

The Importance of Manufacturing to North Carolina

Manufacturing matters to our state, to our country and to the world. Manufacturing continues to be the leading contributor to North Carolina's Gross Domestic Product (GDP) at 18.6%, although that represents a decline of 5.7% from 1997 to 2007. Manufacturing continues to employ the most people at 16.7% of the total workforce, providing above-average wage jobs to more than 535,000 individuals.

Among the states, North Carolina ranks 9th for its contribution to the US GDP based on 2007 data, leaping from 11th in 2006. North Carolina ranks 6th in the United States in manufacturing and first in the Southeast. More than 98% of exports come from manufacturers, both in North Carolina and the rest of the country.

Small manufacturers play a crucial role in the global marketplace. Of the 10,567 manufacturing companies in North Carolina, almost 80% have 50 or fewer employees. Manufacturers generally are located in the more populous areas of the state along the Interstate 40 and Interstate 85 corridors.

The top three industries based on the percentage of North Carolina manufacturing workers are food product manufacturing, furniture and textiles. In 2007, food manufacturing surpassed furniture in number of employees. The food product industry also contributes the highest GDP within the industrial sectors in North Carolina.

Manufacturing is continually evolving to fulfill the growing needs of a global market.

Graph 1: US Total GDP

North Carolina ranks 9th in the nation for its contribution to the national Gross Domestic Product (GDP) based on data for 2007.

Graph 2: US – Contribution to GDP

North Carolina's manufacturing output places it 6th in the country by providing 4.6% of the total manufacturing contribution of the country. North Carolina leads the Southeast in manufacturing.

Graph 3: North Carolina GDP

Manufacturing is the leading contributor to the state's GDP at 18.6% of the total. The closest sector to follow is finance and insurance at 12.7% of the GDP.

Employment and Wages

Manufacturing continues to lead all industrial sectors in North Carolina as both a percentage of the state's GDP and as an employer. Manufacturing salaries are within the top 10 within the industrial sector.

Manufacturing in the 21st century is highly efficient and productive and workers have to be educated, motivated and creative. The simple assembly line has practically disappeared. There's nothing simple about the products and how they're made. Only intelligent people need apply.

The [Manufacturing Institute](#), the research arm of the National Association of Manufacturers, reports a moderate to severe shortage of skilled production employees. The shortage is due, in part to the stigma of industrial careers. But the reality is that many manufacturing jobs depend on highly skilled employees working in laboratory-like settings.

Students of all ages, and their parents, need to understand the importance of engineering and manufacturing careers to our nation's economy.

Graph 4: North Carolina Employment

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Graph 5: North Carolina – Avg. Weekly Employee Wages

The weekly wages in manufacturing place it 8th among the state's industrial sectors. Manufacturing wages are higher on average than healthcare and social assistance, transportation and educational services.

Location of Manufacturing

Manufacturers tend to locate in the more populous areas of the state along the Interstate 40 and Interstate 85 corridors. Manufacturing is generally an urban activity. In North Carolina, most manufacturers happen to be located in the most populated counties of Mecklenburg, Wake and Guilford.

Graph 6: North Carolina Counties 2007 Certified Population Estimate

Just over 2.1 million residents or 23.7% of the state's population reside in the top three counties of Mecklenburg, Wake and Guilford.

Graph 7a: County Distribution of Manufacturing Establishments

The number of manufacturing establishments in North Carolina total 10,567. Approximately 2,486 establishments are within Mecklenburg, Guilford and Wake counties.

Graph 7b (bar graph): Top 10 NC Counties by Manufacturing Units

It is no surprise that the most populous counties also have the most manufacturing establishments. Combined they account for almost 24% of the total statewide manufacturing establishments, with Mecklenburg at 9.6%.

Graph 7c: Top 5 Counties for Manufacturing Wages

Within the county of Durham lies Research Triangle Park (RTP) and its abundance of advanced manufacturing establishments including the bio-science sector.

Based on www.rtp.org, RTP has been and continues to be a model for innovation, education, and economic development that has been applied around the world. It is home to winners of the Nobel and Pulitzer prizes, as well as recipients of the U.S. Presidential Award and National Foundation Awards. Some of the most profound discoveries of the 20th century have been influenced by scientists and researchers working in RTP, including the invention of the Universal Product Code and 3D ultrasound technology.

Durham county leads the state in average wages which are 61% higher than Mecklenburg, the next highest wage payer.

Graph 8: County Distribution of Manufacturing Workforce
(No need for new)

The distribution of manufacturing employees is concentrated in Guilford, Mecklenburg and Durham counties. Guilford County holds the #1 spot based on the percentage of manufacturing employment, due to the strength of chemical manufacturers and furniture and related product manufacturers in the region.

Key Manufacturing Industries

Manufacturing is a broad category that includes any business that produces a product. By looking at manufacturers by product categories, several patterns emerge. Food product manufacturing provides the highest contribution to state GDP while comprising only 571 establishments out of the state's total of 10,567 establishments. Food product manufacturers transform livestock and agricultural products into products for intermediate or final consumption, including grain milling, sugar and confectionery, dairy, seafood and bakery production, to name a few. It also includes beverage and

tobacco product manufacturing.

Fabricated metal establishments are the most numerous, yet food product manufacturing has the largest workforce. The difference is that fabricated metal shops generally employ fewer than 50 workers. The same holds true for furniture and related products with 81% of their establishments employing 50 or less workers.

Comparing sub-sectors within manufacturing

Graph 9a: North Carolina – GDP based on Mfg. Industrial Sub-Sectors

The food product industry contributes the most to the state manufacturing GDP at almost 26% of the total. Food products made or processed in North Carolina include pickles, seafood, wine and tobacco products.

9b: Pie chart

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Graph 10: North Carolina GDP by Mfg. Sub-Sectors

North Carolina is home to 1,403 shops that make fabricated metal products, which is 13% of total manufacturing establishments. Furniture and related products is a close second with 10.5% of total establishments.

Graph 11: North Carolina's Top Ten Manufacturing Sub-Sectors Average Annual Employment

Three of the top five industry subsectors experienced a reduction in employee size from 2006 to 2007. Manufacturers are learning to do more with less. The global market requires manufacturers to be efficient and competitive. By applying advanced technology, manufacturers may experience a reduction in manpower.

Secondly, based on a survey conducted by the [NC Department of Labor](#), manufacturers report an 85% shortage of technically skilled employees. As the shortage of skilled workers continues or worsens and as the baby boom generation retires, manufacturers have no choice but to cope with the shortage.

North Carolina has been a furniture and textiles powerhouse for most of the 20th century. In the 21st century, food product manufacturers replace furniture as the highest employer in the state. More than 145,000 workers work in furniture, food products or textile plants. However, with a workforce of 49,532 furniture and related products is a close second accounting for 9.2% of total manufacturing employees.

Importance of small manufacturers

Graph 12: Distribution of Establishments Based on Employee Size

Almost half of the manufacturing establishments employ nine or fewer employees in North Carolina. The largest establishments with more than 250 employees account for less than 5% of manufacturers.

Graph 13: Distribution of Percent of Establishments by Employee Size (top 3 mfg. sub-sectors)

Food manufacturing, textile mills and furniture establishments employ the most people within the manufacturing sector. This graph notes the impact that small companies have on our state. Fifty-four percent of furniture and related products companies have fewer than 9 employees.

Manufacturing Exports

North Carolina exports manufactured products to countries around the globe. These products account for at least 98% of all exports. North Carolina ranks 13th in the value of its exports. Most North Carolina exports stay in the Western Hemisphere, with both Asia and Western Europe vying for the bulk of the remainder. Canada buys most of North Carolina's exports by far, with Japan and China trailing. The products of chemical manufacturers comprise almost 20% of the state's exports, followed by machinery manufacturers.

Graph 14: US Map

North Carolina ranks 13th in the United States in world exports at approximately \$21 billion, an increase of \$5 billion from 2006.

Graph 15: Manufacturing Exports to the world (World map)

Graph 16: bar graph Exports by Geo Region

North Carolina exports a majority of its goods and services to North America with most coming from the manufacturing sector.

Graph 17: North Carolina Exports by Top Ten Countries

Of North Carolina's total exports to Canada, 97.2% come from the manufacturing sector.

Graph 18: North Carolina – Exports by Manufacturing Industrial Sub-Sectors

Chemical exports accounted for 20% of manufacturing exports as a whole, the largest single category.

Chemical manufacturers transform organic and inorganic raw materials by a chemical process into products such as soaps and detergents, medicinal or botanical products, and fertilizers.

Manufacturing Trends

From 1997 to 2007, the GDP of the United States climbed while the contribution from manufacturing remained stagnant. The same trend occurred in North Carolina, resulting in manufacturing declining as a percentage of the state's GDP from 26.2% to 18.5% in that time.

The finance and insurance industry, along with real estate sales, rental and leasing, grew the most over the last ten years. Within manufacturing, non-durable goods such as food products and chemical manufacturing experienced growth and higher contributions to GDP.

Graph 19: US GDP and Mfg Sector

Graph 20: NC GDP and Manufacturing Sector

NC GDP rose \$18 billion or 4.5% from 2006 to 2007.

Graph 21: NC – Detailed Distribution of GDP for MFG Sector

Manufactured goods are categorized as either durable (expected to last at least a year) or non-durable. Non-durable goods, which typically last for less than one year, include paper manufacturing, food product manufacturing and chemicals. Durable goods include fabricated metal products, transportation equipment, furniture, computers and electronics.

Conclusion

According to the [National Association of Manufacturers](#), U.S. manufacturing is the **highest contributor to economic growth** than any other sector. It is the engine of technology development and innovation, **responsible for more than 70% of private sector research and development** and the center for advanced technologies that also cut energy use and lead to a cleaner environment. **Manufactured goods make up more than 60% of U.S. exports** and manufacturing **wages are approximately 25% higher** than non-manufacturing jobs. Manufacturing achieves a **high productivity rate year in and year out, increasing by more than 50%** in the past decade; Manufacturing has a greater multiplier effect on the rest of the economy as **each manufacturing dollar generates an additional \$1.37 in economic activity**.

Manufacturers deserve our support. Students need to consider manufacturing or engineering– "making something" – as a fulfilling career choice.

Manufacturing remains a vital component of North Carolina's economy. Manufacturing

provides jobs for a majority of the state's workforce. Small and medium-sized manufacturers are the cornerstone of the manufacturing sector. And manufacturing provides the products that the rest of the world wants to buy.

IES logo

IES is the outreach function of North Carolina State University's College of Engineering. We help new businesses grow and good businesses get better. We work with industries from the coast to the mountains, from 1,000 feet underground to 30,000 feet up, and we deliver results in [quality](#), [productivity](#), [safety](#), [environmental protection](#), [energy management](#), and [top-line growth](#). In 2007, working with IES typically offered a return on investment of \$13 for every dollar spent by our client companies.

IES is part of the [Manufacturing Extension Partnership](#) (MEP), a nationwide program that is part of the National Institute of Standards and Technology (NIST). With a network of MEP centers in every state and Puerto Rico, the program's purpose is to provide small and medium-sized manufacturers with the tools they need to succeed. In an independent survey conducted quarterly by MEP, clients reported that IES services have been worth more than \$500 million in the first five years of the 21st century. By the end of 2010, IES strives to generate \$1 billion in wealth for the state in a campaign called [1B4NC](#).

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