North Carolina in the Global Economy

A New Look at Global Competition, Local Jobs, and the Role of Research Universities

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North Carolina, with its unique mix of industries, from information technology, biotech, and banking, to the traditional sectors of textiles & apparel, furniture, tobacco, and hog farming, is a microcosm of trends observed elsewhere in the United States. This website presents and analyzes up-to-date information about how industrial restructuring in an era of globalization is impacting North Carolina’s key industries.
### Table 1: National Ranking of North Carolina Industries by Employment, 1995 and 2005*

<table>
<thead>
<tr>
<th>Industry</th>
<th>1995</th>
<th></th>
<th>2005</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>NC Rank</td>
<td>% of US Employment in NC</td>
<td>Total US Employment</td>
<td>NC Rank</td>
</tr>
<tr>
<td>Tobacco</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>1</td>
<td>44.5%</td>
<td>41,854</td>
<td>1</td>
</tr>
<tr>
<td>Farming</td>
<td>1</td>
<td>47.5%</td>
<td>5,424</td>
<td>1</td>
</tr>
<tr>
<td>Manufacturing</td>
<td>1</td>
<td>44.1%</td>
<td>36,430</td>
<td>1</td>
</tr>
<tr>
<td>Textiles and Apparel</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>1</td>
<td>16.6%</td>
<td>1,518,638</td>
<td>2</td>
</tr>
<tr>
<td>Textiles</td>
<td>1</td>
<td>25.1%</td>
<td>688,649</td>
<td>2</td>
</tr>
<tr>
<td>Apparel</td>
<td>3</td>
<td>9.6%</td>
<td>830,189</td>
<td>3</td>
</tr>
<tr>
<td>Furniture</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>1</td>
<td>12.6%</td>
<td>626,711</td>
<td>2</td>
</tr>
<tr>
<td>Biotechnology</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>7</td>
<td>7.5%</td>
<td>227,955</td>
<td>6</td>
</tr>
<tr>
<td>Hog Farming</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Total</td>
<td>6</td>
<td>4.8%</td>
<td>270,893</td>
<td>7</td>
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<tr>
<td>Farming</td>
<td>1</td>
<td>25.6%</td>
<td>15,936</td>
<td>1</td>
</tr>
<tr>
<td>Manufacturing</td>
<td>7</td>
<td>3.5%</td>
<td>254,957</td>
<td>9</td>
</tr>
<tr>
<td>Banking and Finance</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>12</td>
<td>2.3%</td>
<td>2,976,390</td>
<td>9</td>
</tr>
<tr>
<td>Banking</td>
<td>11</td>
<td>2.7%</td>
<td>2,312,652</td>
<td>9</td>
</tr>
<tr>
<td>Investment</td>
<td>19</td>
<td>1.0%</td>
<td>663,738</td>
<td>12</td>
</tr>
<tr>
<td>Information Technology</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>15</td>
<td>2.7%</td>
<td>3,858,596</td>
<td>15</td>
</tr>
<tr>
<td>Manufacturing</td>
<td>10</td>
<td>3.0%</td>
<td>1,690,708</td>
<td>11</td>
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<tr>
<td>Information</td>
<td>15</td>
<td>2.5%</td>
<td>1,444,971</td>
<td>14</td>
</tr>
<tr>
<td>Services</td>
<td>16</td>
<td>2.3%</td>
<td>722,917</td>
<td>16</td>
</tr>
</tbody>
</table>

* 2005 represents the period from the third quarter 2004 through the second quarter 2005.  
Source: Quarterly Census of Employment and Wages
OVERVIEW

Introduction

The textile and apparel industries have traditionally held a fundamental role in North Carolina's economy, providing thousands of jobs and revenue for local economies. In one sense, the industry is easy to define - the creation of fabric or cloth out of original fibers, using mechanical or chemical processes. Traditionally, most people think of textile products as feeding directly into apparel. Yet textiles & apparel is an expansive industry, with textile products showing up in a variety of places, from construction materials to air filters, from automotive fabrics to upholstered furniture. Specifically, the industry can be broken down in a number of different ways, including:

- By fiber type (including natural fibers like cotton and wool, and synthetic fibers like nylon)
- By fabric production process (including using yarn in knitting or weaving, or using nonwoven processes)
- By fabric finishing process (including unfinished fabrics, coated fabrics, and a variety of other treatments)
- By end product use (including apparel products, but also including medical products, construction products, automotive products, and a host of other end uses)

North Carolina's textile industry is at a crossroads. In order to maintain their leadership as a provider of textiles in the global economy, the industry is facing several key decisions in a new structurally changed economy and business environment. Although they enjoyed for decades the status as a leading manufacturing state, producing textile materials for international and domestic markets, increased competition, technological advancement, and the United States' shift to a service-based economy have all left an indelible impact on the industry. In this section we provide a snapshot of historical configurations and key trends - such as technological innovations, labor relations, and policy changes - which are mapping the future of the industry and how North Carolina firms navigate the rapidly changing terrain.
Main Data Sources

- Table 1, Google Maps, Google Earth
  - ReferenceUSA
- Value Chain data
  - NCESC, Employment and Wages Series

Other Sources:

- NCESC, Announced Business Closings
- US Dept. of Commerce, International Trade Administration, Trade Stats Express
- US Dept. of Agriculture, Census of Agriculture
North Carolina in the Global Economy

Current Value Chains on NCGE website

- **Information Technology**
- **Banking**
- **Biotechnology**
- **Textiles**
- **Tobacco**
- **Hog Farming**
- **Furniture**

Current Value Chains on NCGE website
313230: Nonwoven Fabric Mills
This industry comprises establishments primarily engaged in manufacturing nonwoven fabrics and felts. Processes used include bonding and/or interlocking fibers by mechanical, chemical, thermal, or solvent means, or by combinations thereof.

Statistics:
31 establishments
2,395 employees
$49,604 average annual wage per employee
North Carolina in the Global Economy

Map - North Carolina’s Textile & Apparel Value Chain, 2007

Adams in each stage of the textile value chain are represented in North Carolina, from fiber through finished products int distribution and sales. North Carolina has a significant presence in several segments of the supply chain including yarn, woven and nonwoven fabrics, and textile manufacturing. Many of the leading players in these sectors are either headquartered or have plants located in North Carolina including Parkdale Mills and Unifi in yarn; International Textile Group and Freudenberg in fabric; and TransCend and Kayser Reth in lakes. North Carolina also has a strong supportive environment for the textile industry including the College of Textiles and the Institute of Textile Technology located at NC State University, the Textile Technology Center and the Applied Textile Technology Center as part of the community college network, and several national professional organizations such as AATCC, TCED, INDIA, and Cotton Inc.
North Carolina in the Global Economy

The Textile Value Chain

TOP 5 COMPANIES IN NC

HANESBRANDS INC.

RESEARCH & DEVELOPMENT
DESIGN
PRODUCTION
LOGISTICS
MARKETING

VALUE-ADDED ACTIVITIES

SUPPLY CHAIN
- RAW MATERIALS
- COMPONENTS
- FINAL PRODUCTS
- DISTRIBUTION
- SALES

TEXTILE MACHINERY
CHEMICALS
FINISHING
TRADE ASSOCIATIONS
SUPPORTING INDUSTRIES
Revitalizing Traditional Industries: Competitive Challenges for North Carolina’s Textile & Furniture Industries
Revitalizing Traditional Industries

• Traditional, manufacturing-based industries in the United States have been hit hard in recent years.
  – Many point to globalization as the culprit, blaming changes in the global economy for sending American jobs overseas.

• …yet this is NOT A COMPLETE PICTURE. Globalization presents both opportunities and challenges for traditional industry.

• We will examine one traditional industry in which North Carolina has been strong: *textiles/apparel*. 
North Carolina’s Textiles/Apparel Industry


Source: NC-Global Economy Project (http://www.soc.duke.edu/NC_GlobalEconomy/)
North Carolina’s Employment Shifts: Textiles for Apparel


- Textiles have traditionally concentrated in four key regions:
  - Piedmont Triad Region
  - Greater Charlotte region
  - Southeast Region (Scotland/Robeson Cos.)
  - Eastern Region (Greater Greenville)

Source: NC-Global Economy Project (http://www.soc.duke.edu/NC_GlobalEconomy/)
Innovative Solutions: High-Tech Textiles

• North Carolina firms and universities are working together to develop *high-tech textiles*, a new breed of technology-intensive textile products.
  – These products use new, innovative materials and processes to create products with a wide array of uses…
    • Medical devices
    • Automotive industry
    • Construction materials
    • High-performance sporting equipment
  – Raleigh’s North Carolina State University has taken the lead on this, and major firms like Freudenberg (German) and Nano-Tex (USA) are playing active roles.

• This sector tends to have fewer jobs, but jobs have higher pay and have greater productivity.
Strategic Solutions: Replacing Low Tech with High Tech

• Private capital is being used to transform an old textile center into a new, innovative biotechnology hub.
  
  – Kannapolis, North Carolina (20 miles north of Charlotte) was the site of one of North Carolina’s most high-profile plant closures ever in fall 2003: 5,000 workers from the Pillow-Tex plant at the center of town.

  – In December 2004, Dole Foods owner David Murdock bought the plant, and in September 2005, announced that the site would be turned into the centerpiece of the North Carolina Research Campus, a 350-acre site that will host advanced laboratory space and serve as home to more than 100 biotechnology companies, as well as residential and retail space in downtown Kannapolis.

Source: Carolina Newswire, 13 September 2005
Key International Competitors:

- China
- India
- Mexico
- Italy
- Canada
International Competition:
The Rise of China

• China is a growing force in global exports, and a rising power in both the textile and furniture industries.
  – In 2004, China had $593 billion in exports to the world, around 6.7% of the world total – and had more than tripled since 1999 (WTO International Trade Statistics 2000, 2005)
  – In furniture, China’s furniture exports reached $7.3 billion in 2003 – now ranking second, behind only Italy. (CSIL 2004)

• China is looking to leverage its huge potential economies of scale and its advantages in labor costs to build a long-term advantage in the industry, inventing new forms of industrial organization, such as “supply chain cities.”
China’s Supply Chain Cities in Apparel

Made in China, Shipped Worldwide

<table>
<thead>
<tr>
<th>Factory orders, 2003</th>
<th>PRODUCTION</th>
<th>TOTAL SALES</th>
<th>U.S. EXPORTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>MEN’S WEAR</td>
<td>100 MILLION PIECES</td>
<td>$600 MILLION</td>
<td>$100 MILLION</td>
</tr>
<tr>
<td>Zhucheng</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CASUAL WEAR</td>
<td>160 MILLION PIECES</td>
<td>$260 MILLION</td>
<td>$58 MILLION</td>
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<tr>
<td>Haiyu, Changshu</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>DOWN-FILLED PRODUCTS</td>
<td>26 MILLION PIECES</td>
<td>$470 MILLION</td>
<td>$290 MILLION</td>
</tr>
<tr>
<td>Xingtang, Hangzhou, Xiaoashan</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>TIES</td>
<td>300 MILLION PIECES</td>
<td>$1.21 BILLION</td>
<td>$384 MILLION</td>
</tr>
<tr>
<td>Shengzhou</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SOCKS</td>
<td>9 billion PAIRS</td>
<td>$1.57 BILLION</td>
<td>$240 MILLION</td>
</tr>
<tr>
<td>Datang, Zhiji</td>
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</tr>
<tr>
<td>UNDERWEAR</td>
<td>969 million PIECES</td>
<td>$360 MILLION</td>
<td>$290 MILLION</td>
</tr>
<tr>
<td>Jinjiang, Shenhui</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>WEDDING DRESSES, EVENING GOWNS</td>
<td>510 million PIECES</td>
<td>$950 MILLION*</td>
<td>$640 MILLION†</td>
</tr>
<tr>
<td>Chaozhou</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>JEANS</td>
<td>225 million PIECES</td>
<td>$1.04 BILLION</td>
<td>$480 MILLION</td>
</tr>
<tr>
<td>Xingtang, Zengcheng</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Includes all textiles made in the city.†Wedding dress and evening gown exports only.

Source: China National Textile Council, Shenhui Underwear Association, Datang Town Government

Italy vs. China: The Hope of Design?

- Italy versus China (Manzano versus Anji)
- Italy is seeking new ways to build advantage, including utilizing a traditional strength: design.
  - Venice is seeking to marry manufacturing and design, bringing together Italian artists, businessmen, and furniture makers in an effort to help rethink the role of design.
  - Design is a higher link in the value chain than manufacturing – thus bringing higher value-added.....
MNC R&D Centers in China & India: How are engineers being used?

• What kinds of work are Chinese, Indian, and American engineers actually doing?
  – **Answer**: Not just product adaptation, but cutting-edge research & commercialization

• China: More than 700 MNC R&D Centers
  – GE’s *China Technology Center*: Advanced research in energy storage, environmental management
  – *Microsoft Research Asia*: Cutting-edge graphics & multimedia research

• India: More than 150 of Fortune 500 firms have R&D centers
  – Oracle’s *India Development Centre*: Globally-oriented research on database and application development tools
Value Chain Analysis and the Environment
HIGHLIGHTS

CGGC: Globalization Gets Real 🔖
An interview with Gary Gerfield.

How getting chummy with China helps North Carolina
Raleigh News & Observer, op ed by Gary Gerfield

U.S.-China Economic and Security Review Commission Hearing on North Carolina’s Economy 🔖
Center Director Gary Gerfield offers key testimony.

Intellectual Property, the Immigration Backlog and a Reverse Brain-Drain 🔖
This Kauffman Foundation-supported study is Part III of the “America’s New Immigrant Entrepreneurs” series, which focuses on immigrants’ contributions to the competitiveness of the U.S. economy.

UPCOMING EVENTS

"The Domestic Technological Content of China’s Exports"
Lecture by Professor Yang Yao Director of the China Center for Economic Research
Peking University
Duke University
Social Science Research Institute
Room A103
Jan. 22, 2008
3:30-5:00pm
PAPER 🔖
more events...
• A REIT is a company that **owns, operates and develops** real estate.

• REITs were created to give small investors a chance to invest in large real estate. They pay out **90% of annual income** to their shareholders in exchange for relief from corporate taxes.

• In the United States there are about 152 REITs, controlling some **$312 billion**.

• Types of REITs:
  • Hotel
  • Retail
  • Office
  • Industrial
  • Healthcare
  • Residential
U.S. Real Estate Industry Value Chain

Owners and Developers

Finance
(Equity)
(Debt)

Property Sales,
Leasing and
Management

Construction

Tenant Use

Large Institutional Investors

Real Estate Investment Trusts (REITS) (52593)

Investment Banks
(re-sale of commercial mortgage-backed securities)

Real Estate Brokers (53121)

Residential
(multi-family)

Industrial

Commercial
(Retail, Office, Education, Health Care, Hotels)

Developers (23721)

Homebuilders

Individual & Private Investors

Home Sales

Mortgage Brokers (522310)

Fannie Mae and Freddie Mac (secondary market for home mortgages)

Areas of interest

Goldman Sachs

Total revenue: $69,353,000,000

SIMON Property Group, Inc.

Annual revenues:
$3.3 billion
Total gross leasable area:
215 million sq ft

Bovis Lend Lease
Annual revenues:
$12.9 billion
Assets:
$8.4 billion

CBRE
CB Richard Ellis

Annual revenues:
$4 billion
U.S. managed area, 2006:
1 billion sq ft
Total managed area, 2006:
1.73 billion sq ft
<table>
<thead>
<tr>
<th>Company</th>
<th>Annual Revenue</th>
<th>Space Owned or Influenced</th>
<th>Leverage Factors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Simon Property Group</td>
<td>$3.3 billion</td>
<td>215 million ft²</td>
<td>• CO2 emissions per ft² (to be determined)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Owns and manages properties</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Mostly acquires existing properties</td>
</tr>
</tbody>
</table>

| CB Richard Ellis  | $4 billion     | 1 billion ft²             | • CO2 emissions per ft² (to be determined)             |
|                   |                |                           | • Owns properties and influences other owners          |
|                   |                |                           | • Influences new and existing properties               |

| Wal-mart Stores   | $349 billion    | 758 million ft²           | • CO2 emissions per ft² (to be determined)             |
|                   |                |                           | • Owns and leases properties                           |
|                   |                |                           | • Acquires new and existing properties                  |
Thank you for your attention!