TRADE MARKET INTELLIGENCE

SPECIAL REPORT:

Manufacturing Hotspots in the United States

September 2019

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Nova Scotia Business Inc.

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Report Overview

Valued at over USD$2.3 trillion (CAD$3.1 trillion) in 2019, the US manufacturing sector accounts for 11.4% of the country's total gross domestic product.[1] However, the sector's prosperity is not evenly distributed throughout the states or across the industries in the sector. While 2018 was an excellent year for many American manufacturers, optimism towards the industry's outlook has waned in 2019. The average expected sales, production, and export growth rates for the next year are all down compared to previous periods. Expected capital investments within the industry are also down, with the slowest pace for capital expenditure activity since the beginning of 2017.[2]

With this in mind, it is important for any company interested in selling to the US manufacturing sector or entering the supply chain to understand which manufacturing industries within the US are growing and which regions have the high concentrations of decision makers.

In order to identify the top industries and geographies NSBI utilized the D&B Hoovers database. The database, which provides searchable company listings, was combed for companies that met the following criteria as of March 2019:

- The parent organization of the company was based in the US
- The company had over 500 employees
- The company was listed under the broad NAICS industry codes for manufacturing: 31, 32, or 33

These criteria were used to identify where there were high concentrations of large manufacturing establishments with decision makers based in the US. While many states have high numbers of smaller manufacturing operations or multinational companies with head offices outside of the US, NSBI prioritized identifying which areas would likely have the most influence over strategy and operational planning for larger domestic companies. NSBI chose to focus the research using establishment concentrations rather than output, gross domestic product, or employment, so as to better identify where their decision making for domestic firms was centralized.

Nova Scotian companies interested in working with the US manufacturing sector are encouraged to use this report as an introduction to key trends driving the top manufacturing industries and the geographical hotspots for manufacturing decision making in the US, which will help in guiding further research into supply chain export opportunities.

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Executive Summary

This report examines the manufacturing industry in the United States, exploring the trends and hotspots for inudstry subsectors including semiconductor and circuit manufacturing; circuit board and electronic component manufacturing; navigational device manufacturing; and medical device manufacturing industry.

According to the database IBISWorld, there are 884 semiconductor and circuit manufacturing business establishments in the US, employing around 104,000 people as of 2019. The top 5 Semiconductor & Circuit Manufacturing States by business Location Concentration are California at 34.6%; Texas with 9.4%; Massachusetts with 5.0%; Arizona with 4.4% and New York with 4.3%. The industry is largely concentrated in the West and Southwestern regions of the US. California has the largest share of activity, predominately due to the San Francisco Bay Area, San Jose, and San Diego area's reputation as an international centre of technology. Globally, the demand for US-made semiconductors remains high, however increased global competition, particularly from East Asia has caused a decline in the industry's export levels. The industry is currently worth an estimated USD$55.2 billion (CAD$72.5 billion) in revenue and is expected to increase at an annualized rate of 0.8% to reach USD$57.3 billion (CAD$75.2 billion) by 2024.

Semiconductor operations in the Silicon Valley area is increasingly focused on chip design, development, prototyping, and custom production. Larger chip companies now maintain microfabrication plants elsewhere in the world, leveraging global supply chain networks and more favourable tax/regulatory structures. In the past 10 years, the low price of real estate and large pool of skilled labour has resulted in companies shifting their headquarters and operations away from California relocating to Southwestern states like Texas and Arizona and Massachusetts.

The circuit board manufacturing industry is estimated at USD$43.4 billion (CAD$57.0 billion) in revenue and is expected to decline at an annualized rate of -0.6% to $42.0 billion (CAD$55.1 billion) by 2024. IBISWorld estimates that there are 2,598 circuit board and electronic component manufacturing business establishments in the US, employing around 150,000 people as of 2019. Manufacturers in the Circuit Board & Electronic Component industry are projected to continue this trend and imports are expected to satisfy a growing portion of domestic demand for this industry's products. Electronic and autonomous vehicle production is driving demand from the automotive industries, and domestic circuit board manufacturers are building and supplying more efficient and higher value-added circuit boards for these increasingly complex products.

The top 5 Circuit Board & Electronic Component Manufacturing States by Business Location concentration are: California at 26.2%; Texas at 6.6%; New York at 5.6%; Illinois at 5.4% and Pennsylvania at 4.8%. The industry is heavily concentrated in the West, Great Lakes, and Mid-Atlantic regions. California is particularly notable, representing over a quarter of all establishments. Texas, with the second highest concentration, has a large number of downstream customers and the physical space for manufacturing facilities. The states in the Great Lakes and Mid-Atlantic regions are also hubs for technologically intensive manufacturing industries, which attracts circuit board manufacturers.

Within the miscellaneous plastic product manufacturing industry there are 6,341 business establishments in the US, according to IBISWorld, employing around 395,000 people as of 2019. The industry is currently worth USD$105.6 billion (CAD$138.6 billion) in revenue and is expected to grow at an annualized rate of 0.4% to reach USD$108.0 billion (CAD$141.8 billion) in 2024. The market for plastic products has seen modest demand growth in the past few years, linked to an improving US economy. Growth will likely be tempered by a slow down in the construction industry and further impacted by increased international competition. However, increased capital investments in research and development and strategic mergers and acquisitions, are helping to improve efficiency in the industry. Currently, the industry is largely comprised of small, regional companies. The wide variety of products produced by the industry has led to natural market fragmentation. The top 5 miscellaneous plastic product manufacturing states by business location concentration are: California at 10.9%; Ohio with 6.6%; Michigan at 6.5%; Illinois at 5.8% and Texas at 5.5%.

In the navigational device manufacturing industry, IBISWorld estimates that there are 4,213 business establishments in the sector in the US, employing around 282,000 people as of 2019. The industry is currently worth USD$114.4 billion (CAD$150.2 billion) in revenue and is expected to increase at an annualized rate of 1.0% to $120.0 billion (CAD$157.5 billion) by 2024. Downstream demand comes from a wide variety of clientele, including industries such as air-traffic control, shipbuilding, and construction. Growth in the industry has been bolstered by private investment and demand, particularly for analytical laboratory instruments, and public federal funding for specialized search, detection, and navigation instruments. The top 5 States by business location concentration for the navigational instrument manufacturing industry are California at 18.4%; Texas at 7.1%; Massachusetts at 6.1%; Pennsylvania at 5.0%; Florida with 4%.

The medical device manufacturing industry in the US is worth USD$41.3 billion in revenue and is expected to grow at an annualized rate of 2.3% to $46.4 billion by 2024. According to IBISWorld, there are 973 manufacturing establishments in the industry, employing around 86,000 people as of 2019. The top 5 medical device manufacturing states by business location concentration are: California at 20.5%; Massachusetts with 8.3%; Florida with 6.2%; New York at 5.7% and Minnesota at 5.1%. The largest

concentration of medical device manufacturing establishments is, by far, in California. The San Francisco Bay Area, Los Angeles, Orange County, and San Diego are home to a large number of biomedical companies. Companies benefit from having access to Silicon Valley and often have strong links to export markets. Florida's large healthcare sector is a major driver for industry's concentration in the Southeast. States that have strong research institutes and universities, such as New York and Massachusetts, tend to have higher shares of medical device manufacturing establishments.

Top geographical clusters of manufacturing in the United States are California, Texas, Illinois, New York and Ohio. California had the highest concentration in every key manufacturing industry explored in this report, followed by Texas, New York, Illinois, and Ohio. However, by comparison of output, California and Texas have the highest manufacturing industry gross domestic product (GDP). Illinois and Ohio are close second growth contenders with similar levels of manufacturing's contribution to the state's GDP. Its worth noting that of the five clusters expored New York has the lowest contribution by manufacturing to the state's gross domestic product. Over the past three years, all states within the geographical clusters have seen a rise in their manufacturing GDP.

Industry Highlights

According to NSBI's data analysis, the top industries, by number of large domestic manufacturing companies located in the US are:

NAICS 5-Digit Code	Industry Name	Number of Companies
33441	Semiconductor and other electronic component manufacturing	96
32619	Other plastics product manufacturing	87
33451	Navigational, measuring, medical and control instruments manufacturing	76
33911	Medical equipment and supplies manufacturing	72
32541	Pharmaceutical and medicine manufacturing	62
31161	Animal slaughtering and processing	55
33631	Motor vehicle gasoline engine and engine parts manufacturing	53
33231	Plate work and fabricated structural product manufacturing	47
33299	All other fabricated metal product manufacturing	44
32311	Printing	40

The following section will highlight five major manufacturing areas included under the top three industries: semiconductors and circuits, circuit board and electronic components, miscellaneous plastic products, navigational instruments, and medical devices.

Semiconductor & Circuit Manufacturing

Included under NAICS 33441, semiconductors and circuits are a vital component in everyday electronics, such as computers and cell phones. These products are integral to solutions and services such as telecommunications, broadcasting, and internet providers. Globally, the demand for semiconductor and circuit products is diversified and rising, driven in part by the use of semiconductors in emerging technologies such as artificial intelligence and Internet of Things.[3]

The industry is one of the top export industries in the US. While demand for US-made semiconductors remains high, increased global competition, particularly from East Asia, has caused a decline in the industry's export levels. Going forward, the US industry is expected to be sustained by product innovation and increasing exports, focused on new opportunities in next-generation semiconductors and electronic inputs. Additionally, demand from products in the smart grid, autonomous vehicle, and blockchain technology verticals is expected to spur revenue growth.[4]

The industry is currently worth an estimated USD$55.2 billion (CAD$72.5 billion) in revenue and is expected to increase at an annualized rate of 0.8% to reach USD$57.3 billion (CAD$75.2 billion) by 2024.[5]

Past Revenue Growth[6]	Revenue USD$ Million	Growth %
2010	70,616.4	-
2011	73,122.5	3.5
2012	54,895.5	-24.9
2013	49,693.6	-9.5
2014	50,584.1	1.8
2015	50,461.5	-0.3
2016	50,120.3	-0.7
2017	51,995.2	3.7
2018	54,222.9	4.3

Projected Revenue Growth[7]	Revenue USD$ Million	Growth %
2019	55,167.2	1.7
2020	55,705.4	1.0
2021	56,071.5	0.7
2022	56,473.2	0.7
2023	56,871.4	0.7
2024	57,286.2	0.7

Currently, around 53.9% of this industry's revenue comes from exports.[8] The destinations of US exports are diversified, but China is expected to account for the largest single-country share of US exports, valued at 17.6%, followed by South Korea at 11.5%, Taiwan at 10.2%, and Malaysia at 9.7%.[9]

Imports are expected to satisfy 64.8% of domestic demand for semiconductors and circuits in the US, reaching a value of USD$44.5 billion in 2019. The major source countries of imports are Malaysia (accounting for 37.3% of import value), China (11.0%), Taiwan (10.9%), and Japan (6.9%).[10]

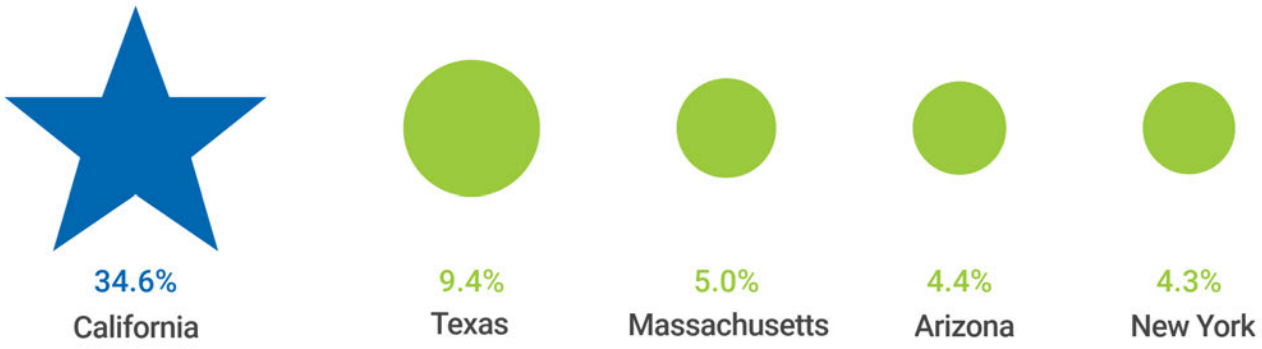
The domestic industry has largely been relocating production, particularly for lower value-added products to lower labour cost countries. Manufacturing in the US is increasingly focusing on higher value products, such as computer processors and NAND memory. Companies rely heavily on trade secrets, patents, confidentiality and licensing agreements to maintain their competitive advantage in the research and development of new products. Research expenditure in the industry is very high and essential to American companies, allowing them to stay competitive in the globalized market.[11]

Within the domestic industry, the companies with the highest market share are Intel Corporation (33.9%), Samsung Electronics Co. Ltd. (16.1%), Texas Instruments Inc. (14.1%), and Micron Technology Inc. (11.0%).[12]

Business Locations

IBISWorld estimates that there are 884 semiconductor and circuit manufacturing business establishments in the US, employing around 104,000 people as of 2019.[13]

Top 5 States by Business Establishment Concentration, 2019[14]

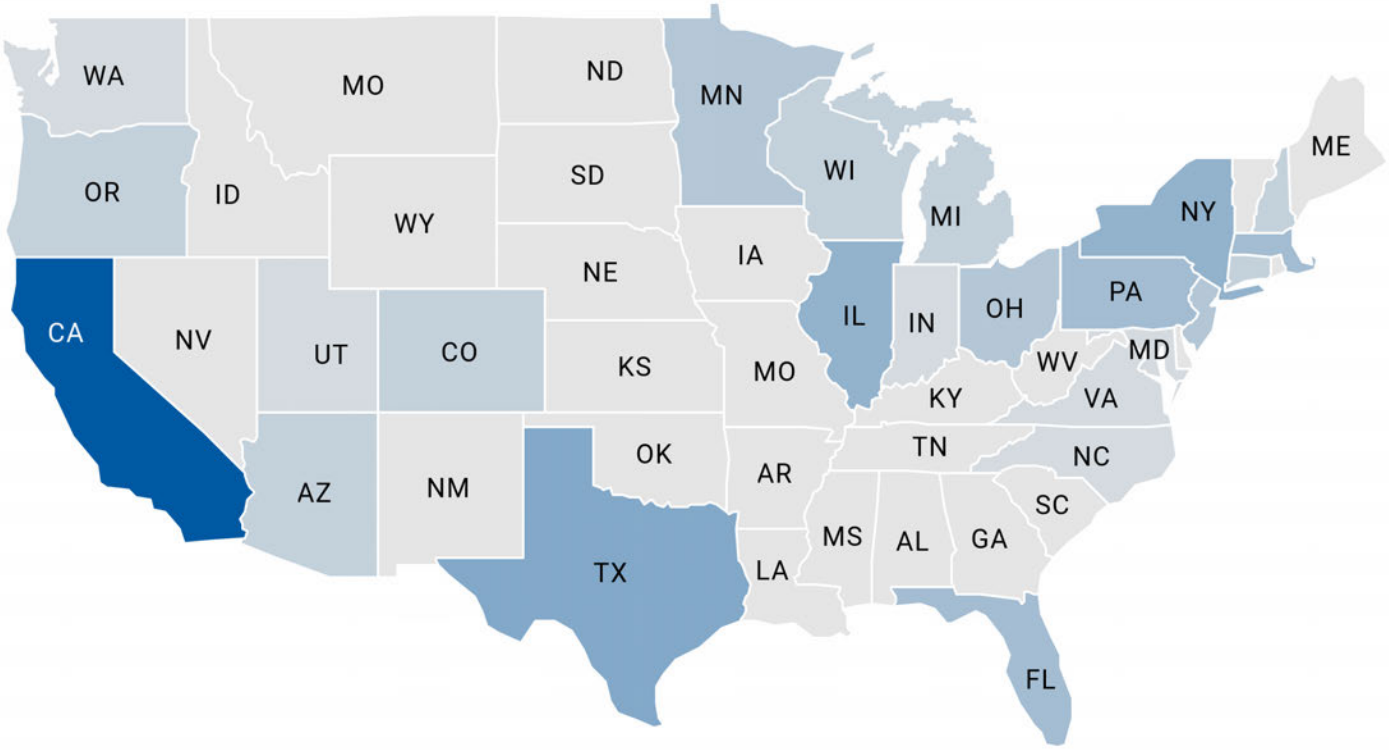


The industry is largely concentrated in the West and Southwestern regions of the US. California boasts the largest share of activity, due largely to the San Francisco Bay Area, San Jose and San Diego area's reputation as an international centre of technology. The high industry concentration in California lends itself well to both competition and collaboration, which fosters experimentation and technological advancements in the industry.

Semiconductor operations in the Silicon Valley area have been changing in recent years though. In the past, large-scale chip production was typical for the region. The focus has shifted in recent years to chip design, development, prototyping, and custom production. Larger chip companies now maintain microfabrication plants elsewhere in the world, leveraging global supply chain networks and more favourable tax/regulatory structures.

Companies have also been shifting their headquarters and operations away from California in the past 10 years, relocating to Southwestern states like Texas and Arizona. They are drawn to the low real estate prices and large pool of skilled labour in these states. Another major state is Massachusetts, due primarily to the engineering industry in and around Boston.[15]

Semiconductor & Circuit Manufacturing Business Location Heatmap, 2019[16]



Circuit Board & Electronic Component Manufacturing

Included under NAICS 33441, companies involved in circuit board and component manufacturing primarily manufacture electronic components (except semiconductors and related devices). Companies in this industry manufacture printed circuits, circuit boards, capacitors, transformers, connectors and switches.[17] These inputs are essential to produce electrical items in the industrial, communication and transportation sectors, among others. Downstream demand has been volatile for this industry, with many downstream customers going to other countries with lower labour costs, resulting in declining revenue and lower US-based production levels. The circuit board manufacturing industry has increasingly shifted production to overseas plants closer to their downstream customers. Manufacturers are projected to continue this trend and imports are expected to satisfy a growing portion of domestic demand for this industry's products. [18]

Currently, the industry is worth USD$43.4 billion (CAD$57.0 billion) in revenue and is expected to decline at an annualized rate of -0.6% to $42.0 billion (CAD$55.1 billion) by 2024.[19]

Past Revenue Growth[20]	Revenue USD$ Million	Growth %
2010	49,079.8	-
2011	49,933.8	1.7
2012	47,234.6	-5.4
2013	46,636.7	-1.3
2014	45,091.9	-3.3
2015	46,459.9	3.0
2016	42,887.4	-7.7
2017	44,091.7	2.8
2018	43,797.0	-0.7

Projected Revenue Growth[21]	Revenue USD$ Million	Growth %
2019	43,369.9	-1.0
2020	43,103.1	-0.6
2021	42,804.3	-0.7
2022	42,518.5	-0.7
2023	42,267.3	-0.6
2024	41,982.1	-0.7

In 2019, exports accounted for only 18.3% of the industry's revenue. Intense international competition has led to a decline in exports. The major destinations for US exports are Mexico (26.1% of total export value), China (10.0%), Canada (9.8%), and Hong Kong (4.8%). Export trade with these countries is driven by the location of downstream customers producing finished electronics, and by free trade agreements.[22]

Imports are expected to satisfy 53.9% of US domestic demand in 2019, coming primarily from China (49.2% of all import value), South Korea (11.7%), Mexico (7.3%), and Japan (5.3%).[23]

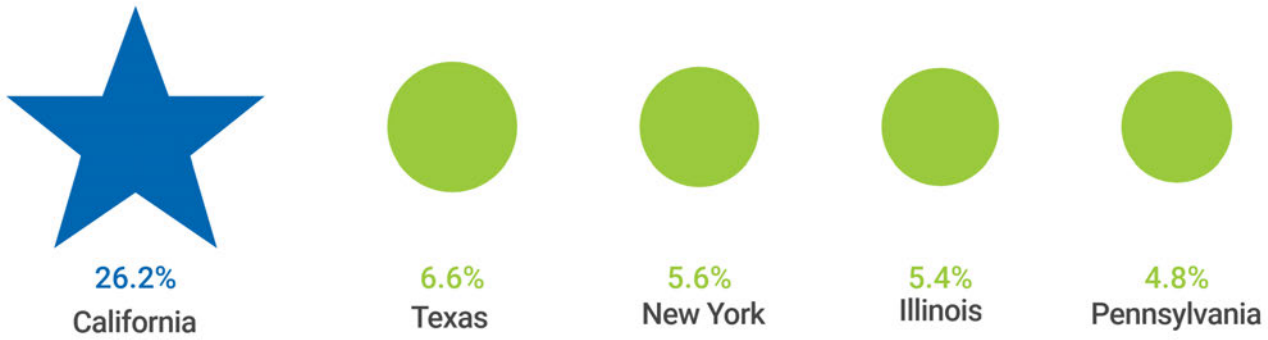
One area of domestic growth for the industry is the transportation sector. Electronic and autonomous vehicle production is driving demand from the automotive industry. Domestic circuit board manufacturers are building and supplying more efficient and higher value-added circuit boards for these increasingly complex products.[24]

The largest company in this industry in the US is TE Connectivity Ltd., which holds a 5.8% market share. The company sells products worldwide, primarily outside of the US.[25] Many of the industry's larger companies operate internationally and have relatively small US operations. The majority of companies in the industry are smaller and are often contract-based suppliers who must contend with high levels of competition due to the standardized nature of their products.[26]

Business Locations

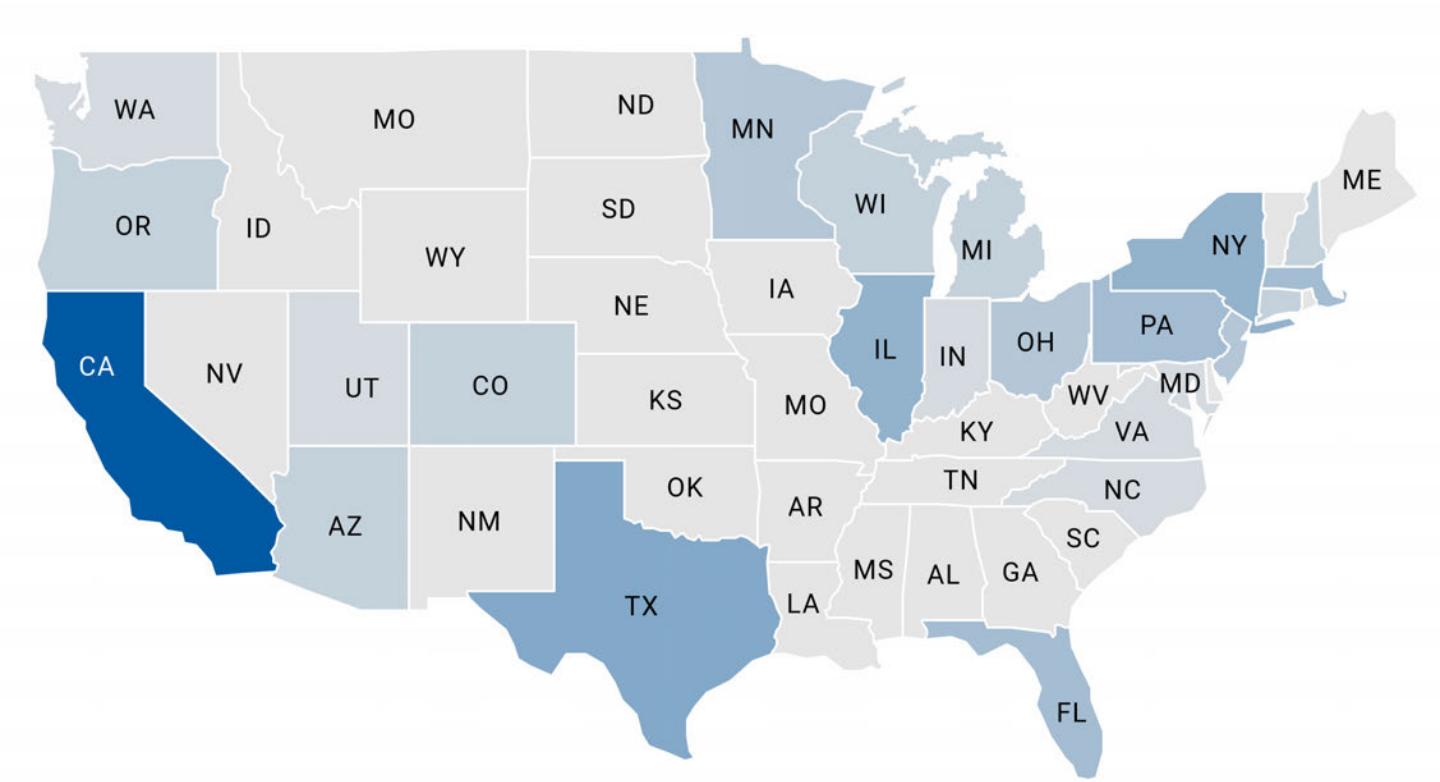
IBISWorld estimated that there are 2,598 circuit board and electronic component manufacturing business establishments in the US, employing around 150,000 people as of 2019.[27]

Top 5 States by Business Location Concentration[28]



The industry is heavily concentrated in the West, Great Lakes, and Mid-Atlantic regions. California is particularly notable, accounting for over a quarter of all establishments. The state's role as an epicentre for computer hardware allows manufacturers to locate near to their customers as well as qualified labour. Similarly, Texas, with the second highest concentration, has a large number of downstream customers and the physical space for manufacturing facilities. The states in the Great Lakes and Mid-Atlantic regions also house other technologically intensive manufacturing industries, which attracts circuit board manufacturers.[29]

Circuit Board & Electronic Component Manufacturing Business Location Heatmap, 2019[30]



Miscellaneous Plastic Product Manufacturing

Included under NAICS 32619, the miscellaneous plastic product manufacturing industry accounts for a wide range of plastic manufacturing, including house wares, building materials, motor vehicle parts, resilient floor coverings and appliance parts. This industry excludes plastic film, sheets, bags, profile shapes, pipes, pipe fittings, laminates, foam products and bottles.[31] The manufacturers in this industry rely heavily on several key customer industries to purchase their products, most notably hardware/home improvement wholesalers and automotive manufacturers. The market for plastic products has seen modest demand growth in the past few years, linked to an improving US economy. As consumer spending continues to increase, demand for plastic products is expected to grow. However, this growth will likely be tempered by a slow down in the construction industry. Additionally, increased international competition has put pressure on US manufacturers. Manufacturers are responding by investing in research and development, making capital investments to improve efficiency, and increase their market share through mergers and acquisitions.[32]

The industry is currently worth USD$105.6 billion (CAD$138.6 billion) in revenue and is expected to grow at an annualized rate of 0.4% to reach USD$108.0 billion (CAD$141.8 billion) in 2024.[33]

Past Revenue Growth[34]	Revenue USD$ Million	Growth %
2010	89,413.9	-
2011	91,046.1	1.8
2012	94,865.6	4.2
2013	97,750.2	3.0
2014	102,226.7	4.6
2015	105,566.6	3.3
2016	105,273.1	-0.3
2017	107,071.8	1.7
2018	105,756.4	-1.2

Projected Revenue Growth[35]	Revenue USD$ Million	Growth %
2019	105,647.3	-0.1
2020	105,867.1	0.2
2021	106,505.3	0.6
2022	106,756.8	0.2
2023	107,141.9	0.4
2024	107,960.0	0.8

Exports accounted for 10% of industry revenue in 2019, down from 10.7% in 2014. The largest export destinations are Mexico (37.1% of all export value) and Canada (29.7%), due to their geographic proximity and the removal of tariffs under the North American Free Trade Agreement.[36]

The level of imports has increased significantly over the past few years. Imports are now expected to meet 19.9% of domestic US demand, with 56.1% of all import value coming from China. The second largest import source country for the US is Canada, which holds 11% of the import value. Imports are expected to continue increasing. In the past, the US has been able to maintain a competitive advantage by investing heavily in research and development for innovative and technologically advanced products. However, lower production costs and the growth of technological capabilities in Asia has eroded that market advantage for US manufacturers.[37]

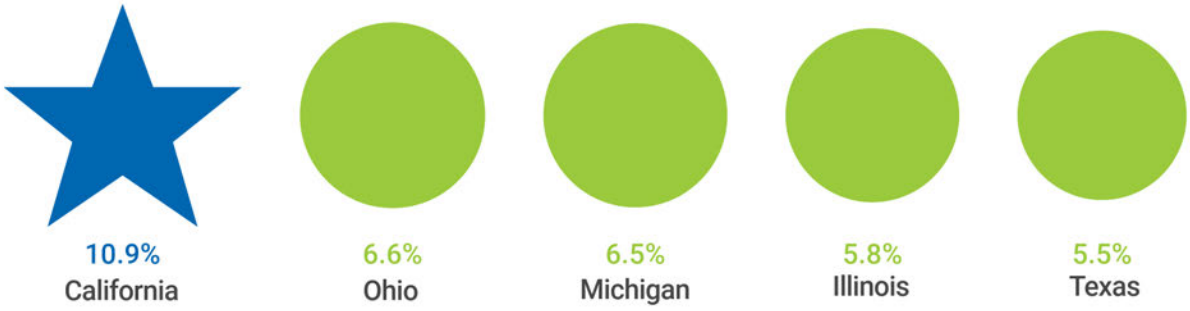
The industry is in the mature phase of its life cycle, well past the boom of innovation it experienced in the 1980s when new plastic products and applications were being identified. The industry is now focused on improving existing products and winning market share from competing or substitute products. Mergers and acquisitions activity has increased as manufacturers consolidate operations to stay competitive. [38]

The industry is largely comprised of small, regional companies. The wide variety of products produced by the industry has led to natural market fragmentation.[39] The three largest companies are Saudi Basic Industries Corporation (2.5% market share), PolyOne Corporation (1.4%), and Armstrong Flooring Inc. (0.7%).[40]

Business Locations

IBISWorld estimates that there are 6,341 miscellaneous plastic product manufacturing business establishments in the US, employing around 395,000 people as of 2019.[41]

Top 5 States by Business Location Concentration[42]

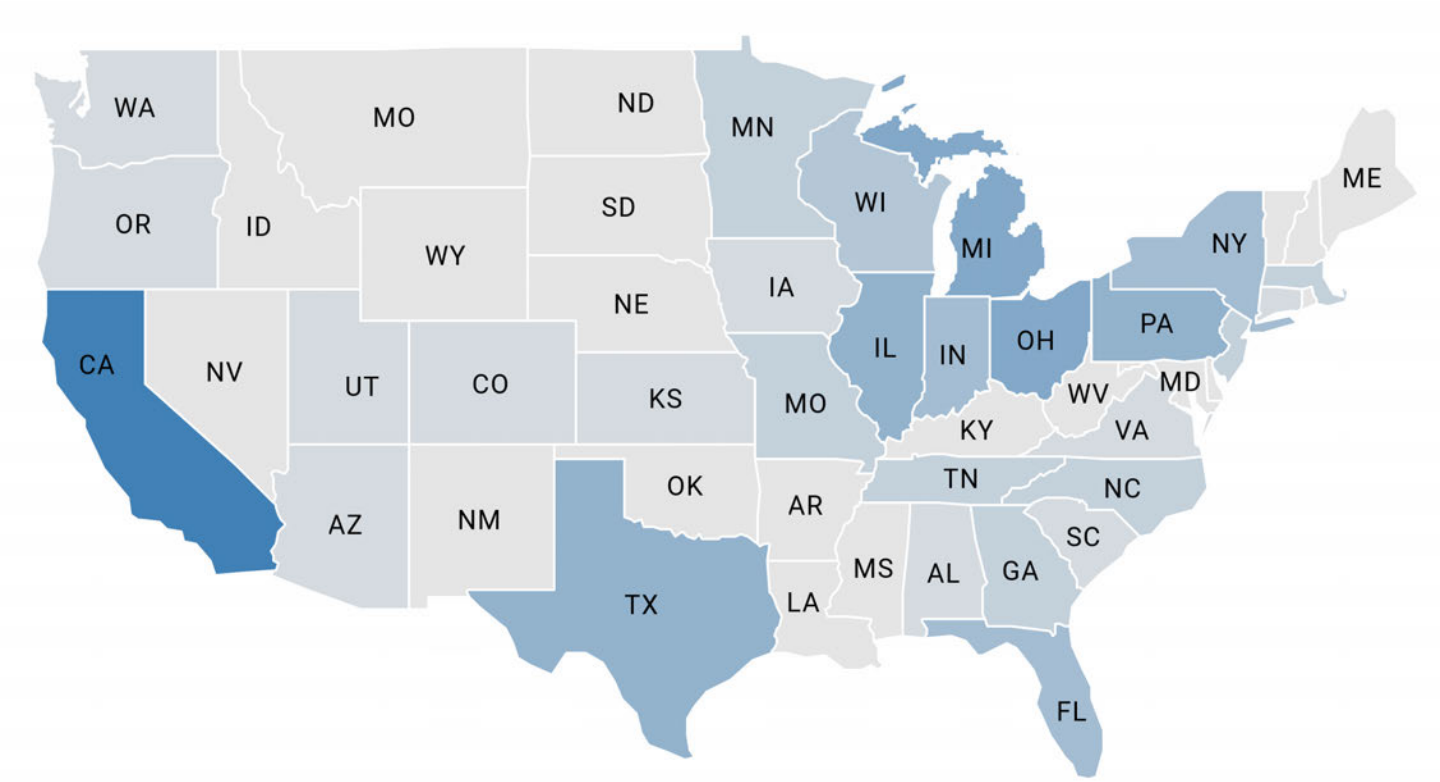


The only US state with more than 10% of industry establishments is California which has 10.9% of total establishments. The biggest regional hub for the industry, however, is the Great Lake region, which has an estimated 27.1% of establishments. Ohio, Michigan, and Illinois account for the bulk of this, with 6.6%, 6.5% and 5.8% of industry establishments respectfully. Ohio and Michigan both have large auto industries, which allows for plastic product companies in these states to locate close to major downstream consumers.

The Southeastern region of the US is also dominant, accounting for 19.6% of establishments. As the most populous region of the country, it is convenient for manufacturers to be located near their customer base in order to reduce costs.

The Mid-Atlantic region also has a notable concentration, accounting for 13% of establishments. The region has some of the largest seaports in the US which makes it ideal for manufacturers to receive materials and ship out products.[43]

Miscellaneous Plastic Product Manufacturing Business Location Heatmap, 2019[44]



Navigational Instrument Manufacturing

Included under NAICS 33451, the navigational instrument manufacturing industry produces search detection and navigational instruments, appliance regulators and controls, laboratory analytical instruments and physical properties testing equipment, among other similar devices. Downstream demand comes from a wide variety of clientele, including industries such as air-traffic control, shipbuilding, and construction. Many industry products are nondiscretionary, and so demand remains steady despite macroeconomic conditions. Growth in the industry has been bolstered by private investment and demand, particularly for analytical laboratory instruments, and public federal funding for specialized search, detection, and navigation instruments.[45] Industry revenue is also closely tied to the geophysical services industry, which has fluctuated due to the price of crude oil and natural gas. This has hindered growth. Similarly, federal funding for defence and transportation has a significant effect on the industry. While defence funding rebounded strongly in 2018, transportation funding has declined in recent years.[46]

The industry is currently worth USD$114.4 billion (CAD$150.2 billion) in revenue and is expected to increase at an annualized rate of 1.0% to $120.0 billion (CAD$157.5 billion) by 2024.[47]

Past Revenue Growth[48]	Revenue USD$ Million	Growth %
2010	119,322.8	-
2011	124,111.7	4.0
2012	119,902.1	-3.4
2013	114,539.1	-4.5
2014	113,173.3	-1.2
2015	109,013.1	-3.7
2016	110,637.9	1.5
2017	108,354.5	-2.1
2018	111,831.4	3.2

Projected Revenue Growth[49]	Revenue USD$ Million	Growth %
2019	114,383.6	2.3
2020	116,714.2	2.0
2021	117,307.1	0.5
2022	118,243.8	0.8
2023	119,250.6	0.9
2024	119,976.7	0.6

Exports account for 26.6% of industry revenue, decreasing over the past five years due to robust domestic demand and increased price-based global competition.[50] American companies are often unable to compete on the basis of price, and instead compete on the basis of quality and technological advancement. The main export destinations are China (12.9% of all export value), Canada (10.2%), Mexico (8.9%), and Germany (6.5%). The main product exports include laboratory and electrical instruments, counting devices and fluid meters, and industrial process products to Canada and China.[51]

Imports are expected to account for 32.0% of US demand. Imports for lower value-added goods are increasing, but the majority of industry revenue comes from high-tech products. As such, the overall percentage of demand value met by imports is actually decreasing. Imports come primarily from Mexico (18.2% of the value of imports), China (14.1%), Germany (10.9%), and Japan (10.4%). While Mexico is the main source, this is due largely to proximity and less-expensive labour used in lower value-added goods. In contrast, the largest single source of imports for scientific and laboratory instrument manufacturing is Germany, a country known to be a leader in scientific research.[52]

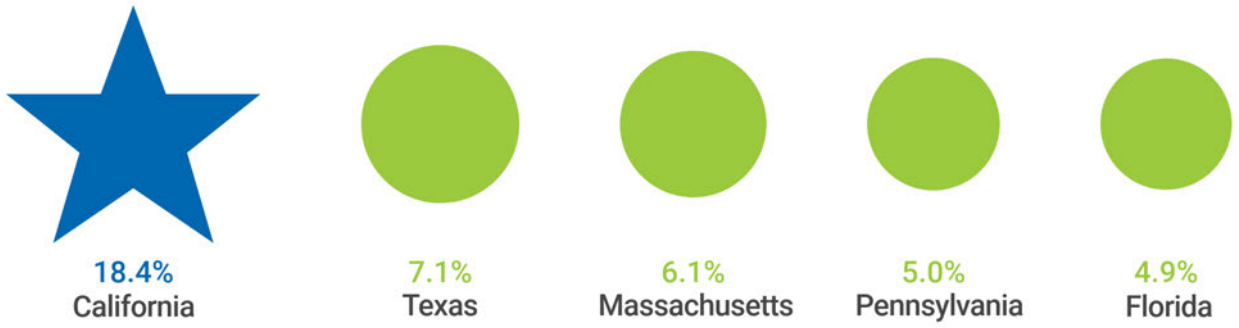
The US industry is highly fragmented, though certain segments within the industry have higher levels of market concentration. For example, there are only a few companies manufacturing military navigational equipment, while analytical laboratory instrument products may have many companies that specialize in specific instruments.[53] Companies compete on the basis of brand strength, price, market niche, technology, subcontracting, product innovation, and value-added service. The industry exhibits high levels of research and development activity to stay competitive.[54]

The largest domestic companies are Honeywell International Inc. (6.5% market share), Thermo Fischer Scientific Inc. (4.1% market share), and United Technologies Corporation (3.0%) market share.[55]

Business Locations

IBISWorld estimated that there are 4,213 navigational device manufacturing business establishments in the US, employing around 282,000 people as of 2019.[56]

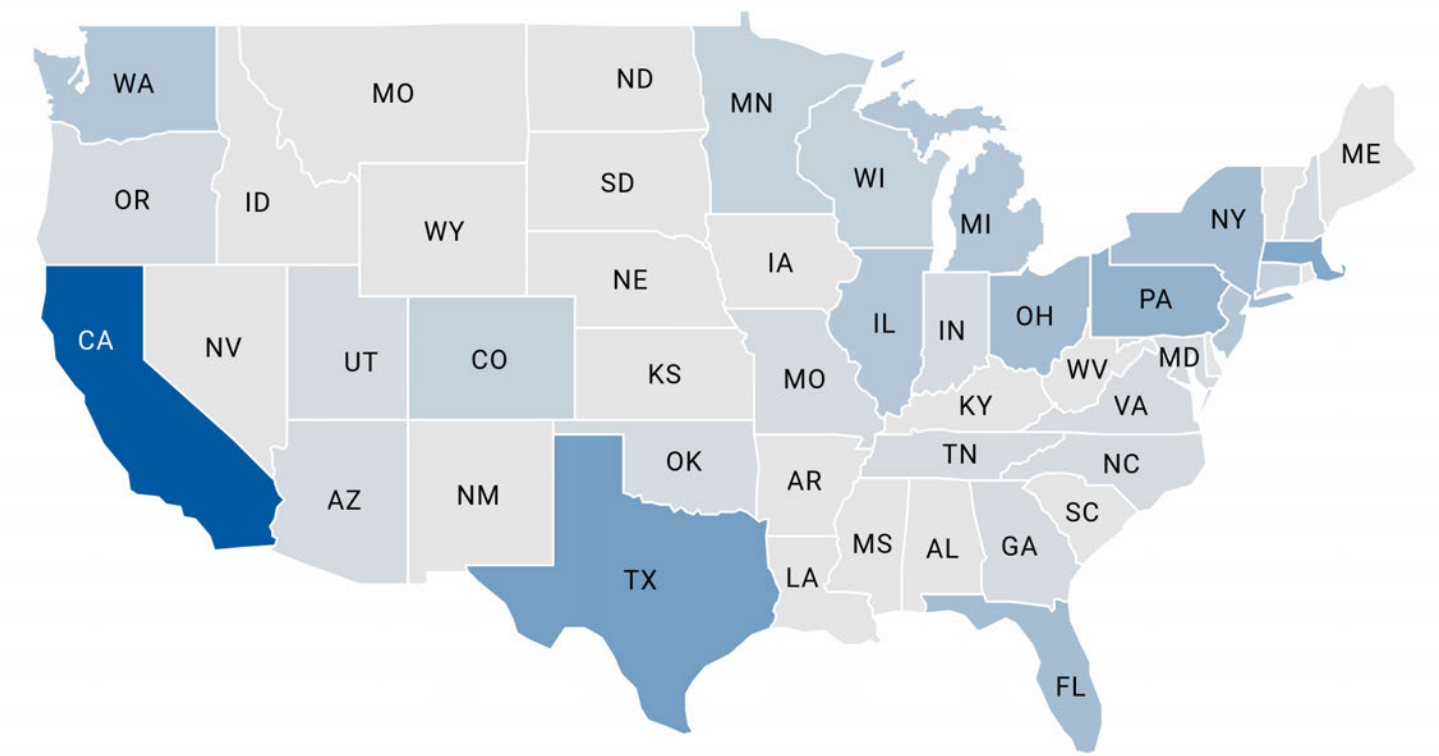
Top 5 States by Business Location Concentration[57]



The West has the highest regional concentration of establishments for this industry, most of which are located in California. The region is known for technological innovation, which attracts skilled employees. The region also has a high population, which helps to bolster local demand, and is home to well-known research universities, such as UCLA and Caltech, that use industry products.

The Great Lakes, Mid-Atlantic and Southeast regions which account for 15.7%, 15.3% and 13.8% of industry establishments respectfully, have the next highest concentrations. All three regions contain high percentages of the US population. The Great Lakes region is also traditionally home to large numbers of downstream customers in the automotive industry, while the Mid-Atlantic region contains well-known engineering and science, technology, engineering, and math post secondary programs that purchase from the industry.[58]

Navigational Instrument Manufacturing Business Location Heatmap, 2019[59]



Medical Device Manufacturing

Included under NAICS 33451, the medical device manufacturing industry produces essential healthcare products. Demand for medical devices has increased over the past five years alongside rising healthcare spending, technological advances, and an improved economy.

The aging population has also had a positive effect on demand. However, declines in the entire manufacturing sector have caused industry stagnation. Growing international competition has resulted in many companies focusing on research and development and other operations while outsourcing their manufacturing. Many industry operators are beginning to acquire small and innovative companies rather than investing in their own research and development, and the number of small niche manufacturers is expected to rise.[60]

Currently, the industry is worth USD$41.3 billion in revenue and is expected to grow at an annualized rate of 2.3% to $46.4 billion by 2024.[61]

Past Revenue Growth[62]	Revenue USD$ Million	Growth %
2010	119,322.8	-
2011	124,111.7	4.0
2012	119,902.1	-3.4
2013	114,539.1	-4.5
2014	113,173.3	-1.2
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2020	116,714.2	2.0
2021	117,307.1	0.5
2022	118,243.8	0.8
2023	119,250.6	0.9
2024	119,976.7	0.6

Export accounts for 28.6% of industry revenue. The export percentage has decreased from 31.0% in 2014. International markets have remained sluggish due to slow economic recovery, while domestic demand has increased. Key export destinations are China (14.6% of export value), the Netherlands (13.0%), Japan (10.4%), and Germany (7.3%). Increased spending on biotechnology research in countries like China and Singapore has allowed for global markets to decrease their dependence on the US for scientific research and medical device products.[64]

Imports are expected to account for 36.4% of domestic demand, an increase over previous years. Most of the growth has come from growing medical device manufacturing industries in countries like Mexico and China who typically have lower labour costs, and from countries like Japan with high levels of technological advancement.[65]

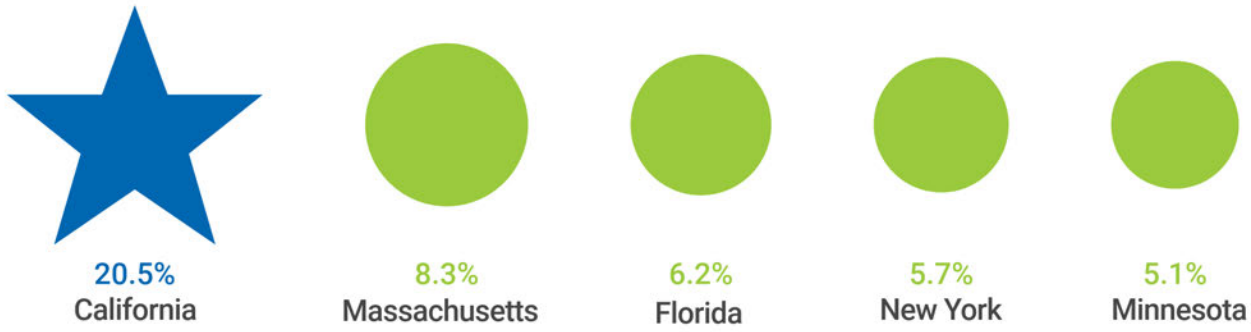
The domestic US industry is highly concentrated, with the top four companies holding over three quarters of domestic market share. While small companies are common, they tend to specialize in developing technology and products for niche areas and are often acquired by the larger companies upon producing viable products.[66]

The largest companies in the industry are Medtronic PLC (39.1% market share), General Electric Company (16.9%), Abbott Laboratories (9.0%), and Danaher Corporation (7.0%).[67]

Business Locations

IBISWorld estimates that there are 973 medical device manufacturing business establishments in the US, employing around 86,000 people as of 2019.[68]

Top 5 States by Business Location Concentration[69]

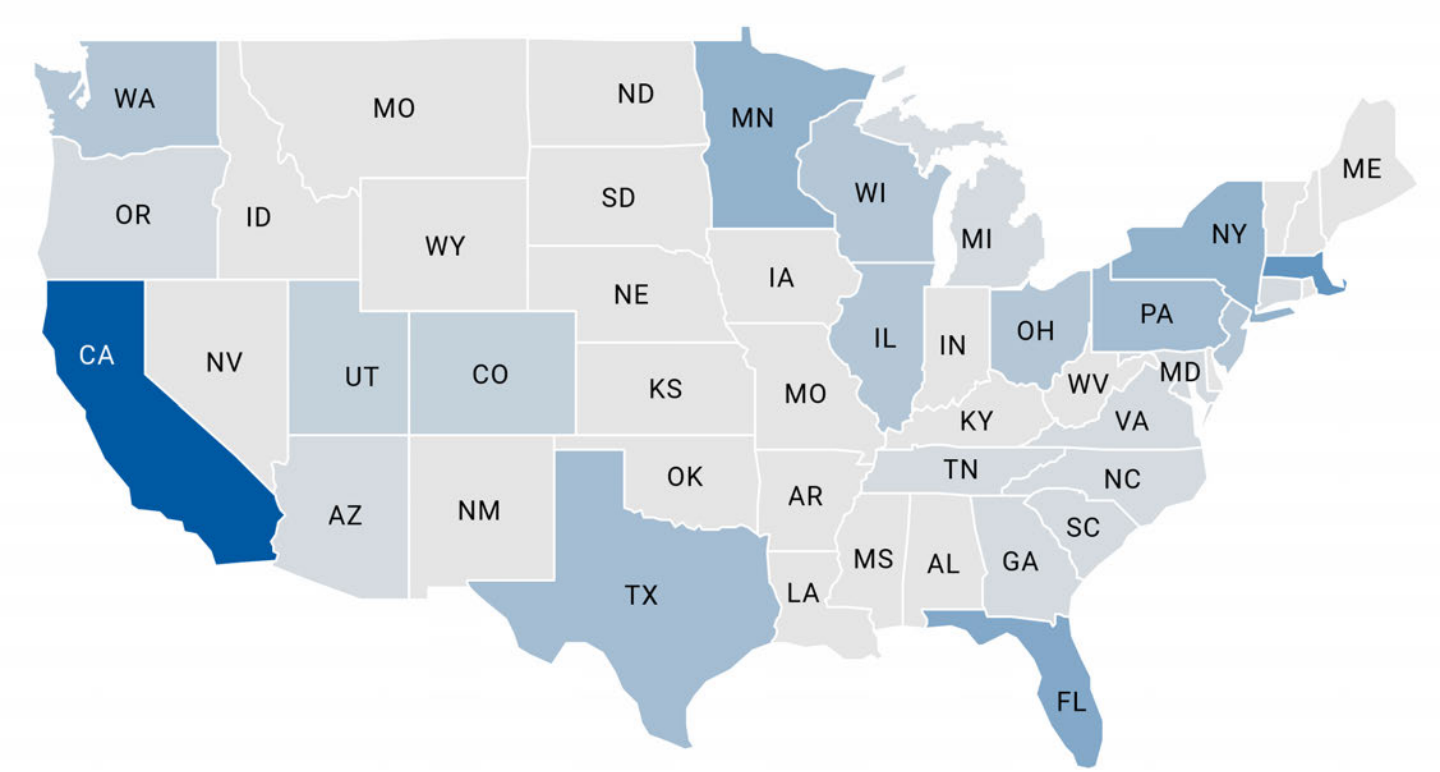


California boasts the highest concentration of medical device manufacturing establishments in the US. The San Francisco Bay Area, Los Angeles, Orange County, and San Diego are home to a large number of biomedical companies. Companies benefit from having access to Silicon Valley and often have strong links to export markets.

The Southeastern region holds around 13.5% of industry establishments, due largely to the region's high population. Florida's large healthcare sector is a major driver for industry concentration in the Southeast. Additionally, the region houses many respected universities and research institutions that support the development of advanced technologies.

States that have strong research institutes and universities, such as New York and Massachusetts, tend to have higher shares of medical device manufacturing establishments. [70]

Medical Device Manufacturing Business Location Heatmap, 2019[71]



Geographical Clusters

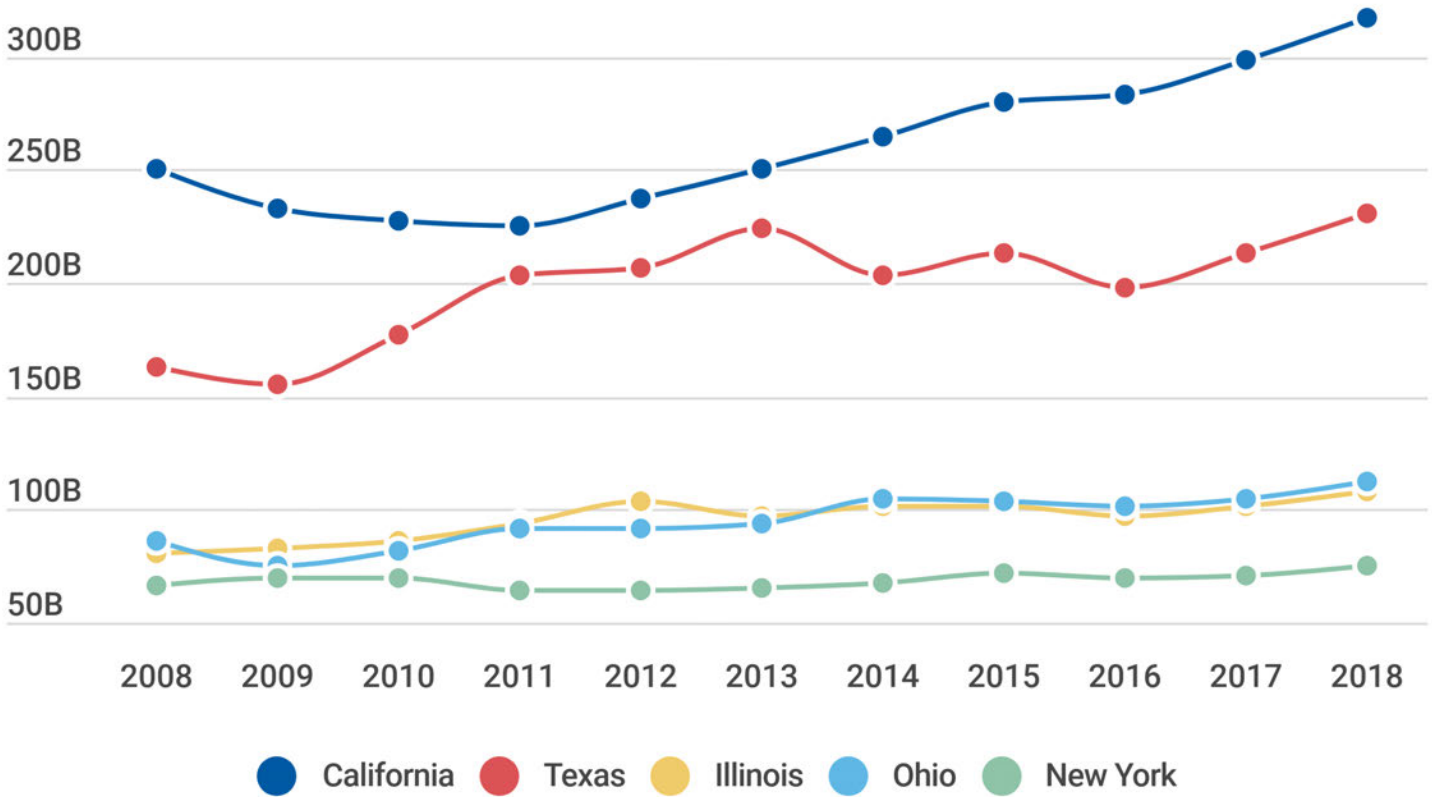
According to NSBI's data analysis the top states, by number of large business establishments with potential decision-making capabilities, and the top cities/industries within those states are as follows:

Top Manufacturing States	# of Establishments in State	Top Cities	Top NAICS
California	298	San Jose (25) San Diego (19) Santa Clara (14)	33441 - Semiconductor and other electronic component manufacturing (39) 33451 - Navigational, measuring, medical and control instruments manufacturing (19) 33911 - Medical equipment and supplies manufacturing (18)
Texas	189	San Jose (25) San Diego (19) Santa Clara (14)	33441 - Semiconductor and other electronic component manufacturing (9) 33313 - Mining and oil and gas field machinery manufacturing (7) 33451 - Navigational, measuring, medical and control instruments manufacturing (7)
Illinois	188	Chicago (44) Deerfield (9) Lake Forest (6)	33299 - All other fabricated metal product manufacturing (8) 33441 - Semiconductor and other electronic component manufacturing (7) 33631 - Motor vehicle gasoline engine and engine parts manufacturing (7)
New York	164	New York (63) Buffalo (8) Rochester (8)	32541 - Pharmaceutical and medicine manufacturing (9) 33451 - Navigational, measuring, medical and control instruments manufacturing (7) 33441 - Semiconductor and other electronic component manufacturing (6)
Ohio	162	Cleveland (24) Cincinnati (20) Columbus (13)	32619 - Other plastic product manufacturing (10) 33399 - All other general-purpose machinery manufacturing (6) 32721 - Glass and glass product manufacturing (4)

The top states lists in the industry highlights section were calculated based on business establishments of all sizes, while the top states in the geographical clusters section are calculated based on the locations of large companies. The key geographies in this section are also well-represented in the industry highlights section. California had the highest concentration in every key industry. Texas appeared in four of the five industry top state lists and held second place on three of them. New York appeared on three lists, Illinois appeared on two lists, and Ohio appeared on one.

Comparing each state's manufacturing output, California and Texas have the highest manufacturing industry gross domestic product (GDP) by far. Illinois and Ohio have similar levels of manufacturing GDP, while New York is the lowest. In the past three years, all states have seen a rise in manufacturing GDP.

Comparative Manufacturing Output, 2008-2018, GDP in Billions of USD[72]



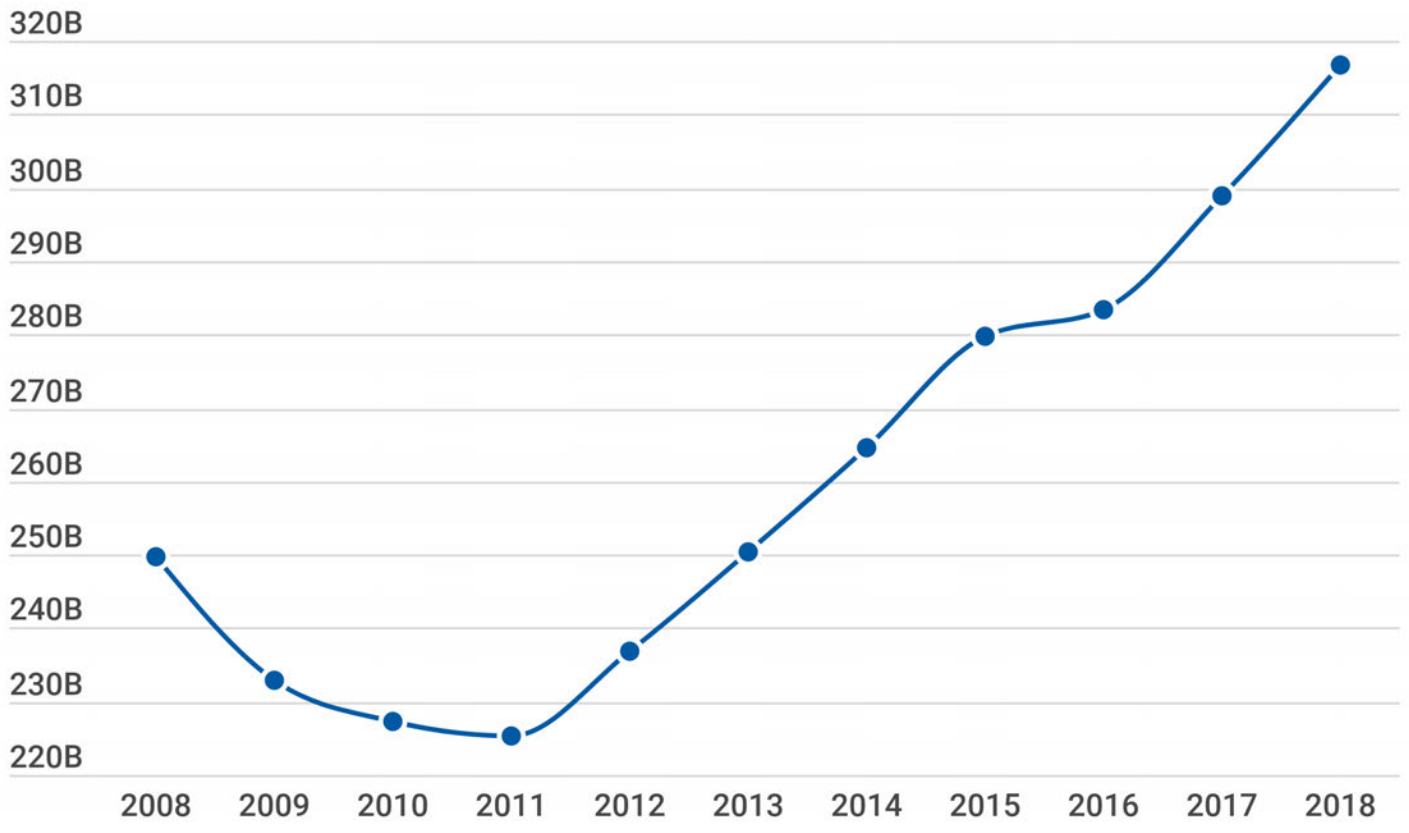
TIP: Did you know that NSBI offers a funding support for travel associated with visiting clients, potential partners, or investors? The Export Growth Program can also provide support for inviting a foreign client or potential partner to Nova Scotia.

Find out more online or by contacting your nearest Regional Business Development Advisor.

California

Manufacturing accounted for 10.7% of the state's total GDP with an output of over USD$316 billion (CAD$415 billion) in 2018. Manufacturing GDP in California has been trending upwards since 2011.[73]

California Manufacturing Output, 2008-2018, GDP in Billions of USD[74]

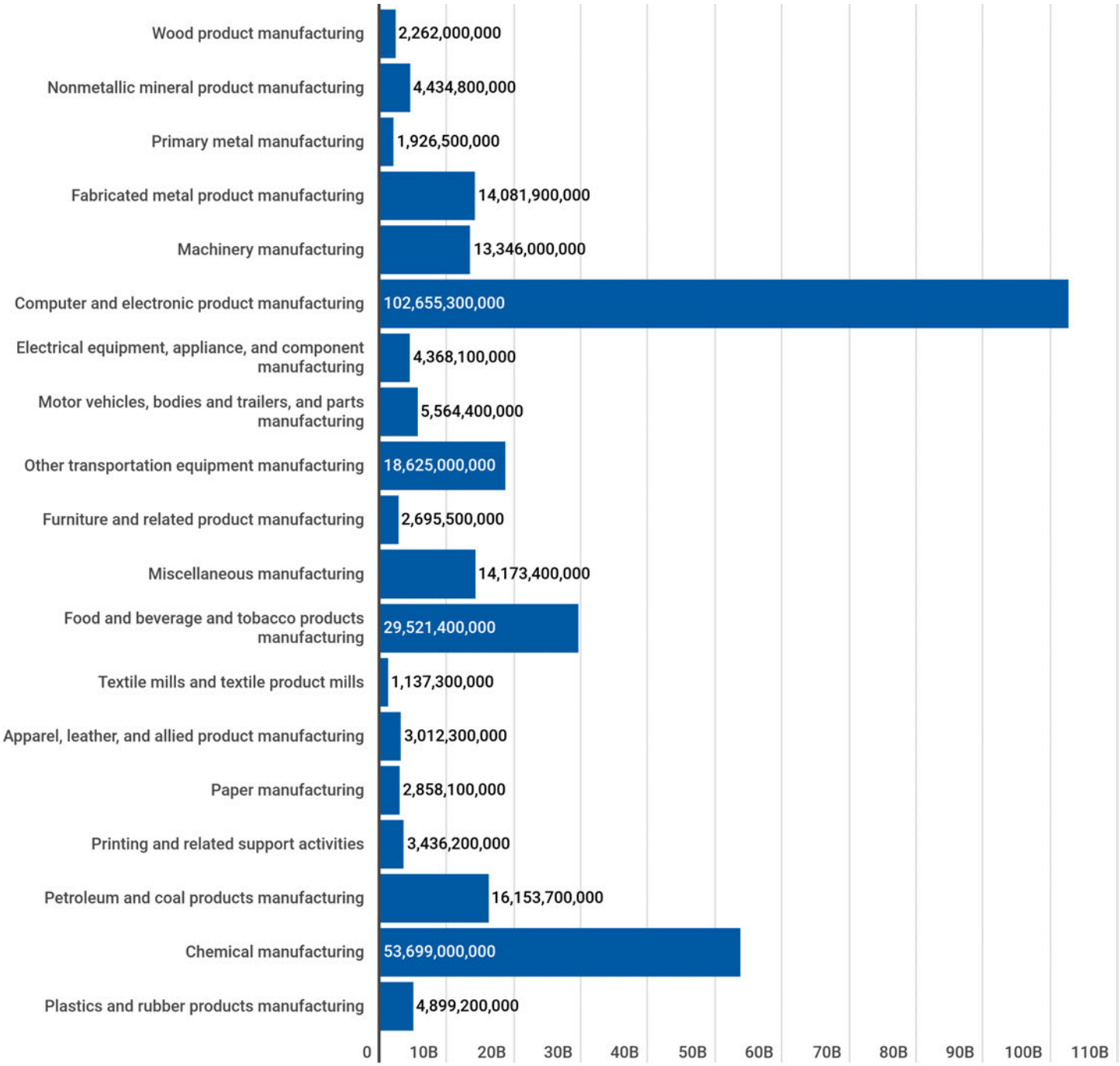


The top manufacturing companies in California are:[75]

Apple Inc.
Intel Corporation
Cisco Systems, Inc.
Western Digital Corporation
HP Inc.
Chevron Corporation
Sanmina Corporation
Tesla, Inc.
Qualcomm Incorporated
Avery Dennison Corporation

The top manufacturing subsectors in 2017 (the latest year for which data is available) were "computer and electronic product manufacturing" (USD$102.6 billion; CAD$134.7 billion), "chemical manufacturing" (USD$53.7 billion; CAD$70.5 billion), and "food and beverage and tobacco products manufacturing" (USD$29.5 billion; CAD$38.7 billion).[76]

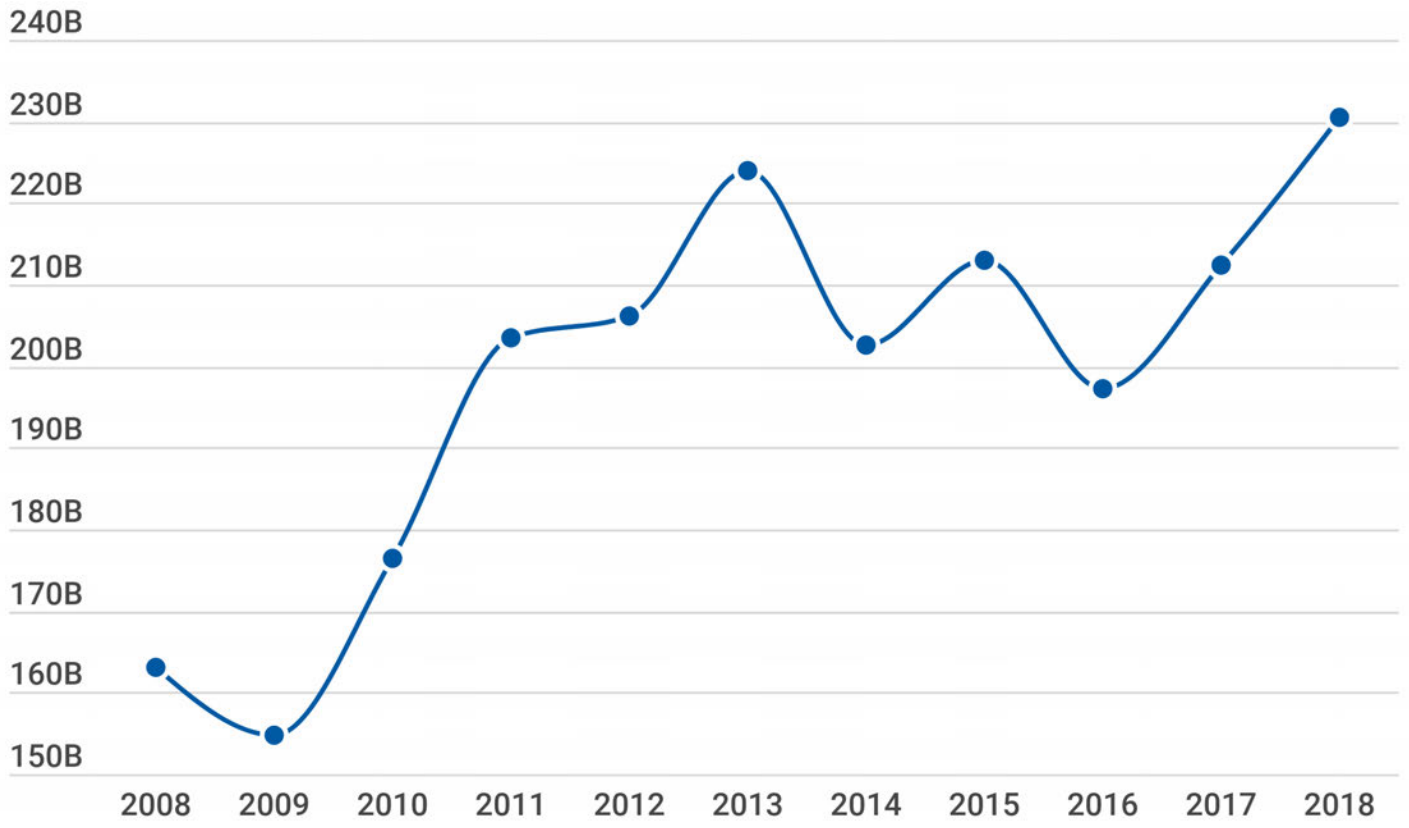
California Manufacturing Sub Sectors, USD, 2017[77]



Texas

Manufacturing accounted for 13.0% of the state's total GDP with an output of over USD$230 billion (CAD$302 billion) in 2018. While manufacturing GDP in Texas has generally been increasing over the past decade there has been some volatility, particularly between 2012 and 2017.[78]

Texas Manufacturing Output, 2008-2018, GDP in Billions of USD[79]

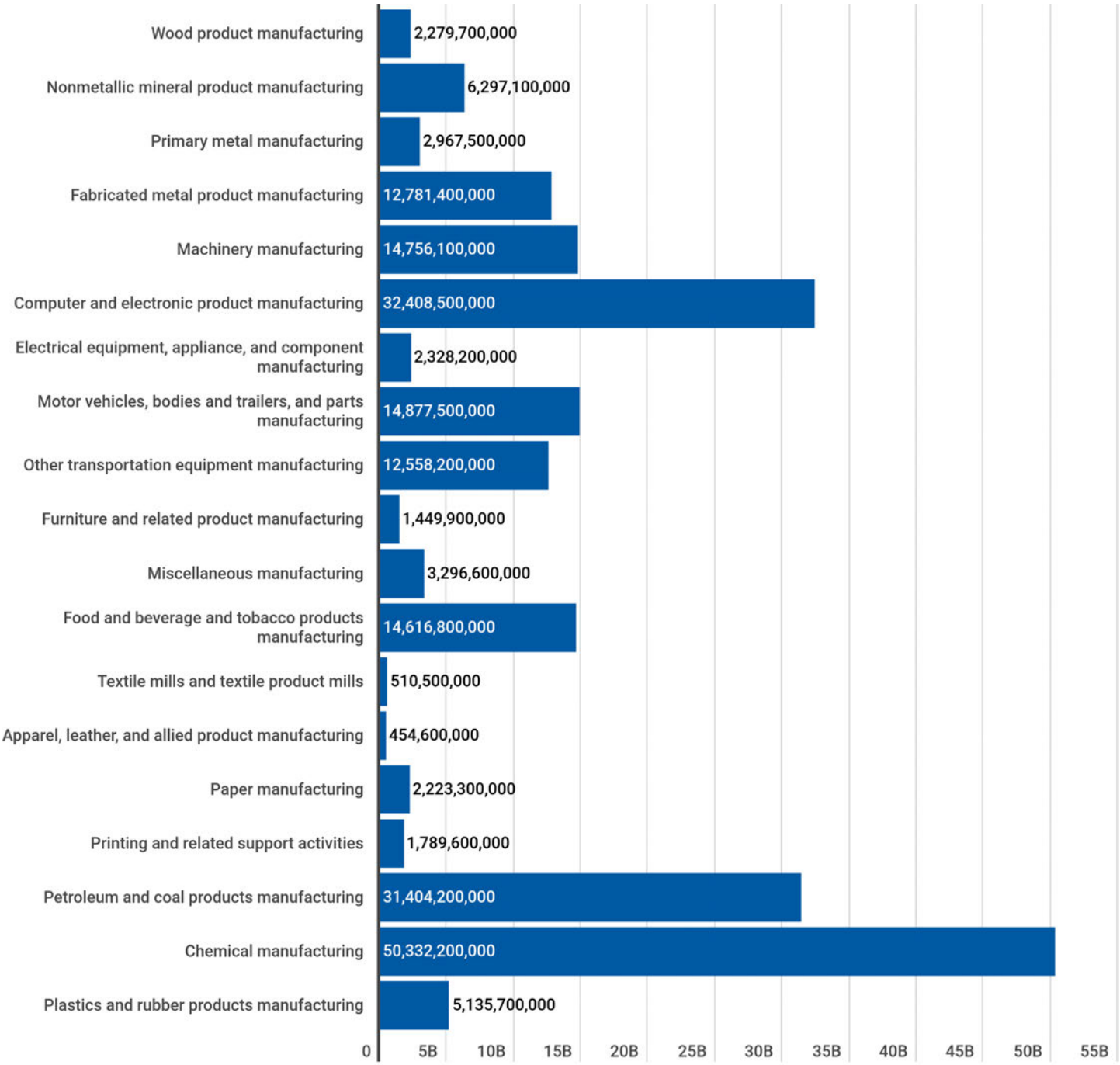


The top manufacturing companies in Texas are:[80]

Dell Technologies Inc.
Denali Incorporated
Exxon Mobil Corporation
Baker Hughes, A GE Company
Kimberly-Clark Corporation
National Oilwell Varco, Inc.
Texas Instruments Incorporated
Cornerstone Building Brands
Flowserve Corporation
Dean Foods Company

The top manufacturing subsectors in 2017 (the latest year for which data is available) were "chemical manufacturing" (USD$50.3 billion; CAD$66.1 billion), "computer and electronic product manufacturing" (USD$32.4 billion; CAD$42.5 billion), and "petroleum and coal products manufacturing" (USD$31.4 billion; CAD$41.2 billion).[81]

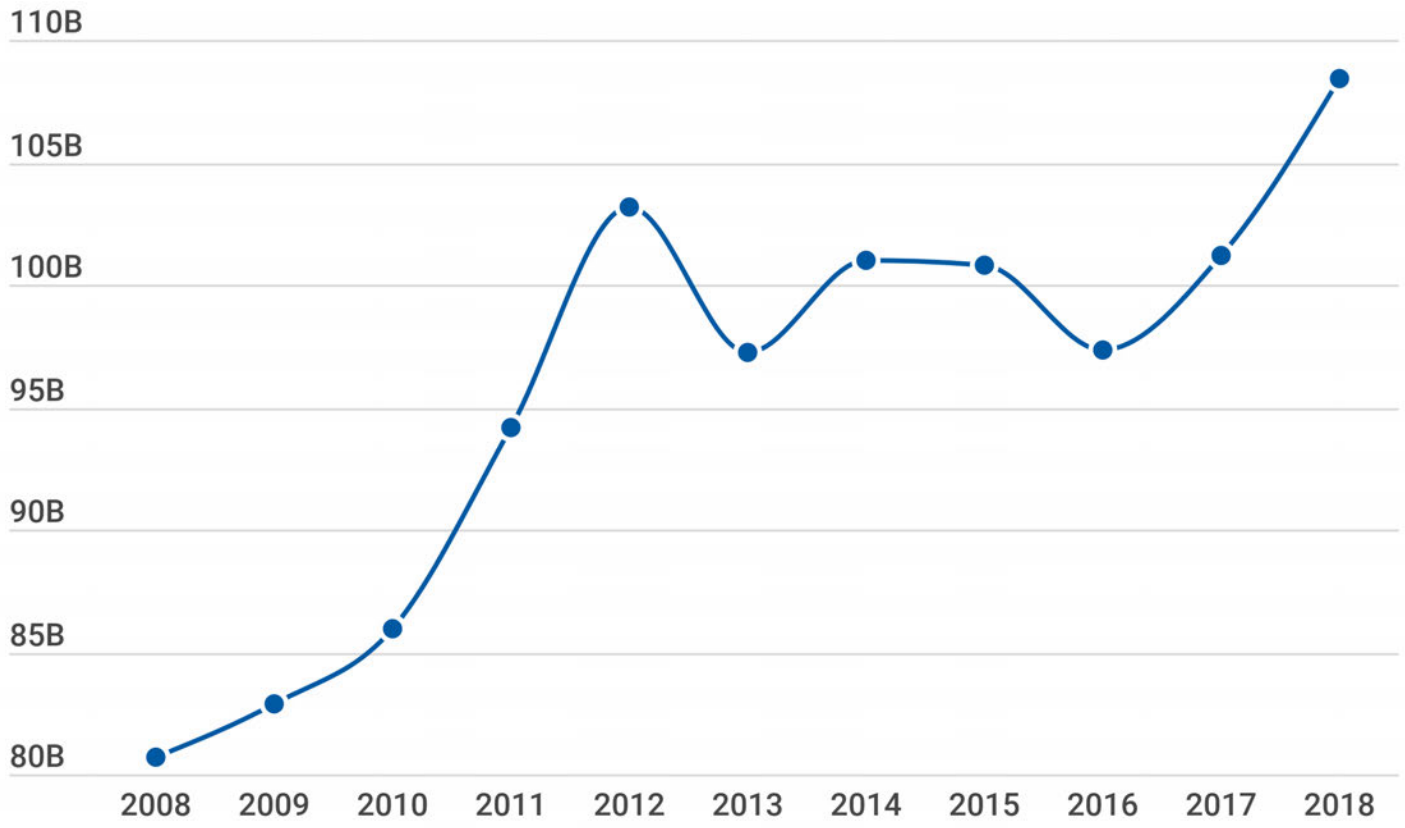
Texas Manufacturing Sub Sectors, USD, 2017[82]



Illinois

Manufacturing accounted for 12.5% of the state's total GDP with an output of over USD$108 billion (CAD$141.8 billion) in 2018. Like Texas, Illinois has seen some GDP volatility in recent years. It was only in 2018 that the state's GDP rose above its 2012 level.[83]

Illinois Manufacturing Output, 2008-2018, GDP in Billions of USD[84]

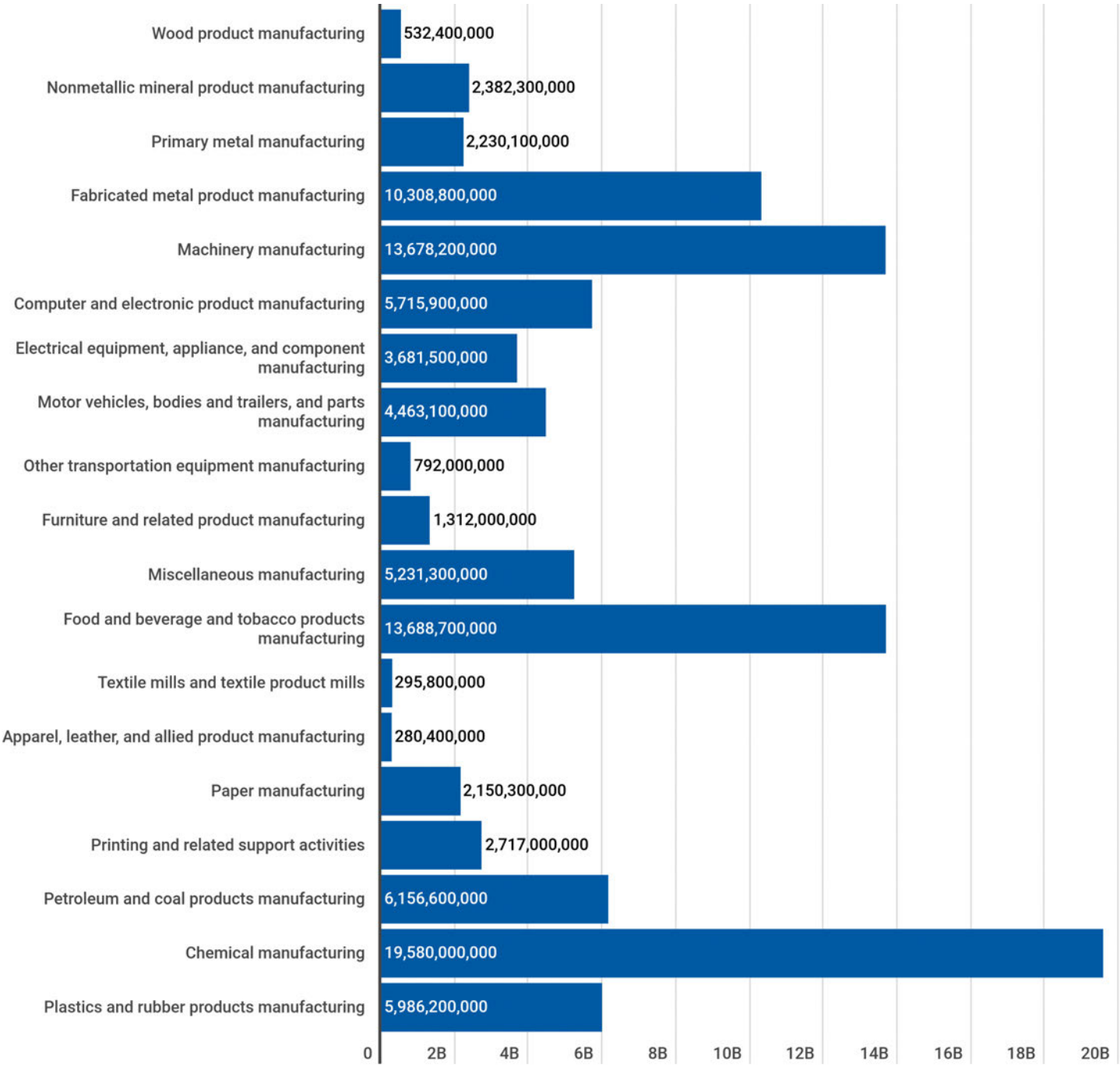


The top manufacturing companies in Illinois are:[85]

The Boeing Company
Caterpillar Inc.
Abbott Laboratories
Mondelez International, Inc.
Tenneco Inc.
Deere & Company
Illinois Tool Works Inc.
Baxter International Inc.
R. R. Donnelley & Sons Company
Archer-Daniels-Midland Company

The top manufacturing subsectors in 2017 (the latest year for which data is available) were "chemical manufacturing" (USD$19.6 billion; CAD$25.7 billion), "food and beverage and tobacco products manufacturing" (USD$13.7 billion; CAD$18.0 billion), and "machinery manufacturing" (USD$13.6 billion; CAD$17.9 billion).[86]

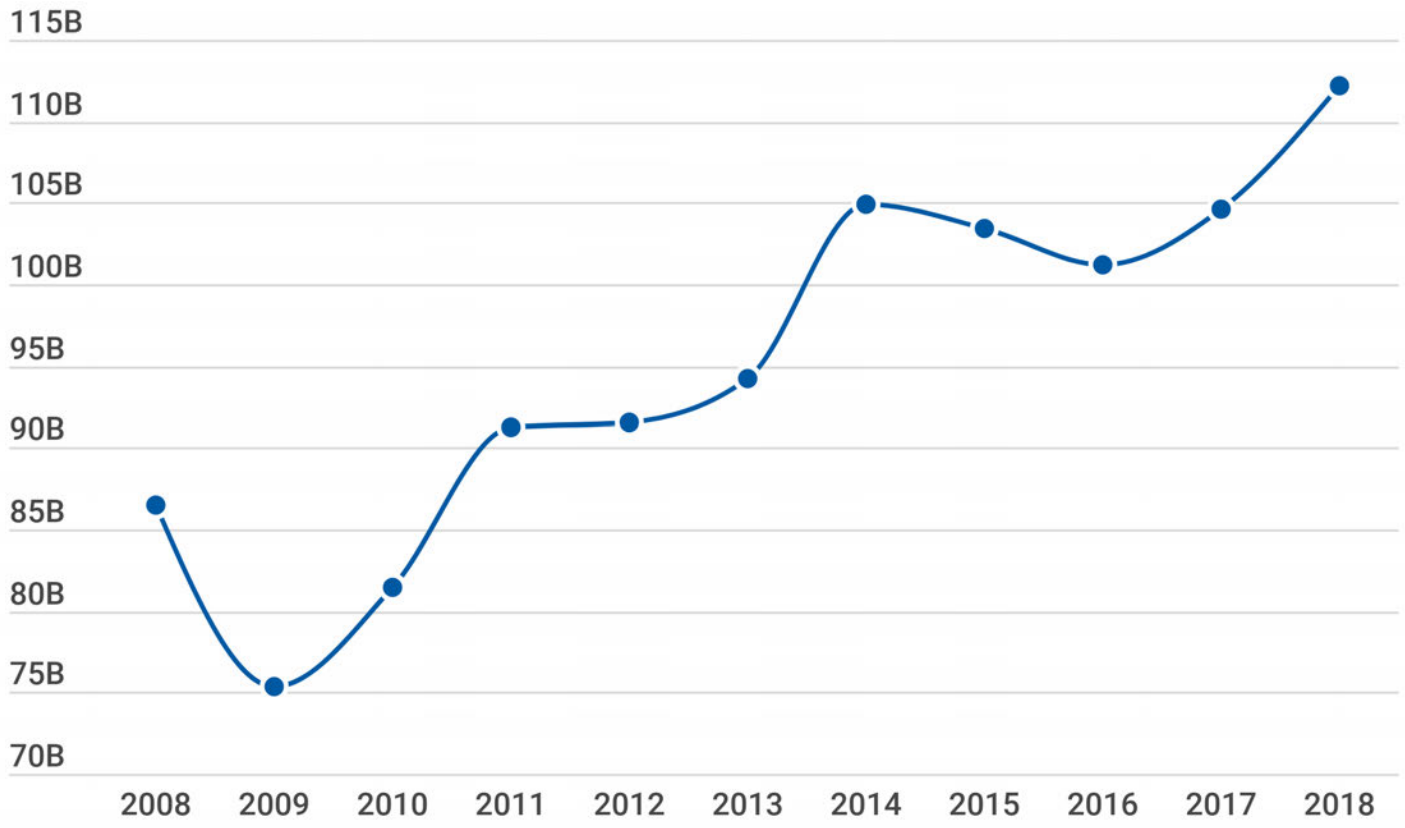
Illinois Manufacturing Sub Sectors, USD, 2017[87]



Ohio

Manufacturing accounted for 16.6% of the state's total GDP with an output of over USD$112 billion (CAD$147 billion) in 2018. Manufacturing GDP has been on a generally increasing trend since 2009, but experienced a slight dip between 2014 and 2017. As of 2018, the state seems to have recovered and continued its growth trajectory.[88]

Ohio Manufacturing Output, 2008-2018, GDP in Billions of USD[89]

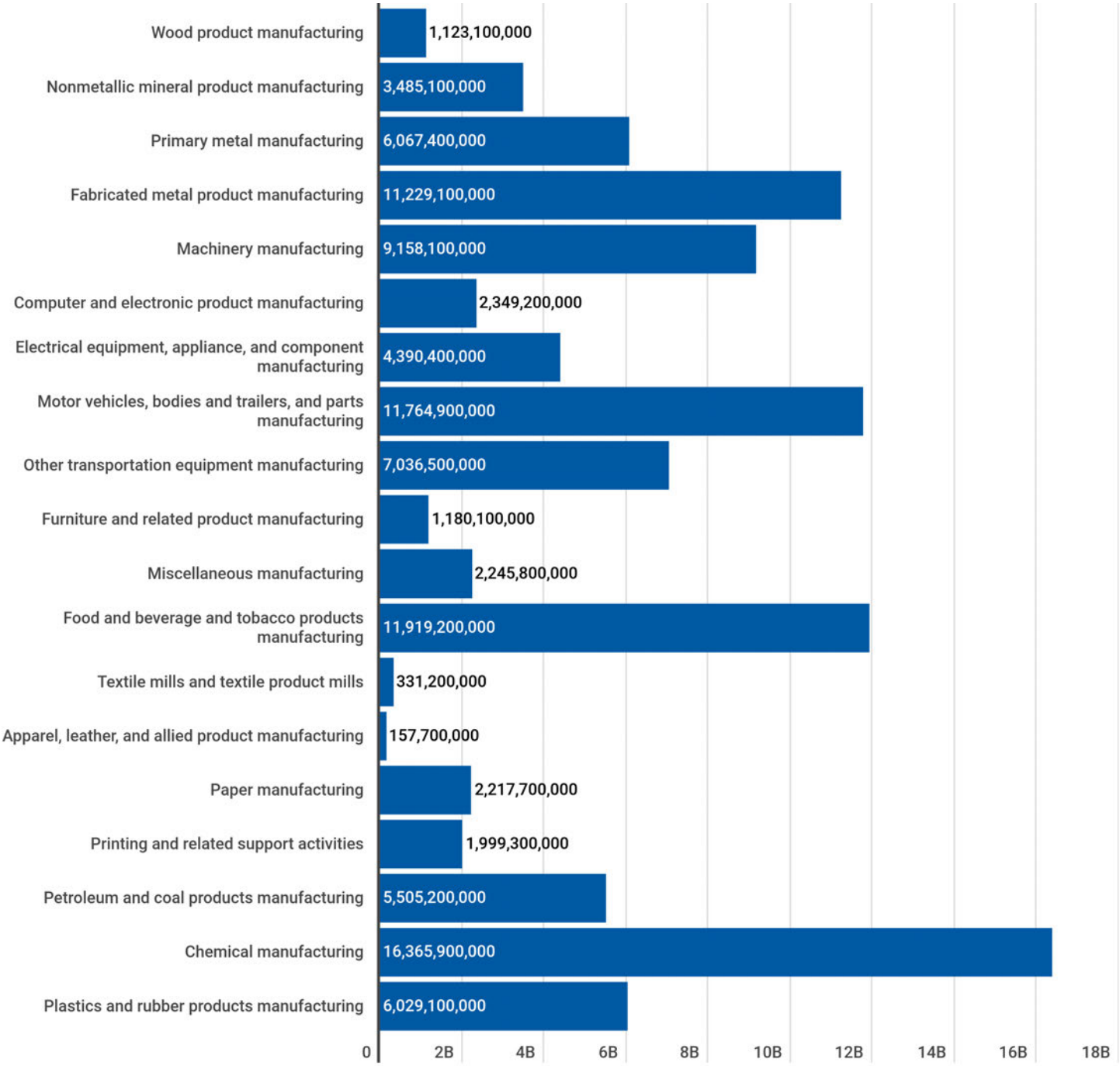


The top manufacturing companies in Ohio are:[90]

The Procter & Gamble Company
The Goodyear Tire & Rubber Company
Parker-Hannifin Corporation
The Sherwin-Williams Company
Marathon Petroleum Corporation
Dana Incorporated
Owens-Illinois, Inc.
Diebold Nixdorf, Incorporated
Owens Corning
Mettler-Toledo International Inc.

The top manufacturing subsectors in 2017 (the latest year for which data is available) were "chemical manufacturing" (USD$16.4 billion; CAD$21.5 billion), "food and beverage and tobacco products manufacturing" (USD$11.9 billion; CAD$15.6 billion), and "motor vehicles, bodies and trailers, and parts manufacturing" (USD$11.8 billion; CAD$15.5 billion).[91]

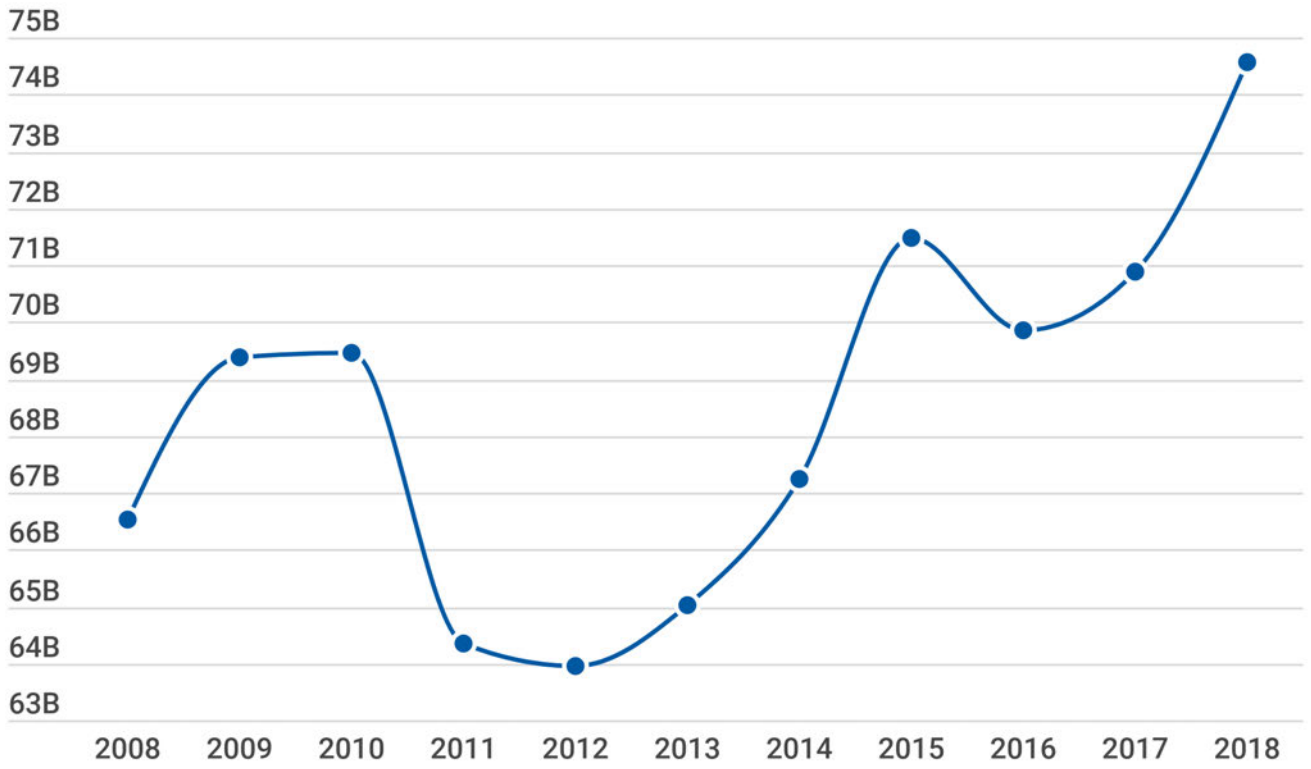
Ohio Manufacturing Sub Sectors, USD, 2017[92]



New York

Manufacturing accounted for 4.4% of the state's total GDP with an output of nearly USD$75 billion (CAD$98 billion) in 2018. While the level of manufacturing GDP has increased by nearly USD$10 billion (CAD$13 billion) compared to a decade prior, there have been significant decline periods, most notably between 2010 and 2011. Manufacturing has been increasing since 2016 and in 2018 it rose significantly over previous years.[93]

New York Manufacturing Output, 2008-2018, GDP in Billions of USD[94]

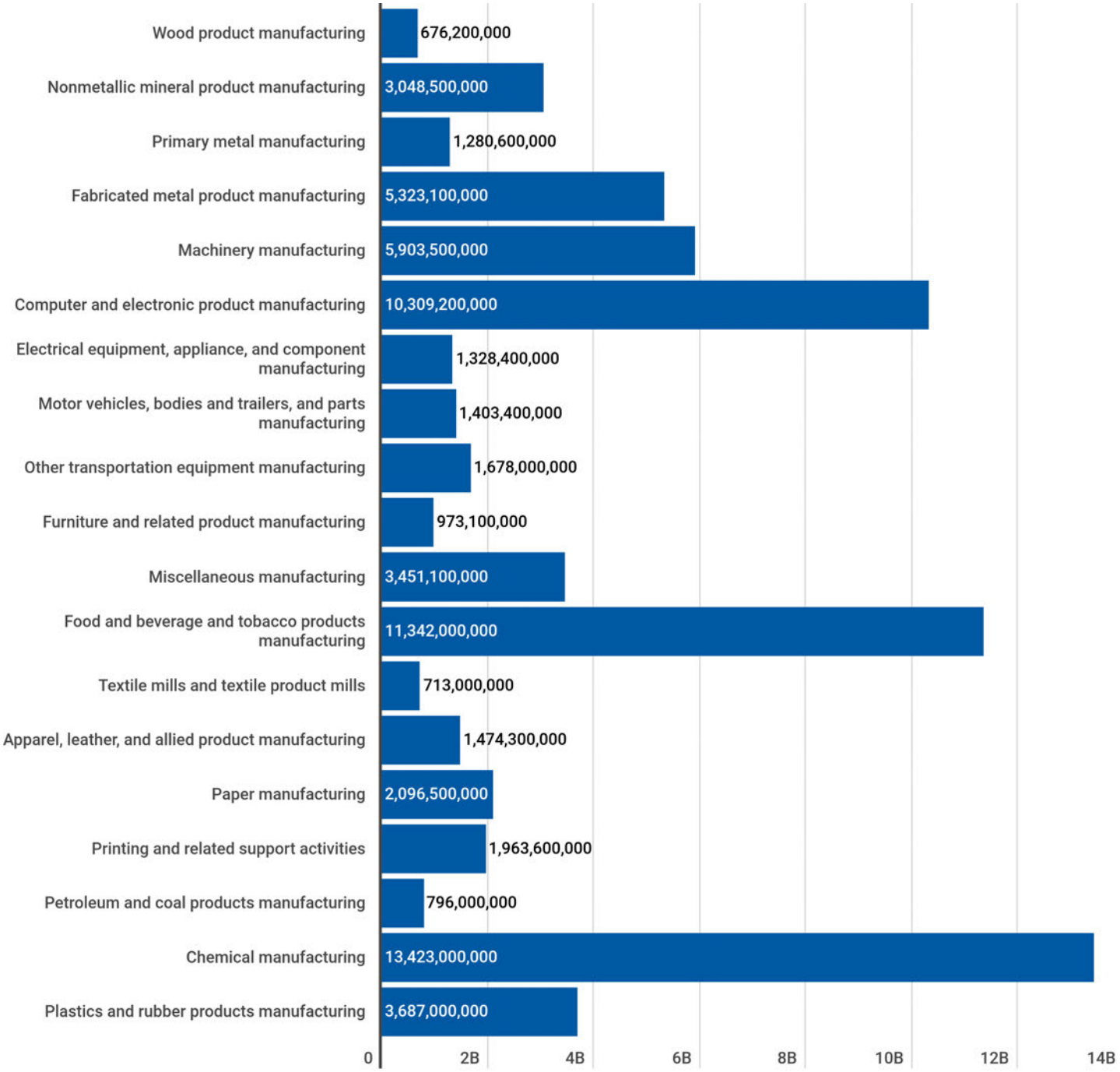


The top manufacturing companies in New York are:[95]

PepsiCo, Inc.
Pfizer Inc.
Philip Morris International Inc.
Corning Incorporated
The Estee Lauder Companies Inc
Arconic Inc.
PVH Corp.
Colgate-Palmolive Company
L3 Technologies Inc.
Bristol-Myers Squibb Company

The top manufacturing subsectors in 2017 (the latest year for which data is available) were "chemical manufacturing" (USD$13.4 billion; CAD$17.6 billion), "food and beverage and tobacco products manufacturing" (USD$11.3 billion; CAD$14.8 billion), and "computer and electronic product manufacturing" (USD$10.3 billion; CAD$13.5 billion).[96]

New York Manufacturing Sub Sectors, USD, 2017[97]



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NSBI is dedicated to helping Nova Scotia companies enter and grow in markets around the world. Our team of sector and market specialists bring the intelligence and insights companies need to make informed export decisions.

Endnotes

1 US Department of Commerce - Bureau of Economic Analysis, 2019. Regional Data – GDP and Personal Income, Annual Gross Domestic Product (GDP) by State. GDP in current dollars (SAGDP2), NAICS (1997-forward), Area: California, Texas, Illinois, Ohio, New York. Statistic: Manufacturing (and all sub-industries). Unit of Measure: Levels. Years: 2008-2018. Accessed June 12, 2019.

2 National Association of Manufacturers, 2019. NAM Manufacturers' Outlook Survey Second Quarter 2019. Pg. 1-4

3 IBISWorld, 2019. Industry Report 33441a - Semiconductor & Circuit Manufacturing in the US. Pg. 5

4 Ibid.

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6 Ibid, 38.

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59 Ibid, 19.

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63 Ibid, 32.

64 Ibid, 16-17.

65 Ibid, 16-17.

66 Ibid, 20.

67 Ibid, 26.

68 Ibid, 38.

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70 Ibid, 19.

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73 Ibid.

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75 D&B Hoovers, 2019. Accessed March 14, 2019.

76 US Department of Commerce - Bureau of Economic Analysis, 2019. Regional Data – GDP and Personal Income, Annual Gross Domestic Product (GDP) by State. GDP in current dollars (SAGDP2), NAICS (1997-forward), Area: California, Texas, Illinois, Ohio, New York. Statistic: Manufacturing (and all sub-industries). Unit of Measure: Levels. Years: 2008-2018. Accessed June 12, 2019.

77 Ibid.

78 Ibid.

79 Ibid.

80 D&B Hoovers, 2019. Accessed March 14, 2019.

81 US Department of Commerce - Bureau of Economic Analysis, 2019. Regional Data – GDP and Personal Income, Annual Gross Domestic Product (GDP) by State. GDP in current dollars (SAGDP2), NAICS (1997-forward), Area: California, Texas, Illinois, Ohio, New York. Statistic: Manufacturing (and all sub-industries). Unit of Measure: Levels. Years: 2008-2018. Accessed June 12, 2019.

82 Ibid.

83 Ibid.

84 Ibid.

85 D&B Hoovers, 2019. Accessed March 14, 2019.

86 US Department of Commerce - Bureau of Economic Analysis, 2019. Regional Data – GDP and Personal Income, Annual Gross Domestic Product (GDP) by State. GDP in current dollars (SAGDP2), NAICS (1997-forward), Area: California, Texas, Illinois, Ohio, New York. Statistic: Manufacturing (and all sub-industries). Unit of Measure: Levels. Years: 2008-2018. Accessed June 12, 2019.

87 Ibid.

88 Ibid.

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96 US Department of Commerce - Bureau of Economic Analysis, 2019. Regional Data – GDP and Personal Income, Annual Gross Domestic Product (GDP) by State. GDP in current dollars (SAGDP2), NAICS (1997-forward), Area: California, Texas, Illinois, Ohio, New York. Statistic: Manufacturing (and all sub-industries). Unit of Measure: Levels. Years: 2008-2018. Accessed June 12, 2019.

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