



New Jersey's
**Advanced Manufacturing
Cluster**

Prepared
Winter 2012–2013



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Produced by the
Office of Labor Planning and Analysis
of the
New Jersey Department of Labor and Workforce Development

NEW JERSEY DEPARTMENT OF

LWD

LABOR AND WORKFORCE DEVELOPMENT

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Winter 2012–2013



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New Jersey Advanced Manufacturing Highlights

- The advanced manufacturing industry cluster contributed over \$17.2 billion to the Gross Domestic Product in 2010, or about 4.0 percent of all output.
- New Jersey employs 53,000 people in chemical manufacturing, the state's largest segment of advanced manufacturing. New Jersey ranks third among states behind only California and Texas.
- Nearly half of all manufacturing industry employment remaining in the state is classified as advanced.
- Average wages paid in many advanced manufacturing industries are well above the statewide average of \$56,900.
- Advanced manufacturing establishment employers paid nearly \$11.6 billion in total wages in 2011, or about 6.5 percent of all wages paid.



Overview

There are over 3,200 establishments in New Jersey that employ more than 119,000 people in the advanced manufacturing cluster. Employment is scattered throughout the state and found in places ranging from very large pharmaceutical firms to much smaller machine shops. These establishments are generally found in the northeastern part of the state and also along the Interstate 95 corridor.

The occupational composition within advanced manufacturing industries is continuously changing, as more technical skills are required to operate more advanced processes. The expectation of higher skills has resulted in many higher paying jobs, especially among chemical manufacturing firms.

The profile of the average worker is generally older than average and male. More than 50 percent of the workforce is aged 45. Racially, it is more diverse than average, especially among the Asian population. The workforce is highly educated, with nearly 48 percent having attained at least a bachelor's degree.



The advanced manufacturing sector and its components with some examples of industries classified within them

Chemical Manufacturing

- Basic chemical
- Pharmaceutical & medicine
- Cleaning compound and toiletry
- Paint, coating and adhesive

Computer and Electronic Product Manufacturing

- Computers and peripheral equipment
- Communications equipment
- Audio and visual equipment
- Semiconductors and other electronic components

Machinery Manufacturing

- Industrial machinery
- HVAC and commercial refrigeration equipment
- Commercial and service industry machinery
- Turbine and power transmission

Source: North American Industry Classification System (NAICS)
Prepared by: New Jersey Department of Labor and Workforce Development
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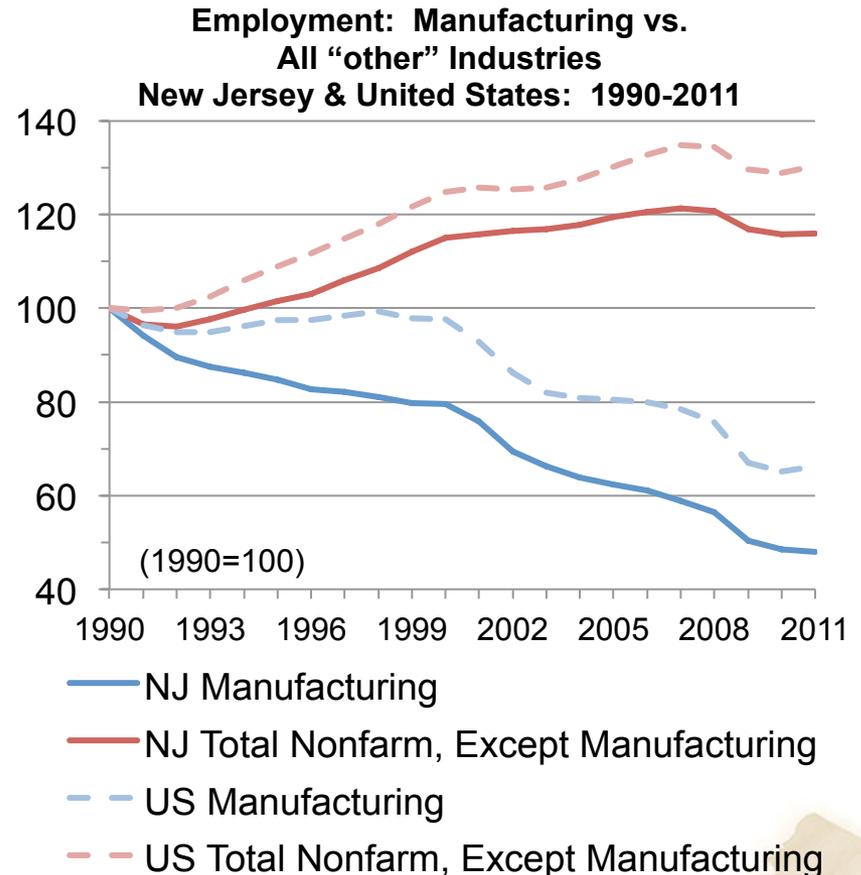
New Jersey has followed an employment trend similar to the nation's, but has fared worse over the last 21 years

Manufacturing has lost over 275,000 jobs in New Jersey since 1990, a 3.4 percent annual decline, while the nation has declined at a 1.9 percent annual rate, shedding over 5.9 million jobs.

The “other” non-agricultural industries posted a net gain of 496,500 jobs in New Jersey, while the United States added about 27.8 million.

Since 1990, the manufacturing sector in New Jersey has failed to experience a year-over-year gain. Its best year was a 0.2 percent decline from 1999–2000.

Source: NJLWD, Current Employment Statistics
Prepared by: New Jersey Department of Labor and Workforce Development
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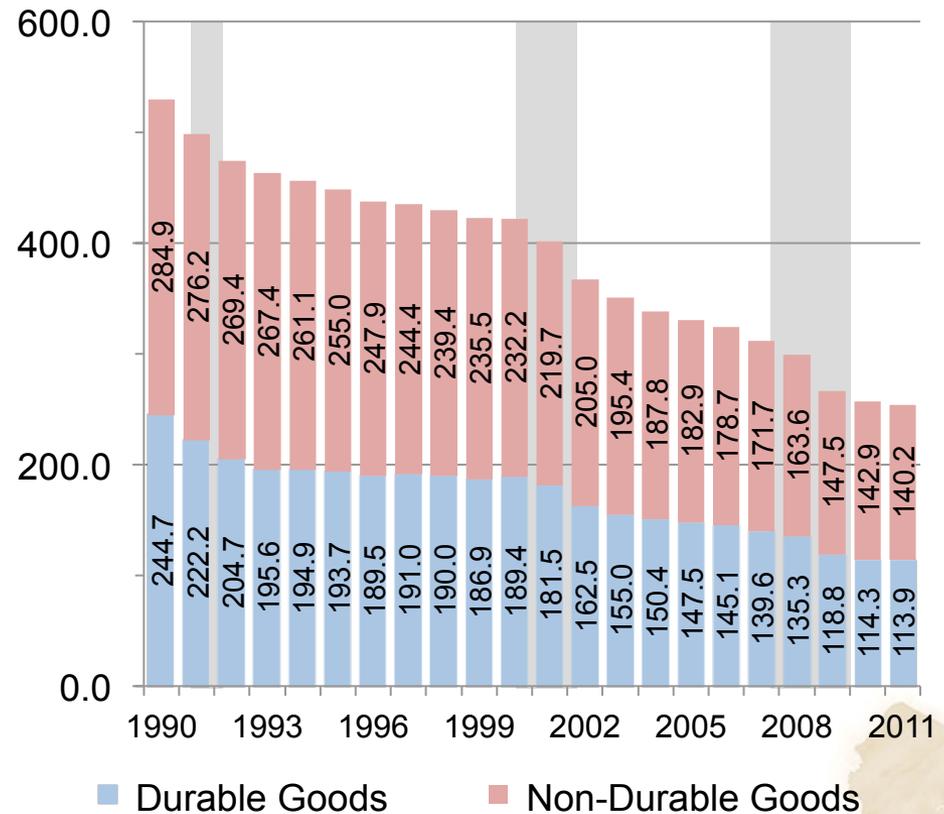
Manufacturing employment in New Jersey has declined from 14.6% of all jobs in 1990 to 6.6% in 2011

Nationally, manufacturing's share of total employment has declined from 16.2 percent in 1990 to 8.9 percent in 2011.

Widespread and consistent losses among industries that manufacture both durable and non-durable goods have resulted in closely distributed annual average losses of 3.6 and 3.3 percent, respectively.

During the six worst years for manufacturing employment in New Jersey (1991–92, 2001–02, 2008–09), more than 156,000 of the 275,400 total jobs losses occurred — an average rate of decline of more than 6 percent per year.

**Employment breakdown
Durable vs. Non-durable Goods
New Jersey: 1990-2011**



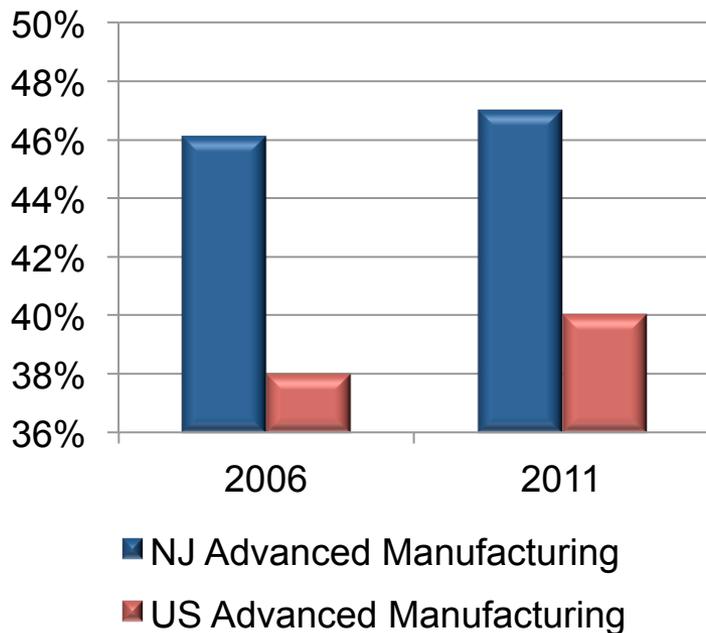
Source: NJLWD, Current Employment Statistics
Prepared by: New Jersey Department of Labor and Workforce Development
December 2012

* Shading indicates recessionary periods



In New Jersey, 151 out of 473 NAICS-based manufacturing industries are classified as advanced

**Percentage of Manufacturing Employment Classified as Advanced
New Jersey and United States:
2006 & 2011**



Employment in advanced manufacturing industries declined at a lesser rate in New Jersey and the nation from 2006 to 2011, 4.4 and 2.7 percent, respectively, than its non-advanced counterpart (5.2 and 4.4 percent).

In 2011, more than 119,000 people were employed in industries classified as advanced manufacturing in New Jersey.

Nearly 47 percent of all manufacturing employment in New Jersey occurred in advanced industries in 2011, versus only 40 percent nationwide.

Source: NJLWD, Quarterly Census of Employment and Wages
Prepared by: New Jersey Department of Labor and Workforce Development
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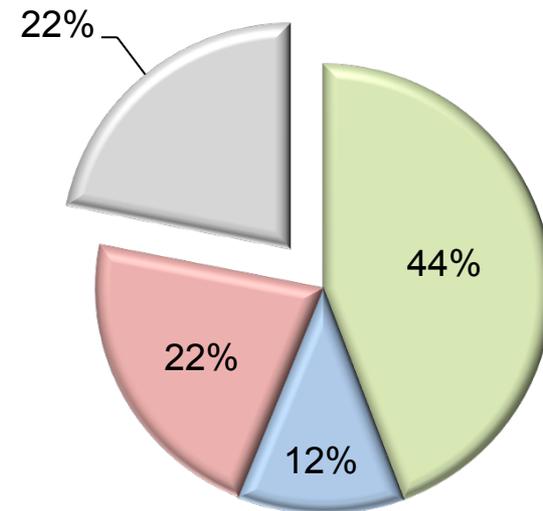
The three major areas of advanced manufacturing account for nearly 80% of its workforce in New Jersey in 2011

Chemical manufacturing, which includes pharmaceuticals and medicine, employed over 52,700 in 2011, which is nearly 21 percent of all manufacturing in the state.

Computer and electronic product and machinery manufacturing together employed more than 40,200 in 2011.

The remaining 22 percent of advanced manufacturing employment comprises a group of industries producing goods such as glass and glass products, electrical equipment, transportation equipment, and medical instruments and devices.

Employment Distribution of Advanced Manufacturing
New Jersey: 2011



- Chemical Manufacturing
- Machinery Manufacturing
- Computer and Electronic Product Manufacturing

Source: NJLWD, Quarterly Census of Employment and Wages, Annual Average
Prepared by: New Jersey Department of Labor and Workforce Development
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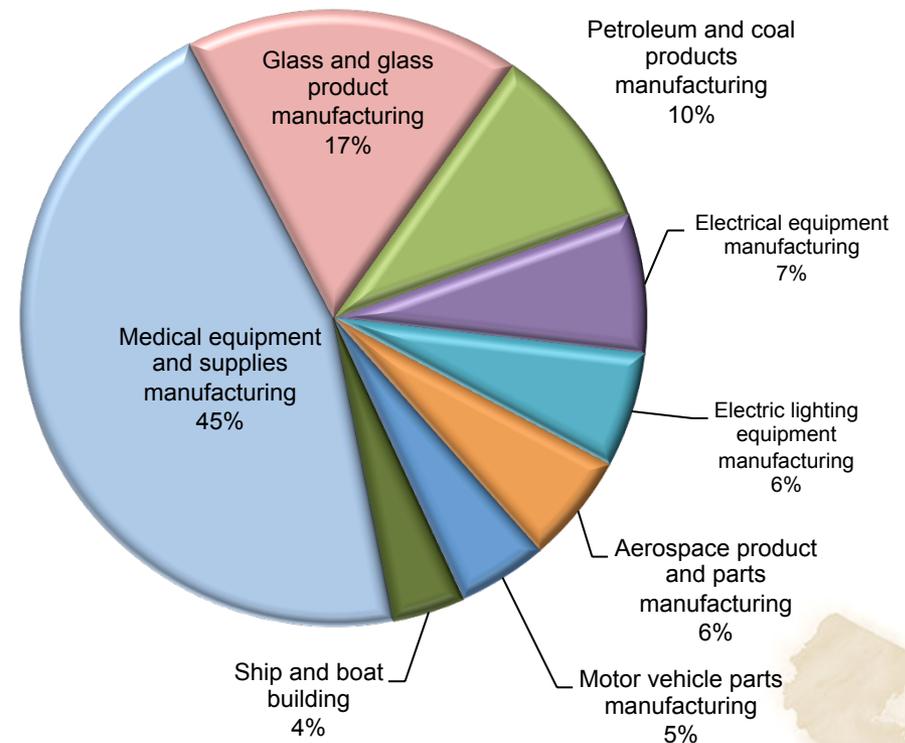
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Eight detailed industries make up the roughly 27,100 workers in “other” advanced manufacturing component

Nearly half of these “other” workers are employed in the medical equipment and supplies manufacturing industries, which tend to have very high average wages and are primarily located in northeast New Jersey.

Glass and glass product manufacturing is a vital industry in New Jersey, and is unique mainly to the state’s southern counties.

**Breakdown of Employment of “Other” Advanced Manufacturing
New Jersey, 2011**

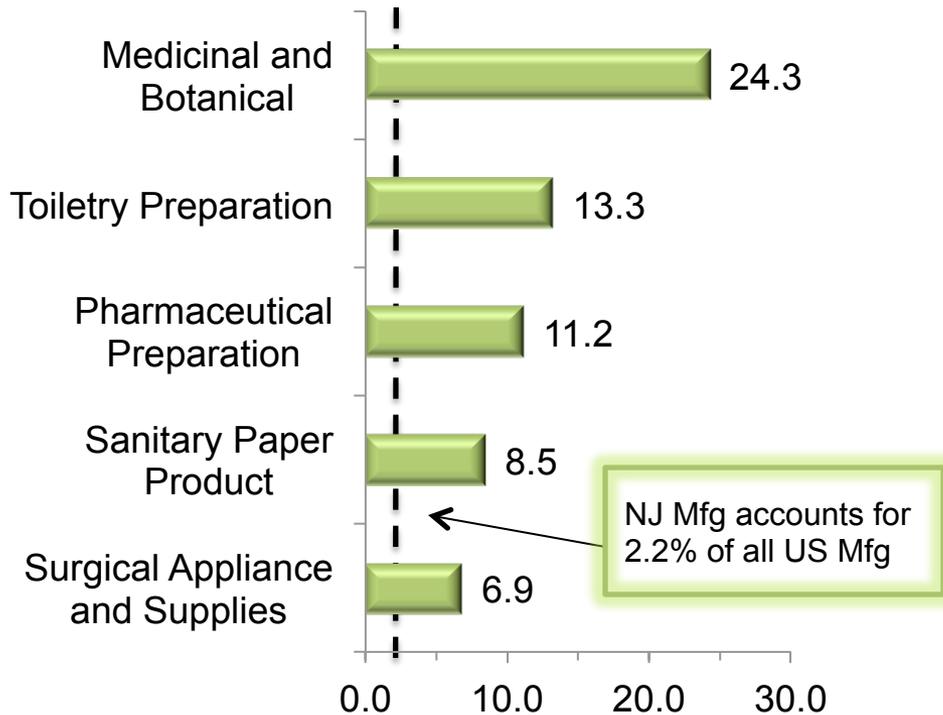


Source: NJLWD, Quarterly Census of Employment and Wages
Prepared by: New Jersey Department of Labor and Workforce Development
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These industries each employ many New Jerseyans and account for a large part of U.S. industry employment

New Jersey Employment as a Percentage of the Nation: 2011



Chemical manufacturing in New Jersey, where the top three industries on this list are classified, accounts for 6.7 percent of chemical manufacturing employment in the nation.

All but sanitary paper product manufacturing would be classified as advanced.

Overall, New Jersey employed 2.6 percent of all advanced manufacturing in the nation.

Source: NJLWD, Quarterly Census of Employment and Wages, Annual Average
Prepared by: New Jersey Department of Labor and Workforce Development
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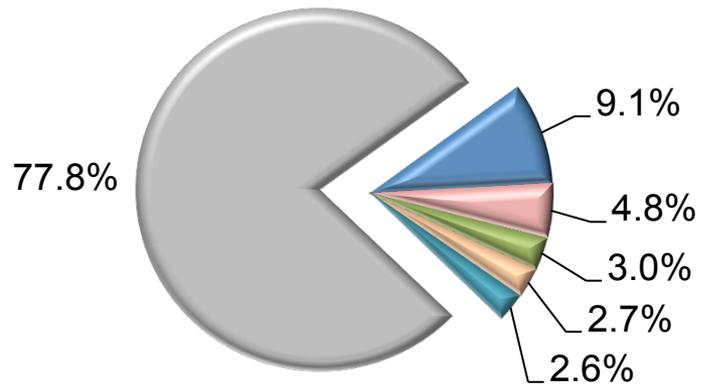


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The five largest manufacturing industries make up over 22% of all manufacturing employment in the state

Percentage of Industry's Employment
of All Manufacturing
New Jersey, 2011



- Pharmaceutical Preparation Manufacturing
- Commercial Gravure Printing
- Search, Detection & Navigation Instrument
- Surgical Appliance and Supplies Mfg
- Toilet Preparation Manufacturing

Pharmaceutical preparation accounts for one of every 11 manufacturing jobs in New Jersey, but less than 2 percent of all manufacturing jobs nationally.

Among these five largest manufacturing industries, only commercial gravure printing is not considered to be advanced.

Each of these industries earns a substantial average annual wage, ranging from \$56,800 for commercial gravure printing to \$139,600 for pharmaceutical preparation.

Source: NJLWD, Quarterly Census of Employment and Wages, Annual Average
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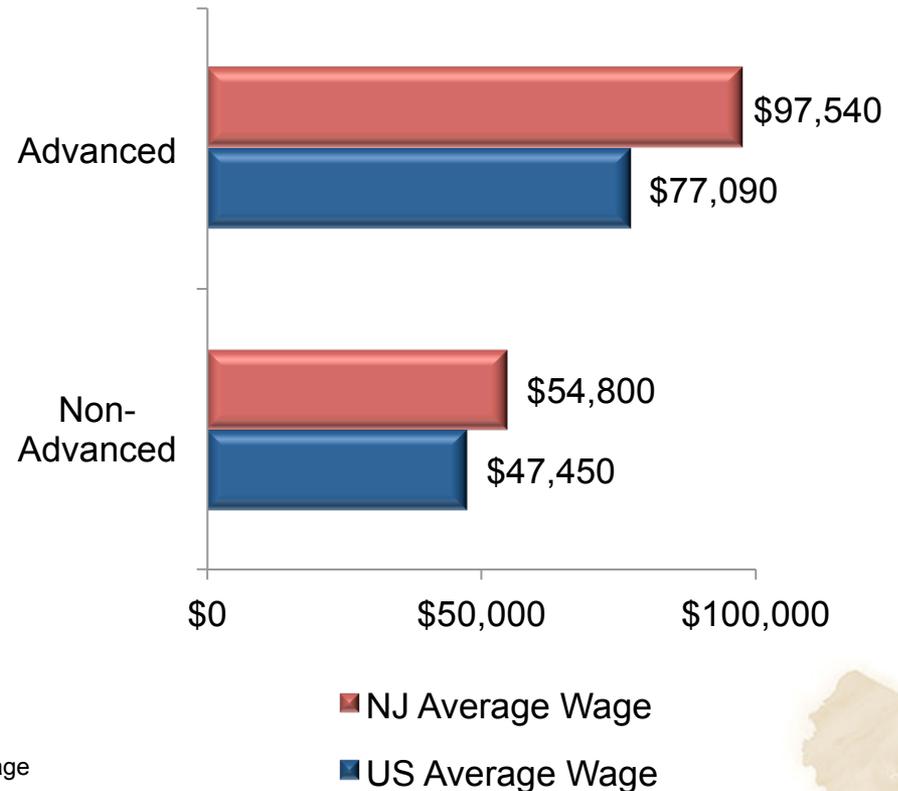
Average wages in New Jersey in 2010 are about 78% more among advanced manufacturing industries than in non-advanced manufacturing industries

From 2006 to 2011, average wages in New Jersey in advanced manufacturing increased 3.4 percent per year, compared to only 1.8 percent per year for non-advanced.

Average wages paid in 2011 among advanced manufacturing industries are 27 percent higher in New Jersey than in the nation.

One of the highest paying industries in New Jersey, the advanced manufacturing industry earns about 71 percent more than the state average of \$56,900 in 2011.

Comparison of Average Wages Among Advanced and Non-advanced Manufacturing: New Jersey & United States, 2011



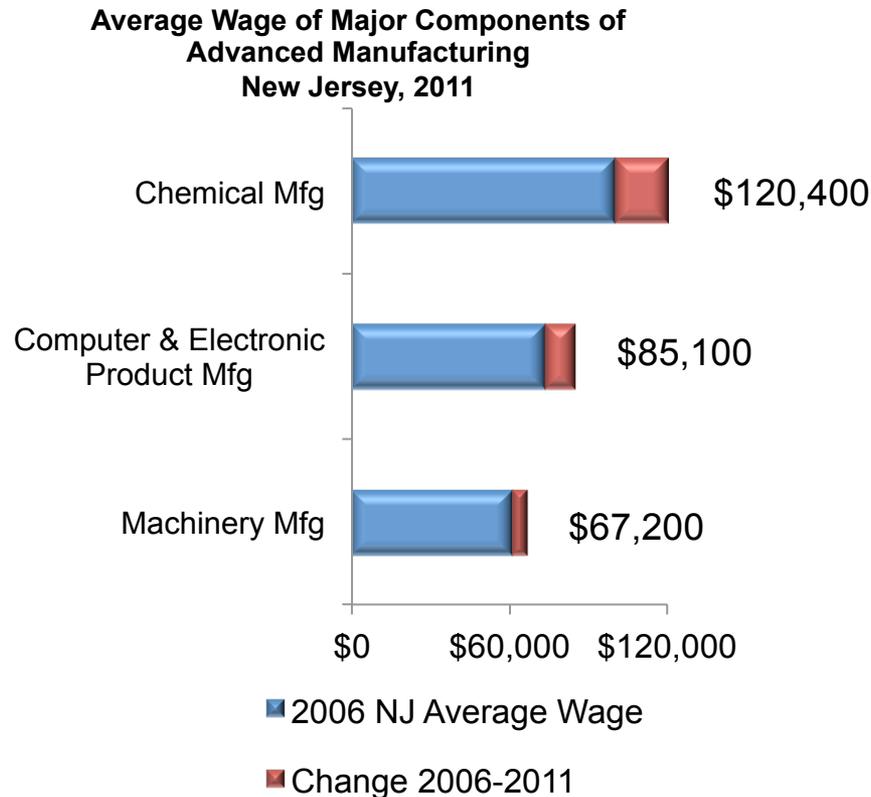
Source: NJLWD, Quarterly Census of Employment and Wages, Annual Average
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Average wages in New Jersey among the three main components of advanced manufacturing have averaged 3.3% annual growth from 2006 to 2011



Each component of advanced manufacturing earned more than the state average of \$56,900 in 2011.

The chemical manufacturing industry earned more than twice as much as the state average in 2011, and averaged annual increases of 3.8 percent from 2006 to 2011.

The higher average wages paid in both chemical and computer and electronic product manufacturing are reflective of the greater composition of jobs requiring higher educational levels.

Source: NJLWD, Quarterly Census of Employment and Wages, Annual Average
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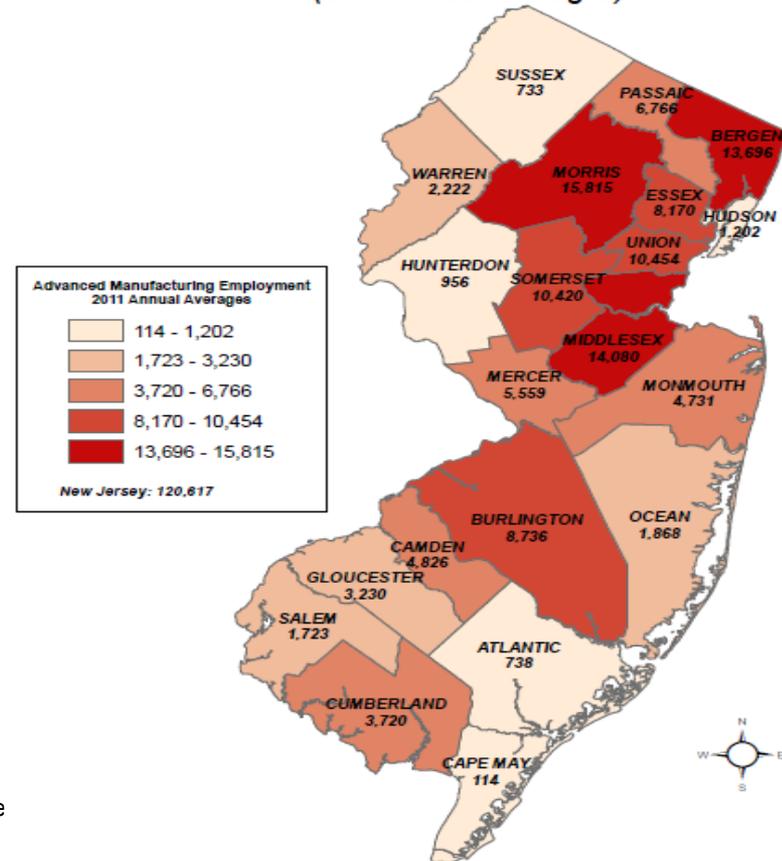
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Employment in advanced manufacturing is highly concentrated in New Jersey's most populous counties and along the Interstate 95 corridor...

New Jersey offers unique business advantages including:

- ✓ geographic proximity to roughly 40 percent of the U.S. population, or roughly 100 million potential consumers
- ✓ a highly educated and very diverse workforce
- ✓ extensive transportation network in place to carry goods by land, air, and sea

**Advanced Manufacturing Employment
New Jersey Counties
(2011 Annual Averages)**



Source: NJLWD, Quarterly Census of Employment and Wages, Annual Average
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...however, advanced manufacturing in New Jersey's more sparsely populated counties makes up a larger percentage of total private sector employment

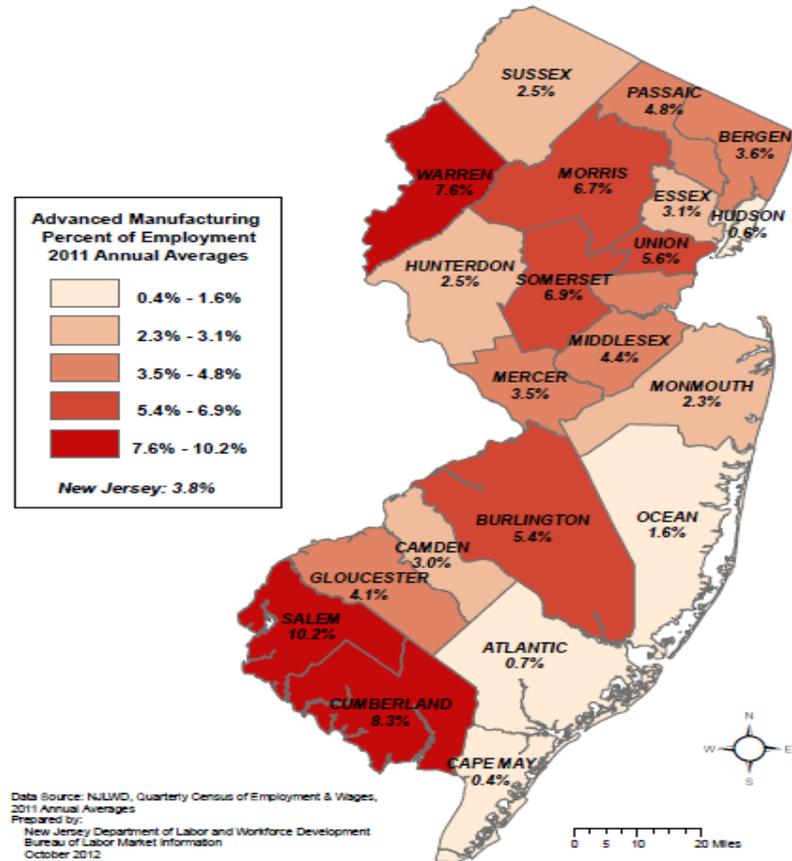
Cumberland, Salem, and Warren counties have the largest shares of advanced manufacturing.

Morris, Somerset, and Union Counties are at the center of the chemical manufacturing employment base in New Jersey.

In the coastal counties of Ocean, Atlantic, and Cape May, less than 2 percent of employment is classified as advanced manufacturing.

Source: Quarterly Census of Employment and Wages
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**Advanced Manufacturing
Percent of Total Employment
(2011 Annual Averages)**

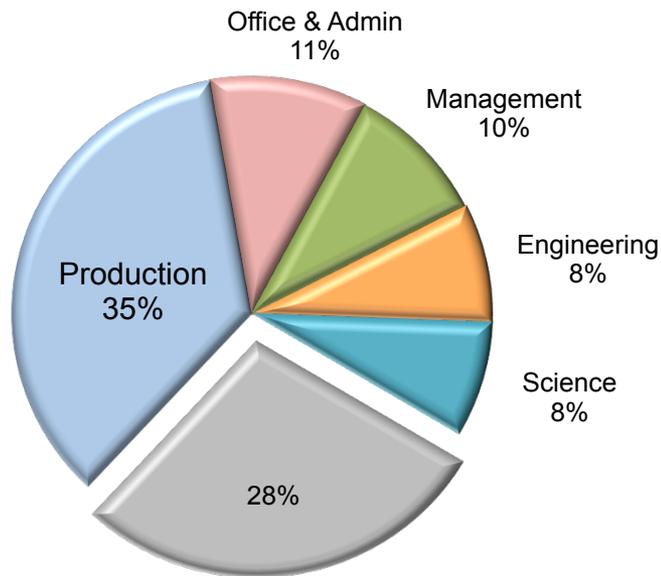


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More than 70% of all advanced manufacturing jobs are classified into these five groups

**Breakdown of Major Occupational Groups within
Advanced Manufacturing Industry:
New Jersey, 2011**



Greater than one-third of advanced manufacturing workers are directly involved with production.

Roughly one out of six workers contributes to research and development as part of the engineering and science groups.

The “other” 28 percent of advanced manufacturing occupations primarily consists of business, computer, material moving, and sales occupations

Source: NJLWD, Occupational Employment Statistics Survey, Annual Average
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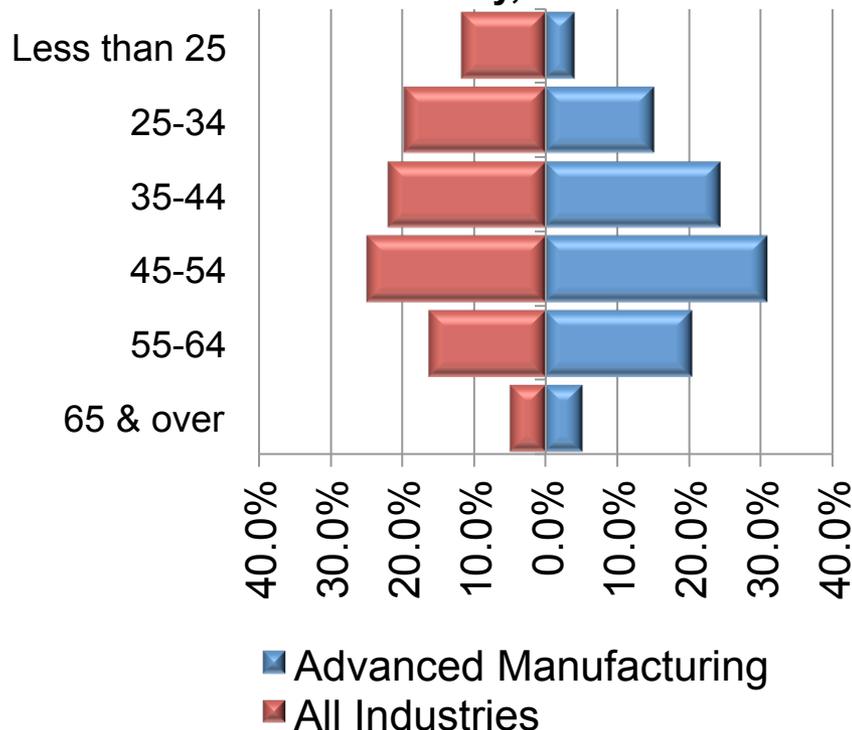


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The age breakdown of workers in the advanced manufacturing industries differs significantly from the overall economy

**Age Breakdown of Workers in
Advanced Manufacturing Industry
New Jersey, 2011**



Only 4 percent of the workforce is under 25 years of age, compared to almost 12 percent overall.

Advanced manufacturing's workforce is concentrated in middle age, with nearly 55 percent of all workers, compared to about 47 percent in this age category overall.

A greater proportion of the workforce in advanced manufacturing is aged 55 and older (25%), compared to the proportion in the overall economy (25%).

Source: U.S. Census Bureau, American Community Survey
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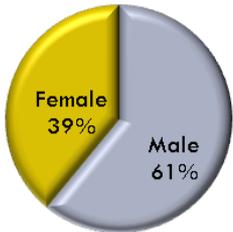


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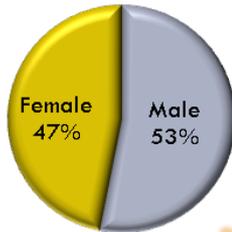
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Gender, racial, and ethnic profile of New Jersey's manufacturing workforce

Advanced Manufacturing



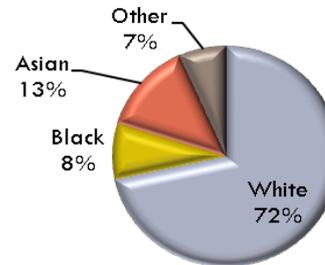
All Industries



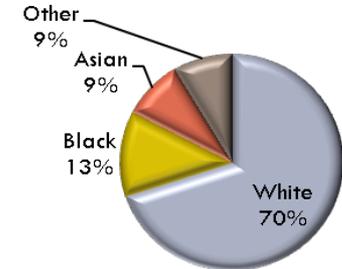
There are nearly two males for every female working in advanced manufacturing industries

The Asian population makes up a larger portion of the advanced manufacturing workforce than the overall economy

Advanced Manufacturing

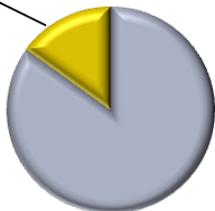


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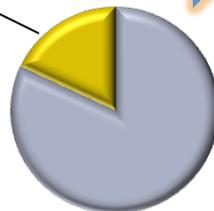


The Hispanic population is slightly less among advanced manufacturing industries

Hispanic



Hispanic



Advanced Manufacturing

All Industries

Source: U.S. Census Bureau, American Community Survey
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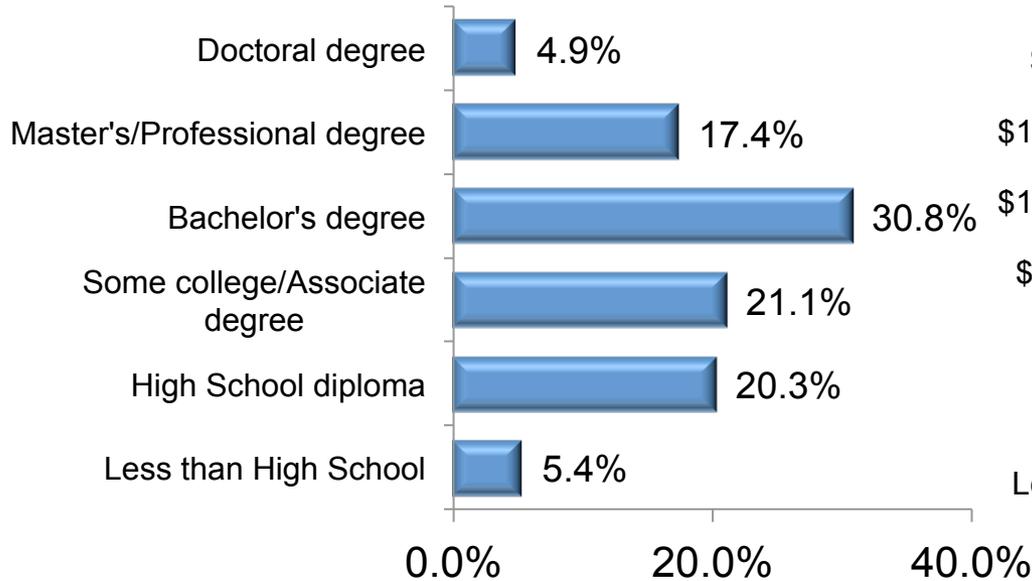


Self-reported educational attainment and average wage of the advanced manufacturing workforce

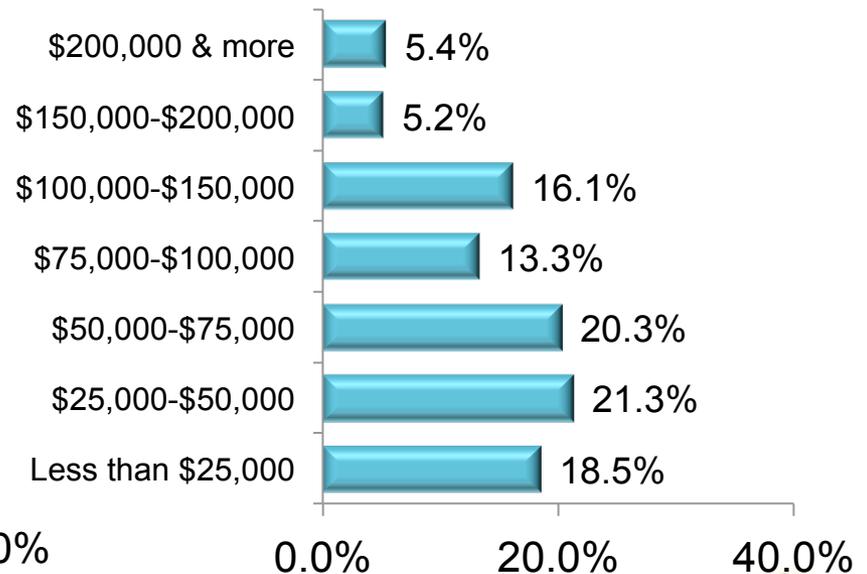
More than 53% of the workforce reported that they have earned at least a bachelor's degree, while...

...more than 60% of the workforce claimed to have earned wages above \$50,000.

Education Level



Average Wage



Source: U.S. Census Bureau, American Community Survey
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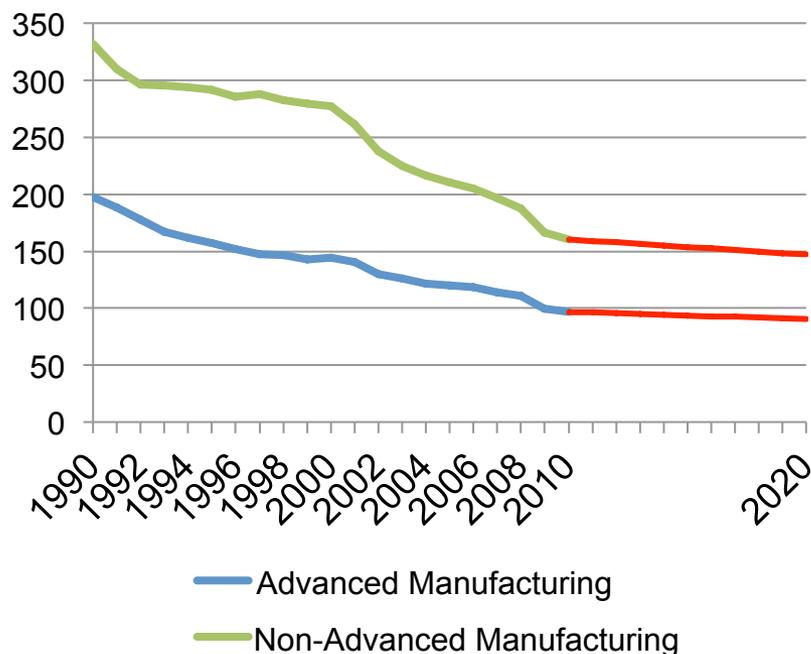


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The long decline in manufacturing employment in New Jersey is projected to slow

Actual and Projected Employment in Advanced and Non-Advanced Manufacturing (thousands): New Jersey, 1990-2020



Manufacturing shed over 275,000 jobs in New Jersey from 1990–2011, a 3.4 percent annual decline.

From 2010 through 2020, declines are projected to slow in advanced and non-advanced manufacturing industries to -0.7 and -0.9 percent per year, respectively.

Despite these consistent employment declines, output (by GDP) had remained steady from 1997 to 2007 before succumbing to recessionary pressures.

The recession that began in late 2007 had strong effects on advanced manufacturing, particularly the chemical manufacturing sub-sector, and GDP dropped nearly 25 percent over those two years.

Source: NJLWD, Current Employment Statistics, U. S. Bureau and Economic Analysis
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Office of Labor Planning & Analysis

http://lwd.dol.state.nj.us/labor/lpa/LMI_index.html

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