

# MANUFACTURING IN IOWA



JANUARY 2018

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## HIGHLIGHTS

- Iowa is home to approximately 6,080 manufacturing firms.
- Manufacturing contributed \$34.0 billion to Iowa's economy in 2016, representing 18.4 percent of the state's total gross domestic product (GDP).
- Iowa ranks seventh among all states in its percentage of GDP from manufacturing.
- The manufacturing sector's 220,989 jobs accounted for 10.6 percent of Iowa's total employment in 2016.
- More than half (53.4 percent) of Iowa's manufacturing jobs are located in its non-metropolitan counties.
- Earnings from manufacturing jobs account for 12.1 percent of total earnings in Iowa's metropolitan areas and 24.0 percent of total earnings in non-metropolitan regions.
- The average manufacturing job in Iowa paid \$56,080 in wages and salaries in 2016.
- Iowa exported \$10.35 billion worth of manufactured goods to other countries in 2016.

**IOWA STATE UNIVERSITY**

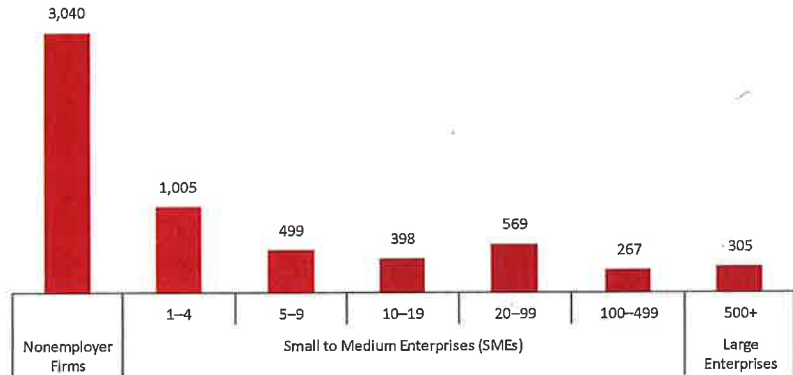
Office of Economic Development and Industry Relations  
College of Engineering

### NUMBER OF FIRMS

Iowa is home to approximately 6,080 manufacturing firms operating from 6,570 physical establishments throughout the state.

- A large fraction of Iowa's manufacturing firms are small proprietorships or partnerships with no paid employees other than the principals. Known as "nonemployer firms," these establishments comprise 50 percent of Iowa's manufacturing firms.
- 45 percent of Iowa's manufacturing firms are owned by small or medium-sized enterprises (SMEs) with fewer than 500 paid employees.
- Large manufacturing enterprises, with 500 or more employees, account for 5 percent of Iowa's manufacturing firms.

**NUMBER OF IOWA MANUFACTURING FIRMS BY EMPLOYMENT SIZE OF THE PARENT ENTERPRISE**



Source: U.S. Census Bureau

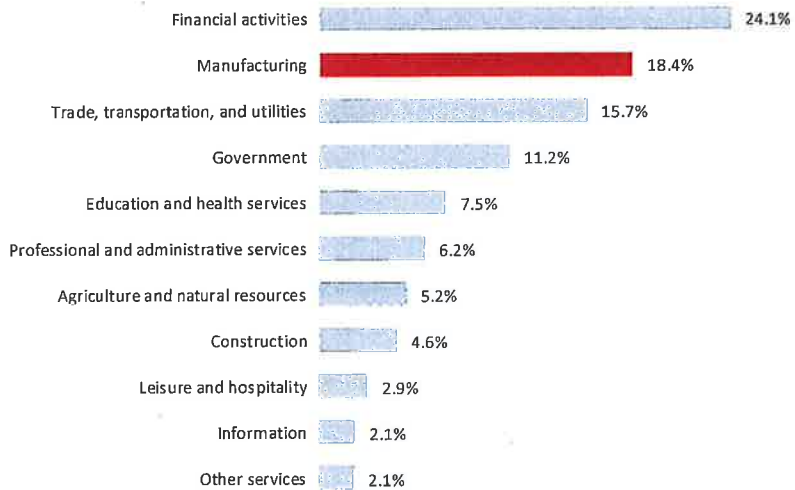
### GROSS DOMESTIC PRODUCT

Gross domestic product (GDP) measures the contributions of labor and capital to the market value of goods and services produced in a state. The total GDP for Iowa's industries in 2016 was \$185.2 billion.

The manufacturing sector contributed \$34.0 billion to Iowa's economy in 2016, representing 18.4 percent of the state's total GDP. Iowa ranks seventh among all states in the percentage of GDP derived from the manufacturing sector.

When measured by GDP size, manufacturing ranks second among Iowa's major economic sectors. Manufacturing ranks fifth in GDP size among major economic sectors nationally.

**PERCENTAGE OF IOWA GDP BY MAJOR SECTOR**



Source: U.S. Bureau of Economic Analysis

Note: Agriculture and natural resources industries include production agriculture, agricultural services, forestry, fishing, hunting, and mining. Activities such as grain processing, ethanol production, meat slaughtering and processing, agricultural chemical and fertilizer production, and agricultural equipment manufacturing are classified within the manufacturing sector, per national industrial accounting standards. The financial activities sector includes finance, insurance, and real estate industries.

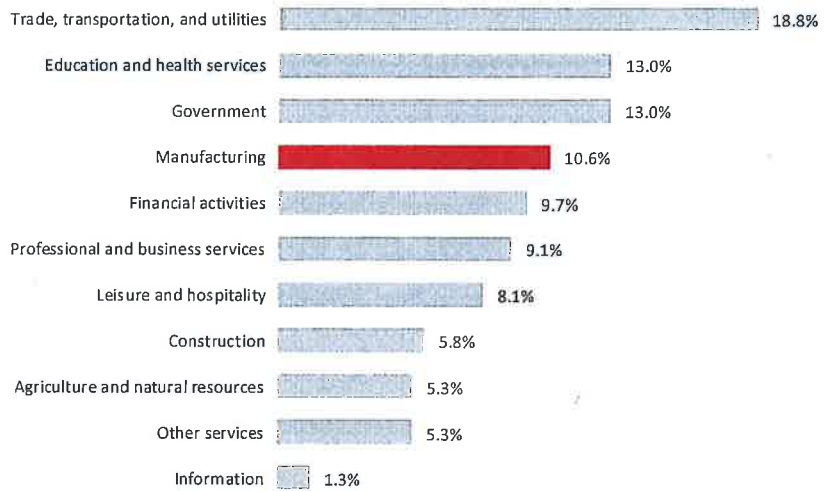
**EMPLOYMENT**

Iowa's manufacturing sector had 220,989 jobs in 2016, accounting for 10.6 percent of the state's total employment. In the United States, manufacturing accounted for 6.8 percent of total employment.

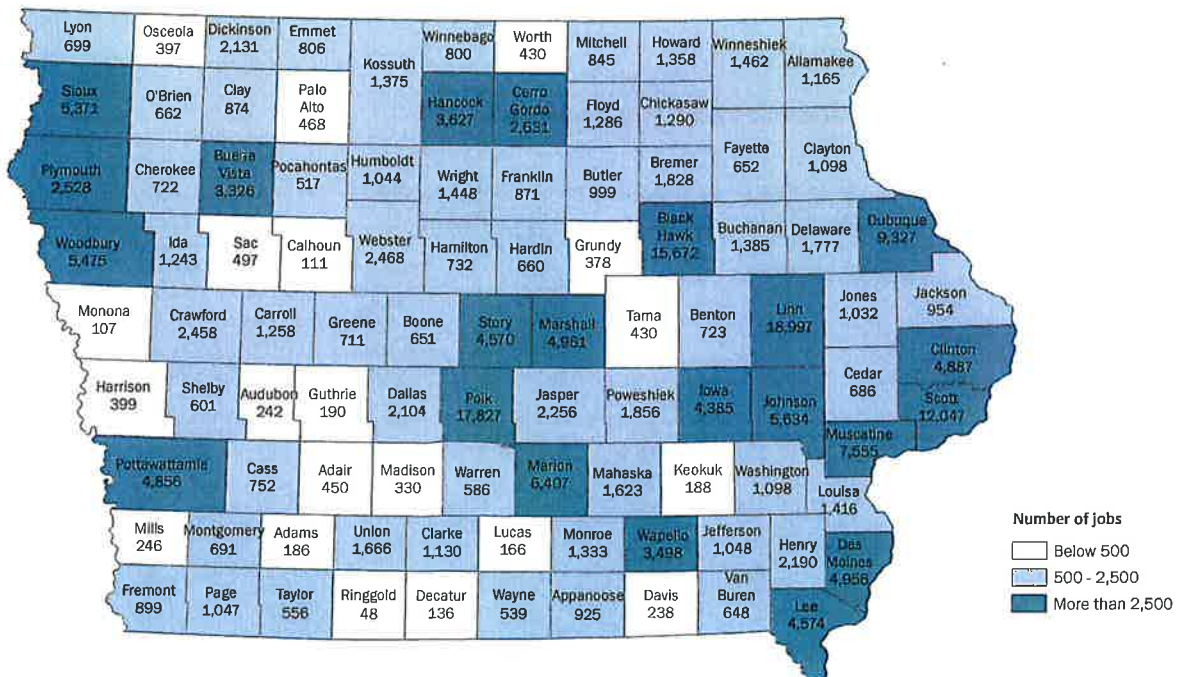
Measured by employment size, manufacturing ranks fourth among Iowa's major economic sectors. In the United States, manufacturing ranks seventh among major sectors.

More than half (53.4 percent) of Iowa's manufacturing jobs are located in non-metropolitan areas. By county, manufacturing employment was highest in Linn (18,405 jobs), followed by Polk (17,431 jobs).

**PERCENTAGE OF IOWA JOBS BY MAJOR SECTOR**



**NUMBER OF MANUFACTURING JOBS BY COUNTY**



Source: U.S. Bureau of Economic Analysis

Note: These employment statistics count the number of full-time and part-time jobs, as opposed to the number of employed persons.

## IOWA'S DIVERSE MANUFACTURING SECTOR

### DURABLE AND NONDURABLE GOODS

Industries within the manufacturing sector are frequently grouped into two broad categories: durable goods and nondurable goods. *Durable* goods are tangible products that can be stored or inventoried and that have an average life of at least three years. *Nondurable* goods have an average life of less than three years.

Iowa's durable goods industries account for a higher fraction of jobs and GDP than nondurable goods industries. Durable goods production accounts for 50.6 percent of Iowa's manufacturing GDP and 58.5 percent of its manufacturing jobs. Nationally, durable goods production accounts for 54.0 percent of manufacturing GDP and 62.4 percent of manufacturing jobs.

### SPECIALIZATION BY INDUSTRY

Areas of relative industrial specialization within the manufacturing sector may be identified using "location quotients," which divide a state's percentage of employment in a given industry by that same industry's percentage of U.S. employment. A location quotient greater than one indicates specialization and suggests the state has a relative competitive advantage in that industry. Iowa demonstrates relative specialization in the following manufacturing industries: machinery, food and beverages, wood products, primary metals, and furniture and related products.

#### DURABLE GOODS EMPLOYMENT

Machinery.....	38,625
Fabricated metals.....	21,140
Transportation equipment.....	13,442
Computers and electronics.....	12,231
Wood products.....	9,219
Furniture and related products.....	7,415
Primary metals.....	7,082
Electrical equipment and appliances...	6,717
Nonmetallic mineral products.....	5,896
Miscellaneous.....	4,279
<b>Total, durable goods.....</b>	<b>126,046</b>

#### NONDURABLE GOODS EMPLOYMENT

Food and beverages.....	55,489
Plastics and rubber products.....	11,525
Chemicals.....	11,347
Printing and related.....	6,935
Paper.....	3,687
Apparel.....	1,532
Textile and textile product mills.....	854
Petroleum and coal.....	389
<b>Total, non-durable goods.....</b>	<b>91,758</b>

## IOWA'S MANUFACTURING INDUSTRIES RANKED BY GDP

	2015 GDP (\$ millions)	% of Iowa Manufacturing Totals			Comparative U.S. Percentages			Location Quotient
		GDP	Jobs	Establishments	GDP	Jobs	Establishments	
Machinery.....	7,790	22.7%	17.5%	8.3%	6.7%	8.6%	6.2%	2.04
Food and beverages.....	7,249	21.1%	25.1%	15.1%	12.4%	14.5%	13.5%	1.73
Chemicals.....	6,466	18.8%	5.1%	4.2%	17.4%	6.5%	4.3%	0.79
Computers and electronics.....	1,964	5.7%	5.5%	1.6%	12.8%	8.4%	3.5%	0.66
Fabricated metals.....	1,927	5.6%	9.6%	15.3%	6.7%	11.5%	14.4%	0.83
Transportation equipment.....	1,599	4.7%	6.1%	3.3%	13.5%	12.6%	3.5%	0.48
Plastics and rubber products.....	1,186	3.5%	5.2%	3.1%	3.7%	5.5%	2.6%	0.95
Primary metals.....	958	2.8%	3.2%	1.6%	2.5%	2.9%	1.4%	1.10
Nonmetallic mineral products.....	913	2.7%	2.7%	5.9%	2.4%	3.3%	3.7%	0.81
Paper.....	829	2.4%	1.7%	1.0%	2.7%	2.9%	0.9%	0.58
Furniture and related products.....	811	2.4%	3.4%	4.6%	1.3%	3.3%	5.1%	1.02
Electrical equipment and appliances.....	766	2.2%	3.0%	1.2%	2.6%	3.1%	2.0%	0.99
Wood products.....	652	1.9%	4.2%	7.2%	1.3%	3.3%	6.1%	1.26
Printing and related.....	493	1.4%	3.1%	7.3%	1.8%	3.9%	8.1%	0.81
Miscellaneous.....	381	1.1%	1.9%	13.5%	3.8%	5.5%	15.6%	0.35
Petroleum and coal.....	277	0.8%	0.2%	0.4%	7.3%	0.9%	0.6%	0.20
Textile and textile product mills.....	54	0.2%	0.4%	2.0%	0.8%	1.9%	2.2%	0.20
Apparel.....	46	0.1%	0.7%	4.2%	0.4%	1.6%	6.2%	0.43

### AVERAGE MANUFACTURING EARNINGS PER JOB

- Iowa’s manufacturing workers earned an average of \$56,080 in wages and salaries in 2016. Workers across all sectors of Iowa’s economy earned an average of \$44,910 in wages and salaries per job.
- Average earnings per job in Iowa’s manufacturing sector were 86.5 percent of the U.S. average for manufacturing jobs. Iowa’s all-sector average earnings per job were 83.8 percent of the U.S. average.
- Manufacturing ranked third among Iowa’s major sectors in average wage and salary earnings per job.
- By detailed manufacturing industry, average earnings were highest in computers and electronics manufacturing, at \$89,541 per job.
- Manufacturing wages vary across the state, with higher levels often found in and near metropolitan areas and larger cities. In 2016, the top three counties by average manufacturing wages and salaries were Linn (\$85,764), Fremont (\$70,804), and Webster (\$66,186).
- Manufacturing jobs in 20 of Iowa’s 99 counties paid more than the statewide sector average of \$56,080 in wages and salaries per job in 2016. Manufacturing pay levels in 34 counties were below 80 percent of the statewide sector average.

#### AVERAGE WAGE AND SALARY EARNINGS PER JOB IN IOWA (\$000S)

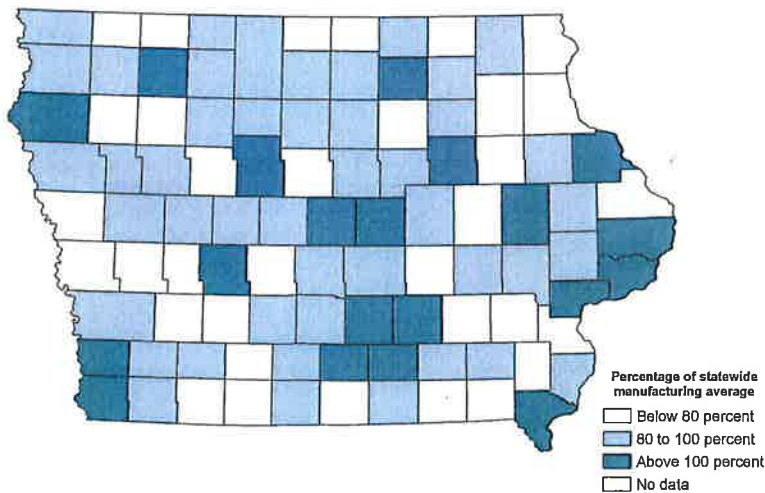
##### By Major Sector

Average for all sectors.....	44.9
Financial activities.....	68.9
Construction.....	58.1
<b>Manufacturing.....</b>	<b>56.1</b>
Information.....	53.9
Professional and business services.....	50.5
Government.....	48.0
Education and health services.....	41.4
Agriculture and natural resources.....	40.3
Trade, transportation, and utilities.....	37.8
Other services.....	32.6
Leisure and hospitality.....	15.8

##### By Manufacturing Industry

Computers and electronics.....	89.5
Chemicals.....	69.5
Petroleum and coal.....	67.5
Primary metals.....	66.0
Machinery.....	61.7
Paper.....	58.9
Nonmetallic minerals.....	54.0
Food.....	52.0
Wood products.....	50.8
Furniture and related.....	50.3
Plastics and rubber products.....	50.1
Transportation equipment.....	50.0
Fabricated metals.....	50.0
Electrical equipment and appliances.....	49.7
Miscellaneous.....	45.7
Printing and related.....	42.2
Textile mills.....	41.1
Beverage and tobacco.....	38.3
Apparel.....	38.0
Leather and allied products.....	34.1
Textile product mills.....	31.8

### AVERAGE MANUFACTURING WAGES BY COUNTY



Sources: U.S. Bureau of Economic Analysis, U.S. Bureau of Labor Statistics

## EXPORTS FROM IOWA

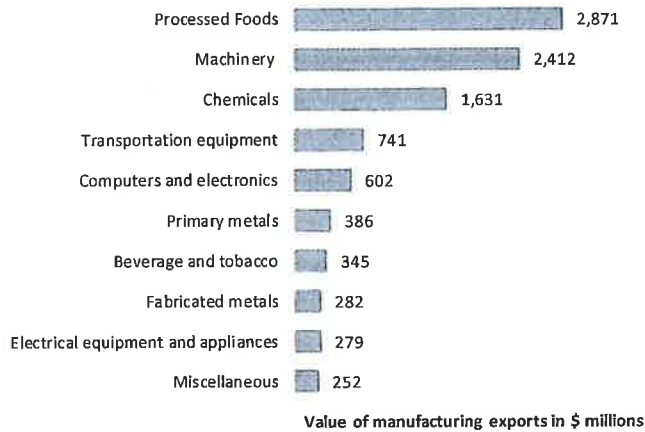
### BY TYPE OF GOOD

In 2016, the state of Iowa was the transportation origin for \$12.1 billion worth of merchandise exports including agricultural commodities, raw materials, and manufactured goods. Manufactured goods accounted for 86 percent of the state's total exports.

With \$10.35 billion worth of manufactured exports in 2016, Iowa ranked 28th among all states on this measure (see Export Data Notes for information about export measurement).

Iowa's single largest manufacturing export industry was processed foods manufacturing, which accounted for 27.7 percent of the state's total manufacturing exports.

### IOWA'S TOP 10 MANUFACTURING EXPORT INDUSTRIES

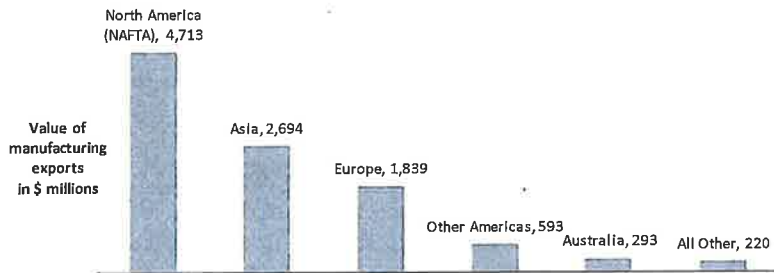


### BY DESTINATION

The greatest share (45.5 percent) of Iowa's manufactured exports are shipped to its trading partners in North America. Asia and Europe follow as the top importers of manufactured goods from Iowa.

Canada was the top destination country for Iowa's manufactured exports in 2016, followed by Mexico and Japan.

### DESTINATIONS OF IOWA MANUFACTURING EXPORTS



### EXPORT DATA NOTES

#### Origin of Movement

It is important to note that Iowa's export totals do not reflect the value of agricultural and other goods that were originally produced in Iowa but ultimately exported from other states. The trade statistics on this page are based on origin of movement (OM) data from the U.S. Department of Commerce. The OM method credits exports to the state where the goods began their final journey to the point of exit from the United States, as specified on official U.S. export declarations filed by shippers. The place from which merchandise began its export journey is not necessarily the place where the merchandise was produced. In many cases, the OM is the location of a distributor, warehouse, or cargo processing facility. Consequently, OM cannot be used to reliably describe the production origin of U.S. exports.

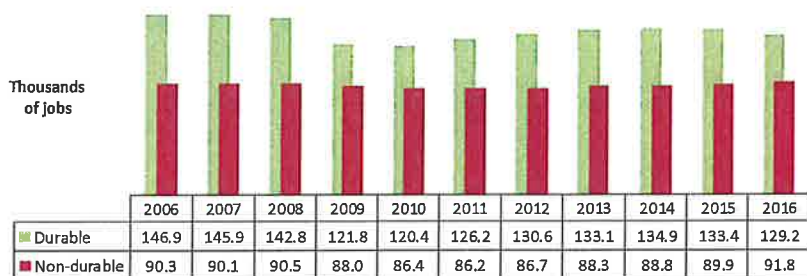
Source: ITA Trade Stats Express, Office of Trade and Industry Information, International Trade Administration, U.S. Department of Commerce

### TOP 10 DESTINATION COUNTRIES FOR IOWA MANUFACTURING EXPORTS

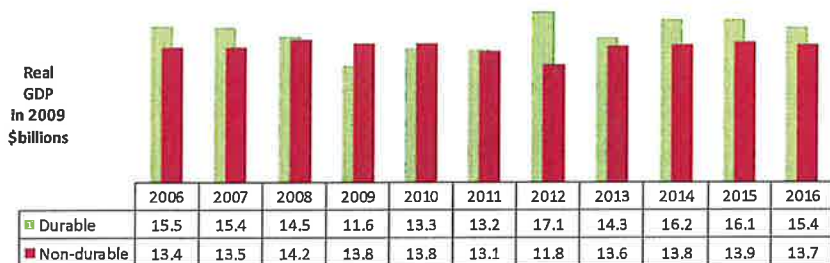
Exports (\$ millions)	
Canada.....	3,313
Mexico.....	1,401
Japan.....	900
China.....	435
Germany.....	425
Australia.....	293
France.....	267
South Korea.....	248
Brazil.....	248
Hong Kong.....	225

**RECENT TRENDS IN IOWA MANUFACTURING**

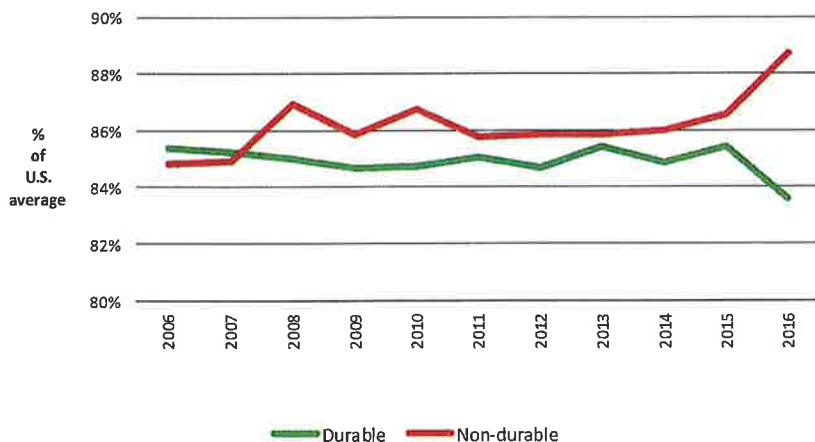
**MANUFACTURING JOBS**



**MANUFACTURING GDP**



**IOWA MANUFACTURING WAGE & SALARY EARNINGS PER JOB COMPARED TO U.S. AVERAGES**



**IOWA EMPLOYMENT GAINS AND LOSSES IN THOUSANDS OF JOBS, 2006 - 2016**

**BY MAJOR SECTOR**

Financial activities	37.5
Education and health services	31.1
Professional and business services	22.8
Leisure and hospitality	10.6
Trade, transportation, and utilities	8.9
Agriculture and natural resources	8.0
Government	7.9
Other services	4.7
Construction	2.1
Information	(9.5)
Manufacturing	(16.2)

**BY DETAILED MANUFACTURING INDUSTRY**

<b>Durable Goods</b>	
Machinery	1.3
Computers and electronics	(0.4)
Nonmetallic mineral products	(0.7)
Fabricated metals	(0.7)
Primary metals	(1.1)
Electrical equip. & appliances	(3.2)
Furniture and related products	(3.3)
Wood products	(4.2)
Transportation equipment	(6.6)
<b>Non-durable Goods</b>	
Food and beverages	3.6
Chemicals	3.2
Textile and textile product mills	0.0
Petroleum and coal	0.0
Paper	(0.7)
Apparel	(0.8)
Plastics and rubber products	(1.9)
Printing and related	(2.0)
<b>Miscellaneous Manufacturing</b>	<b>(1.9)</b>

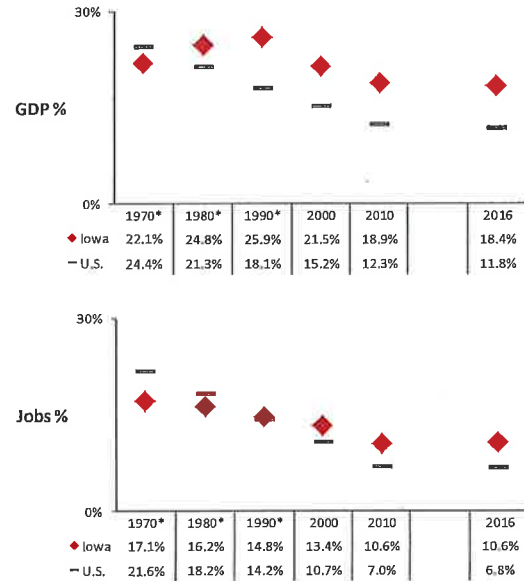
Source: U.S. Bureau of Economic Analysis

### MANUFACTURING SECTOR PERCENTAGE SHARES OF GDP AND EMPLOYMENT

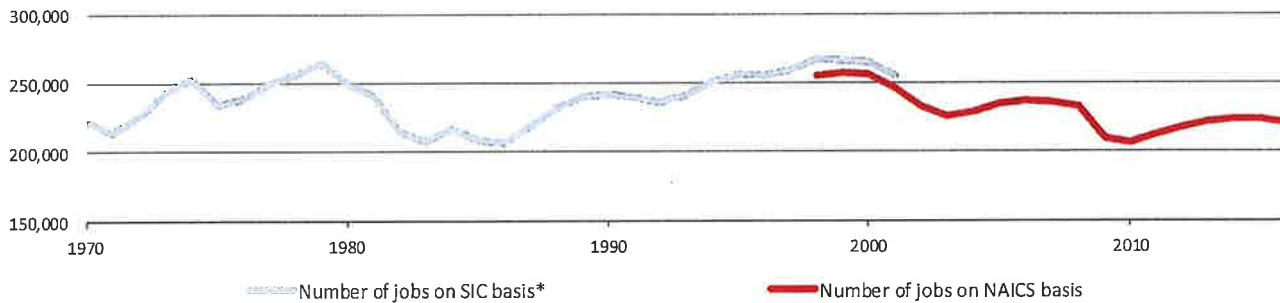
Manufacturing has accounted for a declining share of U.S. GDP in recent decades, with the manufacturing sector’s contribution falling from 24.4 percent to 12.3 percent between 1970 and 2010. In 2016, the national percentage was 11.8 percent.

In Iowa, the share of total GDP contributed by manufacturing dropped from 22.1 percent in 1970 to 18.9 percent in 2010. The manufacturing sector’s share fell to 18.4 percent in 2016.

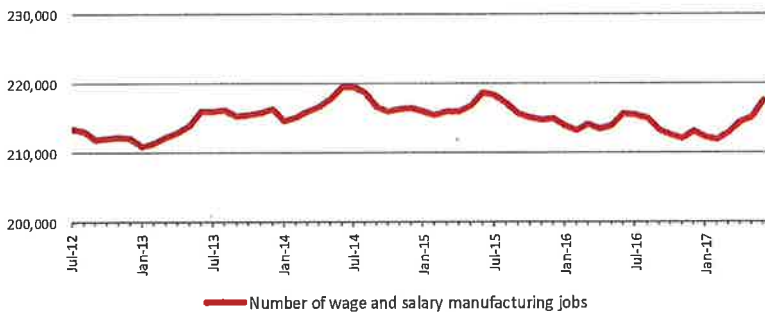
Manufacturing activity also requires a smaller share of jobs compared to decades past. Manufacturing jobs accounted for 21.6 percent of total U.S. jobs in 1970, compared to 7.0 percent in 2010. The share was slightly lower at 6.8 percent nationally in 2016. In Iowa, manufacturing jobs now account for 10.6 percent of total employment, compared to 10.6 percent in 2010 and 17.1 percent in 1970.



### IOWA'S HISTORICAL MANUFACTURING EMPLOYMENT



### RECENT MONTHLY MANUFACTURING JOB LEVELS IN IOWA



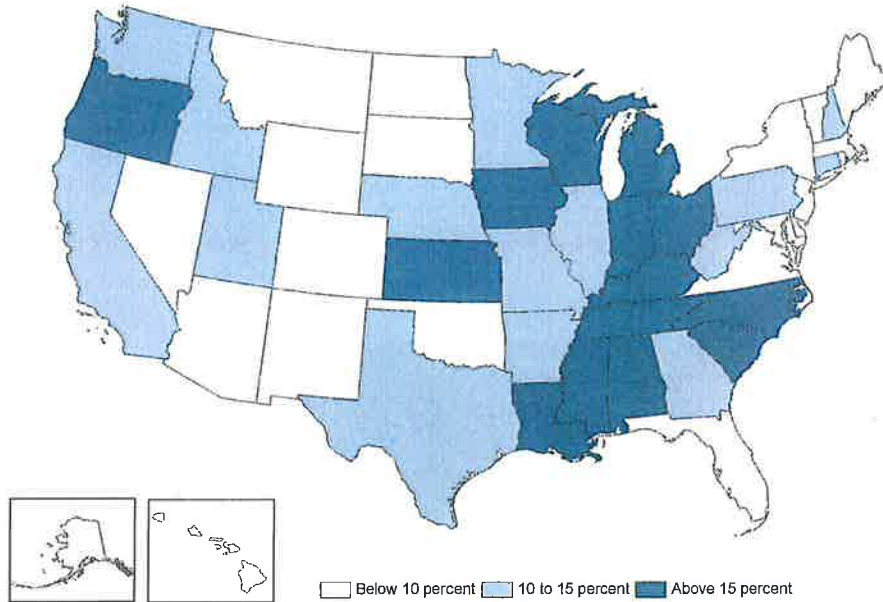
#### \*SIC and NAICS

The North American Industry Classification System (NAICS) is used by Federal statistical agencies in classifying business establishments for the purpose of collecting, analyzing, and publishing statistical data. NAICS replaced the Standard Industrial Classification (SIC) system in 1997. Historical data compiled under the SIC system, indicated with an asterisk (\*) on this page, are not directly comparable to data compiled on a NAICS basis.

Sources: U.S. Bureau of Economic Analysis and U.S. Bureau of Labor Statistics



**PERCENTAGE OF STATE GDP FROM MANUFACTURING**



**TOP 10 STATES BY % OF GDP FROM MANUFACTURING**

Indiana	28.7%
Oregon	21.7%
Louisiana	20.7%
North Carolina	19.8%
Kentucky	19.0%
Michigan	19.0%
Iowa	18.4%
Wisconsin	18.0%
Alabama	17.4%
Ohio	16.9%

Source: U.S. Bureau of Economic Analysis

**INDICATORS OF INNOVATION POTENTIAL: WHERE IOWA RANKS AMONG ALL STATES**

Iowa's economy employs 8.5 engineers for every thousand workers.

The U.S. economy demands 12.4 engineers per thousand workers.

WORKFORCE	RANK
Percentage of adults with high school diploma or higher.....	9
Percentage of adults with bachelor's degree or higher.....	36
Engineers as a percentage of the workforce.....	39
Science & engineering degrees as % of higher education degrees conferred....	42

RESEARCH AND TECHNOLOGY	RANK
Academic R&D in science & engineering fields per \$1 million in GDP.....	16
Business R&D performance as a percentage of private sector GDP.....	25
Utility patents awarded per 1,000 jobs.....	28
High-technology firms as a percentage of all business establishments.....	49

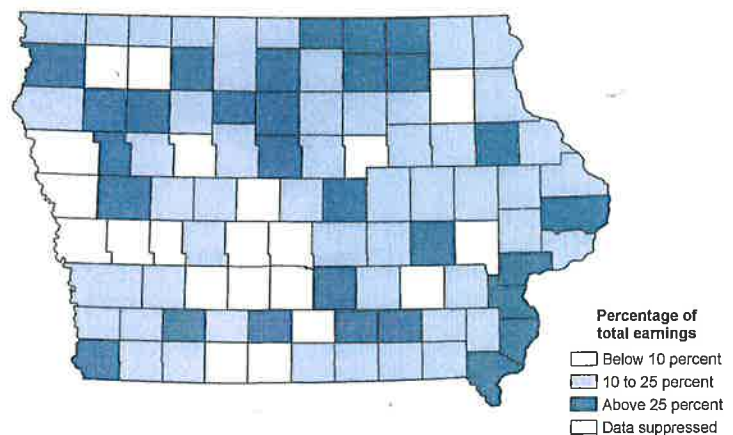
Sources: 2016 American Community Survey, U.S. Census Bureau; Science & Engineering Indicators 2016, National Science Foundation; and U.S. Patent and Trademark Office

## CONTRIBUTIONS TO LOCAL ECONOMIES

The manufacturing sector contributes to local economies in Iowa in a number of ways. Manufacturing firms pay wages to local workers, they purchase raw materials and services from local producers and firms, their profits accrue to local owners and investors, and they pay taxes to local and state governments.

- On average, manufacturing jobs account for 10.6 percent of total employment in Iowa. This fraction is lower in the state's metropolitan counties (8.1 percent) and higher in non-metropolitan counties (14.7 percent), according to data for 2016.
- Manufacturing accounts for 16.3 percent of total worker earnings in Iowa. The sector's earnings percentage exceeds its employment percentage because manufacturing jobs tend to pay higher wages than many other sectors.
- Manufacturing accounts for 12.1 percent of total earnings in Iowa's metropolitan areas and 24.0 percent of total earnings in non-metropolitan regions.
- Of Iowa's 99 counties, 29 counties derive more than one quarter of total worker earnings from manufacturing jobs.
- The top three counties by percentage of total earnings from manufacturing in 2016 were Hancock (51.2%), Iowa (48.9%), and Marion (45.9%).

### MANUFACTURING PERCENTAGE OF TOTAL EARNINGS



Source: U.S. Bureau of Economic Analysis

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The ISU Center for Industrial Research and Service (CIRAS) provides applied research, education, and technical assistance to Iowa industry through partnerships with Iowa's universities, community colleges, and government agencies. Assistance is supported in part by the DoC/NIST Hollings Manufacturing Extension Partnership, the DoD/DLA Procurement Technical Assistance Program, and the DoC/EDA University Center Program. For additional information, contact Dr. Ronald Cox at [rcox@iastate.edu](mailto:rcox@iastate.edu) or 515-294-0099.

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