

PA Manufacturing Scorecard 2018 Annual Report

On behalf of the IRC, the Allegheny Conference on Community Development (ACCD) analyzed the manufacturing sector in Pennsylvania. Among the key findings were the following:

- Pennsylvania experienced a 5.0% increase in its manufacturing Gross Regional Product from 2016 to 2017, outpacing the U.S. (4.5%) and ranking as the 8th largest in the country.
- From 2016 to 2017, manufacturing industry employment in Pennsylvania increased by 0.6% to 561,774. Nationally, manufacturing employment increased 0.9% over the same timeframe.
- The top three industries contributing to total manufacturing employment in 2017 were: Fabricated Metals with 80,125 employees (14.3%), Food with 71,622 (12.7%), and Machinery with 43,628 (7.8%). The concentration of Primary Metals manufacturing employment in Pennsylvania is over two times the national average (6.2% in PA vs 3.0% nationally).
- The following manufacturing industries experienced an increase in Pennsylvania employment from 2016 to 2017: Beverage and Tobacco (9.8%), Plastics and Rubber (3.7%), Food (2.2%), Chemical (1.3%), Fabricated Metals (1.2%), Furniture (1.2%), Miscellaneous (0.7%), and Electrical Equipment (0.3%).
- Pennsylvania lost one single manufacturing establishment between 2016 and 2017, bringing the total to 14,414. Nationally, the United States reported a slight increase of 0.9% in total manufacturing establishments. The top three industries contributing to total Manufacturing establishments in 2017 were: Fabricated Metals with 2,971 establishments (20.6%) – more than twice as many establishments as the next industry - Food with 1,320 (9.2%) and Machinery Manufacturing with 1,255 (8.7%).
- During 2016 to 2017, the following manufacturing industries in Pennsylvania saw an increase in establishments: Beverage and Tobacco (18.8%), Transportation Equipment (2.8%), Miscellaneous (0.7%), Primary Metals (0.7%), Food (0.5%), Chemical (0.5%), Plastics and Rubber (0.3%), and Printing (0.3%).
- The annual wage of a manufacturing employee for 2017 in Pennsylvania was \$61,111, 13.2% higher than the average PA annual wage, while the average US manufacturing annual wage was \$66,840. The Pennsylvania Manufacturing industry recorded a 2.2% increase in annual wages between 2016 and 2017, trailing the U.S. average, which saw an increase of 3.0%.
- In 2017, exports in PA totaled \$38.7 billion. The manufacturing industry that had the largest impact on export sales was the chemicals industry, accounting for 20.3% of total exports.

Methodology

To conduct this analysis, the ACCD focused on data from the following sources:

- Gross Regional Product: *Bureau of Economic Analysis*
- Employment: *Bureau of Labor Statistics Quarterly Census of Employment & Wages*
- Establishments: *Bureau of Labor Statistics Quarterly Census of Employment & Wages*
- Wages: *Bureau of Labor Statistics Quarterly Census of Employment & Wages*
- Exports: *International Trade Administration*

While release dates of data often vary depending on the source, in all cases the most recent data available was used.

Results

Gross Regional Product

Manufacturing is the state's 3rd largest industry in terms of Gross Regional Product (\$88.3 billion) and ranks 8th largest manufacturing sector in the country. Although Manufacturing has experienced an absolute gain since 2013, as well as surpassing Real Estate for the second largest industry in the state in 2014, it is one of three industries (Manufacturing, Wholesale Trade, and Educational Services) to have experienced periods of negative growth in the same timeframe (2015 -2016).

Gross Regional Product in Pennsylvania (in millions)							
	2013	2014	2015	2016	2017	2013 - 2017 Change	2016 -2017 Change
Professional and business services	\$ 85,066	\$ 87,612	\$ 91,550	\$ 93,223	\$ 98,788	16.1%	6.0%
Real estate and rental and leasing	\$ 82,794	\$ 85,004	\$ 87,969	\$ 89,739	\$ 92,622	11.9%	3.2%
Manufacturing	\$ 80,067	\$ 85,638	\$ 86,102	\$ 84,101	\$ 88,300	10.3%	5.0%
Government and government enterprises	\$ 68,309	\$ 69,117	\$ 70,632	\$ 71,193	\$ 73,019	6.9%	2.6%
Health care and social assistance	\$ 62,739	\$ 64,275	\$ 66,897	\$ 69,269	\$ 72,134	15.0%	4.1%
Information	\$ 45,008	\$ 42,827	\$ 43,951	\$ 49,231	\$ 51,612	14.7%	4.8%
Finance and insurance	\$ 38,843	\$ 43,751	\$ 46,188	\$ 48,332	\$ 49,323	27.0%	2.1%
Wholesale trade	\$ 40,911	\$ 42,588	\$ 43,867	\$ 42,625	\$ 43,699	6.8%	2.5%
Retail trade	\$ 34,310	\$ 33,982	\$ 35,037	\$ 35,781	\$ 36,490	6.4%	2.0%
Construction	\$ 24,290	\$ 26,297	\$ 28,284	\$ 29,615	\$ 31,357	29.1%	5.9%
Transportation and warehousing	\$ 19,857	\$ 21,069	\$ 24,476	\$ 25,556	\$ 27,046	36.2%	5.8%
Arts, entertainment, recreation, accommodation, and food services	\$ 22,160	\$ 22,892	\$ 23,914	\$ 24,990	\$ 25,951	17.1%	3.8%
Natural resources and mining	\$ 17,613	\$ 22,198	\$ 16,044	\$ 14,729	\$ 19,355	9.9%	31.4%
Educational services	\$ 16,195	\$ 16,619	\$ 17,080	\$ 17,849	\$ 18,029	11.3%	1.0%
Other services	\$ 13,987	\$ 14,619	\$ 15,504	\$ 15,728	\$ 16,128	15.3%	2.5%

Source: Bureau of Economic Analysis, 2018

Between 2007 and 2017, the state of Pennsylvania experienced an increase of 17.5% in manufacturing Gross Regional Product (GRP), whereas U.S. manufacturing experienced an increase of 34.9% over the same time period. However, in recent years, Pennsylvania has outpaced the nation's manufacturing Gross Domestic Product (GDP) growth, marking a 10.3% increase to the U.S.'s 9.4% between 2013 and 2017 and 5.0% to 4.5% between 2016 and 2017.

Manufacturing		Gross Domestic Product - Nation and Pennsylvania						
		2007	2013	2016	2017	2007 - 2017 Change	2013 - 2017 Change	2016 - 2017 Change
GDP (\$mil)	Pennsylvania	\$ 75,158	\$ 80,067	\$ 84,101	\$ 88,300	17.5%	10.3%	5.0%
	U.S.	\$ 1,615,777	\$ 1,991,904	\$ 2,085,164	\$ 2,179,633	34.9%	9.4%	4.5%
GDP/Employee	Pennsylvania	\$ 114,082	\$ 142,079	\$ 150,544	\$ 157,182	37.8%	10.6%	4.4%
	U.S.	\$ 116,806	\$ 166,062	\$ 169,571	\$ 175,681	50.4%	5.8%	3.6%

Source: Bureau of Economic Analysis & BLS Quarterly Census of Employment and Wages, 2018

GDP per employee can often be an indicator of manufacturing productivity. Each manufacturing worker in Pennsylvania contributes \$ 157,182 in GRP to the overall economy. In 2007, the gap between the U.S. and Pennsylvania’s GRP per employee was minuscule, at \$2,724 per worker. The difference in GRP per employee expanded rapidly between 2007 and 2013 to \$23,983 per employee, but shrank to \$18,499 in 2017, signifying that Pennsylvania’s manufacturing productivity is once again catching up to the nation as a whole.

Top Ten States by Manufacturing GDP (Millions of Dollars)					
State	2013 Rank	2013 GDP	2017 Rank	2017 GDP	2013 - 2017 Change
California	1	\$ 250,439	1	\$ 297,459	18.8%
Texas	2	\$ 224,083	2	\$ 205,928	-8.1%
Ohio	4	\$ 94,152	3	\$ 104,584	11.1%
Illinois	3	\$ 97,180	4	\$ 101,531	4.5%
North Carolina	5	\$ 91,608	5	\$ 100,197	9.4%
Michigan	7	\$ 84,164	6	\$ 98,641	17.2%
Indiana	6	\$ 87,680	7	\$ 97,044	10.7%
Pennsylvania	8	\$ 80,067	8	\$ 88,300	10.3%
New York	9	\$ 65,011	9	\$ 72,586	11.7%
Georgia	12	\$ 50,042	10	\$ 61,033	22.0%

Source: Bureau of Economic Analysis, 2018

Pennsylvania ranks 8th in the nation amongst states’ contribution to GDP, behind much larger states such as California and Texas, but also behind neighboring competitors such as Ohio, Illinois, and Indiana. In 2013, Pennsylvania also held the number eight spot, but over the last five years came to be ranked 7th in the top ten manufacturing states in terms of growth, beating out Texas (-8.1%), Illinois (4.5%), and North Carolina (9.4%). Eight of the top ten manufacturing states, including Pennsylvania, grew as fast or faster than the national growth rate for manufacturing production between 2013 and 2017 (9.4%, from Gross Domestic Product – Nation and Pennsylvania table). This points to a possible and uneven distribution and growing inequality amongst states’ manufacturing sectors.

Employment

The number of people employed by the manufacturing industry in 2017 totaled 561,774, an increase of 0.6% from 2016 the state employment numbers. This ranks the state of Pennsylvania the 6th largest employment base for manufacturing among all states.

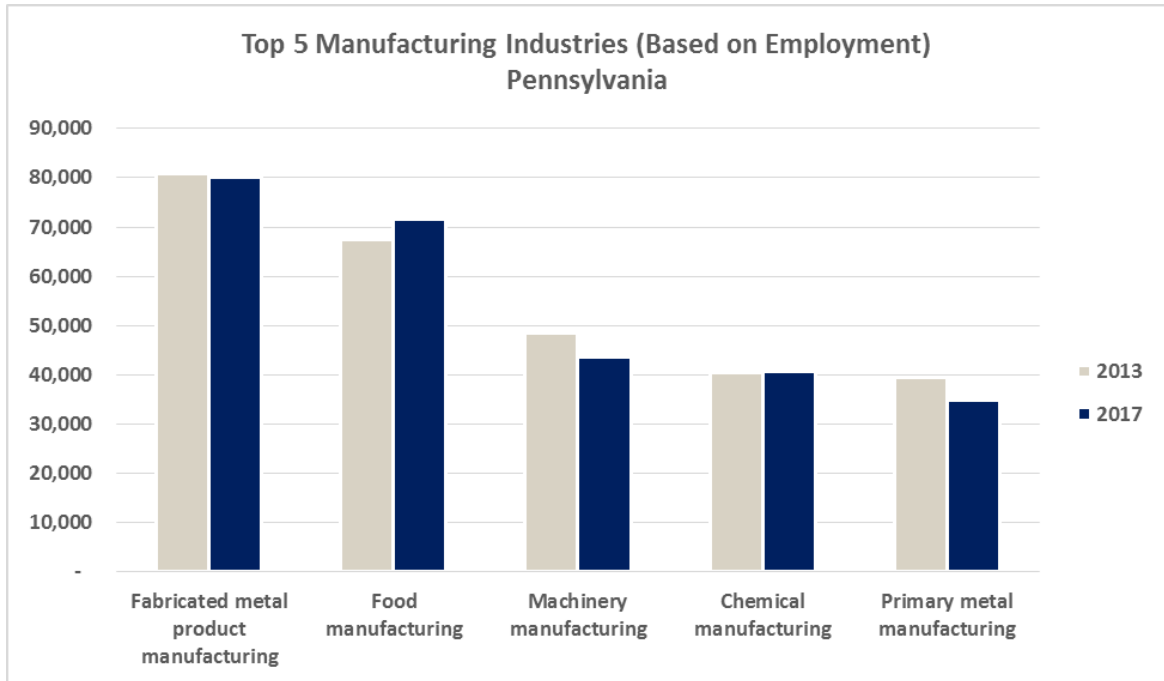
Pennsylvania - Top Industries by Employment - 2013 - 2017

	2013	2014	2015	2016	2017	2013 - 2017 Change	2016 - 2017 Change	% of Total PA Employment	LQ
Education and Health Services	1,094,760	1,113,041	1,125,931	1,150,693	1,179,271	7.7%	2.5%	20.3%	1.32
Trade, Transportation, and Utilities	1,091,387	1,098,886	1,111,314	1,116,299	1,115,565	2.2%	-0.1%	19.2%	1.02
Professional and Business Services	749,828	760,903	777,663	794,455	799,939	6.7%	0.7%	13.8%	0.98
Leisure and Hospitality	532,114	537,543	545,424	557,182	566,779	6.5%	1.7%	9.8%	0.88
Manufacturing	563,537	567,179	567,468	558,648	561,774	-0.3%	0.6%	9.7%	1.12
Financial Activities	312,146	315,822	316,726	316,768	321,121	2.9%	1.4%	5.5%	0.98
Construction	225,562	231,085	235,324	239,006	248,932	10.4%	4.2%	4.3%	0.89
Other Services	188,994	190,903	193,963	196,486	197,527	4.5%	0.5%	3.4%	1.10
Information	88,410	85,183	84,903	84,396	83,352	-5.7%	-1.2%	1.4%	0.74
Natural Resources And Mining	58,573	60,874	57,198	48,739	50,197	-14.3%	3.0%	0.9%	0.66

1/ The location quotient reflects the proportion of a certain job category in a given area compared to the US average. A number >100% indicates a greater-than average concentration of any given job class.

Source: Quarterly Census of Employment and Wages, 2019

The three leading industries, in 2017, contributing to total manufacturing employment in the state were: Fabricated Metal Product Manufacturing with 80,125 employees (14.3%), Food Manufacturing with 71,622 (12.7%) and Machinery Manufacturing with 43,628 (7.8%).



Source: BLS Quarterly Census of Employment and Wages, 2018

Almost half of the manufacturing industries in Pennsylvania have a location quotient greater than the U.S. average (1.00). Primary Metals Manufacturing employment in Pennsylvania is more than double the national average with a location quotient of 2.09, and accounts for 6.2% of total Pennsylvania manufacturing employment.

	2013	2014	2015	2016	2017	2013 - 2017 Change	2016 to 2017 Change	% Total PA Manufacturing Employment	LQ
Fabricated metal product manufacturing	80,906	80,920	81,537	79,213	80,125	-1.0%	1.2%	14.3%	1.25
Food manufacturing	67,467	69,534	69,715	70,113	71,622	6.2%	2.2%	12.7%	0.99
Machinery manufacturing	48,459	48,121	47,385	43,716	43,628	-10.0%	-0.2%	7.8%	0.90
Chemical manufacturing	40,537	39,950	40,140	40,101	40,615	0.2%	1.3%	7.2%	1.09
Primary metal manufacturing	39,500	38,875	37,587	35,409	34,938	-11.5%	-1.3%	6.2%	2.09
Transportation equipment manufacturing	38,739	38,500	39,215	36,845	36,538	-5.7%	-0.8%	6.5%	0.49
Plastics and rubber products manufacturing	35,248	36,102	36,819	38,586	39,995	13.5%	3.7%	7.1%	1.24
Computer and electronic product manufacturing	31,360	31,229	30,913	29,954	29,824	-4.9%	-0.4%	5.3%	0.63
Electrical equipment and appliance manufacturing	26,041	25,971	25,875	26,093	26,180	0.5%	0.3%	4.7%	1.50
Miscellaneous manufacturing	25,829	25,792	25,130	24,874	25,043	-3.0%	0.7%	4.5%	0.93
Printing and related support activities	24,449	24,757	24,212	23,785	23,628	-3.4%	-0.7%	4.2%	1.19
Paper manufacturing	23,726	23,593	23,122	22,804	22,161	-6.6%	-2.8%	3.9%	1.33
Wood product manufacturing	20,185	21,478	22,119	22,191	22,112	9.5%	-0.4%	3.9%	1.23
Nonmetallic mineral product manufacturing	20,001	20,184	20,492	20,966	20,931	4.6%	-0.2%	3.7%	1.13
Furniture and related product manufacturing	14,929	15,054	15,632	16,167	16,353	9.5%	1.2%	2.9%	0.92
Beverage and tobacco product manufacturing	6,996	7,996	8,718	9,440	10,369	48.2%	9.8%	1.8%	0.87
Petroleum and coal products manufacturing	5,849	5,997	6,169	5,980	5,839	-0.2%	-2.4%	1.0%	1.14
Apparel manufacturing	4,793	4,557	4,407	4,330	3,984	-16.9%	-8.0%	0.7%	0.73
Textile product mills	4,249	4,239	3,693	3,668	3,661	-13.8%	-0.2%	0.7%	0.70
Textile mills	3,314	3,414	3,735	3,619	3,490	5.3%	-3.6%	0.6%	0.68
Leather and allied product manufacturing	961	917	853	797	737	-23.3%	-7.5%	0.1%	0.58

Source: Quarterly Census of Employment and Wages, 2018

The decrease in manufacturing Employment from 2013 to 2017 was primarily due to drops in the following industries: Leather Product Manufacturing (loss of 224, -23.3%), Apparel Manufacturing (loss of 809, -16.9%), Textile Manufacturing (loss of 585, -13.8%), Primary Metals Manufacturing (loss of 4,562, -11.5%), and Machinery Manufacturing (loss of 4,831, -10.0%)

Although trailing the U.S. in growth from 2013 to 2017, manufacturing continues to play a vital role as a leading industry in the state of Pennsylvania, employing 9.7% of the total workforce and has the 2nd highest location quotient among industries in the state (1.12).

Establishments

Pennsylvania reported having a total of 14,414 manufacturing establishments in 2017, ranking as the 8th largest industry with respect to establishments in the state. Manufacturing establishments reported no significant change between 2016 and 2017, with the loss of only one single establishment.

	2013	2014	2015	2016	2017	2013 - 2017 Change	2016 - 2017 Change	% Total PA Establishments
Trade, Transportation, and Utilities	74,823	75,646	75,870	75,939	75,374	0.7%	-0.7%	21.3%
Professional and Business Services	56,021	57,825	59,277	60,686	61,779	10.3%	1.8%	17.5%
Education and Health Services	56,615	58,057	58,650	58,717	58,709	3.7%	0.0%	16.6%
Leisure and Hospitality	31,540	31,871	32,205	32,769	33,146	5.1%	1.2%	9.4%
Other Services	31,292	31,703	31,895	32,101	32,259	3.1%	0.5%	9.1%
Financial Activities	27,228	27,660	27,968	28,131	28,479	4.6%	1.2%	8.0%
Construction	27,521	27,911	27,938	28,341	28,397	3.2%	0.2%	8.0%
Manufacturing	14,446	14,416	14,390	14,415	14,414	-0.2%	0.0%	4.1%
Information	4,323	4,468	4,557	4,598	4,664	7.9%	1.4%	1.3%
Natural Resources And Mining	3,341	3,458	3,540	3,535	3,498	4.7%	-1.0%	1.0%

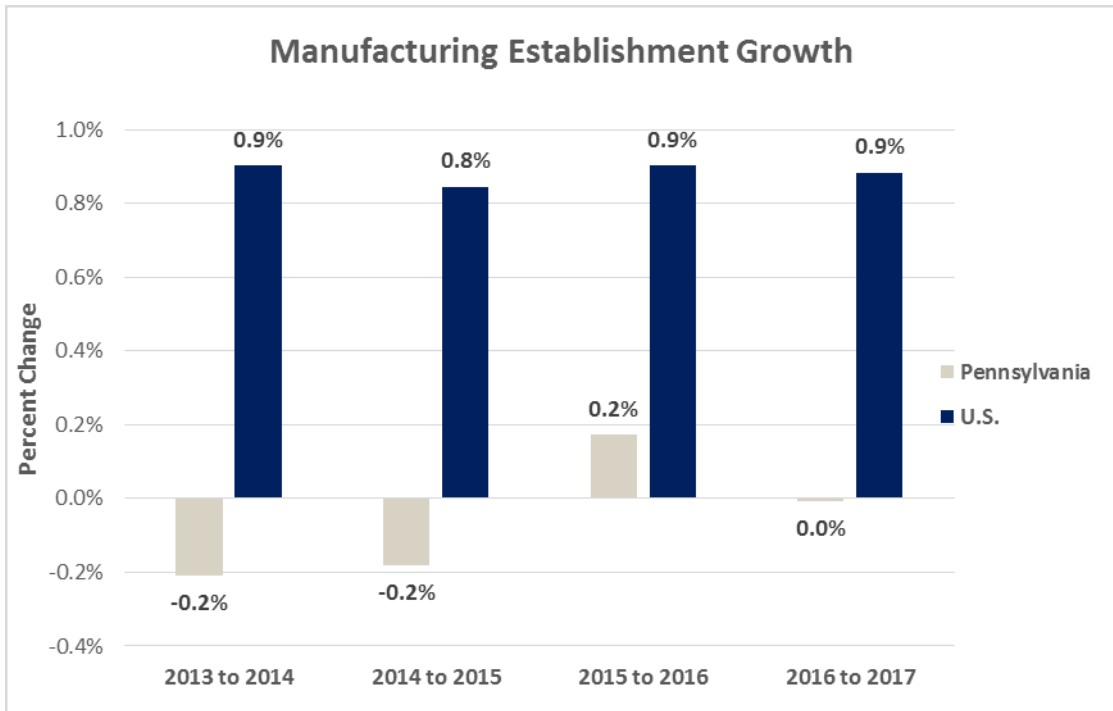
Source: Quarterly Census of Employment and Wages, 2018

The top three industries contributing to total manufacturing establishments in 2017 were: Fabricated Metal Product Manufacturing with 2,971 establishments (20.6%), more than twice the number of establishments than the next largest, Food Manufacturing with 1,320 (9.2%), and finally Machinery Manufacturing with 1,255 (8.7%).

	2017	% of Total PA Manufacturing Establishments
Fabricated metal product manufacturing	2,971	20.6%
Food manufacturing	1,320	9.2%
Machinery manufacturing	1,255	8.7%
Printing and related support activities	1,131	7.8%
Miscellaneous manufacturing	1,075	7.5%

Source: Quarterly Census of Employment and Wages, 2018

Year-over-year manufacturing establishment growth in Pennsylvania continues to trail the U.S. average. From 2016 to 2017, Pennsylvania experienced only a nominal change in total establishments while the nation reported a year-over-year increase of 0.9%.

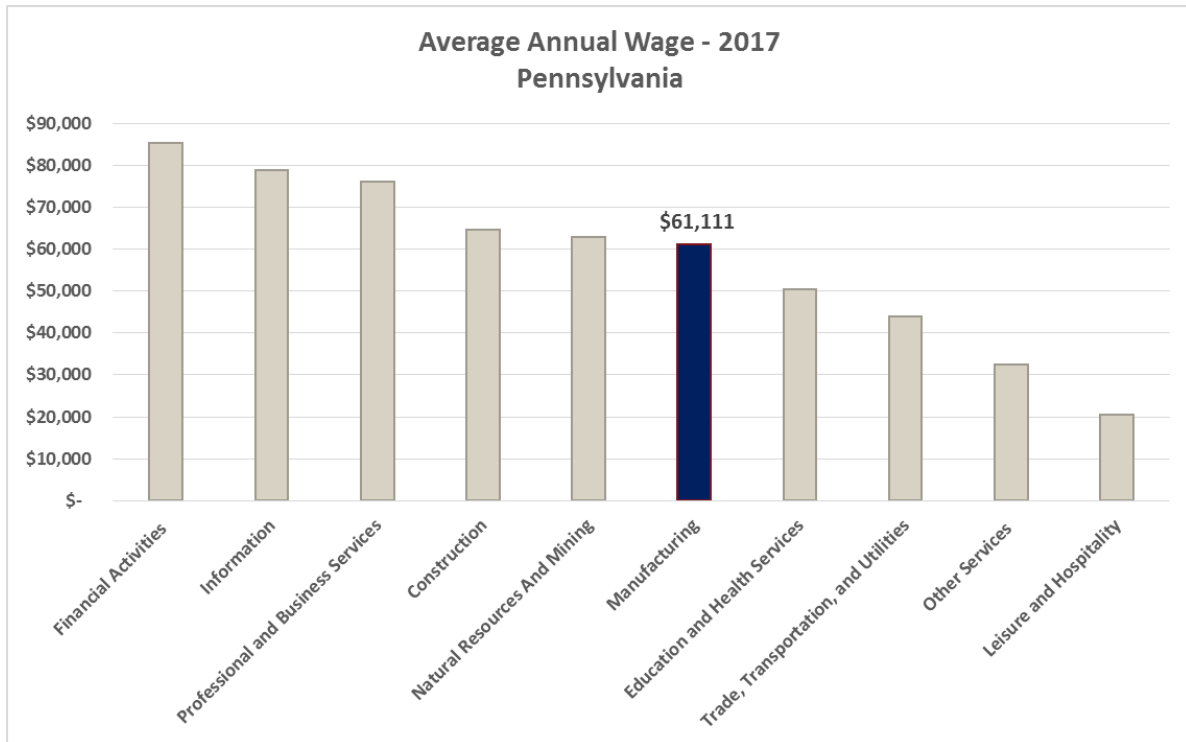


Source: BLS Quarterly Census of Employment and Wages, 2018

Between 2016 and 2017, eight manufacturing industries in Pennsylvania saw an increase in establishments: Beverage and Tobacco products (18.8% to 372), Transportation Equipment (2.8% to 399), Miscellaneous (0.7% to 1,075), Primary Metals (0.7% to 406), Food (0.5% to 1320) Chemical (0.5% to 668), Plastics and Rubber (0.3% to 635) and Printing (0.3% to 1,131).

Wages

The annual wage of a manufacturing employee for 2017 in Pennsylvania was \$61,111, 13.2% higher than the average Pennsylvania wage (\$54,000). Key industries reporting lower annual wages than those seen in the manufacturing industry in 2017 were: Education and Health Services (\$50,500), Trade, Transportation, and Utilities (\$43,972), Other Services (\$32,593) and Leisure and Hospitality (\$20,389). The industry reporting the highest annual wage was financial activities (\$85,405), increasing 13.6% from 2013 to 2017.



Source: BLS Quarterly Census of Employment, 2018

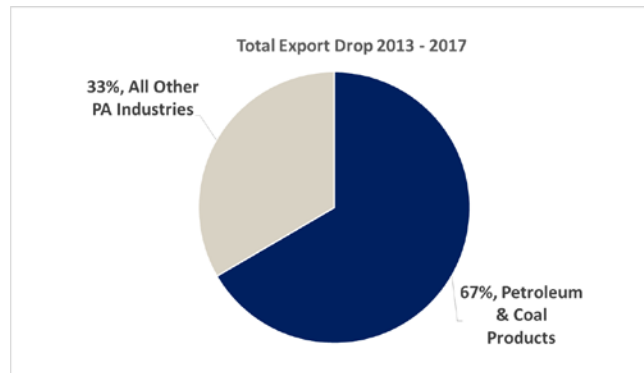
Pennsylvania - Top Industries by Wage - 2013 - 2017									
	2013	2014	2015	2016	2017	2013 - 2017 Change	2016 - 2017 Change	% PA Average Wage	% US Average Wage
Financial Activities	\$ 75,160	\$ 78,736	\$ 81,638	\$ 82,234	\$ 85,405	13.6%	3.9%	158.2%	91.9%
Information	\$ 69,170	\$ 70,728	\$ 73,689	\$ 75,260	\$ 78,987	14.2%	5.0%	146.3%	74.7%
Professional and Business Services	\$ 68,896	\$ 70,734	\$ 73,501	\$ 73,360	\$ 76,029	10.4%	3.6%	140.8%	104.8%
Construction	\$ 56,834	\$ 58,770	\$ 60,158	\$ 61,595	\$ 64,769	14.0%	5.2%	119.9%	106.6%
Natural Resources And Mining	\$ 59,253	\$ 63,254	\$ 61,374	\$ 57,150	\$ 63,021	6.4%	10.3%	116.7%	110.8%
Manufacturing	\$ 56,703	\$ 58,553	\$ 59,549	\$ 59,791	\$ 61,111	7.8%	2.2%	113.2%	91.4%
Education and Health Services	\$ 46,384	\$ 47,360	\$ 48,922	\$ 49,461	\$ 50,500	8.9%	2.1%	93.5%	102.6%
Trade, Transportation, and Utilities	\$ 40,010	\$ 41,414	\$ 42,671	\$ 42,842	\$ 43,972	9.9%	2.6%	81.4%	95.3%
Other Services	\$ 29,246	\$ 30,315	\$ 31,360	\$ 31,819	\$ 32,593	11.4%	2.4%	60.4%	87.3%
Leisure and Hospitality	\$ 18,600	\$ 19,022	\$ 19,749	\$ 20,119	\$ 20,389	9.6%	1.3%	37.8%	87.9%

Source: Quarterly Census of Employment and Wages, 2018

Nationally, manufacturing wages averaged \$66,840. Although falling behind the national average increase in annual wages of 3.0% from 2016 to 2017, Pennsylvania did see a 2.2% increase in manufacturing pay. In Pennsylvania, the manufacturing industry recorded a 7.8% increase in annual wages from 2013 to 2017, again falling behind the U.S. average which saw an increase of 9.4%.

Exports

Pennsylvania exported \$38.7 billion worth of goods in 2017, an increase of 6.2% from the previous year. Overall, the state saw a decrease of 6.0% since 2013. 67% of the total decrease in exports can be attributed to Petroleum and Coal Product Manufacturing, an industry that has seen a 73.9% drop in exports 2013 - 2017. The state is ranked 10th nationally for manufacturing exports and accounts for 2.6% of U.S. exports. In 2017, Primary Metal Manufacturing exports totaled \$3.1 billion, making Pennsylvania the 6th largest Primary Metal exporting state in the country. Pennsylvania also ranks 9th nationally for chemicals (\$7.8 billion) having the largest impact on export sales in 2017 and accounts for 20.3% of total state exports.



Product	2013	2014	2015	2016	2017	2013 - 2017 Change	2016 - 2017 Change	National Rank	% Total PA Exports 2013	% Total PA Exports 2017
Chemicals	\$7,353	\$6,936	\$7,940	\$7,463	\$7,861	6.9%	5.3%	9th	19.0%	20.3%
Machinery; Except Electrical	\$4,570	\$4,498	\$4,032	\$3,669	\$3,799	-16.9%	3.5%	13th	11.8%	9.8%
Computer And Electronic Products	\$3,774	\$3,795	\$4,208	\$3,476	\$3,603	-4.5%	3.7%	13th	9.8%	9.3%
Transportation Equipment	\$3,122	\$4,035	\$4,284	\$3,796	\$3,438	-6.4%	-8.2%	18th	9.6%	9.0%
Primary Metal Mfg	\$3,646	\$3,416	\$3,062	\$2,811	\$3,137	-14.0%	11.6%	6th	9.4%	8.1%
Electrical Equipment; Appliances & Components	\$2,408	\$2,363	\$2,310	\$2,071	\$2,148	-6.6%	8.5%	6th	6.2%	5.8%
Food Manufactures	\$1,819	\$2,014	\$2,065	\$1,932	\$1,766	-2.9%	-8.6%	12th	4.7%	4.6%
Miscellaneous Manufactured Commodities	\$1,660	\$1,840	\$1,765	\$1,774	\$1,712	3.1%	-3.5%	11th	4.3%	4.4%
Plastics & Rubber Products	\$1,501	\$1,589	\$1,567	\$1,535	\$1,569	4.5%	2.2%	6th	3.9%	4.1%
Fabricated Metal Products; Nesoi	\$1,569	\$1,619	\$1,501	\$1,636	\$1,519	-3.2%	-7.1%	7th	4.1%	3.9%
Nonmetallic Mineral Products	\$764	\$798	\$7,57.1	\$650	\$611	-20.0%	-6.0%	8th	2.0%	1.6%
Petroleum & Coal Products	\$2,252	\$1,651	\$7,03.5	\$463	\$588	-73.9%	27.0%	10th	5.8%	1.5%
Other Industries	\$6,142	\$5,794	\$5,245	\$5,178	\$6,806	10.8%	31.5%	-	-	17.6%
Total	\$41,109	\$40,411	\$39,439	\$36,453	\$38,702	-6.0%	6.2%	-	-	-

Source: U.S. Department of Commerce: International Trade Administration, 2018