



EPI BRIEFING PAPER

ECONOMIC POLICY INSTITUTE • JANUARY 22, 2015 • BRIEFING PAPER #388

THE MANUFACTURING FOOTPRINT AND THE IMPORTANCE OF U.S. MANUFACTURING JOBS

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Executive summary

While U.S. manufacturing has been hit hard by nearly two decades of policy failures that have damaged its international competitiveness, it remains a vital part of the U.S. economy.

The manufacturing sector employed 12 million workers in 2013, or about 8.8 percent of total U.S. employment. Manufacturing employs a higher share of workers without a college degree than the economy overall. On average, non-college-educated workers in manufacturing made 10.9 percent more than similar workers in the rest of the economy in 2012–2013.

This report examines the role manufacturing plays in employment at the national, state, and congressional district levels, including the number of jobs manufacturing supports, the wages those jobs pay, and manufacturing's contribution to GDP. (This report updates an earlier EPI report but includes U.S. congressional district data for the first time.) The data show that manufacturing employment was stable for three decades until 1998, and has been on a largely downward trajectory since then, with traditional manufacturing states hit particularly hard. Given its size and importance, we cannot ignore the consequences of such a decline. Further, the policies that would help manufacturing the most are those that would help close the nation's large trade deficit. Reducing this trade deficit would, in turn, provide a valuable macroeconomic boost to a U.S. economy that is still operating far below potential.

- The manufacturing sector has a large footprint in the U.S. economy. It employed 12.0 million workers in 2013, 8.8 percent of total U.S. employment.
- Manufacturing plays a particularly important role in supporting jobs in a core group of states in the upper Midwest (East North Central and selected West North Central) and South (East South Central) states. The top 10 states ranked by manufacturing's share of total state employment in 2013 are Indiana

(16.8 percent, 491,900 jobs), Wisconsin (16.3 percent, 458,400 jobs), Iowa (14.0 percent, 214,500 jobs), Michigan (13.5 percent, 555,300 jobs), Alabama (13.1 percent, 249,100 jobs), Arkansas (12.9 percent, 152,400 jobs), Ohio (12.6 percent, 662,100 jobs), Kentucky (12.4 percent, 228,600 jobs), Mississippi (12.3 percent, 136,700 jobs), and Kansas (11.9 percent, 162,900 jobs).

- The top 10 states ranked by total manufacturing employment in 2013 are California (1,251,400 jobs), Texas (871,700 jobs), Ohio (662,100 jobs), Illinois (579,600 jobs), Pennsylvania (563,500 jobs), Michigan (555,300 jobs), Indiana (491,900 jobs), Wisconsin (458,400 jobs), New York (455,100 jobs), and North Carolina (442,500 jobs).
- The top 10 congressional districts ranked by manufacturing's share of total district employment are Indiana's 3rd Congressional District (76,200 jobs, 23.3 percent of district employment), Indiana's 2nd (73,500 jobs, 23.1 percent), Wisconsin's 6th (80,000 jobs, 22.6 percent), California's 17th (63,400 jobs, 19.9 percent), Indiana's 6th (60,400 jobs, 19.4 percent), Alabama's 4th (48,500 jobs, 19.2 percent), Wisconsin's 8th (69,600 jobs, 19.2 percent), Ohio's 4th (61,000 jobs, 19.0 percent), Michigan's 2nd (57,500 jobs, 18.6 percent), and Wisconsin's 5th (66,200 jobs, 17.9 percent).
- The top 50 congressional districts ranked by share of employment in manufacturing are widely dispersed throughout 16 states, nearly one-third of all the states. The states represented in the top 50 congressional district list include Indiana (seven congressional districts), Michigan (seven), Wisconsin (six), Ohio (five), Alabama (three), Arkansas (three), California (three), Iowa (three), Tennessee (three), Kentucky (two), North Carolina (two), South Carolina (two), Georgia (one), Kansas (one), Mississippi (one), and Oregon (one).

Complete data for employment in each state and for all 435 congressional districts (and the District of Columbia) are also available in the **EPI Manufacturing Footprint Map** in the online version of this report. This interactive feature also includes details on employment by state and congressional district in each of 25 unique manufacturing industries.

Manufacturing industries generated \$2.1 trillion in GDP (12.5 percent of total U.S. gross domestic product) in 2013. But even these figures do not fully capture manufacturing's role in the economy. Manufacturing provides a significant source of demand for goods and services in other sectors of the economy, and these sales to other industries are not captured in measures of manufacturing sector GDP but are counted in the broader measure of its gross output. **U.S. manufacturing had gross output of \$5.9 trillion in 2013, more than one-third (35.4 percent) of U.S. GDP in 2013.** Manufacturing is by far the most important sector of the U.S. economy in terms of total output and employment. The manufacturing sector supported approximately 17.1 million indirect jobs in the United States, in addition to the 12.0 million persons directly employed in manufacturing, for a total of 29.1 million jobs directly and indirectly supported, more than one-fifth (21.3 percent) of total U.S. employment in 2013.

The manufacturing sector is also a particularly important provider of jobs with good wages for workers without a college degree. This can be seen in the manufacturing wage premium—the dollar amount by which the average manufacturing worker wage exceeds the wage of an otherwise comparable worker outside the manufacturing sector. The average wage premium for all U.S. manufacturing workers without a college degree was \$1.78 per hour (or 10.9 percent) in 2012–2013.

The United States lost 5.7 million manufacturing jobs between March 1998 and 2013. The principal causes of manufacturing job losses were growing trade deficits, especially with China, Mexico, and other low wage

nations, and the weak recovery from the Great Recession since 2009.

The Great Recession was unusual because of the length and depth of the manufacturing employment decline. Although nearly 800,000 manufacturing jobs have been added since the employment trough, U.S. manufacturing employment remains depressed. If employment had recovered to the level of the average recovery in the post-World War II era, then an additional 1.2 million manufacturing jobs would have been created through the third quarter of 2014. The weak manufacturing recovery is a product of both international and domestic challenges faced by the manufacturing sector. The U.S. trade deficit in manufactured goods has increased sharply since 2009, which has significantly retarded the growth of manufacturing output and employment since the recession. Currency manipulation by China, Japan, and other countries is one of the leading causes of the growing U.S. trade deficit (Scott 2014b). Weak growth of domestic demand is also a major contributor to the relatively weak manufacturing recovery.

The Midwest and some southern states have been particularly hard hit by the collapse of manufacturing since 1998. Those states are also well positioned for a manufacturing recovery if the structural causes of the manufacturing decline are reversed, including by eliminating currency manipulation, which would substantially reduce or eliminate the U.S. trade deficit in manufactured goods. In addition to the growth of the U.S. trade deficit, other structural problems in manufacturing are the stagnation of public investment in infrastructure and in research and development, and inadequate tax, education, and energy policies.

Manufacturing's footprint: Jobs

In 2013, the U.S. manufacturing sector directly employed 12 million workers, or about 8.8 percent of total U.S. employment.

This report uses a unique data set from the American Community Survey (ACS) to estimate the distribution of employment in each state and congressional district. Estimates of total manufacturing employment for each of 25 industries for each region in 2011 were obtained from the survey and used to develop estimates of the distribution of manufacturing employment in each state in the representative period. Total state employment in manufacturing in 2013 was obtained from the Bureau of Labor Statistics (2014c), and allocated to states, industries, and congressional districts based on the distribution of employment obtained from the ACS (U.S. Census Bureau 2013). For further details on the data sources and models used, see Scott (2014a, Appendix: Methodology, 25–27).

Manufacturing jobs in the states

As **Table 1** shows, manufacturing plays a particularly important role in the labor markets of a core group of states in the upper Midwest (East North Central and selected West North Central) and South (East South Central). Manufacturing was responsible for 13.1 percent of employment in the East North Central region in 2013.

Midwestern states with a large manufacturing share of employment (greater than 10 percent, measured as manufacturing's share of all jobs in the state) include Indiana (491,900 jobs, 16.8 percent of total employment), Wisconsin (458,400 jobs, 16.3 percent), Iowa (214,500 jobs, 14.0 percent), Michigan (555,300 jobs, 13.5 percent), and Ohio (662,100 jobs, 12.6 percent), Kansas (162,900 jobs, 11.9 percent), and Minnesota (308,100 jobs, 11.1 percent).

Manufacturing-dependent states in the South include Alabama (249,100 jobs, 13.1 percent), Arkansas

(152,400 jobs, 12.9 percent), Kentucky (228,600 jobs, 12.4 percent), Mississippi (136,700 jobs, 12.3 percent), South Carolina (224,800 jobs, 11.8 percent), Tennessee (319,000 jobs, 11.6 percent), and North Carolina (442,500 jobs, 10.9 percent).

Table 2 reports manufacturing employment in each of the 50 states (and the District of Columbia) ranked by manufacturing jobs as a share of total state employment. The top 10 states in 2013 by share of manufacturing employment were Indiana (16.8 percent, 491,900 jobs), Wisconsin (16.3 percent, 458,400 jobs), Iowa (14.0 percent, 214,500 jobs), Michigan (13.5 percent, 555,300 jobs), Alabama (13.1 percent, 249,100 jobs), Arkansas (12.9 percent, 152,400 jobs), Ohio (12.6 percent, 662,100 jobs), Kentucky (12.4 percent, 228,600 jobs), Mississippi (12.3 percent, 136,700 jobs), and Kansas (11.9 percent, 162,900 jobs).

Table 3 provides the same information but ranks the 50 states (and the District of Columbia) by total manufacturing employment. The top 10 manufacturing employers in 2013 were California (1,251,400 jobs), Texas (871,700 jobs), Ohio (662,100 jobs), Illinois (579,600 jobs), Pennsylvania (563,500 jobs), Michigan (555,300 jobs), Indiana (491,900 jobs), Wisconsin (458,400 jobs), New York (455,100 jobs), and North Carolina (442,500 jobs).

Manufacturing jobs in congressional districts

Using a new model and new congressional district data to estimate the job impacts of manufacturing for the 113th Congress, this study finds that manufacturing is a key source of jobs in many congressional districts, both net jobs and jobs as a share of total congressional district jobs. For example, in over a third of congressional districts,

Note: All of the tables referenced in the text are available at the end of this report.

manufacturing accounts for 10 percent or more of total jobs. (These estimates use the data sources and models described above.)

The top 50 U.S. congressional districts ranked by manufacturing's share of overall district employment are shown in **Table 4**. The top 10 U.S. congressional districts, in terms of the share of employment in manufacturing, were Indiana's 3rd (76,200 jobs, 23.3 percent of district employment), Indiana's 2nd (73,500 jobs, 23.1 percent), Wisconsin's 6th (80,000 jobs, 22.6 percent), California's 17th (63,400 jobs, 19.9 percent), Indiana's 6th (60,400 jobs, 19.4 percent), Alabama's 4th (48,500 jobs, 19.2 percent), Wisconsin's 8th (69,600 jobs, 19.2 percent), Ohio's 4th (61,000 jobs, 19.0 percent), Michigan's 2nd (57,500 jobs, 18.6 percent), and Wisconsin's 5th (66,200 jobs, 17.9 percent).

The top 50 congressional districts, by share of employment in manufacturing, were widely dispersed throughout 16 states, nearly one-third of all the United States. The states represented in the top 50 districts are Indiana (seven congressional districts), Michigan (seven), Wisconsin (six), Ohio (five), Alabama (three), Arkansas (three), California (three), Iowa (three), Tennessee (three), Kentucky (two), North Carolina (two), South Carolina (two), Georgia (one), Kansas (one), Mississippi (one), and Oregon (one).

Supplemental Table 1 reports manufacturing employment for each of the 435 U.S. Congressional districts and the District of Columbia, ranked by manufacturing employment as a share of total district employment. This table is available online in interactive format [\[insert url\]](#), which allows the user to sort the table alphabetically (by state and congressional district), and to rank the districts by net manufacturing jobs in the districts.

Complete data for employment in each state and for all 435 congressional districts (and the District of Columbia) are also available in the **EPI Manufacturing Footprint Map With Extended Data by State and Congress-**

ional District in the online version of this report.. This interactive feature also includes details on employment by state and congressional district in each of 25 unique manufacturing industries.

Manufacturing's footprint: GDP

Manufacturing's impact on jobs is a reflection of its outsize share of U.S. economic production. Manufacturing is the largest sector of the economy, excluding real estate (which is dominated by imputed and actual rental income on property) in most states, as a share of GDP. Nationwide, manufacturing generated \$2.1 trillion in GDP in 2013, equal to 12.5 percent of total U.S. GDP (Bureau of Economic Analysis 2014b).¹

GDP in the states

In 2013, manufacturing was responsible for more than 10 percent of GDP in 32 of the 50 states, as shown in **Table 5**. **Table 6** ranks the states by the manufacturing share of GDP. Many manufacturing jobs are capital intensive, productive activities. Thus, the GDP share of manufacturing exceeds its employment share in most states, reflecting the fact that manufacturing activity also generates higher-than-average value-added per employee. (This helps explain why manufacturing wages are higher than average for non-college-educated workers, as discussed later in this report.)

Manufacturing generated more than 20 percent of total GDP in four states in 2013: Indiana (30.1 percent of total GDP, or \$95.3 billion), Oregon (29.8 percent, \$65.4 billion), Louisiana (23.4 percent, \$59.3 billion), and North Carolina (20.9 percent, \$98.3 billion).

Table 7 ranks the states by total manufacturing GDP. Ten states generated more than \$65 billion each in GDP in 2013: California (\$239.0 billion), Texas (\$233.2 billion), Illinois (\$101.3 billion), Ohio (\$99.8 billion), North Carolina (\$98.3 billion), Indiana (\$95.3 billion), Michigan (\$82.3 billion), Pennsylvania (\$77.4 billion), New York (\$67.9 billion), and Oregon (\$65.4 billion).

Manufacturing punches above its weight: output and indirect jobs

The GDP data do not fully cover manufacturing's impact because they don't account for how manufactured goods generate significant demand for goods and services from other sectors of the economy, ranging from energy and natural resources to construction of new factories to services provided by accounting, engineering, software, and temporary help firms. U.S. manufacturing had gross output of \$5.9 trillion in 2013, more than one-third (35.4 percent) of U.S. gross domestic product in 2013. Manufacturing is by far the most important sector of the U.S. economy in terms of total output (Bureau of Economic Analysis 2014a).

An industry's GDP, also referred to as "value added," includes sales to final users in the economy but not sales to other industries, referred to as "intermediate inputs." In technical terms, value added/GDP includes compensation of employees, taxes on production and imports, less subsidies, and gross operating surplus. When aggregated across industries, value added equals national GDP. The intermediate inputs that are not part of industry GDP refer to "the value of both foreign and domestically produced goods and services which are used as energy, materials, and purchased services as part of an industry's production process" (Bureau of Economic Analysis 2014c). As such manufacturing's GDP does not account for the fact that the manufacturing sector is a large consumer of goods and services produced elsewhere in the economy and, thus, the source of a large share of the final demand for goods and services produced in the United States. Because it includes intermediate inputs, manufacturing's gross output (technically, the value of manufacturing shipments, net of purchases of domestic manufactured intermediates) is perhaps the best measure of the overall manufacturing impact on the economy.

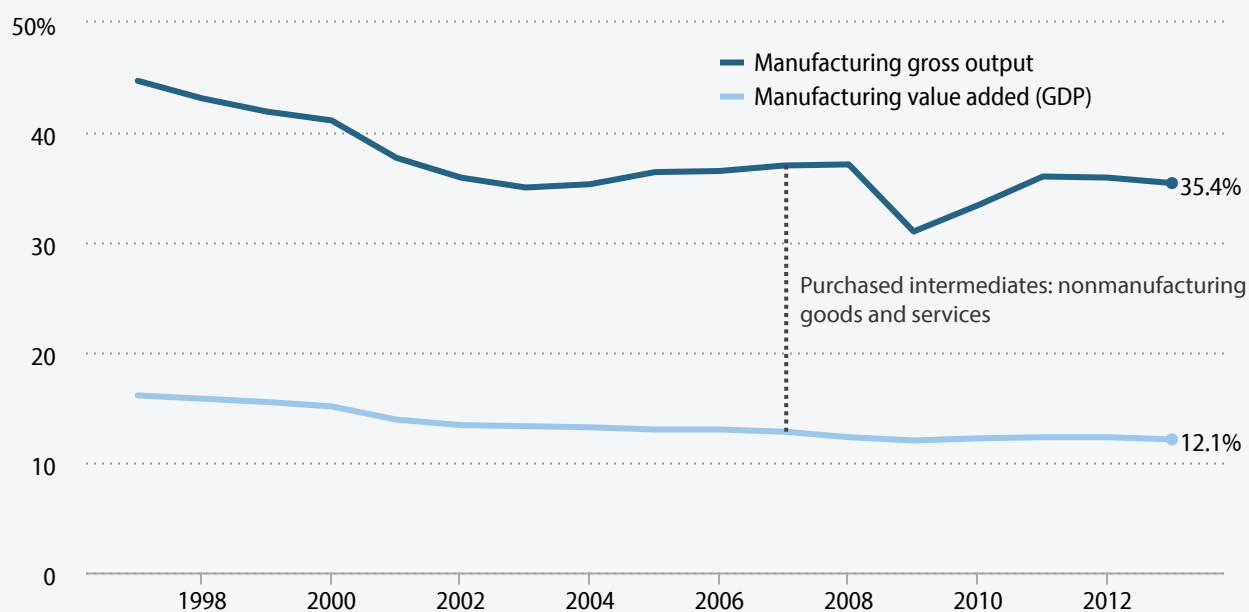
Figure A reports U.S. manufacturing's gross output and its value added as a share of overall national GDP for 1997–2013. Gross output (net manufacturing ship-

ments) exceeded one-third of U.S. GDP in every year of this period except for the recession year of 2009.² Thus, the manufacturing sector was responsible for more than one-third of all economic activity in the United States (35.4 percent of GDP in 2013) in this period.³ As a result, manufacturing's economic footprint is nearly three times as large as its share of direct economic output (value added) in 2013 (12.1 percent of GDP), and more than four times as large as its share of total U.S. employment (8.8 percent, as shown in Table 1).⁴

The large footprint of the manufacturing sector (as indicated by the gross output share of manufacturing in GDP) is also reflected in the high level of indirect employment supported by manufacturing production. The purchase of domestic goods and services by the manufacturing sector supports a large number of jobs outside of manufacturing. As a result, manufacturing has a large "indirect employment multiplier." For every person directly employed in manufacturing, manufacturing output supports more than 1.4 jobs elsewhere in the economy. In total, the manufacturing sector supported approximately 17.1 million indirect jobs in the United States, in addition to the 12.0 million persons directly employed in manufacturing, for a total of 29.1 million jobs directly and indirectly supported, more than one fifth (21.3 percent) of total U.S. employment in 2013.⁵ These estimates do not include macroeconomic responding multipliers, which are also quite large in manufacturing due to the high level of wages in manufacturing industries (Bivens 2003; Bivens 2015, forthcoming).

Manufacturing gross output and value added shares of the economy declined steadily between 1997 and 2013, as shown in Figure A. One reason for this decline is the rapid growth of manufactured imports, which have reduced the demand for domestically manufactured goods. Total imports of manufactured goods increased from \$744 billion in 1997 to \$1.83 trillion in 2014, rising from 8.6 percent of GDP in 1997 to 10.9 percent in 2013. Had it not been for the increase in manufactured

Manufacturing gross output and GDP as a share of national GDP, 1997–2013



Source: Author’s analysis of Bureau of Economic Analysis (2014a)

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imports, and of the U.S. trade deficit in manufactured goods, manufacturing output and GDP would have been significantly higher in 2013.⁶

Manufacturing wages

The manufacturing sector employs workers at all skill and education levels, and is a particularly important provider of jobs with good wages for workers without a college degree. It employs a higher share of workers without a college degree than does the economy overall.⁷ In addition, scientists and engineers made up 7.8 percent of the manufacturing labor force in 2011, a share that is more than twice as large as in the rest of the economy (Scott 2013, Table 4). And while many manufacturing jobs may not require a college education, they are not “unskilled.” Manufacturing employs many highly skilled workers in high-productivity jobs and manufacturing wages are higher than average as a result.

The manufacturing wage “premium” for non-college-educated workers—the amount that the average wage in manufacturing exceeds wages in nonmanufacturing industries—varies widely by state and industry, as shown in Table 8.⁸ The average wage premium for U.S. manufacturing workers without a college degree was \$1.78 per hour (or 10.9 percent) in 2012–2013 (Table 8). However, the manufacturing wage premium is much higher in states that produce more high-tech or capital-intensive goods, such as aircraft, autos, and refined petroleum products. States with especially high manufacturing wage premiums include Montana (\$3.76 per hour, or a 24.4 percent premium), Michigan (\$3.35 per hour, 21.9 percent), New Mexico (\$3.31 per hour, 20.8 percent), Louisiana (\$3.06 per hour, 19.6 percent), Oregon (\$3.23 per hour, 19.6 percent), Maine (\$3.04 per hour, 19.5 percent), Ohio (\$2.99 per hour, 19.4 percent), Kansas (\$2.87 per hour, 19.1 percent), New Hampshire (\$3.16 per hour, 17.9 percent), Kentucky (\$2.57 per hour, 17.7

percent), and Washington (\$3.13 per hour, 17.6 percent).

High rates of unionization contribute to the wage premiums earned by manufacturing workers. In 2013, 10.1 percent of manufacturing workers belonged to labor unions, substantially above the 6.7 percent average unionization rate for workers in the private sector as a whole (Bureau of Labor Statistics 2014d, Table 3). Workers covered by a collective bargaining agreement (who made up 13.0 percent of the labor force) earned about 13.6 percent more than workers from comparable demographic groups in 2011 (Mishel 2012, Table 1).

Manufacturing productivity and other contributions to the U.S. economy

Manufacturing is one of the most dynamic sectors of the U.S. economy. It is responsible for roughly two-thirds, or roughly \$208 billion, of all U.S. business research and development spending. (Manufacturing was responsible for 68.9 percent of all U.S. business research and development spending in 2012, with total business research and development spending in all industries of \$302 billion (total public, corporate, and other funds) in that year alone (Wolfe 2014, Table 2). As a result, manufacturing productivity growth rates have been high for decades. Multifactor labor productivity growth averaged 3.3 percent per year in manufacturing between 1997 and 2012 (Bureau of Labor Statistics 2014b). This was nearly one-third greater than in the private, nonfarm economy as a whole. Given the nexus between research and development and manufacturing, a vital manufacturing sector plays an important role in maintaining an innovative economy.

Not only is manufacturing important for jobs and production, but a vital manufacturing sector is also essential to meeting national challenges, including rebuilding U.S. infrastructure, reducing greenhouse gas emissions, and lowering the nation's reliance on fossil fuels. Renewable

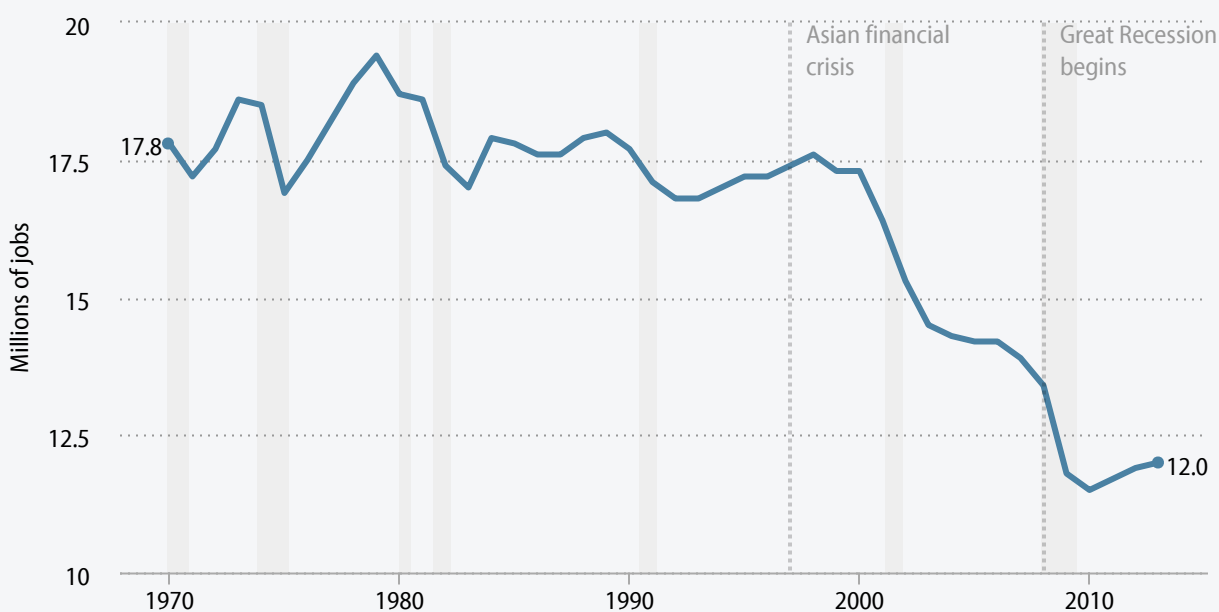
forms of energy, such as wind and solar power, rely on manufactured components more so than extractable energy such as oil. A vibrant manufacturing sector will be needed to supply the new materials needed to rebuild America's decaying infrastructure and to create a low-carbon economy.

Finally, U.S. manufacturing firms also led the way on trade, exporting \$1.4 trillion in manufactured goods—60.6 percent of all U.S. goods and services exported in 2013 (USITC 2014; U.S. Census Bureau 2014a; author's analysis).

Recent manufacturing job losses nationally and by state

U.S. manufacturing employment was relatively stable between 1970 and 1998, and never fell below 16.5 million workers, as shown in **Figure B**. U.S. manufacturing employment reached a cyclical peak in March 1998. The United States lost 5.7 million manufacturing jobs between March 1998 and 2013, as shown in **Table 9**. The principal causes of manufacturing job loss were growing trade deficits, especially with China, Mexico, and other low-wage nations, and also the Great Recession, which was followed by a weak recovery. The Asian financial crisis of late 1997 caused the real, trade-weighted value of the U.S. dollar to rise 20 percent in value through the first quarter of 2002. What began with steady growth in U.S. manufacturing imports and job losses in the late 1990s turned into a major collapse when the U.S. economy fell into recession in early 2001. Manufacturing employment declined continuously thereafter throughout the recovery that ended in December 2007. The Great Recession caused another collapse in manufacturing employment, followed by a relatively weak recovery since 2009. Between March 1998 and December 2007, 3.9 million manufacturing jobs were lost and an additional 1.8 million manufacturing jobs were lost through 2013 (Figure B; Bureau of Labor Statistics 2014a and author's analysis).

Total U.S. manufacturing employment, 1970–2013



Note: Shaded areas denote recessions.

Source: Bureau of Labor Statistics (2014a)

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Table 9 shows manufacturing jobs lost by state and jobs lost as a share of total state employment. The states hardest hit by manufacturing job loss (measured by share of state employment lost) were North Carolina (9.7 percent, 360,000 jobs lost), Mississippi (8.5 percent, 95,600 jobs), Arkansas (8.1 percent, 89,900 jobs), Rhode Island (7.9 percent, 36,000 jobs), Michigan (7.6 percent, 340,000 jobs), Tennessee (7.3 percent, 191,700 jobs), Ohio (6.8 percent, 368,500 jobs), South Carolina (6.6 percent, 117,100 jobs), New Hampshire (6.6 percent, 38,700 jobs), and Alabama (6.1 percent, 114,600 jobs).

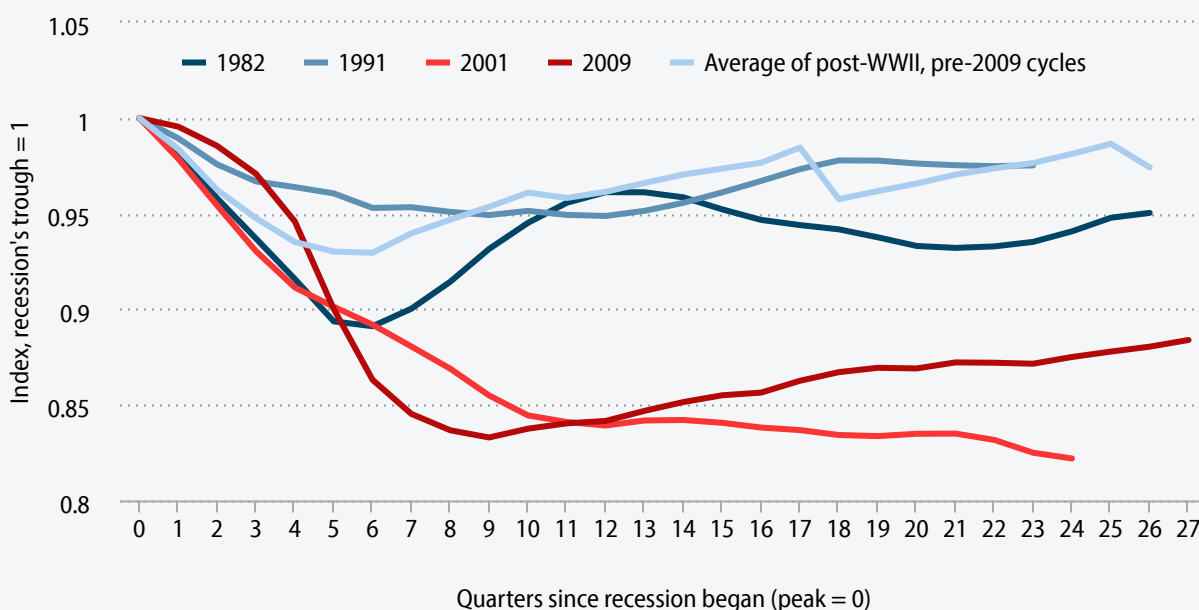
Eight states have lost more than 200,000 manufacturing jobs since 1998: California (604,800 jobs lost, 4.5 percent), Ohio (368,500 jobs, 6.8 percent), North Carolina (360,000 jobs, 9.7 percent), New York (342,500 jobs, 4.2 percent), Michigan (340,000 jobs, 7.6 percent), Illinois (330,500 jobs, 5.6 percent), Pennsylvania (314,000 jobs, 5.7 percent), and Texas (200,400 jobs, 2.3 percent).

The Midwest and some southern states have been particularly hard hit by the collapse of manufacturing. Those states are also well positioned for a manufacturing recovery if the structural causes of the manufacturing decline are reversed, including the elimination of currency manipulation (Scott 2014b) which would substantially reduce or eliminate the U.S. trade deficit in manufactured goods. In addition to the growth of the U.S. trade deficit, other structural problems in manufacturing that remain to be addressed are the stagnation of public investment in infrastructure (Bivens 2014) and research and development, and inadequate tax, education, and energy policies (McCormick 2013).

Historically weak manufacturing recoveries

For the manufacturing sector, the last two business cycles have resulted in historically weak business cycle recovery

Manufacturing employment in recessions and recoveries



Note: The zero quarter represents the peak of prior business cycle (as defined by the National Bureau of Economic Research). At the zero quarter, the manufacturing employment is indexed to one. The preceding values therefore represent the percent change in manufacturing employment as the values enter recession and then the recovery.

Source: Author's analysis of data from the Bureau of Labor Statistics (2014a)

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eries. In all business cycles between World War II and the year 2000, manufacturing had recovered at least 95 percent of prerecession employment within six and one-half years (26 quarters) after the previous business cycle peak, as shown in **Figure C**. For all 10 previous postwar recoveries prior to the 2009 business cycle, the average employment recovery at this point was 97.4 percent. However, the recoveries of 2001 and 2009 lagged far behind all previous business cycles. When the 2001 recovery ended in 2007, employment stood at only 82.2 percent of the prerecession level. This is reflected in the steady decline in employment between 2000 and 2007, as shown in Figure B earlier.

The Great Recession was unusual both because of the length and depth of the manufacturing employment decline. Although nearly 800,000 manufacturing jobs

have been added since the employment trough in February 2010, manufacturing employment continues to lag behind all pre-2000 business cycles (author's analysis of Bureau of Labor Statistics 2014c). Employment in the most recent period (the third quarter of 2014) quarter reached only 88.4 percent of its prerecession level (at the end of 2007). If employment had recovered to the level of the average postwar recovery, then an additional 1.2 million manufacturing jobs would have been created by this point in the recovery.

Reversing the manufacturing job losses by addressing currency manipulation and other challenges

The weak manufacturing recovery is a product of both international and domestic challenges that the manufacturing sector faces. The U.S. trade deficit in manufactured goods increased from \$319.5 billion in 2009 to \$449.3 billion in 2013 (USITC 2014 and author's analysis), an increase of 40.6 percent. Measured as a share of GDP, the manufactured goods trade deficit increased by 0.5 percentage points of GDP in this period, which significantly retarded the growth of manufacturing output and employment during the recovery from the 2009 recession (Bureau of Economic Analysis 2014a; USITC 2014; author's analysis). Currency manipulation by China, Japan, and other countries is one of the leading causes of growing U.S. trade deficits (Scott 2014b). Weak growth of domestic demand is also a major contributor to the relatively weak manufacturing recovery. More than six and one-half years after the start of the Great Recession, unemployment remained well above prerecession levels, and the United States had a jobs shortfall (the number of jobs needed to keep up with growth in the potential labor force) of nearly 6 million (Economic Policy Institute 2014, and Bivens and Shierholz, 2014).

The U.S. goods trade deficit is likely to exceed \$730 billion in 2014 (U.S. Census Bureau 2014b and author's analysis). Elimination of currency manipulation by a group of about 20 countries, with China as the linchpin, could reduce the U.S. trade deficit by between \$200 and \$500 billion within three years. This would increase U.S. GDP by between 2.0 percent and 4.9 percent, and create between 2.3 million and 5.8 million U.S. jobs. Approximately 40 percent of the jobs gained would be in manufacturing, which would gain between 891,500 and 2.3 million jobs (Scott 2014b).

Conclusion

The manufacturing sector has struggled to expand as the United States has become more integrated into the global marketplace. A lack of supportive U.S. trade and currency policies and inadequate industrial and energy policies harm the nation's ability to meet future challenges that will require a solid manufacturing base. The sector is poised to play a key role in reducing greenhouse gas emissions and the reliance on imported energy, but new policies are also needed to achieve progress in these areas. The United States must develop a comprehensive set of transportation and energy policies to increase energy efficiency and renewable energy production in order to take full advantage of the new opportunities.

The manufacturing sector is also of vital importance in maintaining our innovative capacity. Reinvestment in U.S. research, development, energy, and manufacturing policies can also stimulate growth in a wide swath of states in the U.S. heartlands that have been hardest hit by the manufacturing crisis.

About the author

Robert E. Scott joined the Economic Policy Institute in 1996 and is currently director of trade and manufacturing policy research. His areas of research include international economics, trade and manufacturing policies and their impacts on working people in the United States and other countries, the economic impacts of foreign investment, and the macroeconomic effects of trade and capital flows. He has published widely in academic journals and the popular press, including *The Journal of Policy Analysis and Management*, *The International Review of Applied Economics*, and *The Stanford Law and Policy Review*, as well as *The Los Angeles Times*, *Newsday*, *USA Today*, *The Baltimore Sun*, *The Washington Times*, and other newspapers. He has also provided economic commentary for a range of electronic media, including NPR, CNN, Bloomberg, and the BBC. He has a Ph.D. in economics from the University of California at Berkeley.

Acknowledgments

The author thanks **Will Kimball** for research assistance and **Ross Eisenbrey** and **Josh Bivens** for comments. This research was made possible by support from the **Alliance for American Manufacturing**.

Endnotes

1. Based on state GDP estimates, as reported in Table 5.
2. Gross output measures are depressed during recessions by inventory accumulation, as shipments decline faster than output (value added).
3. The manufacturing share of total gross output in all industries was 20.0 percent in 2013. Total gross output double-counts the output of many industries. For example, purchased services and commodities consumed by manufacturing are part of the gross output of those industries, as well as the manufacturing sector. In addition, a share of gross manufacturing output is also part of the gross output of other sectors (for example, trucks and tractors consumed by the agriculture and transportation industries). The true economic impact of manufacturing likely falls between its share of gross output (20.0 percent in 2013) and its share of gross domestic product, which is the sum of value added in all domestic sectors of the economy (35.4 percent in 2013, as shown in Figure A). The sources for these calculations are the Bureau of Economic Analysis (2014a and 2014b) and author's analysis.
4. The value added data shown in Figure A are based on national estimates of value added in manufacturing. In 2013, manufacturing had a slightly smaller share of national GDP (12.1 percent) than it did of total state GDP (12.5 percent, as shown in Table 5). This gap reflects underlying differences in GDP accounting at the state and national levels (Bureau of Economic Analysis 2014a, 2014b, and author's analysis).
5. Estimates of total employment supported by U.S. manufacturing output are based on author's analysis of U.S. input-output and domestic employment requirements data (BLS-EP 2014a and 2014b).

6. The U.S. manufacturing trade deficit increased from \$130.6 billion in 1997 (1.5 percent of GDP) to \$449.3 billion in 2013 (2.7 percent of GDP), an increase of 1.2 percentage points of GDP (USITC 2014, Bureau of Economic Analysis 2014a, and author's analysis).
7. Using pooled 2009–2011 data, Scott (2013, Table 1 at 6) found that 47.7 percent of manufacturing workers had a high school degree or less, while only 37.6 percent of workers in all industries had this level of education. Thus the non-college share in manufacturing was 26.9 percent greater than in all industries.
8. Table 8 reports average wages for a pooled, cross section of workers from the CPS ORG data groups for 2012 and 2013 (U.S. Census Bureau, various years). Wages for workers surveyed in 2012 were inflation adjusted for comparison with 2013 data.

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TABLE 1

U.S. total and manufacturing employment, by region and state, 2013

	Employment		Manufacturing share of total employment
	Total	Manufacturing	
UNITED STATES*	136,540,700	12,013,800	8.8%
NORTHEAST	25,627,500	1,864,300	7.3%
New England	7,033,100	602,400	8.6%
<i>Connecticut</i>	1,655,700	163,800	9.9%
<i>Maine</i>	601,700	50,500	8.4%
<i>Massachusetts</i>	3,358,100	250,400	7.5%
<i>New Hampshire</i>	640,400	65,900	10.3%
<i>Rhode Island</i>	471,200	40,100	8.5%
<i>Vermont</i>	306,000	31,700	10.3%
Middle Atlantic	18,594,400	1,261,900	6.8%
<i>New Jersey</i>	3,935,300	243,300	6.2%
<i>New York</i>	8,915,600	455,100	5.1%
<i>Pennsylvania</i>	5,743,500	563,500	9.8%
MIDWEST	31,163,500	3,848,200	12.3%
East North Central	20,910,700	2,747,300	13.1%
<i>Illinois</i>	5,796,900	579,600	10.0%
<i>Indiana</i>	2,934,100	491,900	16.8%
<i>Michigan</i>	4,106,000	555,300	13.5%
<i>Ohio</i>	5,253,300	662,100	12.6%
<i>Wisconsin</i>	2,820,400	458,400	16.3%
West North Central	10,252,800	1,100,900	10.7%
<i>Iowa</i>	1,530,200	214,500	14.0%
<i>Kansas</i>	1,373,500	162,900	11.9%
<i>Minnesota</i>	2,779,600	308,100	11.1%
<i>Missouri</i>	2,729,100	252,200	9.2%
<i>Nebraska</i>	978,900	96,100	9.8%
<i>North Dakota</i>	444,300	25,500	5.7%
<i>South Dakota</i>	417,200	41,600	10.0%
SOUTH	49,428,000	3,996,700	8.1%

TABLE 1 (CONTINUED)

	Employment		Manufacturing share of total employment
	Total	Manufacturing	
South Atlantic	25,869,600	1,758,500	6.8%
<i>Delaware</i>	427,800	25,400	5.9%
<i>District of Columbia**</i>	745,800	1,000	0.1%
<i>Florida</i>	7,580,100	322,000	4.2%
<i>Georgia</i>	4,034,500	357,400	8.9%
<i>Maryland</i>	2,596,800	106,300	4.1%
<i>North Carolina</i>	4,058,000	442,500	10.9%
<i>South Carolina</i>	1,897,300	224,800	11.8%
<i>Virginia</i>	3,765,800	230,600	6.1%
<i>West Virginia</i>	763,500	48,500	6.4%
East South Central	7,603,600	933,400	12.3%
<i>Alabama**</i>	1,903,800	249,100	13.1%
<i>Kentucky</i>	1,837,100	228,600	12.4%
<i>Mississippi</i>	1,111,700	136,700	12.3%
<i>Tennessee</i>	2,751,000	319,000	11.6%
West South Central	15,954,800	1,304,800	8.2%
<i>Arkansas</i>	1,177,600	152,400	12.9%
<i>Louisiana</i>	1,951,900	144,200	7.4%
<i>Oklahoma**</i>	1,633,400	136,500	8.4%
<i>Texas</i>	11,191,900	871,700	7.8%
WEST	30,322,000	2,305,100	7.6%
Mountain	9,551,700	564,100	5.9%
<i>Arizona</i>	2,515,900	155,100	6.2%
<i>Colorado</i>	2,381,200	132,800	5.6%
<i>Idaho</i>	638,500	59,700	9.4%
<i>Montana</i>	448,800	18,300	4.1%
<i>Nevada</i>	1,175,000	40,500	3.4%
<i>New Mexico</i>	811,700	29,100	3.6%
<i>Utah</i>	1,289,900	119,100	9.2%
<i>Wyoming</i>	290,700	9,500	3.3%
Pacific	20,770,300	1,741,000	8.4%

TABLE 1 (CONTINUED)

	Employment		Manufacturing share of total employment
	Total	Manufacturing	
<i>Alaska</i>	336,700	14,900	4.4%
<i>California</i>	15,153,500	1,251,400	8.3%
<i>Hawaii</i>	617,800	13,500	2.2%
<i>Oregon</i>	1,674,300	174,900	10.4%
<i>Washington</i>	2,988,000	286,300	9.6%

*The total represents the sum of states and the District of Columbia, and differs slightly from total national employment as reported by the Bureau of Labor Statistics (2014b)

**Nonseasonally adjusted data are used for Alabama, the District of Columbia, and Oklahoma

Source: Bureau of Labor Statistics (2014c) and author's analysis

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TABLE 2

Manufacturing jobs by state, 2013 (ranked by manufacturing jobs as a share of total state employment)

Rank	State	Total manufacturing jobs	State employment	Manufacturing jobs as share of state employment
1	Indiana	491,900	2,934,100	16.8%
2	Wisconsin	458,400	2,820,400	16.3%
3	Iowa	214,500	1,530,200	14.0%
4	Michigan	555,300	4,106,000	13.5%
5	Alabama*	249,100	1,903,800	13.1%
6	Arkansas	152,400	1,177,600	12.9%
7	Ohio	662,100	5,253,300	12.6%
8	Kentucky	228,600	1,837,100	12.4%
9	Mississippi	136,700	1,111,700	12.3%
10	Kansas	162,900	1,373,500	11.9%
11	South Carolina	224,800	1,897,300	11.8%
12	Tennessee	319,000	2,751,000	11.6%
13	Minnesota	308,100	2,779,600	11.1%
14	North Carolina	442,500	4,058,000	10.9%
15	Oregon	174,900	1,674,300	10.4%
16	Vermont	31,700	306,000	10.3%
17	New Hampshire	65,900	640,400	10.3%
18	Illinois	579,600	5,796,900	10.0%
19	South Dakota	41,600	417,200	10.0%
20	Connecticut	163,800	1,655,700	9.9%
21	Nebraska	96,100	978,900	9.8%
22	Pennsylvania	563,500	5,743,500	9.8%
23	Washington	286,300	2,988,000	9.6%
24	Idaho	59,700	638,500	9.4%
25	Missouri	252,200	2,729,100	9.2%
26	Utah	119,100	1,289,900	9.2%
27	Georgia	357,400	4,034,500	8.9%
28	Rhode Island	40,100	471,200	8.5%

TABLE 2 (CONTINUED)

Rank	State	Total manufacturing jobs	State employment	Manufacturing jobs as share of state employment
29	Maine	50,500	601,700	8.4%
30	Oklahoma*	136,500	1,633,400	8.4%
31	California	1,251,400	15,153,500	8.3%
32	Texas	871,700	11,191,900	7.8%
33	Massachusetts	250,400	3,358,100	7.5%
34	Louisiana	144,200	1,951,900	7.4%
35	West Virginia	48,500	763,500	6.4%
36	New Jersey	243,300	3,935,300	6.2%
37	Arizona	155,100	2,515,900	6.2%
38	Virginia	230,600	3,765,800	6.1%
39	Delaware	25,400	427,800	5.9%
40	North Dakota	25,500	444,300	5.7%
41	Colorado	132,800	2,381,200	5.6%
42	New York	455,100	8,915,600	5.1%
43	Alaska	14,900	336,700	4.4%
44	Florida	322,000	7,580,100	4.2%
45	Maryland	106,300	2,596,800	4.1%
46	Montana	18,300	448,800	4.1%
47	New Mexico	29,100	811,700	3.6%
48	Nevada	40,500	1,175,000	3.4%
49	Wyoming	9,500	290,700	3.3%
50	Hawaii	13,500	617,800	2.2%
51	District of Columbia*	1,000	745,800	0.1%
Total**		12,013,800	136,540,700	8.8%

*Nonseasonally adjusted data are used for Alabama, the District of Columbia, and Oklahoma

**The total represents the sum of states and the District of Columbia and differs slightly from total national employment as reported by the Bureau of Labor Statistics (2014a)

Source: Bureau of Labor Statistics (2014c) and author's analysis

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TABLE 3

Manufacturing jobs by state, 2013 (ranked by total manufacturing jobs)

Rank	State	Total manufacturing jobs	State employment	Manufacturing jobs as share of state employment
1	California	1,251,400	15,153,500	8.3%
2	Texas	871,700	11,191,900	7.8%
3	Ohio	662,100	5,253,300	12.6%
4	Illinois	579,600	5,796,900	10.0%
5	Pennsylvania	563,500	5,743,500	9.8%
6	Michigan	555,300	4,106,000	13.5%
7	Indiana	491,900	2,934,100	16.8%
8	Wisconsin	458,400	2,820,400	16.3%
9	New York	455,100	8,915,600	5.1%
10	North Carolina	442,500	4,058,000	10.9%
11	Georgia	357,400	4,034,500	8.9%
12	Florida	322,000	7,580,100	4.2%
13	Tennessee	319,000	2,751,000	11.6%
14	Minnesota	308,100	2,779,600	11.1%
15	Washington	286,300	2,988,000	9.6%
16	Missouri	252,200	2,729,100	9.2%
17	Massachusetts	250,400	3,358,100	7.5%
18	Alabama*	249,100	1,903,800	13.1%
19	New Jersey	243,300	3,935,300	6.2%
20	Virginia	230,600	3,765,800	6.1%
21	Kentucky	228,600	1,837,100	12.4%
22	South Carolina	224,800	1,897,300	11.8%
23	Iowa	214,500	1,530,200	14.0%
24	Oregon	174,900	1,674,300	10.4%
25	Connecticut	163,800	1,655,700	9.9%
26	Kansas	162,900	1,373,500	11.9%
27	Arizona	155,100	2,515,900	6.2%
28	Arkansas	152,400	1,177,600	12.9%
29	Louisiana	144,200	1,951,900	7.4%
30	Mississippi	136,700	1,111,700	12.3%

TABLE 3 (CONTINUED)

Rank	State	Total manufacturing jobs	State employment	Manufacturing jobs as share of state employment
31	Oklahoma*	136,500	1,633,400	8.4%
32	Colorado	132,800	2,381,200	5.6%
33	Utah	119,100	1,289,900	9.2%
34	Maryland	106,300	2,596,800	4.1%
35	Nebraska	96,100	978,900	9.8%
36	New Hampshire	65,900	640,400	10.3%
37	Idaho	59,700	638,500	9.4%
38	Maine	50,500	601,700	8.4%
39	West Virginia	48,500	763,500	6.4%
40	South Dakota	41,600	417,200	10.0%
41	Nevada	40,500	1,175,000	3.4%
42	Rhode Island	40,100	471,200	8.5%
43	Vermont	31,700	306,000	10.4%
44	New Mexico	29,100	811,700	3.6%
45	North Dakota	25,500	444,300	5.7%
46	Delaware	25,400	427,800	5.9%
47	Montana	18,300	448,800	4.1%
48	Alaska	14,900	336,700	4.4%
49	Hawaii	13,500	617,800	2.2%
50	Wyoming	9,500	290,700	3.3%
51	District of Columbia*	1,000	745,800	0.1%
Total**		12,013,800	136,540,700	8.8%

* Nonseasonally adjusted data are used for Alabama, the District of Columbia, and Oklahoma

** The total represents the sum of states and the District of Columbia and differs slightly from total national employment as reported by the Bureau of Labor Statistics (2014b)

Source: Bureau of Labor Statistics (2014c) and author's analysis

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TABLE 4

50 congressional districts that most intensively employ manufacturing workers, 2013 (ranked by manufacturing jobs as a share of district employment)

Rank	State	District	Manufacturing employment	Total employment	Manufacturing employment as a share of total
1	Indiana	3	76,200	327,000	23.3%
2	Indiana	2	73,500	317,800	23.1%
3	Wisconsin	6	80,000	353,700	22.6%
4	California	17	63,400	319,300	19.9%
5	Indiana	6	60,400	311,900	19.4%
6	Alabama	4	48,500	252,600	19.2%
7	Wisconsin	8	69,600	363,000	19.2%
8	Ohio	4	61,000	320,300	19.0%
9	Michigan	2	57,500	309,500	18.6%
10	Wisconsin	5	66,200	370,800	17.9%
11	Wisconsin	1	60,800	342,600	17.7%
12	Indiana	8	58,400	329,300	17.7%
13	Kansas	4	58,100	329,200	17.6%
14	Ohio	7	57,400	329,300	17.4%
15	Michigan	10	52,400	302,300	17.3%
16	South Carolina	3	43,900	254,800	17.2%
17	Indiana	4	56,100	328,500	17.1%
18	Georgia	14	47,700	279,700	17.1%
19	Iowa	2	63,200	371,400	17.0%
20	Ohio	5	56,800	336,700	16.9%
21	Arkansas	4	47,000	281,200	16.7%
22	Iowa	1	64,600	390,100	16.6%
23	Michigan	6	50,200	304,000	16.5%
24	Oregon	1	60,700	369,300	16.4%
25	Wisconsin	7	55,500	338,500	16.4%
26	Ohio	8	53,700	331,300	16.2%
27	Alabama	3	42,000	263,900	15.9%
28	North Carolina	10	49,700	313,300	15.9%

TABLE 4 (CONTINUED)

Rank	State	District	Manufacturing employment	Total employment	Manufacturing employment as a share of total
29	Mississippi	1	45,600	287,600	15.9%
30	Kentucky	2	50,100	316,900	15.8%
31	Tennessee	1	45,800	294,100	15.6%
32	Indiana	1	48,000	310,500	15.5%
33	South Carolina	4	44,600	290,000	15.4%
34	Kentucky	1	43,300	284,600	15.2%
35	Iowa	4	57,600	380,200	15.1%
36	Alabama	5	44,800	299,700	14.9%
37	Indiana	9	50,500	339,300	14.9%
38	Tennessee	4	46,200	310,800	14.9%
39	Ohio	14	52,300	352,400	14.8%
40	Michigan	3	45,500	308,800	14.7%
41	Michigan	7	43,000	293,000	14.7%
42	California	19	43,500	298,900	14.6%
43	North Carolina	8	42,200	291,700	14.5%
44	Michigan	9	46,000	319,400	14.4%
45	Arkansas	1	37,900	264,400	14.3%
46	Tennessee	3	42,000	293,400	14.3%
47	Arkansas	3	44,400	311,600	14.2%
48	Wisconsin	3	49,900	353,700	14.1%
49	Michigan	11	47,200	335,100	14.1%
50	California	18	44,500	317,800	14.0%

Source: Author's analysis of data from the Bureau of Labor Statistics (2014c) and U.S. Census Bureau (2013)

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TABLE 5

Manufacturing employment and GDP by state, 2013

	Manufacturing share of total employment	Manufacturing GDP (\$ billions)	Manufacturing share of state GDP
<i>UNITED STATES*</i>	8.8%	\$2,079.5	12.5%
NORTHEAST	7.3%	\$284.8	8.4%
<i>New England</i>	8.6%	\$93.6	10.4%
<i>Connecticut</i>	9.9%	\$27.8	11.2%
<i>Maine</i>	8.4%	\$5.7	10.4%
<i>Massachusetts</i>	7.5%	\$45.1	10.1%
<i>New Hampshire</i>	10.3%	\$7.7	11.4%
<i>Rhode Island</i>	8.5%	\$4.1	7.7%
<i>Vermont</i>	10.3%	\$3.2	10.9%
Middle Atlantic	6.8%	\$191.2	7.7%
<i>New Jersey</i>	6.2%	\$45.9	8.5%
<i>New York</i>	5.1%	\$67.9	5.2%
<i>Pennsylvania</i>	9.8%	\$77.4	12.0%
MIDWEST	12.3%	\$584.9	17.1%
<i>East North Central</i>	13.1%	\$432.1	18.6%
<i>Illinois</i>	10.0%	\$101.3	14.1%
<i>Indiana</i>	16.8%	\$95.3	30.1%
<i>Michigan</i>	13.5%	\$82.3	19.0%
<i>Ohio</i>	12.6%	\$99.8	17.7%
<i>Wisconsin</i>	16.3%	\$53.4	18.9%
<i>West North Central</i>	10.7%	\$152.8	13.8%
<i>Iowa</i>	14.0%	\$28.4	17.1%
<i>Kansas</i>	11.9%	\$22.9	15.9%
<i>Minnesota</i>	11.1%	\$43.7	14.0%
<i>Missouri</i>	9.2%	\$36.3	13.1%
<i>Nebraska</i>	9.8%	\$14.0	12.7%
<i>North Dakota</i>	5.7%	\$3.3	5.8%
<i>South Dakota</i>	10.0%	\$4.2	9.1%
SOUTH	8.1%	\$752.6	12.9%

TABLE 5 (CONTINUED)

	Manufacturing share of total employment	Manufacturing GDP (\$ billions)	Manufacturing share of state GDP
<i>South Atlantic</i>	6.8%	\$296.4	10.0%
<i>Delaware</i>	5.9%	\$4.5	7.3%
<i>District of Columbia**</i>	0.1%	\$0.2	0.2%
<i>Florida</i>	4.2%	\$39.6	4.9%
<i>Georgia</i>	8.9%	\$52.5	11.5%
<i>Maryland</i>	4.1%	\$19.9	5.8%
<i>North Carolina</i>	10.9%	\$98.3	20.9%
<i>South Carolina</i>	11.8%	\$31.8	17.3%
<i>Virginia</i>	6.1%	\$42.3	9.4%
<i>West Virginia</i>	6.4%	\$7.2	9.7%
<i>East South Central</i>	12.3%	\$128.7	16.7%
<i>Alabama**</i>	13.1%	\$34.4	17.8%
<i>Kentucky</i>	12.4%	\$33.6	18.3%
<i>Mississippi</i>	12.3%	\$15.1	14.4%
<i>Tennessee</i>	11.6%	\$45.7	15.9%
<i>West South Central</i>	8.2%	\$327.5	15.6%
<i>Arkansas</i>	12.9%	\$16.6	13.4%
<i>Louisiana</i>	7.4%	\$59.3	23.4%
<i>Oklahoma**</i>	8.4%	\$18.3	10.1%
<i>Texas</i>	7.8%	\$233.2	15.2%
WEST	7.6%	\$457.2	11.3%
<i>Mountain</i>	5.9%	\$91.0	8.3%
<i>Arizona</i>	6.2%	\$24.0	8.6%
<i>Colorado</i>	5.6%	\$21.6	7.3%
<i>Idaho</i>	9.4%	\$7.6	12.2%
<i>Montana</i>	4.1%	\$2.9	6.7%
<i>Nevada</i>	3.4%	\$5.8	4.4%
<i>New Mexico</i>	3.6%	\$5.6	6.1%
<i>Utah</i>	9.2%	\$21.0	14.9%
<i>Wyoming</i>	3.3%	\$2.4	5.3%

TABLE 5 (CONTINUED)

	Manufacturing share of total employment	Manufacturing GDP (\$ billions)	Manufacturing share of state GDP
<i>Pacific</i>	8.4%	\$366.2	12.4%
<i>Alaska</i>	4.4%	\$1.8	3.0%
<i>California</i>	8.3%	\$239.0	10.9%
<i>Hawaii</i>	2.2%	\$1.3	1.8%
<i>Oregon</i>	10.4%	\$65.4	29.8%
<i>Washington</i>	9.6%	\$58.8	14.4%

*The total represents the sum of states and the District of Columbia and differs slightly from total national employment as reported by the Bureau of Labor Statistics (2014b)

**Nonseasonally adjusted data are used for Alabama, the District of Columbia, and Oklahoma

Source: Bureau of Labor Statistics (2014c), Bureau of Economic Analysis (2014b), and author's analysis

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TABLE 6

Manufacturing employment and GDP by state, 2013 (ranked by manufacturing share of state GDP)

	Manufacturing share of total employment	Manufacturing GDP (\$ billions)	Manufacturing share of state GDP
<i>UNITED STATES*</i>	8.8%	\$2,079.5	12.5%
Indiana	16.8%	\$95.3	30.1%
Oregon	10.4%	\$65.4	29.8%
Louisiana	7.4%	\$59.3	23.4%
North Carolina	10.9%	\$98.3	20.9%
Michigan	13.5%	\$82.3	19.0%
Wisconsin	16.3%	\$53.4	18.9%
Kentucky	12.4%	\$33.6	18.3%
Alabama**	13.1%	\$34.4	17.8%
Ohio	12.6%	\$99.8	17.7%
South Carolina	11.8%	\$31.8	17.3%
Iowa	14.0%	\$28.4	17.1%
Kansas	11.9%	\$22.9	15.9%
Tennessee	11.6%	\$45.7	15.9%
Texas	7.8%	\$233.2	15.2%
Utah	9.2%	\$21.0	14.9%
Washington	9.6%	\$58.8	14.4%
Mississippi	12.3%	\$15.1	14.4%
Illinois	10.0%	\$101.3	14.1%
Minnesota	11.1%	\$43.7	14.0%
Arkansas	12.9%	\$16.6	13.4%
Missouri	9.2%	\$36.3	13.1%
Nebraska	9.8%	\$14.0	12.7%
Idaho	9.4%	\$7.6	12.2%
Pennsylvania	9.8%	\$77.4	12.0%
Georgia	8.9%	\$52.5	11.5%
New Hampshire	10.3%	\$7.7	11.4%
Connecticut	9.9%	\$27.8	11.2%
Vermont	10.3%	\$3.2	10.9%

TABLE 6 (CONTINUED)

	Manufacturing share of total employment	Manufacturing GDP (\$ billions)	Manufacturing share of state GDP
California	8.3%	\$239.0	10.9%
Maine	8.4%	\$5.7	10.4%
Massachusetts	7.5%	\$45.1	10.1%
Oklahoma**	8.4%	\$18.3	10.1%
West Virginia	6.4%	\$7.2	9.7%
Virginia	6.1%	\$42.3	9.4%
South Dakota	10.0%	\$4.2	9.1%
Arizona	6.2%	\$24.0	8.6%
New Jersey	6.2%	\$45.9	8.5%
Rhode Island	8.5%	\$4.1	7.7%
Colorado	5.6%	\$21.6	7.3%
Delaware	5.9%	\$4.5	7.3%
Montana	4.1%	\$2.9	6.7%
New Mexico	3.6%	\$5.6	6.1%
Maryland	4.1%	\$19.9	5.8%
North Dakota	5.7%	\$3.3	5.8%
Wyoming	3.3%	\$2.4	5.3%
New York	5.1%	\$67.9	5.2%
Florida	4.2%	\$39.6	4.9%
Nevada	3.4%	\$5.8	4.4%
Alaska	4.4%	\$1.8	3.0%
Hawaii	2.2%	\$1.3	1.8%
District of Columbia**	0.1%	\$0.2	0.2%

*The total represents the sum of states and the District of Columbia and differs slightly from total national employment as reported by the Bureau of Labor Statistics (2014b)

**Nonseasonally adjusted data are used for Alabama, the District of Columbia, and Oklahoma

Source: Bureau of Labor Statistics (2014c), Bureau of Economic Analysis (2014b), and author's analysis

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TABLE 7

Manufacturing employment and GDP by state, 2013 (ranked by manufacturing GDP)

	Manufacturing share of total employment	Manufacturing GDP (\$ billions)	Manufacturing share of state GDP
<i>UNITED STATES*</i>	8.8%	\$2,079.5	12.5%
California	8.3%	\$239.0	10.9%
Texas	7.8%	\$233.2	15.2%
Illinois	10.0%	\$101.3	14.1%
Ohio	12.6%	\$99.8	17.7%
North Carolina	10.9%	\$98.3	20.9%
Indiana	16.8%	\$95.3	30.1%
Michigan	13.5%	\$82.3	19.0%
Pennsylvania	9.8%	\$77.4	12.0%
New York	5.1%	\$67.9	5.2%
Oregon	10.4%	\$65.4	29.8%
Louisiana	7.4%	\$59.3	23.4%
Washington	9.6%	\$58.8	14.4%
Wisconsin	16.3%	\$53.4	18.9%
Georgia	8.9%	\$52.5	11.5%
New Jersey	6.2%	\$45.9	8.5%
Tennessee	11.6%	\$45.7	15.9%
Massachusetts	7.5%	\$45.1	10.1%
Minnesota	11.1%	\$43.7	14.0%
Virginia	6.1%	\$42.3	9.4%
Florida	4.2%	\$39.6	4.9%
Missouri	9.2%	\$36.3	13.1%
Alabama**	13.1%	\$34.4	17.8%
Kentucky	12.4%	\$33.6	18.3%
South Carolina	11.8%	\$31.8	17.3%
Iowa	14.0%	\$28.4	17.1%
Connecticut	9.9%	\$27.8	11.2%
Arizona	6.2%	\$24.0	8.6%
Kansas	11.9%	\$22.9	15.9%
Colorado	5.6%	\$21.6	7.3%

TABLE 7 (CONTINUED)

	Manufacturing share of total employment	Manufacturing GDP (\$ billions)	Manufacturing share of state GDP
Utah	9.2%	\$21.0	14.9%
Maryland	4.1%	\$19.9	5.8%
Oklahoma**	8.4%	\$18.3	10.1%
Arkansas	12.9%	\$16.6	13.4%
Mississippi	12.3%	\$15.1	14.4%
Nebraska	9.8%	\$14.0	12.7%
New Hampshire	10.3%	\$7.7	11.4%
Idaho	9.4%	\$7.6	12.2%
West Virginia	6.4%	\$7.2	9.7%
Nevada	3.4%	\$5.8	4.4%
Maine	8.4%	\$5.7	10.4%
New Mexico	3.6%	\$5.6	6.1%
Delaware	5.9%	\$4.5	7.3%
South Dakota	10.0%	\$4.2	9.1%
Rhode Island	8.5%	\$4.1	7.7%
North Dakota	5.7%	\$3.3	5.8%
Vermont	10.3%	\$3.2	10.9%
Montana	4.1%	\$2.9	6.7%
Wyoming	3.3%	\$2.4	5.3%
Alaska	4.4%	\$1.8	3.0%
Hawaii	2.2%	\$1.3	1.8%
District of Columbia**	0.1%	\$0.2	0.2%

*The total represents the sum of states and the District of Columbia and differs slightly from total national employment as reported by the Bureau of Labor Statistics (2014b)

**Nonseasonally adjusted data are used for Alabama, the District of Columbia, and Oklahoma

Source: Bureau of Labor Statistics (2014c), Bureau of Economic Analysis (2014b), and author's analysis

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TABLE 8

Wages in manufacturing compared with wages in the rest of the economy, for workers without a college degree, 2012 and 2013

State	Average hourly wage (in 2013 dollars)		Manufacturing wage premium	
	Manufacturing	Nonmanufacturing	Dollars per hour	Percent
<i>United States</i>	\$18.07	\$16.29	\$1.78	10.9%
<i>Alabama</i>	\$17.96	\$15.27	\$2.68	17.6%
<i>Alaska</i>	\$20.72	\$19.33	\$1.39	7.2%
<i>Arizona</i>	\$18.71	\$16.40	\$2.31	14.1%
<i>Arkansas</i>	\$16.20	\$14.67	\$1.53	10.5%
<i>California</i>	\$18.22	\$16.99	\$1.23	7.3%
<i>Colorado</i>	\$20.05	\$17.48	\$2.57	14.7%
<i>Connecticut</i>	\$20.83	\$17.98	\$2.85	15.9%
<i>Delaware</i>	\$19.03	\$16.95	\$2.08	12.3%
<i>District of Columbia</i>	\$16.79	\$16.64	\$0.14	0.9%
<i>Florida</i>	\$18.00	\$16.17	\$1.82	11.3%
<i>Georgia</i>	\$17.49	\$15.65	\$1.85	11.8%
<i>Hawaii</i>	\$19.79	\$17.32	\$2.47	14.3%
<i>Idaho</i>	\$17.19	\$15.22	\$1.97	12.9%
<i>Illinois</i>	\$17.50	\$16.46	\$1.05	6.4%
<i>Indiana</i>	\$17.67	\$15.77	\$1.90	12.0%
<i>Iowa</i>	\$17.25	\$15.69	\$1.56	10.0%
<i>Kansas</i>	\$17.90	\$15.03	\$2.87	19.1%
<i>Kentucky</i>	\$17.07	\$14.50	\$2.57	17.7%
<i>Louisiana</i>	\$18.64	\$15.59	\$3.06	19.6%
<i>Maine</i>	\$18.66	\$15.62	\$3.04	19.5%
<i>Maryland</i>	\$19.16	\$18.16	\$1.00	5.5%
<i>Massachusetts</i>	\$18.71	\$17.35	\$1.36	7.9%
<i>Michigan</i>	\$18.65	\$15.30	\$3.35	21.9%
<i>Minnesota</i>	\$19.37	\$17.19	\$2.18	12.7%
<i>Mississippi</i>	\$16.23	\$15.70	\$0.53	3.4%
<i>Missouri</i>	\$17.60	\$16.26	\$1.34	8.3%
<i>Montana</i>	\$19.19	\$15.43	\$3.76	24.4%
<i>Nebraska</i>	\$15.31	\$15.68	-\$0.37	-2.4%

TABLE 8 (CONTINUED)

State	Average hourly wage (in 2013 dollars)		Manufacturing wage premium	
	Manufacturing	Nonmanufacturing	Dollars per hour	Percent
<i>Nevada</i>	\$17.69	\$16.06	\$1.63	10.1%
<i>New Hampshire</i>	\$20.87	\$17.71	\$3.16	17.9%
<i>New Jersey</i>	\$19.56	\$18.31	\$1.25	6.8%
<i>New Mexico</i>	\$19.25	\$15.94	\$3.31	20.8%
<i>New York</i>	\$17.85	\$16.95	\$0.91	5.3%
<i>North Carolina</i>	\$16.85	\$15.73	\$1.12	7.1%
<i>North Dakota</i>	\$17.93	\$16.99	\$0.94	5.5%
<i>Ohio</i>	\$18.47	\$15.47	\$2.99	19.4%
<i>Oklahoma</i>	\$17.13	\$15.45	\$1.68	10.9%
<i>Oregon</i>	\$19.76	\$16.52	\$3.23	19.6%
<i>Pennsylvania</i>	\$18.72	\$16.20	\$2.52	15.6%
<i>Rhode Island</i>	\$18.28	\$16.55	\$1.74	10.5%
<i>South Carolina</i>	\$17.24	\$14.90	\$2.34	15.7%
<i>South Dakota</i>	\$15.74	\$15.42	\$0.32	2.0%
<i>Tennessee</i>	\$16.10	\$14.75	\$1.35	9.1%
<i>Texas</i>	\$17.47	\$15.48	\$2.00	12.9%
<i>Utah</i>	\$17.66	\$16.15	\$1.51	9.3%
<i>Vermont</i>	\$17.92	\$16.34	\$1.58	9.6%
<i>Virginia</i>	\$19.02	\$17.05	\$1.97	11.5%
<i>Washington</i>	\$20.92	\$17.79	\$3.13	17.6%
<i>West Virginia</i>	\$19.02	\$16.31	\$2.71	16.6%
<i>Wisconsin</i>	\$18.20	\$15.89	\$2.31	14.6%
<i>Wyoming</i>	\$21.75	\$18.19	\$3.56	19.6%

Note: Average wages by education group are from a two-year (2012–2013) pooled sample of workers by industry.

Source: Author's analysis of Current Population Survey Outgoing Rotation Group microdata (U.S. Census Bureau, various years)

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TABLE 9

Manufacturing jobs lost between March 1998 and 2013, by state

State/region	Manufacturing jobs lost since March 1998	Manufacturing jobs lost as a share of total employment in March 1998
<i>UNITED STATES*</i>	5,702,200	4.6%
<i>NORTHEAST</i>	1,217,100	5.0%
<i>New England</i>	371,700	5.6%
<i>Connecticut</i>	85,400	5.2%
<i>Maine</i>	31,000	5.5%
<i>Massachusetts</i>	167,600	5.3%
<i>New Hampshire</i>	38,700	6.6%
<i>Rhode Island</i>	36,000	7.9%
<i>Vermont</i>	12,900	4.6%
<i>Middle Atlantic</i>	845,400	4.8%
<i>New Jersey</i>	188,900	5.0%
<i>New York</i>	342,500	4.2%
<i>Pennsylvania</i>	314,000	5.7%
<i>MIDWEST</i>	1,647,500	5.3%
<i>East North Central</i>	1,341,600	6.3%
<i>Illinois</i>	330,500	5.6%
<i>Indiana</i>	169,500	5.8%
<i>Michigan</i>	340,000	7.6%
<i>Ohio</i>	368,500	6.8%
<i>Wisconsin</i>	133,100	4.9%
<i>West North Central</i>	305,900	3.2%
<i>Iowa</i>	32,200	2.3%
<i>Kansas</i>	41,100	3.2%
<i>Minnesota</i>	89,800	3.5%
<i>Missouri</i>	125,600	4.7%
<i>Nebraska</i>	17,200	2.0%
<i>North Dakota</i>	-2,600	-0.8%
<i>South Dakota</i>	2,500	0.7%
<i>SOUTH</i>	1,948,200	4.5%

TABLE 9 (CONTINUED)

State/region	Manufacturing jobs lost since March 1998	Manufacturing jobs lost as a share of total employment in March 1998
<i>South Atlantic</i>	1,100,900	4.8%
<i>Delaware</i>	19,100	4.8%
<i>District of Columbia**</i>	3,200	0.5%
<i>Florida</i>	164,400	2.5%
<i>Georgia</i>	193,600	5.2%
<i>Maryland</i>	69,000	3.0%
<i>North Carolina</i>	360,000	9.7%
<i>South Carolina</i>	117,100	6.6%
<i>Virginia</i>	145,000	4.4%
<i>West Virginia</i>	29,500	4.1%
<i>East South Central</i>	478,700	6.5%
<i>Alabama**</i>	114,600	6.1%
<i>Kentucky</i>	76,700	4.4%
<i>Mississippi</i>	95,600	8.5%
<i>Tennessee</i>	191,700	7.3%
<i>West South Central</i>	368,700	2.8%
<i>Arkansas</i>	89,900	8.1%
<i>Louisiana</i>	41,500	2.2%
<i>Oklahoma**</i>	36,900	2.6%
<i>Texas</i>	200,400	2.3%
WEST	889,300	3.4%
<i>Mountain</i>	150,400	1.9%
<i>Arizona</i>	56,700	2.8%
<i>Colorado</i>	57,200	2.8%
<i>Idaho</i>	9,900	1.9%
<i>Montana</i>	3,700	1.0%
<i>Nevada</i>	-200	0.0%
<i>New Mexico</i>	14,000	2.0%
<i>Utah</i>	8,500	0.8%
<i>Wyoming</i>	700	0.3%

TABLE 9 (CONTINUED)

State/region	Manufacturing jobs lost since March 1998	Manufacturing jobs lost as a share of total employment in March 1998
<i>Pacific</i>	738,900	4.0%
<i>Alaska</i>	-1,300	-0.5%
<i>California</i>	604,800	4.5%
<i>Hawaii</i>	2,300	0.4%
<i>Oregon</i>	56,600	3.6%
<i>Washington</i>	76,600	3.0%

*The total represents the sum of states and the District of Columbia, and differs slightly from total national employment as reported by the Bureau of Labor Statistics (2014b)

**Nonseasonally adjusted data are used for Alabama, the District of Columbia, and Oklahoma

Source: Bureau of Labor Statistics (2014c) and author's analysis

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SUPPLEMENTAL TABLE 1

Manufacturing employment by congressional district, 2013 (ranked by manufacturing jobs as a share of district employment)

Rank	State	District	Manufacturing employment	Total employment	Manufacturing employment as a share of total
1	Indiana	3	76,200	327,000	23.3%
2	Indiana	2	73,500	317,800	23.1%
3	Wisconsin	6	80,000	353,700	22.6%
4	California	17	63,400	319,300	19.9%
5	Indiana	6	60,400	311,900	19.4%
6	Alabama	4	48,500	252,600	19.2%
7	Wisconsin	8	69,600	363,000	19.2%
8	Ohio	4	61,000	320,300	19.0%
9	Michigan	2	57,500	309,500	18.6%
10	Wisconsin	5	66,200	370,800	17.9%
11	Wisconsin	1	60,800	342,600	17.7%
12	Indiana	8	58,400	329,300	17.7%
13	Kansas	4	58,100	329,200	17.6%
14	Ohio	7	57,400	329,300	17.4%
15	Michigan	10	52,400	302,300	17.3%
16	South Carolina	3	43,900	254,800	17.2%
17	Indiana	4	56,100	328,500	17.1%
18	Georgia	14	47,700	279,700	17.1%
19	Iowa	2	63,200	371,400	17.0%
20	Ohio	5	56,800	336,700	16.9%
21	Arkansas	4	47,000	281,200	16.7%
22	Iowa	1	64,600	390,100	16.6%
23	Michigan	6	50,200	304,000	16.5%
24	Oregon	1	60,700	369,300	16.4%
25	Wisconsin	7	55,500	338,500	16.4%
26	Ohio	8	53,700	331,300	16.2%
27	Alabama	3	42,000	263,900	15.9%
28	North Carolina	10	49,700	313,300	15.9%

SUPPLEMENTAL TABLE 1 (CONTINUED)

Rank	State	District	Manufacturing employment	Total employment	Manufacturing employment as a share of total
29	Mississippi	1	45,600	287,600	15.9%
30	Kentucky	2	50,100	316,900	15.8%
31	Tennessee	1	45,800	294,100	15.6%
32	Indiana	1	48,000	310,500	15.5%
33	South Carolina	4	44,600	290,000	15.4%
34	Kentucky	1	43,300	284,600	15.2%
35	Iowa	4	57,600	380,200	15.1%
36	Alabama	5	44,800	299,700	14.9%
37	Indiana	9	50,500	339,300	14.9%
38	Tennessee	4	46,200	310,800	14.9%
39	Ohio	14	52,300	352,400	14.8%
40	Michigan	3	45,500	308,800	14.7%
41	Michigan	7	43,000	293,000	14.7%
42	California	19	43,500	298,900	14.6%
43	North Carolina	8	42,200	291,700	14.5%
44	Michigan	9	46,000	319,400	14.4%
45	Arkansas	1	37,900	264,400	14.3%
46	Tennessee	3	42,000	293,400	14.3%
47	Arkansas	3	44,400	311,600	14.2%
48	Wisconsin	3	49,900	353,700	14.1%
49	Michigan	11	47,200	335,100	14.1%
50	California	18	44,500	317,800	14.0%
51	Tennessee	8	41,300	295,600	14.0%
52	South Carolina	5	36,700	265,200	13.8%
53	California	40	35,800	258,700	13.8%
54	California	46	40,100	290,000	13.8%
55	Minnesota	1	48,400	354,600	13.6%
56	Ohio	13	44,000	322,800	13.6%
57	Illinois	17	41,400	304,900	13.6%

SUPPLEMENTAL TABLE 1 (CONTINUED)

Rank	State	District	Manufacturing employment	Total employment	Manufacturing employment as a share of total
58	North Carolina	5	42,600	313,800	13.6%
59	Illinois	16	43,100	323,500	13.3%
60	Georgia	9	36,400	273,800	13.3%
61	Pennsylvania	16	42,500	321,600	13.2%
62	North Carolina	2	38,700	293,800	13.2%
63	Massachusetts	3	47,800	363,400	13.2%
64	California	44	32,600	249,600	13.1%
65	Illinois	4	41,500	319,400	13.0%
66	Minnesota	6	46,100	355,200	13.0%
67	Ohio	16	46,500	358,300	13.0%
68	Ohio	6	38,000	294,500	12.9%
69	Texas	36	36,600	285,200	12.8%
70	Washington	2	39,100	305,600	12.8%
71	Washington	1	40,700	318,500	12.8%
72	Pennsylvania	3	39,800	311,700	12.8%
73	Connecticut	2	42,200	331,200	12.7%
74	North Carolina	11	35,900	285,600	12.6%
75	Illinois	8	44,900	358,300	12.5%
76	Minnesota	7	41,900	334,800	12.5%
77	Michigan	4	34,900	280,400	12.4%
78	Michigan	8	40,000	324,000	12.3%
79	Pennsylvania	4	41,000	336,500	12.2%
80	Pennsylvania	15	41,000	337,300	12.2%
81	Illinois	14	41,600	343,300	12.1%
82	Kentucky	4	40,300	333,300	12.1%
83	Kansas	1	41,300	342,000	12.1%
84	Tennessee	6	36,300	300,800	12.1%
85	Tennessee	7	34,000	282,400	12.0%
86	Mississippi	4	34,500	286,900	12.0%

SUPPLEMENTAL TABLE 1 (CONTINUED)

Rank	State	District	Manufacturing employment	Total employment	Manufacturing employment as a share of total
87	North Carolina	6	39,700	330,600	12.0%
88	Missouri	8	35,400	297,100	11.9%
89	Ohio	9	37,800	317,400	11.9%
90	Minnesota	3	42,800	360,300	11.9%
91	Nebraska	3	37,400	317,000	11.8%
92	Virginia	9	34,300	291,100	11.8%
93	Pennsylvania	5	36,600	310,900	11.8%
94	California	35	30,900	262,700	11.8%
95	Illinois	10	37,100	317,700	11.7%
96	North Carolina	1	32,900	282,300	11.7%
97	Washington	8	35,200	304,700	11.6%
98	Texas	33	32,000	277,300	11.5%
99	Illinois	15	35,600	309,500	11.5%
100	Oklahoma	2	32,400	282,000	11.5%
101	Texas	14	34,000	296,300	11.5%
102	Kentucky	6	38,200	335,200	11.4%
103	Wisconsin	4	35,100	308,100	11.4%
104	Utah	1	36,400	319,600	11.4%
105	Alabama	2	30,300	266,100	11.4%
106	Pennsylvania	10	34,900	306,600	11.4%
107	Illinois	6	39,500	347,800	11.4%
108	New York	23	36,500	323,000	11.3%
109	Michigan	12	34,700	307,400	11.3%
110	Georgia	3	30,900	274,900	11.2%
111	Michigan	13	25,400	226,000	11.2%
112	New Hampshire	2	34,600	310,700	11.1%
113	Texas	29	31,800	286,100	11.1%
114	Ohio	2	36,200	326,100	11.1%
115	California	38	32,000	289,000	11.1%
116	Ohio	1	36,700	334,800	11.0%

SUPPLEMENTAL TABLE 1 (CONTINUED)

Rank	State	District	Manufacturing employment	Total employment	Manufacturing employment as a share of total
117	Minnesota	2	40,000	365,000	11.0%
118	Illinois	11	37,100	339,700	10.9%
119	California	15	33,800	310,300	10.9%
120	Washington	3	29,700	272,700	10.9%
121	Missouri	3	40,000	368,200	10.9%
122	Pennsylvania	17	33,200	306,700	10.8%
123	Michigan	5	28,000	259,400	10.8%
124	Washington	9	35,200	327,200	10.8%
125	Mississippi	2	26,800	251,200	10.7%
126	California	42	30,200	283,200	10.7%
127	Pennsylvania	6	37,900	355,500	10.7%
128	Indiana	5	38,100	357,600	10.7%
129	California	32	28,700	271,000	10.6%
130	Wisconsin	2	41,200	390,100	10.6%
131	Alabama	7	25,700	243,600	10.6%
132	Kentucky	3	35,000	333,100	10.5%
133	Alabama	1	28,400	271,900	10.4%
134	Mississippi	3	29,800	285,900	10.4%
135	Connecticut	5	34,300	331,000	10.4%
136	Vermont	1	31,700	306,000	10.4%
137	New York	27	34,800	336,200	10.4%
138	Nebraska	1	34,400	333,700	10.3%
139	Missouri	6	36,500	354,200	10.3%
140	Texas	6	35,100	340,800	10.3%
141	Oklahoma	1	36,100	351,400	10.3%
142	Connecticut	3	34,300	335,100	10.2%
143	Idaho	1	31,400	307,600	10.2%
144	California	25	28,500	279,200	10.2%
145	California	10	26,100	255,700	10.2%
146	California	45	33,300	326,900	10.2%
147	Pennsylvania	8	35,700	351,000	10.2%

SUPPLEMENTAL TABLE 1 (CONTINUED)

Rank	State	District	Manufacturing employment	Total employment	Manufacturing employment as a share of total
148	Pennsylvania	9	30,400	299,100	10.2%
149	Texas	12	33,500	329,700	10.2%
150	Michigan	14	25,500	252,500	10.1%
151	Texas	4	29,500	292,400	10.1%
152	Kansas	2	33,900	336,100	10.1%
153	California	48	32,800	325,300	10.1%
154	North Carolina	13	34,100	338,400	10.1%
155	Illinois	3	31,400	312,500	10.0%
156	Utah	4	34,000	339,100	10.0%
157	Ohio	10	31,600	315,200	10.0%
158	California	39	30,600	306,200	10.0%
159	South Dakota	1	41,600	417,200	10.0%
160	Pennsylvania	11	32,200	323,100	10.0%
161	Georgia	12	26,600	267,600	9.9%
162	Illinois	18	32,800	330,100	9.9%
163	Minnesota	4	33,700	342,200	9.8%
164	Indiana	7	30,600	312,200	9.8%
165	South Carolina	7	25,400	259,600	9.8%
166	California	34	27,700	285,500	9.7%
167	South Carolina	6	23,600	244,300	9.7%
168	Alabama	6	29,400	305,900	9.6%
169	Texas	2	33,900	356,200	9.5%
170	Pennsylvania	7	31,600	333,400	9.5%
171	New Hampshire	1	31,200	329,800	9.5%
172	Connecticut	1	31,400	332,400	9.4%
173	California	29	26,100	280,100	9.3%
174	Ohio	12	33,600	362,300	9.3%
175	Kentucky	5	21,700	234,100	9.3%
176	Ohio	15	31,400	338,900	9.3%

SUPPLEMENTAL TABLE 1 (CONTINUED)

Rank	State	District	Manufacturing employment	Total employment	Manufacturing employment as a share of total
177	Georgia	2	22,300	241,700	9.2%
178	Georgia	8	24,100	262,300	9.2%
179	Massachusetts	2	33,400	364,400	9.2%
180	Tennessee	2	29,600	323,200	9.2%
181	Pennsylvania	18	31,000	338,500	9.2%
182	North Carolina	7	27,800	305,000	9.1%
183	California	47	27,500	302,200	9.1%
184	Virginia	4	29,100	319,900	9.1%
185	Oregon	3	34,100	375,200	9.1%
186	Rhode Island	1	21,000	231,200	9.1%
187	Missouri	7	30,500	335,800	9.1%
188	California	43	25,200	279,300	9.0%
189	Missouri	2	34,000	376,900	9.0%
190	Virginia	6	29,900	331,500	9.0%
191	Oregon	2	27,700	307,600	9.0%
192	Texas	18	26,900	299,300	9.0%
193	Texas	8	27,000	302,100	8.9%
194	Georgia	10	24,700	276,500	8.9%
195	New York	22	28,400	318,700	8.9%
196	Texas	1	25,800	290,900	8.9%
197	Virginia	5	27,300	308,400	8.9%
198	Michigan	1	25,000	284,200	8.8%
199	South Carolina	1	25,400	288,900	8.8%
200	New Jersey	7	31,400	357,400	8.8%
201	Illinois	2	23,900	272,100	8.8%
202	Massachusetts	1	30,600	348,600	8.8%
203	Minnesota	8	27,100	309,000	8.8%
204	Texas	32	30,900	352,600	8.8%
205	New York	25	29,200	333,800	8.7%
206	Pennsylvania	12	28,300	325,600	8.7%

SUPPLEMENTAL TABLE 1 (CONTINUED)

Rank	State	District	Manufacturing employment	Total employment	Manufacturing employment as a share of total
207	Ohio	11	24,100	277,300	8.7%
208	Texas	13	26,100	301,900	8.6%
209	Maine	1	27,400	318,500	8.6%
210	Texas	3	31,200	362,700	8.6%
211	South Carolina	2	25,300	294,500	8.6%
212	Idaho	2	28,400	330,900	8.6%
213	California	49	23,700	276,500	8.6%
214	Oregon	5	27,400	319,800	8.6%
215	California	5	25,800	301,400	8.6%
216	North Carolina	12	26,400	309,300	8.5%
217	Arizona	5	25,300	297,500	8.5%
218	California	26	25,400	300,700	8.4%
219	Texas	10	27,900	334,700	8.3%
220	California	41	20,800	250,800	8.3%
221	Oregon	4	24,900	302,500	8.2%
222	Washington	6	21,700	264,000	8.2%
223	California	31	22,000	269,500	8.2%
224	Texas	22	28,100	344,400	8.2%
225	Massachusetts	4	31,200	383,100	8.1%
226	Texas	24	30,900	379,700	8.1%
227	Maine	2	23,000	283,200	8.1%
228	Illinois	12	23,900	294,400	8.1%
229	Louisiana	6	29,500	363,600	8.1%
230	California	52	26,200	323,000	8.1%
231	Kansas	3	29,600	366,200	8.1%
232	North Carolina	9	29,000	359,200	8.1%
233	New York	24	25,900	325,700	8.0%
234	Missouri	4	25,700	323,300	7.9%
235	Rhode Island	2	19,000	239,900	7.9%
236	Utah	2	24,700	312,800	7.9%

SUPPLEMENTAL TABLE 1 (CONTINUED)

Rank	State	District	Manufacturing employment	Total employment	Manufacturing employment as a share of total
237	Georgia	11	25,900	328,000	7.9%
238	Georgia	1	21,600	275,200	7.8%
239	Minnesota	5	28,100	358,500	7.8%
240	California	16	17,700	225,900	7.8%
241	Texas	7	28,800	367,600	7.8%
242	Oklahoma	3	25,000	320,400	7.8%
243	Missouri	5	26,800	343,700	7.8%
244	New Jersey	9	25,000	320,800	7.8%
245	California	50	21,100	273,300	7.7%
246	Arizona	7	20,400	264,300	7.7%
247	Virginia	3	24,100	312,300	7.7%
248	West Virginia	1	20,200	263,800	7.7%
249	Louisiana	3	24,800	324,500	7.6%
250	Pennsylvania	13	25,400	332,700	7.6%
251	Massachusetts	6	28,700	380,300	7.5%
252	Texas	17	24,200	321,700	7.5%
253	Utah	3	23,900	318,400	7.5%
254	Iowa	3	29,000	388,600	7.5%
255	Texas	5	21,900	293,800	7.5%
256	Texas	26	26,800	359,800	7.4%
257	Washington	4	20,300	272,600	7.4%
258	Illinois	13	23,700	319,400	7.4%
259	Washington	7	27,000	364,200	7.4%
260	Nebraska	2	24,300	328,100	7.4%
261	Florida	8	19,600	265,200	7.4%
262	Texas	31	23,300	315,600	7.4%
263	Texas	27	22,000	298,500	7.4%
264	California	33	24,500	336,000	7.3%
265	New York	21	22,300	307,700	7.2%
266	Colorado	4	23,800	328,700	7.2%
267	Arkansas	2	23,200	320,500	7.2%

SUPPLEMENTAL TABLE 1 (CONTINUED)

Rank	State	District	Manufacturing employment	Total employment	Manufacturing employment as a share of total
268	New York	2	25,700	356,000	7.2%
269	New Jersey	11	24,500	340,000	7.2%
270	Tennessee	9	21,700	301,600	7.2%
271	Louisiana	2	23,400	325,300	7.2%
272	Louisiana	4	22,100	307,600	7.2%
273	Texas	25	21,200	295,300	7.2%
274	Arizona	9	24,200	337,200	7.2%
275	Louisiana	1	25,100	350,000	7.2%
276	Maryland	1	21,900	307,000	7.1%
277	Texas	30	20,300	285,600	7.1%
278	Georgia	4	21,200	299,800	7.1%
279	Missouri	1	23,200	329,900	7.0%
280	Georgia	7	21,100	300,600	7.0%
281	Georgia	13	21,000	300,900	7.0%
282	New York	26	22,700	326,100	7.0%
283	California	53	21,800	316,100	6.9%
284	North Carolina	4	23,400	339,400	6.9%
285	Washington	5	19,200	279,400	6.9%
286	Oklahoma	4	23,400	340,800	6.9%
287	Louisiana	5	19,200	280,800	6.8%
288	North Carolina	3	20,200	295,500	6.8%
289	New Jersey	5	22,800	337,400	6.8%
290	California	27	20,500	306,500	6.7%
291	New Jersey	8	23,500	351,600	6.7%
292	Texas	9	21,300	318,900	6.7%
293	Colorado	2	24,500	367,400	6.7%
294	Illinois	9	22,600	339,600	6.7%
295	Illinois	5	25,700	388,900	6.6%
296	Connecticut	4	21,500	325,900	6.6%
297	Washington	10	18,300	279,100	6.6%

SUPPLEMENTAL TABLE 1 (CONTINUED)

Rank	State	District	Manufacturing employment	Total employment	Manufacturing employment as a share of total
298	California	9	16,600	254,000	6.5%
299	New Jersey	12	21,700	334,000	6.5%
300	Tennessee	5	22,200	349,100	6.4%
301	New Jersey	6	21,100	335,100	6.3%
302	California	30	20,800	330,400	6.3%
303	California	51	14,800	238,600	6.2%
304	Ohio	3	20,800	335,500	6.2%
305	Massachusetts	9	22,200	360,200	6.2%
306	California	14	20,500	335,800	6.1%
307	Texas	11	18,300	301,700	6.1%
308	Virginia	2	20,100	331,500	6.1%
309	Illinois	1	17,200	283,800	6.1%
310	Florida	13	17,500	289,300	6.0%
311	Colorado	7	20,900	346,400	6.0%
312	New York	19	19,400	325,700	6.0%
313	Delaware	1	25,400	427,800	5.9%
314	Arizona	8	16,600	282,400	5.9%
315	West Virginia	2	16,000	272,200	5.9%
316	Nevada	2	17,700	301,700	5.9%
317	Oklahoma	5	19,700	338,700	5.8%
318	California	22	15,500	267,100	5.8%
319	California	13	18,100	313,800	5.8%
320	California	8	12,500	217,300	5.8%
321	Pennsylvania	14	18,200	317,100	5.7%
322	North Dakota	1	25,500	444,300	5.7%
323	California	23	14,500	252,900	5.7%
324	Georgia	6	19,900	347,400	5.7%
325	California	37	17,400	309,500	5.6%
326	Illinois	7	16,400	291,900	5.6%
327	California	21	12,500	224,900	5.6%
328	New York	18	18,300	330,500	5.5%

SUPPLEMENTAL TABLE 1 (CONTINUED)

Rank	State	District	Manufacturing employment	Total employment	Manufacturing employment as a share of total
329	<i>Texas</i>	16	15,200	274,800	5.5%
330	<i>Massachusetts</i>	5	21,900	396,100	5.5%
331	<i>California</i>	4	14,800	271,400	5.5%
332	<i>Arizona</i>	1	13,500	247,900	5.4%
333	<i>New Jersey</i>	1	17,500	321,500	5.4%
334	<i>Florida</i>	25	16,600	305,000	5.4%
335	<i>Colorado</i>	6	19,200	353,100	5.4%
336	<i>West Virginia</i>	3	12,300	227,400	5.4%
337	<i>Arizona</i>	2	15,100	280,000	5.4%
338	<i>California</i>	24	16,000	298,400	5.4%
339	<i>Pennsylvania</i>	1	14,300	268,100	5.3%
340	<i>California</i>	3	14,100	264,400	5.3%
341	<i>Florida</i>	6	14,000	264,900	5.3%
342	<i>Florida</i>	5	13,900	265,700	5.2%
343	<i>Massachusetts</i>	8	19,900	383,900	5.2%
344	<i>Colorado</i>	5	15,400	301,800	5.1%
345	<i>California</i>	20	14,100	279,100	5.1%
346	<i>Arizona</i>	4	11,000	218,600	5.0%
347	<i>New York</i>	7	16,100	320,700	5.0%
348	<i>Texas</i>	35	15,600	310,900	5.0%
349	<i>Arizona</i>	3	12,300	245,400	5.0%
350	<i>Maryland</i>	2	15,700	315,500	5.0%
351	<i>Virginia</i>	7	17,700	355,700	5.0%
352	<i>California</i>	2	14,700	298,100	4.9%
353	<i>New Jersey</i>	2	15,100	307,500	4.9%
354	<i>Florida</i>	4	15,100	308,600	4.9%
355	<i>Arizona</i>	6	16,700	342,600	4.9%
356	<i>California</i>	28	16,100	332,000	4.8%
357	<i>New York</i>	20	17,200	355,800	4.8%
358	<i>California</i>	12	17,800	368,400	4.8%
359	<i>Texas</i>	19	14,600	303,600	4.8%

SUPPLEMENTAL TABLE 1 (CONTINUED)

Rank	State	District	Manufacturing employment	Total employment	Manufacturing employment as a share of total
360	Florida	7	14,500	301,700	4.8%
361	New York	1	16,400	341,700	4.8%
362	Texas	21	16,800	352,900	4.8%
363	Virginia	1	16,200	343,800	4.7%
364	California	11	14,000	299,100	4.7%
365	California	7	13,500	288,900	4.7%
366	California	1	11,200	240,100	4.7%
367	Florida	15	13,200	284,600	4.6%
368	Florida	11	9,300	203,400	4.6%
369	Georgia	5	13,800	306,000	4.5%
370	Texas	20	13,700	304,300	4.5%
371	Florida	16	11,600	258,300	4.5%
372	Texas	34	10,600	236,600	4.5%
373	Florida	18	11,900	265,700	4.5%
374	California	6	11,900	266,000	4.5%
375	New Jersey	3	14,500	326,200	4.4%
376	Alaska	1	14,900	336,600	4.4%
377	Texas	28	11,500	260,200	4.4%
378	Colorado	1	16,200	367,200	4.4%
379	Texas	15	12,100	274,400	4.4%
380	New Jersey	4	13,600	309,400	4.4%
381	New Jersey	10	12,700	294,400	4.3%
382	Texas	23	12,200	283,100	4.3%
383	Florida	22	13,300	310,600	4.3%
384	Florida	10	13,100	310,100	4.2%
385	Maryland	6	13,600	325,800	4.2%
386	Florida	14	12,500	300,000	4.2%
387	New York	3	13,800	335,100	4.1%
388	Florida	3	10,600	259,100	4.1%
389	Virginia	10	15,000	367,200	4.1%
390	Montana	1	18,300	448,800	4.1%

SUPPLEMENTAL TABLE 1 (CONTINUED)

Rank	State	District	Manufacturing employment	Total employment	Manufacturing employment as a share of total
391	Maryland	3	13,500	331,500	4.1%
392	New York	17	13,800	339,800	4.1%
393	Maryland	7	11,500	283,200	4.1%
394	Colorado	3	12,800	316,600	4.0%
395	Florida	12	10,600	265,000	4.0%
396	Florida	23	12,700	318,000	4.0%
397	New Mexico	2	10,000	254,800	3.9%
398	New Mexico	1	11,400	291,000	3.9%
399	Massachusetts	7	14,800	378,100	3.9%
400	Florida	1	10,700	284,300	3.8%
401	Florida	24	10,000	274,500	3.6%
402	Pennsylvania	2	9,600	268,000	3.6%
403	Florida	27	10,400	293,400	3.5%
404	Florida	2	9,600	282,100	3.4%
405	Florida	20	9,400	282,700	3.3%
406	California	36	7,700	232,400	3.3%
407	Florida	21	9,800	296,400	3.3%
408	New York	15	8,400	254,600	3.3%
409	Wyoming	1	9,500	290,700	3.3%
410	Florida	17	7,400	232,600	3.2%
411	New York	13	10,000	315,600	3.2%
412	New York	6	10,200	325,400	3.1%
413	New York	14	10,600	340,100	3.1%
414	New York	4	10,600	340,800	3.1%
415	Maryland	8	11,100	359,000	3.1%
416	New York	16	9,900	322,000	3.1%
417	New York	10	10,500	358,500	2.9%
418	Florida	19	7,200	248,100	2.9%
419	New Mexico	3	7,700	265,800	2.9%
420	New York	11	9,100	316,000	2.9%
421	Maryland	5	9,500	330,300	2.9%

SUPPLEMENTAL TABLE 1 (CONTINUED)

Rank	State	District	Manufacturing employment	Total employment	Manufacturing employment as a share of total
422	Florida	26	9,000	314,000	2.9%
423	Florida	9	8,300	296,700	2.8%
424	Maryland	4	9,600	344,500	2.8%
425	New York	12	11,500	416,800	2.8%
426	Nevada	4	7,300	267,500	2.7%
427	New York	5	9,000	334,600	2.7%
428	Nevada	3	8,700	328,100	2.7%
429	Hawaii	1	8,500	323,900	2.6%
430	New York	8	7,500	291,300	2.6%
431	Nevada	1	6,800	277,700	2.4%
432	Virginia	11	9,200	391,100	2.4%
433	New York	9	7,500	323,300	2.3%
434	Virginia	8	7,600	413,300	1.8%
435	Hawaii	2	5,100	293,800	1.7%
436	District of Columbia	1	1,000	745,800	0.1%

Source: Author's analysis of data from the Bureau of Labor Statistics (2014c) and U.S. Census Bureau (2013)

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