Employment in the US textile and apparel industries

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TABLES AND FIGURES CAN BE FOUND AT THE END OF THE ARTICLE

Abstract:

Purpose – To examine the impact of changes in the US textile and apparel industries on employment patterns at the state level compared with the nation as a whole during the period of 1997-2003.

Design/methodology/approach – Secondary data sources were analyzed to develop an overall picture of changes happening in the North Carolina industries compared with the USA overall. A focus on North Carolina, a primary location of the industries within the USA, permits a micro-level examination of changes in employment trends for one state in comparison with those of the industries nation-wide. Three industries form the bulk of the data examined: Textile Mills (NAICS-313), Textile Product Mills (NAICS-314), and Apparel Manufacturing (NAICS-315).

Findings – An overall decrease in employment and number of units for all three industries was found. The number of establishments in the North Carolina textile complex decreased by 25 percent and employment by almost 50 percent. The state losses resembled those of the nation as a whole. For the majority of industry groups, the trend in value of shipments mirrored the downward direction of employment from 1997 to 2001.

Research limitations/implications – Although this study focuses on only one state in comparison with the USA as a whole, it reveals current trends in employment patterns and has implications for developing an in-depth picture of regional versus national industry performance during a period of decline.

Originality/value – Within this study, industry change was interpreted at both the state and national level through employment patterns as a means to explore why some industry groups have remained relatively healthy compared with others and what this means for industry employment in the future.

Keyword(s):
Textile industry; Employment; United States of America.

Article:

Background

According to the American Textile Manufacturing Institute (ATMI), 2004 was predicted to be a "make or break year" for the United States Textile Industry (American Textile Manufacturers Institute, 2003a). Although its prominence within the overall scope of domestic manufacturing is not as significant as it was half a century ago, the textile complex remains a critical component for the economic and social sectors of the USA. Representing 6 percent of the national manufacturing force at the turn of the twenty-first century, the textile complex contributed about $70 billion yearly to the national GDP (American Textile Manufacturers Institute, 2002; Economic Census, 1997). In addition to jobs within the textile complex itself (around one million workers), it supported employment related to direct suppliers, the government, and other services and industries (American Textile Manufacturers Institute, 2002).

Since the late 1990s, however, the complex has been in crisis, suffering heavy losses in employment (American Textile Manufacturers Institute, 2001; Oh and Suh, 2003). The most obvious and often cited reasons include pressure from intense global competition, low cost manufacturing in developing countries, liberalization of trade policies, and retail consolidation (Scholler, 2002). In addition, the textile complex must deal with the fact that the national economy is undergoing a shift from manufacturing to service and information, thereby changing its overall nature. For example, Tyler (2003) believes that the traditional typology of the apparel industry is no longer workable in the post-industrialized economy of the twenty-first century. Blurred boundaries between manufacturing and sourcing require companies to focus on creating a niche market and on sourcing larger batches in low labor cost countries, decreasing leadtime (Tyler, 2003). Oh and Suh (2003) reviewed the problems faced by the US textile industry and summarized the strategic initiatives that American textile corporations have been using to respond to the emerging crisis. The authors conclude that under the North American Free Trade Agreement (NAFTA) the industry "has experienced significant erosion in its profitability and competitiveness" and propose strategic actions in order for the sector to regain its position in the global market (Oh and Suh, 2003, p. 131).

As several studies have found, the US manufacturing sector has been experiencing a steady decline since the late twentieth century. Research that addresses these changes generally focuses either on the whole US textile and/or apparel industries (Doeringer, 2004; Franklin, 1995; Gereffi, 2000; Mittlehauser, 1997; Oh and Suh, 2003; Taplin, 1999), or presents select cases that describe the economic and social impact of plant closings on individuals within isolated communities (Norris, 2003; Rocha, 2001). There are few studies that investigate how individual states have dealt with the textile complex crisis. One by Melkers *et al.* (2001) analyzed plant closings in Georgia. The study defined demographic characteristics of the state's textile and apparel labor force in order to design an unemployment assistance program that addresses needs of laid off workers. A study by Kessler (2002) assessed the impact of NAFTA on the Los Angeles apparel industry, looking at the dynamics in occupational categories. Palpacuer (2002) studied the New York City garment industry to develop a new typology for the sector.

Regional studies are helpful in developing a better understanding of what is actually happening within the overall US textile complex because a micro-level focus avoids featureless and often meaningless generalizations and allows for a close-up analysis of a specifically situated

component of the national industry. Small-scale analyses of industry change are particularly important because different states throughout the US have unique specializations, which, in turn, determine the strengths and weaknesses of the regional industries. A comparison of a single state's textile complex performance with national shifts can address issues of employment, as well as help define the changing nature and structure of the local economies.

To further develop how the "small picture" helps describe the "big picture", this study examines the implications of recent employment trends in the textile and apparel industries. Changes happening over time within one state in the Southeastern United States – North Carolina, will be the focus. As will be discussed, North Carolina was selected because it remains one of the few states with a recent history of textile manufacturing and can therefore provide a clear and timely picture of the impact of the industry's present state on employment patterns. The data collected spans a time period of seven years, beginning in 1997 (one year prior to the Asian economic crisis) and ending in 2003. The guiding question is: what is happening to employment as a result of changes experienced by these industries? The analysis presented will identify primary shifts in the North Carolina textile sector relative to employment patterns, and compare employment trends in North Carolina with those of the USA overall to explore the implications of these trends for the long-term.

The State of North Carolina

In 1975, manufacturing was the largest sector in North Carolina, employing more than one-third of the state's labor force (Hussain *et al.*, 2002). However, by the end of the century the share of manufacturing jobs in North Carolina was reduced by almost half, to about 18 percent, whereas employment in the service sector exploded, increasing its share of the state's labor market from 18 percent in 1975 to 36 percent in 2000 (Hussain *et al.*, 2002). During the economic recession of the early twenty-first century, many textile and apparel companies had to make extensive cutbacks in hiring and radical alterations to their corporate structure (North Carolina Employment Security Commission; Heisler, 2001, 2002a). As a result, the state has experienced a string of plant closings and layoffs. Many of these plants had been providing work for generations of families living in rural areas. Such layoffs have forced unemployed individuals to move elsewhere and seek similar types of jobs or to remain and be re-trained for another profession (Melkers *et al.*, 2000; Heisler, 2002b).

The majority of jobs in Southeastern textile and apparel companies have consisted of unskilled or semiskilled machine tenders and operators, which often meant employing large numbers of workers in repetitive tasks with obsolete technology (Holusha, 1996; Leiter *et al.*, 1991). Beginning in the late 1970s, new machines served to revamp the production process by combining several operations, thereby decreasing the number of production workers (Office of Technology Assessment, US Congress, 1987). Textile production in North Carolina increased significantly during the 1970-1990 period despite the large number of job losses (Economic Census, 1997; Eksten, 2002). Throughout the 1980s, continued downsizing and plant closings in the rural areas often wiped out the economic base of the community, resulting in a reduced standard of living and forced migration (Gaventa and Smith, 1991). Such losses added to the fact that Southeastern states traditionally offered the least protection for workers and had the greatest percentage of poor households of any region in the country. As a result, North Carolina was one

of six states undergoing “downward wage polarization” due to growth in jobs with wages below the poverty level (Zingraff, 1991).

Yet, in the early 1990s, 75 percent of US textile production occurred in eight Southeastern states with more than 350,000 workers employed, almost half of whom were in North Carolina (Glass, 1992). At that time, according to Glass (1992), the textile industry was North Carolina's largest industrial employer, and there were more textile workers in North Carolina than in any other state. Figure 1 illustrates the share of North Carolina in national textile complex employment1. In 2003, almost one-third of all US Textile Mills workers (North American Industry Classification System – NAICS 313) were employed in North Carolina, making this industry the largest in the state's textile complex (Figure 1). At the same time, apparel manufacturing (NAICS 315) and textile products mills (NAICS 314) accounted for 10 and 8 percent, respectively, of the total US employment. On the national level the largest industry in terms of employment was apparel manufacturing, followed by the Textile Mills, with the textile products mills being the smallest (Figure 1). In North Carolina, textile mills substantially exceeded the other two industries in the complex, in that it employed two times more workers than apparel manufacturing did. Apparel manufacturing, in turn, provided two times more jobs than textile product mills.

According to figures provided by the North Carolina Employment Security Commission (NCESC), in 1997 the statewide labor force totaled 3.8 million, growing to 4.2 million by 2003. At that time, manufacturing alone comprised 800,500 jobs (21 percent of state's labor force), which dropped to 641,000 (14 percent of state's labor force) in 2003, representing a 25 percent decline. The textile complex reinforces this downward trend, going from 220,000 jobs in 1997 to 116,300 in 2003, for a total of 103,700 job losses, and constituting a 47 percent loss in total workforce. Textile companies, as well as other manufacturers, blame much of their trouble on the flood of cheap foreign imports, the Asian economic crisis, and new trade regulations (American Textile Manufacturers Institute, 2001). However, others argue that North Carolina's loss of textile sector jobs began in the early 1970s, and that half of the jobs lost were instead due to the use of new technology to improve productivity (Eksten, 2002).

In addition to modernization, free-trade policies were responsible for some of the damage (Jobs with Justice, 2001; Taplin, 2003). NAFTA, which took effect in 1994, encouraged US manufacturers to open plants in Mexico. Some of North Carolina's biggest textile companies built multimillion-dollar operations there, and many moved their sewing plants entirely to Mexico (Oh and Suh, 2003; “North Carolina had second highest loss of jobs”, 2002). Since 1994, North Carolina has suffered the greatest number of plant closings and job losses when compared to other states in the Southeast region (ATMI, 2003b and 2003c). Even though these changes have rocked its economic and social structure, North Carolina's textile complex remains an integral part of the US industry overall, thus making it a valuable case study for examining the impact of industry change on present and future employment trends.

Methodology

A variety of sources were examined in order to develop a comprehensive account of employment in the textile complex from 1997 until 2003. Nationwide figures were obtained from the Annual Survey of Manufacturers (1996-2001), Mecia and Morganton (2002)-2001), the Quarterly

Census of Employment and Wages (1997)-2003), and the Current Employment Statistics Survey (1997)-2003). For data specific to North Carolina, several sources were consulted, including the North Carolina Manufacturers Directory (published in cooperation with the North Carolina Department of Commerce) and the North Carolina Employment Security Commission (1997)-2003). The latter source was found to be the most complete in terms of its coverage of employment dynamics by industry and industry group2.

A descriptive methodology was used in order to address the objectives of the study. Three industries form the bulk of the data examined:

1. Textile Mills (NAICS-313).
2. Textile Product Mills (NAICS-314).
3. Apparel Manufacturing (NAICS-315).

Job numbers listed for each industry and industry groups were compared for the period between 1997 and 2003 as a means to determine primary shifts relative to employment patterns and to uncover any similarities or differences in trends between North Carolina and the US as a whole. Additional data includes number of establishments and value of shipments for the period under the study.

Analysis

Throughout the following, the North American Industrial Classification System (NAICS) is used as the primary mode of classification of the data to every extent possible. However, because the transition from the Standard Industry Classification system (SIC) occurred in 1997, a few of the data sets continued to use SIC codes instead of NAICS codes throughout the period under investigation. For ease of interpretation, the primary NAICS codes pertaining to employment within these sectors were the focus. What follows is an analysis of the employment dynamics for the period between 1997 and 2003.

Textile and apparel establishments in North Carolina

Figure 2 illustrates a downward trend in total number of establishments common among all three industries within North Carolina's textile complex. Overall, there was a loss of more than 500 establishments over the seven-year period (Table I), representing a 25 percent decline. The apparel manufacturing industry had the greatest reduction in the number of establishments throughout the state, as it lost 37 percent of the total by 2003 (Table I), equating to roughly 300 closings during this seven-year period. Within the industry, cut and sew apparel companies were the most affected – the number of establishments decreased from 400 to 200 (Table I). Closings in the apparel industry peaked in 1997-1998 and again during 2002 and 2003, totaling a 10 percent rate of loss (Table II).

Until 1999, the textile mills industry experienced a slight increase in number of establishments. Since then, however, the number of mills in North Carolina has steadily decreased (Figure 2) at a fairly stable rate of about 5 percent a year until 2003, when 75 plants were closed, constituting 9 percent (Tables I and II). The textile products mills industry did not suffer to the extent that the two other industries did. Only 50 (12 percent) establishments were lost since 1997 (Table I). Moreover, the number of establishments engaged in carpet production (NAICS 31411) and other

textile products (NAICS 3149) did not change (Table I). Overall, the rate of change in textile products mMills remained fairly stable until the end of the period under study and did not exceed 4 percent a year (Table II).

Textile and apparel employment in North Carolina

In 1997, the North Carolina textile complex employed 6 percent of the state's total labor force and accounted for almost 30 percent of the employment in manufacturing (NCESC). In 2003, these numbers were reduced to 3 and 19 percent, respectively. At the same time, the total labor force in the state increased by 10 percent. From 1997 to 2003, a downward trend in employment is common for all industries in the North Carolina textile complex (Figure 3). Its labor force was reduced by half, leaving slightly more than 100,000 people without jobs (Table III). Apparel manufacturing experienced an on-going decline at a rate of 10 to 15 percent a year (Table II). This resulted in a total of 35,000 jobs lost, which constituted more than half of its workers (53 percent). The cut and sew apparel industry group was affected the most in that it lost 62 percent of its total jobs over the seven-year period (Table III).

Similarly, textile mills lost nearly half of its workers (47 percent). However, the numbers here are almost double the losses in apparel manufacturing, as more than 62,000 people have gone through the unemployment process since 1997 (Table III). This explains why the textile mills downward trend looks so dramatic in Figure 3. Until 2000, the pace of job loss in the industry was less than 9 percent. However, in 2001 alone the textile mills workforce was reduced by 15 percent, as approximately 17,000 people lost their jobs (Tables II and III).

Textile products mills had the greatest reduction in the number of jobs in 2001 – 13 percent (Table II). However, in this case the losses were not nearly as devastating, as it translated to only roughly 2,500 jobs. Textile products mills, the smallest industry in the North Carolina textile complex in terms of employment, laid-off 8,000 workers, or 34 percent of its total labor force, during the period under study (Table III). The only industry group that actually saw an increase in the number of jobs was carpet and rugs (Table III), but the employment in these mills was not significant enough (4,000 workers) to influence the overall employment picture.

North Carolina vs National Employment Trends

To assess the performance of North Carolina textile complex, it is necessary to compare the state's employment patterns with those of the US overall. The national employment data is presented in Table IV, and compared with North Carolina in Table V from 1997-2003. During this seven-year period, the North Carolina complex lost nearly half of its workforce (47 percent). This reduction is similar to the numbers on the national level, where industries were downsized by 45 percent (Table V). In proportional numbers, the greatest decline in jobs was in the apparel industry, where 53 percent of the total workforce was laid-off in North Carolina (35,000 workers) compared with 55 percent (387,000 workers) throughout the US apparel sector as a whole (Tables III, IV, and V). However, in absolute numbers, the state's textile mills lost almost two times more jobs for a total of about 62,000, thus reducing its base by 47 percent. Similarly, nationwide, the textile mill workforce was reduced by 40 percent (175,900 workers) during this period. Textile products mills was the least impacted by the crisis. In North Carolina the number of employees decreased by 34 percent (7,600 workers), while on the national level it fell by only 17 percent (37,000 workers).

Further analysis demonstrates that there are differences between employment patterns in North Carolina and the US as a whole (Table V). In some groups, like knitting mills and carpets and rugs, North Carolina experienced fewer job losses as compared to those nationwide (Table V). While for other industry groups, like cut and sew apparel and finishing mills, the state job losses were greater than those on the national level (Table V). In order to understand the reasons behind these findings, the proportional size of each industry group for both the North Carolina and US textile complex was determined (Table VI and Figures 4-6).

According to the data, apparel manufacturing in North Carolina employs half of its workers in knitting mills (Figure 4). During the period under study, this number increased from 48 percent in 1997 to 56 percent in 2003 (Table VI). On the other hand, knitting mill employees account only for 14 percent of the national apparel industry employment (Table VI). Obviously, apparel manufacturing in North Carolina is highly skewed toward knit garments. Therefore, the US knitting mills industry group is concentrated in the state of North Carolina and forms a cluster, which might be the reason for the lower decline rate in terms of employment when compared to that of the whole US industry group (Porter, 1990). Another explanation is that knit garments are less labor intensive than cut and sewn, and have therefore been less susceptible to foreign competition.

The fact that during the seven year period North Carolina's textile products mills lost twice as many jobs, in proportional numbers, than the national industry (34 percent vs 17 percent), may be explained by the state industry being skewed toward curtain and linen products (Table VI). The US home furnishings industry has a higher proportion of employment within the carpet business: in 1997 it accounted for 43 percent, growing to 48 percent in 2003. In contrast, employment in North Carolina's carpet industry was only 20 percent of the total furnishing mill employment. Between 1997 and 2003, carpet mill employment jumped from 20 to 40 percent in North Carolina (Figure 5). Because carpets and rug manufacturing has suffered less from foreign competition than the curtain and linen industry group, North Carolina textile products mills have had significantly more losses in employment as compared to that of the whole United States (Table V).

During the time period under study, the North Carolina textile mills industry laid off 47 percent of its workers, as compared to 40% nationwide (Table V). Although the discrepancies in employment decline on the state vs. national levels may be explained by the different proportional sizes of the industry groups for apparel manufacturing and textile products mills, it is not the case for textile mills. Figure 6 shows that the proportion of textile mills industry groups is similar for both state and national levels. The greatest difference in the rate of employment reduction was in finishing mills: in the state it decreased by 50 percent, while nationwide by just 38 percent (Table VI). Fiber and yarn mills lost 43 percent of the labor force in North Carolina and 35 percent in the USA (Table VI). The fact that the textile mills industry represents a clearly identifiable cluster in North Carolina – in 2003 this state employed almost one-third of the total US textile mill workers (Figure 1), did not automatically guarantee better performance on the national scale. Instead the opposite was observed.

The NAICS classification system does not break down the textile industry by fiber content, as the SIC classification did (Annual Survey of Manufactures, 1996-2001; North Carolina Manufacturers Directory, 2002), therefore, the latter was used to examine employment statistics in cotton vs. manmade finishing plants (Table VII). North Carolina's cotton finishing plants employed 73 percent of all workers involved in the finishing business, while manmade finishing plants employed only 4 percent. In contrast, the US percentages were 39 and 44, respectively (Table VII). This skewness of the state's textile mills industry toward cotton production might explain the greater job losses in North Carolina when compared to that of the whole country, taking into account that cotton fabrics are generally more widely used to produce apparel; therefore this sector suffered more from low-cost imports and was less resistant to the manufacturing crisis of the late 1990s.

Textile complex output: North Carolina vs USA

Given the decline in textile complex employment, it is important to evaluate its performance in terms of output for the same period of time. Value of product shipment figures, get the closest to measuring industry output3. At the time of the study, statistics on the value of shipments was available up to 2001 (Annual Survey of Manufacturers, Economic Census). Thus, it is possible to make the comparison of trends in industry output and employment only between 1997 and 2001 (Table VIII). The percent change is presented in Table V. For the purpose of comparison, the percent change in employment was also calculated for the 1997-2001 period (Table V). The overall trend shows that textile complex employment was shrinking faster than output for most industries and industry groups (Table V). The majority of industry groups decreased the value of shipments in 2001 when compared with that of 1997. However, there were several exceptions to that general trend, and some industry groups, such as cut and sew apparel, actually experienced a growth in value of shipments despite steady decline in employment.

The number of jobs and value of shipments on average in North Carolina were reduced by one-third, while in the US they were down by one-quarter (Table V). Fiber and yarn mills, was the only industry group where the decline in value of shipments was slightly greater than the decline in employment for both the US and North Carolina. textile product mills performance in terms of number of employees differs from the performance measured in dollar value. Despite significant job losses, which were greater in the state (34 percent) than in the whole country (17 percent), the industry's shipments remained stable. There was only a 2 percent decrease for the North Carolina industry and a slight growth (3 percent) on the national level (Table V). Other textile product mills in North Carolina increased production output by 10 percent between 1997 and 2001, which is in contrast to the loss of this industry group's work force by one-third (Table V).

Apparel manufacturing in North Carolina and the US reduced its number of workers by 40 percent. At the same time, shipments decreased by almost 20 percent (Table V). However, the picture is very different for the two main apparel industry groups. Knitting mills in North Carolina appeared to be less efficient when compared to the US industry group performance. The decrease in North Carolina industry's shipments was 38 percent, while the number of workers declined by 27 percent. The numbers were opposite for the national industry, where shipments and employment declined by 29 and 35 percent, respectively (Table V). In contrast, the North Carolina. Cut and sew apparel outperformed the total for this industry group nationwide, as it increased the value of shipments by 5 percent between 1997 and 2001 despite the loss of more

than half of its jobs (Table V). During the same time period, US cut and sew apparel lost 40 percent of its workers, while the total shipments declined by almost 20 percent (Table V).

In 1997, the share of North Carolina cut and sew apparel given for the total US apparel industry employment was 5.3 percent. By 2001, this number slightly decreased to 4.7 percent. At the same time, the share of the North Carolina industry group in the national value of shipments increased from 6 percent in 1997 to 8 percent in 2001 (Tables III, IV and VII). This could be attributed to expanding outsourcing strategies pursued by US apparel companies, the success of which has been proven by industry group performance within the state.

Discussion and implications

What do these employment numbers mean for the future of these industries? Several studies have attempted to predict further US textile complex development and anticipate future employment trends (Franklin, 1995; Mittlehauser, 1997; North Carolina Occupational Trends, n.d.). All agree upon an inevitable further decline, although the projected pace is different. Mittlehauser (1997) estimated that in 2005 the US textile complex would employ 1.3 million workers. Ultimately, the reality is even worse than the study's projections as by 2003 employment was less than 800,000 (Table IV). Local projections estimated that the number of jobs in the North Carolina textile complex would decline by 17 percent over a ten-year period, and by 2008 would reach 180,000 (North Carolina Occupational Trends, n.d.). However, after only five years of the projected period (1998-2003) employment in the state's complex fell by 45 percent, to fewer than 120,000 workers (Table III).

According to the Bureau of Labor Statistics, by the year 2012 the US textile complex will employ just under half a million, or 482,700, workers (Industry Output and Employment Projections, n.d.). This means that at least 400,000 former textile and apparel workers will be faced with unemployment between 2002 and 2012. This employment forecast also points to an interesting shift in the perception of the traditional importance of the individual industries within the textile complex. Apparel manufacturing, which has traditionally been the largest employer due to the labor-intensive nature of the industry, is predicted to become the smallest, after losing 65 percent of its labor force (Figure 7). This decline reflects the long-term evolution – and is perhaps the final phase – experienced by apparel manufacturing, as it was the first of the three industry types to exponentially move toward complete out-sourcing of the manufacturing process. Other potential reasons are increased foreign competition alongside on-going restructuring, reorganization and consolidation (NCESC). In contrast, the textile product mills industry, which presently is the smallest, is to become the most significant, as its workforce is expected to remain practically stable (estimated at a 7 percent decline). The employment base of the textile mills industry is predicted to shrink by 47 percent during the same period (Figure 7).

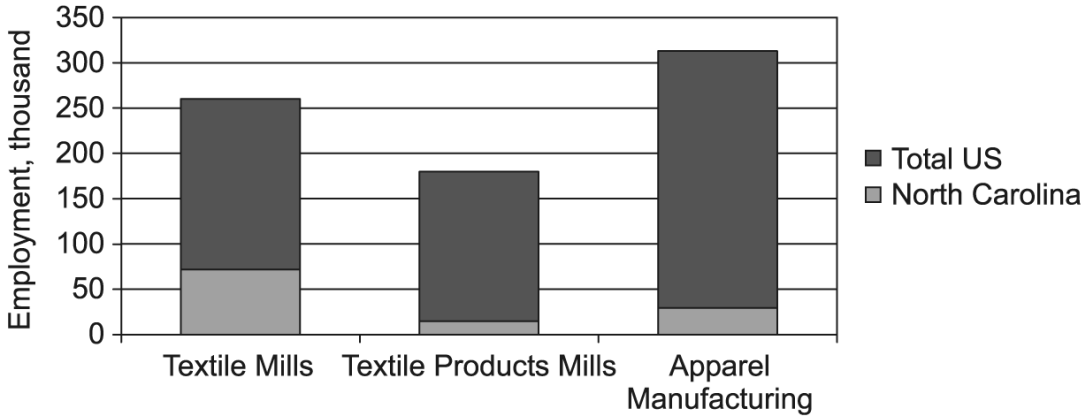
The discussed projections would have a tremendous impact on North Carolina for two reasons. First, as was found in this research, the state's textile mills and textile products mills industries were not able to remain competitive on the national level (the decline in employment and shipments were greater in the state than in the overall US). Second, the textile products mills industry – which is predicted to become the largest employer in the national textile complex – is underdeveloped in North Carolina (Figure 1). Some experts speculate that the decline in jobs will continue until there are just 20,000 North Carolina workers employed by the sector (Eksten,

2002). Based on the Bureau of Labor Statistics projections (Industry Output and Employment Projections, n.d.), by 2012, combined employment in North Carolina's textile complex will be roughly 60,000-65,000 workers, reflecting a 50 percent decline from 2003.

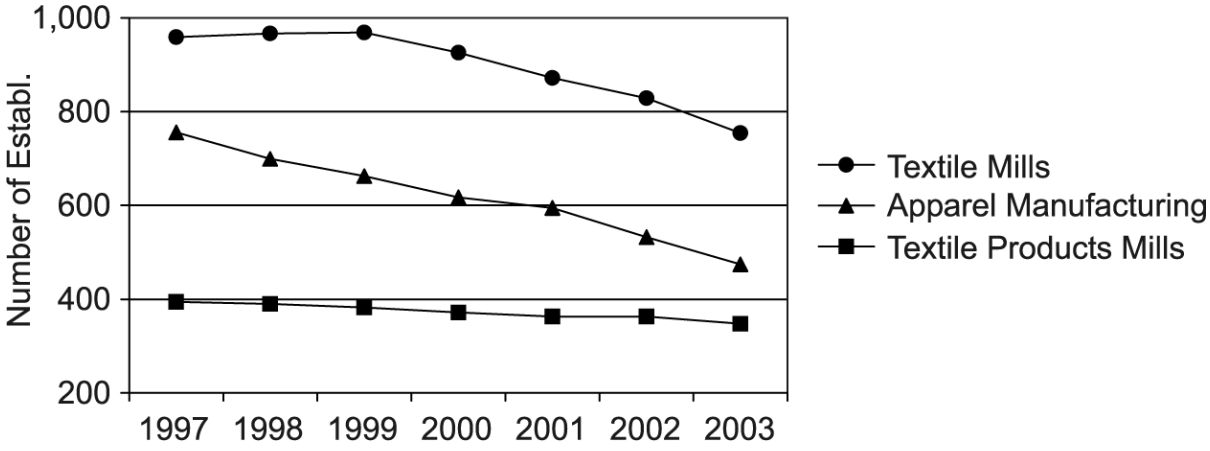
This study illustrates how the textile complex in a single state has been affected by the reality of a global economy. The results of the study demonstrate that the differences in the structure of the state textile complex vs. that of the US as a whole had a significant impact on its performance. Moreover, the results indicate that these structural differences will to a large extent determine the future of North Carolina's textile complex development and employment trends. For instance, for the North Carolina knitting mills industry group, where the value of shipments has decreased faster than employment when compared to nationwide patterns, it will likely be a challenge to remain competitive in the future.

Taking into account an on-going decline in textile complex employment, it is important to develop an understanding of how the nature and structure of the sector will be changing in the near future as well as for the long-term. This study showed that during 1997-2003 the proportional size of the industries within the North Carolina textile complex has not changed significantly despite the fact that overall employment was reduced by almost half. In 2003, textile mills continued to employ 61 percent of the total textile complex's workforce, similar to 1997. There was a slight shift in size with respect to the two other industries, in that textile products mills employment increased from 10 to 13 percent, while the number of jobs in apparel manufacturing dropped from 29 to 26 percent. This trend is in line with the anticipated development of the textile complex as a whole (Industry Output and Employment Projections, n.d.).

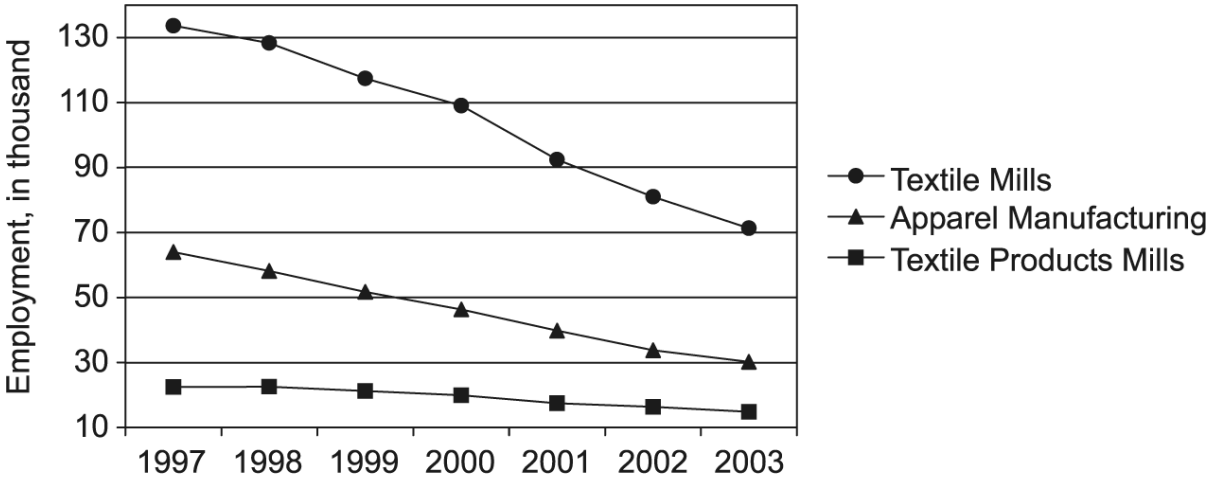
Alongside the need for further study of employment trends, an assessment is needed of the types of jobs being cut. Hussain *et al.* (2002) point out that certain occupations are in the process of disappearing, including textile draw-out machine operators, textile machine setters/tenders, as well as sewing machine operators. More studies that address job losses by occupation are needed. For example, Kessler (2002) found that despite the decline in total apparel industry employment, white-collar occupations involved in pre-production product development and post-production merchandising and marketing are increasing in both absolute and proportional numbers. Although beyond the scope of the present study, this type of examination could be used to understand the extent to which design and distribution can soften the blow caused by the loss of manufacturing.



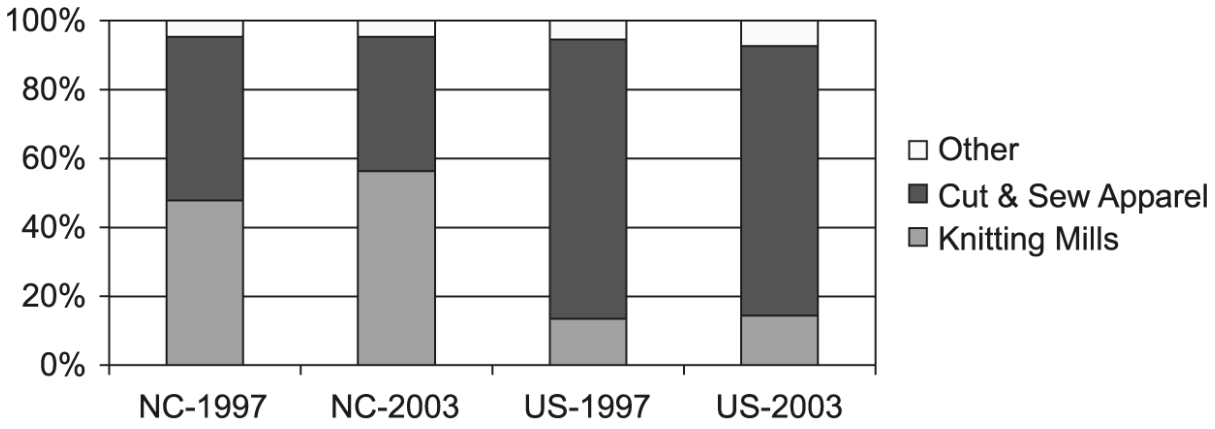
Source: North Carolina Employment Security Commission and Bureau of Labor Statistics
Figure 1*Proportion of North Carolina in total US Industries Employment, 2003*



Source: North Carolina Employment Security Commission
Figure 2*Number of establishments, North Carolina textile complex*

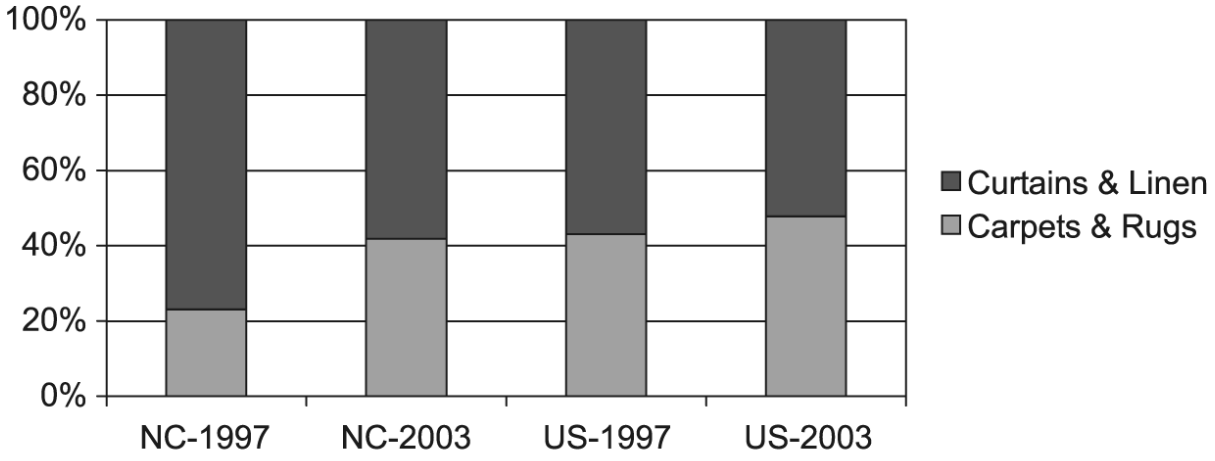


Source: North Carolina Employment Security Commission
Figure 3*Employment trends, North Carolina textile complex*



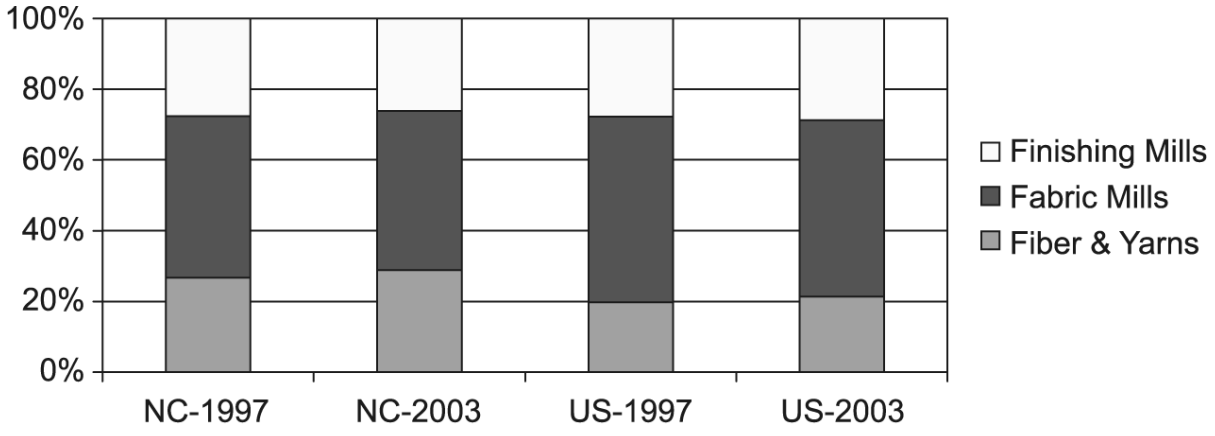
Source: North Carolina Employment Security Commission

Figure 4*Apparel manufacturing employment*



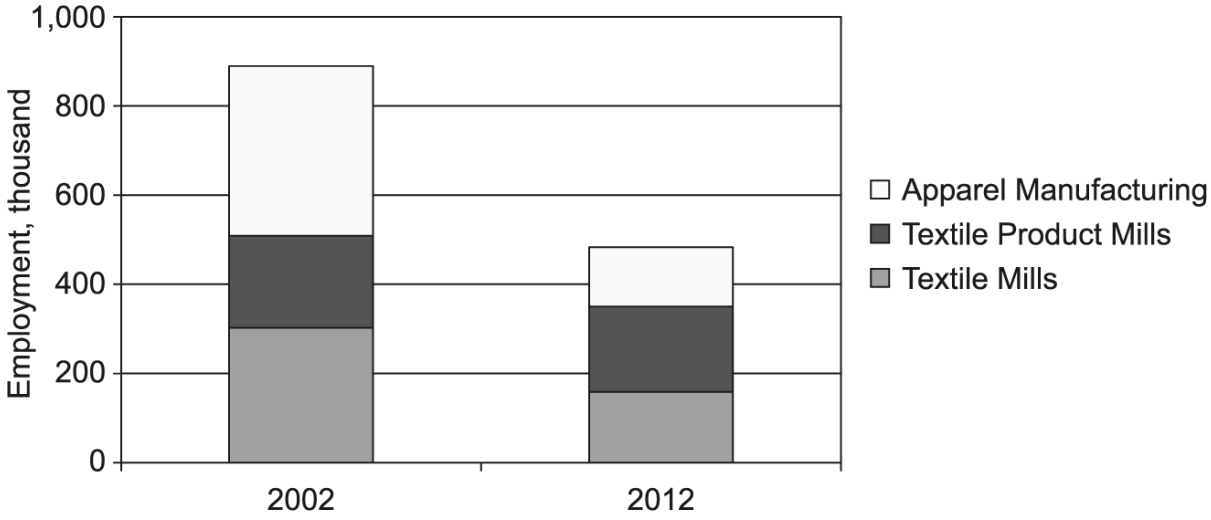
Source: North Carolina Employment Security Commission

Figure 5*Textile products mills employment*



Source: North Carolina Employment Security Commission

Figure 6*Textile mills employment*



Source: Bureau of Labor Statistics

Figure 7*Projected employment, US textile complex*

NAICS	Industry and industry groups	Number of establishments 1997	1998	1999	2000	2001	2002	2003
313	Textile mills	959	967	969	926	872	829	754
3131	Fiber and yarn mills	224	230	229	216	207	195	181
3132	Fabric mills	335	336	339	331	320	300	278
3133	Finishing mills	400	401	402	379	346	333	295
314	Textile product mills	394	390	382	371	363	363	347
3141	Textile furnishing mills	195	186	183	177	172	175	160
31411	Carpets and rugs	31	32	33	33	32	32	30
31412	Curtains and linen	164	154	150	144	140	143	131
3149	Other textile products	200	204	199	194	191	188	187
315	Apparel manufacturing	756	699	662	617	594	532	474
3151	Knitting mills	296	279	271	258	252	229	207
3152	Cut and sew apparel	404	366	335	299	282	246	220
3159	Apparel accessories	56	54	56	60	61	57	47
	Total textile complex	2,109	2,056	2,013	1,914	1,829	1,724	1,575

Table I.
Number of establishments, North Carolina textile complex

Source: North Carolina Employment Security Commission

Table I*Number of establishments, North Carolina textile complex*

NAICS	Industry	1999 Estabishment (%)	1999 Employer (%)	2000 Estabishment (%)	2000 Employer (%)	2001 Estabishment (%)	2001 Employer (%)	2002 Estabishment (%)	2002 Employer (%)	2003 Establishment (%)	2003 Employer (%)
313	Textile mills	0	−9	−4	−7	−6	−15	−5	−12	−9	−12
314	Textile products mills	−2	−6	−3	−6	−2	−13	0	−6	−4	−9
315	Apparel Manufacturing	−5	−11	−7	−10	−4	−14	−10	−15	−11	−11

Table II.
Changes in number of establishments and employment, North Carolina textile complex

Table II*Changes in number of establishments and employment, North Carolina textile complex*

NAICS	Industry and industry groups	Employment, in thousands 1997	1998	1999	2000	2001	2002	2003
313	Textile mills	133.7	128.4	117.4	109.1	92.4	81.0	71.3
3131	Fiber and yarn mills	35.8	36.6	33.7	31.5	26.9	23.4	20.5
3132	Fabric mills	60.5	58.2	53.1	49.7	41.9	37.3	32.3
3133	Finishing mills	37.4	33.9	30.6	27.9	23.5	20.3	18.5
314	Textile product mills	22.4	22.5	21.2	19.9	17.4	16.3	14.8
3141	Textile furnish. mills	14.0	14.4	13.8	12.9	11.2	10.4	9.0
31411	Carpet and rugs	2.9	3.3	3.4	3.5	3.3	3.9	3.6
31412	Curtains and linen	11.2	11.1	10.3	9.4	7.3	6.7	5.4
3149	Other textile products	8.4	8.0	7.4	7.0	6.5	5.8	5.9
315	Apparel manufacturer	63.9	58.2	51.7	46.3	39.8	33.8	30.2
3151	Knitting mills	30.6	29.0	27.1	25.5	22.3	19.2	17.3
3152	Cut and sew apparel	30.4	26.6	22.2	18.6	15.6	13.00	11.5
3159	Apparel accessories	2.9	2.7	2.4	2.2	1.9	1.6	1.5
	Total textile complex	220.0	209.1	190.2	175.3	149.6	131.1	116.3

Source: North Carolina Employment Security Commission

Table III.
Employment, North Carolina textile complex

Table III*Employment, North Carolina textile complex*

NAICS	Industry and industry groups	Employment, in thousands 1997	1998	1999	2000	2001	2002	2003
313	Textile mills	436.2	424.5	397.1	378.2	332.9	290.9	260.3
3131	Fiber and yarn mills	86.6	87.2	83.6	80.9	70.7	63.2	56.2
3132	Fabric mills	228.6	220.9	203.5	191.9	167.7	145.2	129.6
3133	Finishing mills	121.0	116.4	110.1	105.4	94.5	82.5	74.5
314	Textile product mills	217.0	217.1	217.3	216.3	205.7	194.6	179.8
3141	Textile furnish. mills	126.1	126.6	128.3	128.5	121.4	116.4	105.2
31411	Carpet and rugs	54.2	55.0	56.3	56.8	55.2	54.9	50.3
31412	Curtains and linen	71.9	71.6	72.0	71.7	66.2	61.5	54.9
3149	Other textile products	90.9	90.5	88.9	87.7	84.3	78.3	74.7
315	Apparel manufacturer	700.2	639.6	555.6	496.8	426.5	359.7	312.7
3151	Knitting mills	93.6	86.5	76.4	68.9	61.1	50.3	44.9
3152	Cut and sew apparel	568.0	515.7	444.3	393.5	334.7	282.9	244.6
	Total textile complex	1,380.4	1,281.2	1,170	1,091.3	965.1	845.2	752.8

Source: Bureau of Labor Statistics

Table IV.
Employment, US textile complex

Table IV*Employment, US textile complex*

NAICS	Industry and industry group	Employment 1997-2003 (2001)[a] North Carolina	US	Value of shipments 1997-2001 North Carolina	US
313	Textile mills	−47 (−31)	−40 (−24)	−30	−22
3131	Fiber and yarn mills	−43 (−25)	−35 (−18)	−28	−22
3132	Fabric mills	−47 (−31)	−43 (−27)	−31	−25
3133	Finishing mills	−50 (−37)	−38 (−22)	−32	−18
314	Textile product mills	−34 (−22)	−17 (−5)	−2	
3141	Textile furnishing mills	−36 (−20)	−17 (−4)	−7	+7
31411	Carpets and rugs	+24 (+14)	−7 (+2)	N/A	N/A
31412	Curtains and linen	−52 (−35)	−24 (−8)	N/A	N/A
3149	Other textile products	−29 (−22)	−18 (−7)	+10	−5
315	Apparel manufacturing	−53 (−38)	−55 (−39)	−17	−20
3151	Knitting mills	−43 (−27)	−52 (−35)	−38	−29
3152	Cut and sew apparel	−62 (−49)	−57 (−41)	+5	−19

Note: [a] Data for 2001 change presented in parentheses

Table V.
Percent change in employment and value of shipments

Table V*Percent change in employment and value of shipments*

NAICS	Industry group	North Carolina 1997 (%)	North Carolina 2003 (%)	US 1997 (%)	US 2003 (%)
313	Textile mills	100	100	100	100
3131	Fiber and yarn mills	27	29	20	21
3132	Fabric mills	45	45	52	50
3133	Finishing mills	28	26	28	29
314	Textile products mills	100	100	100	100
3141	Textile furnishing mills	63	61	58	58
31411	Carpets and rugs	21	40	43	48
31412	Curtains and linen	80	60	57	52
3149	Other textile products	37	39	42	42
315	Apparel manufacturing	100	100	100	100
3151	Apparel knitting mills	48	57	13	14
3152	Cut and sew apparel	48	38	81	78
3159	Other apparel manufacturer	4	5	6	8

Table VI. Distribution of employment within industries

Table VI*Distribution of employment within industries*

SIC	Industry groups	Employment, in thousands North Caroline (%)	Employment, in thousands US (%)	Size of industry/group North Carolina (%)	Size of industry/group US (%)
2260	Textile finishing	16.9	51.0	100	100
2261	Finishing plants, cotton	12.4	20.0	73	39
2262	Finishing plants, manmade	0.6	22.5	4	44
2269	Finishing plants, n.e.c.	3.9	8.5	23	17

Sources: Annual survey of manufactures and North Carolina manufacturers directory

Table VII. North Carolina and US Textile Finishing Industry Group, 1996 employment

Table VII*North Carolina and US Textile Finishing Industry Group, 1996 employment*

NAICS	Industry and industry groups	North Carolina 1997	North Carolina 2001	US 1997	US 2001
313	Textile mills	17,229,691	12,054,002	58, 707,401	45,680,697
3131	Fiber and yarn mills	5,920,759	4,262,877	12,896,617	10,030,255
3132	Fabric mills	8,081,747	5,589,751	29,979,595	22,604,452
3133	Finishing mills	3,227,185	2,201,974	15,831,189	13,045,991
314	Textile product mills	2,890,166	2,833,116	31,051,835	31,970,641
3141	Textile furnishing mills	2,082,546	1,937,015	20,296,040	21,792,868
3149	Other textile products	807,720	896,101	10,755,795	10,177,774
315	Apparel manufacturing	7,332,757	6,051,341	68,018,116	54,598,294
3151	Knitting mills	3,921,819	2,413,385	9,600,569	6,837,745
3152	Cut and sew apparel	3,180,923	3,388,241	53,851,513	43,562,535
3159	Apparel accessories	230,015	249,515	4,566,034	4,198,015

Source: Annual survey of manufacturers

Table VIII. Value of shipments ($1,000)

Table VIII*Value of shipments ($1,000)*

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