



State of Manufacturing in Metro Milwaukee

Declining industry or booming business?

Produced by **Bret Mayborne**
Vice President - Economic Research
Metropolitan Milwaukee Association of Commerce (MMAC)

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Executive Summary

Manufacturing goes with Milwaukee like beer, brats, the Hoan Bridge and Giannis. It served as the backbone of our region's economy for well over a century – providing the promise of a comfortable lifestyle for generations of families in the region.

Contrary to the popular narrative in some circles, those jobs and the promise they bring haven't dried up here. According to figures just released in a new report from the Metropolitan Milwaukee Association of Commerce (MMAC), manufacturing is still a vital part of the region's economy. In fact, with more than 111,000 employed in 2021, the industry serves as the metro area's second-largest employer behind only the health care sector.

Over the short-term, manufacturing job numbers have remained stable in the region, down only slightly – by 1,472 jobs – since 2010. Over the long-term, however, there has been a significant dip in the manufacturing sector – falling from 164,699 jobs in 2000.

Nationally, the region compares favorably to the top-50 metros in the country when it comes to the concentration of those working in the sector. Milwaukee ranks second, only behind San Jose, in the percentage of its employees working in manufacturing.

BOOMING EMPLOYMENT IN SOME SECTORS

Several occupational areas of manufacturing saw large gains in employment since 2010. On the production side, CNC tool operators (up 95 percent) and welders (up 45 percent) saw large increases. On the professional side, industrial engineers (up 120 percent) and electrical engineers (up 47 percent) were among the biggest gainers, indicating a strong pool of regional talent in these areas.

REAL GDP STABLE HERE; LAGS STATE AND U.S.

The value of manufacturing product has remained relatively stable, as well, although lagging relative to numbers shown state- and nation-wide. In 2020 the real GDP of manufacturing goods produced in the region was \$14.7 billion, a 0.7 percent increase from 2010. During that same period, the state saw an 8.7 percent increase, and the U.S. saw its real GDP in manufacturing increase by 10 percent.

MANUFACTURING WORK DEFINED BY GOOD PAY

Manufacturing remains a relatively good option for those looking for a well-paying job in the Milwaukee area. Those working in the industry averaged an annual salary of \$73,786. That compares to \$61,395 for all industries combined. Local salary figures outpaced averages in four of five manufacturing clusters. Jobs in energy, bioscience, machinery and printing outpaced the average pay in all other industries. Only the food and beverage manufacturing fell short of that average pay.

Since 2010, wages in manufacturing have increased in aggregate by 27.8 percent in the region – outpacing inflation by 3 ½ percentage points. The increase in wages matched the state (28 percent) but trailed the rest of the country (33 percent).



✓ **>111,000 manufacturing employment in 2021**

✓ **Manufacturing numbers have remained stable**

✓ **The region compares favorably to the top 50 metros**

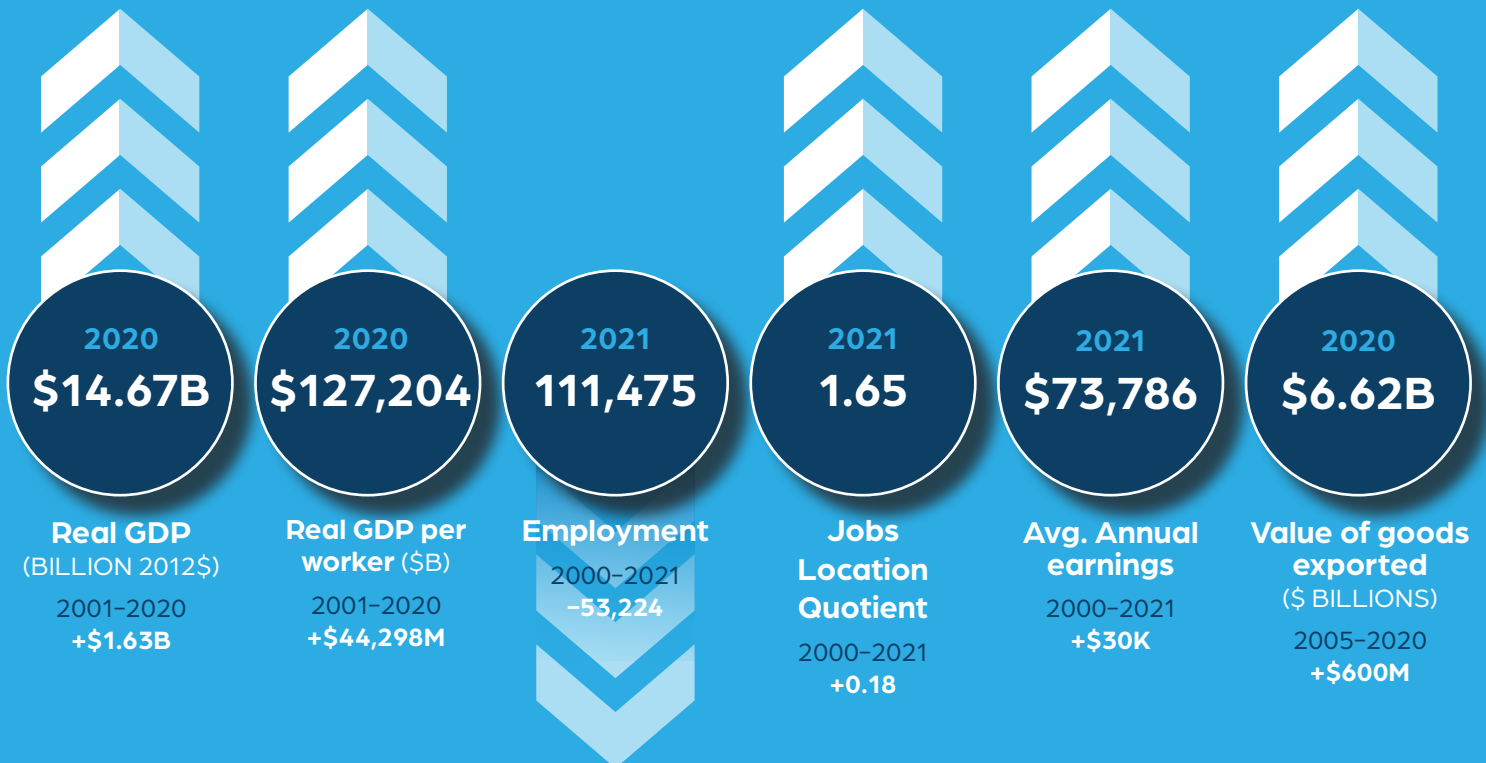
✓ **CNC tool operators up 95%**

✓ **Industrial engineers up 120%**

✓ **Regional average salary of \$73,786**



Metro Milwaukee Manufacturing Indicators



Importance of Manufacturing

Manufacturing's importance to the metro area's economy involves both its relative concentration and its stronger average pay levels. The metro area ranks second highest among major metros (1) in the U.S. in the percentage of its workforce in manufacturing. In addition, average annual pay levels in manufacturing rank 20% above average pay levels for the overall metro economy. The combination of these two facts indicate that the manufacturing industry is a major contributor towards the metro area's overall prosperity.

Among metro Milwaukee's major industries, manufacturing's 111,475 jobs in 2021 ranks second to the 136,475 jobs in health care and social assistance. By job growth the metro area posted a small 1.3% job decline in manufacturing over the 2010 to 2021 period, a loss of 1,472 jobs. The construction industry, up 28.6%

in this period, posted the largest percentage job growth among major industry sectors while health care & social assistance registered the largest absolute job gain, up 19,330.

The metro area's manufacturing concentration ranks high relative to other metros but also ranks high among other major local industry sectors. Manufacturing's job location quotient – a measure of concentration vs. national averages – stands at 1.65 (1.0 being the national average concentration) in the metro area, ranking second highest among major industry sectors. Among these 18 major sectors, manufacturing ranks seventh highest in average annual pay per worker, largely trailing only sectors with a significant professional occupation component.

Manufacturing Statistics for Peer Metro Areas

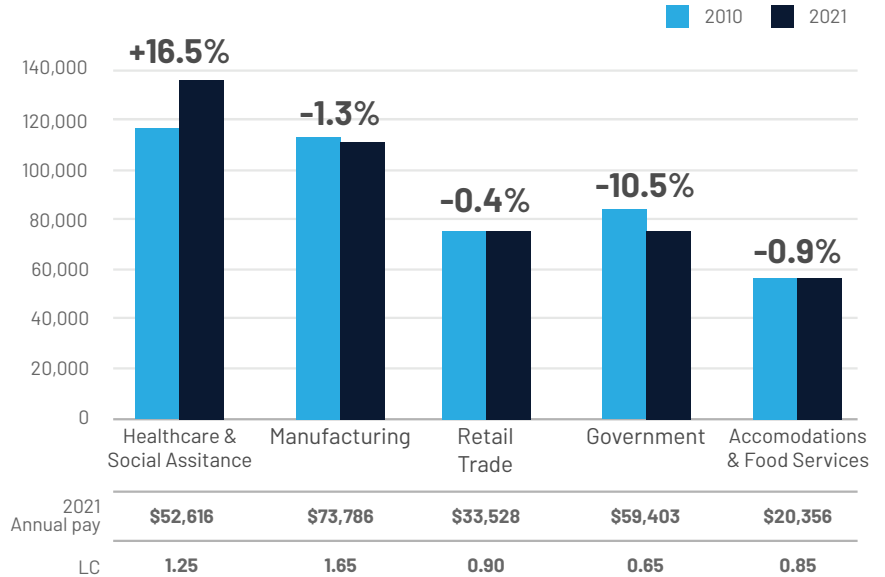
	2010 Jobs	2021 Jobs	2010 - 21 % Change	2021 Jobs L.Q.	2021 Ann. Pay/worker	2020 Mfg. GDP (\$B)	Good Exports (\$B)
Chicago	401,337	394,819	-2%	1.08	\$85,061	\$80.5	\$41.3
Cincinnati	103,261	115,067	11%	1.29	\$80,188	\$25.5	\$21.0
Cleveland	116,509	114,787	-1%	1.38	\$69,242	\$20.1	\$7.4
Columbus	64,649	72,151	12%	0.82	\$69,315	\$13.1	\$6.3
Detroit	186,554	240,452	29%	1.54	\$74,951	\$41.2	\$30.7
Indianapolis	85,943	91,511	6%	1.05	\$86,591	\$20.2	\$11.1
Kansas City	72,146	80,070	11%	0.91	\$68,213	\$17.3	\$7.9
Louisville	59,117	77,365	31%	1.46	\$66,948	\$18.0	\$8.4
 Milwaukee	112,947	111,475	-1%	1.65	\$73,786	\$17.3	\$6.6
Minneapolis-St. Paul	175,146	194,352	11%	1.23	\$82,327	\$36.8	\$17.1
Nashville	62,222	80,756	30%	0.95	\$67,868	\$13.1	\$6.6
Pittsburgh	87,479	80,044	-8%	0.89	\$71,389	\$13.3	\$7.5
St. Louis	104,285	113,305	9%	1.04	\$76,098	\$24.0	\$9.1



790,234

total jobs in Metro Milwaukee in 2021
+3% from 2010

Top metro Milwaukee Major Industry Sectors (% Change)



Manufacturing Statistics Comparison



	United States	Wisconsin	Metro Milwaukee
MANUFACTURING WORKFORCE	12.3M* (2021)	465,956 (2021)	111,475 (2021)
AVERAGE ANNUAL EARNINGS IN MANUFACTURING	\$76,580* (2021)	\$64,393 (2021)	\$73,786 (2021)
TOTAL REAL GDP FOR MANUFACTURING	\$2.1T (2020)	\$53B (2020)	\$14.2B (2020)
# OF MANUFACTURING FIRMS	243,687 (2019)	7,540 (2019)	3,124 (2019)

*National Association of Manufacturers

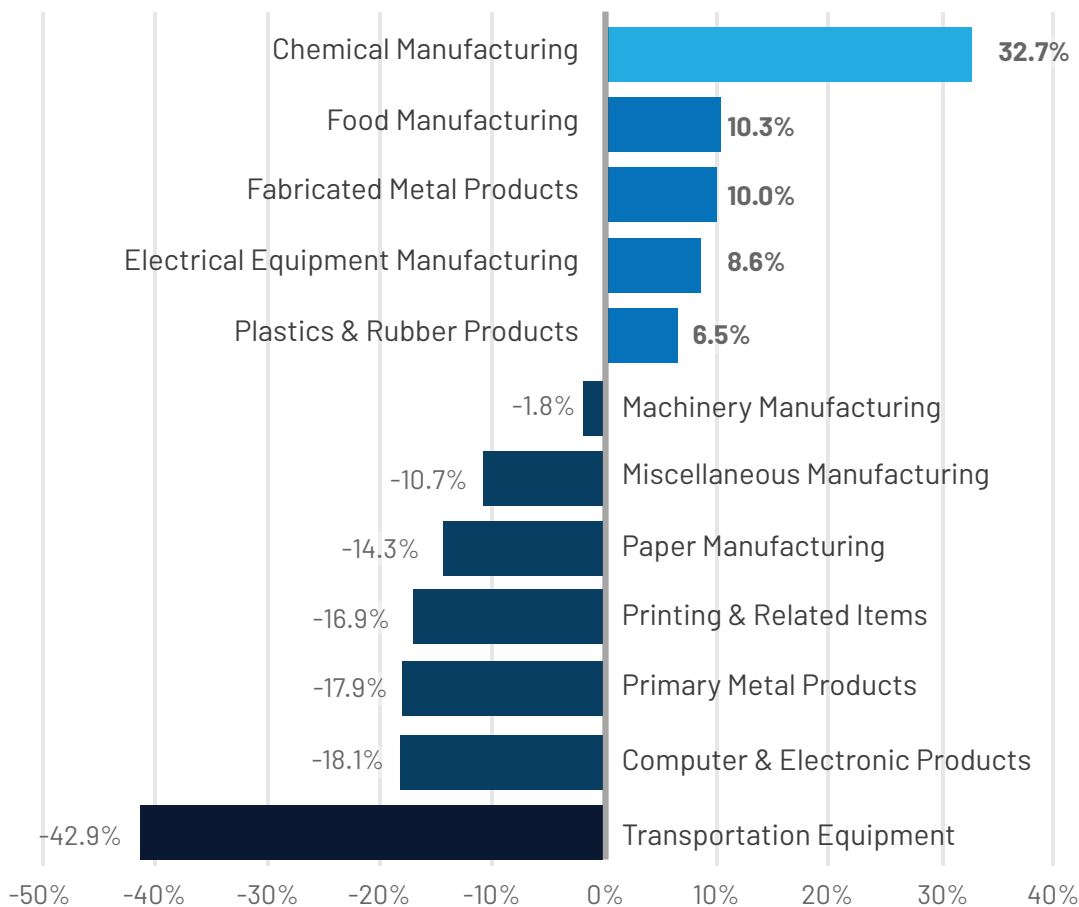
Manufacturing Jobs

Overall, manufacturing jobs fell 1.3% over the 2010-to- 2021 period. The manufacturing sector is made up of several component parts. Among the larger subsectors, five of the 12 posted employment growth in this period led by the chemical manufacturing sector (up 33%). Job declines were posted in seven of the 12 large subsectors, with the largest fall registered in the transportation equipment sector (down 43%).

Chemical manufacturing posted the fastest job growth **up 32.7%**

Job Growth by major manufacturing sectors

Percent Change from 2010 to 2021



Employment Growth

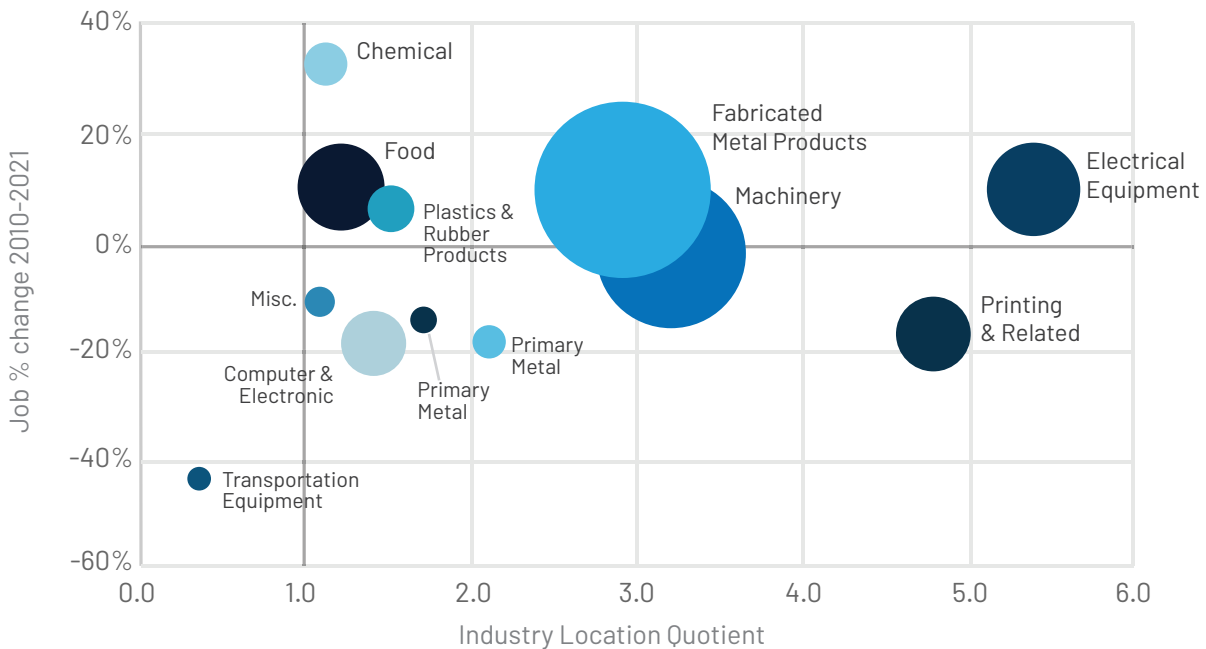
Employment growth among large manufacturing subsectors along with above average location quotients indicate pockets of manufacturing strength.

Among these large subsectors, five of 12 posted employment location quotients above one and registered job gains over the 2010- to- 2021 period.

The **electrical equipment manufacturing** sector posted the largest 2021 jobs location quotient among large manufacturing subsectors in the metro area at 5.36 and posted job growth of 8.6% in the post Great Recession period (2010 to 2021) while **chemical manufacturing** posted the fastest job growth (up 32.7%) and a location quotient of 1.14.

5 of the 12 largest subsectors registered job gains from 2010 to 2021

Large Manufacturing Industries % growth vs. Location Quotient



Real Gross Domestic Product

\$14.7B GDP
(2020)



0.7%
from 2010

The real value of manufacturing products (in billions of 2012 dollars) in the metro Milwaukee area totaled \$14.7 billion in 2020, up 0.7% from the 2010 total of \$14.6 billion. On a year-over-year basis real manufacturing gross domestic product has risen in seven of the past 11 years in the metro area. In recent years, metro area real GDP rose in the three years pre-COVID (2017 to 2019) but fell 5.8% in the 2020 COVID year.

\$127,204 Real GDP/Worker
(2020)



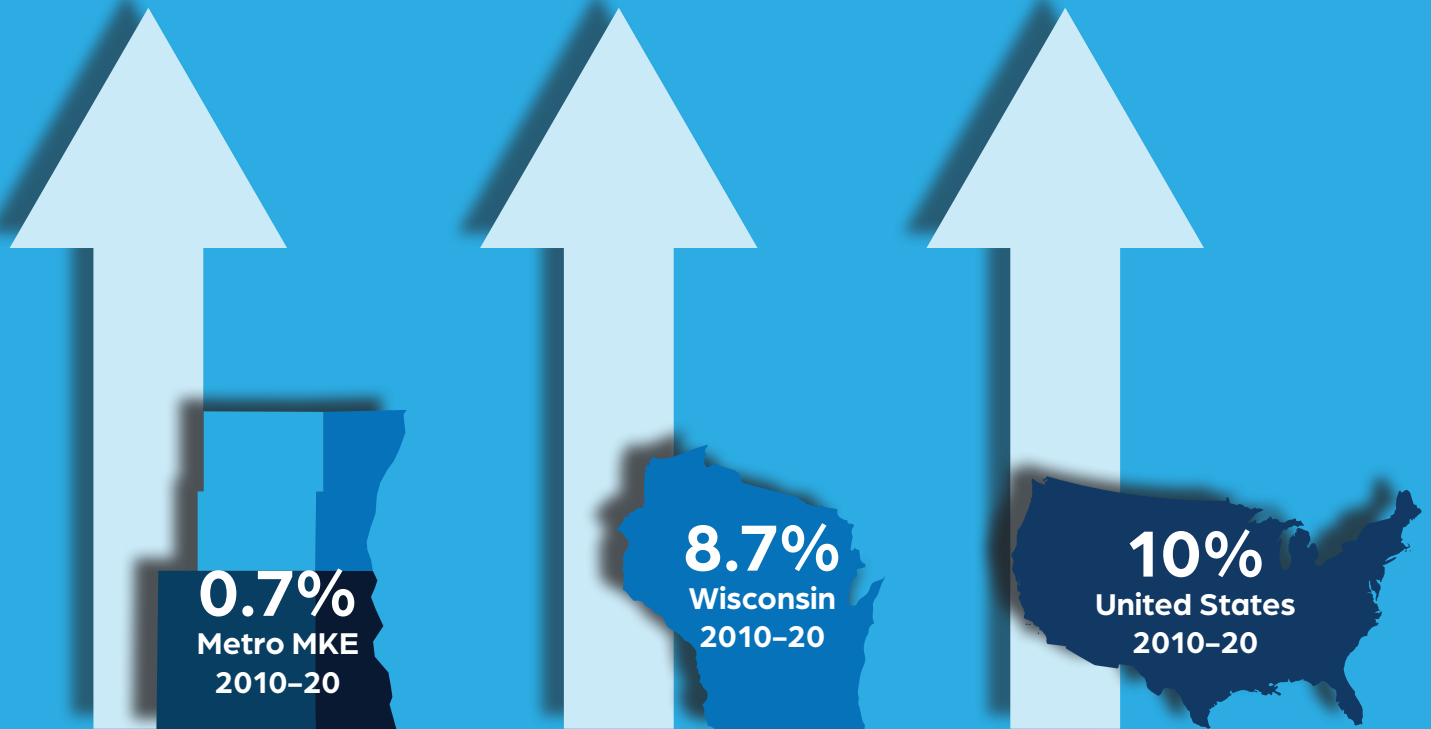
53.4%
from 2001

The interchange between modest increases in real manufacturing GDP and long-term decline in manufacturing jobs have resulted in gains in real manufacturing GDP per worker or productivity. For 2020 this figure reached \$127,204 in the metro area, a 1.6% increase from 2010 and a 53.4% increase from 2001, the earliest year available. For this measure, year-over-year gains have been posted locally in seven of the last 11 years available.



1.6%
from 2010

Real Manufacturing GDP



The 0.7% metro area growth registered in real manufacturing GDP since the Great Recession (2010 to 2020) trailed both national (up 10%) and statewide growth (up 8.7%) over that same period.

Among metro Milwaukee's four counties, real manufacturing GDP ranked highest in Milwaukee (\$6.5 billion) and Waukesha (\$5.4 billion) counties. The change in real GDP growth was strongest in Washington County, up 31% over the 2010 to 2020 period, while weakest in Milwaukee County with a 9.2% decline.

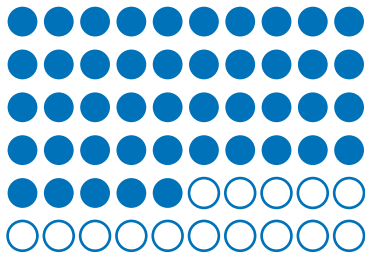
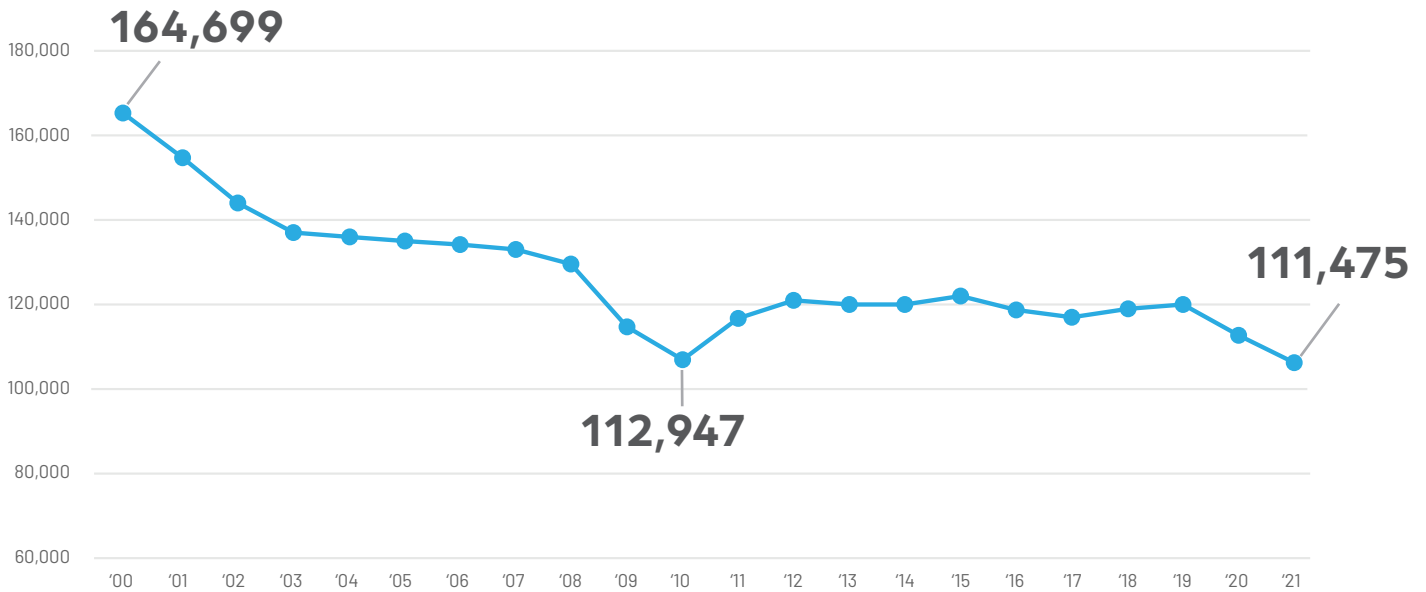
Manufacturing Employment

In contrast to real manufacturing GDP, metro manufacturing jobs have trended downward both in the long run and against levels posted since the Great Recession (2009). Manufacturing jobs in the metro area totaled 111,475 in 2021, down marginally from the 112,947 recorded in 2010. On a year-over-year basis, manufacturing employment has risen in five of the past 12 years in the metro Milwaukee area ranging in size from a 6.8% decline in 2020 to a 3.6% rise in 2011. Manufacturing posted a significant job decline in the 2000 to 2010 period, falling from 164,699 to 112,947, a loss of 51,752 jobs (-31.4%).

In terms of number of jobs, the largest counties by population in the metro area had the greatest number of manufacturing jobs. Milwaukee County totaled 46,945 while Waukesha County followed close behind at 41,337.

Conversely, the two smaller metro counties had the largest concentrations of manufacturing jobs. Measured by the location quotient, Washington (3.08) and Ozaukee (2.46) had the largest proportion of manufacturing jobs relative to U.S. averages.

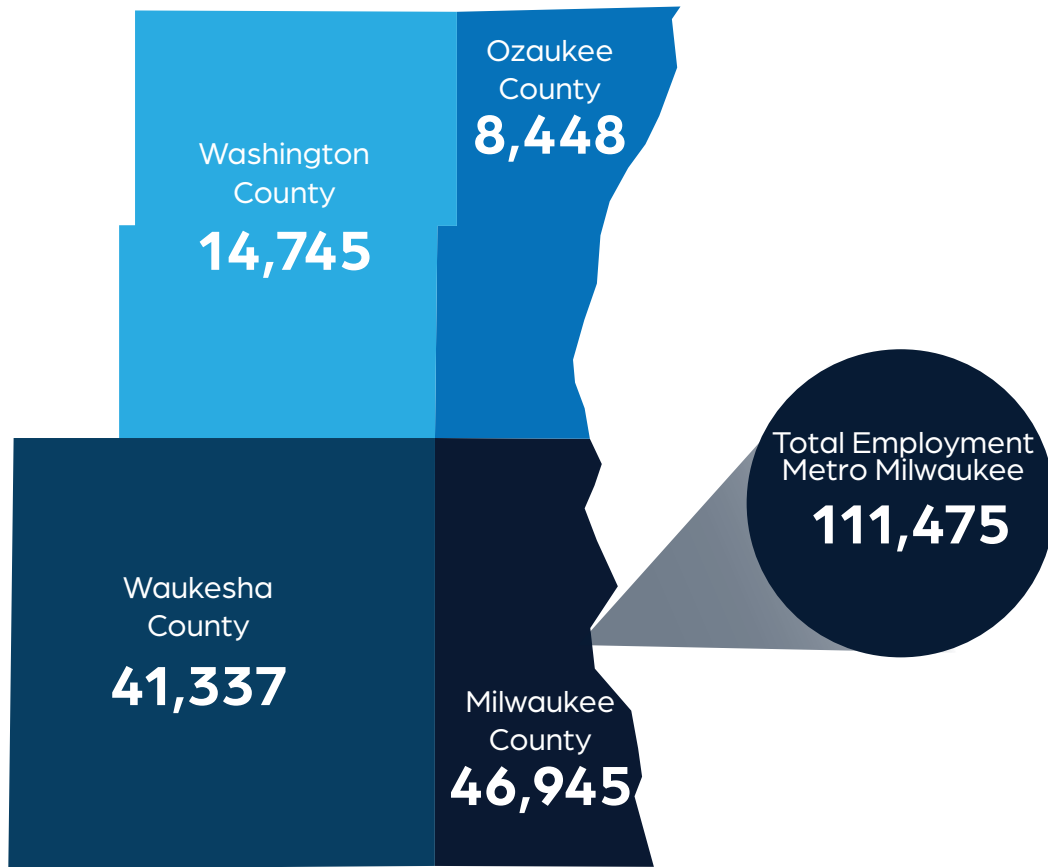
Manufacturing Employment – Metro Milwaukee



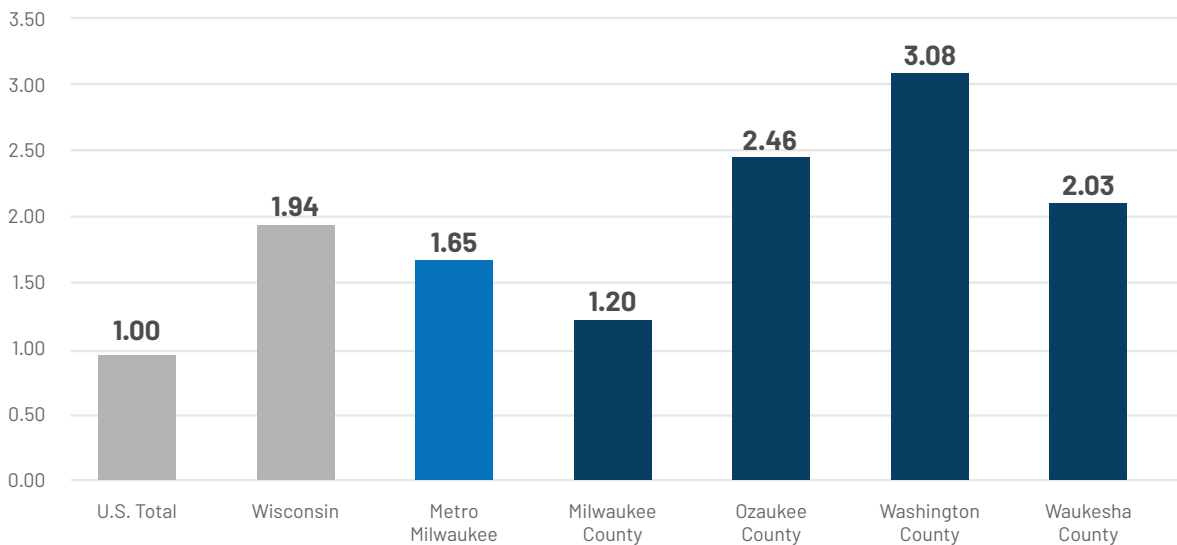
**From 2000–2010
Manufacturing
employment fell
-31.4%
a total of 51,752 jobs**

**Manufacturing
Employment is
up 5 of the
past 12 years**

Number of Manufacturing Jobs in the Milwaukee Region – 2021



Manufacturing Jobs location quotient comparison – 2021



Manufacturing Pay

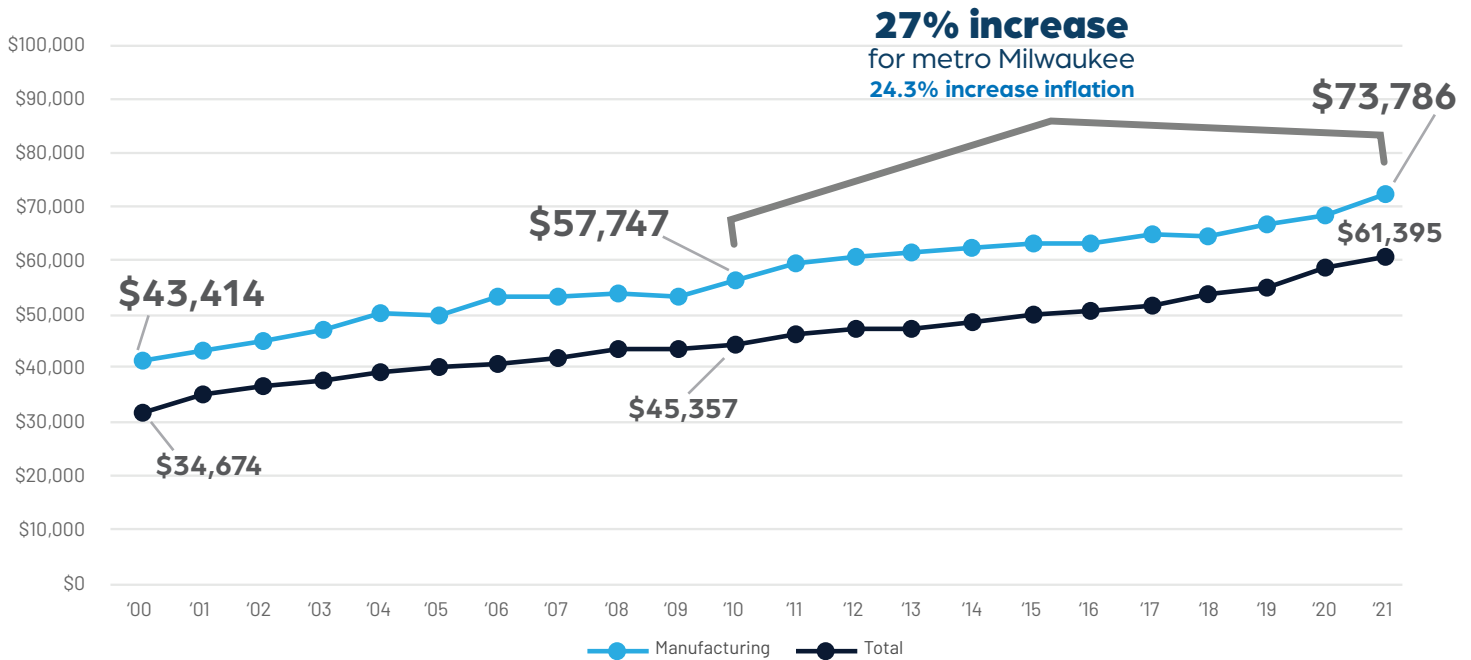
For the metro area, average annual pay in manufacturing reached \$73,786 in 2021, higher than the \$61,395 total for all metro economic sectors in aggregate. Since 2010 annual pay levels have increased nominally in each year over the previous year. The highest year-over-year increase was an 8% gain in 2021. The cumulative increase of 27.8% in manufacturing pay in the 2010-2021 period ranked higher than inflation's 24.3% increase.

Average annual pay levels in manufacturing for metro Milwaukee reached \$73,786 in 2021, slightly below the total for U.S. manufacturing (\$76,580). By county, manufacturing pay levels ranged from a high of \$77,365 in Waukesha County to a low

of \$62,582 in Washington County. In all cases a healthy gap existed between manufacturing pay levels and that posted for all economic sectors combined.

In the 2010-to-2021 period, annual average pay levels in the metro area rose 27.8% in manufacturing, higher than the 24.3% increase in national consumer price inflation. The increase in manufacturing pay matched that registered for Wisconsin (up 28%) but trailed national growth (up 33.1%). By county Waukesha County posted the highest increase in manufacturing average annual pay at 35.8%.

Average Annual Pay – Metro Milwaukee

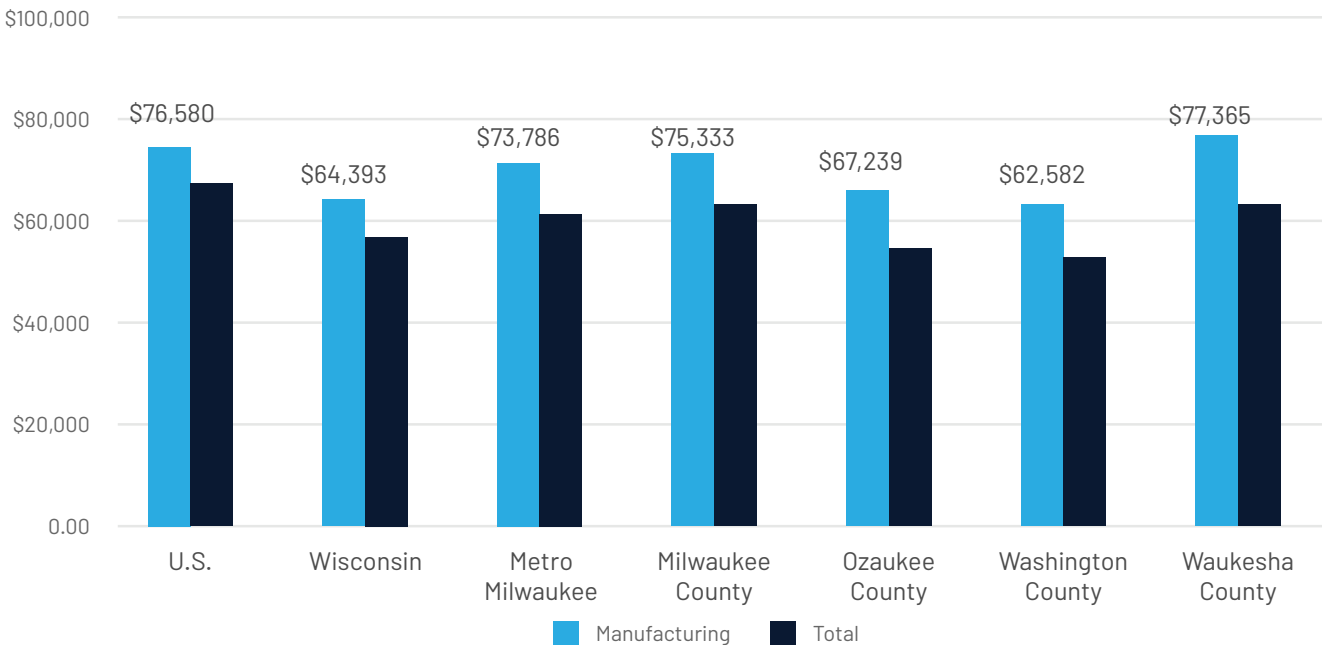


\$73,786
average metro Milwaukee
annual pay in 2021

Even though there are less people in the overall workforce – those that are working are making more money



Average Annual Pay Gap – Total vs Manufacturing 2021

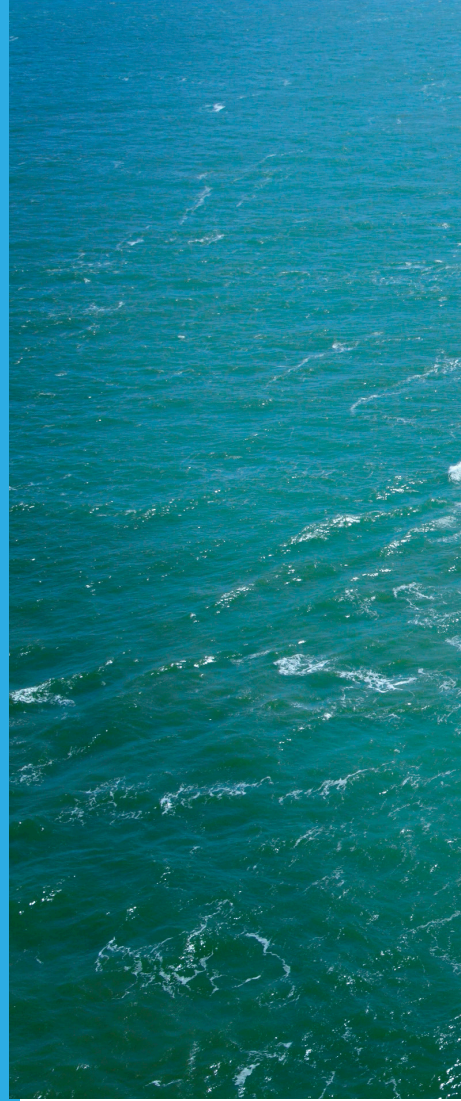


Goods Exports

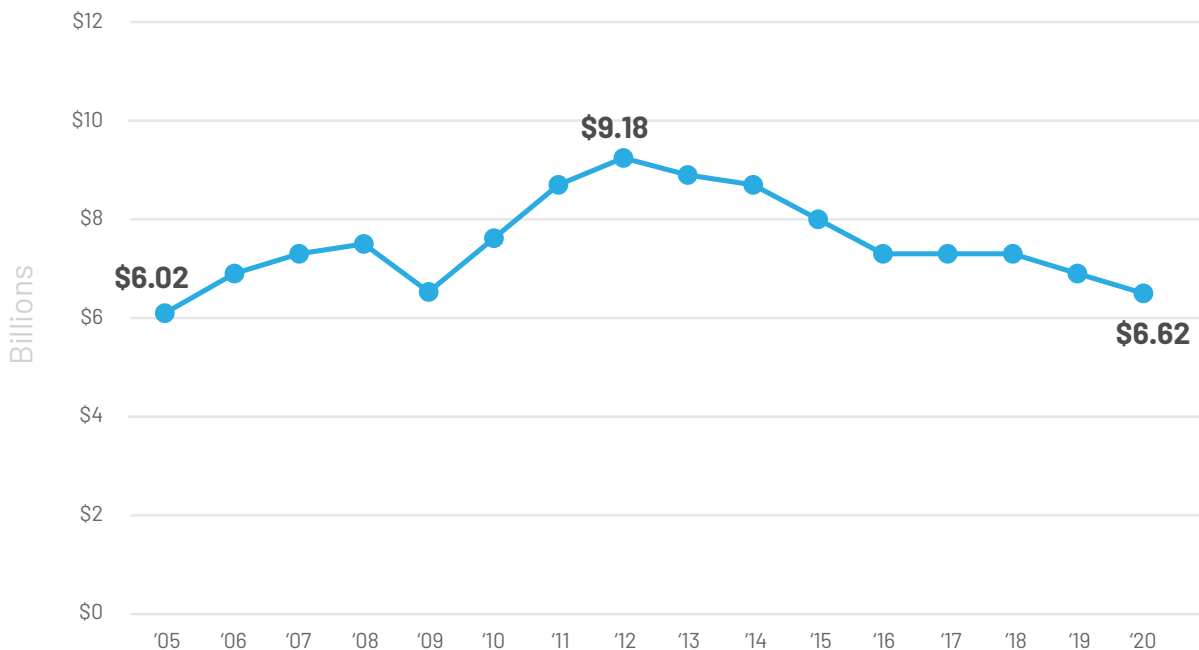
The value of goods exports for the metro area registered selected large year-over-year gains in the 2006-to-2012 period, rising from \$6 billion in 2005 to a peak of \$9.2 billion in 2012. Since 2012, export value has declined in six of the past eight years, sliding to a total of \$6.6 billion.

Goods exports in Milwaukee County (\$3.6 billion) and Waukesha County (\$2.2 billion) represented the vast majority of the metro export total for 2020. Washington County (\$430 million) and Ozaukee County (\$360 million) follow in rank order.

Exports in the metro area support Milwaukee's large cluster/driver industries. For 2020, machinery ranks as the largest product export by value at \$1.5 billion followed closely by computer & electronic equipment at \$1.4 billion. The largest export destinations by country for metro area goods exports were Canada (\$1.6 billion) and Mexico (\$1.5 billion), accounting for nearly half the export total.

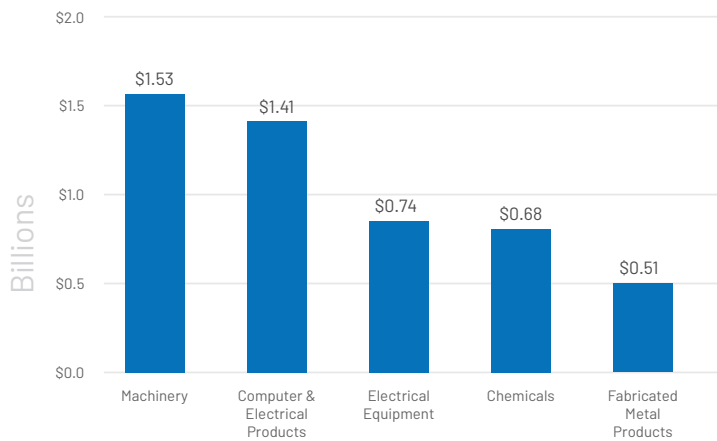


Goods Export – Metro Milwaukee (Billions of \$)

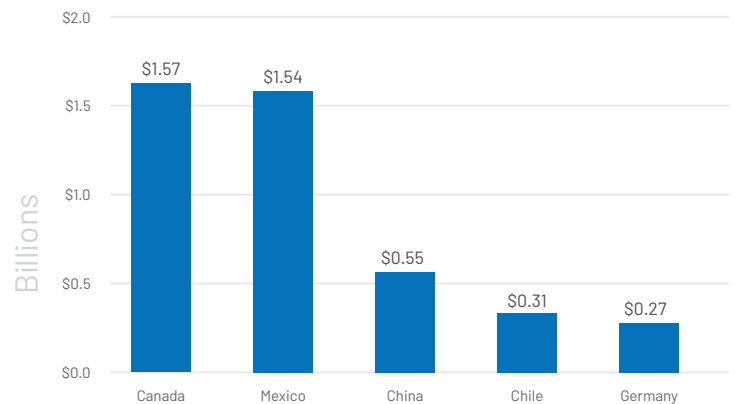




Largest Export Values for Metro Milwaukee by Industry (2020)



Largest Destination for Metro Milwaukee Mfg. Goods (year)



Manufacturing Related Occupations

Metrics for large manufacturing occupations show the concentration that the metro area has in a skilled industrial workforce. Among the 50 largest U.S. metro areas, Milwaukee has the third-highest proportion of production workers as a percentage of all workers. In an evaluation of the 10 largest production worker occupations in the metro area, each one listed has a location quotient greater than one. The highest location quotient was for CNC operators at 5.89. Additionally, professional occupations represented strongly in manufacturing were likewise highly concentrated in the area with industrial engineers (2.16 L.Q.), mechanical engineers (1.96 L.Q.) and electrical engineers (1.83 L.Q.) all registering

L.Q.'s nearly twice or better than registered nationally. Recent growth in large manufacturing occupations show the increasing importance of skill and training.

Over the 2010-to-2021 period, the fastest growing were industrial engineers (+120%), CNC operators (+95%), welders (+45%) and electrical engineers (up 47%). In combination these occupations added more than 6,000 employees in this period. Conversely, significant job declines were posted in miscellaneous assemblers (-23%), machinists (-39%), and packaging & filling machine operators (-32%).

Of the Top-50
US Metros,
Milwaukee
has the
3rd-largest
proportion
of production
workers
as a percentage
of all workers

+120%
Industrial
Engineers

+95%
CNC
Operators

+47%
Electrical
Engineers

+45%
Welders

These occupations added more than **6,000 employees** since 2010

Peer metros review

Peer metros in this case are larger metros in the Midwest (1 million population plus) within a 500-mile radius of Milwaukee. Most of these metro areas are larger than Milwaukee in population but the importance of manufacturing to Milwaukee shows through. Metro Milwaukee's 111,475 jobs translate into a 1.65 job location quotient, highest among this group of peers. Other metros range from Detroit (L.Q. 1.54) and Louisville (1.46) on the high end, to lows in Columbus (0.82) and Kansas City (0.91).

On job change over the 2010-to-2021 period, metro Milwaukee posted a small job decline, down 1%.

Three other metro areas posted job declines, the largest in Pittsburgh, down 8%. Among metros with job increases, three boasted strong gains with Louisville (up 31%), Nashville (up 30%) and Detroit (up 29%) leading the way.

In average annual pay, metro Milwaukee ranks seventh highest among peer metro areas at \$73,786. Manufacturing pay levels range from a high of \$86,591 in Indianapolis to \$66,948 in Louisville.

Top Peer Metros



State of Manufacturing in Metro Milwaukee

Declining industry or booming business?

This report was generated with support from the Bucyrus Foundation.

The goods/manufacturing export pages in this report were generated through research done by Jessie Reid, a summer intern for the MMAC from the University of Wisconsin - Madison.

The job location quotient mentioned throughout this report is a measure of regional industry concentration, calculated as the ratio of the percent of jobs in an industry for a local area divided by the percentage of jobs in the same industry nationally. A ratio of 1.0 means that the jobs distribution in that industry locally matches that of the national distribution. Anything over 1.0 suggests a localized concentration of jobs in that industry. Location quotients of over 1.2 are generally recognized as a significant concentration in that industry for that location.

Many of the manufacturing cluster industries identified in this report are in part or wholly included in the advanced industry ecosystem. Advanced industries were classified in a 2015 report, America's Advanced Industries, What They Are, Where They Are and Why They Matter, the Brookings Institute, February 2015.

Sources used in this report include Lightcast (formerly EMSI) an economic development information company, the U.S. Bureau of Economic Analysis (GDP estimates), U.S. Bureau of Labor Statistics (selected employment and payroll numbers by industry), U.S. International Trade Administration (export statistics) and the U.S. Census Bureau.

Any questions on this report can be directed to **Bret Mayborne**, MMAC Vice President of Economic Research at 414/287-4122 or bmayborne@mmac.org.