

# What is Made in America?

## Executive Summary

**A**ccurately determining how much of our economy's total production is American-made can be a daunting task. However, data from the Commerce Department's U.S. Census Bureau and the Bureau of Economic Analysis (BEA) can help shed light on the dollar value of what America produces, and what percentage of the dollar value of an industry's output that is considered domestic. Gross output, value added, domestically-sourced inputs, and domestic content are all concepts that can be used to measure U.S. production and to estimate how much of that production is made in the United States. This report starts with the concept of gross output and then looks further, seeking to answer the question: "What is Made in America?"

Our analysis reveals that in 2012:

- U.S. manufacturers sold \$5.6 trillion of goods, \$4.4 trillion (79 percent) of which was "Made in the U.S.A." Value added directly by the manufacturing sector accounted for \$1.9 trillion, while value added indirectly from all industries (including manufacturing) accounted for the remaining \$2.5 trillion.
- In many cases, the portion of domestic content in U.S. production differs markedly from the domestic content on store shelves. For example, although the United States imported most of the apparel that consumers purchased, the apparel that was made in the United States contained 87 percent domestic content.
- Domestic content accounted for 51 cents of every dollar that U.S. consumers and businesses spent on manufactured goods. By industry, it ranged from a high of 79 cents per dollar of food, beverages, and tobacco products to a low of 7 cents per dollar of apparel.
- The four industries with the largest dollar values of American content were food, beverage, and tobacco products; chemicals; petroleum and coal products; and motor vehicles and parts.

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- The petroleum and coal products industry, which is predominantly petroleum refining, was the only manufacturing industry whose gross output was less than 70 percent domestic content.

Although manufacturing employment has been growing, jobs in manufacturing are affected by, among other things, increased automation, productivity gains, exchange rate fluctuations, trade agreements, and import prices that affect how manufacturers build their supply chains. For more information on employment in the manufacturing sector, see our June 2014 report, “Manufacturing Since the Great Recession”.<sup>1</sup>

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<sup>1</sup> Jessica R. Nicholson and Ryan Noonan. “Manufacturing Since the Great Recession.” Economics and Statistics Administration. Available at: <http://esa.doc.gov/sites/default/files/reports/documents/manufacturingsincetherecession2014-06-10final.pdf>.

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## Introduction

“Made in the U.S.A.” is a badge of honor, often indicating good craftsmanship and evoking a sense of patriotism. America’s health and labor standards, innovation, and consumer protections ensure that U.S. manufacturers adhere to proper working conditions and use safe, high-quality materials.<sup>2</sup> Increased demand for American-made goods also means more—and better—jobs.

In 2010, China overtook the United States as the world’s largest manufacturer.<sup>3</sup> But the United States remains a major manufacturing power—home to less than five percent of the world’s population but generating more than one-sixth of global manufacturing activity.<sup>4</sup> It can be hard to believe because it seems like most of the products sold in this country were made somewhere else. So, what does it mean to be made in America?



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<sup>2</sup> For more information on the benefits of manufacturing in the United States, see the Department of Commerce’s National Institute of Standards and Technology Make it in America campaign website at:

<http://www.nist.gov/mep/america.cfm> and the SelectUSA website at: <http://selectusa.commerce.gov/>.

<sup>3</sup> See, for instance, Mecksroth, Daniel J. “China Has a Dominant Share of World Manufacturing”. Available at: <https://www.mapi.net/china-has-dominant-share-world-manufacturing>.

<sup>4</sup> For more information on manufacturing in America, see the National Institute of Standards and Technology’s Hollings Manufacturing Extension Partnership infographic “What Manufacturing Really Looks Like: Celebrating Manufacturing Day” available at: <http://nist.gov/mep/mfgday-infographic.cfm>.

## The “Made in the U.S.A. Label

The “Made in the U.S.A.” label is what most people think of when considering what is manufactured in the United States. The Federal Trade Commission (FTC) has oversight responsibilities for the label and requires that “all or virtually all” of a product, including all significant parts and processing that go into the product, must be of U.S. origin.<sup>5</sup> Complying with this standard can be more difficult than it would seem because of the global economy and the ever-growing web of international supply chains. It can also be difficult because the definition is vague and there is no quantitative procedure that allows manufacturers to determine whether “virtually all” of a product’s content is domestic.

For example, a car manufacturer located in the U.S. might not make all the parts of a car; rather, they may purchase parts (engines, seats, tires) that are finished goods made by other manufacturers and then use them as intermediate inputs to assemble automobiles. These intermediate inputs can be either imported from abroad or purchased domestically. However, even when a manufacturer buys inputs from a domestic producer, they cannot assume that the input was made entirely in America just because it was purchased here.

## Quantitative Measures of Made in America

Given the difficulty of determining whether a single product is made in America, it is easy to see the challenge in accurately describing how much of our economy’s total production is American-made. However, data from the

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<sup>5</sup> See Federal Trade Commission, Made in the USA. Available at: <http://www.business.ftc.gov/advertising-and-marketing/made-usa>.

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Census Bureau and BEA can help shed light on the dollar value of what America produces, as well as the percentage of an industry's output that is considered domestic. Gross output, value added, domestically-sourced inputs, and domestic content are all concepts that can be used to measure U.S. production and to estimate how much of that production is made in the United States.

There are several caveats to keep in mind.

1. All of these measures exclude final goods that are imported for domestic consumption, such as a T-shirt fully made in Vietnam.<sup>6</sup> The primary goal of this report is to estimate what share of U.S. manufacturing output was actually created in the United States.
2. Although manufacturing employment has been growing for the past four years, U.S. manufacturers' high levels of gross output and domestic content do not support as many U.S. jobs as in decades past. Through much of the past decade, in fact, U.S. manufacturing employment decreased even while gross output increased. Jobs in manufacturing are affected by, among other things, increased automation, productivity gains, exchange rate fluctuations, trade agreements and import prices that affect how manufacturers build their supply chains.
3. Measured domestic content will be sensitive to exchange rate fluctuations. To the extent that a nation's currency is over-

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<sup>6</sup> Value added and the domestic content measures account for imports of goods used as inputs by domestic firms in the production of final goods. The domestic sourcing measure accounts for inputs that are directly imported, but does not account for the value of imports embedded in intermediate inputs purchased in the United States. Gross output does not subtract out imports.

valued, this will inflate the measured content of that nation.

For more information on employment in the manufacturing sector, see our June 2014 report, "Manufacturing Since the Great Recession".<sup>7</sup>

## Gross Output

We start by looking at the gross output of U.S. manufacturers.<sup>8</sup> Gross output is a measure of the total value of output of all firms. It is equal to the revenue producers receive when they sell their products. Some of those goods may be sold directly to consumers and others are used by firms in the production of other goods or exported for purchase abroad.<sup>9</sup> In 2012, gross output of the U.S. manufacturing sector was \$5.6 trillion; food, beverages, and tobacco products accounted for 16 percent of total gross output in the sector, followed by petroleum and coal products (14 percent), and chemicals (13 percent) (See Figure 1).<sup>10</sup>

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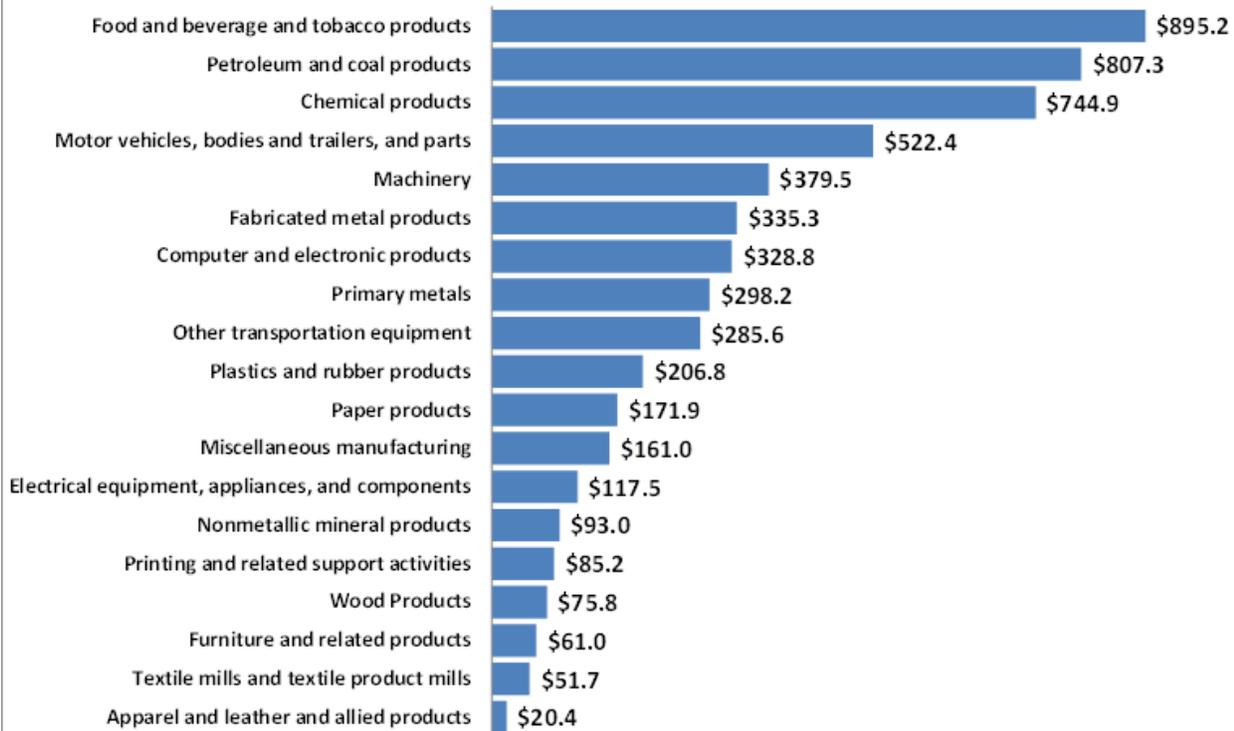
<sup>7</sup> Jessica R. Nicholson and Ryan Noonan. "Manufacturing Since the Great Recession." Economics and Statistics Administration. Available at: <http://esa.doc.gov/sites/default/files/reports/documents/manufacturingsincetherecession2014-06-10final.pdf>.

<sup>8</sup> BEA publishes data on gross output (used in this report), while the Census Bureau publishes data on the total value of shipments in the Annual Survey of Manufactures (ASM) and the Economic Census. Gross output is principally a measure of an industry's sales or receipts. For manufacturing it is measured as the value of shipments plus the change in finished goods and works-in-process inventory. It is a broader measure of output than shipments. In 2012, gross output (after redefinitions) in the manufacturing sector was \$5.6 trillion, while the total value of shipments (both primary and secondary) was \$5.7 trillion. Estimates for industries within the sector vary between these two series as well.

<sup>9</sup> Gross output includes the value of imported inputs.

<sup>10</sup> Gross output is measured in dollar value, not units produced. High-priced goods, like airplanes or cars, contribute a high value to gross output for each unit produced. On the other hand, relatively lower-priced items, like a box of cereal or a T-shirt, contribute much less value per unit produced.

**Figure 1. Gross Output in Manufacturing, 2012**  
(billions of dollars)



Source: Bureau of Economic Analysis

### Value Added

While data on gross output reveals U.S. manufacturers' revenues, it might be a misleading indicator of what is actually made in America. As noted, gross output includes imported inputs, which should be excluded when trying to measure the value of what was made in America. More importantly, because gross output measures the sales price of all goods shipped by manufacturers, both as final goods and intermediate inputs, there is a good deal of double- or even triple-counting.

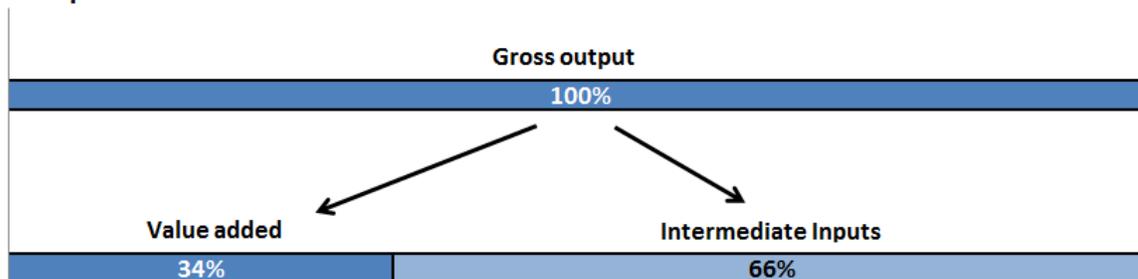
To return to a previous example, a car parts manufacturer may sell some of its finished product (windshield wipers, for example) directly to consumers, but the manufacturer also sells windshield wipers to other manufacturers that in turn install the wipers on

automobiles for sale to consumers. The value of this second category of wipers would be counted once when the car parts manufacturer sold them to the auto manufacturer and again as part of the value of the total automobile. We can even take it a step further if we think about the inputs used to make the wipers—like rubber—which were purchased by the parts manufacturer. At the end of the chain, when gross output is calculated, the value of the rubber has now been counted three (or more) times.

By contrast, data on 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

## Figure 2. Measuring What America Makes: Value Added, 2012

The dark shaded area represents the domestic share of manufacturing gross output represented by each concept.



Source: Economics and Statistics Administration analysis using data from the Bureau of Economic Analysis.

inputs produced elsewhere (see Figure 2).<sup>11</sup> Measuring value added thus eliminates double-counting.<sup>12</sup> The sum of value added across manufacturing is equal to the sector's contribution to overall U.S. gross domestic product. On average, for the manufacturing sector as a whole, value added is equal to about 34 percent of gross output, as shown in Figure 2.

Continuing with the automobile example, car parts are a finished good and their value is included in the value added calculation for the transportation equipment industry. However, if some of those car parts are used in the

production of automobiles, they are considered an intermediate input, and their value will not be part of the value added to the economy by automobile assembly plants. When an automobile is sold, only new inputs used to make the car, such as the labor and capital required to assemble the car parts into an automobile, will be considered as value added by auto manufacturers.

Figure 3 below displays U.S. manufacturing industries ranked from largest to smallest based on the dollar amount of their value added in 2012. Because of differing contributions of labor and capital, as well as variation in the amount of intermediate inputs used by different industries, the order of industries shown in Figure 3 is somewhat different from the order shown in Figure 1. In particular, industries that produce finished goods that are built up from many inputs (such as transportation equipment)—or from very high-value inputs (such as petroleum and coal products)—rank lower in value added than they do in gross output.

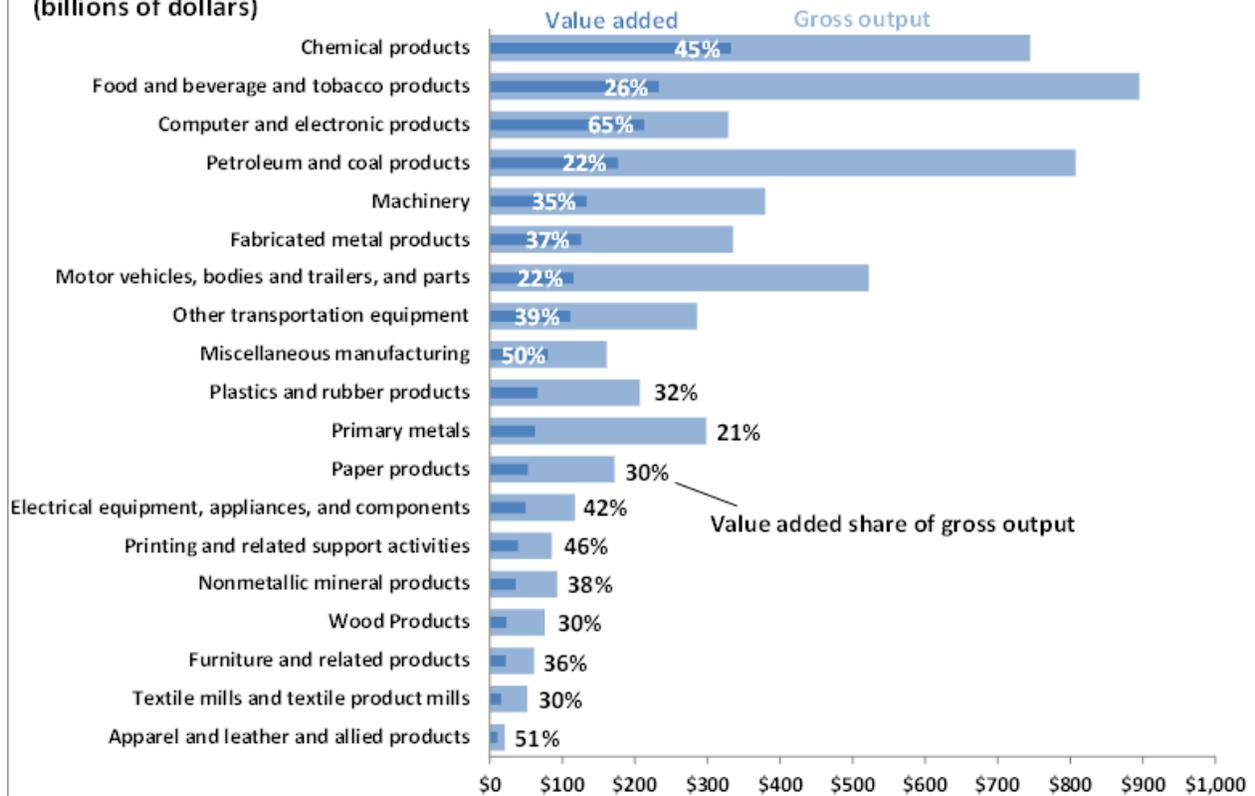
As shown, only 22 percent of the gross output in the motor vehicles and parts industry comes from value added, while the rest comes from domestic and imported intermediate inputs.

<sup>11</sup> BEA defines value added as a measure of output after accounting for the intermediate inputs used in production. The main components of value added include the returns to labor (compensation of employees), returns to capital (as measured by gross operating surplus), and returns to government (as measured by taxes on production and imports less subsidies).

<sup>12</sup> As with output, both BEA and the Census Bureau (through ASM and the Economic Census) provide estimates of value added. Due to different source data as well as methodologies, the two estimates differ considerably. For the sake of consistency across measurements, this report uses BEA data to estimate value added. However, because Census data provides a more detailed look at sub-industries within the manufacturing sector, it may be more useful in other cases.

**Figure 3. Value Added in Manufacturing, 2012**

(billions of dollars)



Source: Economics and Statistics Administration analysis using data from the Bureau of Economic Analysis.

Near the other end of the spectrum is the apparel, leather, and allied products industry, where 51 percent of gross output is value added. While the dollar value of goods produced by the U.S. apparel industry is relatively low, much of the industry’s output consists of final goods (clothes) ready for purchase by consumers.

### Domestic Sourcing

Value added provides useful information about the contribution of U.S. manufacturing to our economy and, by definition, all of value added is “made in America.” It does not provide any information on the origin of the intermediate inputs that went into making a finished good. For example, to say that the value added in the auto manufacturing industry is \$115 billion does not tell us how “American” a car is. To what extent can cars or any products “assembled in

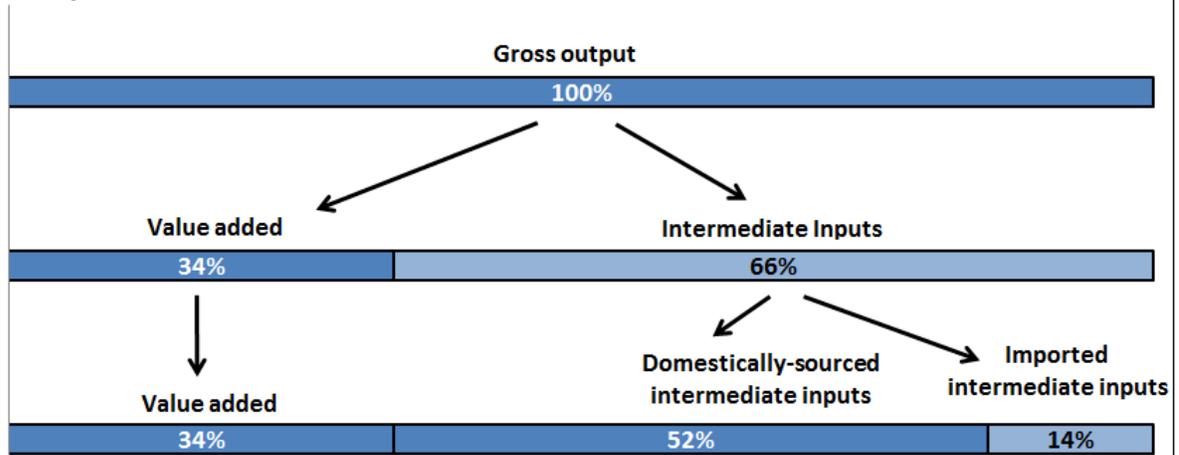
America” using imported parts be differentiated from products with deeper American origins?

To answer that question, one must look at the overall supply chain and specifically the source of intermediate inputs. The inputs that were purchased in the United States (not imported) can be called “domestically-sourced intermediate inputs.” Because value added is always domestic, adding together value added and domestically-sourced intermediate inputs gives us an estimate of the total amount of output that is domestically-sourced. Figure 4 illustrates this concept by showing the

calculation for the overall manufacturing sector. In 2012, 86 percent of gross output in U.S. manufacturing was domestically-sourced, of which 52 percent was domestically-sourced intermediate inputs and 34 percent was value added.

**Figure 4. Measuring What America Makes: Domestic Sourcing, 2012**

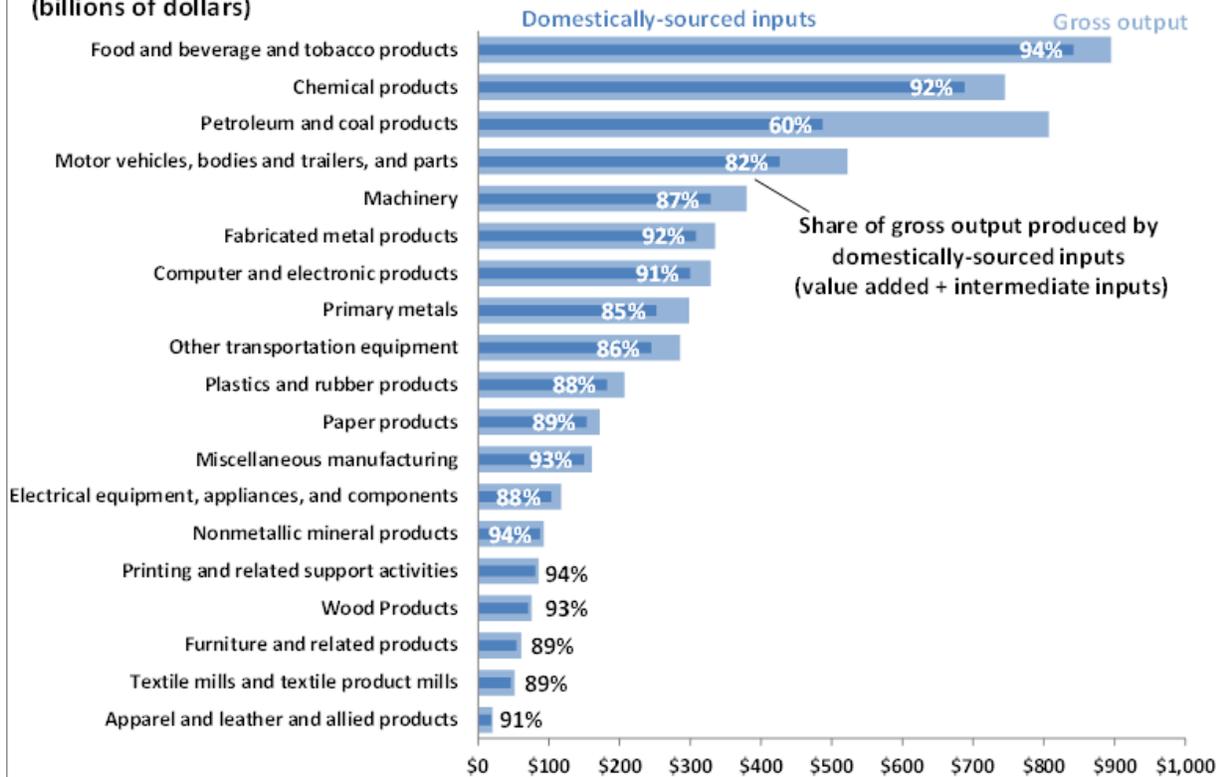
The dark shaded area represents the domestic share of manufacturing gross output represented by each concept.



Source: Economics and Statistics Administration analysis using data from the Bureau of Economic Analysis.

**Figure 5. Domestically-Sourced Inputs of Production in Manufacturing, 2012**

(billions of dollars)



Source: Economics and Statistics Administration analysis using data from the Bureau of Economic Analysis.

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While this calculation is relatively straightforward, it is not an ideal measure of domestic content. As with gross output, the value of a good used as an input in the production of other goods may be counted multiple times (e.g., rubber used to produce windshield wipers that are then installed on an automobile). It also relies on the assumption that inputs purchased from domestic suppliers have no foreign content, which is likely untrue. However, as an estimate of the overall value of what is made in America, the domestic sourcing estimate is preferred over gross output, which includes imported inputs, and value added, which doesn't account at all for intermediate inputs.

As shown in Figure 5, goods sold by U.S. manufacturers are made up primarily of materials purchased and labor and capital applied here in the United States. In each manufacturing industry, excluding petroleum and coal products, more than 80 percent of total output is comprised of domestically-sourced inputs (including value added and intermediate inputs). Because most industries have high shares of domestically-sourced inputs relative to gross output, the ranking of industries is highly consistent with the ranking of industries by gross output. The one exception is the petroleum and coal products industry: many petroleum refineries import their intermediate input—crude oil—which leads to a relatively lower share of domestically-sourced inputs (60 percent).

### **Domestic Content**

As noted above, the domestic sourcing estimates rely on the assumption that intermediate inputs purchased in the United States do not contain any foreign material. While this simplifies the calculation of domestic content, it is possible—and even likely—that domestically-sourced intermediate inputs have at least some foreign content that entered

earlier in the supply chain. A more precise measure of what is made in America would not include the portion of domestically-sourced intermediate inputs that originated overseas. To return to the auto parts example, consider an automobile manufacturer who purchases engines from a domestic car parts supplier. While the auto manufacturer purchases finished engines from a domestic supplier, the pistons used in these engines may have come from a foreign source.

To go from domestic sourcing to true domestic content, one must remove the value of foreign inputs from intermediate inputs that were purchased domestically (see Figure 6).<sup>13</sup> This complicated calculation removes imports at each stage of production sequentially and determines the value added by each industry to produce final output.<sup>14</sup> In 2012, the share of domestic content of total output in the manufacturing sector was 79 percent, 7 percent lower than the share of domestically-sourced manufacturing output. The share of domestic content includes both the value added directly by the manufacturing sector and the value added indirectly through intermediate inputs by all domestic sectors, including manufacturing.

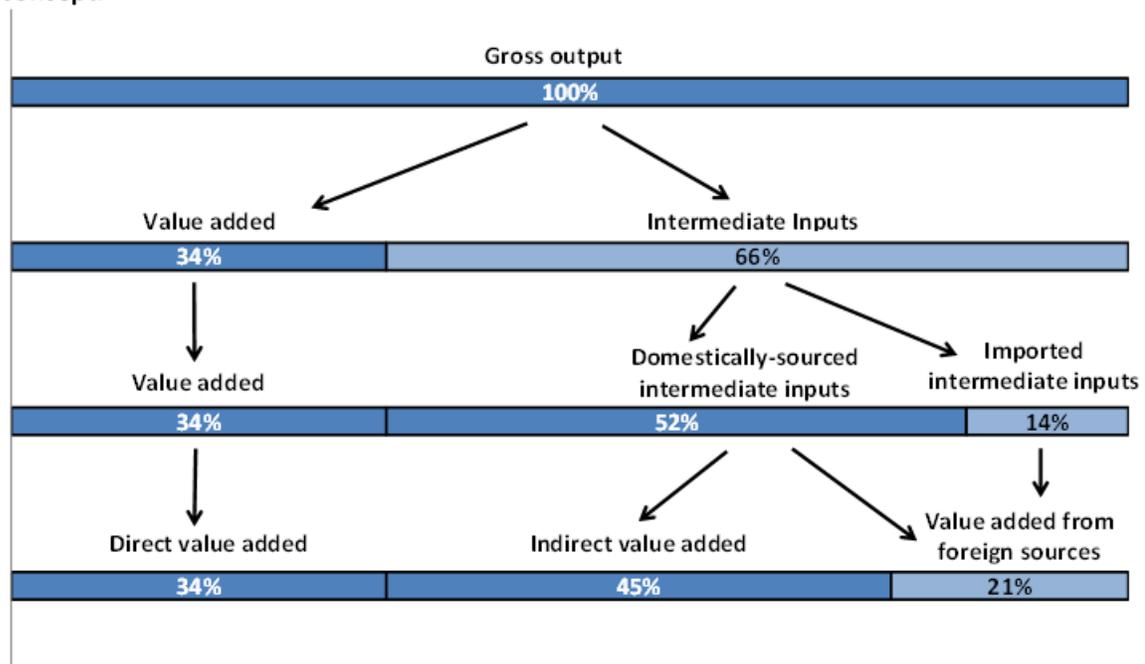
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<sup>13</sup> These estimates use data from BEA's input-output tables, including the use table, make table, and the import matrix. The import matrix assigns values of imported commodities by industry. To create this table, BEA makes a proportionality assumption and proportionally distributes the total value of imports for a commodity across all industries that use that commodity because of the limited data available to otherwise distribute imports. This distribution is done at a very detailed level where many commodities are uniquely used by individual industries. Additionally, a second assumption in the domestic content calculation is that all imported intermediate inputs are entirely foreign-made; in other words, these calculations do not try to determine the domestic content of imported intermediate inputs. Because some imported inputs may contain content that was originally created in the United States, the share of domestic content presented here should be considered a lower bound of the actual share of domestic content.

<sup>14</sup> The calculation uses a series of matrix algebra calculations with the Bureau of Economic Analysis' input-output tables and import matrix.

**Figure 6. Measuring What America Makes: Domestic Content, 2012**

The dark shaded area represents the domestic share of manufacturing gross output represented by each concept.



Source: Economics and Statistics Administration analysis using data from the Bureau of Economic Analysis.

For example, for domestically-produced motor vehicles and parts, the average domestic content of a good is 71 percent (see Figure 7). The share of output comprised of value added directly by auto manufacturers is 22 percent (the domestic content if all inputs were imported), while the average share of domestically sourced inputs is 82 percent (the domestic content if all intermediate inputs purchased in the United States had 100 percent U.S. content).

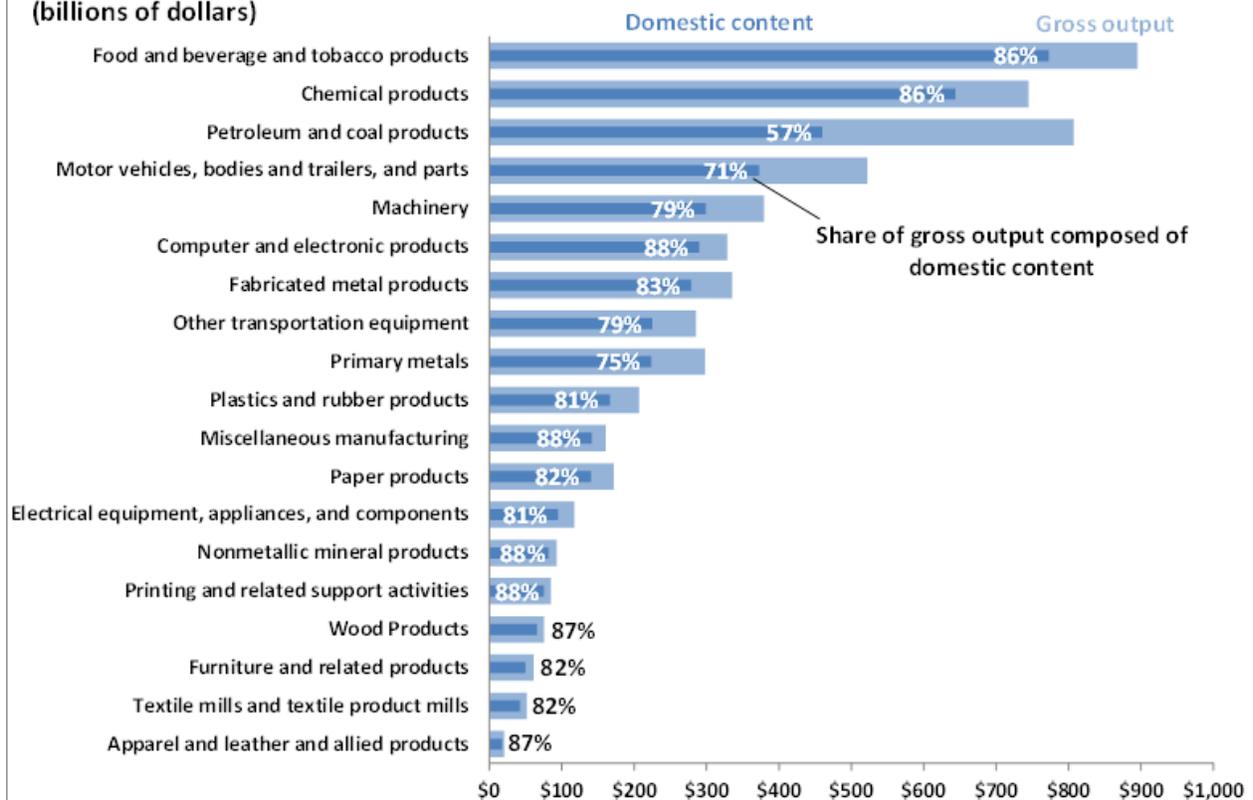
Once again, the estimates show that U.S. manufacturing output has a high share of domestic content—80 percent or more for most industries. Using this approach, the share of domestic content for all industries is lower than the share of domestically-sourced inputs, suggesting that all industries at this level of detail have at least some foreign content in the

intermediate inputs they purchase here in the United States. To see how the estimates of domestic content differ from the estimates of domestic sourcing, consider the motor vehicle and parts industry. While 82 percent of the output of the industry comes from labor, capital, and inputs sourced in the United States, a relatively large portion of the inputs contain content that was imported from abroad. As a result, the domestic content of this industry is 71 percent, significantly lower than the simpler estimate of sourcing implied above.

While the domestic content of goods that are “Made in the U.S.A.” is high, the domestic content of the goods on our store shelves does not necessarily appear high. One final way to look at the subject is to examine how much of U.S. final demand for goods is met by American products. Using the same methodology we employed to

**Figure 7. Domestic Content of Production in Manufacturing, 2012**

(billions of dollars)



Source: Economics and Statistics Administration analysis using data from the Bureau of Economic Analysis.

calculate the domestic content of each industry, we can find the portion of final demand that originated in the United States.<sup>15</sup>

Looking at it through this lens leads to a somewhat different answer. For example, the domestic content of computer and electronic products manufactured in the U.S. has risen, in part because the computers produced in the U.S. are highly specialized and in part because of a changing product mix. This industry is largely dominated by semiconductors and navigational equipment. In addition, computers and electronics used in national defense activities may require domestic content for security reasons. Very few mass market computers are manufactured in the United

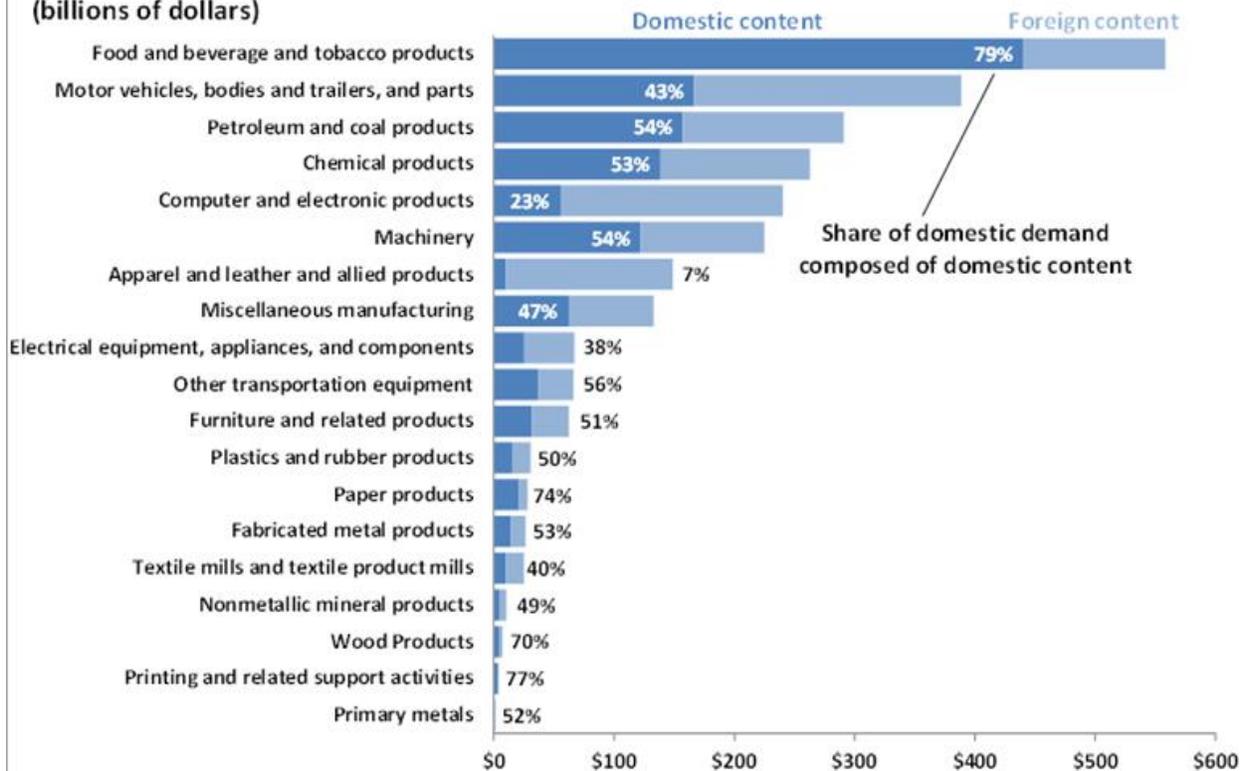
<sup>15</sup> For the purposes of this calculation, “final demand” is defined as the sum of personal consumption expenditures and private fixed investment.

States, so the U.S. value-added share of world demand for these more generalized products has fallen.

Figure 8 shows the results of this calculation and may line up well with our general impressions. The contrast between the domestic content of American-made goods and what we see in stores is especially clear in the apparel industry. American-made apparel is, on average, 87 percent American; however, only 7 percent of the apparel that is sold in the U.S. is American in origin. Overall, 51 percent of the value of goods bought by consumers and businesses is “Made in the U.S.A.,” ranging from a high of 79 percent for food products to the low of 7 percent for apparel. Industries like apparel and computers easily feed the misperception that “we don’t make anything,” while industries like machinery sell most of

**Figure 8. Meeting Domestic Demand for Manufactured Goods, 2012**

(billions of dollars)



Note: Final domestic demand includes consumption and investment.

Source: Economics and Statistics Administration analysis using data from the Bureau of Economic Analysis.

their products directly to businesses instead of consumers. With U.S. factories churning out nearly \$6 trillion in goods per year, that perception is simply not true.

In addition, many of the goods made in America end up overseas for purchase by foreign consumers, businesses, and governments. Overall, 18 percent of the output of U.S. manufacturing firms was exported in 2012. As we have seen throughout this report, there is a great deal of variation across industries. In the other transportation equipment industry (mainly airplanes and parts), 39 percent of gross output went abroad. Another example is the computer and electronic products industry, where the United States imports most of what we consume and also exports a great deal of output (36 percent in 2012), reflecting the strength of our semiconductor and navigational instrument manufacturers. At the other end of

the spectrum were the printing (3 percent), furniture (6 percent), and wood product (6 percent) industries where only a small share of output went abroad in 2012.

## Conclusion

As we have seen, there are a number of ways to measure what is “Made in the U.S.A.,” all of which have some benefits and drawbacks. Gross output gives us an idea of what the American manufacturing sector produces, but it forces us to double-count, or even triple-count, any goods that are used multiple times throughout the supply chain. Value added solves the problem of double-counting, but it does not consider intermediate domestic and foreign inputs used in the production process.

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This report introduces and measures three concepts that avoid the problems above: domestic sourcing, domestic content, and meeting domestic demand for manufactured goods. Although none of these measures is perfect (see the caveats at the beginning of the report), our methods allow us to simulate the movement of American-made goods through the supply chain to provide a better estimate of the portion of U.S. manufacturing output that originated in the U.S.A. The domestic sourcing calculation is relatively simple and gets us close to the actual value of domestic content for most industries, but it simply assumes that all inputs purchased from American suppliers were made in the U.S.A. The second measure introduced here (domestic content)—although complex to calculate—provides the best picture of what it really means to say “Made in the U.S.A.” for a particular industry. Finally, the measure of what percent of domestic demand is met by US production provides a look from the consumer perspective.

Although much of the U.S. demand for manufactured goods is met by foreign products, it is evident that the U.S. manufacturing sector is producing a lot. Furthermore, these goods contain a high share of domestic content. For more information on “What is Made in America?” see the Economics and Statistics Administration manufacturing industry profiles available at:  
<http://www.esa.doc.gov/Reports/what-made-america>.

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