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CHINA TRADE, OUTSOURCING AND JOBS

Growing U.S. trade deficit with China cost 3.2 million jobs between 2001 and 2013, with job losses in every state

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Since China entered the World Trade Organization in 2001, the massive growth of trade between China and the United States has had a dramatic and negative effect on U.S. workers and the domestic economy. Specifically, a growing U.S. goods trade deficit with China has the United States piling up foreign debt, losing export capacity, and losing jobs, especially in the vital but under-siege manufacturing sector. Growth in the U.S. goods trade deficit with China between 2001 and 2013 eliminated or displaced 3.2 million U.S. jobs, 2.4 million (three-fourths) of which were in manufacturing. These lost manufacturing jobs account for about two-thirds of all U.S. manufacturing jobs lost or displaced between December, 2001 and December 2013.

Among specific industries, the trade deficit in the computer and electronic parts industry grew the most, and 1,249,100 jobs were lost or displaced, 39.6 percent of the 2001–2013 total. As a result, many of the hardest-hit congressional districts were in California, Texas, Oregon, Massachusetts, and Minnesota, where jobs in that industry are concentrated. Some districts in New York, Georgia, and Illinois 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.

The growing trade deficit with China has cost jobs in all 50 states and the District of Columbia. Using a new model and new congressional district data to estimate the job impacts of trade for the 113th Congress, this study also finds that job losses occurred in every congressional district but one.[1]

This summary of the jobs impact of trade with China arise from the following specific findings of this study:

- Most of the jobs lost or displaced by trade with China between 2001 and 2013 were in manufacturing industries (2.4 million jobs, or 75.7 percent).
- Within manufacturing, rapidly growing imports of computer and electronic parts (including computers, parts, semiconductors, and audio and video equipment) accounted for 56.0 percent of the $240.1 billion increase in the U.S. goods trade deficit with China between 2001 and 2013. The growth of this deficit eliminated 1,249,100 U.S. jobs in computer and electronic parts in this period. Indeed, in 2013, the total U.S. trade deficit with China was $324.2 billion—$154.4 billion of which was in computer and electronic parts.
- 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 2013, the United States had a $116.9 billion deficit in advanced technology products with China, and this deficit was responsible for 36.0 percent of the total U.S.-China goods trade deficit. In contrast, the United States had a $35.6 billion surplus in advanced technology products with the rest of the world in 2013.
- Other industrial sectors hit hard by the growing trade deficit with China between 2001 and 2013 include apparel (203,900 jobs); textile mills and textile product mills (106,800); fabricated metal products (141,200); electrical equipment, appliances, and components (96,700); furniture and related products (94,700); plastics and rubber products (72,800); motor vehicles and parts (34,800); and miscellaneous manufactured goods (107,600). Several service sectors were also hit hard, by indirect job losses, including administrative and support and waste management and remediation services (196,900) and professional, scientific, and technical services (169,900).

- The 3.2 million U.S. jobs lost or displaced by the goods trade deficit with China between 2001 and 2013 were distributed among all 50 states and the District of Columbia, with the biggest net losses occurring in California (564,200 jobs), Texas (304,700), New York (179,200), Illinois (132,500), Pennsylvania (122,600), North Carolina (119,600), Florida (115,700), Ohio (106,400), Massachusetts (97,200), and Georgia (93,700).
- In percentage terms, the jobs lost or displaced due to the growing goods trade deficit with China in the 10 hardest-hit states ranged from 2.44 percent to 3.67 percent of the total state employment: Oregon (62,700 jobs lost or displaced, equal to 3.67 percent of total state employment), California (564,200 jobs, 3.43 percent), New Hampshire (22,700 jobs, 3.31 percent), Minnesota (83,300 jobs, 3.05 percent), Massachusetts (97,200 jobs, 2.96 percent), North Carolina (119,600 jobs, 2.85 percent), Texas (304,700 jobs, 2.66 percent), Rhode Island (13,200 jobs, 2.58 percent), Vermont (8,200 jobs, 2.51 percent), and Idaho (16,700 jobs, 2.44 percent).
- The hardest-hit congressional districts were concentrated in states that were heavily exposed to the growing U.S.-China trade deficit in computer and electronic parts and other durable goods industries such as furniture as well nondurable industries such as textiles and apparel. The three hardest-hit congressional districts were all located in Silicon Valley in California, including the 17th (South Bay, encompassing Sunnyvale, Cupertino, Santa Clara, Fremont, Newark, North San Jose, and Miltpitas[2]), which lost 61,500 jobs, equal to 17.77 percent of all jobs in the district), the 18th Congressional District (including parts of San Jose, Palo Alto, Redwood City, Mountain View, and Los Gatos), which lost 50,700 jobs, 14.72 percent), and the 19th Congressional District (most of San Jose and other parts of Santa Clara County, which lost 39,900 jobs, 12.31 percent of all jobs). Of the top 20 hardest-hit districts, eight were in California (in rank order, the 17th, 18th, 19th, 15th, 40th, 34th, 52nd, and 45th), six were in Texas (31st, 3rd, 10th, 18th, 17th, and 2nd), and one each in Oregon (1st), Massachusetts (3rd), Georgia (14th), Minnesota (1st), New York (18th), and Illinois (6th). Job losses in these districts ranged from 13,900 jobs to 61,500 jobs, and 4.28 percent to 17.77 percent of total district jobs.

The job displacement estimates in this study are conservative. They include only the jobs directly or indirectly displaced by trade, and exclude jobs in domestic wholesale and retail trade or advertising; they also exclude respending employment.[3] They also do not account for the fact that during the Great Recession of 2007–2009, and continuing through 2013, jobs displaced by China trade reduced wages and spending, which led to further job losses.

Further, the jobs impact of the U.S. trade deficit with China is not limited to job loss and displacement and the associated direct wages losses. Competition with low-wage workers from less-developed countries such as China has driven down wages for workers in U.S. manufacturing and reduced the wages and bargaining power of similar, non-college-educated workers throughout the economy, as previous EPI research has shown. The affected population includes essentially all workers with less than a four-year college degree—roughly 70 percent of the workforce, or about 100 million workers (U.S. Census Bureau 2012).

As earlier EPI research has shown, trade with China between 2001 and 2011 displaced 2.7 million workers, who suffered a direct loss of $37.0 billion in reduced wages alone in 2011 (Scott 2013a). The nation's 100 million non-college educated workers suffered a total loss of roughly $180 billion due to increased trade with low-wage countries (Bivens 2013). These indirect wage losses were nearly five times greater than the direct losses suffered by workers displaced by China trade, and the pool of affected workers was nearly 40 times larger (100 mil-

lion non-college-educated workers versus 2.7 million displaced workers).

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

Proponents of China's entry into the World Trade Organization (WTO) frequently claimed that it would create jobs in the United States, increase U.S. exports, and improve the trade deficit with China.[4] 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," and these figures "can grow substantially with the new access to the Chinese market the WTO agreement creates," he said (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 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 special safeguard measures designed to limit the disruptive effects of surging imports from China on domestic producers.

However, as a result of China's currency manipulation and other trade-distorting practices, including extensive subsidies, legal and illegal barriers to imports, dumping, and suppression of wages and labor rights, the envisioned flow of U.S. exports to China did not occur. Further, the agreement spurred foreign direct investment (FDI) in Chinese enterprises, which has expanded China's manufacturing sector at the expense of the United States. Finally, the core of the agreement failed to include any protections to maintain or improve labor or environmental standards or to prohibit currency manipulation.

In retrospect, the promises about jobs and exports misrepresented the real effects of trade on the U.S. economy: Trade leads to both job creation and job loss or displacement. (This paper describes the net effect of trade on employment as jobs "lost or displaced," with the terms "lost" and "displaced" used interchangeably.) Increases in U.S. exports tend to create jobs in the United States, but increases in imports lead to job loss—by destroying existing jobs and preventing new job creation—as imports displace goods that otherwise would have been made in the United States by domestic workers. This is what has occurred with China since it entered the WTO; the United States' widening trade deficit with China is costing U.S. jobs.

From 2001 to 2013, imports from China increased dramatically, rising from $102.1 billion in 2001 to $438.2 billion in 2013, as shown in **Table 1**.[5] U.S. exports to China rose rapidly from 2001 to 2013, but from a much smaller base, from $18.0 billion in 2001 to $114.0 billion in 2013. As a result, China's exports to the United States in 2013 were almost four times greater than U.S. exports to China. These trade figures make the China trade relationship the United States' most imbalanced by far (authors' analysis of USITC 2014).

Overall, the U.S. goods trade deficit with China rose from $84.1 billion in 2001, the year China entered the WTO, to $324.2 billion in 2013, an increase of $240.1 billion, as shown in Table 1. Put another way, since China entered the WTO in 2001, the U.S. trade deficit with China has increased annually by $21.8 billion, or 11.9 percent, on average. Between 2008 and 2013, the U.S. goods trade deficit with China increased 53.8 billion, as shown in Table 1. This 19.9 percent increase occurred despite the collapse in world trade between 2008 and 2009 caused by the Great Recession and a decline in the U.S. trade deficit with the rest of the world of 16.1 percent between 2008 and 2013 (according to the authors' analysis of U.S. ITC 2014). As a result, China's share of the overall U.S. goods trade deficit

TABLE 1

U.S.-China goods trade and job displacement, 2001–2013

	2001	2008	2013	Change ($billions) 2001–2013	Change ($billions) 2008–2013	Percent change 2001–2013
U.S. goods trade with China ($ billions, nominal)						
*U.S. domestic exports**	$18.0	$67.2	$114.0	$96.1	$46.9	534.9%
U.S. imports for consumption	$102.1	$337.5	$438.2	$336.1	$100.7	329.3%
U.S. trade balance	-$84.1	-$270.3	-$324.2	-$240.1	-$53.8	285.4%
Average annual change in the trade balance				-$21.8	-$10.8	11.9%
				Change (thousands of jobs)		**Percent change**
U.S. trade-related jobs supported and displaced (thousands of jobs)						
U.S. domestic exports–jobs supported	161.4	499.2	767.5	606.2	268.4	375.6%
U.S. imports for consumption–jobs displaced	1,127.7	3,620.1	4,890.9	3,763.3	1,270.8	333.7%
U.S. trade deficit–net jobs displaced	966.3	3,121.0	4,123.4	3,157.1	1,002.4	326.7%
Average annual change in net jobs displaced				287.0	200.5	12.9%

*Domestic exports are goods produced in the United States and exclude foreign exports (re-exports), i.e., goods produced in other countries and shipped through the United States. Total exports as reported by the U.S. International Trade Commission include re-exports. Total exports were estimated to be $121.7 billion in 2013, and U.S. re-exports to China represent 6.33 percent of total exports. The employment estimates shown here are based on domestic exports only. See endnotes 5 and 6 for additional details.

Source: Authors' analysis of U.S. Census Bureau (2013), U.S. International Trade Commission (USITC 2014), Bureau of Labor Statistics (BLS 2014b), and BLS Employment Projections program (BLS-EP 2014a and 2014b). For a more detailed explanation of data sources and computations, see the appendix.

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increased from 29.4 percent in 2008 to 37.3 percent in 2013.[6]

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

Each $1 billion in exports to China from the United States supports some American jobs. However, each $1 billion in imports from China displaces the American workers who would have been employed making these products in the United States. 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 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

Trade and employment models

The Economic Policy Institute and other researchers have examined the job impacts of trade in recent years by subtracting the job opportunities lost to imports from those gained through exports. This report uses standard input-output models and data to estimate the jobs displaced by trade. Many reports by 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 used input-output and "employment requirements" tables from the Bureau of Labor Statistics Employment Projections program (BLS-EP 2014a), 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, including Mark Doms, then chief economist at the U.S. Department of Commerce (now undersecretary of commerce for economic affairs), and David Walters, chief economist at the Office of the U.S. Trade Representative.

domestic industry. The model includes 195 U.S. industries, 77 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 December 2013 (accessed by EPI in 2014; see BLS-EP 2014a and 2014b). Our models have been completely revised and updated using the newest, best available data for this report.

The model 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.[7] The difference between these two numbers is essentially the jobs displaced by the growing trade deficit, holding all else equal.

Jobs displaced by the growing China trade deficit 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 and home health care pay lower wages and have less comprehensive benefits than traded-goods industries (Scott 2013a).

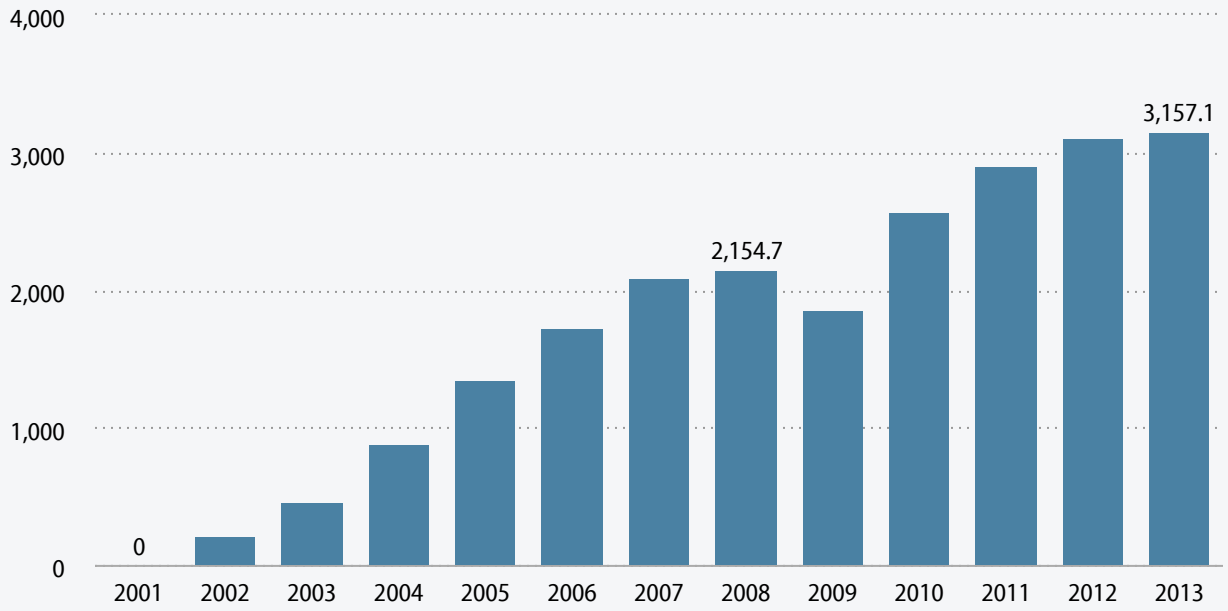
As shown in the bottom half of Table 1, U.S. exports to China in 2001 supported 161,400 jobs, but U.S. imports displaced production that would have supported 1,127,700 jobs. Therefore, the $84.1 billion trade deficit in 2001 displaced 966,300 jobs in that year. Net job displacement rose to 3,121,000 jobs in 2008 and 4,123,400 jobs in 2013.

That means that since China's entry into the WTO in 2001 and through 2013, the increase in the U.S.-China trade deficit eliminated or displaced 3,157,100 U.S. jobs. Also shown in Table 1, the U.S. trade deficit with China increased by $53.8 billion (or 19.9 percent) between 2008 and 2013. During that period, the number of jobs displaced increased by 32.1 percent.

Total jobs lost or displaced between 2008 and 2013 alone amounted to 1,002,400, either by the elimination of existing jobs or by the prevention of new job creation.

FIGURE A VIEW INTERACTIVE *on epi.org*

Cumulative U.S. jobs displaced by growing goods trade deficit with China, 2001–2013 (in thousands of jobs)



Source: Authors' analysis of U.S. Census Bureau (2013), U.S. International Trade Commission (USITC 2014), Bureau of Labor Statistics (BLS 2014b), and BLS Employment Projections program (BLS-EP 2014a and 2014b). For a more detailed explanation of data sources and computations, see the appendix.

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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). On average, 287,000 jobs per year have been lost or displaced since China's entry into the WTO (as shown in Table 1, last row, data column four). The continuing growth of job displacement between 2008 and 2013 despite the relatively small increase in the bilateral trade deficit in this period reflects the relatively rapid growth of U.S. imports of computer and electronics parts from China, and the fact that the price index for most of these products fell continuously throughout the study period, as noted later in this paper. The share of U.S. imports from China accounted for by computer and electronic products (in current, nominal dollars) increased from 32.9 percent in 2008 to 37.8 percent in 2013 (according to the authors' analysis of USITC 2014).

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. China is moving rapidly "upscale," from low-tech, low-skilled, 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 also developed a rapidly growing trade surplus in high-technology products.

Table 2 provides a snapshot of the changes in goods trade flows between 2001 and 2013, by industry, for exports, imports, and the trade balance. The rapid growth of the bilateral trade deficit in computer and electronic parts

TABLE 2

Change in U.S. goods trade with China, by industry, 2001–2013

Industry*	Imports		Exports		Trade balance	
	Change ($ billions, nominal)	Share of total change	Change ($ billions, nominal)	Share of total change	Change ($ billions, nominal)	Share of total change
Agriculture, forestry, fishing, and hunting	$2.3	0.7%	$20.2	21.0%	$17.9	-7.5%
Mining	$0.0	0.0%	$2.6	2.7%	$2.7	-1.1%
Oil and gas	$0.0	0.0%	$0.1	0.1%	$0.2	-0.1%
Minerals and ores	$0.0	0.0%	$2.5	2.6%	$2.5	-1.0%
Manufacturing	$333.6	99.2%	$65.5	68.2%	$-268.1	111.7%
Nondurable goods	$49.0	14.6%	$6.1	6.4%	$-42.8	17.8%
Food	$3.1	0.9%	$3.9	4.0%	$0.8	-0.3%
Beverage and tobacco products	$0.0	0.0%	$1.5	1.5%	$1.5	-0.6%
Textile mills and textile product mills	$9.3	2.8%	$0.5	0.5%	$-8.8	3.7%
Apparel	$24.1	7.2%	$0.0	0.0%	$-24.1	10.0%
Leather and allied products	$12.4	3.7%	$0.3	0.3%	$-12.2	5.1%
Industrial supplies	$34.0	10.1%	$17.4	18.1%	$-16.6	6.9%
Wood products	$2.5	0.7%	$1.1	1.1%	$-1.4	0.6%
Paper	$2.7	0.8%	$2.0	2.0%	$-0.7	0.3%
Printed matter and related products	$1.6	0.5%	$0.1	0.1%	$-1.5	0.6%
Petroleum and coal products	$0.1	0.0%	$1.4	1.4%	$1.3	-0.5%
Chemicals	$11.2	3.3%	$11.5	11.9%	$0.2	-0.1%
Plastics and rubber products	$12.2	3.6%	$1.0	1.0%	$-11.2	4.7%
Nonmetallic mineral products	$3.8	1.1%	$0.4	0.4%	$-3.4	1.4%
Durable goods	$250.6	74.6%	$42.0	43.7%	$-208.7	86.9%
Primary metal	$3.4	1.0%	$2.6	2.7%	$-0.8	0.3%
Fabricated metal products	$14.5	4.3%	$1.6	1.7%	$-12.9	5.4%
Machinery	$20.4	6.1%	$7.3	7.6%	$-13.2	5.5%
Computer and electronic parts	$141.3	42.0%	$6.8	7.0%	$-134.5	56.0%
Computer and peripheral equipment	$60.0	17.8%	$-0.4	-0.4%	$-60.3	25.1%
Communications, audio, and video equipment	$62.5	18.6%	$-0.2	-0.2%	$-62.7	26.1%

TABLE 2 (CONTINUED)

Industry*	Imports		Exports		Trade balance	
	Change ($ billions, nominal)	Share of total change	Change ($ billions, nominal)	Share of total change	Change ($ billions, nominal)	Share of total change
Navigational, measuring, electromedical, and control instruments	$5.0	1.5%	$4.5	4.7%	$-0.5	0.2%
Semiconductor and other electronic components, and reproducing magnetic and optical media	$13.8	4.1%	$2.8	2.9%	$-11.0	4.6%
Electrical equipment, appliances, and components	$23.3	6.9%	$1.5	1.6%	$-21.7	9.1%
Transportation equipment	$11.4	3.4%	$19.6	20.4%	$8.2	-3.4%
Motor vehicles and motor vehicle parts	$9.8	2.9%	$10.0	10.4%	$0.2	-0.1%
Aerospace products and parts	$0.7	0.2%	$9.5	9.9%	$8.8	-3.7%
Railroad, ship, and other transportation equipment	$0.9	0.3%	$0.1	0.1%	$-0.8	0.3%
Furniture and related products	$12.3	3.6%	$0.1	0.1%	$-12.2	5.1%
Miscellaneous manufactured commodities	$24.1	7.2%	$2.4	2.5%	$-21.7	9.0%
Information	$0.0	0.0%	$0.1	0.1%	$0.1	0.0%
Scrap and second-hand goods	$0.3	0.1%	$7.7	8.0%	$7.4	-3.1%
Total change	$336.1	100.0%	$96.1	100.0%	$-240.1	100.0%

* Excludes utilities, construction, and service sectors, which reported no goods trade in this period.
** Includes publishing industries (excluding Internet); goods trade in this sector is concentrated in NAICS 5111, Newspaper, periodical, book, and directory publishers.

Source: Authors' analysis of U.S. International Trade Commission (USITC 2014). For a more detailed explanation of the data sources and computations, see the appendix.

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(including computers, parts, semiconductors, and audio and video equipment) accounted for 56.0 percent of the $240.1 billion increase in the U.S. trade deficit with China between 2001 and 2013. In 2013, the total U.S. trade deficit with China was $324.2 billion—$154.4 billion of which was in computer and electronic parts (trade flows by industry in 2001 and 2013 are shown in Supplemental Table 5, available at the end of this document.

Table 2 shows that the growth in manufactured imports explained 99.2 percent of total growth in imports from China between 2001 and 2013, and included a wide array of products. Computer and electronic parts were responsible for 42.0 percent of the growth in imports in this period, including computer equipment ($60.0 billion, or 17.8 percent of the overall growth in imports) and communications, audio, and video equipment ($62.5 billion, or 18.6 percent). Other major importing sectors included apparel ($24.1 billion, or 7.2 percent) and miscellaneous manufactured commodities ($24.1 billion, or 7.2 percent).

As Table 2 shows, manufacturing was the top sector exporting to China—68.2 percent of the growth in

exports to China between 2001 and 2013 was in manufactured goods, totaling $65.5 billion. Within manufacturing, key export-growth industries included chemicals ($11.5 billion, or 11.9 percent of the growth in exports), aerospace products and parts ($9.5 billion, or 9.9 percent), motor vehicles and parts ($10.0 billion, or 10.4 percent), and machinery ($7.3 billion, or 7.6 percent). Scrap and second-hand goods industries (which support no jobs, according to BLS–EP 2014a models[8]) accounted for 8.0 percent ($7.7 billion) of the growth in exports. Agricultural exports, which were dominated by corn, soybeans, and other cash grains, grew faster than any individual manufacturing industry, increasing $20.2 billion (21.0 percent of the total increase) between 2001 and 2013. Nonetheless, the overall scale of U.S. exports to China in 2013 was dwarfed by imports from China in that year, which exceeded the value of exports by nearly 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 37.8 percent ($165.6 billion) of U.S. imports from China in 2013 (as shown in Supplemental Table 5. 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).[9] 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 now one of the top suppliers of auto parts to the United States, having recently surpassed Germany (Scott and Wething 2012).

In 2013, the United States had a $116.9 billion trade deficit with China in ATP, reflecting a ten-fold increase from $11.8 billion in 2002.[10] This ATP deficit was responsible for 36.0 percent of the total U.S.-China trade deficit in 2013. It dwarfs the $35.6 billion surplus in ATP that the United States had with the rest of the world in 2013, the result of a 5.0 percent annual increase in U.S. ATP exports to the rest of the world between 2002 and 2013. As a result of the U.S. ATP deficit with China, the United States ran an overall deficit in ATP products in 2013 (of $81.3 billion), as it has in every year since 2002 (U.S. Census Bureau 2014b).

Trade deficits are highly correlated with job loss or displacement by industry, as shown in **Table 3**. The growing trade deficit with China eliminated 2,391,500 manufacturing jobs between 2001 and 2013, more than three-fourths (75.7 percent) of the total. By far the largest job displacements occurred in the computer and electronic parts industry, which lost 1,249,100 jobs (39.6 percent of the 3.2 million jobs displaced overall). This industry includes computer and peripheral equipment (732,900 jobs, or 23.2 percent of the overall jobs displaced), semiconductors and components (269,600 jobs, or 8.5 percent), and communications, audio, and video equipment (234,700 jobs, or 7.4 percent). Other hard-hit industries included apparel (203,900 jobs displaced, equal to 6.5 percent of the total), textile mills and textile product mills (106,800, or 3.4 percent), fabricated metal products (141,200, or 4.5 percent), furniture and related products (94,700, or 3.0 percent), plastics and rubber products (72,800,or 2.3 percent), motor vehicles and motor vehicle parts (34,800, or 1.1 percent), and miscellaneous manufactured commodities (107,600 jobs, or 3.4 percent). 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 (196,900 jobs, or 6.2 percent) and professional, scientific, and technical services (169,900 jobs, or 5.4 percent).

These job displacement estimates are based on changes in the real value of exports and imports. For example, while

TABLE 3

Net U.S. jobs created or displaced by goods trade with China, by industry, 2001–2013

Industry	Total	Share of total jobs displaced
Agriculture, forestry, fishing, and hunting	87,900	-2.8%
Mining	-1,600	0.1%
Oil and gas	-1,200	0.0%
Minerals and ores	-400	0.0%
Utilities	-10,900	0.3%
Construction	-14,700	0.5%
Manufacturing	-2,391,500	75.7%
Nondurable goods	-375,700	11.9%
Food	-7,500	0.2%
Beverage and tobacco products	2,700	-0.1%
Textile mills and textile product mills	-106,800	3.4%
Apparel	-203,900	6.5%
Leather and allied products	-60,100	1.9%
Industrial supplies	-200,300	6.3%
Wood products	-22,100	0.7%
Paper	-24,300	0.8%
Printed matter and related products	-30,700	1.0%
Petroleum and coal products	-900	0.0%
Chemicals	-22,100	0.7%
Plastics and rubber products	-72,800	2.3%
Nonmetallic mineral products	-27,400	0.9%
Durable goods	-1,815,600	57.5%
Primary metal	-42,300	1.3%
Fabricated metal products	-141,200	4.5%
Machinery	-70,100	2.2%
Computer and electronic parts	-1,249,100	39.6%
Computer and peripheral equipment	-732,900	23.2%
Communications, audio, and video equipment	-234,700	7.4%
Navigational, measuring, electromedical, and control instruments	-11,900	0.4%

TABLE 3 (CONTINUED)

Industry	Total	Share of total jobs displaced
Semiconductors and other electronic components, and reproducing magnetic and optical media	-269,600	8.5%
Electrical equipment, appliances, and components	-96,700	3.1%
Transportation equipment	-14,000	0.4%
Motor vehicles and motor vehicle parts	-34,800	1.1%
Aerospace products and parts	23,500	-0.7%
Railroad, ship, and other transportation equipment	-2,800	0.1%
Furniture and related products	-94,700	3.0%
Miscellaneous manufactured commodities	-107,600	3.4%
Wholesale trade	0	0.0%
Retail trade	0	0.0%
Transportation and warehousing	-94,200	3.0%
Information	-81,400	2.6%
Finance and insurance	-40,100	1.3%
Real estate and rental and leasing	-24,300	0.8%
Professional, scientific, and technical services	-169,900	5.4%
Management of companies and enterprises	-113,400	3.6%
Administrative and support and waste management and remediation services	-196,900	6.2%
Education services	-2,200	0.1%
Healthcare and social assistance	-1,500	0.0%
Arts, entertainment, and recreation	-12,100	0.4%
Accommodation and food services	-46,700	1.5%
Other services (except public administration)	-27,500	0.9%
Public administration	-16,100	0.5%
Subtotal, nonmanufacturing	-765,600	24.3%
Total*	-3,157,100	

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

Source: Authors' analysis of U.S. Census Bureau (2013), U.S. International Trade Commission (USITC 2014), Bureau of Labor Statistics (BLS 2014b), and BLS Employment Projections program (BLS-EP 2014a and 2014b). For a more detailed explanation of data sources and computations, see the appendix.

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the share of U.S. imports accounted for by computer and electronic parts from China rose from 23.8 percent in 2001 to 37.8 percent in 2013 (to $165.6 billion, as shown in Supplemental Table 5), the average price indexes (deflators) for most of these products fell sharply between 2001 and 2013—40.5 percent on a trade-

weighted basis. Thus, the real value of computer and electronic imports increased more than twelvefold in this period, rising from $19.5 billion to $236.2 billion in 2013 in constant 2005 dollars (authors' analysis of real trade flows—see methodology appendix for data sources and computational details).[11]

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 led to job displacement in all 50 states and the District of Columbia, as shown in **Table 4** and **Figure B**. (**Supplemental Table 1** ranks the states by the number of net jobs displaced, while **Supplemental Table 2** 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 2013 due to the growing goods trade deficit with China ranged from 2.44 percent to 3.67 percent of total state employment in the 10 hardest-hit states ranked by job shares displaced: Oregon, California, New Hampshire, Minnesota, Massachusetts, North Carolina, Texas, Rhode Island, Vermont, and Idaho. As shown in Supplemental Table 1, 564,200 jobs were lost in California, compared with 304,700 in Texas, 179,200 in New York, and 132,500 in Illinois. The 3.2 million U.S. jobs displaced due to the growing trade deficit with China between 2001 and 2013 represented 2.25 percent of total U.S. employment, as shown in Table 4.

Figure B shows the broad impact of the growing trade deficit with China across the United States, with no areas exempt. Job losses have been most concentrated in states with high-tech industries, such as California, Massachusetts, Oregon, Minnesota, Idaho, Texas, Arizona, and Colorado, and in manufacturing states, including New Hampshire, North Carolina, and Vermont. Other hard-hit states include traditional manufacturing powers such as Rhode Island, South Carolina, Georgia, Tennessee, Wisconsin, Kentucky, Indiana, Illinois, and New Jersey.

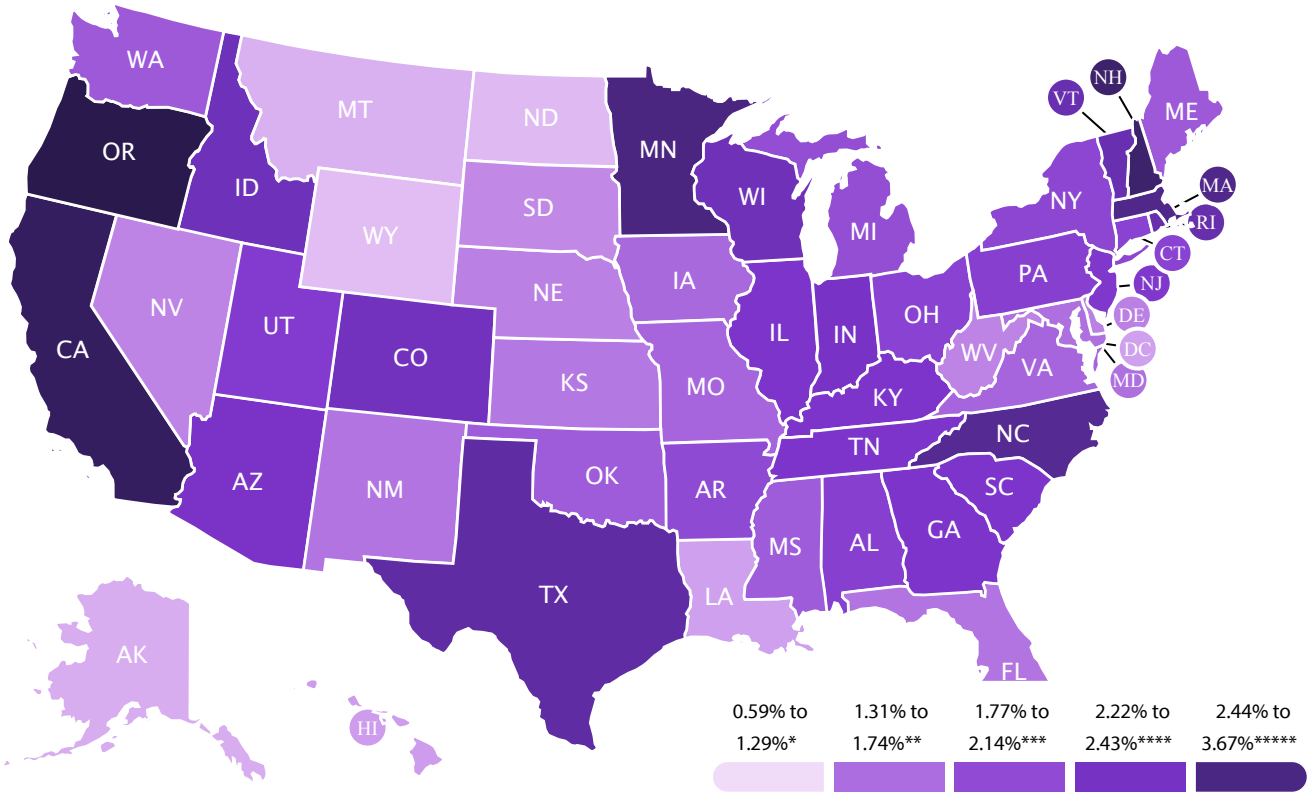
Job losses by congressional district

This study also reports the employment impacts of the growing U.S. goods trade deficit with China in every congressional district, including the District of Columbia. The top 20 hardest-hit congressional districts are shown in **Table 5**. **Figure C** shows job displacement in all 535 congressional districts plus the district of Columbia, as a share of total district employment. (Data for all 435 districts plus the District of Columbia are also provided in **Supplemental Tables 3 and 4** at the end of this report.) Because the largest growth in the goods trade deficits with China occurred in the computer and electronic parts industry, many hard-hit congressional districts were in California, Texas, Oregon, Massachusetts, and Minnesota, where remaining jobs in that industry are concentrated. Other states with hard-hit districts include Georgia, New York and Illinois, which suffered considerable job displacement in a variety of manufacturing industries.[12]

Specifically, of the top 20 hardest-hit districts, eight were in California (in rank order, the 17th, 18th, 19th, 15th, 40th, 34th, 52nd, and 45th), six were in Texas (31st, 3rd, 10th, 18th, 17th, and 2nd), and one each in Oregon (1st), Massachusetts (3rd), Georgia (14th), Minnesota (1st), New York (18th), and Illinois (6th). Job losses in these districts ranged from 13,900 jobs to 61,500 jobs, and 4.28 percent to 17.77 percent of total district jobs.These distributions reflect both the size of some states (e.g., California and Texas) and also the concentration of the industries hardest-hit by the growing U.S.-China trade deficit, such as computer and electronic parts and other industries including furniture, textiles, apparel, and other manufactured products. Overall, manufacturing job losses were responsible for 2.4 million (75.7 percent) of the 3.2 million jobs displaced by the growing U.S.-China trade deficit between 2001 and 2013 (Table 3).

FIGURE B

Net U.S. jobs displaced due to goods trade deficit with China as a share of total state employment, 2001–2013



* 10 least-impacted states, plus D.C.
** 10 next-least-impacted states
*** 10 midde-impacted states
**** 10 next-most-impacted states
***** 10 most-impacted states

Source: Authors' analysis of U.S. Census Bureau (2013), U.S. International Trade Commission (USITC 2014), Bureau of Labor Statistics (BLS 2014b), and BLS Employment Projections program (BLS-EP 2014a and 2014b). For a more detailed explanation of data sources and computations, see the appendix.

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The three hardest-hit congressional districts were all located in Silicon Valley in California, including the 17th (South Bay, encompassing Sunnyvale, Cupertino, Santa Clara, Fremont, Newark, North San Jose, and Miltpitas[13]), which lost 61,500 jobs, equal to 17.77 percent of all jobs in the district), the 18th Congressional District (including parts of San Jose, Palo Alto, Redwood City, Mountain View, and Los Gatos), which lost 50,700 jobs, 14.72 percent), and the 19th Congressional District (most of San Jose and other parts of Santa Clara County), which lost 39,900 jobs, 12.31 percent of all jobs.

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

Recent academic research has confirmed findings in this and earlier EPI research (e.g., Scott 2005) that the growing U.S.-China trade deficit has caused significant loss of U.S. jobs, especially in manufacturing. Autor, Dorn, and

TABLE 4

Net U.S. jobs displaced due to goods trade deficit with China, by state, 2001–2013 (ranked by jobs displaced as a share of total state employment)

Rank	State	Net jobs displaced	State employment (in 2011)	Jobs displaced as share of state employment
1	*Oregon*	62,700	1,710,300	3.67%
2	*California*	564,200	16,426,700	3.43%
3	*New Hampshire*	22,700	684,800	3.31%
4	*Minnesota*	83,300	2,728,900	3.05%
5	*Massachusetts*	97,200	3,284,700	2.96%
6	*North Carolina*	119,600	4,195,800	2.85%
7	*Texas*	304,700	11,455,100	2.66%
8	*Rhode Island*	13,200	511,200	2.58%
9	*Vermont*	8,200	327,300	2.51%
10	*Idaho*	16,700	684,900	2.44%
11	*Wisconsin*	68,600	2,819,500	2.43%
12	*Colorado*	59,400	2,492,400	2.38%
13	*Indiana*	67,800	2,934,500	2.31%
14	*Arizona*	61,200	2,688,000	2.28%
15	*South Carolina*	44,700	1,968,900	2.27%
16	*Tennessee*	62,500	2,784,500	2.24%
17	*Kentucky*	41,100	1,838,400	2.24%
18	*Illinois*	132,500	5,926,900	2.24%
19	*Georgia*	93,700	4,193,800	2.23%
20	*New Jersey*	92,000	4,152,500	2.22%
21	*Utah*	27,000	1,260,800	2.14%
22	*Alabama*	42,100	1,981,100	2.13%
23	*Pennsylvania*	122,600	5,853,300	2.09%
24	*Ohio*	106,400	5,213,500	2.04%
25	*Connecticut*	35,500	1,742,500	2.04%
26	*New York*	179,200	8,959,000	2.00%
27	*Arkansas*	24,500	1,235,800	1.98%
28	*Michigan*	80,100	4,191,900	1.91%
29	*Washington*	55,900	3,118,000	1.79%
30	*Maine*	11,400	643,100	1.77%
31	*Oklahoma*	29,300	1,681,800	1.74%
32	*Mississippi*	20,200	1,181,300	1.71%
33	*Virginia*	63,500	3,860,100	1.65%
34	*Missouri*	44,200	2,742,100	1.61%
35	*Iowa*	24,600	1,538,800	1.60%
36	*Maryland*	42,600	2,894,600	1.47%
37	*New Mexico*	12,500	869,800	1.44%
38	*Florida*	115,700	8,101,900	1.43%
39	*Kansas*	19,100	1,389,000	1.38%
40	*Delaware*	5,500	420,400	1.31%
41	*Nebraska*	12,200	943,600	1.29%
42	*Nevada*	15,200	1,204,900	1.26%

TABLE 4 (CONTINUED)

Rank	State	Net jobs displaced	State employment (in 2011)	Jobs displaced as share of state employment
43	*West Virginia*	9,400	748,600	1.26%
44	*South Dakota*	5,000	415,600	1.20%
45	*Hawaii*	6,100	629,500	0.97%
46	*Louisiana*	18,300	1,973,900	0.93%
47	*District of Columbia*	2,800	310,600	0.90%
48	*Alaska*	2,600	344,300	0.76%
49	*Montana*	3,600	480,000	0.75%
50	*North Dakota*	2,400	370,800	0.65%
51	*Wyoming*	1,700	290,000	0.59%
*Total**		3,154,300	140,399,600	2.25%

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

Source: Authors' analysis of U.S. Census Bureau (2013), U.S. International Trade Commission (USITC 2014), Bureau of Labor Statistics (BLS 2014b), and BLS Employment Projections program (BLS-EP 2014a and 2014b). For a more detailed explanation of data sources and computations, see the appendix.

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Hanson "conservatively estimated" 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 shown in Table 3, earlier, the growing U.S. goods trade deficit with China displaced 2.4 million total manufacturing jobs between 2001 and 2013, and an additional 765,600 nonmanufacturing jobs. Thus, approximately 0.32 nonmanufacturing jobs were displaced for each manufacturing job displaced.

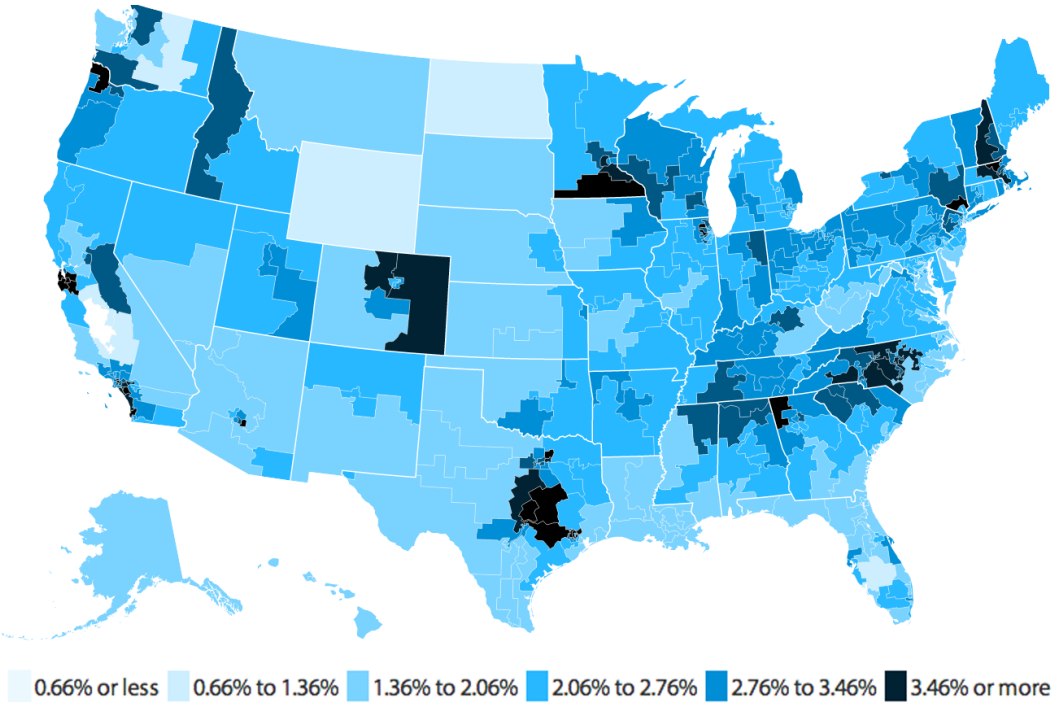
Our macroeconomic estimate of manufacturing jobs displaced from 2001 to 2013 is about 2.4 times as large as the Autor, Dorn, and Hanson estimate of the 982,000 manufacturing jobs displaced between 2000 and 2007, though the time period our estimate covers is not twice as long. Further, our estimate would exceed theirs by an even greater amount if we factored in the 765,600 nonmanufacturing jobs displaced between 2001 and 2013. Differences in parameter estimates notwithstanding, it is important to note that Autor, Dorn, and Hanson 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.

More recent research by Acemoglu et al. (2014) finds that import competition with China from 1999 to 2011 was responsible for 2.0 million to 2.4 million net job losses. Their results more closely match the findings in this paper.

Further academic confirmation of the impacts of China trade on manufacturing employment is provided by Pierce and Schott (2012). The authors 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 status (PNTR), which the U.S. granted to China in the

FIGURE C

Net U.S. jobs displaced due to goods trade deficit with China as a share of total congressional district employment, 2001–2013



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

Source: Authors' analysis of U.S. Census Bureau (2013), U.S. International Trade Commission (USITC 2014), Bureau of Labor Statistics (BLS 2014b), and BLS Employment Projections program (BLS-EP 2014a and 2014b). For a more detailed explanation of data sources and computations, see the appendix.

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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 United States lost 2.9 million manufacturing jobs between December 2001 and December 2008, a decline of 18.2 percent in total manufacturing employment (BLS 2014a). If 15.6 percentage points of this 18.2 percent decline can be attributed the growth of the U.S. trade deficit with China, this implies that about 85.7 percent (or 2.5 million) of the manufacturing jobs lost in this period were lost due to the growing trade deficit with China. This estimate is even larger than this study's estimated total manufacturing jobs displaced by the growing U.S.-China trade deficit (2.4 million net jobs displaced). Thus, two other recent academic studies have confirmed that the growing U.S.-China trade deficit is responsible for the displacement of more than 1 million U.S. manufacturing jobs since 1990, with most jobs lost since China entered the WTO in 2001.

TABLE 5

20 congressional districts hardest hit by U.S. goods trade deficit with China, 2001–2013 (ranked by jobs displaced as share of district employment)

Rank	State	District	Net jobs displaced	District employment (in 2011)	Jobs displaced as a share of district employment
1	*California*	17	61,500	346,100	17.77%
2	*California*	18	50,700	344,500	14.72%
3	*California*	19	39,900	324,000	12.31%
4	*Texas*	31	36,800	323,000	11.39%
5	*Oregon*	1	32,500	377,200	8.62%
6	*California*	15	28,000	336,400	8.32%
7	*Massachusetts*	3	20,000	355,400	5.63%
8	*California*	40	15,600	280,500	5.56%
9	*Texas*	3	20,600	371,200	5.55%
10	*Georgia*	14	15,700	290,700	5.40%
11	*California*	34	16,200	309,400	5.24%
12	*Texas*	10	17,300	342,600	5.05%
13	*California*	52	17,000	350,100	4.86%
14	*Minnesota*	1	16,300	348,200	4.68%
15	*New York*	18	15,200	332,100	4.58%
16	*California*	45	16,200	354,400	4.57%
17	*Texas*	18	13,900	306,400	4.54%
18	*Illinois*	6	15,700	355,600	4.42%
19	*Texas*	17	14,100	329,300	4.28%
20	*Texas*	2	15,600	364,600	4.28%

Source: Authors' analysis of U.S. Census Bureau (2013), U.S. International Trade Commission (USITC 2014), Bureau of Labor Statistics (BLS 2014b), and BLS Employment Projections program (BLS-EP 2014a and 2014b). For a more detailed explanation of data sources and computations, see the appendix.

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Lost wages from the increasing trade deficit with China

Growing trade-related job displacement, which is documented in this report, has several direct and indirect effects on workers' wages and incomes. The direct wage effects are a function of the wages foregone in jobs displaced by growing U.S. imports from China minus potential gains from the growth of jobs supported in export-producing industries and the wages available in alternative jobs in nontraded industries. (U.S. workers displaced from traded-goods production in manufacturing industries who are lucky enough to find jobs in nontraded goods experience permanent wage losses, as discussed below). Scott (2013a) estimates the gains and losses associated with direct changes in employment caused by growing U.S.-China trade deficits between 2001 and 2011.[14] The key finding in that study is that jobs displaced by imports from China actually paid 17.0 percent more than jobs exporting to China: $1,021.66 per week in import-competing industries versus $872.89 per week in exporting industries (Scott 2013a, 24, Table 9a). 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 (2013a), which showed that import-competing jobs pay better than alternative jobs in export-producing industries. Therefore, simple trade expansion which 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.[15]

Furthermore, jobs in both import-competing and exporting industries paid substantially more than jobs in nontraded industries, which pay $791.14 per week (Scott 2013a, 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 2013a, Table 5, 13). Thus, not only did workers lose wages moving from import to export industries, but 2.7 million workers were displaced from jobs making $1,021.66 per week on average, and (if they were lucky enough to find jobs) were pushed into jobs in nontraded industries paying an average of only $791.14 per week (a decline of 22.6 percent). In total, U.S. workers suffered a direct net wage loss of $37 billion per year (Scott 2013a, 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* (2008a, results updated in Bivens 2013), growing trade with China 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 percent 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). The growth of China trade 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 percent—roughly $1,800 for all full-time, full-year workers without a college degree. To provide comparable economy-wide impact estimates, assume that 100 million workers without a college degree suffered total losses of $1,800 per year, which yields a total national loss of $180 billion.[16] Therefore, the indirect, macroeconomic losses to U.S. workers caused by growing Chinese imports are about five times as large as the direct impact of $37 billion, and about 40 times as many workers were affected (2.7 million versus 100 million).

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, 27). This confirms the findings of Bivens (2008a, 2013). They 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 non-participation, relative to 71% among the prime-age group and 68% among the younger group." Thus, more than two-thirds of all workers displaced by growing competition with Chinese imports dropped out of the labor force in this study. 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 or 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 [Trade Adjustment Assistance] TAA 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."

Summing up the overall impact of the growing U.S.-China trade deficit on jobs and wages

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 2010), nearly two-thirds (61.3 percent) of manufacturing workers displaced from January 2007 to December 2009 remained unemployed, including 16.7 percent who were not in the labor force. The average wage decline for those who were reemployed was 17.5 percent (Farber 2011, 21). 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 (Scott 2013a). 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. 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. Trade adjustment assistance is a Bureau of Labor Statistics program to provide retraining and unemployment benefits to certain workers who were displaced by growing imports. However, new research suggests that a significant share of displaced workers are signing up for permanent disability payments, rather than for temporary trade adjustment assistance, thereby increasing the number of permanent labor force dropouts. Autor and Hanson (2014) find that increases in disability payments are more than 30 times larger than the estimated dollar increases in trade-adjustment assistance payments for trade-displaced workers.

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.[17] However, while the trade balance is but one of many variables affecting aggregate job creation, it plays a much larger role in explaining structural change in employment, especially in the manufacturing sector. Between December 2001 and December 2013, 3.7 million U.S. manufacturing jobs were lost (Bureau of Labor Statistics 2014a). The growth of the U.S. trade deficit with China was responsible for the displacement of 2.4 million manufacturing jobs in this period, or about 65 percent of manufacturing jobs lost. Thus, manufacturing job loss due to the growing trade deficit with China accounts for nearly two-thirds of all U.S. manufacturing jobs lost or displaced in this period.

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.

Many of the mechanisms that could offset employment losses caused by growing trade deficits are not operating in the current economic climate. The Federal Reserve cannot cut interest rates any further than it already has, and interest-rate-sensitive industries such as residential construction are not experiencing employment gains from lower rates. In short, in today's economy with its high unemployment rate, jobs displaced due to the trade deficit with China are much more likely to be actual economy-wide losses than simply job reallocations.

It's not an accident: Addressing the causes of trade-related job losses

The job and wage losses from the growing U.S. trade deficit with China should be unacceptable to U.S. policymakers. Especially since this is a solvable problem: The increase in the U.S.-China trade deficit is caused by specific Chinese policies that U.S. policy can address.

Currency manipulation is a major cause of the trade deficit

A major cause of the rapidly growing U.S. trade deficit with China is currency manipulation. Unlike other currencies, the Chinese yuan does not fluctuate freely against the dollar.[18] Instead, China has tightly pegged its currency to the U.S. dollar at a rate that encourages a large bilateral trade surplus with the United States.

How do we know China has manipulated its currency? As China's productivity has soared, its currency should have adjusted, increasing in value to maintain balanced trade. But the yuan has instead remained artificially low as China has aggressively acquired dollar-denominated assets such as U.S. Treasury bills and other foreign exchange reserves to further depress the value of its own currency. (To depress the value of its own currency, a government can sell its own currency and buy foreign government securities, which increases its foreign reserves.) Just between December 2012 and June 2014, China purchased $681 billion in U.S. Treasury bills and other securities to suppress its currency against the U.S. dollar and other major currencies (IMF 2014a). As of June 30, 2014, China held nearly $4 trillion in foreign exchange reserves (IMF 2014a), about 70 percent of which were held in U.S. dollars. This intervention makes the yuan artificially cheap relative to the dollar, effectively subsidizing Chinese exports.

Recent economic research has shown that the purchase of Treasury bills and other foreign assets increases a country's current account by between 60 and 100 cents for each dollar spent on foreign exchange reserve purchases (Gagnon 2013). (A country's current account balance is the broadest measure of its trade balance.) Between 2001 and 2013, China acquired $3.6 trillion in new foreign exchange reserves (excluding gold) (IMF 2014a). In the same period, China's cumulative current account surplus totaled $2.3 trillion, or 64.0 percent of its total purchases of foreign exchange reserves. Thus, as shown by Gagnon's estimates and country data, there is a clear, cause-and-effect relationship between China's foreign exchange intervention and its large, sustained, current account surplus. For each dollar of foreign exchange reserves purchased, China's current account increased by 64 cents, well within the range estimated by Gagnon (2013).

Although the yuan has appreciated significantly since 2005, economist H.W. Brock (2012) estimates that the Chinese currency is still massively undervalued, and, as quoted in Miller (2012), is "arguably one-sixth of what it should be."[19] Gagnon (2012a, 3) estimates that massive currency manipulation, especially by countries in Asia, has raised "the current account of the developing economies by roughly $700 billion [per year], relative to what it would have been." Gagnon also notes that this "amount is roughly equivalent to the large output gaps in the United States and euro area. In other words, millions more Americans and Europeans would be employed if other countries did not manipulate their currencies…" (Gagnon 2012a, 1). China is the most important currency manipulator, based on both its massive currency intervention over the past decade and its share of global current account surpluses.[20] Currency intervention by China artificially raises the cost of U.S. exports to China and the rest of the world by an amount similar to the artificial depression of the yuan, making U.S. goods less competitive in China and in every country where U.S. exports compete with Chinese goods. And China is the most important competitor for the United States in all other third-country markets, even more important than

Germany and all other members of the European Union combined.

By manipulating its currency, China has compelled other countries to follow similar policies in order to protect their relative competitiveness and to promote their own exports. This widespread currency manipulation has also contributed to the growth of very large global current account imbalances; there are currently many countries with large surpluses or deficits.

Unless China raises the real value of the yuan by at least a third and eliminates other trade distortions (enumerated later in this section), the U.S. trade deficit and related job losses will continue to grow rapidly. Although China did respond to international pressure between 2005 and 2008 and allowed some appreciation in the yuan, it was too little and too late to help arrest the widening U.S.-China trade gap.[21] Recently, China reversed course, purchasing $681 billion in total foreign exchange reserves between December 2012 and June 2014, and more than $2 trillion since the Obama Administration took office in 2009 (IMF 2014a). The Chinese yuan actually *fell* 1.3 percent against the U.S. dollar between December 2013 and October 10, 2014, as a consequence of China's massive purchases of foreign exchange reserves over the past 18 months (Board of Governors of the Federal Reserve System 2014, and Scott 2014c.

Policy remedies to address currency manipulation

Gagnon recommends that the rules of the WTO be changed to allow countries to impose tariffs on imports from currency manipulators. Since changing the rules of the WTO requires unanimous consent of all members, Gagnon observes that "the main targets of currency manipulation—the United States and euro area—may have to play tough. One strategy would be to tax or otherwise restrict purchases of U.S. and euro area financial assets by currency manipulators" (Gagnon 2012a, 1). Such financial taxes would be "consistent with international law" (Gagnon 2011).

In addition, Congress can help end currency manipulation by passing pending legislation (H.R. 1276 and S. 1114) that would allow the Commerce Department to treat currency manipulation as a subsidy in countervailing duty trade cases (OpenCongress.org 2014a and 2014b). In addition, the president and federal agencies possess the tools needed to end currency manipulation with the stroke of a pen (Scott 2013b). The Treasury and Federal Reserve have the authority needed to offset purchases of foreign assets by foreign governments by engaging in countervailing currency intervention (Bergsten and Gagnon 2012). By taking these steps, the U.S. government could make efforts by foreign governments to manipulate their currencies costly and/or ineffective.

A recent report from EPI shows that full revaluation of the yuan and other undervalued Asian currencies would reduce the U.S. trade deficit by between $200 billion and $500 billion within three years, thereby increasing U.S. GDP by as much as $720 billion, adding up to 5.8 million U.S. jobs, and reducing the federal budget deficit by up to $266 billion per year and increasing net state and local fiscal resources by up to $101 billion per year (Scott 2014a). Revaluation would also help workers in China and other Asian countries by reducing inflationary overheating and increasing workers' purchasing power.

It would also benefit other countries. The undervaluation of the yuan has put the burden of global current account realignment pressures on other countries such as Australia, New Zealand, South Africa, and Brazil, whose currencies have also become overvalued with respect to those of China and other currency manipulators.

Other illegal laws, regulations, and policies are also responsible for the large U.S. trade deficit with China

Currency manipulation is one practice that violates the rules of the international trading system set out in the

GATT (General Agreement on Tariffs and Trade) and WTO agreements (Stewart and Drake 2010). Other Chinese government policies also illegally encourage exports. China extensively suppresses labor rights, which lowers production costs within China. A 2006 AFL-CIO study estimated that repression of labor rights by the Chinese government had lowered manufacturing wages of Chinese workers by between 47 percent and 86 percent (AFL-CIO, Cardin, and Smith 2006, 138). China also provides massive direct export subsidies to many key industries (see, for example, Haley 2008, 2009, 2012). Finally, it maintains strict, nontariff barriers to imports.

Police remedies to address other violations

Partly because the agreement accepting China into the WTO failed to include any protections to maintain or improve labor or environmental standards, China's entry has further tilted the international economic playing field against U.S. domestic workers and firms and in favor of multinational companies from the United States and other countries, as well as state-owned and privately owned exporters in China. This shift has accelerated the global "race to the bottom" in wages and environmental quality and closed thousands of U.S. factories, decimating employment in a wide range of communities, states, and entire regions of the United States. U.S. national interests have suffered while U.S. multinationals have enjoyed record profits on their foreign direct investments (Scott 2007, 2011).

Some actions have been taken in response. In September 2009, the Obama administration announced that it would take action to restrict imports of Chinese tires for three years under special safeguard measures, the first time since 2001 that these measures had been utilized (USTR 2009, and Alliance for American Manufacturing 2010).

In September 2010, the United Steelworkers (USW) filed a Section 301 petition with the U.S. Trade Representative, accusing China of illegally stimulating and protecting producers of green technology exports, ranging from wind and solar energy products to advanced batteries and energy-efficient vehicles. Indeed, the U.S. trade deficit in clean energy products had more than doubled between 2008 and 2010, displacing more than 8,000 U.S. jobs in 2010 alone (Scott 2010). The 2010 USW petition details more than 80 Chinese laws, regulations, and practices that violate international trade agreements and have hurt U.S. clean energy manufacturing and green-technology industries.

In July 2012, the Obama administration filed a WTO complaint against China over its tariffs on large vehicles exported from the United States to China. This was the seventh complaint filed by the administration against China, and the previous six had all been successful (Scott 2012b).

Another crucial missing link: Foreign direct investment and outsourcing

Proponents of trade deals such as the agreement to endorse China's admission to the World Trade Organization usually focus on the impacts of these deals on tariff and nontariff barriers to trade.[22] China agreed to make major tariff reductions as a condition of entry into the WTO. President Clinton and many others argued that since U.S. tariff barriers were already low, the agreement would have a much larger effect on U.S. exports to China than on U.S. imports (Clinton 2000).

But proponents failed to anticipate the effect of China's entry on foreign direct investment (FDI) and outsourcing. FDI has played a key role in the growth of China's manufacturing sector. China is the largest recipient of FDI of all developing countries (Xing 2010) and is the third-largest recipient of FDI over the past three decades, trailing only the United States and the United Kingdom. Foreign-invested enterprises (both joint ventures and wholly owned subsidiaries) were responsible for nearly two-thirds of China's global trade surplus in 2013 (Min-

istry of Commerce, China 2014; IMF 2014a). Outsourcing—through foreign direct investment in factories that make goods for export to the United States—has played a key role in the shift of manufacturing production and jobs from the United States to China since China entered the WTO in 2001.

Failed expectations of a growing Chinese market for U.S. goods

Another critically important promise made by the promoters of liberalized U.S.-China trade was that the United States would benefit because of increased exports to a large and growing consumer market in China. However, despite widespread reports of the rapid growth of the Chinese middle class, this growth has not resulted in a significant increase in U.S. consumer exports to China. The most rapidly growing exports to China are bulk commodities such as grains, scrap, and chemicals; intermediate products such as semiconductors; and producer durables such as aircraft and non-electrical machinery (see the discussion of Table 2 earlier in this paper, and Supplemental Table 5 at the end of this report. Furthermore, the increase in U.S. exports to China since 2001 has been overwhelmed by the growth of U.S. imports, as shown earlier in Table 1.

Conclusion

The growing U.S. goods trade deficit with China has displaced millions of jobs in the United States and 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.

Is America's loss China's gain? The answer is not clearly affirmative. China has become dependent on the U.S. consumer market for employment generation, suppressed the purchasing power of its own middle class with a weak currency, and, most importantly, now holds nearly $4 trillion in foreign exchange reserves instead of investing them in public goods that could benefit Chinese households. Although economic growth in China has been rapid, it is unbalanced and unsustainable. China's vast purchases of foreign assets, intended to depress the value of its currency, have led to the overheating of its domestic economy, and inflation in China has accelerated rapidly. Recently, growth in China slowed to 7.3 percent in the third quarter of 2014, and it is projected to slow further over the next five years (Schuman 2014). Its repression of labor rights has suppressed wages, thereby artificially subsidizing exports. 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.

The U.S.-China trade relationship needs to undergo a fundamental change. Addressing the exchange rate policies and labor standards issues in the Chinese economy are elements of an important first step. It is time for the administration to respond to the growing chorus of calls from economists, workers, businesses, and Congress and take action to stop illegal currency manipulation by China and other countries (Scott 2014c).

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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 195 individual industries of the U.S. economy, specially grouped into 45 custom sectors[23] and using the North American Industry Classification System (NAICS) with data obtained from the U.S. Census Bureau (2013) and the U.S. International Trade Commission (USITC 2014).

This study separates exports produced domestically from foreign exports—which are goods produced in other countries, exported to the United States, and then re-exported from the United States. Because only domestically produced exports generate jobs in the United States, employment calculations here are based only on domestic exports. The measure of the net impact of trade used here to calculate the employment content of trade is the difference between domestic exports and consumption imports.

The number of jobs supported by $1 million of exports or imports for each of 195 different U.S. industries is estimated using a labor requirements model derived from an input-output table developed by the BLS–EP (2014a).[24] 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, and computer programming 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 were converted to constant 2005 dollars using industry-specific deflators (see next section for further details). This was necessary because the labor requirements table was estimated using price levels in that year. Data on real trade flows were converted to constant 2005 dollars using industry-specific price deflators from the BLS–EP (2013b). These price deflators were updated using Bureau of Labor Statistics producer price indexes (industry and commodity data; BLS 2014b). Use of constant 2005 dollars was 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 (U.S. ITC

2014) in four-digit, three-digit, and two-digit NAICS formats. Consumption imports and domestic exports are downloaded for each year.

Step 2. To conform to the BLS Employment Requirements tables (BLS–EP 2014a), trade data must be converted into the BLS industry classifications system. For NAICS-based data, there are 195 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 2005 dollars using published price deflators from the BLS–EP (2014b) and the Bureau of Labor Statistics (2014b).

Step 3. Real domestic employment requirements tables are downloaded from the BLS–EP (2014a). These matrices are input-output industry-by-industry tables that show the employment requirements for $1 million in outputs in 2005 dollars. So, for industry i the a_{ij} 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 195×2 matrix made up of a column of imports and a column of exports for 2001. $[T_{2013}]$ is defined as the 195×2 matrix of 2013 trade data. Finally, $[T_{2008}]$ is defined as the 195×2 matrix of 2008 trade data. Define $[E_{2001}]$ as the 195×195 matrix consisting of the real 2001 domestic employment requirements tables. To estimate the jobs displaced by trade, perform the following matrix operations:

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

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

$$[J_{2013}]=[T_{2013}]\times[E_{2001}]$$

$[J_{2001}]$ is a 195×2 matrix of job displacement by imports and jobs supported by exports for each of 195 industries in 2001. Similarly, $[J_{2008}]$ and $[J_{2013}]$ are 195×2 matrices of jobs displaced or supported by imports and exports (respectively) for each of 195 industries in 2008 and 2013, respectively.

The employment estimates for retail trade, wholesale trade, and advertising were set to zero for this analysis. We assume that goods must be sold and advertised whether they are produced in the United States or imported for consumption.

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

$$[J_{nx01\text{-}13}]=[J_{2013}]\text{-}[J_{2001}]$$

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

$$[J_{nx08\text{-}13}]=[J_{2013}]\text{-}[J_{2008}]$$

Step 2. State-by-state analysis. For states, employment-by-industry data are obtained from the Census Bureau's American Community Survey (U.S. Census Bureau 2013) data for 2011 and are mapped into 45 unique census industries and eight aggregated total and subtotals for a total of 53 sectors.[25] We look at job displacement from 2001 to 2013, so from this point, we use $[J_{nx01\text{-}13}]$. In order to work with 45 sectors, we group the 195 BLS industries into a new matrix, defined as $[Jnew_{01\text{-}13}]$, a 45×2 matrix of job displacement numbers. Define $[St_{2011}]$ as the 45×51 matrix of state employment shares (with the addition of the District of Columbia) of employment in each industry. Calculate:

$$[Stj_{nx01\text{-}13}]=[St_{2011}]_T\,[Jnew_{01\text{-}13}]$$

where $[Stj_{nx01\text{-}13}]$ is the 45×51 matrix of job displacement/support by state 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, by state is obtained from the ACS data from 2011, which for the first time use geographic codings which match the boundaries of the 113th Congress (elected in 2012). In order to calculate job displacement in each congressional district, we use each column in $[Stj_{nx01\text{-}13}]$, which represent individual state job-displacement-by-industry estimates, and define them as $[Stj_{01}]$, $[Stj_{02}]$, $[Stj_i]\ldots[Stj_{51}]$, with i representing the state number and each matrix being 45×1.

Each state has Y congressional districts, so $[Cd_i]$ is defined as the 45xY matrix of congressional district employment shares for each state. Congressional district shares are calculated thus:

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

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

$$[Cdj_{51}]=[Stj5_2]_T\,[Cd_{51}]$$

where $[Cdj_i]$ is defined as the 45xY job displacement in state i by congressional district by industry.

Congressional districts are estimated for the 113th Congress, which was elected in 2012.

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

Endnotes

1. The 113th Congress met in 2013 and 2014. The seats in the House were apportioned based on the 2010 United States Census (Wikipedia 2014b).

2. California's 17th Congressional District includes Apple Inc., Intel Corp, Yahoo, and eBay (Wikipedia 2014a).

3. Direct jobs displaced refer to jobs displaced within a given industry, such as motor vehicles and parts. Indirect jobs displaced are those displaced in industries that supply inputs to that industry, such as primary metal (e.g., steel), plastics and rubber products (e.g., tires and hoses), transportation, and information. Respending employment results from the spending of wages by employed workers. It is one form of a macroeconomic multiplier.

4. 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 2011).

5. Tables 1 and 2 report U.S. imports for consumption and domestic exports to China. These flows were chosen to emphasize goods produced and consumed in the United States. News reports from the Census Bureau and the Commerce Department usually emphasize general imports and total exports. Total exports as reported by the Census Bureau include foreign exports (re-exports), i.e., goods produced in other countries and shipped through the United States. For 2013, general imports from China were $440.4 billion, total exports were $121.7 billion, and the reported trade balance was $318.7 billion (USITC 2014).

6. This analysis estimates the U.S. bilateral and total trade balances with China and the world (respectively), with the trade balances calculated as domestic exports less imports for consumption (authors' analysis of USITC 2014).

7. The analysis in this report is based on domestic exports, as shown in Table 1, and excludes foreign exports (re-exports)—which are goods produced in other countries, imported into the United States, and then re-exported to China. Since foreign exports are not produced domestically, their production does not support domestic employment, and they are excluded from the model used here.

8. Scrap and used or second-hand goods are industries 192 and 193, respectively, in the BLS model, and there are no jobs supported or displaced by trade in these sectors, according to the BLS model.

9. 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 2014a). In total ATP trade with the world, the United States had exports of $319.8 billion and imports of $401.1 billion in 2013, and a trade deficit of $81.3 billion. The United States had total ATP exports to China in 2013 of $29.0 billion and imports of $145.9 billion, and a trade deficit of $116.9 billion. This exceeded the overall U.S. ATP deficit of $81.3 billion. Thus, the United States had an ATP trade surplus with the rest of the world in 2011 of $35.6 billion (U.S. Census Bureau 2014b).

10. Data for trade in Advanced Technology Products (ATP) by country are not available before 2002.

11. Deflators for many sectors in the computer and electronics parts industry fell sharply between 2001 and 2013 due to rapid productivity growth in those sectors. For example, the price index for computer and peripheral equipment manufacturing fell from 1,712.6 in 2001 to 525.1 in 2013, a decline of 69.3 percent (the price index is set at 1,000 in 2005, the base year). In order to convert from nominal to real values for 2013, for example, the nominal value is multiplied by 1,000/525.1 (the price index in year 2013) = 1.90. Thus, the real value of computers and peripheral products is nearly twice as large as the nominal value in 2013. The real value of all computer and electronic parts imports in 2013 exceeded nominal values in that year by 42.7 percent. See appendix, "Methodology," for source notes and deflation procedures used.

12. Five of the eight states that were home to the hardest hit Congressional districts shown in Table 5 were especially hard-hit in the computer and electronic parts industries: California, Texas, Oregon, Massachusetts, and Minnesota. The industry's share of all jobs lost ranged from 51.0 percent in Minnesota to 63.9 percent in Oregon, compared with the national average of 39.6 percent of jobs (Table 3). The 20 hardest-hit congressional districts in Table 5 also include districts in New York and Illinois that were also very hard hit in computers and electronic parts. In New York's 18th Congressional District, computers and electronic parts accounted for 58.3 percent of all jobs lost; and in Illinois' 6th Congressional District, the share was 75.5 percent. Georgia is also one of the states host to one of the 20 hardest-hit congressional districts; Georgia's 14th Congressional District lost a relatively small share of jobs in computers and parts, 4.5 percent of all jobs lost, while suffering very large share of job losses in manufacturing, overall, 85.6 percent of all jobs lost, according to unpublished data available upon request. Nationally, manufacturing accounted for a smaller, 75.7 share, of all jobs lost (Table 3).

13. California's 17th Congressional District includes Apple Inc., Intel Corp, Yahoo, and eBay (Wikipedia 2014a).

14. These estimates are not updated in this report.

15. Even if U.S.-China trade is bad for all types of labor—that is for both high and low skill and wage levels—it can still boost national income in the United States if it increases the return to capital sufficiently. In the United States, recent research has shown that the labor share of national income declined 6.4 percentage points between the 1947–1987 average and the 2010–2012 period (Elsby, Hobjin, and Sahin 2013, Table 1 at 7), and that the residual capital share of income (rent, interest, depreciation, and profits) rose by the same amount. The authors found that "offshoring of the labor-intensive component of the U.S. supply chain" was the "leading potential explanation of the decline in the U.S. labor share over the past 25 years," and the concomitant rise in the capital share of national income.

16. This macroeconomic estimate is developed here, and is not included in Bivens (2013).

17. One frequently repeated criticism of trade and employment studies is that the growth of imports does not displace domestic production. 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 2011). However, important new 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).

18. The official name of the Chinese currency is the renminbi (RMB) and the units of value are yuan, the term used to describe the currency throughout this paper.

19. Over the past two decades, China first massively devalued its currency (in 1994) and then gradually increased its value, especially after 2005. While the yuan gained 31.2 percent in nominal terms between December 2005 and June 2014 (IMF 2014a), its nominal, June 2014 value remained 15.1 percent *below* the par value in December 1990 (Board of Governors of the Federal Reserve System 2014). As Gagnon notes, "In many developing countries, manipulation prevented the normal trend appreciation associated with rapid economic growth rather than causing any outright depreciation. The point is that without trend appreciation, such countries experience growing trade and currency account surpluses" (Gagnon 2012a, 3, note 2). Such countries would normally experience trend appreciation due to rapid productivity growth, especially in manufacturing (the sector that generates most exports). Between 1995 and 2009 China experienced manufacturing productivity growth that ranged between 6.7 percent and 9.6 percent per year (FutureofUSChinaTrade.com 2012). Over the same period, productivity growth in U.S. manufacturing averaged only 2.4 percent per year (BLS 2014c).

20. China's accumulation of total foreign exchange reserves (minus gold) between 2001 and 2013 accounted for more than one-third (37.6 percent) of total world accumulation of reserves, exceeding the next largest accumulator (Japan) by 475 percent (IMF 2014a). In his "Ranking of Currency Manipulators," Gagnon (2012b) noted that China had by far the largest foreign exchange reserves of currency manipulators, "as of the end of 2011." In 2013 China's current account surplus was a self-reported $182.8 billion, which was 24.1 percent of the current account surpluses of the top 20 currency manipulators (IMF 2014b). The IMF conservatively projects that China's share of the global current account surplus of these 20 countries will rise to 44.1 percent in 2019, assuming continuation of current policies (IMF 2014b). It is also important to note that analysis of matched international trade data from trade data reported by China shows that China's current account surplus was underestimated by approximately 50 percent, or more, in each year between 2005 and 2012 (Scott 2014b).

21. Beginning in 2002, the dollar declined more than 30 percent against several major currencies such as the euro and the Canadian dollar. However, yuan appreciation was largely delayed until late 2007 and 2008—too little to be of any help in slowing the growth of the U.S.-China trade deficit to date. The appreciation of the yuan has had little effect on the prices of U.S. imports from China, which rose only 2.5 percent between July 2005 (when the yuan was first adjusted) and May 2008, much less than the 19 percent appreciation of the yuan in that period (Congressional Budget Office 2008, 2). Furthermore, given the continuing rapid growth in manufacturing labor productivity in China relative to the United States and other developed countries, there must be trend appreciation in the yuan for China to simply maintain its global trade surplus, as noted by Gagnon (2012a, 3, note 2).

22. China's admission to the WTO was endorsed by the United States in domestic legislation that offered China permanent normal trade relations status.

23. A previous edition of this research used data for 56 industries provided by the ACS (Scott 2012a). The 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., in the case of "not specified metal industries") to update and refine the crosswalk from BLS–EP to ACS industries. As a result of these consolidations, there are 45 industries in the ACS dataset used for this study.

24. The model includes 195 NAICS industries. The trade data include only goods trade. Goods trade data are available for 85 commodity-based industries, plus software, waste and scrap, used or second-hand 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 second-hand goods

has no impacts on employment in the BLS model. Some special classification provision goods are assigned to miscellaneous manufacturing.

25. The 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 developed a crosswalk from NAICS to Census industries, and used population estimates from the ACS for each cell in this matrix.

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SUPPLEMENTAL TABLE 1

Net U.S. jobs displaced due to goods trade deficit with China, by state, 2001–2013 (ranked by net jobs displaced)

Rank	State	Net jobs displaced	State employment (in 2011)	Jobs displaced as share of state employment
1	*California*	564,200	16,426,700	3.43%
2	*Texas*	304,700	11,455,100	2.66%
3	*New York*	179,200	8,959,000	2.00%
4	*Illinois*	132,500	5,926,900	2.24%
5	*Pennsylvania*	122,600	5,853,300	2.09%
6	*North Carolina*	119,600	4,195,800	2.85%
7	*Florida*	115,700	8,101,900	1.43%
8	*Ohio*	106,400	5,213,500	2.04%
9	*Massachusetts*	97,200	3,284,700	2.96%
10	*Georgia*	93,700	4,193,800	2.23%
11	*New Jersey*	92,000	4,152,500	2.22%
12	*Minnesota*	83,300	2,728,900	3.05%
13	*Michigan*	80,100	4,191,900	1.91%
14	*Wisconsin*	68,600	2,819,500	2.43%
15	*Indiana*	67,800	2,934,500	2.31%
16	*Virginia*	63,500	3,860,100	1.65%
17	*Oregon*	62,700	1,710,300	3.67%
18	*Tennessee*	62,500	2,784,500	2.24%
19	*Arizona*	61,200	2,688,000	2.28%
20	*Colorado*	59,400	2,492,400	2.38%
21	*Washington*	55,900	3,118,000	1.79%
22	*South Carolina*	44,700	1,968,900	2.27%
23	*Missouri*	44,200	2,742,100	1.61%
24	*Maryland*	42,600	2,894,600	1.47%
25	*Alabama*	42,100	1,981,100	2.13%
26	*Kentucky*	41,100	1,838,400	2.24%
27	*Connecticut*	35,500	1,742,500	2.04%
28	*Oklahoma*	29,300	1,681,800	1.74%
29	*Utah*	27,000	1,260,800	2.14%
30	*Iowa*	24,600	1,538,800	1.60%
31	*Arkansas*	24,500	1,235,800	1.98%
32	*New Hampshire*	22,700	684,800	3.31%
33	*Mississippi*	20,200	1,181,300	1.71%
34	*Kansas*	19,100	1,389,000	1.38%
35	*Louisiana*	18,300	1,973,900	0.93%
36	*Idaho*	16,700	684,900	2.44%
37	*Nevada*	15,200	1,204,900	1.26%
38	*Rhode Island*	13,200	511,200	2.58%
39	*New Mexico*	12,500	869,800	1.44%
40	*Nebraska*	12,200	943,600	1.29%
41	*Maine*	11,400	643,100	1.77%
42	*West Virginia*	9,400	748,600	1.26%

SUPPLEMENTAL TABLE 1 (CONTINUED)

Rank	State	Net jobs displaced	State employment (in 2011)	Jobs displaced as share of state employment
43	*Vermont*	8,200	327,300	2.51%
44	*Hawaii*	6,100	629,500	0.97%
45	*Delaware*	5,500	420,400	1.31%
46	*South Dakota*	5,000	415,600	1.20%
47	*Montana*	3,600	480,000	0.75%
48	*District of Columbia*	2,800	310,600	0.90%
49	*Alaska*	2,600	344,300	0.76%
50	*North Dakota*	2,400	370,800	0.65%
51	*Wyoming*	1,700	290,000	0.59%
*Total**		3,157,100	140,399,600	2.25%

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

Source: Authors' analysis of U.S. Census Bureau (2013), U.S. International Trade Commission (USITC 2014), Bureau of Labor Statistics (BLS 2014b), and BLS Employment Projections program (BLS-EP 2014a and 2014b). For a more detailed explanation of data sources and computations, see the appendix.

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SUPPLEMENTAL TABLE 2

Net U.S. jobs displaced due to goods trade deficit with China, by state, 2001–2013 (sorted alphabetically)

Rank (by jobs displaced as share of total)	State	Net jobs displaced	State employment (in 2011)	Jobs displaced as share of state employment
22	*Alabama*	42,100	1,981,100	2.13%
48	*Alaska*	2,600	344,300	0.76%
14	*Arizona*	61,200	2,688,000	2.28%
27	*Arkansas*	24,500	1,235,800	1.98%
2	*California*	564,200	16,426,700	3.43%
12	*Colorado*	59,400	2,492,400	2.38%
25	*Connecticut*	35,500	1,742,500	2.04%
40	*Delaware*	5,500	420,400	1.31%
47	*District of Columbia*	2,800	310,600	0.90%
38	*Florida*	115,700	8,101,900	1.43%
19	*Georgia*	93,700	4,193,800	2.23%
45	*Hawaii*	6,100	629,500	0.97%
10	*Idaho*	16,700	684,900	2.44%
18	*Illinois*	132,500	5,926,900	2.24%
13	*Indiana*	67,800	2,934,500	2.31%
35	*Iowa*	24,600	1,538,800	1.60%
39	*Kansas*	19,100	1,389,000	1.38%
17	*Kentucky*	41,100	1,838,400	2.24%
46	*Louisiana*	18,300	1,973,900	0.93%
30	*Maine*	11,400	643,100	1.77%
36	*Maryland*	42,600	2,894,600	1.47%
5	*Massachusetts*	97,200	3,284,700	2.96%
28	*Michigan*	80,100	4,191,900	1.91%
4	*Minnesota*	83,300	2,728,900	3.05%
32	*Mississippi*	20,200	1,181,300	1.71%
34	*Missouri*	44,200	2,742,100	1.61%
49	*Montana*	3,600	480,000	0.75%
41	*Nebraska*	12,200	943,600	1.29%
42	*Nevada*	15,200	1,204,900	1.26%
3	*New Hampshire*	22,700	684,800	3.31%
20	*New Jersey*	92,000	4,152,500	2.22%
37	*New Mexico*	12,500	869,800	1.44%
26	*New York*	179,200	8,959,000	2.00%
6	*North Carolina*	119,600	4,195,800	2.85%
50	*North Dakota*	2,400	370,800	0.65%
24	*Ohio*	106,400	5,213,500	2.04%
31	*Oklahoma*	29,300	1,681,800	1.74%
1	*Oregon*	62,700	1,710,300	3.67%
23	*Pennsylvania*	122,600	5,853,300	2.09%
8	*Rhode Island*	13,200	511,200	2.58%
15	*South Carolina*	44,700	1,968,900	2.27%

SUPPLEMENTAL TABLE 2 (CONTINUED)

Rank (by jobs displaced as share of total)	State	Net jobs displaced	State employment (in 2011)	Jobs displaced as share of state employment
44	*South Dakota*	5,000	415,600	1.20%
16	*Tennessee*	62,500	2,784,500	2.24%
7	*Texas*	304,700	11,455,100	2.66%
21	*Utah*	27,000	1,260,800	2.14%
9	*Vermont*	8,200	327,300	2.51%
33	*Virginia*	63,500	3,860,100	1.65%
29	*Washington*	55,900	3,118,000	1.79%
43	*West Virginia*	9,400	748,600	1.26%
11	*Wisconsin*	68,600	2,819,500	2.43%
51	*Wyoming*	1,700	290,000	0.59%
*Total**		3,157,100	140,399,600	2.25%

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

Source: Authors' analysis of U.S. Census Bureau (2013), U.S. International Trade Commission (USITC 2014), Bureau of Labor Statistics (BLS 2014b), and BLS Employment Projections program (BLS-EP 2014a and 2014b). 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 goods trade deficit with China, by congressional district, 2001–2013 (ranked by jobs displaced as share of total district employment)

Rank	State	District	Net jobs displaced	District employment (in 2011)	Jobs displaced as a share of employment
1	*California*	17	61,500	346,100	17.77%
2	*California*	18	50,700	344,500	14.72%
3	*California*	19	39,900	324,000	12.31%
4	*Texas*	31	36,800	323,000	11.39%
5	*Oregon*	1	32,500	377,200	8.62%
6	*California*	15	28,000	336,400	8.32%
7	*Massachusetts*	3	20,000	355,400	5.63%
8	*California*	40	15,600	280,500	5.56%
9	*Texas*	3	20,600	371,200	5.55%
10	*Georgia*	14	15,700	290,700	5.40%
11	*California*	34	16,200	309,400	5.24%
12	*Texas*	10	17,300	342,600	5.05%
13	*California*	52	17,000	350,100	4.86%
14	*Minnesota*	1	16,300	348,200	4.68%
15	*New York*	18	15,200	332,100	4.58%
16	*California*	45	16,200	354,400	4.57%
17	*Texas*	18	13,900	306,400	4.54%
18	*Illinois*	6	15,700	355,600	4.42%
19	*Texas*	17	14,100	329,300	4.28%
20	*Texas*	2	15,600	364,600	4.28%
21	*Arizona*	5	13,600	317,900	4.28%
22	*California*	14	15,200	364,000	4.18%
23	*Minnesota*	2	14,900	358,300	4.16%
24	*Massachusetts*	2	14,600	356,500	4.10%
25	*Minnesota*	3	14,200	353,800	4.01%
26	*California*	49	12,000	299,700	4.00%
27	*California*	48	14,100	352,600	4.00%
28	*North Carolina*	2	12,100	303,800	3.98%
29	*Texas*	25	11,800	302,200	3.90%
30	*California*	35	11,100	284,800	3.90%
31	*North Carolina*	8	11,400	301,700	3.78%
32	*North Carolina*	13	13,200	349,900	3.77%
33	*New Hampshire*	2	12,200	332,200	3.67%
34	*Texas*	32	13,200	360,900	3.66%
35	*Massachusetts*	4	13,600	374,800	3.63%
36	*California*	46	11,400	314,400	3.63%
37	*California*	39	12,000	332,000	3.61%
38	*North Carolina*	10	11,700	324,000	3.61%
39	*Colorado*	2	13,800	384,600	3.59%
40	*Colorado*	4	12,300	344,100	3.57%
41	*North Carolina*	6	12,200	341,800	3.57%
42	*California*	7	10,800	313,200	3.45%

SUPPLEMENTAL TABLE 3 (CONTINUED)

Rank	State	District	Net jobs displaced	District employment (in 2011)	Jobs displaced as a share of employment
43	*Massachusetts*	5	13,200	387,400	3.41%
44	*Texas*	33	9,500	283,900	3.35%
45	*New Jersey*	7	12,400	377,100	3.29%
46	*Kentucky*	6	11,000	335,400	3.28%
47	*California*	13	11,100	340,200	3.26%
48	*South Carolina*	3	8,600	264,500	3.25%
49	*Arizona*	9	11,700	360,300	3.25%
50	*Alabama*	5	10,100	311,900	3.24%
51	*Texas*	24	12,500	388,600	3.22%
52	*California*	44	8,700	270,600	3.22%
53	*Indiana*	3	10,400	327,000	3.18%
54	*North Carolina*	5	10,200	324,500	3.14%
55	*Georgia*	7	9,800	312,500	3.14%
56	*Illinois*	8	11,400	366,300	3.11%
57	*Washington*	3	8,700	284,500	3.06%
58	*Illinois*	10	9,900	324,800	3.05%
59	*Washington*	1	10,100	332,300	3.04%
60	*Texas*	7	11,400	376,300	3.03%
61	*California*	4	8,900	294,200	3.03%
62	*South Carolina*	5	8,200	275,200	2.98%
63	*New Hampshire*	1	10,500	352,600	2.98%
64	*California*	38	9,300	313,300	2.97%
65	*Illinois*	11	10,300	347,300	2.97%
66	*Oregon*	3	11,300	383,300	2.95%
67	*North Carolina*	12	9,400	319,800	2.94%
68	*New York*	19	9,600	327,300	2.93%
69	*Minnesota*	6	10,100	348,700	2.90%
70	*New York*	25	9,700	335,400	2.89%
71	*Alabama*	4	7,600	262,900	2.89%
72	*California*	37	9,700	335,600	2.89%
73	*Texas*	12	9,700	337,500	2.87%
74	*Idaho*	1	9,400	329,900	2.85%
75	*California*	12	11,300	399,400	2.83%
76	*Wisconsin*	3	10,000	353,500	2.83%
77	*California*	32	8,300	293,800	2.83%
78	*Mississippi*	1	8,600	305,600	2.81%
79	*New Jersey*	5	10,000	356,100	2.81%
80	*Wisconsin*	5	10,400	370,600	2.81%
81	*Tennessee*	7	8,000	285,800	2.80%
82	*North Carolina*	4	9,800	350,900	2.79%
83	*South Carolina*	4	8,400	301,000	2.79%
84	*Indiana*	2	8,700	317,800	2.74%
85	*Illinois*	14	9,500	351,000	2.71%
86	*Georgia*	9	7,700	284,600	2.71%
87	*Indiana*	8	8,900	329,300	2.70%

SUPPLEMENTAL TABLE 3 (CONTINUED)

Rank	State	District	Net jobs displaced	District employment (in 2011)	Jobs displaced as a share of employment
88	*Georgia*	3	7,700	285,800	2.69%
89	*Wisconsin*	6	9,500	353,600	2.69%
90	*Florida*	8	7,600	283,400	2.68%
91	*California*	30	9,600	358,200	2.68%
92	*Tennessee*	5	9,400	353,400	2.66%
93	*Rhode Island*	2	6,900	260,300	2.65%
94	*Tennessee*	4	8,300	314,500	2.64%
95	*Illinois*	9	9,100	347,200	2.62%
96	*New Jersey*	11	9,400	358,800	2.62%
97	*California*	43	7,900	302,800	2.61%
98	*New York*	7	8,400	322,200	2.61%
99	*California*	27	8,600	332,200	2.59%
100	*Ohio*	14	9,000	349,700	2.57%
101	*Ohio*	7	8,400	326,800	2.57%
102	*California*	42	7,800	307,000	2.54%
103	*New Jersey*	8	9,400	371,000	2.53%
104	*Georgia*	6	9,100	361,200	2.52%
105	*Rhode Island*	1	6,300	250,900	2.51%
106	*Vermont*	Statewide	8,200	327,300	2.51%
107	*Massachusetts*	6	9,300	372,000	2.50%
108	*Pennsylvania*	3	7,900	317,700	2.49%
109	*Wisconsin*	1	8,500	342,500	2.48%
110	*Illinois*	4	8,100	326,600	2.48%
111	*Minnesota*	5	8,700	352,000	2.47%
112	*North Carolina*	11	7,300	295,400	2.47%
113	*New York*	1	8,400	343,300	2.45%
114	*Virginia*	9	7,300	298,400	2.45%
115	*Pennsylvania*	15	8,400	343,800	2.44%
116	*Utah*	3	7,600	311,200	2.44%
117	*Michigan*	2	7,700	315,900	2.44%
118	*Indiana*	6	7,600	311,900	2.44%
119	*California*	29	7,400	303,700	2.44%
120	*Ohio*	13	7,800	320,400	2.43%
121	*Ohio*	4	7,700	317,900	2.42%
122	*Arkansas*	3	7,900	327,000	2.42%
123	*Oklahoma*	1	8,700	361,900	2.40%
124	*Pennsylvania*	8	8,600	357,800	2.40%
125	*North Carolina*	9	8,900	371,400	2.40%
126	*New Jersey*	9	8,100	338,500	2.39%
127	*California*	33	8,700	364,200	2.39%
128	*California*	25	7,200	302,700	2.38%
129	*New Jersey*	6	8,400	353,600	2.38%
130	*New York*	22	7,600	320,200	2.37%
131	*Kentucky*	2	7,500	317,100	2.37%
132	*California*	50	7,000	296,200	2.36%

SUPPLEMENTAL TABLE 3 (CONTINUED)

Rank	State	District	Net jobs displaced	District employment (in 2011)	Jobs displaced as a share of employment
133	*Tennessee*	3	7,000	297,000	2.36%
134	*Arizona*	6	8,600	366,000	2.35%
135	*New York*	2	8,400	357,800	2.35%
136	*Pennsylvania*	6	8,500	362,300	2.35%
137	*Kentucky*	3	7,800	333,300	2.34%
138	*Texas*	26	8,600	368,300	2.34%
139	*Alabama*	3	6,400	274,600	2.33%
140	*California*	47	7,600	327,600	2.32%
141	*Virginia*	10	8,700	376,400	2.31%
142	*Colorado*	5	7,300	315,900	2.31%
143	*Connecticut*	4	7,900	343,000	2.30%
144	*Michigan*	10	7,100	308,700	2.30%
145	*Texas*	6	8,000	348,800	2.29%
146	*Pennsylvania*	12	7,600	331,900	2.29%
147	*Wisconsin*	8	8,300	362,800	2.29%
148	*Arizona*	7	6,400	282,300	2.27%
149	*Oregon*	4	7,000	309,000	2.27%
150	*Wisconsin*	7	7,600	338,400	2.25%
151	*Ohio*	5	7,500	334,200	2.24%
152	*Wisconsin*	4	6,900	308,000	2.24%
153	*Connecticut*	5	7,800	348,300	2.24%
154	*Pennsylvania*	17	7,000	312,600	2.24%
155	*Illinois*	5	8,900	397,600	2.24%
156	*Minnesota*	4	7,500	336,000	2.23%
157	*Pennsylvania*	18	7,700	345,000	2.23%
158	*Ohio*	16	7,900	355,600	2.22%
159	*Ohio*	8	7,300	328,800	2.22%
160	*Tennessee*	1	6,600	297,600	2.22%
161	*Michigan*	11	7,500	342,100	2.19%
162	*Colorado*	6	8,100	369,600	2.19%
163	*California*	53	7,500	342,700	2.19%
164	*Texas*	21	7,900	361,200	2.19%
165	*Oregon*	5	7,100	326,700	2.17%
166	*California*	28	7,800	359,900	2.17%
167	*Florida*	13	6,700	309,200	2.17%
168	*Michigan*	3	6,800	315,300	2.16%
169	*Connecticut*	3	7,600	352,700	2.15%
170	*Florida*	12	6,100	283,200	2.15%
171	*Indiana*	7	6,700	312,200	2.15%
172	*Pennsylvania*	10	6,700	312,500	2.14%
173	*Utah*	4	7,100	331,500	2.14%
174	*Georgia*	11	7,300	340,900	2.14%
175	*Texas*	35	6,800	318,200	2.14%
176	*Kansas*	3	7,900	370,300	2.13%
177	*Washington*	7	8,100	380,000	2.13%

SUPPLEMENTAL TABLE 3 (CONTINUED)

Rank	State	District	Net jobs displaced	District employment (in 2011)	Jobs displaced as a share of employment
178	*Pennsylvania*	4	7,300	342,900	2.13%
179	*South Carolina*	7	5,700	269,400	2.12%
180	*Texas*	9	6,900	326,400	2.11%
181	*New York*	24	6,900	327,300	2.11%
182	*Kentucky*	1	6,000	284,800	2.11%
183	*Tennessee*	6	6,400	304,500	2.10%
184	*Massachusetts*	9	7,400	352,300	2.10%
185	*Iowa*	1	8,200	392,300	2.09%
186	*Florida*	23	7,100	339,900	2.09%
187	*Texas*	30	6,100	292,300	2.09%
188	*California*	26	6,800	325,900	2.09%
189	*Pennsylvania*	5	6,600	316,800	2.08%
190	*Arkansas*	2	7,000	336,300	2.08%
191	*Oklahoma*	4	7,300	350,900	2.08%
192	*Massachusetts*	8	7,800	375,600	2.08%
193	*Utah*	2	6,300	305,700	2.06%
194	*Pennsylvania*	7	7,000	339,700	2.06%
195	*Idaho*	2	7,300	355,000	2.06%
196	*New Mexico*	1	6,400	311,900	2.05%
197	*Ohio*	10	6,400	312,800	2.05%
198	*Pennsylvania*	16	6,700	327,700	2.04%
199	*New York*	23	6,600	324,600	2.03%
200	*Michigan*	8	6,700	330,800	2.03%
201	*Arizona*	8	6,100	301,700	2.02%
202	*Missouri*	2	7,600	378,600	2.01%
203	*Michigan*	6	6,200	310,400	2.00%
204	*New York*	17	6,800	341,400	1.99%
205	*Washington*	10	5,800	291,300	1.99%
206	*California*	5	6,500	326,800	1.99%
207	*North Carolina*	1	5,800	291,800	1.99%
208	*California*	31	5,800	292,200	1.98%
209	*New York*	12	8,300	418,800	1.98%
210	*Indiana*	4	6,500	328,500	1.98%
211	*Indiana*	9	6,700	339,400	1.97%
212	*Florida*	22	6,500	332,000	1.96%
213	*Illinois*	17	6,100	311,700	1.96%
214	*Texas*	16	5,500	281,300	1.96%
215	*New York*	27	6,600	337,800	1.95%
216	*Ohio*	6	5,700	292,300	1.95%
217	*Michigan*	9	6,300	326,100	1.93%
218	*Michigan*	4	5,500	286,300	1.92%
219	*Utah*	1	6,000	312,400	1.92%
220	*Pennsylvania*	13	6,500	339,000	1.92%
221	*California*	20	5,800	302,500	1.92%
222	*California*	41	5,200	271,900	1.91%

SUPPLEMENTAL TABLE 3 (CONTINUED)

Rank	State	District	Net jobs displaced	District employment (in 2011)	Jobs displaced as a share of employment
223	*California*	6	5,500	288,300	1.91%
224	*Tennessee*	8	5,700	299,200	1.91%
225	*Washington*	9	6,500	341,400	1.90%
226	*Pennsylvania*	9	5,800	304,800	1.90%
227	*Tennessee*	9	5,800	305,300	1.90%
228	*New Jersey*	4	6,200	326,400	1.90%
229	*Colorado*	1	7,300	384,400	1.90%
230	*Virginia*	5	6,000	316,100	1.90%
231	*Wisconsin*	2	7,400	390,000	1.90%
232	*Texas*	5	5,700	300,800	1.89%
233	*California*	1	4,900	260,300	1.88%
234	*Texas*	29	5,500	292,900	1.88%
235	*Colorado*	7	6,800	362,500	1.88%
236	*Iowa*	2	7,000	373,400	1.87%
237	*New Jersey*	12	6,600	352,400	1.87%
238	*Texas*	4	5,600	299,300	1.87%
239	*Missouri*	7	6,300	337,400	1.87%
240	*Pennsylvania*	11	6,100	329,300	1.85%
241	*Maine*	2	5,600	302,700	1.85%
242	*Indiana*	5	6,600	357,700	1.85%
243	*Alabama*	2	5,100	276,900	1.84%
244	*New Jersey*	10	5,700	310,700	1.83%
245	*South Carolina*	2	5,600	305,600	1.83%
246	*Arkansas*	4	5,400	295,100	1.83%
247	*New Jersey*	1	6,200	339,200	1.83%
248	*Pennsylvania*	14	5,900	323,200	1.83%
249	*Minnesota*	7	6,000	328,700	1.83%
250	*California*	11	5,900	324,200	1.82%
251	*Maryland*	6	6,600	363,200	1.82%
252	*Minnesota*	8	5,500	303,400	1.81%
253	*New York*	21	5,600	309,200	1.81%
254	*Ohio*	9	5,700	315,000	1.81%
255	*Georgia*	10	5,200	287,400	1.81%
256	*Missouri*	8	5,400	298,500	1.81%
257	*Indiana*	1	5,600	310,600	1.80%
258	*Texas*	22	6,300	352,500	1.79%
259	*Illinois*	3	5,700	319,500	1.78%
260	*Illinois*	16	5,900	330,800	1.78%
261	*Maryland*	8	7,100	400,100	1.77%
262	*Connecticut*	1	6,200	349,800	1.77%
263	*Illinois*	2	4,900	278,200	1.76%
264	*Georgia*	5	5,600	318,100	1.76%
265	*Alabama*	6	5,600	318,400	1.76%
266	*Pennsylvania*	1	4,800	273,300	1.76%
267	*Virginia*	7	6,400	364,600	1.76%

SUPPLEMENTAL TABLE 3 (CONTINUED)

Rank	State	District	Net jobs displaced	District employment (in 2011)	Jobs displaced as a share of employment
268	*New York*	3	5,900	336,700	1.75%
269	*Texas*	8	5,400	309,200	1.75%
270	*Ohio*	1	5,800	332,300	1.75%
271	*Ohio*	3	5,800	333,000	1.74%
272	*Kentucky*	4	5,800	333,500	1.74%
273	*Georgia*	4	5,400	311,700	1.73%
274	*Ohio*	15	5,800	336,400	1.72%
275	*Connecticut*	2	6,000	348,600	1.72%
276	*New York*	6	5,600	327,000	1.71%
277	*Michigan*	14	4,400	257,700	1.71%
278	*Michigan*	7	5,100	299,100	1.71%
279	*Arizona*	2	5,100	299,200	1.70%
280	*California*	10	4,700	277,200	1.70%
281	*Michigan*	13	3,900	230,700	1.69%
282	*Georgia*	12	4,700	278,200	1.69%
283	*Nevada*	2	5,200	309,400	1.68%
284	*Virginia*	6	5,700	339,900	1.68%
285	*Maine*	1	5,700	340,400	1.67%
286	*New York*	5	5,600	336,200	1.67%
287	*South Carolina*	6	4,200	253,500	1.66%
288	*Nebraska*	2	5,200	316,300	1.64%
289	*Florida*	7	5,300	322,500	1.64%
290	*Ohio*	12	5,900	359,500	1.64%
291	*Ohio*	11	4,500	275,200	1.64%
292	*Georgia*	2	4,100	251,200	1.63%
293	*New Jersey*	3	5,600	344,200	1.63%
294	*Michigan*	5	4,300	264,800	1.62%
295	*Tennessee*	2	5,300	327,200	1.62%
296	*New York*	26	5,300	327,700	1.62%
297	*Virginia*	4	5,300	327,900	1.62%
298	*New York*	16	5,200	323,600	1.61%
299	*Ohio*	2	5,200	323,600	1.61%
300	*Massachusetts*	7	5,900	369,800	1.60%
301	*New York*	20	5,700	357,600	1.59%
302	*Missouri*	5	5,500	345,300	1.59%
303	*California*	51	4,100	258,600	1.59%
304	*New York*	10	5,700	360,300	1.58%
305	*New York*	8	4,600	292,700	1.57%
306	*Georgia*	13	4,900	312,800	1.57%
307	*Florida*	25	5,100	326,000	1.56%
308	*Massachusetts*	1	5,300	341,000	1.55%
309	*Illinois*	15	4,900	316,500	1.55%
310	*Oklahoma*	5	5,400	348,800	1.55%
311	*Virginia*	11	6,200	400,900	1.55%
312	*West Virginia*	1	4,000	258,700	1.55%

SUPPLEMENTAL TABLE 3 (CONTINUED)

Rank	State	District	Net jobs displaced	District employment (in 2011)	Jobs displaced as a share of employment
313	*New York*	13	4,900	317,200	1.54%
314	*New York*	11	4,900	317,500	1.54%
315	*Illinois*	7	4,600	298,500	1.54%
316	*Illinois*	18	5,200	337,500	1.54%
317	*Florida*	27	4,800	313,600	1.53%
318	*Oregon*	2	4,800	314,200	1.53%
319	*New York*	14	5,200	341,800	1.52%
320	*Florida*	16	4,200	276,100	1.52%
321	*Illinois*	1	4,400	290,200	1.52%
322	*Arkansas*	1	4,200	277,400	1.51%
323	*New Mexico*	3	4,300	284,800	1.51%
324	*Alabama*	7	3,800	253,500	1.50%
325	*Nebraska*	1	4,800	321,700	1.49%
326	*Missouri*	3	5,500	370,000	1.49%
327	*Maryland*	4	5,700	384,100	1.48%
328	*New York*	9	4,800	324,900	1.48%
329	*California*	2	4,700	323,100	1.45%
330	*Missouri*	1	4,800	331,500	1.45%
331	*Mississippi*	3	4,400	303,900	1.45%
332	*Virginia*	1	5,100	352,400	1.45%
333	*Oklahoma*	2	4,200	290,300	1.45%
334	*Texas*	1	4,300	297,700	1.44%
335	*Kansas*	2	4,900	339,900	1.44%
336	*Florida*	14	4,600	320,700	1.43%
337	*Michigan*	12	4,500	313,800	1.43%
338	*Florida*	20	4,300	302,100	1.42%
339	*Michigan*	1	4,100	290,200	1.41%
340	*Texas*	27	4,300	305,600	1.41%
341	*Washington*	5	4,100	291,500	1.41%
342	*Maryland*	1	4,800	342,300	1.40%
343	*Maryland*	7	4,400	315,700	1.39%
344	*Missouri*	6	4,900	355,900	1.38%
345	*Illinois*	12	4,100	301,000	1.36%
346	*Maryland*	3	5,000	369,500	1.35%
347	*Florida*	5	3,800	284,000	1.34%
348	*North Carolina*	7	4,200	315,400	1.33%
349	*Iowa*	3	5,200	390,800	1.33%
350	*Florida*	24	3,900	293,400	1.33%
351	*New York*	15	3,400	255,900	1.33%
352	*Arizona*	4	3,100	233,500	1.33%
353	*Florida*	21	4,200	316,800	1.33%
354	*Florida*	15	4,000	304,200	1.31%
355	*Mississippi*	4	4,000	304,900	1.31%
356	*Delaware*	Statewide	5,500	420,400	1.31%
357	*Florida*	6	3,700	283,200	1.31%

SUPPLEMENTAL TABLE 3 (CONTINUED)

Rank	State	District	Net jobs displaced	District employment (in 2011)	Jobs displaced as a share of employment
358	*South Carolina*	1	3,900	299,800	1.30%
359	*Virginia*	2	4,400	339,800	1.29%
360	*Florida*	11	2,800	217,400	1.29%
361	*New York*	4	4,400	342,500	1.28%
362	*Arizona*	1	3,400	264,900	1.28%
363	*Georgia*	8	3,500	272,700	1.28%
364	*Pennsylvania*	2	3,500	273,100	1.28%
365	*Kentucky*	5	3,000	234,300	1.28%
366	*Florida*	4	4,200	329,900	1.27%
367	*Florida*	18	3,600	284,000	1.27%
368	*Texas*	36	3,700	291,900	1.27%
369	*Missouri*	4	4,100	324,900	1.26%
370	*Washington*	8	4,000	318,000	1.26%
371	*Maryland*	2	4,400	351,700	1.25%
372	*Maryland*	5	4,600	368,200	1.25%
373	*Alabama*	1	3,500	283,000	1.24%
374	*Mississippi*	2	3,300	266,900	1.24%
375	*West Virginia*	2	3,300	266,900	1.24%
376	*California*	9	3,400	275,300	1.24%
377	*New Jersey*	2	4,000	324,400	1.23%
378	*California*	8	2,900	235,500	1.23%
379	*Washington*	2	3,900	318,900	1.22%
380	*Hawaii*	1	4,000	330,100	1.21%
381	*Texas*	23	3,500	289,700	1.21%
382	*South Dakota*	1	5,000	415,600	1.20%
383	*Texas*	20	3,700	311,400	1.19%
384	*Virginia*	3	3,800	320,100	1.19%
385	*Arizona*	3	3,100	262,200	1.18%
386	*Florida*	10	3,900	331,500	1.18%
387	*Illinois*	13	3,700	326,600	1.13%
388	*Florida*	26	3,800	335,600	1.13%
389	*Nevada*	3	3,800	336,500	1.13%
390	*Florida*	2	3,400	301,500	1.13%
391	*Washington*	6	3,100	275,500	1.13%
392	*Oklahoma*	3	3,700	329,900	1.12%
393	*Texas*	14	3,400	303,300	1.12%
394	*Colorado*	3	3,700	331,400	1.12%
395	*California*	24	3,600	323,500	1.11%
396	*Virginia*	8	4,700	423,700	1.11%
397	*Texas*	13	3,400	309,000	1.10%
398	*Iowa*	4	4,200	382,300	1.10%
399	*Nevada*	4	3,000	274,300	1.09%
400	*Louisiana*	4	3,400	311,100	1.09%
401	*Nevada*	1	3,100	284,700	1.09%
402	*Kansas*	4	3,500	332,900	1.05%

SUPPLEMENTAL TABLE 3 (CONTINUED)

Rank	State	District	Net jobs displaced	District employment (in 2011)	Jobs displaced as a share of employment
403	*North Carolina*	3	3,100	305,600	1.01%
404	*Georgia*	1	2,900	286,100	1.01%
405	*Florida*	9	3,200	317,200	1.01%
406	*Texas*	15	2,800	280,900	1.00%
407	*Florida*	19	2,600	265,200	0.98%
408	*Texas*	11	3,000	308,800	0.97%
409	*Texas*	19	3,000	310,700	0.97%
410	*Louisiana*	6	3,500	367,800	0.95%
411	*Texas*	34	2,300	242,200	0.95%
412	*West Virginia*	3	2,100	223,000	0.94%
413	*Texas*	28	2,500	266,300	0.94%
414	*Louisiana*	3	3,000	328,100	0.91%
415	*California*	36	2,300	251,900	0.91%
416	*Louisiana*	1	3,200	354,000	0.90%
417	*DC*	Statewide	2,800	310,600	0.90%
418	*Florida*	1	2,700	303,900	0.89%
419	*Florida*	3	2,400	277,000	0.87%
420	*Louisiana*	2	2,800	329,000	0.85%
421	*Louisiana*	5	2,400	283,900	0.85%
422	*Kansas*	1	2,900	345,900	0.84%
423	*California*	3	2,200	286,600	0.77%
424	*Alaska*	Statewide	2,600	344,300	0.76%
425	*Montana*	Statewide	3,600	480,000	0.75%
426	*Hawaii*	2	2,100	299,400	0.70%
427	*New Mexico*	2	1,900	273,100	0.70%
428	*Nebraska*	3	2,100	305,600	0.69%
429	*California*	23	1,800	274,100	0.66%
430	*California*	22	1,900	289,600	0.66%
431	*North Dakota*	Statewide	2,400	370,800	0.65%
432	*Wyoming*	Statewide	1,700	290,000	0.59%
433	*Washington*	4	1,500	284,500	0.53%
434	*California*	16	1,100	244,900	0.45%
435	*Florida*	17	1,100	248,700	0.44%
436	*California*	21	-1,100	243,800	-0.45%
*Total**			3,157,100	140,399,600	2.25%

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

Source: Authors' analysis of U.S. Census Bureau (2013), U.S. International Trade Commission (USITC 2014), Bureau of Labor Statistics (BLS 2014b), and BLS Employment Projections program (BLS-EP 2014a and 2014b). For a more detailed explanation of data sources and computations, see the appendix.

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SUPPLEMENTAL TABLE 4

Net U.S. jobs displaced due to goods trade deficit with China, by congressional district, 2001–2013 (sorted alphabetically by state)

Rank (by jobs displaced as share of total)	State	District	Net jobs displaced	District employment (in 2011)	Jobs displaced as a share of employment
373	*Alabama*	1	3,500	283,000	1.24%
243	*Alabama*	2	5,100	276,900	1.84%
139	*Alabama*	3	6,400	274,600	2.33%
71	*Alabama*	4	7,600	262,900	2.89%
50	*Alabama*	5	10,100	311,900	3.24%
265	*Alabama*	6	5,600	318,400	1.76%
324	*Alabama*	7	3,800	253,500	1.50%
424	*Alaska*	Statewide	2,600	344,300	0.76%
362	*Arizona*	1	3,400	264,900	1.28%
279	*Arizona*	2	5,100	299,200	1.70%
385	*Arizona*	3	3,100	262,200	1.18%
352	*Arizona*	4	3,100	233,500	1.33%
21	*Arizona*	5	13,600	317,900	4.28%
134	*Arizona*	6	8,600	366,000	2.35%
148	*Arizona*	7	6,400	282,300	2.27%
201	*Arizona*	8	6,100	301,700	2.02%
49	*Arizona*	9	11,700	360,300	3.25%
322	*Arkansas*	1	4,200	277,400	1.51%
190	*Arkansas*	2	7,000	336,300	2.08%
122	*Arkansas*	3	7,900	327,000	2.42%
246	*Arkansas*	4	5,400	295,100	1.83%
233	*California*	1	4,900	260,300	1.88%
329	*California*	2	4,700	323,100	1.45%
423	*California*	3	2,200	286,600	0.77%
61	*California*	4	8,900	294,200	3.03%
206	*California*	5	6,500	326,800	1.99%
223	*California*	6	5,500	288,300	1.91%
42	*California*	7	10,800	313,200	3.45%
378	*California*	8	2,900	235,500	1.23%
376	*California*	9	3,400	275,300	1.24%
280	*California*	10	4,700	277,200	1.70%
250	*California*	11	5,900	324,200	1.82%
75	*California*	12	11,300	399,400	2.83%
47	*California*	13	11,100	340,200	3.26%
22	*California*	14	15,200	364,000	4.18%
6	*California*	15	28,000	336,400	8.32%
434	*California*	16	1,100	244,900	0.45%
1	*California*	17	61,500	346,100	17.77%
2	*California*	18	50,700	344,500	14.72%
3	*California*	19	39,900	324,000	12.31%

SUPPLEMENTAL TABLE 4 (CONTINUED)

Rank (by jobs displaced as share of total)	State	District	Net jobs displaced	District employment (in 2011)	Jobs displaced as a share of employment
221	*California*	20	5,800	302,500	1.92%
436	*California*	21	-1,100	243,800	-0.45%
430	*California*	22	1,900	289,600	0.66%
429	*California*	23	1,800	274,100	0.66%
395	*California*	24	3,600	323,500	1.11%
128	*California*	25	7,200	302,700	2.38%
188	*California*	26	6,800	325,900	2.09%
99	*California*	27	8,600	332,200	2.59%
166	*California*	28	7,800	359,900	2.17%
119	*California*	29	7,400	303,700	2.44%
91	*California*	30	9,600	358,200	2.68%
208	*California*	31	5,800	292,200	1.98%
77	*California*	32	8,300	293,800	2.83%
127	*California*	33	8,700	364,200	2.39%
11	*California*	34	16,200	309,400	5.24%
30	*California*	35	11,100	284,800	3.90%
415	*California*	36	2,300	251,900	0.91%
72	*California*	37	9,700	335,600	2.89%
64	*California*	38	9,300	313,300	2.97%
37	*California*	39	12,000	332,000	3.61%
8	*California*	40	15,600	280,500	5.56%
222	*California*	41	5,200	271,900	1.91%
102	*California*	42	7,800	307,000	2.54%
97	*California*	43	7,900	302,800	2.61%
52	*California*	44	8,700	270,600	3.22%
16	*California*	45	16,200	354,400	4.57%
36	*California*	46	11,400	314,400	3.63%
140	*California*	47	7,600	327,600	2.32%
27	*California*	48	14,100	352,600	4.00%
26	*California*	49	12,000	299,700	4.00%
132	*California*	50	7,000	296,200	2.36%
303	*California*	51	4,100	258,600	1.59%
13	*California*	52	17,000	350,100	4.86%
163	*California*	53	7,500	342,700	2.19%
229	*Colorado*	1	7,300	384,400	1.90%
39	*Colorado*	2	13,800	384,600	3.59%
394	*Colorado*	3	3,700	331,400	1.12%
40	*Colorado*	4	12,300	344,100	3.57%
142	*Colorado*	5	7,300	315,900	2.31%
162	*Colorado*	6	8,100	369,600	2.19%
235	*Colorado*	7	6,800	362,500	1.88%
262	*Connecticut*	1	6,200	349,800	1.77%
275	*Connecticut*	2	6,000	348,600	1.72%

SUPPLEMENTAL TABLE 4 (CONTINUED)

Rank (by jobs displaced as share of total)	State	District	Net jobs displaced	District employment (in 2011)	Jobs displaced as a share of employment
169	*Connecticut*	3	7,600	352,700	2.15%
143	*Connecticut*	4	7,900	343,000	2.30%
153	*Connecticut*	5	7,800	348,300	2.24%
356	*Delaware*	Statewide	5,500	420,400	1.31%
417	*DC*	Statewide	2,800	310,600	0.90%
418	*Florida*	1	2,700	303,900	0.89%
390	*Florida*	2	3,400	301,500	1.13%
419	*Florida*	3	2,400	277,000	0.87%
366	*Florida*	4	4,200	329,900	1.27%
347	*Florida*	5	3,800	284,000	1.34%
357	*Florida*	6	3,700	283,200	1.31%
289	*Florida*	7	5,300	322,500	1.64%
90	*Florida*	8	7,600	283,400	2.68%
405	*Florida*	9	3,200	317,200	1.01%
386	*Florida*	10	3,900	331,500	1.18%
360	*Florida*	11	2,800	217,400	1.29%
170	*Florida*	12	6,100	283,200	2.15%
167	*Florida*	13	6,700	309,200	2.17%
336	*Florida*	14	4,600	320,700	1.43%
354	*Florida*	15	4,000	304,200	1.31%
320	*Florida*	16	4,200	276,100	1.52%
435	*Florida*	17	1,100	248,700	0.44%
367	*Florida*	18	3,600	284,000	1.27%
407	*Florida*	19	2,600	265,200	0.98%
338	*Florida*	20	4,300	302,100	1.42%
353	*Florida*	21	4,200	316,800	1.33%
212	*Florida*	22	6,500	332,000	1.96%
186	*Florida*	23	7,100	339,900	2.09%
350	*Florida*	24	3,900	293,400	1.33%
307	*Florida*	25	5,100	326,000	1.56%
388	*Florida*	26	3,800	335,600	1.13%
317	*Florida*	27	4,800	313,600	1.53%
404	*Georgia*	1	2,900	286,100	1.01%
292	*Georgia*	2	4,100	251,200	1.63%
88	*Georgia*	3	7,700	285,800	2.69%
273	*Georgia*	4	5,400	311,700	1.73%
264	*Georgia*	5	5,600	318,100	1.76%
104	*Georgia*	6	9,100	361,200	2.52%
55	*Georgia*	7	9,800	312,500	3.14%
363	*Georgia*	8	3,500	272,700	1.28%
86	*Georgia*	9	7,700	284,600	2.71%
255	*Georgia*	10	5,200	287,400	1.81%
174	*Georgia*	11	7,300	340,900	2.14%

SUPPLEMENTAL TABLE 4 (CONTINUED)

Rank (by jobs displaced as share of total)	State	District	Net jobs displaced	District employment (in 2011)	Jobs displaced as a share of employment
282	*Georgia*	12	4,700	278,200	1.69%
306	*Georgia*	13	4,900	312,800	1.57%
10	*Georgia*	14	15,700	290,700	5.40%
380	*Hawaii*	1	4,000	330,100	1.21%
426	*Hawaii*	2	2,100	299,400	0.70%
74	*Idaho*	1	9,400	329,900	2.85%
195	*Idaho*	2	7,300	355,000	2.06%
321	*Illinois*	1	4,400	290,200	1.52%
263	*Illinois*	2	4,900	278,200	1.76%
259	*Illinois*	3	5,700	319,500	1.78%
110	*Illinois*	4	8,100	326,600	2.48%
155	*Illinois*	5	8,900	397,600	2.24%
18	*Illinois*	6	15,700	355,600	4.42%
315	*Illinois*	7	4,600	298,500	1.54%
56	*Illinois*	8	11,400	366,300	3.11%
95	*Illinois*	9	9,100	347,200	2.62%
58	*Illinois*	10	9,900	324,800	3.05%
65	*Illinois*	11	10,300	347,300	2.97%
345	*Illinois*	12	4,100	301,000	1.36%
387	*Illinois*	13	3,700	326,600	1.13%
85	*Illinois*	14	9,500	351,000	2.71%
309	*Illinois*	15	4,900	316,500	1.55%
260	*Illinois*	16	5,900	330,800	1.78%
213	*Illinois*	17	6,100	311,700	1.96%
316	*Illinois*	18	5,200	337,500	1.54%
257	*Indiana*	1	5,600	310,600	1.80%
84	*Indiana*	2	8,700	317,800	2.74%
53	*Indiana*	3	10,400	327,000	3.18%
210	*Indiana*	4	6,500	328,500	1.98%
242	*Indiana*	5	6,600	357,700	1.85%
118	*Indiana*	6	7,600	311,900	2.44%
171	*Indiana*	7	6,700	312,200	2.15%
87	*Indiana*	8	8,900	329,300	2.70%
211	*Indiana*	9	6,700	339,400	1.97%
185	*Iowa*	1	8,200	392,300	2.09%
236	*Iowa*	2	7,000	373,400	1.87%
349	*Iowa*	3	5,200	390,800	1.33%
398	*Iowa*	4	4,200	382,300	1.10%
422	*Kansas*	1	2,900	345,900	0.84%
335	*Kansas*	2	4,900	339,900	1.44%
176	*Kansas*	3	7,900	370,300	2.13%
402	*Kansas*	4	3,500	332,900	1.05%
182	*Kentucky*	1	6,000	284,800	2.11%

SUPPLEMENTAL TABLE 4 (CONTINUED)

Rank (by jobs displaced as share of total)	State	District	Net jobs displaced	District employment (in 2011)	Jobs displaced as a share of employment
131	*Kentucky*	2	7,500	317,100	2.37%
137	*Kentucky*	3	7,800	333,300	2.34%
272	*Kentucky*	4	5,800	333,500	1.74%
365	*Kentucky*	5	3,000	234,300	1.28%
46	*Kentucky*	6	11,000	335,400	3.28%
416	*Louisiana*	1	3,200	354,000	0.90%
420	*Louisiana*	2	2,800	329,000	0.85%
414	*Louisiana*	3	3,000	328,100	0.91%
400	*Louisiana*	4	3,400	311,100	1.09%
421	*Louisiana*	5	2,400	283,900	0.85%
410	*Louisiana*	6	3,500	367,800	0.95%
285	*Maine*	1	5,700	340,400	1.67%
241	*Maine*	2	5,600	302,700	1.85%
342	*Maryland*	1	4,800	342,300	1.40%
371	*Maryland*	2	4,400	351,700	1.25%
346	*Maryland*	3	5,000	369,500	1.35%
327	*Maryland*	4	5,700	384,100	1.48%
372	*Maryland*	5	4,600	368,200	1.25%
251	*Maryland*	6	6,600	363,200	1.82%
343	*Maryland*	7	4,400	315,700	1.39%
261	*Maryland*	8	7,100	400,100	1.77%
308	*Massachusetts*	1	5,300	341,000	1.55%
24	*Massachusetts*	2	14,600	356,500	4.10%
7	*Massachusetts*	3	20,000	355,400	5.63%
35	*Massachusetts*	4	13,600	374,800	3.63%
43	*Massachusetts*	5	13,200	387,400	3.41%
107	*Massachusetts*	6	9,300	372,000	2.50%
300	*Massachusetts*	7	5,900	369,800	1.60%
192	*Massachusetts*	8	7,800	375,600	2.08%
184	*Massachusetts*	9	7,400	352,300	2.10%
339	*Michigan*	1	4,100	290,200	1.41%
117	*Michigan*	2	7,700	315,900	2.44%
168	*Michigan*	3	6,800	315,300	2.16%
218	*Michigan*	4	5,500	286,300	1.92%
294	*Michigan*	5	4,300	264,800	1.62%
203	*Michigan*	6	6,200	310,400	2.00%
278	*Michigan*	7	5,100	299,100	1.71%
200	*Michigan*	8	6,700	330,800	2.03%
217	*Michigan*	9	6,300	326,100	1.93%
144	*Michigan*	10	7,100	308,700	2.30%
161	*Michigan*	11	7,500	342,100	2.19%
337	*Michigan*	12	4,500	313,800	1.43%
281	*Michigan*	13	3,900	230,700	1.69%

SUPPLEMENTAL TABLE 4 (CONTINUED)

Rank (by jobs displaced as share of total)	State	District	Net jobs displaced	District employment (in 2011)	Jobs displaced as a share of employment
277	*Michigan*	14	4,400	257,700	1.71%
14	*Minnesota*	1	16,300	348,200	4.68%
23	*Minnesota*	2	14,900	358,300	4.16%
25	*Minnesota*	3	14,200	353,800	4.01%
156	*Minnesota*	4	7,500	336,000	2.23%
111	*Minnesota*	5	8,700	352,000	2.47%
69	*Minnesota*	6	10,100	348,700	2.90%
249	*Minnesota*	7	6,000	328,700	1.83%
252	*Minnesota*	8	5,500	303,400	1.81%
78	*Mississippi*	1	8,600	305,600	2.81%
374	*Mississippi*	2	3,300	266,900	1.24%
331	*Mississippi*	3	4,400	303,900	1.45%
355	*Mississippi*	4	4,000	304,900	1.31%
425	*Montana*	Statewide	3,600	480,000	0.75%
330	*Missouri*	1	4,800	331,500	1.45%
202	*Missouri*	2	7,600	378,600	2.01%
326	*Missouri*	3	5,500	370,000	1.49%
369	*Missouri*	4	4,100	324,900	1.26%
302	*Missouri*	5	5,500	345,300	1.59%
344	*Missouri*	6	4,900	355,900	1.38%
239	*Missouri*	7	6,300	337,400	1.87%
256	*Missouri*	8	5,400	298,500	1.81%
325	*Nebraska*	1	4,800	321,700	1.49%
288	*Nebraska*	2	5,200	316,300	1.64%
428	*Nebraska*	3	2,100	305,600	0.69%
401	*Nevada*	1	3,100	284,700	1.09%
283	*Nevada*	2	5,200	309,400	1.68%
389	*Nevada*	3	3,800	336,500	1.13%
399	*Nevada*	4	3,000	274,300	1.09%
63	*New Hampshire*	1	10,500	352,600	2.98%
33	*New Hampshire*	2	12,200	332,200	3.67%
247	*New Jersey*	1	6,200	339,200	1.83%
377	*New Jersey*	2	4,000	324,400	1.23%
293	*New Jersey*	3	5,600	344,200	1.63%
228	*New Jersey*	4	6,200	326,400	1.90%
79	*New Jersey*	5	10,000	356,100	2.81%
129	*New Jersey*	6	8,400	353,600	2.38%
45	*New Jersey*	7	12,400	377,100	3.29%
103	*New Jersey*	8	9,400	371,000	2.53%
126	*New Jersey*	9	8,100	338,500	2.39%
244	*New Jersey*	10	5,700	310,700	1.83%
96	*New Jersey*	11	9,400	358,800	2.62%
237	*New Jersey*	12	6,600	352,400	1.87%

SUPPLEMENTAL TABLE 4 (CONTINUED)

Rank (by jobs displaced as share of total)	State	District	Net jobs displaced	District employment (in 2011)	Jobs displaced as a share of employment
196	*New Mexico*	1	6,400	311,900	2.05%
427	*New Mexico*	2	1,900	273,100	0.70%
323	*New Mexico*	3	4,300	284,800	1.51%
113	*New York*	1	8,400	343,300	2.45%
135	*New York*	2	8,400	357,800	2.35%
268	*New York*	3	5,900	336,700	1.75%
361	*New York*	4	4,400	342,500	1.28%
286	*New York*	5	5,600	336,200	1.67%
276	*New York*	6	5,600	327,000	1.71%
98	*New York*	7	8,400	322,200	2.61%
305	*New York*	8	4,600	292,700	1.57%
328	*New York*	9	4,800	324,900	1.48%
304	*New York*	10	5,700	360,300	1.58%
314	*New York*	11	4,900	317,500	1.54%
209	*New York*	12	8,300	418,800	1.98%
313	*New York*	13	4,900	317,200	1.54%
319	*New York*	14	5,200	341,800	1.52%
351	*New York*	15	3,400	255,900	1.33%
298	*New York*	16	5,200	323,600	1.61%
204	*New York*	17	6,800	341,400	1.99%
15	*New York*	18	15,200	332,100	4.58%
68	*New York*	19	9,600	327,300	2.93%
301	*New York*	20	5,700	357,600	1.59%
253	*New York*	21	5,600	309,200	1.81%
130	*New York*	22	7,600	320,200	2.37%
199	*New York*	23	6,600	324,600	2.03%
181	*New York*	24	6,900	327,300	2.11%
70	*New York*	25	9,700	335,400	2.89%
296	*New York*	26	5,300	327,700	1.62%
215	*New York*	27	6,600	337,800	1.95%
207	*North Carolina*	1	5,800	291,800	1.99%
28	*North Carolina*	2	12,100	303,800	3.98%
403	*North Carolina*	3	3,100	305,600	1.01%
82	*North Carolina*	4	9,800	350,900	2.79%
54	*North Carolina*	5	10,200	324,500	3.14%
41	*North Carolina*	6	12,200	341,800	3.57%
348	*North Carolina*	7	4,200	315,400	1.33%
31	*North Carolina*	8	11,400	301,700	3.78%
125	*North Carolina*	9	8,900	371,400	2.40%
38	*North Carolina*	10	11,700	324,000	3.61%
112	*North Carolina*	11	7,300	295,400	2.47%
67	*North Carolina*	12	9,400	319,800	2.94%
32	*North Carolina*	13	13,200	349,900	3.77%

SUPPLEMENTAL TABLE 4 (CONTINUED)

Rank (by jobs displaced as share of total)	State	District	Net jobs displaced	District employment (in 2011)	Jobs displaced as a share of employment
431	*North Dakota*	Statewide	2,400	370,800	0.65%
270	*Ohio*	1	5,800	332,300	1.75%
298	*Ohio*	2	5,200	323,600	1.61%
271	*Ohio*	3	5,800	333,000	1.74%
121	*Ohio*	4	7,700	317,900	2.42%
151	*Ohio*	5	7,500	334,200	2.24%
216	*Ohio*	6	5,700	292,300	1.95%
101	*Ohio*	7	8,400	326,800	2.57%
159	*Ohio*	8	7,300	328,800	2.22%
254	*Ohio*	9	5,700	315,000	1.81%
197	*Ohio*	10	6,400	312,800	2.05%
291	*Ohio*	11	4,500	275,200	1.64%
290	*Ohio*	12	5,900	359,500	1.64%
120	*Ohio*	13	7,800	320,400	2.43%
100	*Ohio*	14	9,000	349,700	2.57%
274	*Ohio*	15	5,800	336,400	1.72%
158	*Ohio*	16	7,900	355,600	2.22%
123	*Oklahoma*	1	8,700	361,900	2.40%
333	*Oklahoma*	2	4,200	290,300	1.45%
392	*Oklahoma*	3	3,700	329,900	1.12%
191	*Oklahoma*	4	7,300	350,900	2.08%
310	*Oklahoma*	5	5,400	348,800	1.55%
5	*Oregon*	1	32,500	377,200	8.62%
318	*Oregon*	2	4,800	314,200	1.53%
66	*Oregon*	3	11,300	383,300	2.95%
149	*Oregon*	4	7,000	309,000	2.27%
165	*Oregon*	5	7,100	326,700	2.17%
266	*Pennsylvania*	1	4,800	273,300	1.76%
364	*Pennsylvania*	2	3,500	273,100	1.28%
108	*Pennsylvania*	3	7,900	317,700	2.49%
178	*Pennsylvania*	4	7,300	342,900	2.13%
189	*Pennsylvania*	5	6,600	316,800	2.08%
136	*Pennsylvania*	6	8,500	362,300	2.35%
194	*Pennsylvania*	7	7,000	339,700	2.06%
124	*Pennsylvania*	8	8,600	357,800	2.40%
226	*Pennsylvania*	9	5,800	304,800	1.90%
172	*Pennsylvania*	10	6,700	312,500	2.14%
240	*Pennsylvania*	11	6,100	329,300	1.85%
146	*Pennsylvania*	12	7,600	331,900	2.29%
220	*Pennsylvania*	13	6,500	339,000	1.92%
248	*Pennsylvania*	14	5,900	323,200	1.83%
115	*Pennsylvania*	15	8,400	343,800	2.44%
198	*Pennsylvania*	16	6,700	327,700	2.04%

SUPPLEMENTAL TABLE 4 (CONTINUED)

Rank (by jobs displaced as share of total)	State	District	Net jobs displaced	District employment (in 2011)	Jobs displaced as a share of employment
154	*Pennsylvania*	17	7,000	312,600	2.24%
157	*Pennsylvania*	18	7,700	345,000	2.23%
105	*Rhode Island*	1	6,300	250,900	2.51%
93	*Rhode Island*	2	6,900	260,300	2.65%
358	*South Carolina*	1	3,900	299,800	1.30%
245	*South Carolina*	2	5,600	305,600	1.83%
48	*South Carolina*	3	8,600	264,500	3.25%
83	*South Carolina*	4	8,400	301,000	2.79%
62	*South Carolina*	5	8,200	275,200	2.98%
287	*South Carolina*	6	4,200	253,500	1.66%
179	*South Carolina*	7	5,700	269,400	2.12%
382	*South Dakota*	1	5,000	415,600	1.20%
160	*Tennessee*	1	6,600	297,600	2.22%
295	*Tennessee*	2	5,300	327,200	1.62%
133	*Tennessee*	3	7,000	297,000	2.36%
94	*Tennessee*	4	8,300	314,500	2.64%
92	*Tennessee*	5	9,400	353,400	2.66%
183	*Tennessee*	6	6,400	304,500	2.10%
81	*Tennessee*	7	8,000	285,800	2.80%
224	*Tennessee*	8	5,700	299,200	1.91%
227	*Tennessee*	9	5,800	305,300	1.90%
334	*Texas*	1	4,300	297,700	1.44%
20	*Texas*	2	15,600	364,600	4.28%
9	*Texas*	3	20,600	371,200	5.55%
238	*Texas*	4	5,600	299,300	1.87%
232	*Texas*	5	5,700	300,800	1.89%
145	*Texas*	6	8,000	348,800	2.29%
60	*Texas*	7	11,400	376,300	3.03%
269	*Texas*	8	5,400	309,200	1.75%
180	*Texas*	9	6,900	326,400	2.11%
12	*Texas*	10	17,300	342,600	5.05%
408	*Texas*	11	3,000	308,800	0.97%
73	*Texas*	12	9,700	337,500	2.87%
397	*Texas*	13	3,400	309,000	1.10%
393	*Texas*	14	3,400	303,300	1.12%
406	*Texas*	15	2,800	280,900	1.00%
214	*Texas*	16	5,500	281,300	1.96%
19	*Texas*	17	14,100	329,300	4.28%
17	*Texas*	18	13,900	306,400	4.54%
409	*Texas*	19	3,000	310,700	0.97%
383	*Texas*	20	3,700	311,400	1.19%
164	*Texas*	21	7,900	361,200	2.19%
258	*Texas*	22	6,300	352,500	1.79%

SUPPLEMENTAL TABLE 4 (CONTINUED)

Rank (by jobs displaced as share of total)	State	District	Net jobs displaced	District employment (in 2011)	Jobs displaced as a share of employment
381	*Texas*	23	3,500	289,700	1.21%
51	*Texas*	24	12,500	388,600	3.22%
29	*Texas*	25	11,800	302,200	3.90%
138	*Texas*	26	8,600	368,300	2.34%
340	*Texas*	27	4,300	305,600	1.41%
413	*Texas*	28	2,500	266,300	0.94%
234	*Texas*	29	5,500	292,900	1.88%
187	*Texas*	30	6,100	292,300	2.09%
4	*Texas*	31	36,800	323,000	11.39%
34	*Texas*	32	13,200	360,900	3.66%
44	*Texas*	33	9,500	283,900	3.35%
411	*Texas*	34	2,300	242,200	0.95%
175	*Texas*	35	6,800	318,200	2.14%
368	*Texas*	36	3,700	291,900	1.27%
219	*Utah*	1	6,000	312,400	1.92%
193	*Utah*	2	6,300	305,700	2.06%
116	*Utah*	3	7,600	311,200	2.44%
173	*Utah*	4	7,100	331,500	2.14%
106	*Vermont*	Statewide	8,200	327,300	2.51%
332	*Virginia*	1	5,100	352,400	1.45%
359	*Virginia*	2	4,400	339,800	1.29%
384	*Virginia*	3	3,800	320,100	1.19%
297	*Virginia*	4	5,300	327,900	1.62%
230	*Virginia*	5	6,000	316,100	1.90%
284	*Virginia*	6	5,700	339,900	1.68%
267	*Virginia*	7	6,400	364,600	1.76%
396	*Virginia*	8	4,700	423,700	1.11%
114	*Virginia*	9	7,300	298,400	2.45%
141	*Virginia*	10	8,700	376,400	2.31%
311	*Virginia*	11	6,200	400,900	1.55%
59	*Washington*	1	10,100	332,300	3.04%
379	*Washington*	2	3,900	318,900	1.22%
57	*Washington*	3	8,700	284,500	3.06%
433	*Washington*	4	1,500	284,500	0.53%
341	*Washington*	5	4,100	291,500	1.41%
391	*Washington*	6	3,100	275,500	1.13%
177	*Washington*	7	8,100	380,000	2.13%
370	*Washington*	8	4,000	318,000	1.26%
225	*Washington*	9	6,500	341,400	1.90%
205	*Washington*	10	5,800	291,300	1.99%
312	*West Virginia*	1	4,000	258,700	1.55%
374	*West Virginia*	2	3,300	266,900	1.24%
412	*West Virginia*	3	2,100	223,000	0.94%

SUPPLEMENTAL TABLE 4 (CONTINUED)

Rank (by jobs displaced as share of total)	State	District	Net jobs displaced	District employment (in 2011)	Jobs displaced as a share of employment
109	*Wisconsin*	1	8,500	342,500	2.48%
231	*Wisconsin*	2	7,400	390,000	1.90%
76	*Wisconsin*	3	10,000	353,500	2.83%
152	*Wisconsin*	4	6,900	308,000	2.24%
80	*Wisconsin*	5	10,400	370,600	2.81%
89	*Wisconsin*	6	9,500	353,600	2.69%
150	*Wisconsin*	7	7,600	338,400	2.25%
147	*Wisconsin*	8	8,300	362,800	2.29%
432	*Wyoming*	Statewide	1,700	290,000	0.59%
*Total**			3,157,100	140,399,600	2.25%

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

Source: Authors' analysis of U.S. Census Bureau (2013), U.S. International Trade Commission (USITC 2014), Bureau of Labor Statistics (BLS 2014b), and BLS Employment Projections program (BLS-EP 2014a and 2014b). For a more detailed explanation of data sources and computations, see the appendix.

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SUPPLEMENTAL TABLE 5

U.S. goods trade with China, by industry, 2001–2013 (in billions of nominal dollars)

	2001			2013			Change 2001–2013			Percent change 2001–2013		
Industry*	Imports	Exports	Trade balance	Imports	Exports	Trade balance	Imports	Exports	Trade balance	Imports	Exports	Trade Balance
Agriculture, forestry, fishing, and hunting	$0.7	$1.3	$0.6	$3.0	$21.6	$18.5	$2.3	$20.2	$17.9	306%	1503%	3006%
Mining	$0.3	$0.1	-$0.2	$0.2	$2.7	$2.5	$0.0	$2.6	$2.7	-14%	3280%	-1564%
Oil and gas	$0.1	$0.0	-$0.1	$0.1	$0.1	$0.1	$0.0	$0.1	$0.2	-42%	1738%	-217%
Minerals and ores	$0.2	$0.1	-$0.1	$0.2	$2.6	$2.4	$0.0	$2.5	$2.5	2%	3451%	-2789%
Manufacturing	$100.9	$15.5	-$85.4	$434.5	$80.9	-$353.5	$333.6	$65.5	-$268.1	331%	424%	314%
Nondurable goods	$23.4	$1.0	-$22.4	$72.4	$7.1	-$65.3	$49.0	$6.1	-$42.8	209%	629%	191%
Food	$0.6	$0.8	$0.2	$3.7	$4.6	$0.9	$3.1	$3.9	$0.8	521%	505%	449%
Beverage and tobacco products	$0.0	$0.0	$0.0	$0.1	$1.5	$1.4	$0.0	$1.5	$1.5	67%	29760%	-5872%
Textile mills and textile product mills	$2.2	$0.1	-$2.1	$11.5	$0.6	-$10.9	$9.3	$0.5	-$8.8	427%	592%	420%
Apparel	$8.6	$0.0	-$8.6	$32.7	$0.0	-$32.7	$24.1	$0.0	-$24.1	281%	30%	281%
Leather and allied products	$12.0	$0.1	-$11.9	$24.4	$0.4	-$24.1	$12.4	$0.3	-$12.2	103%	294%	102%
Industrial supplies	$9.6	$3.3	-$6.3	$43.6	$20.7	-$22.9	$34.0	$17.4	-$16.6	356%	526%	266%
Wood products	$0.9	$0.1	-$0.8	$3.3	$1.2	-$2.2	$2.5	$1.1	-$1.4	276%	1119%	172%
Paper	$0.7	$0.5	-$0.2	$3.4	$2.5	-$0.9	$2.7	$2.0	-$0.7	377%	393%	340%
Printed matter and related products	$0.7	$0.0	-$0.7	$2.4	$0.2	-$2.2	$1.6	$0.1	-$1.5	225%	291%	220%
Petroleum and coal products	$0.2	$0.1	-$0.1	$0.3	$1.5	$1.2	$0.1	$1.4	$1.3	24%	1560%	-884%
Chemicals	$1.8	$2.2	$0.4	$13.0	$13.6	$0.6	$11.2	$11.5	$0.2	619%	525%	63%
Plastics and rubber products	$2.7	$0.2	-$2.5	$14.9	$1.2	-$13.7	$12.2	$1.0	-$11.2	449%	480%	447%
Nonmetallic mineral products	$2.5	$0.2	-$2.3	$6.3	$0.6	-$5.7	$3.8	$0.4	-$3.4	154%	214%	149%
Durable goods	$67.9	$11.2	-$56.7	$318.5	$53.1	-$265.4	$250.6	$42.0	-$208.7	369%	376%	368%
Primary metal	$0.8	$0.2	-$0.6	$4.2	$2.9	-$1.3	$3.4	$2.6	-$0.8	427%	1124%	135%
Fabricated metal products	$3.9	$0.3	-$3.6	$18.4	$1.9	-$16.5	$14.5	$1.6	-$12.9	376%	564%	361%
Machinery	$4.5	$2.4	-$2.1	$25.0	$9.7	-$15.2	$20.4	$7.3	-$13.2	452%	299%	631%
Computer and electronic parts	$24.3	$4.4	-$19.9	$165.6	$11.2	-$154.4	$141.3	$6.8	-$134.5	581%	152%	677%
Computer and peripheral equipment	$8.2	$1.2	-$7.0	$68.1	$0.8	-$67.3	$60.0	-$0.4	-$60.3	733%	-30%	863%
Communications, audio, and video equipment	$9.4	$0.8	-$8.6	$71.9	$0.6	-$71.3	$62.5	-$0.2	-$62.7	666%	-23%	733%
Navigational, measuring, electromedical, and control instruments	$1.2	$0.8	-$0.4	$6.2	$5.3	-$0.9	$5.0	$4.5	-$0.5	404%	550%	116%

SUPPLEMENTAL TABLE 5 (CONTINUED)

Industry*	2001 Imports	2001 Exports	2001 Trade balance	2013 Imports	2013 Exports	2013 Trade balance	Change 2001–2013 Imports	Change 2001–2013 Exports	Change 2001–2013 Trade balance	Percent change 2001–2013 Imports	Percent change 2001–2013 Exports	Percent change 2001–2013 Trade Balance
Semiconductor and other electronic components, and reproducing magnetic and optical media	$5.5	$1.6	-$3.9	$19.3	$4.4	-$14.9	$13.8	$2.8	-$11.0	251%	174%	283%
Electrical equipment, appliances, and components	$9.0	$0.5	-$8.5	$32.3	$2.0	-$30.3	$23.3	$1.5	-$21.7	259%	335%	254%
Transportation equipment	$1.8	$2.8	$1.0	$13.2	$22.4	$9.3	$11.4	$19.6	$8.2	626%	691%	806%
Motor vehicles and motor vehicle parts	$1.0	$0.3	-$0.8	$10.9	$10.2	-$0.6	$9.8	$10.0	$0.2	939%	3779%	-21%
Aerospace products and parts	$0.1	$2.6	$2.5	$0.8	$12.1	$11.3	$0.7	$9.5	$8.8	765%	372%	358%
Railroad, ship, and other transportation equipment	$0.7	$0.0	-$0.7	$1.6	$0.1	-$1.4	$0.9	$0.1	-$0.8	128%	706%	113%
Furniture and related products	$4.9	$0.0	-$4.9	$17.2	$0.1	-$17.1	$12.3	$0.1	-$12.2	248%	450%	247%
Miscellaneous manufactured commodities	$18.7	$0.5	-$18.2	$42.7	$2.9	-$39.9	$24.1	$2.4	-$21.7	129%	532%	119%
Information**	$0.0	$0.0	$0.0	$0.0	$0.1	$0.1	$0.0	$0.1	$0.1	-50%	N/A	-1117%
Scrap and second-hand goods	$0.2	$1.1	$0.9	$0.5	$8.8	$8.3	$0.3	$7.7	$7.4	139%	713%	839%
Total	$102.07	$17.96	-$84.1	$438.2	$114.0	-$324.2	$336.1	$96.1	-$240.1	329%	535%	285%

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

** Includes publishing industries (excluding Internet); goods trade in this sector is concentrated in NAICS 5111, Newspaper, periodical, book, and directory publishers.

Source: Authors' analysis of U.S. International Trade Commission (USITC 2014). For a more detailed explanation of the data sources and computations, see the appendix.

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