

## 4. Enhancing the Benefits of North Carolina's Forests



### 4.a.

## Forest Industry Employment

### Key Findings

- North Carolina's forest products industry consists of more than 2,500 establishments with about 80,000 workers. The industry has a payroll exceeding \$3 billion, contributes more than \$6 billion to the state's gross product, and provides more than \$28 billion in economic benefit. The industry typically ranks as one of the top two in the North Carolina manufacturing economy.
- Even as the number of manufacturing sector jobs increased and wage growth improved in North Carolina between 2000 and 2008, forest industry related jobs and wage growth declined.
- Employment declined in the Furniture and Related Product Manufacturing and Wood Products Manufacturing sectors between 1999 and 2008. These sectors are largely responsible for the overall decline in forest industry related jobs. Among the hardest hit were sawmills and veneer and plywood facilities.
- Between 1990 and 2008, employment increased for select subsectors that focus on millwork, cabinetry, and gathering of forest products.
- Forest industry related job growth is negative in every Economic Development region within North Carolina.
- Between 1990 and 2008, average growth in forestry industry related wages lags behind the growth of private industry wages overall. Since 2000, private industry wage growth has been positive while forest industry related wage growth has been declining.
- From 1999 to 2008, nearly 200 logging establishments were lost, a 33 percent decline from an average of 703 establishments in the decade from 1990 to 2000.
- More data is needed to fully understand North Carolina's logging industry.
- More data is needed to fully understand North Carolina's niche markets, such as pine straw raking, herbal and floral plant collection, and edible and culinary forest product collection and production.

### Introduction

When calculating the impact of the forest products industry on the North Carolina economy, economists have traditionally aggregated four North American Industry Classification System (NAICS) sectors: Forestry and Logging, Wood Product Manufacturing, Paper Manufacturing, and

Furniture and Related Product Manufacturing. North Carolina has 2,562 forest products industry manufacturing facilities employing 82,000 people. Total wages are \$3.1 billion, and the value of shipments \$18.3 billion. The total annual economic benefit of the forest products industry is estimated to be \$28.5 billion (Ashcraft, 2009).

## a. Forest Industry Employment

This assessment also includes a fifth NAICS sector: Support Activities for Agriculture and Forestry. The aggregate of all five sectors is referred to as “forest industry related.”

### **Forest Industry Related Employment**

Labor statistics for North Carolina are provided by the NC Employment Security Commission (NCEC). In 2008, about 77,000 people worked in forest industry related occupations (FIGURE 4a-1). The Furniture and Related Product Manufacturing sector is the largest employment sector with 40,000 jobs in 2008. Wood Product Manufacturing is the next largest with approximately 20,000 jobs. The Paper Manufacturing sector contributed another 12,000 jobs, and the Agriculture and Forestry Support Activities and Forestry and Logging sectors added an additional 5,000 jobs (FIGURE 4a-2).

Overall employment in forest industry related jobs is contracting faster than the average for all private industries in North Carolina (TABLE 4a-1). From 1990 to 2008, forest industry related employment declined at an average annual rate of 1.7 percent. During this same time period, all private industry in North Carolina increased at an average annual rate of 1.5 percent. From 1990 until 1999, forest industry related employment grew; however, this trend reversed during the period from 1999 to 2008, and jobs were lost at the average annual rate of 4.7 percent. Private industry jobs continued to grow during this same time period.

To fully appreciate the forest industry employment picture in North Carolina, the individual industry sectors must be examined. Of the five sectors comprising the related forest industries, employment

changes in the Furniture and Related Product Manufacturing and the Wood Products Manufacturing sectors are largely responsible for the decline in overall employment (FIGURE 4a-2).

### ***Furniture and Related Manufacturing***

In 1990, the North Carolina furniture industry employed more than 80,000 workers. By 2008, this number was reduced by half, an average annual decline of 3 percent. More recently, from 2000 to 2008, the rate of decline more than doubled to 7 percent annually.

During the same period, growth in employment was enjoyed by the “custom architectural woodwork and millwork” subsector (5.6 percent annually) and the “wood kitchen cabinets and countertops” subsector (4.4 percent annually). Growth in these subsectors exceeded the average annual growth of all private industries, which had an average annual growth rate of 1.5 percent (TABLE 4a-1).

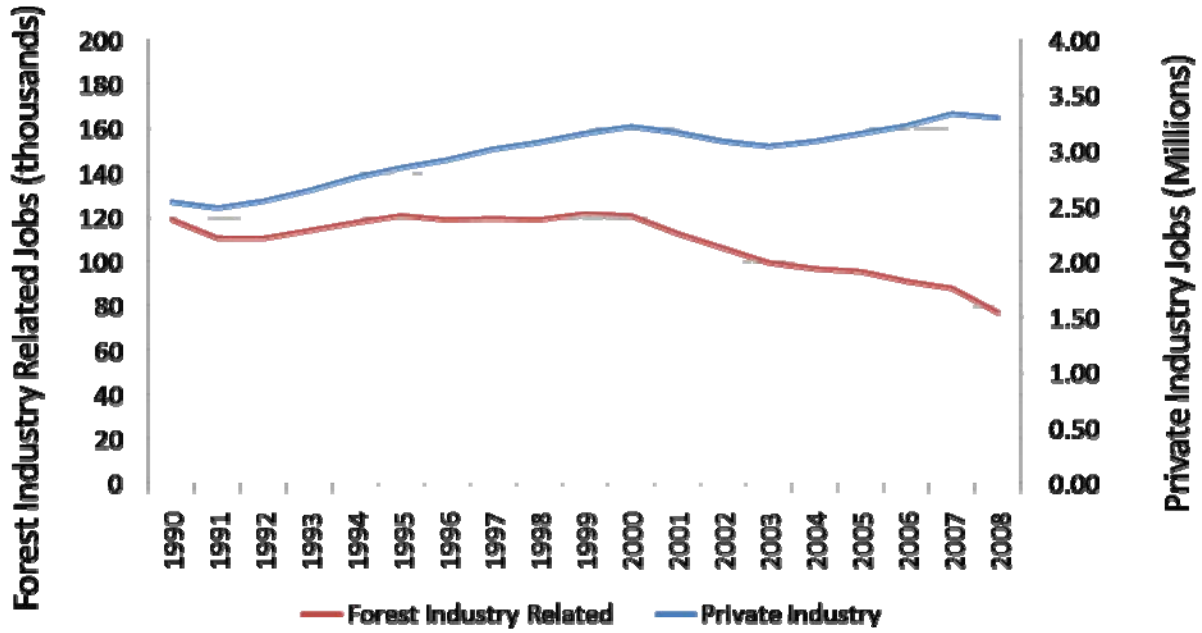
### ***Wood Product Manufacturing***

North Carolina’s wood product manufacturing industry employed more than 30,000 workers at its peak in 1999. In 2008, the industry employed only 20,000, a 31 percent decline. Overall the Manufacturing industry employment declined slightly (0.5 percent annually) while wood products manufacturing employment declined 3.4 percent annually.

As shown in TABLE 4a-1, nearly every subsector within the Wood Product Manufacturing sector has declined in North Carolina from 1990 to 2008. The two exceptions are “engineered wood member manufacturing” and “other millwork (including flooring).” Sawmills are among the hardest hit subsectors.

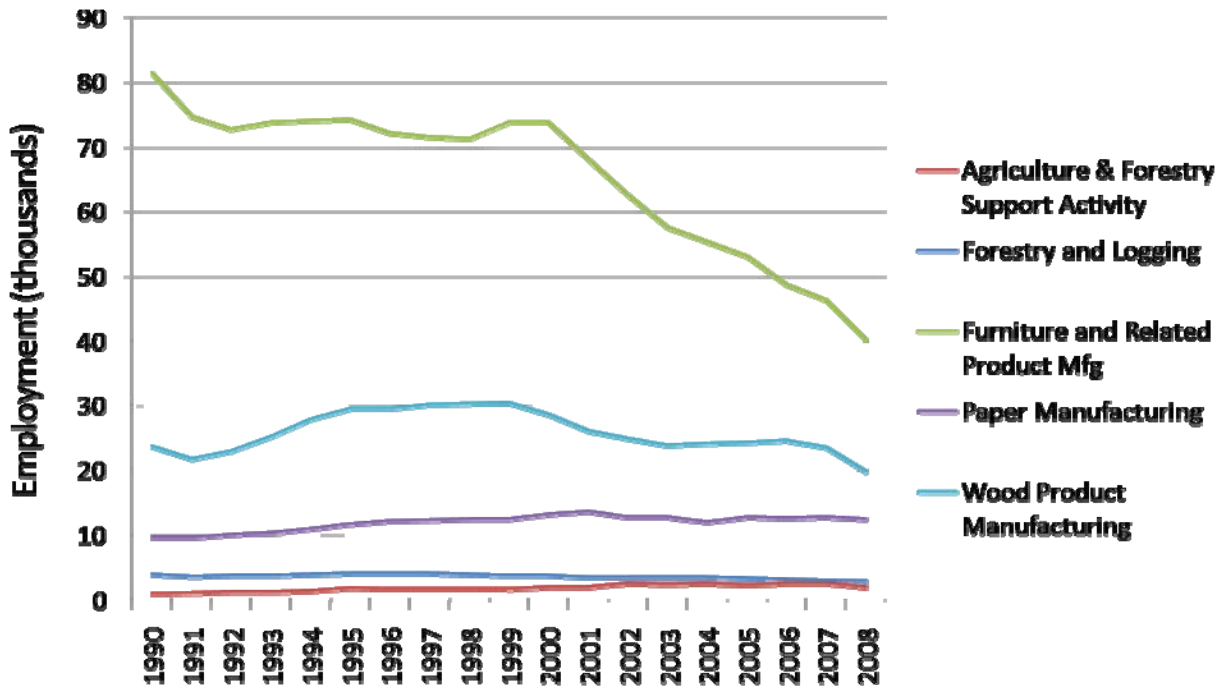
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FIGURE 4a-1. North Carolina forest industry related and private industry jobs, 1990 – 2008.



Source: NC Employment Security Employment Commission (NCESC), 1990 – 2008.

FIGURE 4a-2. Forest industry related employment trends by NAICS sector, 1990 – 2008.



Source: NCESC. 1990 – 2008

a. Forest Industry Employment

**TABLE 4a-1.—NC forest industry related employment and wages average annual growth rate (%) by NAICS sector, 1990 – 2008**

NAICS Code	Industry Sector and Subsectors	Average Annual Employment Growth (%)	Average Annual Wage Growth (%)
113	Forestry and Logging	-1.4%	2.5%
113310	Logging	-1.3%	2.2%
113110	Timber Tract Operations	0.2%	7.2%
113210	Forest Nursery/Gathering Forest Products	7.2%	10.1%
115	Agriculture & Forestry Support Activity	4.8%	12.9%
115310	Support Activities for Forestry	1.3%	5.9%
321	Wood Product Manufacturing	-0.5%	2.6%
321114	Wood Preservation	-3.3%	0.1%
321912	Cut Stock, Resawing Lumber, and Planing	-3.3%	-1.0%
321212	Softwood Veneer & Plywood Manufacturing	-2.3%	1.2%
321211	Hardwood Veneer & Plywood Manufacturing	-2.0%	1.0%
321113	Sawmills	-1.6%	1.7%
321999	Miscellaneous Wood Product Manufacturing	-1.0%	3.7%
321920	Wood Container and Pallet Manufacturing	-0.4%	1.8%
321219	Reconstituted Wood Product Manufacturing	-0.2%	3.0%
321213	Engineered Wood Member Manufacturing	0.6%	7.2%
321918	Other Millwork (including Flooring)	1.7%	5.7%
322	Paper Manufacturing	1.5%	5.1%
322110	Pulp Mills <sup>1</sup>	-9.5%	-5.5%
322213	Setup Paperboard Box Manufacturing	-7.6%	-4.3%
322121	Paper (except Newsprint) Mills	-4.2%	-2.2%
322214	Fiber Can, Tube and Drum Manufacturing	-3.4%	-0.2%
322130	Paperboard Mills	-1.9%	0.7%
322211	Corrugated/Solid Fiber Box Manufacturing	0.0%	3.0%
322212	Folding Paperboard Box Manufacturing	0.7%	3.3%
337	Furniture and Related Product Mfg	-3.0%	0.3%
337122	Nonupholstered Wood Household Furniture	-6.4%	-3.5%
337211	Wood Office Furniture Manufacturing	-5.9%	-2.3%
337121	Upholstered Household Furniture Mfg	-1.0%	1.6%
337110	Wood Kitchen Cabinets and Countertops	4.4%	8.9%
337212	Custom Architectural Woodwork & Millwork	5.6%	13.3%
Multiple	All Forestry Related Industries <sup>2</sup> (3 digit NAICS)	-1.7%	1.7%
Multiple	All Private Industries (3 Digit NAICS)	1.5%	5.5%

<sup>1</sup>Pulp Mill parameters are from 2001 to 2008. No data available from 1990 to 2000.

<sup>2</sup>"All Forestry Related Industries" includes NAICS Codes 113, 115, 321, 322, 337.

Source: NCSEC, 1990 – 2008

### ***Paper Manufacturing***

Employment in the Paper Manufacturing sector has been increasing since 1990 at an average annual rate of 1.5 percent. In 2008, about 12,000 people were employed, a 26 percent increase from 1990. From 1999 to 2008, among the Paper Manufacturing subsectors, positive employment growth occurred in the “folding paperboard box manufacturing” and “corrugated/solid fiber box manufacturing” subsectors. Negative employment growth is occurring in both “pulp mills” and “paper mills,” among other subsectors during the same period.

### ***Forestry and Logging***

Employment in the Forestry and Logging sector declined at an average annual rate of 1.4 percent from 1990 to 2008. However, between 1997 and 2008, the annual rate of decline accelerated to 2.9 percent. The logging subsector, with an average annual decline of 4.8 percent from 1998 to 2008, was largely responsible for the overall decline in employment in this sector.

Data fully describing North Carolina’s logging subsector is limited to data from the NC Employment Security Commission, which indicates that from 1990 to 1999, the total number of logging establishments increased. From 2000 to 2008, however, a significant decline occurred (33 percent), with nearly 200 lost from the previous decade’s average of 703 (FIGURE 4a-3).

FIGURE 4a-4 shows the distribution of logging contractors who are currently registered as ProLoggers with the North Carolina Forestry Association (NCFA), a fair proxy for the distribution of logging contractors in the state.

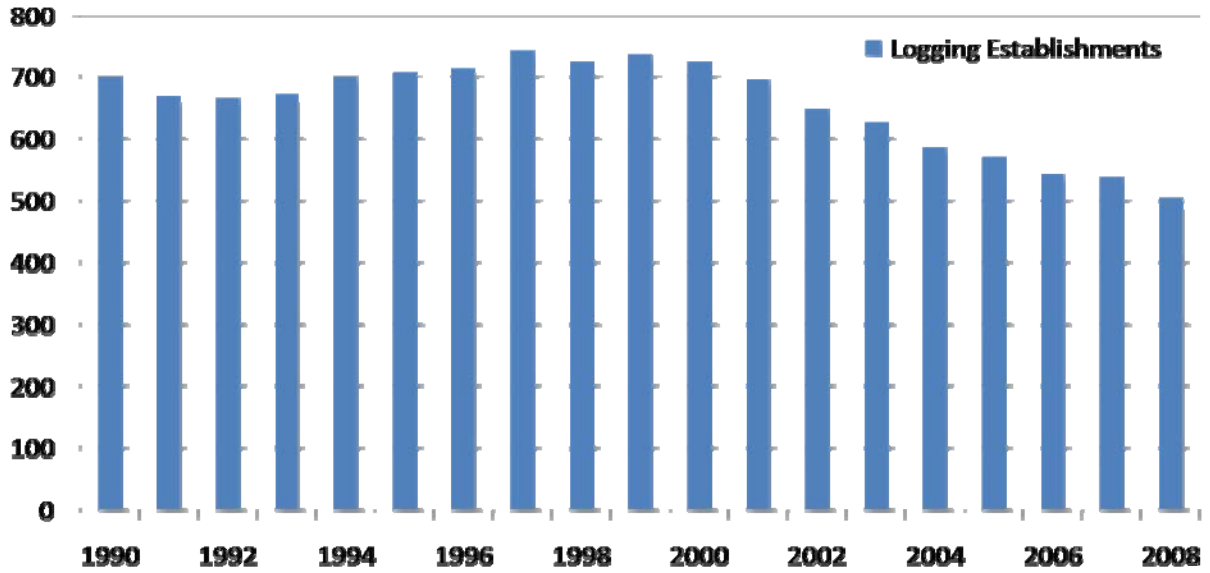
In 2008, the combined wage amount for forest industry related occupations was \$2.7 billion (FIGURE 4a-5). The Furniture and Related Product Manufacturing sector had

the highest payroll at \$1.3 billion. The Wood Product Manufacturing and Paper Manufacturing sectors ranked second and third respectively, with \$668 million and \$603 million. The Agriculture and Forestry Support Activity and Forestry and Logging sectors contributed an additional \$144 million in payroll (FIGURE 4a-6).

Wage growth varied by the five sectors (TABLE 4a-1). In the Forestry and Logging sector, overall growth averaged 2.5 percent per year with the largest increase occurring in the “forest nursery/gathering forest products” subsector, which experienced an average annual increase of 10.1 percent from 1990 to 2008. The “timber tract operations” subsector had 7.2 percent average annual wage growth, while the “logging” subsector wage growth averaged 2.2 percent annually from 1990 to 2008. The 12.9 percent annual growth rate for wages in the Agriculture and Forestry Support Activity sector was carried primarily by nonforestry related agriculture activities. The “support activities for forestry” subsector did, however, experience a 5.9 percent average annual increase in wages, which exceeded the 5.5 percent average annual growth rate for all private industry during 1990 to 2008. Growth rates for wages in the Wood Product Manufacturing sector were positive for all subsectors except the “cut stock, resawing lumber, and planing” subsector. Only two subsectors experienced wage growth that exceeded the average for all private industry in North Carolina: the “engineered wood member manufacturing” subsector, with 7.2 percent average annual growth in wages, and the “other millwork (including flooring)” subsector, with 5.7 percent average annual growth. Overall, growth rates for wages in the Paper Manufacturing sector were positive at an average annual rate of 5.1 percent from 1990 to 2008. Positive growth was carried largely by nonprimary processing facilities, such as

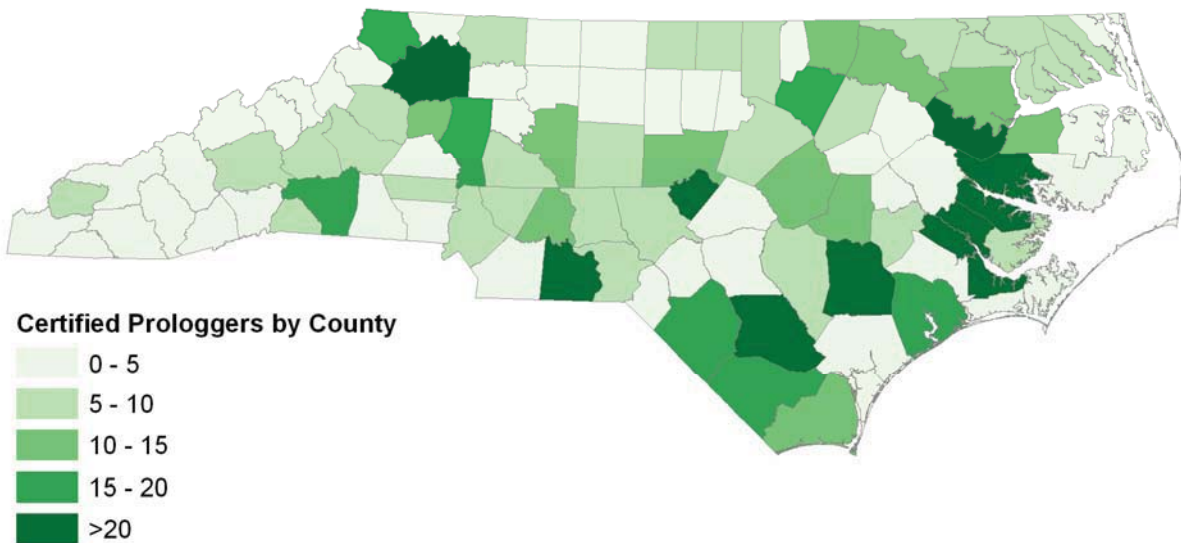
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FIGURE 4a-3. Total number of logging establishments in North Carolina by year, 1990 – 2008.



Source: NCESC

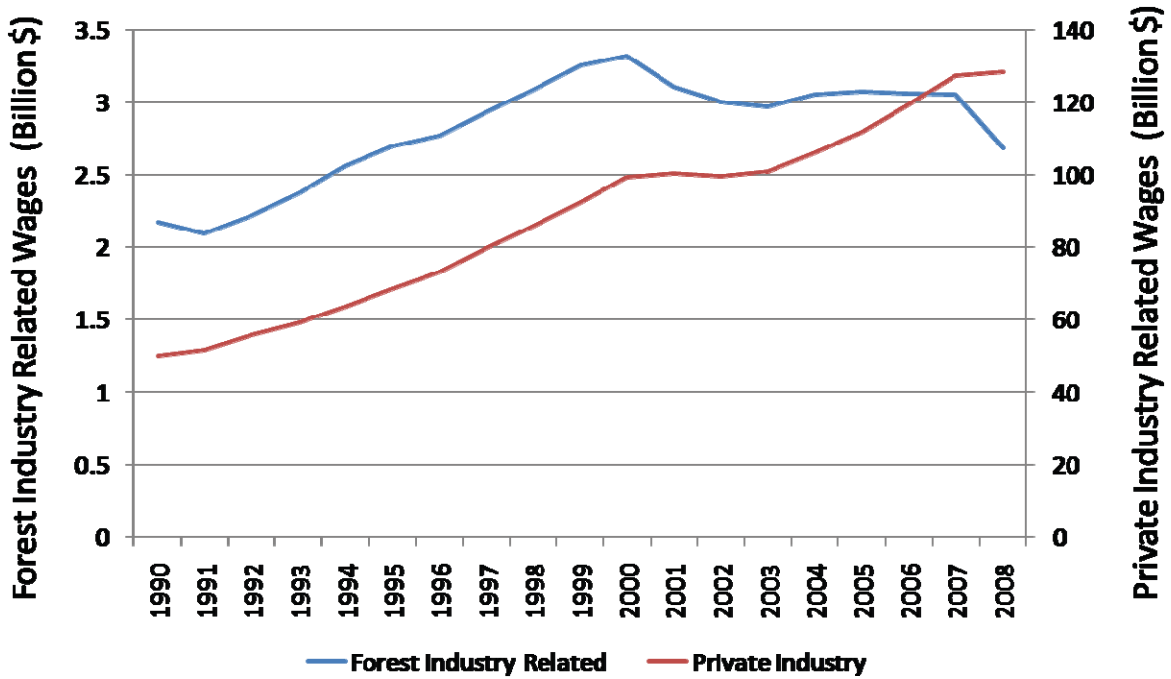
FIGURE 4a-4: North Carolina certified prologgers by county.



Created by: A. Bailey, NCDFR, 2010

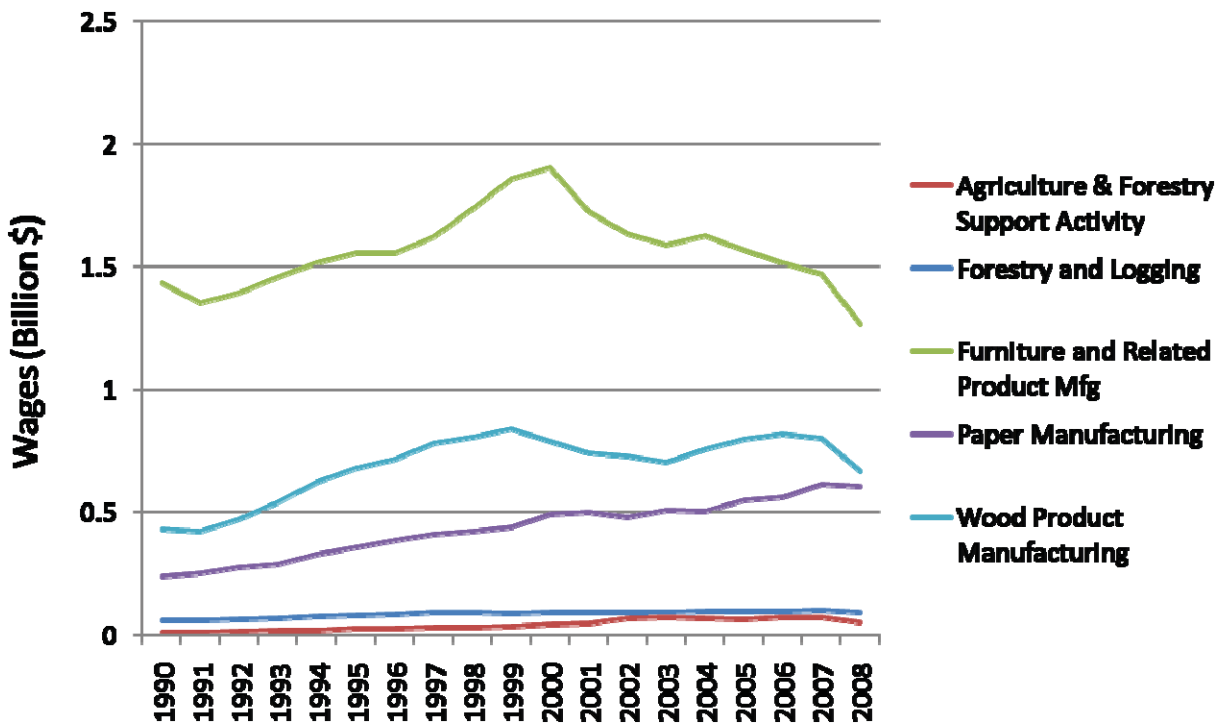
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FIGURE 4a-5. Forestry industry related and private industry wages in North Carolina by year, 1990 – 2008.



Source: NCESC, 1990 – 2008

FIGURE 4a-6. Forest industry related wage trends in North Carolina by NAICS sector and year, 1990-2008.



Source: NCESC, 1990 – 2008

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the “corrugated/solid fiber box manufacturing” and “folding paperboard box manufacturing” subsectors. Annual declines in wage growth were experienced by primary processing facilities, such as pulp (minus 5.5 percent) and paper mills (minus -2.2 percent). Paperboard mills did experience positive growth as well. From 1990 to 2008, overall growth was positive at 0.3 percent annually. The largest gains were experienced by the “custom architectural woodwork and millwork” (13.3 percent average annual growth in wages) and “wood kitchen cabinets and countertops” (8.9 percent).

## Summary

Both employment and wages in the forest industry related job sector are declining. The number of logging enterprises statewide also appears to be in decline. There are small sub-sectors with positive growth (such as kitchen cabinets and custom architectural millwork), but the available data indicate that the forest industry contribution to North Carolina’s economy, while still strong, is not what it once was.

## Map Data Sources

FIGURE 4a-4: NC Forestry Association 2009

## References and Sources Cited

Ashcraft, D. 2009. Personal communication. Raleigh: NC State University, College of Natural Resources, Office of the Executive Director of Development and College Relations.

NC Forestry Association, 2009. Personal communication. Raleigh, NC: Author.

NC Employment Security Commission (NCESC). 1990 – 2008. Quarterly census of employment and wages (QCEW). Accessed via the Demand Driven Data Delivery System. Raleigh: NCESC, Labor Market Information Division. Online: <http://esesc23.esc.state.nc.us/d4/QCEWSelection.aspx>

## Glossary

**forest products industry.** A term used commercially that encompasses the NAICS sectors and subsectors defined for forestry.

**forest industry related.** The term used in this report to encompass the NAICS sectors defined below.

**NAICS.** The North American Industry Classification System is used by government agencies and business to classify business establishments according to type of economic activity in the United States, Canada, and Mexico. The following NAICS sectors comprise what we refer to in this report as “forest industry related.”

*NAICS Sector 113 – Forestry and Logging.* Industries in the Forestry and Logging subsector grow and harvest timber on a long production cycle (i.e., of 10 years or more). Long production cycles use different production processes than short production cycles, which require more horticultural interventions prior to harvest, resulting in processes more similar to those found in the Crop Production subsector. Consequently, Christmas tree production and other production involving production cycles of less than 10 years are classified in the Crop Production subsector.

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*NAICS Sector – 115 Support Activities for Agriculture and Forestry.* Industries in the Support Activities for Agriculture and Forestry subsector provide support services that are an essential part of agricultural and forestry production. These support activities may be performed by the agriculture or forestry producing establishment or conducted independently as an alternative source of inputs required for the production process for a given crop, animal, or forestry industry. Establishments that primarily perform these activities independent of the agriculture or forestry producing establishment are in this subsector.

*NAICS Sector – 321 Wood Product Manufacturing.* Industries in the Wood Product Manufacturing subsector manufacture wood products, such as lumber, plywood, veneers, wood containers, wood flooring, wood trusses, manufactured homes (i.e., mobile homes), and prefabricated wood buildings. The production processes of the Wood Product Manufacturing subsector include sawing, planing, shaping, laminating, and assembling of wood products starting from logs that are cut into bolts, or lumber that then may be further cut, or shaped by lathes or other shaping tools. The lumber or other transformed wood shapes may also be subsequently planed or smoothed, and assembled into finished products, such as wood containers. The Wood Product Manufacturing subsector includes establishments that make wood products from logs and bolts that are sawed and shaped, and establishments that purchase sawed lumber and make wood products. With the exception of sawmills and wood preservation establishments, the establishments are grouped into industries mainly based on the specific products manufactured.

*NAICS Sector – 322 Paper Manufacturing.* Industries in the Paper Manufacturing subsector make pulp, paper, or converted paper products. The manufacturing of these products is grouped together because they constitute a series of vertically connected processes. More than one is often carried out in a single establishment. There are essentially three activities. The manufacturing of pulp involves separating the cellulose fibers from other impurities in wood or used paper. The manufacturing of paper involves matting these fibers into a sheet. Converted paper products are made from paper and other materials by various cutting and shaping techniques and includes coating and laminating activities.

*NAICS Sector – 337 Furniture and Related Product Manufacturing.* Industries in the Furniture and Related Product Manufacturing subsector make furniture and related articles, such as mattresses, window blinds, cabinets, and fixtures. The processes used in the manufacture of furniture include the cutting, bending, molding, laminating, and assembly of such materials as wood, metal, glass, plastics, and rattan. However, the production process for furniture is not solely bending metal, cutting and shaping wood, or extruding and molding plastics. Design and fashion trends play an important part in the production of furniture. The integrated design of the article for both esthetic and functional qualities is also a major part of the process of manufacturing furniture. Design services may be performed by the furniture establishment's work force or may be purchased from industrial designers.