U.S. Department of Commerce
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Made In America: Fabricated Metal Products

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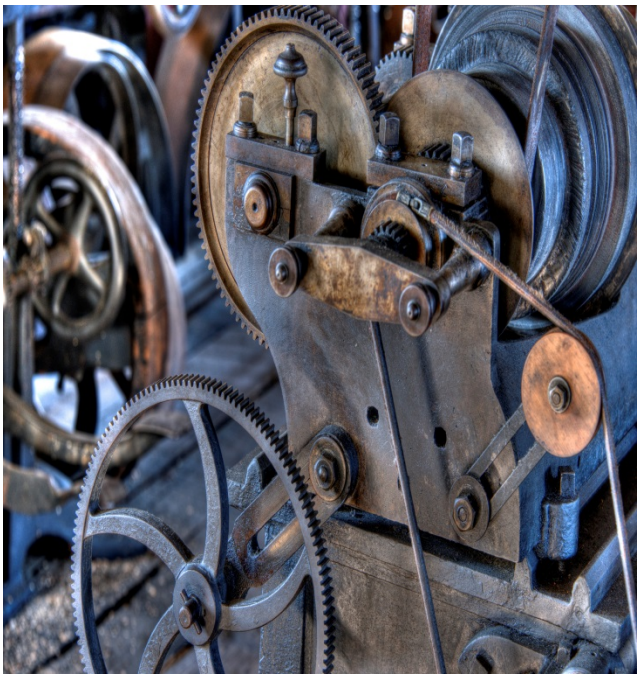
In 2013, shipments from the U.S. manufacturing sector totaled $5.8 trillion.[1] So, what do we make in the United States? This eighth profile in a series by the U.S. Commerce Department's Office of the Chief Economist (OCE) in the Economics and Statistics Administration (ESA) examines fabricated metal product manufacturing.[2] Previous profiles explored machinery; food, beverages and tobacco products; transportation equipment (excluding motor vehicles); chemicals; apparel, leather, and allied products; petroleum and coal products; and computer and electronic products.

Among other findings, this report shows that fabricated metals are the third largest U.S. manufacturing industry, when measured by employment. This industry employs 1.4 million workers, or 12 percent of all the manufacturing employees in the United States.[3] In addition, the industry is highly labor-intensive compared to the average manufacturing industry: compensation to employees accounted for 65 percent of the value added in 2013, the year for which data were last available.

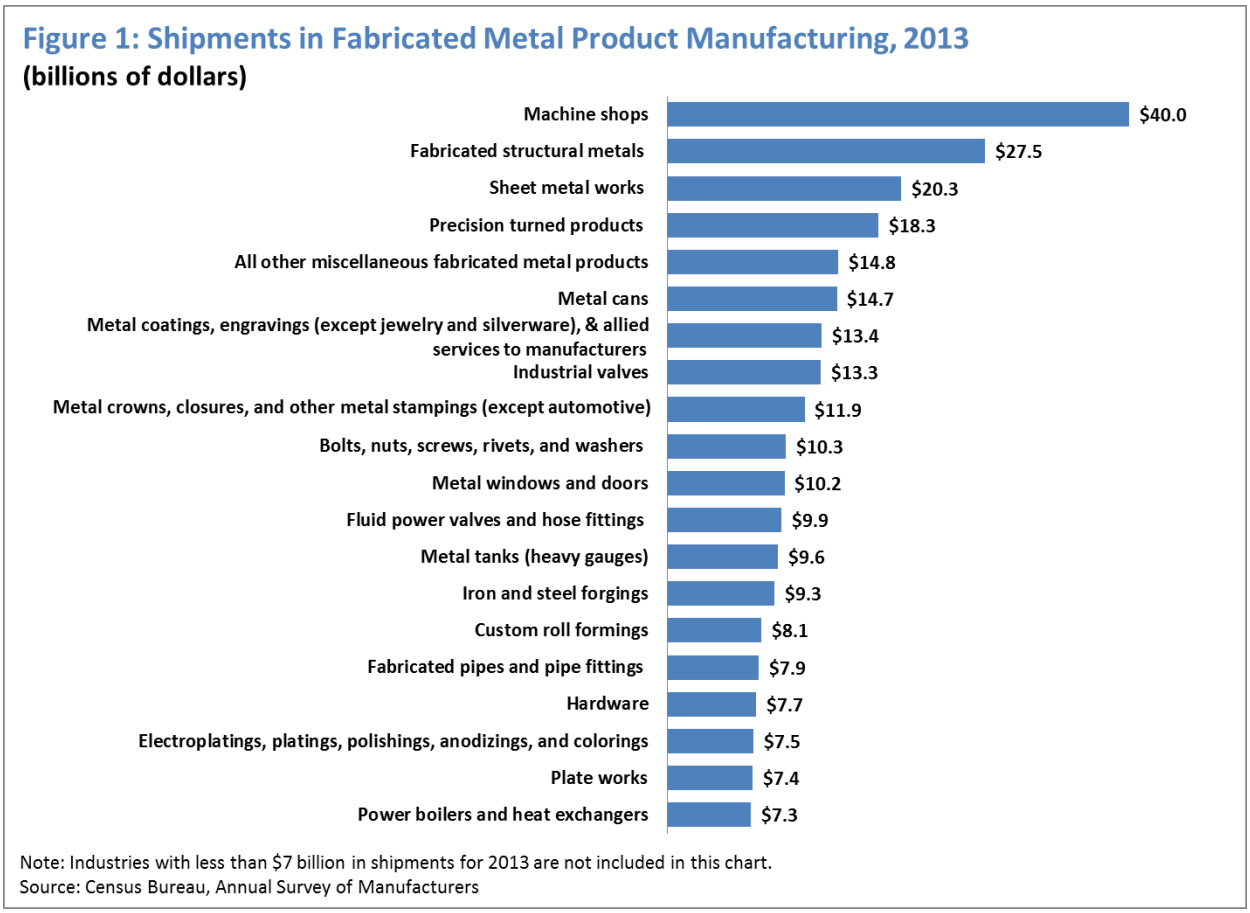
Overview



Shipments of fabricated metals totaled $345.1 billion, or 5.9 percent of all manufacturing shipments in 2013.[4] According to the North American Industry Classification System (NAICS), the fabricated metal products industry converts metal into intermediate or end products, other than machinery, computers and electronics, or metal furniture. Manufacturers in this industry also treat metals and metal formed products fabricated elsewhere, and engage in processes to shape individual metal pieces, like forging, stamping, bending, forming, and machining, or joining separate parts, through processes such as welding, and assembling.[5]

A related industry to fabricated metals is found in the production of primary metals. While establishments in the primary metals industry can make products similar to those made in the fabricated metals industry, the establishments in the former are different because they work with metals earlier in the production process. For example, an establishment that manufactures steel, draws it into wire, and makes wire products is classified in the primary metal manufacturing industry. A business that takes already-manufactured steel, draws it into wire, and makes wire products is counted in the fabricated metal industry. Despite this overlap in finished products, over 95 percent of fabricated metal products are made in the fabricated metals industry.[6]

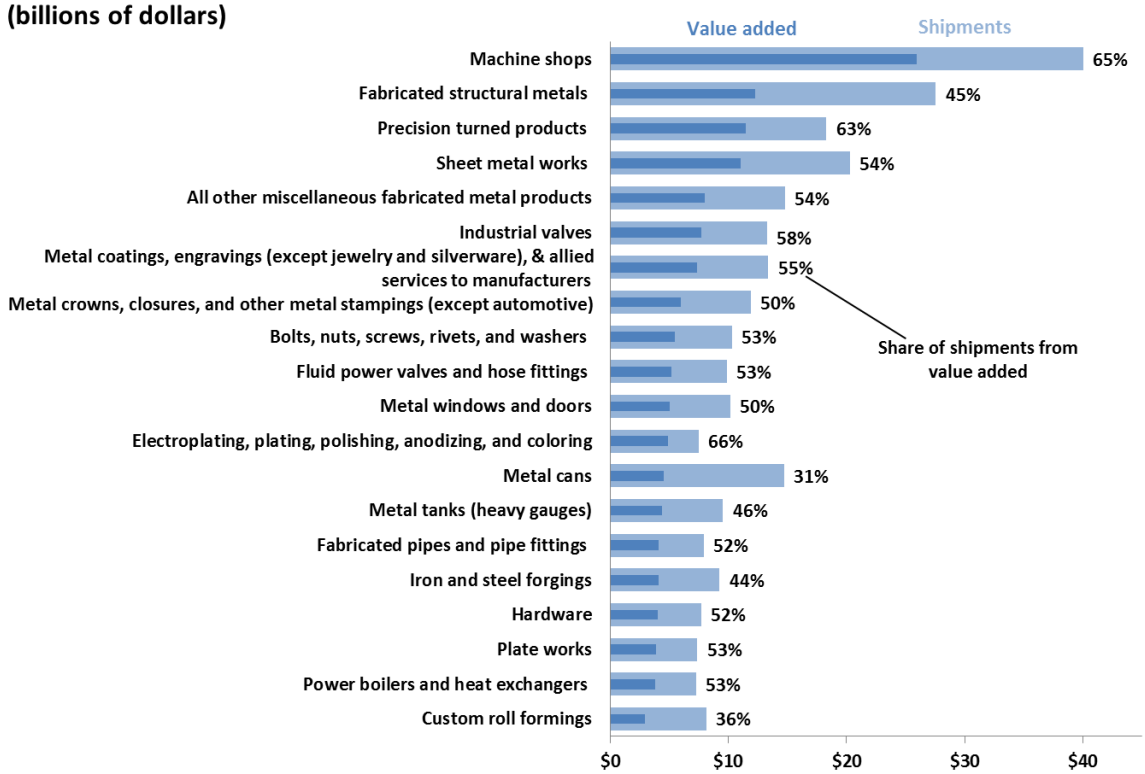
Shipments



- Machine shops was the largest sub-sector within the fabricated metals industry with $40.0 billion (12 percent of the total) in shipments, followed by fabricated structural metals with $27.5 billion (8 percent); sheet metal works with $20.3 billion (6 percent); and precision turned products with $18.3 billion (5 percent).
- In total, these four industries accounted for $106.1 billion of shipments, or 31 percent of fabricated metal product manufacturing in 2013.
- In 2013, businesses purchased 43 percent of all fabricated metal products sold in the United States, while consumers purchased 51 percent, and the government purchased 5 percent.[7]

Value added

Figure 2: Value Added in Fabricated Metal Product Manufacturing, 2013
(billions of dollars)

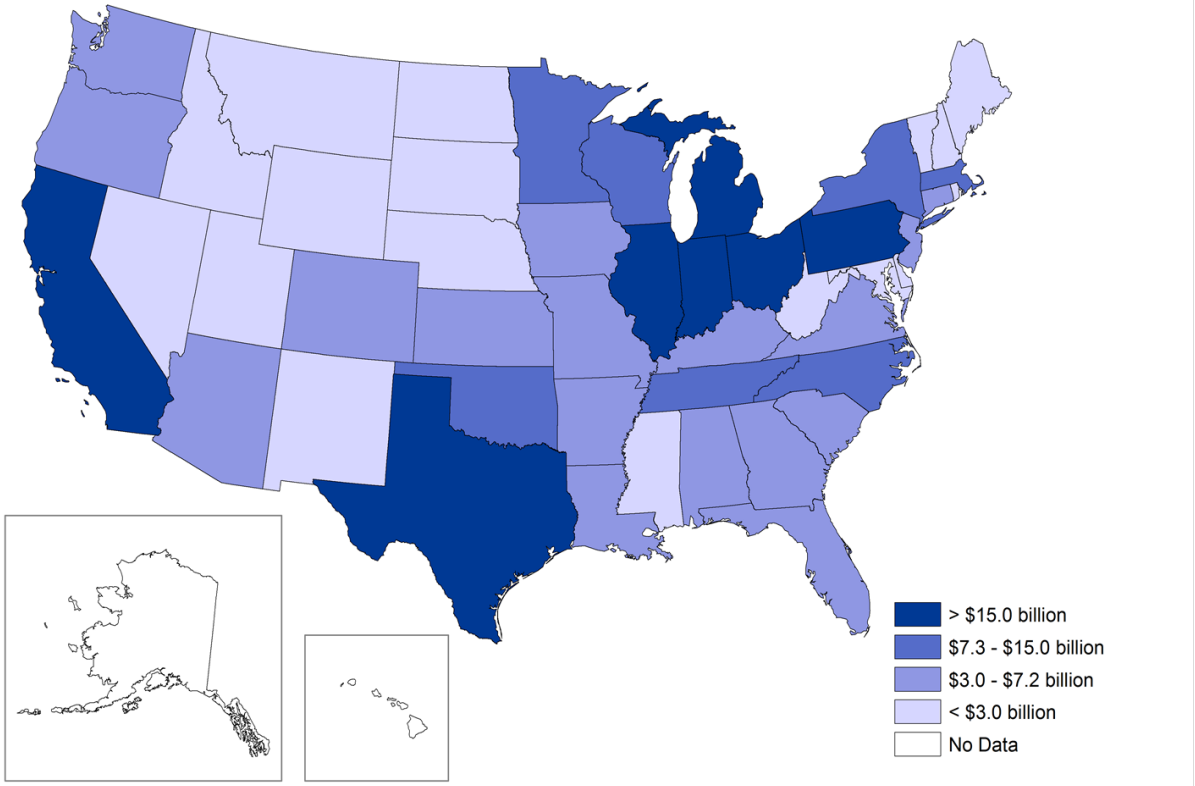


Note: Industries with less than $7 billion in shipments for 2013 are not included in this chart.
Source: Census Bureau, Annual Survey of Manufacturers

- In 2013, value added accounted for 53 percent of the total dollar amount of fabricated metal products shipments. The other 47 percent was composed of materials, supplies, such as inputs from other manufacturing industries, like the primary metals (e.g., steel and aluminum).
- The industries with the largest shares of value added as a percentage of shipments were electroplating (66 percent), machine shops (65 percent), and turned products (63 percent); while metal cans had the lowest share (31 percent).[8]
- This industry is much more labor-intensive than the average manufacturing industry. Compensation of employees accounted for 65 percent of the value added in fabricated metal products manufacturing, compared to 46 percent for overall manufacturing.[9]
- The median hourly wage in the industry was $17.95 in May 2014, slightly below the overall manufacturing median hourly wage of $18.34.
- The most common occupations in fabricated metal product manufacturing are production workers (61 percent), including metal and plastic workers (38 percent), machinists (9 percent), and assemblers and fabricators (9 percent).

Which States Make Fabricated Metal Products?

Figure 3. Fabricated Metal Product Manufacturing Shipments, 2013
(billions of dollars)

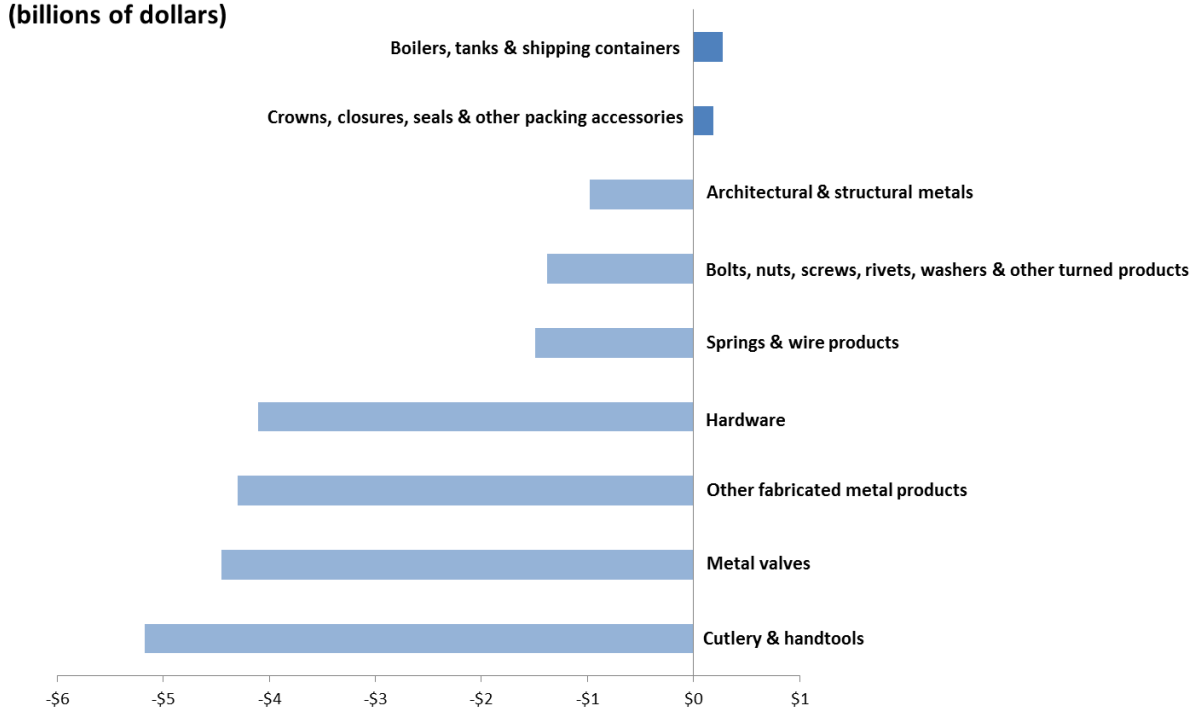


Source: Census Bureau, Annual Survey of Manufactures

- Eight states produced over half (52 percent) of all the output from the fabricated metal products industry in 2013, the year for which the latest statewide data are available.[10] These states comprised 47 percent of total U.S. manufacturing that year.
- Texas accounted for 9 percent, or $33.0 billion, of industry shipments and Ohio came in second, with $28.8 billion in shipments.
- California led the nation in fabricated metal products employment with 127,340 (9 percent) of jobs.
- As mentioned above, for the United States in general, fabricated metals accounted for 6 percent of total manufacturing shipments in 2013. In some states, fabricated metal shipments accounted for a disproportionate share of manufacturing shipments, including: Rhode Island (16 percent of total manufacturing shipments), New Hampshire (15 percent), and Connecticut (12 percent).

Satisfying Demand for Fabricated Metal Products Here and Abroad

Figure 4. Surpluses and Deficits in U.S. Fabricated Metal Product Manufacturing Trade, 2014
(billions of dollars)



Source: Census Bureau, USA Trade Online

- The United States exported $43.7 billion of fabricated metal products in 2014, with metal valves alone accounting for 30 percent of total exports.
- On the other hand, the United States imported $65.1 billion of fabricated metals in 2014, resulting in a trade deficit of $21.4 billion.
- Metal valves comprised the largest portion of imports, representing 27 percent ($17.7 billion) of total imports in this industry.
- The only two sectors with fabricated metals that ran surpluses in 2014 were boilers, tanks, and shipping containers ($275.2 million) and crowns, closures, seals, and other packing accessories ($185.4 million).
- More than half (53 percent) of fabricated metal products purchased by U.S. consumers and businesses in 2012 were domestically made.[11]

Endnotes

1. Figure based on most recent data from U.S. Census Bureau, 2013 Annual Survey of Manufacturers.

2. For additional information about how to measure what is made in America and for further explanation of concepts used in this report, see Economics and Statistics Administration, "What is Made in America?" available at: http://www.esa.doc.gov/Reports/what-made-america.

3. U.S. Bureau of Labor Statistics, Current Employment Statistics, August 2015.

4. Shipments in 2014 totaled $361.0 billion. The 2013 Annual Survey of Manufacturers is used here and below because it allows us to examine the underlying component industries of the fabricated metal sector in greater detail.

5. The fabricated metal product manufacturing subsector is categorized by the North American Industry Classification System (NAICS) as NAICS 332. Industry definition available at: http://www.census.gov/cgi-bin/sssd/naics/naicsrch?code=332&search=2012 NAICS Search. For full classification structure, see: http://www.census.gov/cgi-bin/sssd/naics/naicsrch?chart=2012.

6. ESA calculations using Bureau of Economic Analysis table, "The Make of Commodities by Industries, Before Redefinitions, 2013".

7. Calculated using data on final demand from BEA's 2013 table on The Use of Commodities by Industries, After Redefinitions (Producers' Prices). Data are available online at BEA's website: http://www.bea.gov/iTable/index_industry_io.cfm.

8. Value added considers only the new production completed at each stage of the manufacturing process—i.e., the labor and capital applied by each firm to the purchased inputs produced elsewhere. This measure of manufacturing activity is derived from the Annual Survey of Manufacturers by subtracting the cost of materials, supplies, containers, fuel, purchased electricity, and contract work from the value of shipments (products manufactured plus receipts for services rendered). The result of this calculation is adjusted by the addition of value added by merchandising operations (i.e., the difference between the sales value and the cost of merchandise sold without further manufacture, processing, or assembly) plus the net change in finished goods and work-in-process between the beginning and end of year inventories.

9. Bureau of Economic Analysis industry data available from: www.bea.gov. For more information on these concepts, see "Measuring the Nation's Economy: An Industry Perspective. A Primer on BEA's Industry Accounts." *Bureau of Economic Analysis*. Available at: http://bea.gov/industry/pdf/industry_primer.pdf.

10. The remaining five states were Illinois, Pennsylvania, Michigan, Indiana, and Wisconsin.

11. Economics and Statistics Administration, "What is Made in America?" See Figure 8 and associated discussion.