Massachusetts***	5	13,100	415,100	3.16%
74	***Ohio***	5	11,300	360,400	3.14%
75	***Indiana***	6	9,700	311,900	3.11%
76	***California***	50	10,600	343,200	3.09%
77	***Massachusetts***	6	12,300	401,000	3.07%
78	***Ohio***	14	10,800	354,500	3.05%
79	***Tennessee***	4	10,700	352,000	3.04%
80	***Georgia***	9	9,500	313,600	3.03%
81	***Illinois***	4	10,200	338,700	3.01%
82	***Kentucky***	6	10,800	363,000	2.98%
83	***Michigan***	6	10,000	336,700	2.97%
84	***California***	38	9,700	328,100	2.96%
85	***Vermont***	Statewide	9,600	327,300	2.93%
86	***Minnesota***	6	11,100	380,100	2.92%
87	***California***	47	10,100	346,300	2.92%
88	***Georgia***	6	11,300	389,600	2.90%
89	***Tennessee***	6	9,700	335,500	2.89%
90	***Texas***	24	12,400	433,100	2.86%
91	***Arizona***	9	11,600	406,100	2.86%
92	***Wisconsin***	8	10,700	375,800	2.85%

Supplemental Table 6 (cont.)

Rank	State	State District	Net jobs displaced	District employment (2013–2017 5-year ACS estimate)	Jobs displaced as a share of employment
93	***California***	43	9,600	338,100	2.84%
94	***Georgia***	11	10,800	380,700	2.84%
95	***Ohio***	16	10,400	366,800	2.84%
96	***New York***	18	9,800	345,700	2.83%
97	***Illinois***	11	10,300	364,900	2.82%
98	***Pennsylvania***	16	9,900	352,300	2.81%
99	***New Jersey***	9	10,200	363,600	2.81%
100	***Wisconsin***	4	9,200	329,700	2.79%
101	***Pennsylvania***	15	9,900	355,000	2.79%
102	***Ohio***	8	9,600	344,300	2.79%
103	***Texas***	21	11,100	398,100	2.79%
104	***Oregon***	3	11,900	427,200	2.79%
105	***Tennessee***	3	8,700	313,600	2.77%
106	***Alabama***	3	8,200	295,600	2.77%
107	***California***	26	9,600	346,300	2.77%
108	***Ohio***	13	9,100	329,400	2.76%
109	***Wisconsin***	7	9,600	348,900	2.75%
110	***Michigan***	3	9,600	350,000	2.74%
111	***Texas***	26	11,800	431,200	2.74%
112	***Michigan***	11	10,100	369,200	2.74%
113	***North Carolina***	8	8,800	322,000	2.73%
114	***California***	27	9,500	348,200	2.73%
115	***Iowa***	1	10,900	399,700	2.73%
116	***Oregon***	4	9,200	338,000	2.72%
117	***Texas***	33	8,600	316,400	2.72%
118	***Texas***	7	10,700	394,000	2.72%
119	***California***	10	8,400	309,600	2.71%
120	***California***	42	9,100	335,800	2.71%
121	***Washington***	1	9,900	366,000	2.70%
122	***Utah***	4	10,200	377,400	2.70%
123	***Connecticut***	5	9,600	357,400	2.69%
124	***Pennsylvania***	4	9,600	357,800	2.68%

Supplemental Table 6 (cont.)

Rank	State	State District	Net jobs displaced	District employment (2013–2017 5-year ACS estimate)	Jobs displaced as a share of employment
125	***Minnesota***	5	10,500	391,800	2.68%
126	***Oregon***	5	9,900	371,200	2.67%
127	***Rhode Island***	1	6,900	258,800	2.67%
128	***Texas***	8	9,500	357,000	2.66%
129	***Minnesota***	4	9,600	364,200	2.64%
130	***Pennsylvania***	5	8,300	315,300	2.63%
131	***Minnesota***	7	8,800	334,900	2.63%
132	***New York***	27	9,300	354,200	2.63%
133	***Michigan***	10	8,800	336,000	2.62%
134	***New Jersey***	5	9,900	378,700	2.61%
135	***New Jersey***	7	10,000	384,300	2.60%
136	***California***	35	8,300	320,800	2.59%
137	***California***	13	9,900	384,300	2.58%
138	***Pennsylvania***	6	9,700	378,000	2.57%
139	***Virginia***	9	7,600	296,600	2.56%
140	***Michigan***	7	8,200	320,400	2.56%
141	***Indiana***	4	8,400	328,500	2.56%
142	***Indiana***	9	8,600	339,400	2.53%
143	***North Carolina***	9	8,500	337,700	2.52%
144	***Pennsylvania***	3	8,000	318,100	2.51%
145	***Kentucky***	1	7,300	290,900	2.51%
146	***Illinois***	17	7,800	311,000	2.51%
147	***Colorado***	5	8,600	342,900	2.51%
148	***Kentucky***	2	8,400	335,300	2.51%
149	***California***	29	8,700	347,300	2.51%
150	***New York***	22	8,000	319,400	2.50%
151	***Iowa***	2	9,700	387,900	2.50%
152	***California***	33	9,200	368,300	2.50%
153	***California***	53	9,400	378,300	2.48%
154	***Indiana***	7	7,700	312,200	2.47%
155	***Michigan***	9	8,600	350,500	2.45%
156	***Texas***	5	8,000	326,200	2.45%

Supplemental Table 6 (cont.)

Rank	State	State District	Net jobs displaced	District employment (2013–2017 5-year ACS estimate)	Jobs displaced as a share of employment
157	***Pennsylvania***	8	9,100	371,100	2.45%
158	***Utah***	1	8,400	343,000	2.45%
159	***Illinois***	16	8,100	331,300	2.44%
160	***New York***	24	8,200	336,400	2.44%
161	***Texas***	4	7,700	316,100	2.44%
162	***North Carolina***	1	8,000	328,600	2.43%
163	***Rhode Island***	2	6,500	267,300	2.43%
164	***Texas***	18	8,500	350,200	2.43%
165	***Idaho***	2	9,100	375,200	2.43%
166	***Michigan***	8	8,700	359,600	2.42%
167	***California***	20	7,900	327,700	2.41%
168	***Utah***	3	8,300	346,200	2.40%
169	***Florida***	25	8,400	350,500	2.40%
170	***New Jersey***	12	8,900	372,700	2.39%
171	***California***	37	8,600	360,800	2.38%
172	***New York***	2	8,800	369,400	2.38%
173	***Tennessee***	9	7,500	315,000	2.38%
174	***Pennsylvania***	12	8,000	336,300	2.38%
175	***Tennessee***	1	7,200	304,000	2.37%
176	***New Jersey***	8	9,500	401,500	2.37%
177	***Pennsylvania***	17	7,600	321,600	2.36%
178	***Tennessee***	7	7,500	317,500	2.36%
179	***Illinois***	3	8,000	339,100	2.36%
180	***New Jersey***	6	8,600	365,000	2.36%
181	***Illinois***	9	8,500	361,000	2.35%
182	***Virginia***	5	7,800	333,800	2.34%
183	***Ohio***	9	7,600	325,900	2.33%
184	***New Jersey***	11	9,000	386,100	2.33%
185	***Colorado***	7	9,500	408,000	2.33%
186	***Kentucky***	3	8,500	365,700	2.32%
187	***Indiana***	1	7,200	310,600	2.32%
188	***Ohio***	10	7,600	328,800	2.31%

Supplemental Table 6 (cont.)

Rank	State	State District	Net jobs displaced	District employment (2013–2017 5-year ACS estimate)	Jobs displaced as a share of employment
189	***Texas***	22	9,400	406,800	2.31%
190	***Pennsylvania***	11	7,800	338,200	2.31%
191	***North Carolina***	12	10,000	435,100	2.30%
192	***Pennsylvania***	18	8,000	350,800	2.28%
193	***Illinois***	15	7,200	316,300	2.28%
194	***California***	41	7,300	320,900	2.27%
195	***Pennsylvania***	10	7,200	316,800	2.27%
196	***Kentucky***	4	8,000	352,100	2.27%
197	***South Carolina***	2	7,400	327,400	2.26%
198	***Tennessee***	8	7,100	315,200	2.25%
199	***Michigan***	14	6,400	284,400	2.25%
200	***New York***	23	7,100	316,100	2.25%
201	***Washington***	8	7,900	351,900	2.24%
202	***Arizona***	7	7,200	323,700	2.22%
203	***Arizona***	8	7,300	328,700	2.22%
204	***Wisconsin***	2	9,100	410,700	2.22%
205	***Texas***	16	6,700	303,100	2.21%
206	***Missouri***	3	8,400	380,700	2.21%
207	***Missouri***	8	6,700	304,400	2.20%
208	***Massachusetts***	1	7,700	350,200	2.20%
209	***New York***	7	7,800	355,000	2.20%
210	***Ohio***	1	7,600	346,300	2.19%
211	***Alabama***	2	6,200	283,200	2.19%
212	***Indiana***	5	7,800	357,700	2.18%
213	***Georgia***	10	6,900	316,900	2.18%
214	***Michigan***	4	6,500	300,200	2.17%
215	***Illinois***	5	9,200	426,100	2.16%
216	***Illinois***	7	7,200	334,500	2.15%
217	***Ohio***	6	6,400	298,000	2.15%
218	***Connecticut***	3	7,800	364,200	2.14%
219	***Ohio***	2	7,400	345,600	2.14%
220	***South Carolina***	7	6,300	294,900	2.14%

Supplemental Table 6 (cont.)

Rank	State	State District	Net jobs displaced	District employment (2013–2017 5-year ACS estimate)	Jobs displaced as a share of employment
221	***California***	9	6,600	310,500	2.13%
222	***California***	28	8,300	390,800	2.12%
223	***Florida***	22	7,900	372,800	2.12%
224	***Texas***	6	8,000	377,900	2.12%
225	***California***	25	6,700	316,900	2.11%
226	***Virginia***	10	8,900	422,500	2.11%
227	***Massachusetts***	8	8,700	413,500	2.10%
228	***Florida***	13	7,000	333,300	2.10%
229	***Tennessee***	5	8,400	400,600	2.10%
230	***Arizona***	6	7,900	377,500	2.09%
231	***New York***	1	7,400	353,800	2.09%
232	***Georgia***	2	5,300	253,500	2.09%
233	***Missouri***	7	7,400	355,500	2.08%
234	***California***	11	7,400	356,100	2.08%
235	***Michigan***	5	5,800	279,200	2.08%
236	***Kansas***	3	8,100	391,500	2.07%
237	***Texas***	12	7,800	377,100	2.07%
238	***Massachusetts***	9	7,500	362,600	2.07%
239	***Virginia***	6	7,300	353,200	2.07%
240	***Maryland***	6	7,900	382,400	2.07%
241	***California***	31	6,500	314,800	2.06%
242	***Arkansas***	4	5,900	285,900	2.06%
243	***Georgia***	13	7,100	344,300	2.06%
244	***California***	30	8,100	393,400	2.06%
245	***Utah***	2	7,100	345,700	2.05%
246	***Minnesota***	8	6,500	316,600	2.05%
247	***Oklahoma***	1	7,800	380,500	2.05%
248	***Mississippi***	4	6,400	313,200	2.04%
249	***Tennessee***	2	7,000	343,200	2.04%
250	***Ohio***	12	7,800	384,000	2.03%
251	***Connecticut***	4	7,400	364,700	2.03%
252	***Texas***	35	7,700	379,900	2.03%

Supplemental Table 6 (cont.)

Rank	State	State District	Net jobs displaced	District employment (2013–2017 5-year ACS estimate)	Jobs displaced as a share of employment
253	***Michigan***	13	5,200	256,800	2.02%
254	***Texas***	29	6,500	321,100	2.02%
255	***Texas***	9	7,600	376,000	2.02%
256	***Washington***	9	7,600	376,100	2.02%
257	***Texas***	30	6,800	336,700	2.02%
258	***California***	2	6,800	337,400	2.02%
259	***Pennsylvania***	9	6,200	308,300	2.01%
260	***Washington***	7	8,800	438,000	2.01%
261	***Georgia***	12	5,700	284,200	2.01%
262	***Arkansas***	1	5,800	289,200	2.01%
263	***Georgia***	4	7,000	349,200	2.00%
264	***Ohio***	11	5,900	295,100	2.00%
265	***California***	5	7,100	355,500	2.00%
266	***Pennsylvania***	13	7,000	352,600	1.99%
267	***South Carolina***	6	5,400	273,400	1.98%
268	***Illinois***	12	6,000	303,800	1.97%
269	***Florida***	23	7,300	369,700	1.97%
270	***California***	51	5,600	283,900	1.97%
271	***Arkansas***	3	7,000	355,500	1.97%
272	***New York***	20	7,100	364,600	1.95%
273	***New York***	6	7,000	359,800	1.95%
274	***Illinois***	18	6,700	344,400	1.95%
275	***Michigan***	12	6,500	335,300	1.94%
276	***Massachusetts***	7	8,200	424,900	1.93%
277	***California***	6	6,300	327,200	1.93%
278	***Maine***	1	6,800	353,300	1.92%
279	***Colorado***	6	7,900	412,200	1.92%
280	***Alabama***	7	5,100	266,300	1.92%
281	***North Carolina***	7	6,400	336,800	1.90%
282	***Missouri***	4	6,400	337,400	1.90%
283	***Ohio***	15	6,800	358,700	1.90%
284	***North Carolina***	3	5,700	304,200	1.87%

Supplemental Table 6 (cont.)

Rank	State	State District	Net jobs displaced	District employment (2013–2017 5-year ACS estimate)	Jobs displaced as a share of employment
285	***New York***	3	6,600	352,800	1.87%
286	***Missouri***	6	6,900	369,100	1.87%
287	***Mississippi***	3	5,900	316,200	1.87%
288	***Connecticut***	2	6,700	360,200	1.86%
289	***Illinois***	2	5,400	290,900	1.86%
290	***Missouri***	2	7,300	394,300	1.85%
291	***New Jersey***	4	6,400	345,700	1.85%
292	***Washington***	5	5,700	308,000	1.85%
293	***Florida***	12	5,800	314,200	1.85%
294	***Michigan***	1	5,500	298,800	1.84%
295	***Connecticut***	1	6,600	358,600	1.84%
296	***New York***	26	6,200	337,500	1.84%
297	***Pennsylvania***	14	6,400	349,200	1.83%
298	***Oklahoma***	4	6,500	354,700	1.83%
299	***Illinois***	1	5,600	306,600	1.83%
300	***Oklahoma***	5	6,800	373,200	1.82%
301	***Nebraska***	1	6,100	334,900	1.82%
302	***Colorado***	1	8,000	442,100	1.81%
303	***Missouri***	1	6,400	353,700	1.81%
304	***New York***	10	7,000	387,200	1.81%
305	***Virginia***	1	6,900	381,800	1.81%
306	***Oklahoma***	2	5,300	293,700	1.80%
307	***Alabama***	6	5,900	327,900	1.80%
308	***Florida***	6	5,400	300,400	1.80%
309	***Nevada***	2	6,000	334,100	1.80%
310	***Florida***	21	6,100	339,800	1.80%
311	***New York***	21	5,600	312,100	1.79%
312	***Georgia***	5	6,500	362,600	1.79%
313	***Texas***	1	5,400	301,300	1.79%
314	***Kansas***	2	6,100	341,700	1.79%
315	***South Dakota***	1	7,800	438,300	1.78%
316	***Missouri***	5	6,600	372,400	1.77%

Supplemental Table 6 (cont.)

Rank	State	State District	Net jobs displaced	District employment (2013–2017 5-year ACS estimate)	Jobs displaced as a share of employment
317	***Maine***	2	5,400	305,300	1.77%
318	***California***	24	6,100	346,200	1.76%
319	***New Jersey***	1	6,300	358,100	1.76%
320	***Pennsylvania***	7	6,300	360,600	1.75%
321	***California***	1	4,900	281,000	1.74%
322	***Iowa***	4	6,700	385,700	1.74%
323	***Kentucky***	5	4,000	231,100	1.73%
324	***Mississippi***	2	4,600	265,900	1.73%
325	***Oregon***	2	5,900	341,400	1.73%
326	***Arizona***	3	5,400	312,700	1.73%
327	***New Jersey***	3	6,100	355,500	1.72%
328	***Georgia***	8	4,900	285,800	1.71%
329	***New York***	12	7,700	450,100	1.71%
330	***Arizona***	4	4,500	265,500	1.69%
331	***Alabama***	1	4,900	289,900	1.69%
332	***Arkansas***	2	5,800	345,900	1.68%
333	***New York***	14	5,900	352,300	1.67%
334	***Florida***	7	6,200	371,700	1.67%
335	***Ohio***	3	6,300	378,500	1.66%
336	***Texas***	36	5,200	312,900	1.66%
337	***California***	16	4,400	265,300	1.66%
338	***Florida***	14	6,100	372,100	1.64%
339	***Nebraska***	2	5,600	342,100	1.64%
340	***Florida***	10	6,400	392,200	1.63%
341	***Washington***	2	5,600	348,300	1.61%
342	***Florida***	4	6,000	374,600	1.60%
343	***New York***	17	5,800	362,600	1.60%
344	***California***	36	4,500	281,400	1.60%
345	***Florida***	20	5,600	350,900	1.60%
346	***Florida***	15	5,500	345,500	1.59%
347	***New Jersey***	10	5,500	345,900	1.59%
348	***Illinois***	13	5,200	332,400	1.56%

Supplemental Table 6 (cont.)

Rank	State	State District	Net jobs displaced	District employment (2013–2017 5-year ACS estimate)	Jobs displaced as a share of employment
349	***Pennsylvania***	1	4,900	316,300	1.55%
350	***Maryland***	1	5,600	361,700	1.55%
351	***New Mexico***	1	4,900	317,200	1.54%
352	***Florida***	16	5,100	330,200	1.54%
353	***Texas***	14	5,000	324,700	1.54%
354	***Maryland***	8	6,200	403,600	1.54%
355	***Virginia***	4	5,400	352,500	1.53%
356	***Iowa***	3	6,500	426,400	1.52%
357	***Virginia***	7	5,900	387,300	1.52%
358	***California***	3	4,700	309,100	1.52%
359	***New York***	11	5,000	329,800	1.52%
360	***Florida***	18	5,000	330,200	1.51%
361	***New York***	4	5,500	363,400	1.51%
362	***Maryland***	2	5,600	375,600	1.49%
363	***Maryland***	7	5,000	335,600	1.49%
364	***Kansas***	1	5,100	343,000	1.49%
365	***California***	8	3,900	262,500	1.49%
366	***Nebraska***	3	4,600	310,200	1.48%
367	***South Carolina***	1	5,300	360,800	1.47%
368	***Texas***	20	5,200	356,200	1.46%
369	***Maryland***	3	5,800	398,300	1.46%
370	***Florida***	24	4,800	329,900	1.45%
371	***Oklahoma***	3	5,000	344,400	1.45%
372	***Washington***	10	4,600	318,700	1.44%
373	***Virginia***	11	6,100	424,000	1.44%
374	***Texas***	15	4,300	300,600	1.43%
375	***Kansas***	4	4,900	344,000	1.42%
376	***Arizona***	1	3,900	274,800	1.42%
377	***Texas***	23	4,400	310,600	1.42%
378	***Florida***	27	5,400	382,100	1.41%
379	***Texas***	13	4,500	319,100	1.41%
380	***Delaware***	Statewide	6,200	441,500	1.40%

Supplemental Table 6 (cont.)

Rank	State	State District	Net jobs displaced	District employment (2013–2017 5-year ACS estimate)	Jobs displaced as a share of employment
381	***New Mexico***	3	4,000	286,700	1.40%
382	***Texas***	11	4,700	338,700	1.39%
383	***New York***	8	4,800	346,600	1.38%
384	***Florida***	11	3,300	239,200	1.38%
385	***West Virginia***	2	3,700	268,500	1.38%
386	***Virginia***	2	4,700	341,300	1.38%
387	***New Jersey***	2	4,500	331,000	1.36%
388	***Texas***	27	4,500	331,000	1.36%
389	***Louisiana***	6	5,100	377,800	1.35%
390	***New York***	16	4,700	350,500	1.34%
391	***Washington***	6	3,900	292,900	1.33%
392	***West Virginia***	1	3,500	265,200	1.32%
393	***Florida***	3	4,000	304,300	1.31%
394	***West Virginia***	3	2,800	213,300	1.31%
395	***California***	22	4,100	315,500	1.30%
396	***Georgia***	1	4,000	308,300	1.30%
397	***Florida***	19	4,100	316,600	1.30%
398	***Virginia***	3	4,300	336,900	1.28%
399	***New York***	13	4,600	360,600	1.28%
400	***North Dakota***	Statewide	5,100	400,500	1.27%
401	***Louisiana***	1	4,700	376,500	1.25%
402	***Arizona***	2	3,800	304,800	1.25%
403	***Virginia***	8	5,600	454,000	1.23%
404	***Louisiana***	3	4,300	351,600	1.22%
405	***Nevada***	3	4,600	376,500	1.22%
406	***New York***	5	4,500	369,400	1.22%
407	***Florida***	26	4,400	361,200	1.22%
408	***Florida***	9	4,300	353,200	1.22%
409	***Florida***	17	3,200	264,500	1.21%
410	***Florida***	1	3,900	322,600	1.21%
411	***Louisiana***	4	3,600	297,800	1.21%
412	***Texas***	34	3,200	265,100	1.21%

Supplemental Table 6 (cont.)

Rank	State	State District	Net jobs displaced	District employment (2013–2017 5-year ACS estimate)	Jobs displaced as a share of employment
413	***New York***	9	4,200	349,600	1.20%
414	***Louisiana***	5	3,400	283,700	1.20%
415	***New York***	15	3,400	283,700	1.20%
416	***Florida***	5	3,700	309,500	1.20%
417	***Texas***	28	3,500	294,000	1.19%
418	***Nevada***	1	3,800	319,500	1.19%
419	***Texas***	19	3,800	324,200	1.17%
420	***Florida***	2	3,300	285,600	1.16%
421	***Maryland***	4	4,500	394,100	1.14%
422	***Pennsylvania***	2	3,400	298,500	1.14%
423	***Colorado***	3	3,900	343,100	1.14%
424	***Maryland***	5	4,400	389,700	1.13%
425	***Nevada***	4	3,500	311,300	1.12%
426	***Louisiana***	2	3,800	343,800	1.11%
427	***Montana***	Statewide	5,500	498,000	1.10%
428	***California***	23	3,100	290,200	1.07%
429	***Hawaii***	1	3,600	348,600	1.03%
430	***Washington***	4	3,100	305,200	1.02%
431	***New Mexico***	2	2,600	275,300	0.94%
432	***DC***	Statewide	3,300	357,700	0.92%
433	***Hawaii***	2	2,900	323,100	0.90%
434	***Wyoming***	Statewide	2,500	293,600	0.85%
435	***Alaska***	Statewide	3,000	354,000	0.85%
436	***California***	21	2,000	253,900	0.79%
Total*			3,704,700	150,410,200	2.46%

* Totals may vary slightly due to rounding.

Note: Percentages are calculated using rounded totals.

Source: Authors' analysis of American Community Survey (ACS) data (U.S. Census Bureau 2019a and 2020a), USITC 2019, and Bureau of Labor Statistics Employment Projections program 2019a and 2019b. For a more detailed explanation of data sources and computations, see the appendix.

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