State of the North Carolina Workforce

An Assessment of the State's Labor Force Demand and Supply 2007 – 2017

The North Carolina Commission on Workforce Development

January 2007

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The North Carolina Commission on Workforce Development procured the services of the following organizations to conduct this research

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Table of Contents

Members of the Commission i
Executive Summary ii
Following are the eight key trends identified in the report: iii
Many Traditional NC Manufacturing Industries Are Shedding Jobs iii
North Carolina's Traditional "Middle Jobs" Are Disappearing iv
New Job Creation Is Concentrating in Fast-growing Urban Areas v
Many Areas Are Not Prospering v
Future Prosperity Depends on Achieving Higher Educational Attainment Levels v
Baby-boom Retirements Will Deplete Labor Force Talent vi
High Skill In-migrants Can Help Close the Skills Gap vi
Low Skill In-migrants Present Opportunities and Challenges vii
Call to Action vii
Introduction 1
Defining Sub-state Units of Analysis 2
Identifying a Rural-Urban Hierarchy 3
Defining North Carolina's Three Primary Geographic Regions 6
The Piedmont Region 7
The Coastal Region 8
The Mountain Region 9
State Workforce Demand and Supply 9
Workforce Demand 9
About the Data 9
Industry Job Trends and Projections 12
Occupational Employment Trends and Projections 17
Summary of Key Demand Analysis 27
Workforce Supply 28
Demographic Analysis 28
Summary of Key Supply Analysis 42
Employer Demand & Workforce Supply Gap Analysis 44
Conclusions 48
Appendix 1: Summary of Existing Economic and Workforce Developments Studies and Plans II
Regional Vision Plans II
Vision Plan Strategies for Workforce, Education and Training III
Selected Workforce Development Strategies Already in Place VII
Appendix 2: 200 Fastest Growing Industries in North Carolina X
Appendix 3: NC Selected Occupational Employment Projections XVII

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State of the North Carolina Workforce

An Assessment of the State's Labor Force Demand and Supply 2007 - 2017

Executive Summary

The North Carolina economy is transforming in many ways and on many levels. One key transformation involves the State's shift from an economy based on traditional manufacturing to a new economy driven increasingly by knowledge-intensive, business services activities. In response to this transformation, many firms are changing their products or production processes and offering expanded services as they adapt new technologies and build closer ties with suppliers and customers. Just as important is continued service sector growth, which is creating a large demand for both jobs requiring high skills and offering high wages and jobs requiring minimal skills, leaving a significant gap in the demand for jobs in the "middle." When viewed in the aggregate, economic and occupational shifts are having dramatic impacts on the state's workforce.

This "State of the North Carolina Workforce" report seeks to shed light on statewide trends and to unmask significant regional patterns in job creation and its impact on the demand for workers. In particular, the study examines economic and workforce development patterns in the state's urban areas, small towns, and rural communities as well as North Carolina's geographic regions–the Mountains, Piedmont, and Coast. Based on an in-depth quantitative analysis of the current and projected labor market supply and demand, the goal of the study is to describe North Carolina's progress to date and the challenges and opportunities for completing a successful economic transformation.

Important caveats should be noted related to this analysis. First, this analysis uses data calibrated to the US Bureau of Economic Analysis (BEA) definition for employment. The BEA combines employment data from the North Carolina Employment Security Commission's unemployment insurance administrative records (the most commonly used data source in counting jobs) with data on proprietors, farm workers, and government workers. Second, the forecasts are based on both past trends and assumptions about anticipated future developments, assuming no changes in policy or economic conditions. Thus, these forecasts should be used in the spirit in which they are provided, as a tool for assessing likely future growth patterns *in the event that no policy action takes place to change that future and there are no major unforeseen economic upheavals*. Third, other analyses may differ slightly in their outlook for certain industries or occupations. These differences come from using different projection tools and models. However, the core predictions hold true across methodologies and represent an accurate picture of the future, assuming current trends do not change.

Following are the eight key trends identified in the report:

- **Many of North Carolina's traditional manufacturing industries continue to shed jobs as part of an on-going economic transition.**
- **North Carolina's traditional "middle jobs"—those that paid a family-sustaining wage and required minimal formal education or training—are disappearing as part of this transition.**
- **New job creation is concentrating in certain fast-growing metropolitan areas.**
- **Many areas of North Carolina are not prospering from the economic transformation.**
- **The future prosperity of all North Carolinians depends on achieving higher educational attainment levels for all citizens.**
- **Impending baby-boom retirements will exacerbate an emerging skills gap among experienced, skilled workers.**
- **High-skill in-migrants will help fill part, but not all, of this skills gap.**
- **Low-skill in-migrants present both opportunities and challenges in meeting the state's workforce needs.**

This report reviews each of these trends, identifies key issues and challenges for North Carolina, and examines both industry's demand for labor and the supply of workers available to meet those needs. It should be noted that while these trends are presented separately, many are integrally linked and are only presented discretely for ease of assimilation. Policy actions should take into account the whole of the picture and the relationship among the trends. Following is a brief discussion regarding the eight key trends from the study.

Many Traditional NC Manufacturing Industries Are Shedding Jobs

Mature manufacturing industries still account for a sizable portion of the North Carolina economy, and many are expected to continue shedding jobs during the next decade. For instance, certain industry sectors—such as elements of textiles, apparel, furniture, and computer/electronics—are shedding a large number of jobs, offsetting employment gains in other industries. Losses in these industry sectors are occurring throughout the state, but their greatest impacts are being felt in smaller communities that once relied almost entirely on recently down-sized or closed manufacturing facilities.

Executive Summary Figure 1:

NC Employment in Selected Manufacturing Industries

North Carolina Employment	2002	2005	Δ Employ, 2002-05	% Change
Textile and textile product mills	99,091	68,580	-30,511	-30.8%
Apparel	35,697	26,426	-9,271	-26.0%
Furniture & related products	67,695	59,280	-8,415	-12.4%
Computer & electronic products	46,741	39,215	-7,526	-16.1%
NC MFG Industries	662,354	590,346	-72,008	-10.9%

Source: US Bureau of Economic Analysis

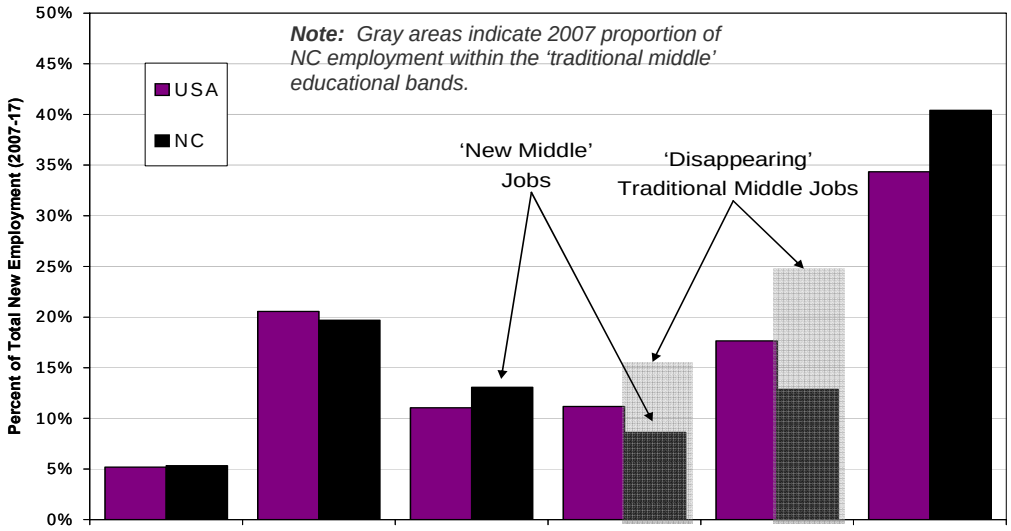
North Carolina's Traditional "Middle Jobs" Are Disappearing

The tragedy of the state's manufacturing jobs loss is that many semi-skilled workers are finding they do not have the skills to compete for jobs in high demand occupations. The difficulties facing these workers are exacerbated by two facts: (1) those high demand jobs are disproportionately being created in a few urban areas while the losses are occurring in other parts of the state, and (2) the level of skills needed to be competitive for good paying jobs is rising dramatically with time. The lost manufacturing jobs represented many of the 'traditional middle jobs' that offered family-supporting wages but did not require extensive education and training. Many of the state's dislocated workers did not have a high school education because manufacturers did not require a diploma. Dislocated or unprepared workers who do not have the resources or inclination to obtain the skills required from significant investments in education often must settle for low-skill jobs. Yet, available jobs offering middle-income pay now demand more formal education, often beyond a high school degree. To compete for these 'new middle jobs,' workers must invest years in more education or re-training.

At the same time, the economy is creating many new high-skill, high-wage jobs but they are now concentrated in a few major urban hubs. Creating opportunities for workers in less populated areas of the state will take new and innovative approaches to economic development. It is clear, however, that education levels must increase for these new approaches to gain any traction.

Executive Summary Figure 2:

US and NC Net New Jobs by Required Education (Estimated Change 2007-2017)



There simply are not enough skilled workers to fill the high-skill, high-wage jobs in the occupations where they are now growing. Those being squeezed from their traditional middle jobs are not ready to compete for available opportunities. Furthermore, few opportunities are available within easy commuting distance of many displaced workers. Thus, it becomes even harder for the unprepared to gain access to higher income jobs leaving them to compete primarily for low-skill, low-paying wages. The result is an increasingly polarized workforce – those who have skills and access to good-paying jobs and those without skills and only access to primarily lower-paying jobs.

New Job Creation Is Concentrating in Fast-growing Urban Areas

As North Carolina's traditional economic base declines, the data reveal that the state's overall economy is becoming more diverse and more similar to the rest of the country. The state's services sector is expected to grow more rapidly in the coming decade, as a combination of high-skill, high value-added services and low-skill, low value-added services replace the jobs lost in mature goods-producing sectors. Whereas the state's traditional manufacturers are often located in small towns, we see that the bulk of these emerging new activities, particularly those that require higher skills and thus have higher pay are concentrating in the state's larger metropolitan areas. Many of the metropolitan counties of the Piedmont region, for instance, enjoy the most dynamic economies. The companies in the Piedmont account for 64 percent of current jobs and 68 percent of new jobs projected to be created in the next decade. Statewide, metropolitan counties have 74 percent of current jobs while 81 percent of projected new jobs are expected to be created in these metropolitan areas.

Many Areas Are Not Prospering

In contrast to the success in the Piedmont, especially around Charlotte and the Research Triangle, relatively slower growth has occurred throughout much of the rest of the state, especially in the Mountains and Coastal regions. While many of the largest metropolitan areas are growing rapidly, smaller urban (or "micropolitan") areas and rural counties are creating fewer jobs, many of which include lower wage consumer services or temporary jobs. In addition, the Piedmont Triad has also not yet gained traction in finding a new economic base to replace its declining manufacturing industries.

Overall, about 40 percent of the state's new jobs will require little more than short-term training (see "Below GED" in Executive Summary Figure 2), but in the micropolitan and rural areas, that figure is closer to 50 percent. Unfortunately, these low-skill jobs pay approximately 60 percent of the state's current average earnings.

The metro areas are enduring labor supply shortages even though they offer higher average wages. Increasingly, they are tapping the workforce in nearby micropolitan and rural labor markets for the best and brightest talent, requiring either relocation or extended commuting patterns.

Quite simply, the state's micropolitan and rural economies are not creating enough high- and middle-income jobs to meet all of their local employment needs. For some workers, the option is to settle for underemployment or no employment.

Future Prosperity Depends on Achieving Higher Educational Attainment Levels

Even in the most successful regions, North Carolina's earnings trail the rest of the country. Not only is this true statewide, but also in the state's high earning metro counties and Piedmont region where average earnings trail the US by 4 percent. Based on the mix of industries and occupations projected to grow the fastest in North Carolina, this relative earnings pattern will not change during the coming decade. To close that gap, the future prosperity of North Carolinians relies heavily upon further enhancing workers' education and skills.

Simply put, the more education that an occupation demands, the higher the average earnings. Workers with no post-secondary education or certification are finding it increasingly difficult to compete for jobs in

high wage occupations. The highest wage occupations require an advanced degree and pay 106 percent greater than the state average. Those requiring a bachelor's degree pay 90 percent greater than the state average. Those occupations requiring some college or an associate's degree offer earnings 15 percent higher than the state average. Even jobs that required some college or at least one year of training and experience paid about 5 percent above average.

The good news is that, overall, the state's educational attainment levels are rising. In 1990, 70 percent of North Carolina adults aged 25 and older held a high school degree, increasing to 84 percent by 2005. Likewise, in 1990, only 17 percent of adult North Carolinians held a bachelor's degree or higher, but this rate increased to 27 percent by 2005. Even with this significant progress during the past 15 years, the state continues to trail the nation in educational attainment and still has far to go to ensure that workers without a formal post-secondary education, especially those without access to or the resources to take advantage of education opportunities, do not fall farther behind.

Baby-boom Retirements Will Deplete Labor Force Talent

Global demographic shifts will create additional challenges in meeting North Carolina's future workforce needs. Perhaps most pressing is the impending retirement of the first wave of the baby-boom generation (those born between 1946 and 1955). If this segment of the workforce is lost en masse, it could create tremendous upheaval in the workplace.

While the boomers are retiring, the state is projected to add about 30,000 new adults each year as potential workers, enough to replace the retirees but not enough to fill the new jobs being created. With 70,000 new jobs being created each year during the next 10 years, 40,000 net new jobs could go begging for workers annually. The retirement of one-quarter of the workforce, especially many of the state's most experienced workers, in just 13 years has the potential to leave a gaping hole in the supply of workers during the next two decades.

High Skill In-migrants Can Help Close the Skills Gap

Fortunately, new in-migrating workers are helping to mitigate the state's current labor shortages. New North Carolinians represent several key cohorts – including highly-prized college-educated, young adults (especially those aged 20-29). In addition, Hispanics, Asians, and foreign-born residents are also common in-migrants to North Carolina. While the state's overall age structure is relatively similar to the US, in-migrants are, on average, about seven years younger. In-migrants provide potential solutions to the demand for workers for both high-skill and low-skill occupations.

Attracting young talent is not the only solution for closing the state's skill gap. The state is also attracting retirees and, importantly, 'pre-retirees' (aged 50-64). These pre-retirees are often looking for their eventual retirement destination, but they are not yet ready to leave the workforce. Nearly one in four retirement and pre-retirement age in-migrants chose to move to Charlotte during the last decade. The Raleigh-Durham area has also served as a major destination for pre-retirees. Certainly, Asheville has also benefited from in-migrations among this group, with 9 percent of all 50-and-older in-migrants to North Carolina choosing the Asheville metropolitan area as their new home.

Low Skill In-migrants Present Opportunities and Challenges

Just as experienced in-migrants help in closing the state's skills gap, the state is also attracting a large number of unskilled or semi-skilled in-migrants. One of the largest cohorts within this group of in-migrants is Hispanic workers. This cohort of new North Carolinians poses new challenges for the state's workforce development leaders. Growth in the state's Hispanic population continues to far outpace the national average. In 2005, North Carolina was ranked 11th for total number of Hispanic residents, and official estimates put that number at over 600,000. However, recent research on unauthorized at the Pew Hispanic Center (www.pewhispanic.org) of unauthorized migrants suggests that the total may actually be as high as 1 million (or 11 percent) North Carolinians are of Hispanic origin.

The large scale influx of low-skill Hispanic workers provides a significant source of workers for many industries, including construction, agriculture, food processing and a number of other services. Nevertheless, this population also poses several real challenges for the state's education, workforce and social services providers. Many low-skill workers, especially persons whose first language is not English, could inhibit growth of the state's standard of living. Efforts to acculturate this new in-migrant community will be critically important to the state's economic success.

Call to Action

North Carolina's changing economy will demand an adaptable workforce. During the past decade, jobs losses in traditional manufacturing sectors have resulted in significant economic hardship across the state. Many of those dislocated workers settled for lower paying, low-skill jobs because they did not qualify for the new jobs that offered better wages, but demanded higher skills or better education. Furthermore, many dislocated workers lacked access to educational resources, could not afford to take advantage of those educational opportunities, or simply were not inclined to disrupt their lives any further by going back to school. These issues continue in those basic sectors as certain manufacturing industries shed more jobs in the future, but North Carolina's future economy will look very different. New industries are emerging, many of which offer high wages to those with the most skills. Consequently, North Carolina finds itself with a widening gap: on one end is a growing shortage of high skill talent needed to fill emerging well paying jobs and on the other end are many low skill workers settling for jobs that do not offer a family-sustaining wage.

The state's workforce and education system faces the challenge of preparing an increasingly larger proportion of North Carolinians for better-paying, higher skill jobs. This challenge is made more daunting by the large existing pool of workers that lack the most basic skills or credentials (e.g., a high school degree or post-secondary training and education) necessary for these new higher quality jobs. As a result, North Carolina must seek to provide the state's existing workforce with better access to longer-term training and education to meet the needs of its fast-growing industries. Importantly the State must also create opportunities throughout all of North Carolina.

As leaders review the key trends facing the state, North Carolina must consider the implications for state policy. How do we respond most effectively to the painful transitions caused by worker dislocations in our traditional industries? How do we prepare workers for emerging, fast-growing industries? How do we help the entire state to prosper while encouraging the state's fast-growing urban economies to continue operating at their fullest capacity? How do we help our citizens to value education more highly

to ensure that they are fully prepared for the opportunities that fast-growing new industries offer? These are some of the questions raised key challenges facing our state.

State and local policy makers and practitioners involved in workforce development, education, and economic development must all participate fully in developing the solutions to address these challenges effectively. The responses from these existing networks and the state's multi-billion dollar investment in education, workforce development and economic development should be directed to efforts that create an environment in which the economy continues to develop and allows all citizens to contribute as valued members of that economy. These solutions must recognize that North Carolina is no longer a source for low-cost, low-skill labor for global markets. Our success will be based on innovation, new ideas, entrepreneurial behaviors, and continuously advancing education levels. How we achieve these ideals and create a more integrated system of life-long learning are at the heart of whether North Carolina can continue to prosper and truly become "The State of Minds."

To access the complete State of the Workforce Report electronically, please visit:
http://www.nccommerce.com/workforce/swr

North Carolina State of the Workforce:

An Assessment of the State's Labor Force Demand and Supply

Introduction

North Carolina's economy is undergoing a critical economic transformation. For decades, the state depended on agriculture and manufacturing industries for its middle-income, family-sustaining jobs. Increasingly, North Carolinians are finding those jobs subsumed by an economy that is much more globally oriented, knowledge-driven, and service-based. During the past several years, numerous studies and strategies have characterized these challenges and identified potential policy responses. Appendix 1 summarizes several of the state's key regional economic development plans, as well as representative workforce studies conducted in various state regions.

The transformation occurring in North Carolina has significant implications for the state's businesses and workers, changing what they do and how they compete in a globally integrated economy. This analysis explores how far North Carolina has traveled in the transformation process and looks to the future to identify the jobs that will provide family-supporting wages. Not only is the goal of this analysis to examine projections of where jobs will be in the future, but the analysis also explores the readiness of North Carolina's workforce to fill those jobs. What kinds of jobs can the state expect to be available? Will North Carolina have the workers required to fill these jobs? How might the state's public education and training system prepare for North Carolina's economy as it continues this historic shift during the next ten years?

In looking to the future, we must rely on economic forecasts, which are, at best, educated guesses about what the future holds. Forecasts, such as the one offered in this report, provide users with a sense of the state's direction as well as information about expected growth patterns *should no policy action be taken to change the future*. However, it is critical to note that forecasts rely on information about recent trends and assumptions about future behaviors. Furthermore, not all economists agree on what these trends mean or what assumptions should be made. In addition, these trends are subject to unforeseen events as well as the concerted efforts of policy makers to address the state's challenges. In fact, the most important reason for examining these past and projected patterns is to help policymakers determine how best to invest resources to change undesirable trends. This study of the state's workforce is designed primarily to provide policy makers with information about the state's growth path, in order to help leaders understand what may happen if the economy follows its current trajectory.

In making strategic investments or critical policy choices, leaders can, of course, help dramatically redirect economic and workforce development trends. In North Carolina, leaders make many of these strategic choices at the regional and local level without a single statewide vision. Assuming access to resources that can influence development, this approach is appropriate in a state, such as North Carolina, with many regional economies bound together by a single political border. Clearly, the economies of the Piedmont metropolitan areas of Charlotte and Raleigh-Durham are very different from the Mountain or Coastal regions. Policies that will influence growth and development in these fast-growing metropolitan economies should differ substantially from those that create opportunity in

stagnating rural areas. Even so, this report will define the similarities among those sub-state regional economies, as much as it confirms some of the differences that we expect to find.

In the following pages, the report examines both North Carolina's labor market demand and supply. Labor market demand is determined by assessing which industry sectors are growing and what occupations those industries require. This analysis projects the number of jobs required today and in ten years to meet the state's economic demands. It also examines the education and training requirements demanded by those industries and occupations. Following this analysis of worker demand, the report explores the labor market supply so as to determine which people are available (and will likely be available) to fill the jobs being created in the state's economy. The focus of the discussion is on identifying the skills necessary to meet the market's need for workers.

The study concludes with an analysis of the existing education and training system's capacity to meet the demand by adapting the supply of workers to meet those needs. It also offers key findings and conclusions that will better allow the State's Workforce Commission to determine appropriate recommendations for action. In the next section, the report focuses on how and why the state's economy has been subdivided in the analysis, and provides a glimpse of what kind of data were used in this assessment.

Defining Sub-state Units of Analysis

North Carolina possesses a significant amount of economic diversity, and therefore the issues facing its workforce differ widely across the state. In places like Charlotte and the Research Triangle, firms require highly-skilled workers to support activities in rapidly growing economic sectors such as financial services, information technology, and biosciences. While the Charlotte and Research Triangle regions are two of the nation's most economically dynamic regions, other parts of the state struggle to face the challenges of transforming in response to the needs of an increasingly knowledge-driven economy. In western North Carolina, for instance, industries that once employed many of the region's workers, including textiles, apparel and furniture, no longer provide enough viable employment options. Similarly, in eastern North Carolina, textiles and tobacco no longer drive employment and economic growth. If the regions lack the competitive advantage to support emerging knowledge-driven sectors, they are seeking alternative economic drivers, frequently relying on solutions designed to attract tourists or new residents. However, these new solutions often result in creating consumer service jobs that typically pay workers less than the jobs being shed from declining industries.

Clearly, assessing these trends at the state-wide level is necessary but not sufficient for understanding the full range of dynamic change affecting North Carolina. One approach to consider sub-state differences would be to focus at the individual county level. Of course, county level distinctions are an important part of the North Carolina culture; counties often tackle problems independently of the state or one another. However, frequently adjacent counties face many similar political, social, and economic challenges and could equally benefit from opportunities to collaborate regionally. Consequently, the study opts to assess relevant patterns and trends at a multi-county level of analysis.

There are several ways to conduct a multi-county analysis – some focus on grouping counties through adjacent geographies while others focus on grouping counties with similar characteristics. One approach, for instance, compares the observed economic dynamism and prosperity in the Piedmont with

the identified poverty and unemployment in the Mountains and along the Coast. This is relevant because, at that geographic scale, multiple (and sometimes disparate) challenges face the different parts of North Carolina.

Another approach recognizes that these adjacent counties may not always share common challenges. Why, for instance, is Watauga County doing so well economically while surrounding counties struggle? Why has Durham County not been able to take as much of an advantage of the success of the Research Triangle Park as have Wake and Orange counties? What has caused the economic struggles of the Piedmont's micropolitan areas while nearby metro areas flourish? Why are several eastern counties, such as Lenoir and Edgecombe, experiencing population declines while nearby counties enjoy growth?

The conventional wisdom is that the west and east both are suffering economically while the state's large metropolitan areas continue to grow. It is important not only to validate this perception, but also to better appreciate the nuanced challenges facing North Carolina's industries and workforce in different parts of the state. Consequently, this report must look beyond the obvious regional breakdowns to find the key issues that inhibit the state from enjoying more balanced economic development.

After detailed assessments of possible regional configurations, the project team collaborated with the state Workforce Commission's Policy Research and Assessment Committee (PRAC) to identify several regional distinctions for study. These distinctions focused on the rural-urban nature of the state's population as well as the traditional view that the state is composed of three major regions – the Coast, the Piedmont, and the Mountains. The analysis also recognizes the critical role for counties as well as the potential role the legislatively defined regional economic partnerships might play in developing greater demand for labor. Thus the analysis is consciously built on units that respect the partnership boundaries.

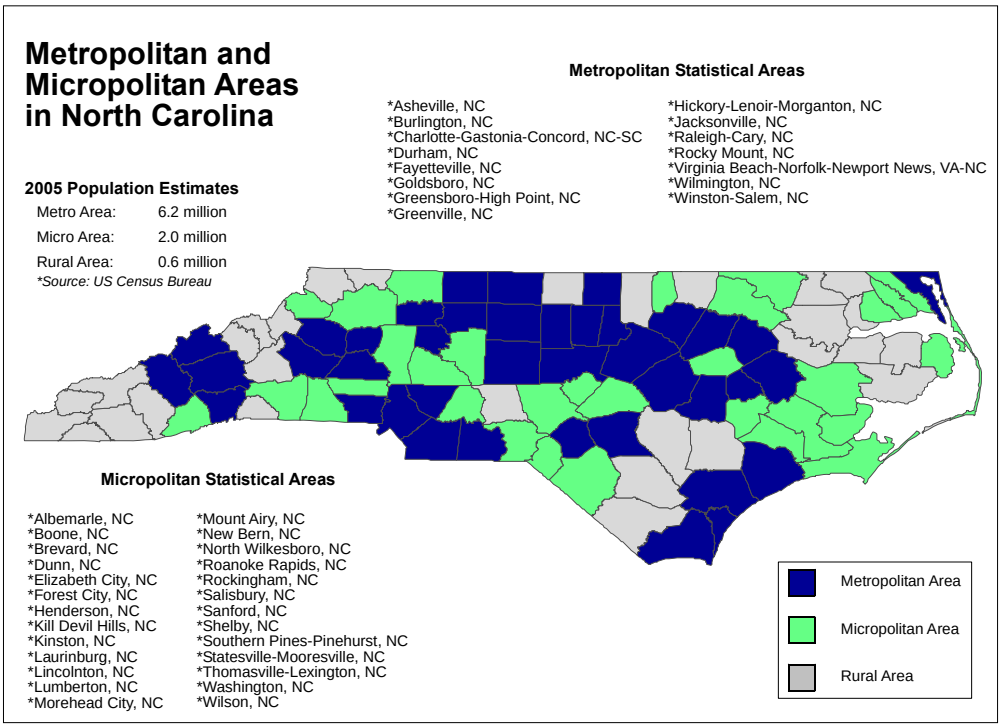
Identifying a Rural-Urban Hierarchy

The state's urban-rural dichotomy explains some of the differences in economic performance. Traditionally, North Carolina has been a state of small towns and rural places. Its agrarian culture was celebrated for generations. The rise of the textile industry in small communities across the state at the turn of the 20th century marked the initial shift of a large portion of the state's economy toward manufacturing. During the past generation, the state's growth was concentrated in its larger urban centers. The state may have reached a tipping point with the emergence of three major urban areas with more than one million people–Charlotte, the Piedmont Triad, and the Research Triangle. About half of the state's population now lives in one of these three regions, frequently called the "Golden Crescent."

Large cities, small cities, towns, and rural areas all face different kinds of workforce challenges and opportunities. Figure 1 shows North Carolina's metropolitan, micropolitan and rural counties.[1] The definition established by the US Office of Management and Budget identifies metropolitan counties as those with an urban area of 50,000 people or more. These areas include adjacent counties in which 25 percent or more of the population commutes to the urban center. Micropolitan counties are those with 10,000 to 50,000 people. For the purposes of simplicity, counties that are not classified as either metropolitan or micropolitan are identified as "rural counties" in this report. Rural counties are defined as

[1] *Regional distinctions provided by the US Office of Management and Budget, 2003 and updates; Calculations by CREC based on US Census Bureau 2005 population estimates.*

Figure 1



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those without an urban center of 10,000 people or more and in which less than 25 percent of the population commutes to a metropolitan or micropolitan area.

There are many varying definitions in North Carolina for “rural,” and most of the state’s counties contain both urban and rural elements. However, the three designations – metropolitan, micropolitan, and rural – provide a straightforward, useful framework for distinguishing among different types of counties in the state. The distinctions provide a way to group counties together that may not be geographically proximate but may be similar in terms of their population density and their relationship to nearby urban centers.

Roughly 6.2 million people, or 70 percent of all North Carolinians, live in the 40 counties that make up the state’s officially designated metropolitan areas. Businesses, governments, and nonprofits in the metropolitan areas offer 3.8 million jobs, about 74 percent of the 5.15 million jobs available. Approximately 2 million people live in the 31 counties in micropolitan areas. These areas are frequently built around North Carolina’s “small town” growth centers and account for almost 970,000 jobs. The micropolitan areas represent 23 percent of the state’s people, but only 19 percent of the state’s employment.

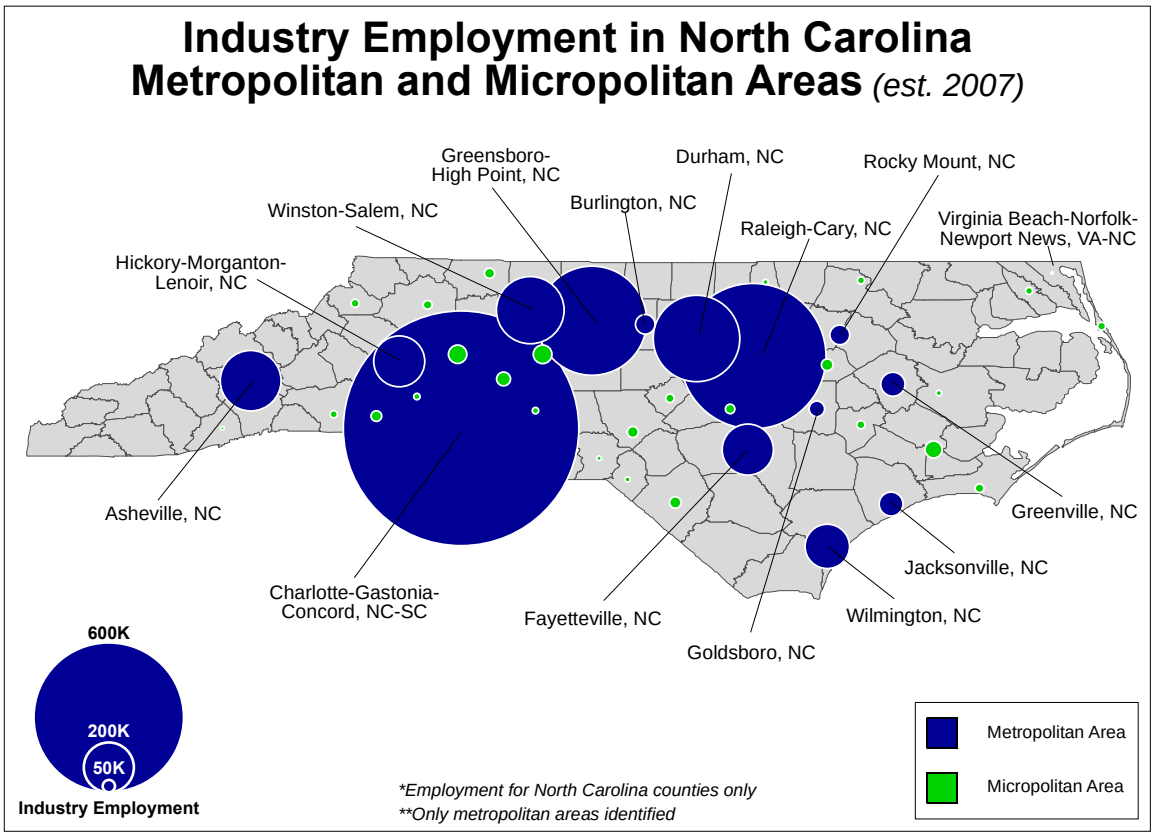
Twenty-nine North Carolina counties are defined for this analysis as part of neither the state’s metropolitan nor micropolitan areas. Unsurprisingly, these counties have relatively few residents and small employment levels. These rural counties have about 600,000 people and approximately 340,000 jobs, representing 7 percent of the population and 7 percent of the state’s employment.

Most North Carolinians work in the metropolitan areas, and they also earn more on average than in micropolitan and rural areas. Combined, people in metropolitan counties have projected average

earnings[2] for 2007 of $42,784 which is about $3,000 more (7 percent higher) than the statewide average of $39,953. Conversely counties in micropolitan and rural counties have below average earnings at $32,836 and $27,944 respectively.

Figure 2 shows industry employment in each of North Carolina's metropolitan and micropolitan statistical areas. The Charlotte-Gastonia-Concord, NC-SC Metropolitan Statistical Area (MSA) is the state's largest with an estimated 938,000 jobs available in the North Carolina counties. The combined MSAs of Raleigh-Cary and Durham are roughly the same size with an estimated 926,000 jobs. The two major metropolitan areas in the Piedmont Triad region — Greensboro-High Point and Winston-Salem — account for a combined 706,000 employment.

Figure 2



Source: Regional Dynamics Center for Regional Economic Competitiveness

Outside the core metro counties of the Piedmont, each of several regional metro areas, including Asheville, Jacksonville, Hickory-Morganton-Lenoir and Wilmington, has roughly 100,000 to 200,000 jobs. The state's largest micropolitan areas include Thomasville-Lexington, Statesville-Mooresville and New Bern. Each of these areas has about 70,000 jobs. As the three major metropolitan areas (Charlotte, Piedmont Triad, and Research Triangle) continue to grow, it is likely that many micropolitan and small metropolitan areas will become subsumed into adjacent metro areas as more workers opt to commute to relatively higher paying jobs found in those large metro areas.

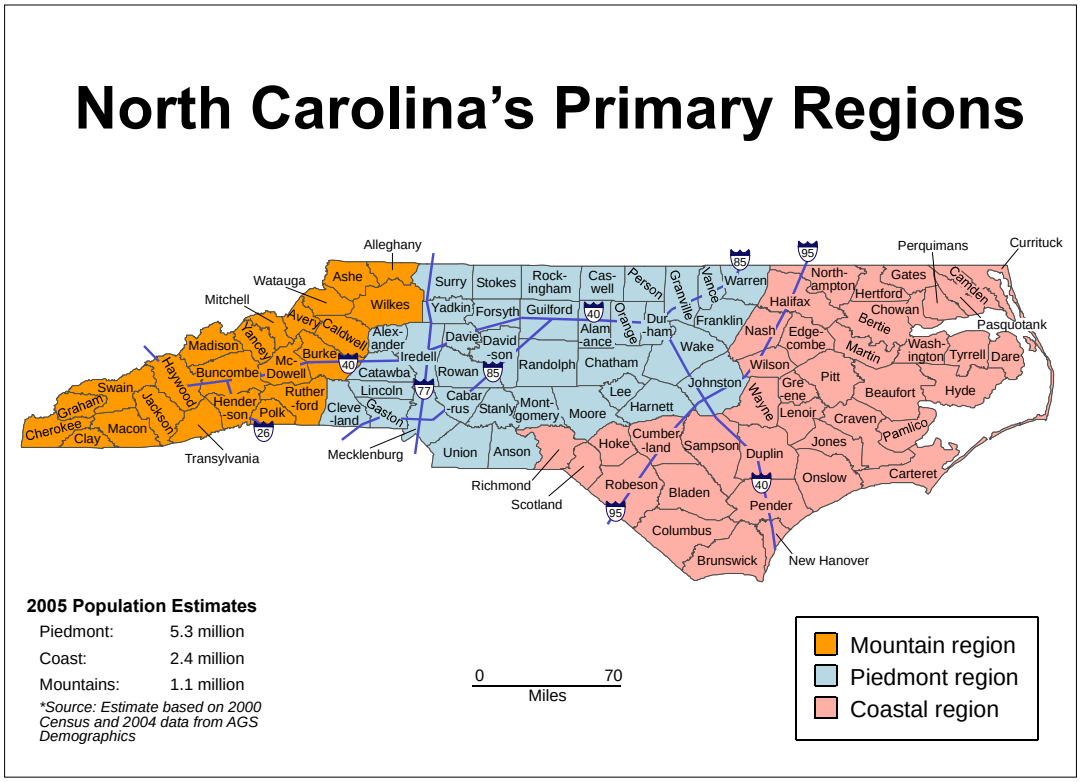
[2] *Earnings include not only wages and salaries but also other compensation accrued to workers in the form of supplements such as paid health insurance, day care, transportation, and Social Security taxes, as well as proprietors' income*

Defining North Carolina's Three Primary Geographic Regions

In addition to metropolitan, micropolitan and rural distinctions, this study also explores differences among the state's geographic regions. The most traditional way to sub-divide North Carolina is to examine its three major land regions focused around the Appalachian Mountains, the Piedmont and the Coastal Plain/Tidewater areas. While there are conventional methods for assigning these counties to regions,[3] this study also seeks to align the regional designations with the state's economic development partnerships as the foundation for drawing economic distinctions and perhaps later for exploring potential policy solutions.

Figure 3 illustrates the state's three primary regions using the partnerships as the basic unit for grouping counties. The 23 counties of the Advantage West Regional Partnership provide the foundation for classifying counties as part of the Mountain region. The 37 counties that comprise the three urban regional partnerships (the Charlotte, Piedmont Triad, and Research Triangle Regional Partnerships) form the basis for the Piedmont region. Finally, the 40 counties of the three eastern partnerships (North Carolina's Northeast Region, North Carolina's Eastern Region and North Carolina's Southeast Region) constitute the Coastal region.

Figure 3



It should be noted that using the partnership geographies to divide the state creates some minor analytical challenges. None of the three primary regions represents a single natural economic area. Advantage West's 23 counties encompass an area roughly the size of Maryland and has at least four

[3] *Dept. of Geography and Earth Sciences, The University of North Carolina at Charlotte, <www.ncatlasrevisited.org>*

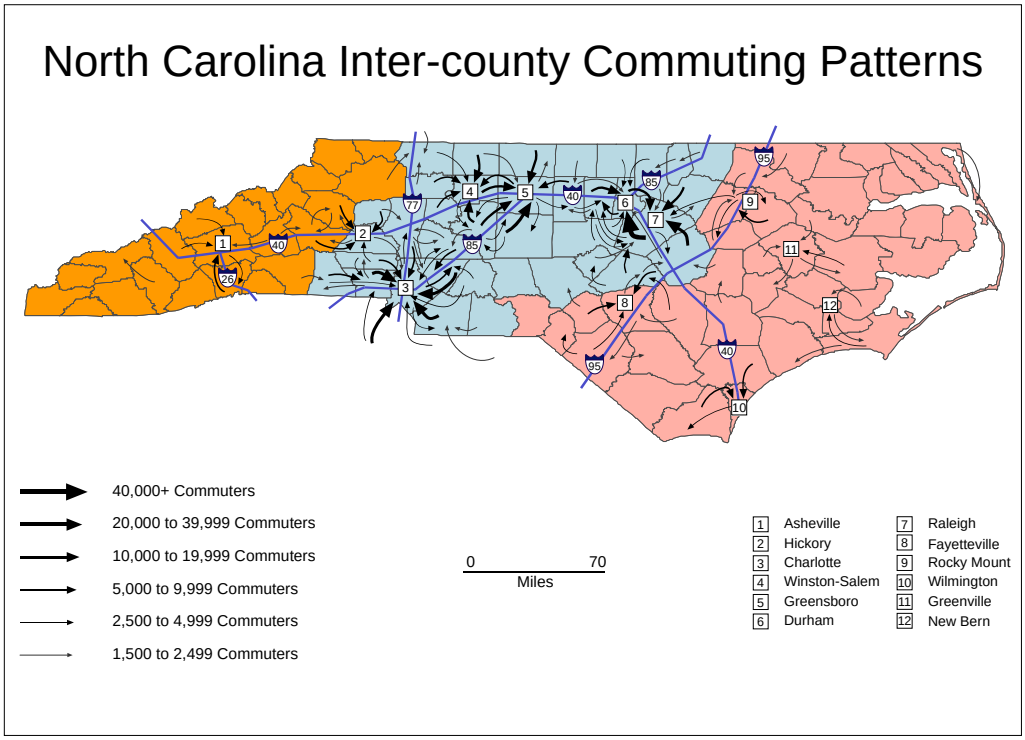
economic sub-areas.[4] Likewise, the Coastal region includes ten different economic sub-areas, many centered on metro and micro areas. The Piedmont region includes three overlapping economic areas roughly equivalent to the urban partnerships. The map in Figure 4 shows commuting patterns throughout North Carolina, reflecting the most significant commuting flows. The map clearly illustrates the interconnections among the Piedmont's three large metro areas.

In examining the map closely, there are two particular examples where the primary region boundaries split naturally occurring economic areas, in Hickory and Fayetteville. Part of the Hickory area, largely included in the Charlotte partnership area, also includes the Advantage West counties of Burke and Caldwell. A similar division occurs in the southeast where the boundary between the Research Triangle and the Southeast partnership regions separates the Fayetteville metro area's Harnett County from Cumberland County. Consequently, Harnett is assigned to the Piedmont region while Cumberland is assigned to the Coastal region even though a single labor market unites these two counties. It is also important to note that a significant flow of workers commute from South Carolina counties near Charlotte and these workers are critical components of Charlotte's workforce although North Carolina's workforce development organizations and educational institutions may have only a limited role in ensuring that they are appropriately trained and educated for future jobs.

The Piedmont Region

Each of the three urban partnerships represents a relatively coherent economic region and the communities within those partnership areas enjoy considerable economic interaction. In examining the commuting patterns illustrated in Figure 4, it is difficult to identify where one metropolitan area ends and

Figure 4



Source: US Census Bureau, 2000

[4] *Advantage West Vision Plan*

another begins. Incorporating the state's largest urban areas, the Piedmont drives much of North Carolina's economy. Roughly 60 percent (5.3 million) of the state's population resides in the region. About 3.3 million people work in the Piedmont region, representing 64 percent of the state's workers. The Piedmont's average earnings are $43,077 per year, exceeding the state average of $39,953 by almost 8 percent. Even though, the regions' partnerships are relatively inter-connected, their economies each tend to focus on a different set of activities.

The 12-county Charlotte Regional Partnership includes the Charlotte metropolitan area as well as several smaller satellite cities. The region's economy not only includes declining industries like textiles and furniture, but also advanced and emerging growth segments like financial services and motor sports. The Piedmont Triad includes the Winston Salem-Greensboro-High Point center, but it also includes a number of less urbanized rural counties. The Piedmont Triad area, more so than other parts of the Piedmont region, traditionally relied on mature industries such as furniture, apparel, textiles and tobacco for its economic base. As a result, the Piedmont Triad's economy has been slower than the other two urban regions in making the necessary economic transformations. Similarly, the Research Triangle region's center is Raleigh, Durham and Chapel Hill, but there are a number of outlying rural communities that also historically relied on textiles, apparel, and tobacco. The Research Triangle's economic base has developed so that it now relies heavily on high value-added activities such as biotechnology, information technology and higher education. Raleigh's role as the state capital also makes government employment and related activities a particularly significant component of the region's economy.

The Coastal Region

Roughly 2.4 million people live and 1.3 million people work in the Coastal region. This represents about 27 percent of the state's population and 25 percent of the workforce. The Coastal region's average earnings, at $35,706 per year, represent only 89 percent of the state average and trail the state average by more than $4,000 annually. Tourism represents an important component of the region's economy, building on assets such as the state's barrier islands and the Atlantic coast. The tourism industry, however, tends to pay lower than average wages and offers jobs that are typically more seasonal in nature.

The Coast has also been one of the state's leading agricultural regions, relying on tobacco, pork and poultry. Tobacco has historically been one of the region's leading agricultural products, but livestock production also employs large numbers of workers. Manufacturing and distribution operations, particularly along I-95, offer another source of regional employment. The northeastern part of the region is especially dependent on tourism and agriculture. The low wages and seasonality of the work are part of the reason why it is one of North Carolina's poorest regions.

The region's significant military presence plays an important role in its economy. About one in nine workers, or 140,000 people, are employed at one of the Coastal region's major military installations (i.e., Fort Bragg, Pope Air Force Base, Seymour Johnson Air Force Base, Cherry Point Naval Air Depot, and Camp Lejeune). The relatively good paying jobs associated with these bases help raise the region's average earnings. Anecdotal evidence, based on interviews with military leaders, suggest that while some retiring military professionals stay in the area upon their retirement, many others leave the area due to the limited post-military occupational opportunities available for themselves or their spouses. That

said, the Coastal region, especially communities near the ocean, is becoming a destination for new residents seeking second or retirement homes.

The Mountain Region

Of the three main geographic regions, the Mountain region has both the smallest population and the lowest overall average earnings. The region has slightly more than one million residents and 570,821 jobs. Consequently, the area has 13 percent of the state's people but only 11 percent of the state's employment. Average earnings in the Mountains are $31,561 per year, or 79 percent of the state average. The Asheville metropolitan area is the region's largest with roughly 400,000 people. Portions of the Hickory-Morganton-Lenoir metropolitan area located in the region also represent an important urban hub for the Foothills.

Communities in the Mountains are undergoing a significant economic transformation. Industries such as textiles and furniture manufacturing historically provided much of the region's economic base, particularly in the Foothills area. These industries are in decline, creating economic hardships for workers and curtailing opportunities for those seeking new careers in the area.

Much like the Coast, tourism is one of the Mountain region's fastest growing industries. Unfortunately, the work's low wages and seasonal nature do not typically translate into economic prosperity for a large number of people. The area has also proven to be an attractive destination for retirees and second home buyers. These new residents bring money into the region and have contributed to a growing demand for jobs in key industries such as residential construction and retail.

State Workforce Demand and Supply

Workforce Demand

This section examines the current industrial and occupational composition of the North Carolina economy. The goal is to examine detailed geographic differences and long-term projected trends in the demand for new workers. The research focuses on estimated employment for 2007 and net new employment between 2007 and 2017 in order to identify future demand trends. The study also examines relevant geographic differences as well as explores detailed trends in the mix of industries and occupations.

About the Data

To accomplish the study's intended goals, data used were developed and provided through the ReDYN economic forecasting model, published by Regional Dynamics.[5] The analysts use this model in lieu of data provided by the North Carolina Employment Security Commission (NCESC), in part, because the proprietary model defines employment more broadly, projects employment for detailed industries and occupations through 2017, and estimates employment at the five-digit North American Industry Classification System (NAICS) level for all 100 North Carolina counties.

[5] Unless otherwise described, employment estimates and projections were developed using an econometric model developed by Regional Dynamics, an economic forecasting firm. The model was developed by researchers at the University of Georgia for tax, transportation, and economic planning The base data set used in developing the estimates is the US Bureau of Economic Analysis with data estimates calibrated using US Bureau of Labor Statistics and US Census Bureau County Business Patterns (CBP). The ReDYN model includes employment estimates and projections of wage and salaried employment, proprietorships, military, farm, government, and certain private education institutions.

This workforce analysis recognizes the comprehensive definition of employment used by the US Bureau of Economic Analysis (BEA). The BEA definition builds on NCESC's very sound snapshot of wage and salary employment and adds other kinds of employment not included in the NCESC reports. Under the US Bureau of Labor Statistics (BLS)-sponsored national labor market information program, NCESC reports employment using data from its administrative records created for the unemployment insurance program. Each quarter, the NCESC does a census of employees and payroll for companies participating in the program to compare the data against the taxes paid monthly. The Quarterly Census of Employment and Wages (QCEW) data collection program, sponsored by BLS, provides monthly updates based on firm payroll employment and taxes reports and offers the timeliest snapshot of state employment. Consequently, it is one of the most useful data sources in tracking current NC employment and wage patterns. NCESC does not, however, typically report information about employment for proprietors or other enterprises that do not participate in the unemployment insurance program. Even so, **NCESC's estimates represent about 80 to 85 percent of all employment** within nine months of the initial business report to the government. Furthermore, the proportion of employees represented in the QCEW report is particularly high in certain sectors—such as manufacturing—but it is somewhat lower in others like construction, real estate, and government (especially military employment). NCESC provides the most vital foundation estimate for determining North Carolina's employment estimates. NCESC data is integral to many other data estimates, but the US BEA measures a larger share of the total employment picture.

Annually, approximately 12 to 18 months after the end of the reporting year, the **BEA reports all employment by industry** using a variety of data sources including labor market information provided by NCESC and its sister agencies in other states, Internal Revenue Service proprietorship tax filings, and a variety of other data sources to develop the employment and earnings data required for calculating the national Gross Domestic Product and other BEA data products. In addition to proprietorships, BEA employment estimates data for farmers and farm workers, railroad workers, military personnel, and certain government agency employees that do not participate in the unemployment insurance program.

NCESC data is extremely valuable for describing the patterns and challenges facing many traditional employers. It is also useful in examining large geographic areas or broad industry groupings; however, one of the most significant drawbacks in using this data for this study's purposes is that NCESC is precluded by law from releasing data at sufficient geographic or industry-level detail to meet the needs of this study. **NCESC is legally restricted from disclosing data that could potentially reveal information about a specific firm.** Thus, the publicly available information for certain industries with particularly large firms or related to county-level employment includes suppressions designed to protect the confidentiality of reporting firms.

This analysis required constructing multi-county data tables that required detailed data be available at an individual county level. Data suppressions in NCESC-provided reports are particularly problematic in obtaining industry detail for most North Carolina counties. Several proprietary enterprises encounter these challenges on a regular basis and have created algorithms designed to estimate the number of workers in a specific county and/or industry where data disclosure issues arise. The data used for this analysis was derived from one such model.

NCESC also provides very useful and soundly developed employment projections that recognize the broader employment definitions described earlier. The data available at the time of this analysis included

NCESC's projections from 2002 to 2012. More recent data, based on 2004 employment estimates and including projections to 2014 were due for release by January 2007. Unfortunately, these NCESC projections also suffer from the data suppression limitations noted earlier. Furthermore, sub-state projections are made only at the workforce development board level. Thus, the projections available were not well aligned with the study's needs since this analysis was aimed at understanding projected employment changes at the metropolitan, micropolitan, or rural area level as well as the economic development partnership level.

The Workforce Commission's Policy Research and Assessment Committee (PRAC) and the consulting team felt that the broader US BEA definition of employment was most appropriate for this analysis. This decision was based on recent shifts in the North Carolina economy from its traditional

Figure 5

Regional Employment and Average Earnings

Region	Total Est. Employment 2007	Est. Net New Employment 2007-17	Average Earnings 2007
United States	179,670,548	30,284,512	$44,815
North Carolina	5,152,411	698,247	$39,953
METRO Area Counties	3,840,922	573,283	$42,784
MICRO Area Counties	969,766	91,029	$32,836
RURAL Area Counties	341,723	33,934	$27,944
NC Mountains	570,821	70,917	$31,561
NC Piedmont	3,290,455	473,629	$43,075
NC Coast	1,291,135	152,498	$35,706

Source: Regional Dynamics

dependence on manufacturing to services, the growing importance of entrepreneurial enterprises as an employment source, and the critical role of military employment as an economic driver. The PRAC and consultants also felt that the projection period for this analysis should be at least 10 years into the future in order to help educational institutions, the State Workforce Commission, and local area workforce boards consider longer-term strategies for adjusting to the state's changing economic realities. Finally, the PRAC and consultants were very interested in examining patterns and projections in detailed industries and geographies that could not be revealed by NCESC data due to state and federal data disclosure laws. Thus, the PRAC and consultants opted to utilize a data source that builds on NCESC data while also making efforts to address the acknowledged data limitations and concerns.

The US BEA does not make industry projections, and the data detail US BEA makes available at the sub-state level is limited. Thus, the PRAC and consulting team opted to explore the use of at least two proprietary data sets. Both benchmarked their estimates to the data provided by the US Bureau of Economic Analysis. Researchers who developed the ReDYN® model, which provides much of the projections data used in this report, calibrate their individual county-level industry estimates to BEA benchmarks using a combination of data sources, including the US Census Bureau County Business Patterns annual business survey data (which reports ranges of employment for industries where disclosure issues arise), North Carolina Employment Security Commission and US Bureau of Labor

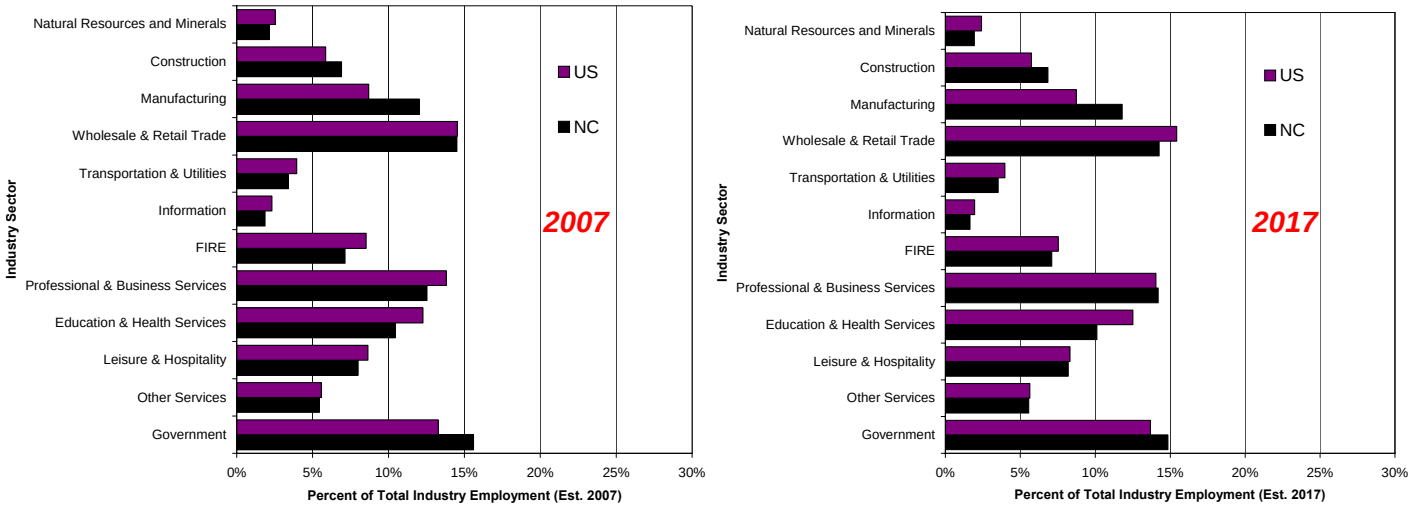
Statistics forecasts, as well as data from the US Bureau of Economic Analysis's Regional Economic Information Systems data.

Figure 5 shows the employment, change in employment, and average earnings for the US, North Carolina and each of the major sub-regions. Several trends clearly emerge. Most of North Carolina's economic growth is expected to occur in metropolitan counties, especially those in the Piedmont region. Whereas metropolitan areas account for 74 percent of North Carolina's current employment, they are expected to create 81 percent of the projected new jobs. Similarly, the Piedmont region accounts for 64 percent of current employment, but during the next decade will contribute 68 percent of North Carolina's projected new jobs.

In particular, the Piedmont region's growth is concentrated in two partnership regions – Charlotte and the Research Triangle. In 2007, 46 percent of employment will be in these two regions, but 55 percent of

Figure 6

Percent of Jobs in US and NC by Sector (Projected 2007 and 2017)



the state's new job creation will be there. This demonstrates the Triad's economic weakness relative to the two other urban regions. While the Triad accounts for 18 percent of state employment in 2007, only 13 percent of new jobs are expected to be created in that region during the next decade. These data are markedly similar to growth prospects in the state's micropolitan areas.

As might be expected, earnings also vary throughout the state. This is particularly true for counties in rural areas where earnings trailed other areas, representing only 70 percent of the state average. Earnings in the Coastal and Mountain counties also trailed the state average. However, the Coastal area outpaced the Mountains in average earnings primarily due to the significant military presence in the Coastal counties.

Industry Job Trends and Projections

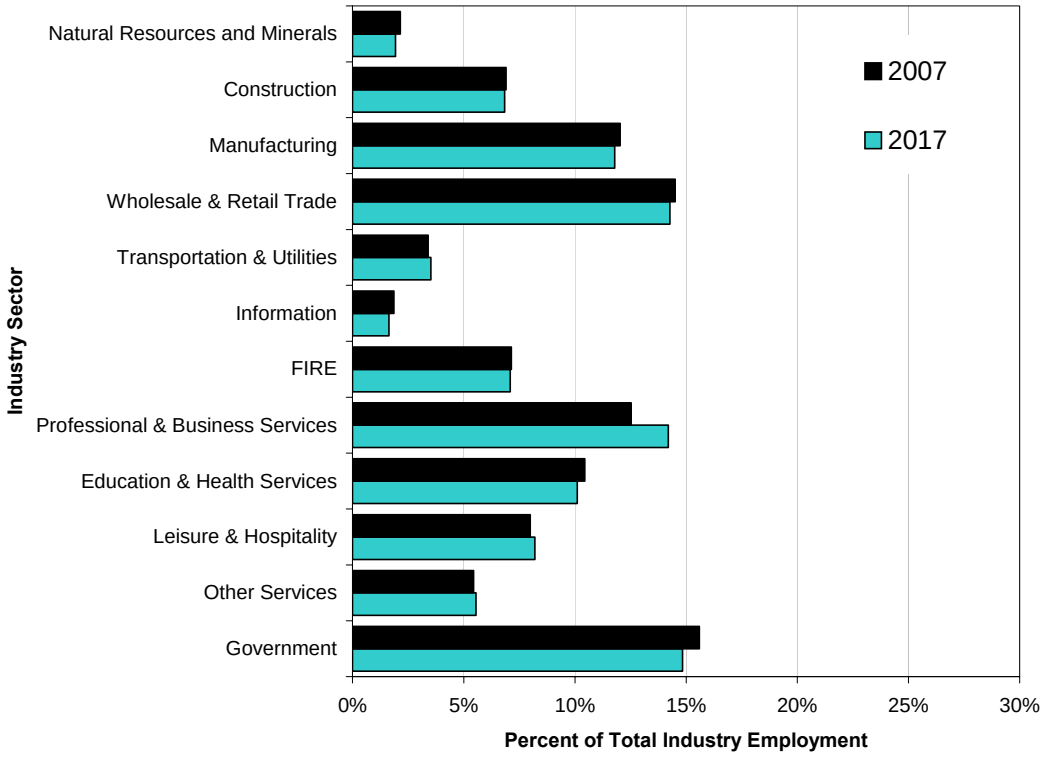
The 2007 projected number of jobs in North Carolina is roughly 5.15 million; the state is expected to add almost 700,000 more jobs by 2017. North Carolina's economy relies more on government (especially the military) and manufacturing (especially textiles, apparel, and furniture) than the rest of the

US. Figure 6 shows that whereas manufacturing accounts for 8.7 percent of all jobs nationwide, it represents 12 percent of all jobs in North Carolina. This reliance on manufacturing is even more pronounced in the state's micropolitan and rural areas, where manufacturing employment contributes 14.9 percent and 16.5 percent of all employment, respectively. Manufacturing in the Piedmont Triad represents 15.6 percent of all employment. According to both the forecasted data provided here and additional analysis using US Bureau of Economic Analysis data, the military represents about 16 percent of all government employment in North Carolina while the military represents about 8.5 percent of government employment nationally.

As North Carolina continues growing, its economy should become increasingly similar to the US economy. Forecasts suggest that service activities will contribute an increasingly larger proportion to both the US and the state's jobs. As illustrated in Figure 7, the state's estimated professional and business services employment will likely grow faster than the US average during the coming decade while growth in the manufacturing and government sectors is slower. In urban locations, the state's economy already looks much like the US economy. For instance, the employment share of finance, insurance and real estate, and professional and business services in the Piedmont region already surpasses the US share in those service sectors.

Figure 7

Percent of Jobs in NC by Sector (Est. 2007 and 2017)



Many of these economic trends become clearer when examining the state's fastest growing industries. Figure 8 shows the 25 industries that are projected to gain the most net new jobs between 2007 and 2017. [6] These 25 fast growing industries currently account for 39 percent of all North Carolina's employment, and 57 percent of all the projected net new employment over the next decade. These data reflect the economy's continued shift toward services. Eight of the 25 fastest growing

Figure 8

North Carolina's 25 Fastest Growing Industries (Est. 2007 and 2017)

Sector	Industry Name	Employment 2007	Emp Change 07-17	Avg Earnings 2007	Industry Type
Professional & Business Services	Temporary Help Services	130,831	63,589	**$22,964**	Exporting
Government	State and Local Government, NEC	336,792	35,388	$44,327	Locally-Serving
Professional & Business Services	Computer Systems Design and Related Services	46,450	23,531	**$65,033**	Locally-Serving
Government	State and Local Government, Education	229,249	23,284	$44,379	Locally-Serving
Education & Health Services	Offices of Physicians	64,520	21,808	**$70,086**	Locally-Serving
Other Services	Religious Organizations	107,698	20,649	**$18,627**	Exporting
Leisure & Hospitality	Full-Service Restaurants	136,476	19,226	**$15,373**	Locally-Serving
Education & Health Services	General Medical and Surgical Hospitals	135,009	18,063	$47,298	Locally-Serving
Leisure & Hospitality	Limited-Service Eating Places	126,770	17,096	**$14,928**	Locally-Serving
Education & Health Services	Community Care Facilities for the Elderly	29,532	14,600	**$22,815**	Exporting
Professional & Business Services	Management Consulting Services	25,240	12,779	**$62,929**	Locally-Serving
Education & Health Services	Child Day Care Services	33,813	12,736	**$17,522**	Locally-Serving
Education & Health Services	Nursing Care Facilities	51,375	12,208	**$25,995**	Locally-Serving
Education & Health Services	Home Health Care Services	29,464	11,801	$32,433	Locally-Serving
Wholesale & Retail Trade	Supermarkets and Other Grocery (except Convenience) Stores	94,035	10,762	**$26,628**	Locally-Serving
Transportation & Utilities	General Freight Trucking, Long-Distance	44,486	10,443	$39,648	Exporting
Education & Health Services	Colleges, Universities, and Professional Schools	35,932	9,391	$39,108	Locally-Serving
Professional & Business Services	Accounting, Tax Preparation, Bookkeeping, and Payroll Services	39,685	8,794	$33,275	Locally-Serving
Wholesale & Retail Trade	Department Stores	71,552	8,015	**$27,008**	Locally-Serving
Professional & Business Services	Management of Companies and Enterprises	68,988	7,820	**$80,047**	Exporting
Leisure & Hospitality	Golf Courses and Country Clubs	27,408	7,757	**$14,140**	Exporting
Professional & Business Services	Janitorial Services	36,346	7,674	**$19,278**	Locally-Serving
Education & Health Services	Offices of Dentists	20,758	7,011	**$69,969**	Locally-Serving
Professional & Business Services	Employee Leasing Services	13,116	6,872	**$27,351**	Requires Import
Construction	Plumbing, Heating, and Air-Conditioning Contractors	55,018	6,828	$39,257	Exporting

Source: Regional Dynamics forecasts

industries are found in the health and education services sector, and another seven are found in professional and business services industries. One of every ten net new jobs will be in the temporary help services or employee leasing industry, reflecting an increasing reliance on part-time and temporary services as a way to handle short-term cyclical demand for products and services. Twelve of these top 25 industries provide earnings for workers that are less than 80 percent of the state's overall average. Only five offer earnings to workers that are 120 percent or higher than the state average.

North Carolina's economic mainstay during the past generation has been a variety of manufacturing industries. However, no manufacturing industry is among the state's 25 fastest growing industries. In fact, only one manufacturing industry— animal slaughtering and processing — is expected to be among the state's 50 fastest growing industries between 2007 and 2017. At the same time, manufacturing industries are quite prominent among the industries shedding the most jobs. Over the next decade, 21 of the 25 fastest declining industries in terms of projected employment losses are manufacturing-related.

[6] The "Exporting", "Locally-Serving" and "Requires Import" designations are explained in greater detail in footnote 8 on page 19.

Figure 9:

NC Employment in Selected Manufacturing Industries

North Carolina Employment	2002	2005	Δ Employ, 2002-05	% Change
Textile and textile product mills	99,091	68,580	-30,511	-30.8%
Apparel	35,697	26,426	-9,271	-26.0%
Furniture & related products	67,695	59,280	-8,415	-12.4%
Computer & electronic products	46,741	39,215	-7,526	-16.1%
NC MFG Industries	662,354	590,346	-72,008	-10.9%

Source: US Bureau of Economic Analysis

Fourteen of these industries are related to textiles and apparel. Furthermore, industries related to tobacco (crop production, tobacco product manufacturing, and tobacco stemming and re-drying) and furniture (logging, sawmills and wood preservation) are also projected to decline, as are many technology-intensive manufacturing sectors (e.g. semiconductor and other electronic equipment manufacturing).

The decline in manufacturing has had significant consequences for many North Carolinians. These industries were typically viewed as paying family-supporting wages for those in the state with relatively low levels of education. As the twin forces of globalization and technology force industries to change the way they do business, companies have eliminated thousands of these jobs during the past decade. In the past four years alone, North Carolina's economy has shed 72,000 manufacturing jobs, three-quarters of which have been in textiles, apparel, furniture, and computer electronics (see Figure 9).

Today, new challenges face a large segment of North Carolina's workforce. ***The state's industries are creating few jobs that can employ this dislocated workforce without substantial changes in their skill sets.*** New jobs in knowledge-intensive industries require workers to have far greater levels of education than the current average. Industries that can utilize the existing skills of dislocated workers tend to pay lower wages. In the top 25 industries, those industries that pay less than 80 percent of average earnings represent 43 percent of the new jobs likely to be created in the next 10 years. Temporary help services ranks as the fastest growing of these industries.[7] By contrast, only 11 percent of the new jobs being created among the top 25 industries pay more than 120 percent of the state average earnings. Overall, the average earnings for these top industries are $37,728, about 6 percent lower than the average earnings for all industries. This suggests that the resulting growth pattern over the next ten years is likely to continue showing lower than average earnings.

It should be noted that manufacturing's diminishing role in the North Carolina economy is felt unevenly throughout the state because some areas are structurally more dependent on manufacturing than others. For instance, manufacturing accounts for 14.9 percent of employment in micropolitan areas, and 16.5 percent of employment in rural areas. Even within the state's thriving Piedmont region, the Piedmont Triad area remains heavily dependent on manufacturing. Whereas in 2007, manufacturing accounts for an estimated 13 percent of Charlotte's employment and 9.5 percent of Research Triangle's

[7] Although it includes a wide variety of activities, the temporary help services industry consists largely of occupations paying below the US median wage of $18.21 per hour, according to the most recent data from the US Bureau of Labor Statistics (May 2005). The BLS reports that 75.6 percent of temporary help workers are employed in occupations that earn, on average, less than 80 percent of the US median hourly wage. Only 9.2 percent of temporary help workers are employed in occupations that earn more than 120 percent of the US median wage.

employment, this sector still represents 15.6 percent of the Piedmont Triad's total industry employment. Of course, these manufacturing jobs are not all in the traditional manufacturing industries of tobacco production, textiles, apparel, and furniture. However, even excluding those industries, the Piedmont Triad still has a greater proportion of manufacturing-related employment than any other area in the state. Structurally, the Piedmont Triad's economic sectoral composition closely resembles many of the state's micropolitan areas, and not surprisingly the area is enduring many of the same transitional challenges as smaller manufacturing-dependent communities.

Appendix 2 lists North Carolina's 200 fastest growing industries. Some of these industries have a higher concentration of employees in North Carolina than nationally.[8] These highly concentrated industries are said to have enough workers to produce more than enough of their goods or services to serve the state's needs so it is expected that they export beyond the state boundaries. These "exporting" industries are particularly interesting for economic development purposes because their relatively high concentration is a sign that the state may have a competitive advantage in attracting and retaining companies in those economic sectors. In selling their goods or services outside the state, exporting industries bring new money into the state.

North Carolina's exporting industries include those related to animal slaughtering and processing, as well as pharmaceutical and medicine manufacturing. Slightly more than 26 percent of the 2007 projected jobs in the top 200 industries are categorized as export-oriented. This group is expected to grow faster than other parts of the economy, accounting for 29 percent of the new jobs created during the next decade. Exporting oriented industries offer above average earnings at $43,029, but the fastest growing exporting industries offer average earnings of only $37,427. Most of this discrepancy is driven by the anticipated growth in temporary help services, religious organizations, and elderly care facilities.

Other industries leak wealth because so few workers are involved in them that state businesses and consumers are expected to have to "import" the industry's goods or services from elsewhere. Economic developers are concerned about these industries because they represent potential increased economic activity that could improve the competitiveness of local firms or serve local businesses or residents. Industries that seem to be particularly underdeveloped in North Carolina include employee leasing services; outpatient care centers; vocational rehabilitation services; data processing services; services for the elderly and persons with disabilities; machinery equipment rental; and telephone call centers. These industries are growing at some of the fastest rates, sometimes to meet the growing demand of the local population as well as to capture leakages from the state's economy. These and similar industries account for about 3 percent of the top 200 jobs, but will represent about 5 percent of the new jobs being created during the next decade. On average, these jobs are projected to pay about $45,735 in 2007 estimated earnings, but the fastest growing industries tend to pay much lower with average earnings expected to be $36,127.

A third category of industry, designated as "locally serving," generates employment as a share of the total economy at a ratio that resembles the national share. Locally serving industries create employment, but they are more apt to capture existing money recycling through the economy than to bring new money

[8] These industry concentrations are frequently referred to as "location quotients" or LQs. LQs represent a ratio of each North Carolina industry as a share of the state's employment compared with a similar ratio of that same industry's national employment total as a share of all US employment. An LQ of 1.2 or higher was used to designate "exporting" industries and an LQ of 0.6 was used to designate "requires importing" industries. Industries with LQs between 0.6 and 1.2 represent the group identified as "locally serving." Each of the top 200 industries is categorized in Appendix 1.

into the state. In addition, their growth tends to be most closely correlated to population growth. Activities such as healthcare and retail are frequently considered locally serving industries. However, on occasions, these sectors may differ in certain communities. For instance, large factory outlet malls or retail targeted to tourists such as Concord Mills may attract shopping dollars from people who live outside the region. Specialized healthcare facilities or advanced hospitals like the Duke or UNC medical centers may provide very specialized care and therefore attract patients from across the nation. On the whole, however, these examples represent exceptions to the norm.

Locally serving industries account for 71 percent of all jobs in the top 200 industries, but only about two-thirds of the jobs being created during the next decade. These industries are sizable and many are growing at a moderate pace, driven by the state's population growth rather than by any comparative economic advantage. Not surprisingly, the state's locally serving industries tend to grow most and fastest where the population is large and growing fastest—mainly the metropolitan areas and the Piedmont region. Overall, average earnings for locally serving industries are slightly below average at a projected $38,077 for 2007.

This approach to categorizing the industries of the economy into three broad areas is useful as a way to help economic and workforce developers better understand their respective differences. From the workforce perspective, the interest is in finding a large number of jobs that require moderate skills or moderate training to improve the skills of the workforce, no matter the industry. Thus, their efforts frequently focus on supporting locally serving industries where the number of jobs being created is higher, and the pay for new jobs is expected to be slightly higher. From the economic development perspective, the efforts focus on identifying the largest and best paying sectors that export goods and services or that replace goods and services currently being imported into the state. The job numbers associated with these industries may well be relatively small because the focus is on new wealth creation or retention. Due to their differing goals, the industries and occupations of interest to economic and workforce developers are not always the same.

Occupational Employment Trends and Projections

The occupational data mirror many of the trends illustrated in the industry data. Notably, the projections show strong growth in healthcare and services-related occupations and steep declines in the occupations related to traditional manufacturing industries such as textiles and apparel. These data also show a strong relationship between educational attainment and earnings. To demonstrate these trends, we organized the occupational data according to the 11 different categories used by the US Bureau of Labor Statistics (BLS). These categories identify the most common educational attainment requirements for each of several hundred occupations.[9] Seven of these categories involve formalized postsecondary education, while the other four categories are based on work experience and on-the-job training (OJT). In some cases, high school completion is a pre-requisite for training while in others high school completion is not required to receive training. For our purposes, however, eleven categories were too many. Consequently, we collapsed the 11 BLS categories into six different 'education bands' designed to allow us to make comparisons with available labor supply categorizations made by the Census Bureau. Census gathers data on educational attainment for potential workers among citizens age 25 and older. The bands used for analyzing occupational trends and projections are:

[9] For more detail about these 11 occupational education requirements see: http://www.bls.gov/emp/optd/optd004.pdf.

- **Band 1: Advanced Degree** — Occupations requiring advanced degrees (e.g., Ph.D., MA/MS) or professional degrees (e.g., MD, JD)
- **Band 2: Four-year College Degree** — Occupations requiring either a baccalaureate degree or a bachelor's degree plus experience
- **Band 3: Tech-Some Post** — Occupations requiring either an associate degree or some kind of postsecondary vocational award or certification as well as those that typically require some college but may not require a degree
- **Band 4: High School Diploma/GED and Some Experience** — Occupations requiring at least a high school diploma or a general educational development (GED) degree and significant work experience and more than a year of on-the-job training (OJT)
- **Band 5: High School Diploma/GED Entry Level** — Occupations requiring at least a high school diploma or GED plus moderate-term OJT (typically more than one month, but less than one year)
- **Band 6: Below GED** — Occupations requiring short-term OJT (less than one month); few of these occupations require a high school diploma

The first two bands are considered the best, high wage jobs. These bands include the knowledge-intensive jobs associated with an economy increasingly driven by high-end business services. Conversely, the jobs in the last band 'Below GED' are those that require little skill or training and often pay well below average. Therefore, workers often face difficulty earning a family-sustaining wage while working one of these jobs.

Bands 4 and 5—GED-Some Experience and GED Entry Level—have traditionally been the occupations that were the backbone of North Carolina's workforce. These '***Traditional Middle Jobs'*** typically provided decent wages for people with relatively limited levels of educational attainment. Unfortunately, many of these occupations are found in mature industries such as textiles, apparel and furniture manufacturing. They continue to be important to the state, but globalization and technological changes have reduced the demand for jobs in these occupations significantly.

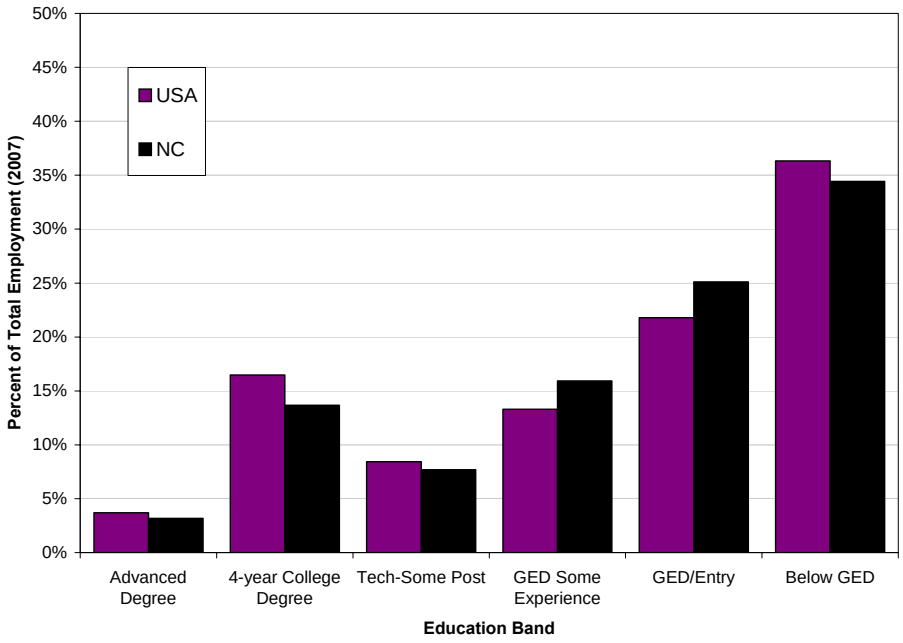
Consequently, growth is occurring rapidly among the higher end jobs and those in occupations in Band 3. Combined, the occupations in Band 3 and 4 constitute what one might describe as the ***'New Middle Jobs.'*** These occupations increasingly require advanced skills so workers need more training to attain and keep their jobs. For instance, the growing prevalence of advanced manufacturing techniques demands more technology skills and knowledge for people in production occupations. Similarly, the use of just-in-time delivery systems requires workers in logistics and distribution occupations to increase their math and IT skills. *New* middle jobs requires workers who may be currently employed in *traditional* middle jobs to invest in significant up-skilling to retain their employment or to move into the new middle jobs. Those that do not make the investment or whose companies do not adapt, run the risk of falling behind. Increasingly, those that do not adapt are losing their jobs and settling for re-employment opportunities in one of the low skill occupations in Band 6—Below GED.

Key Occupations by Employment Band

By allocating occupations to each of these six bands, workforce professionals can project which types of occupations will need to be filled, the level of compensation likely to be available, and the number of workers that will be required over the next ten years at each educational level. Figure 10 provides a snapshot summary of the proportion of the state and national workforce found in occupations at each of these educational bands.

Figure 10

US and NC Employment by Required Education (est. 2007)



Source: Regional Dynamics forecasts

About 34 percent of the jobs currently available in North Carolina do not require a high school diploma, slightly below the average for the US job market. These jobs typically require a month or less of on-the-job training. However, when compared with the US, a larger share of North Carolina jobs, about 25 percent, require between one month and one-year of training and typically demand a high school degree or equivalent. Unfortunately, these jobs are concentrated in industries and occupations that are being squeezed by globalization and technological change. Skill requirements are increasing for the jobs in these occupations. Among those occupations projected to increase, employers are also demanding more education and training from their workers. Examining the occupational data through the lens of these education bands reveals several key trends. Trends for each of these educational bands and examples of key occupations in each band are highlighted below.

Advanced Degree Occupations

Many of the fastest growing occupations require advanced degrees and reward workers with high pay. Lawyers, post-secondary health specialties teachers, and pharmacists are among the fastest growing occupations in this education band, and all have average earnings over $100,000 annually. Clergy is another fast growing occupation in this education band, but though it pays less—$47,704 in average annual earnings—it is still 20 percent higher than the state average earnings.

Four-Year Degree Occupations

Almost one in four new jobs projected to be created in North Carolina over the next ten years will require workers to have at least a four-year degree. The fastest growing occupations that require a bachelor's degree include general and operations managers, elementary school teachers, business operations specialists, accountants and auditors and computer software engineers. Much like other occupations requiring an advanced degree, most of these jobs offer compensation well above the state

average. Although the growth of Charlotte's financial sector adds to the number of accountants and auditors and Research Triangle's information technology industry boosts the number of software engineers, employment growth for occupations like managers and teachers will depend on the state's continued population growth.

Technical Degree and Some Post-Secondary Education Degree Occupations

Given the healthcare industry's rapid growth, it should surprise no one that many of the fastest growing occupations in this education band relate to that industry. For instance, Registered Nurses (RNs) represent the fastest growing occupational category among those requiring at least a two-year degree or some kind of postsecondary vocational award.[10] Currently, the state employs an estimated 90,916 RNs and will need to add another 24,308 over the next decade to meet its projected demand. To put this in context, these forecasts suggest that registered nurses will account for 3.5 percent of the state's net new jobs between 2007 and 2017. With average earnings of $61,347, RNs are also one of the best paying occupations within this education band. The growing demand for healthcare workers includes a call for new RNs and Licensed Practical and Licensed Vocational Nurses (LPN/LVNs). There are currently an estimated 20,147 LPN/LVNs working in the state, with a demand for 4,430 more LPN/LVNs over the next decade.

Healthcare-related occupations are not the only fast growing occupations in this education band. In addition to health care workers, North Carolina will need more than 13,000 new preschool teachers. The state will also require more than 5,300 net new computer support specialists. It will also require roughly 5,300 automotive service technicians and mechanics and 2,200 bus and truck mechanics and diesel engine specialists. Moreover, there will be a growing demand for many workers—such as electrical and electronic engineering technicians--necessary to support the state's increasingly sophisticated manufacturing industry. These occupations represent a significant component of the state's *new middle jobs*.

High School Diploma/GED and Some Experience

The occupations within the three education bands described above all require workers to possess some kind of postsecondary training. The next three education bands require varying degrees of work-related experience and on-the-job training (OJT). The fastest growing occupations that fall in this "GED/Some Experience" education band include team-supervisor or skilled-trades occupations. Four of the six fastest growing occupations in this education band are supervisors and managers in areas such as construction, retail, food preparation, and maintenance. Construction trades supervisors (at an average of $53,210 in 2007) earn nearly two-thirds more than food service supervisors (at an average of $31,652). In addition, two other fast growing occupations are carpenters and electricians. The state will need an estimated 6,428 net new carpenters and 3,688 net new electricians over the next decade. These trades occupations typically require long-term work experience and they represent, much like the jobs requiring a 2-year degree, a large segment of the state's *new middle jobs*. The workers in these occupations are vital for the state to maintain its current pace of growth as well as preserving many workers' standard of living. That said, this band also includes many of the fastest declining occupations,

[10] This represents the minimum degree required for many nursing positions. According to a 2005 US Bureau of Labor Statistics survey, 58% of nurses aged 25-44 have a bachelor's degree or higher. In addition, many employers are increasingly requiring four-year nursing degrees of their job applicants.

and most are expected to continue their decline into the next ten years. Corresponding with declines in the state's textile industry, one occupation alone – textile knitting and weaving machine setters, operators, and tenders – is projected to lose another 38,000 jobs in the next ten years.

High School Diploma/GED Entry Level

Unlike the majority of the occupations described above, most of the occupations falling within the GED/Entry Level education band pay below the state average earnings. One notable exception is heavy and tractor-trailer truck drivers. North Carolina now has an estimated 78,832 truck drivers and will need another 19,029 net new truck drivers over the next ten years. The average earnings for truck drivers are $40,659 per year, roughly $1,000 more than the state average. Other fast growing occupations in this educational band include customer service representatives, general installation and repair workers, and team assemblers. In fact, team assemblers comprise the state's fastest growing production-related occupation, as represented by the increased hiring for major facilities like Dell in the Triad area. Not surprisingly, certain occupations within the "High School/GED Entry-Level" education occupation band are projected to decline. North Carolina manufacturers are expected to shed another 56,000 of the 155,000 remaining machine operator and tender jobs in the textile and apparel industries during the next ten years.

Below GED Occupations

Occupations within the "Below GED" education band are among the state's fastest growing. Many of these jobs are found in retail occupations, where the state will add roughly 25,000 net new salespersons between 2007 and 2017. Food service employees are also high growth occupations. Healthcare employment growth will also be responsible for generating a large number of new low-skill jobs. For instance, the state will add approximately 21,150 home health aides and 13,115 nursing aides, orderlies, and attendants over the next decade. There are also several occupations in this education band that are expected to decline, again related to losses in the manufacturing sector. The anticipated losses in these occupations are not nearly as dramatic as the textiles-related losses anticipated in the two bands discussed earlier. Instead, occupations such as utility meter readers or order clerks are losing jobs as a direct result of automation.

In general, the majority of America's and North Carolina's jobs can be found in the last two educational bands ("High School/GED Entry-Level" and "Below GED" occupations), but a growing number of jobs require formal college experience or long-term job training. The greatest job losses are occurring among jobs that do not require formal college education. When compared with the United States, North Carolina has a higher concentration of its workforce in these occupations. The evidence suggests that new jobs being created are more likely to require higher education and will demand more from their workers in terms of education levels. Appendix 3 provides more detail about the fastest growing and declining occupations.

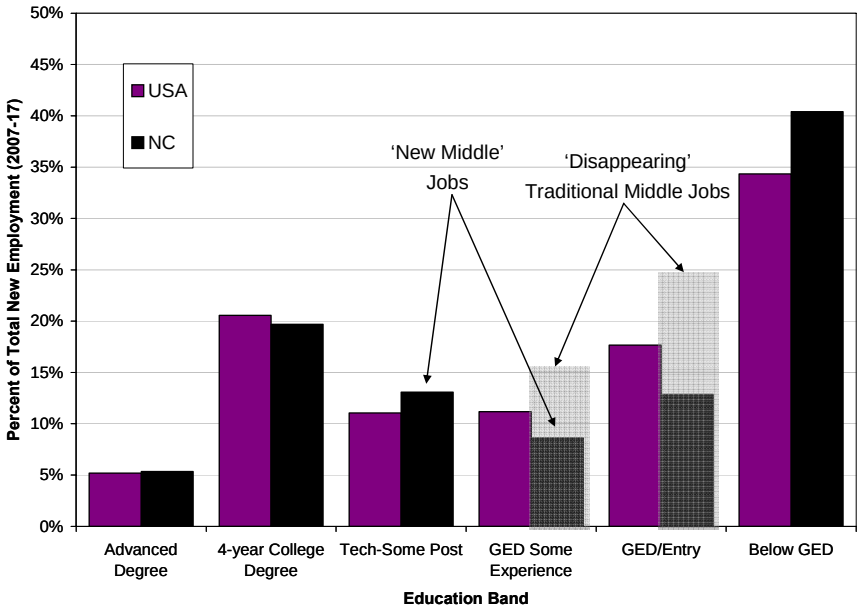
Occupational Trends by Employment Band

An examination of these education bands at a greater level of aggregation begins to reveal some important issues facing the changing nature of North Carolina's workforce. Figure 11 compares the education requirements for projected new jobs being created during the next decade in both North Carolina and the United States. One key pattern that emerges is that a smaller proportion of North Carolina's jobs are being created in occupations that require a post-secondary degree than in the overall US job market. Nationally, 28.6 percent of all jobs require workers to have at least a two-year college degree, but in North Carolina, only 23.6 percent of all jobs require this level of education. Conversely, North Carolina has a greater proportion of jobs that require significant OJT. Whereas 35 percent of all jobs nationally require at least a GED and some experience, for North Carolina that figure is 41 percent. These 'middle jobs' are often found in production or skilled trades occupations, many of which are serving the manufacturing sector. These jobs have traditionally represented the backbone of North Carolina's employment.

As noted earlier, the data show that manufacturing-related occupations will continue growing more slowly (if at all) than the rest of the economy and will decrease as a percentage of total employment. This trend will continue to affect the state's occupational profile significantly as more jobs require post-secondary education and many of those who do not have technical skills slip into the only jobs they will be able to do — lower wage, lower skill jobs. As shown earlier in Figure 11, nationally there will be a shift towards occupations requiring more skills and training. There will be fewer 'middle jobs' and a slight increase in the number of low-skill jobs. North Carolina's middle jobs associated with manufacturing are disappearing quickly. In their place, the projections show an increase both in the number of jobs requiring

Figure 11

US and NC Net New Jobs by Required Education (Estimated Change 2007-2017)



NC Net New Jobs Total = 700K *Source: Regional Dynamics forecasts*

Note: *Gray areas indicate 2007 proportion of NC employment within the traditional middle educational bands.*

post-secondary degrees and those lower paying jobs that require just short term OJT.

The projected new employment will place a growing premium on higher education. In 2007, roughly 17 percent of North Carolina's jobs are expected to require workers to possess at least a bachelor's degree; nationally, that figure is 20 percent. In the coming decade, 26 percent of all new US jobs will need workers with at least a bachelor's degree while 25 percent of North Carolina's new jobs will require a bachelor's degree. Similar trends hold true for jobs requiring a two-year degree or postsecondary vocational training. Nationally, an estimated 8.4 percent of the workforce will be in occupations requiring an associate's degree or technical training in 2007, but in North Carolina that share is slightly lower at 7.7 percent. However, during the next ten years, 13.1 percent of the new jobs created in North Carolina will require an associate's degree compared to 11.1 percent nationally. For North Carolina, this requires an increase of almost 90,000 net new jobs in this one education band. Given these projections, the state's community colleges will play a vital role in preparing workers for future jobs.

While North Carolina's ongoing economic transformation will require more knowledge intensive jobs, these economic shifts also are expected to increase the state's share of jobs that require low skills and offer low wages. Nationally, occupations requiring short-term OJT will account for 36 percent of US

Figure 12

NC Net New Jobs and Earnings by Required Education (Est. 2007 and 2017)

North Carolina

Educational Band	Emp 2007	Net New Jobs (07-17)	Average Earnings 2007	% Total Emp (2007)	% New Jobs (07-17)
Advanced Degree	160,572	36,560	$83,785	3.2%	5.3%
4-year College Degree	687,536	134,808	$77,005	13.7%	19.7%
Tech-Some Post	386,614	89,452	$46,774	7.7%	13.1%
GED Some Experience	801,703	58,980	$42,952	15.9%	8.6%
GED/Entry	1,263,563	88,085	$34,123	25.1%	12.9%
Below GED	1,732,747	276,598	$24,405	34.4%	40.4%
Total	*5,032,734*	*684,484*	*$40,598*	*100.0%*	*100.0%*

Source: Regional Dynamics

employment in 2007, but only 34 percent of new jobs between 2007 and 2017. Similarly, these low-skill occupations represent 34 percent of North Carolina's 2007 jobs, but will constitute more than 40 percent of the state's projected new employment created between 2007 and 2017. While nationally, the share of low skill jobs will decline slightly, North Carolina's current industry mix suggests that it will actually demand MORE low skill workers as a share of total employment, working to drive down average earnings relative to the US average.

The jobs losses among *traditional middle jobs* and the continued growth in high-end and low-skill occupations are creating an increasingly polarized workforce. This shift is occurring nationally, but the patterns are more pronounced in North Carolina. As companies continue to shed many traditional semi-skilled and low-skilled "middle jobs," there will be fewer opportunities for low-skilled workers to gain upward mobility. This polarization becomes readily apparent when examining the average estimated earnings for each education band. Figure 12 shows that the returns to individuals on their education can be significant. North Carolina's average earnings in occupations that require a four-year degree is $77,005. For those workers in occupations requiring an advanced degree, the average earnings are $83,785.

Occupations requiring a two-year degree or long-term OJT pay above average wages, indicating a payoff from investment in education and training. These above average earnings also demonstrate the importance of moving people from the *traditional middle jobs* into the *new middle jobs*. Occupations requiring two-year degrees have average earnings of $46,774, and those requiring long-term OJT pay $42,952 per year. However, the majority (roughly 60 percent) of North Carolina's jobs continue to be in occupations that require moderate or short-term training and pay below average wages. For the large share of North Carolinians with little more than short-term OJT, the average earnings—at $24,405 per year—are only 60 percent of the state average.

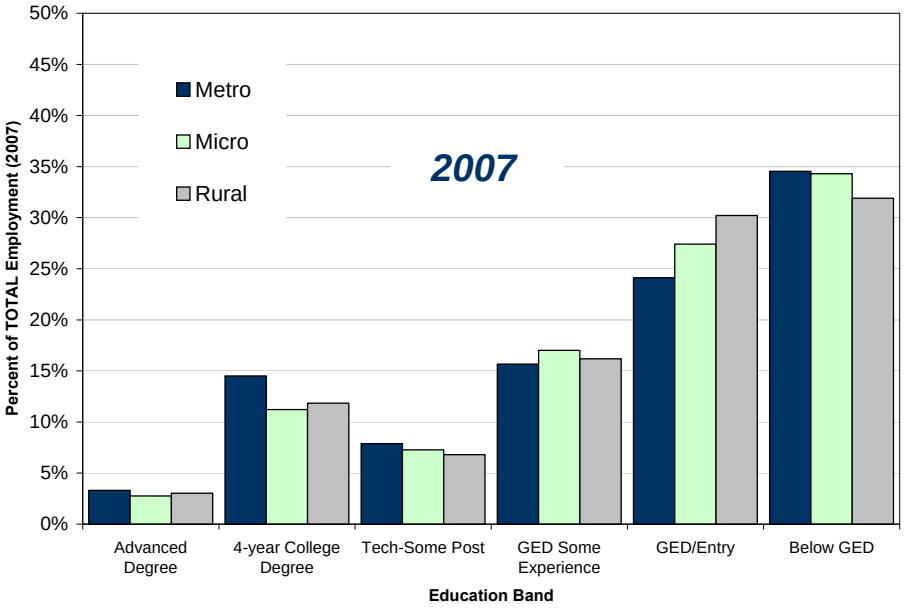
Regional Differences by Education Band

Within the state, several key regional differences emerge. Most of the new jobs created over the next decade will be in the state's more urban regions. Metropolitan counties account for 74 percent of the projected employment in 2007. More importantly, these counties are expected to be the location of 81 percent of all the projected new jobs created between 2007 and 2017. Meanwhile, micropolitan counties represent about 19 percent of total employment and only 14 percent of new jobs being created during the next decade. The remaining rural counties represent about 7 percent of total statewide employment, but only 5 percent projected new employment growth in the state. While the educational requirements for occupations in the state's metropolitan areas run close to the state averages, the counties in the rural and micropolitan areas differ significantly.

Figure 13 illustrates the current workforce composition in the state's metro, micro and rural areas by education band. The micropolitan and rural areas have traditionally relied on employment in the manufacturing sectors so the traditional middle jobs (i.e., occupations that require GED/Some

Figure 13

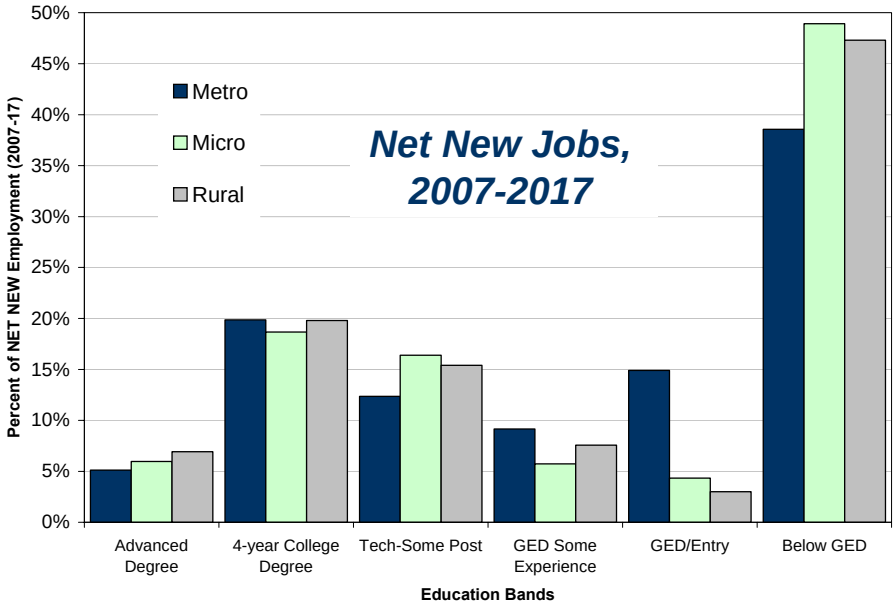
Metro, Micro and Rural Jobs by Required Education (Est. 2007)



Source: Regional Dynamics forecasts

Figure 14

Metro, Micro and Rural Net New Jobs by Required Education (Est. 2007 and 2017)



Source: Regional Dynamics forecasts

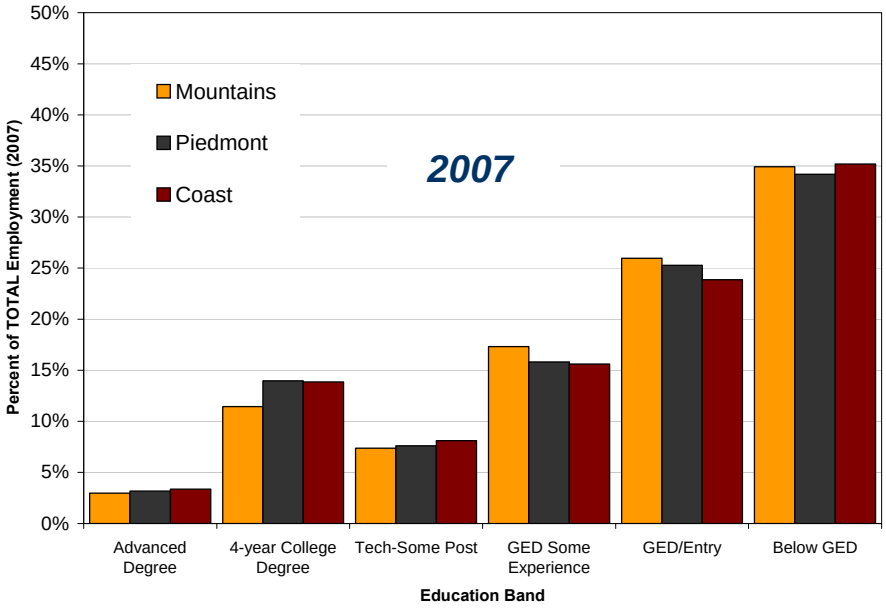
Experience and GED/Entry) are more predominant than in the metro areas. Higher end occupations are somewhat more concentrated in the metropolitan areas.

Figure 14 illustrates the educational requirements of occupations that will create the most new jobs during the next decade. The percentage of traditional middle jobs in all three areas (metro, micro, and rural) will decline significantly as a share of total employment. This decline is most notable in the state's micropolitan and rural areas. The number of low-wage, low-skill jobs will grow rapidly at the same time that more jobs will require two- and four-year college degrees. During the next decade, almost 50 percent of the new jobs created in micropolitan and rural areas will require only short-term OJT and those projected new jobs come with pay well below the state average. Average earnings for these low-skill jobs are only about half (51 percent) of the overall average earnings for workers in micropolitan areas and below half (45 percent) of average earnings for workers statewide. Clearly, the growth of these jobs will have significant consequences for the economic well-being of the citizens in the state's more rural areas.

Examining the state's geographic regions reveals additional differences in the demand for educated and trained workers. Figure 15 and 16 illustrate the current workforce composition in the Mountain, Piedmont and Coastal regions by education band as well as the educational requirements for the projected new jobs created between 2007 and 2017. The Piedmont region more closely resembles the state and national averages than does the Coastal and Mountain regions. As might be expected, the Research Triangle has a higher proportion of jobs requiring a four- year degree. While roughly 16 percent of all jobs in North Carolina in 2007 will require at least a bachelor's degree, more than 20 percent of the jobs in the Research Triangle require similar qualifications.

Figure 15

Mountain, Piedmont and Coastal Region Employment by Required Education (Est. 2007)

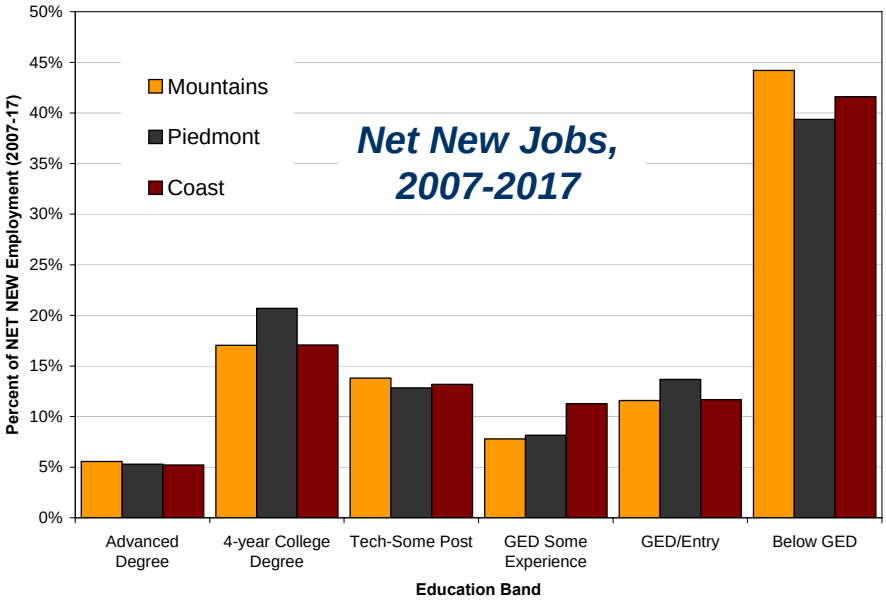


Source: Regional Dynamics forecasts

However, the state's golden crescent has a weak middle: the education requirement for employment and new employment growth in the Piedmont Triad more closely resembles the state's micropolitan and rural areas. More so than the Charlotte or Research Triangle regions, the Piedmont Triad has been more dependent on mature manufacturing industries like textiles, tobacco, and furniture. As these industries have declined, so too has the proportion of middle jobs available to lower-skilled workers. Workers

Figure 16

Mountain, Piedmont and Coastal Region Net New Jobs by Required Education, (Est. 2007 and 2017)



Source: Regional Dynamics forecasts

dislocated from jobs in these industries and occupations that have not been prepared to move toward higher skill employment are left with only lower skill, lower paying jobs as the only employment alternative. Moreover, these jobs are available because so many of the new jobs in the Piedmont Triad are being created in low-skill, low-wage occupations. To illustrate, almost 46 percent of the new jobs created in the Piedmont Triad region will require no more than short-term on-the-job training. This certainly represents a recipe for a vicious cycle in which low skill job creation begets the creation of even more low skill jobs.

Although slightly more skewed toward lower wages and lower skilled jobs, the Coastal region also closely resembles the state and national trends. Some parts of the Coastal region are struggling more than others. For example, very much like Piedmont Triad and the state's micropolitan regions, 45 percent of the new jobs created in the Coastal area will require just short-term OJT. Offsetting this trend, the southern part of the Coastal region benefits from a significant military presence that buoys the economy and raises the area's average earnings.

The Mountain's job creation trends closely resemble the trends found in the state's rural areas. The region's economy was once dominated by manufacturing jobs in textiles and furniture, but jobs in many manufacturing-related occupations are disappearing rapidly. As a result, the relatively high proportion of middle jobs is diminishing and many of those workers now must accept the growing number of low-skill, low wage jobs being created. More than 44 percent of projected new Mountain-area jobs created during the next decade will require only short-term OJT.

Summary of Key Demand Analysis

Jobs are currently concentrating in the state's urban areas, especially in the Piedmont metro areas of Charlotte, the Triad, and the Triangle. While 70 percent of people live in metro North Carolina, 74 percent of the state's jobs are found there. Furthermore, the trend is expected to continue with 81 percent of new jobs located in the state's metro areas.

Not only are most jobs located in the metro areas, but also most good jobs are located there as well. Average earnings are nearly $10,000 (or 30 percent) higher in metro areas than micro areas and nearly $15,000 (or more than 50 percent) higher in metro areas than in rural areas. This is due in part to higher wages offered but also to the mix of emerging new job opportunities available at higher skills. It should come as no surprise that the state's metropolitan counties drive economic and job growth.

The Piedmont region, which is made up of the state's three largest metro areas, represents the core of that job growth. It represents 64 percent of the state's population and 68 percent of its workforce. Average earnings in the area are slightly higher than the overall average for the state's metropolitan areas. The wage differential between the Coastal and Mountain regions is significant, but that difference would probably be even greater without 140,000 people working in the Coastal region's military installations.

The state's employment is expected to grow by 14 percent during the next decade. More than half of that employment growth is anticipated among the 25 fastest growing industries. Fifteen of those industries are in healthcare, education, and professional and business services. Only a few of these industries pay significantly higher than average, and the average earnings of the fastest growing industries is about 6 percent below the current average earnings. Given current employment projections,

average earnings are likely to decline in real terms during the next ten years unless the state is able to create a significant shift in the mix of jobs available.

The reason that average earnings are likely to decline is that the state is creating low-wage, low-skill jobs at a faster pace than it is creating higher paying, high skill jobs. Four of ten new jobs being created during the next decade will not require a high school degree, increasing from the current job mix (in which 36 percent require only short-term on-the-job training). This increased number of low skill jobs is significantly higher than the US trends in low skill job creation. The problem is further exacerbated because the proportion of jobs requiring a minimum two-year degree is increasing at a faster rate in North Carolina than in the US as a whole. The bifurcation of the job market means that employers seeking increasingly skilled workers will have fewer job opportunities for workers that are high school drop-outs and that once could find employment in the state's factories and farms. These trends are intensified in the state's lagging areas (e.g., micropolitan and rural areas as well as in the Mountain and Coast regions) where relatively fewer employment opportunities will be available. Thus, the projected new employment trends will create a demand for workers with post-secondary education and training, and the wage gap between those who have an education and those who do not could potentially deepen the social, political, and economic challenges facing the state.

Workforce Supply

The previous section provided an overview of the demand for workers, based on the state's current mix of industries and occupations as well as the projected future mix of industries and occupations. This analysis includes a summary of the key occupations to be filled. The following section examines the supply of potential workers. Then, the report looks at the population and demographic shifts anticipated in the coming decade. The study also examines the current and potential workforce to better understand the state's existing skill sets and challenges.

Demographic Analysis

Population Growth

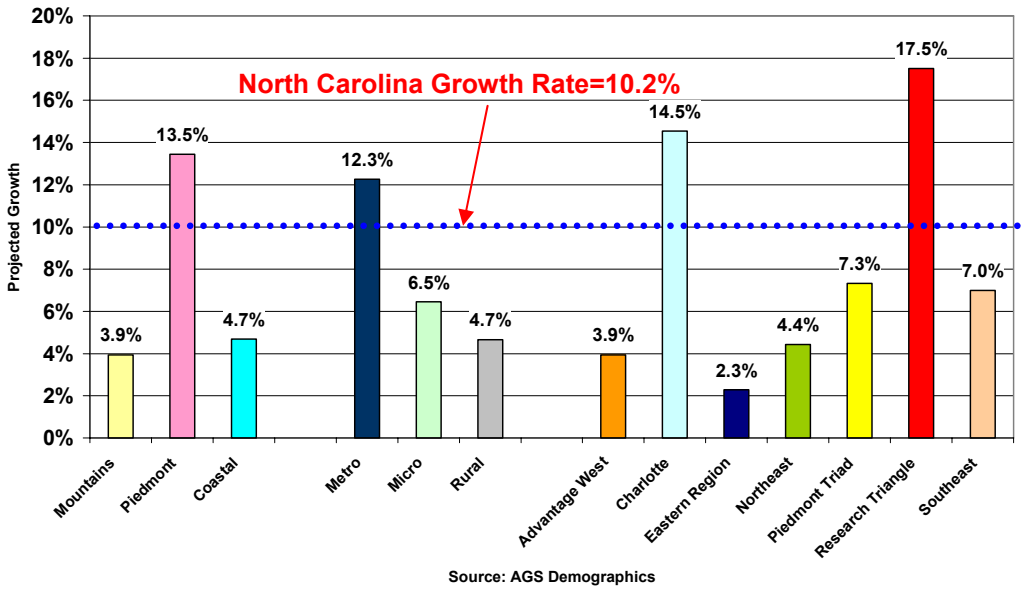
The amount, rate, and patterns of population growth in North Carolina can significantly affect the state's economy as well as its needs for infrastructure, services, and supportive social institutions. From 1990 to 2000, the population increased by 21 percent (or 2 percent annually), making it the United States' 9th fastest growing state. The 1990s saw an increase of 1.4 million North Carolinians. While the growth rate slowed during the early 2000s to 1.5 percent annually, the state maintained its 9th place ranking and continued adding people at a rate nearly 50 percent faster than the nation. Between 2000 and 2007, the state population increased by roughly 800,000 and is projected to increase by another 1.4 percent annually or 900,000 in the decade to come.

Looking ahead, the state's population growth is expected to be far from uniform. Between 2007 and 2017, the Piedmont region will drive much of the growth, increasing by 13.5 percent as illustrated in Figure 17. Population increases in the Research Triangle and Charlotte areas are growing fastest of all seven partnership regions. The Coastal and Mountain regions are expected to lag considerable behind the state and Piedmont region, adding 4.7 percent and 3.9 percent, respectively, more people.

Populations grow or shrink as a result of natural increase (births minus deaths) combined with shifts in net migration (people moving into the state minus people moving out of it). From 1995 to 2000, North Carolina had the fourth highest rate of net domestic in-migration behind Nevada, Arizona, and Georgia. The total net migration to North Carolina was 337,900 between 1995 and 2000, and an estimated 389,000 more people moved to the state between 2000 and 2005.

Figure 17

Population Growth Projections, 2007 to 2017

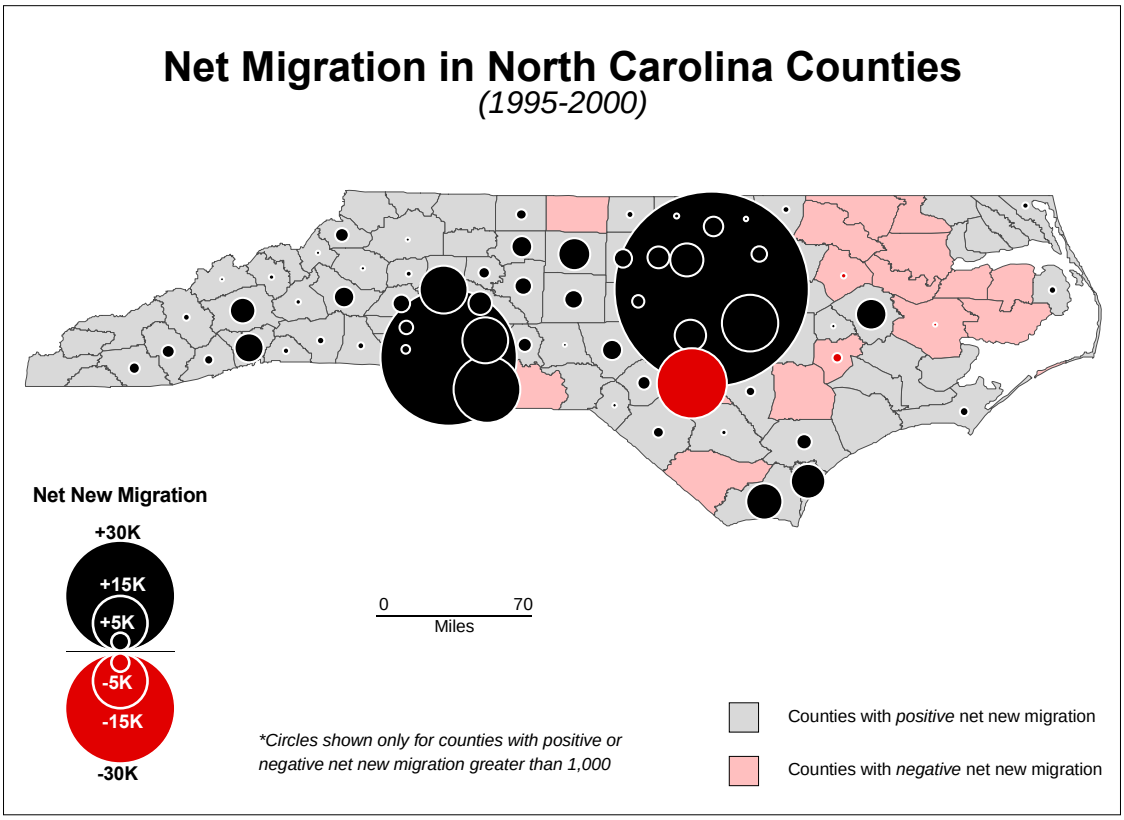


Migration came from both the Northeast and the South with states in those regions contributing most of the 919,000 new residents to North Carolina. There were nearly equal numbers from New York and Florida, and smaller numbers from California, South Carolina, and Virginia. These new residents tended to settle in the state's cities as illustrated in Figure 18. Between 2000 and 2005, the Piedmont region added a net of 311,000 residents as a result of in-migration. As Figure 19 illustrates, a recent Census Bureau study indicated that the two metropolitan areas, Charlotte and Raleigh-Durham, (and especially Wake and Mecklenberg Counties) were more likely to attract new young, single, and educated residents – a critical group of skilled workers.[11]

[11] US Census Bureau, "Migration for the Young, Single, and College Educated for the United States, Regions, States, and Metropolitan Areas: 2000," (PHC-T-34), April 2004. The young are those who were aged 25 to 39 in 2000; the single are those who were never married, or were widowed or divorced in 2000; and college educated are those people who had at least a bachelor's degree in 2000.

The moderate growth that occurred in the Mountain region is almost solely due to in-migration, but of a different kind. From 2000 to 2005, 93 percent of the region's population growth was due to existing North Carolina residents moving into the area. The in-migration was to the Asheville metropolitan area's two largest counties—Buncombe and Henderson. Although the Asheville MSA was also the only metro area outside the Piedmont region to add young, single and educated people through in-migration between 1995 and 2000, most of Asheville's increase was due to the influx of retirees. Without the positive net migration to the Asheville MSA, the Mountain region actually runs the risk of population decline.

Figure 18



Source: US Census Bureau Center for Regional Economic Competitiveness

Figure 19

Net Migration of Young, Single, College Educated People to North Carolina Metropolitan Areas, 1995-2000

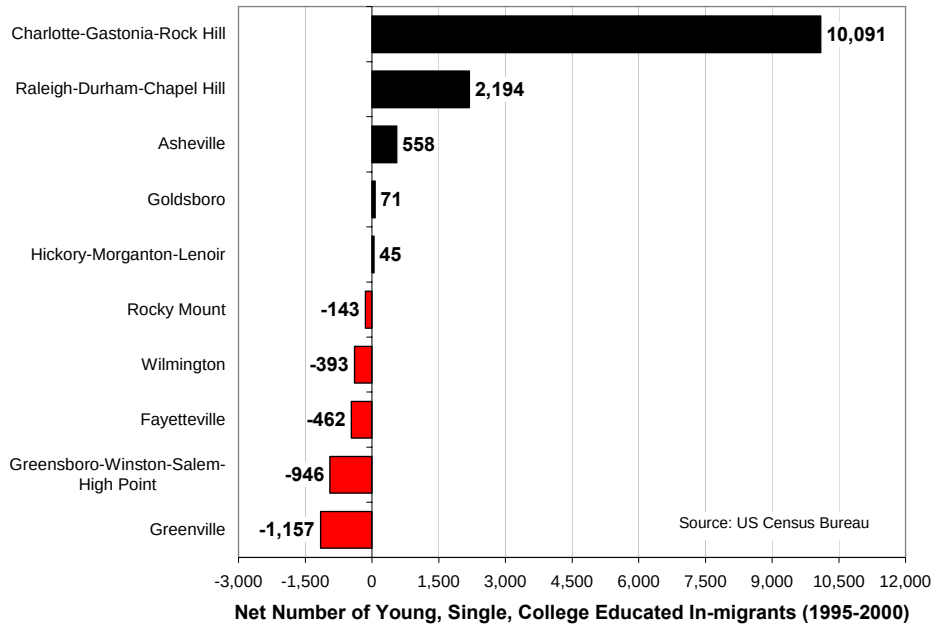
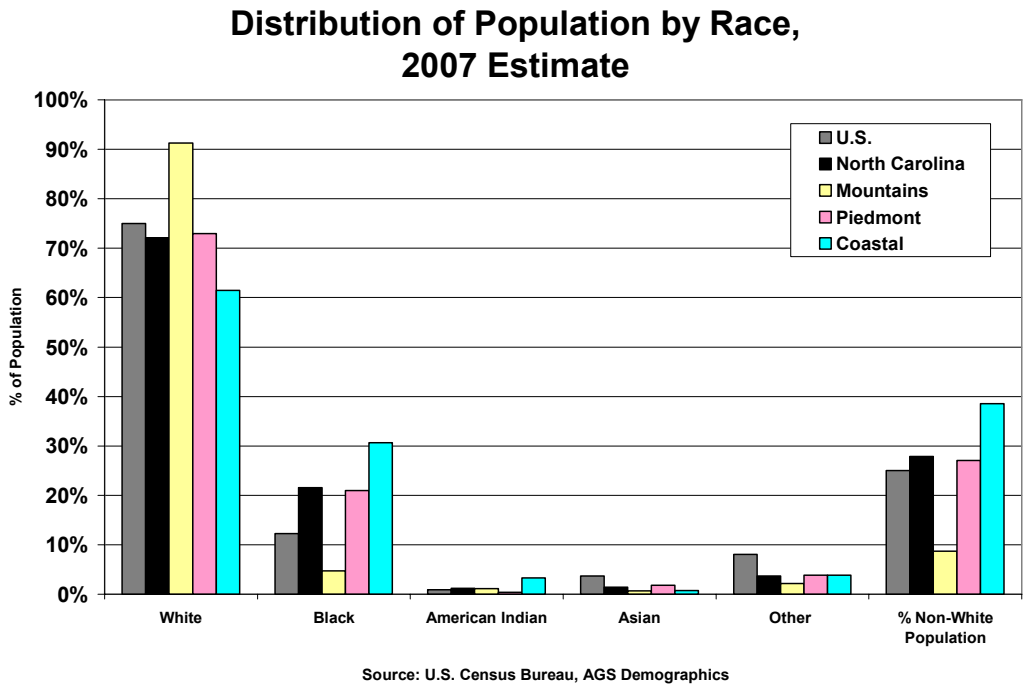


Figure 20



The Coastal region added 39 percent to its population as a result of net in-migration. The biggest contributor to that increase has historically been military families. The region is much more heavily

dependent on existing residents and natural population increases than other parts of the state. While in-migration occurred at modest rates in the region, five counties within North Carolina's Eastern Region economic development partnership region (representing the central counties of the Coastal region) actually experienced a net out-migration of more than 1,000 people between 1995 and 2000.

Population Diversity

North Carolina's racial and ethnic changes are having a significant impact on the labor market today and will likely continue to do so as the future make-up of the workforce changes. Figure 20 shows that the state's population is diverse in terms of more people from a variety of ethnic backgrounds. Rapid growth in some ethnic and minority groups is changing the composition of the workforce. Assimilating this new demographic mix of workers will likely require parallel changes in the workplace, educational institutions, and communities as a whole. In particular, rapid growth among minority populations has been and will continue to be marked by an increasing diversity in language and culture.

North Carolina is somewhat more diverse than the nation, but not uniformly and not in the same ways. In the state as a whole, the ethnic composition of North Carolina's residents is 72 percent White, 21.6 percent Black, 1.4 percent Asian, and 1.2 percent American Indian. In addition, about 6.9 percent of the state's people are Hispanic. While the ethnic composition of the Piedmont resembles the state as a whole, the Mountains and Coastal regions vary significantly. The Mountain population is the least diverse with Whites constituting nearly 92 percent of area residents. The Coastal region is much more ethnically diverse, with Blacks making up more than 30 percent of the population and other non-white groups composing an additional 9 percent of the population. The diversity is greatest in the Northeast partnership region, where the Black population accounts for more than 40 percent of the population.

Emerging Importance of Hispanics

As North Carolina enters the 21st century, it was already more ethnically diverse than the nation as a whole in large part because it has a significantly larger Black population than does the rest of the nation. North Carolina's growing Hispanic population is making the state even more diverse.

Figure 21 illustrates that the proportion of Hispanics in North Carolina is lower than the nation as a whole.

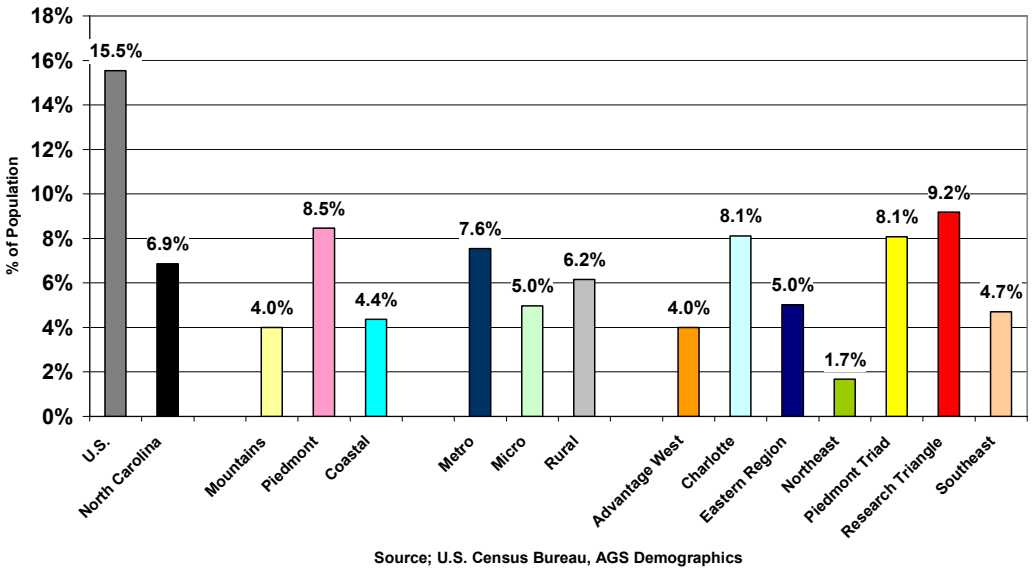
Demographics projections from the US Census suggest that the Hispanic population as a proportion of all North Carolinians will to continue to climb at a rate that far exceeds the national average. In 2005, North Carolina was ranked 11th for total number of Hispanic residents; the 2007 population estimate put that number at more than 600,000. Recent research suggests that the state's 2005 Hispanic population may be as much as 300,000 to 400,000 more people than official Census estimates as a result of unauthorized or undocumented migrants.[12] If these estimates are correct, the actual estimated Hispanic population could be as high as 900,000 or 1 million (between 9 and 11 percent of the state's total population).

[12]Pew Hispanic Center, "Estimates of the Unauthorized Migrants for States," April 2006. Data are based on the March 2005 Current Population Survey and are found at http://pewhispanic.org/files/factsheets/17.pdf.

Before 1990, Hispanics were dispersed across the state, filling many agricultural jobs in rural areas. During the 1990s, the Hispanic population increased, but the greatest concentration of new in-migrants was in the Piedmont and Coastal regions. During that period, the Hispanic population typically migrated to the state's urban crescent. The Hispanic population density maps in Figure 22 illustrate the early concentration in certain parts of the state, and the more recent density analysis of 2000 data confirms the Hispanic population has increased and expanded across the state.

Figure 21

Hispanics as a % of Total Population, by Region, 2007

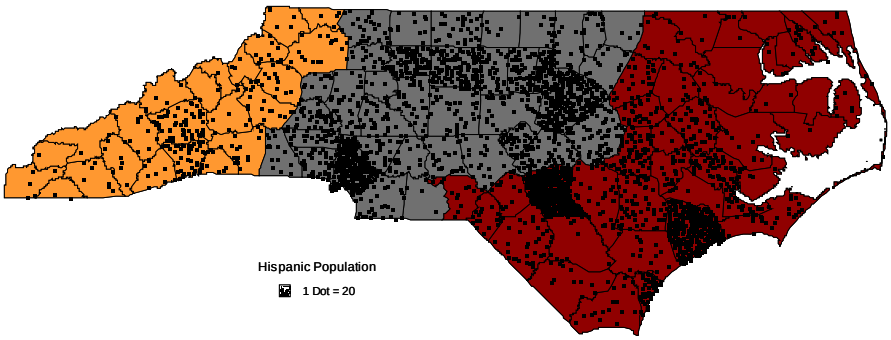


In the 1990s, the Mountain region had a net increase of Hispanic residents, but the growth was much slower than the significant growth levels in the Piedmont and Coastal regions. The 600,000 Hispanic residents in the state are younger, poorer, and more likely to be male than the rest of the state. For instance, 25 percent of the state's population is between the ages of 18 and 34, while 46 percent of the state's Hispanics are in this age range. Sixty percent of Hispanics in the state are men while overall women slightly outnumber men. The estimated median household income of Hispanic families was about $31,773 in 2005, about 78 percent of the state average of $40,729.[13]

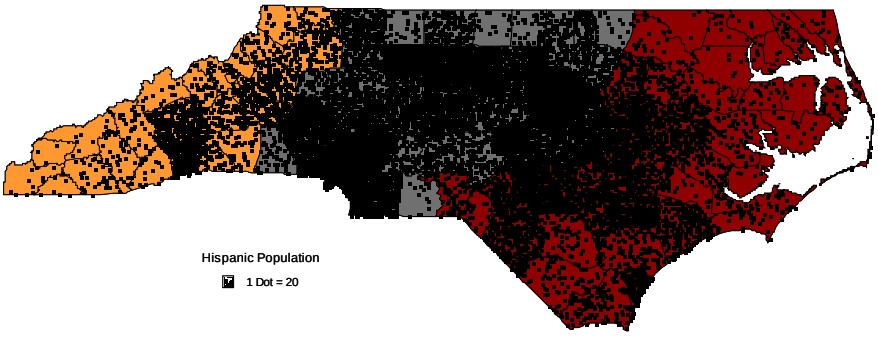
[13] Source: US Census Bureau, American Community Survey, 2005.

Figure 22

Hispanic Population Density, 1990



Hispanic Population Density, 2000



Aging Population

North Carolina's population is aging at about the same rate as the US. In the 2005 American Community Survey, conducted by the US Census Bureau, the median US age was 36.4 as compared with 36.2 for North Carolina. The median age has increased about one year since the 2000 Census for both the US and NC. However, people living in certain parts of North Carolina are relatively older than the state average. The people in the Mountains, for instance, have a median age that is about three years older than the state and four years older than the Piedmont and the Coastal regions. Residents of the Advantage West, the Piedmont Triad, and Northeast regions are also nearly three years older than those living in other parts of the state.

About 64 percent of the population is of working age. Fifty-three percent of the population is in their early or mid-career stage (i.e., between the age of 18 and 54) while another 10.5 percent of the population is between 55 and 64 (impending retirees). Overall, the population cohort that will be entering the workforce in the next decade (those age 6 to 17) is slightly larger in size than the impending retiree group, but this is not the case uniformly across the state (see Figure 23).

The impending retiree population in the Mountain region, for instance, represents 12.7 percent of the population -- nearly the same size as the new workforce entry cohort. In that region, the early-to-mid working age population comprises less than 50 percent of the region's population. This suggests that in the latter part of the next decade, there will be more older people reaching retirement age than available young people entering the workforce. By that point, the Mountains will have to address its workforce shortage by either retaining retirement-aged adults in the workplace or by attracting more in-migrants. The highest proportion of youth and young adults is concentrated in the Piedmont region, in part, due to the concentration of post-secondary schools and the net in-migration of people between the ages of 25 to 39. The Piedmont region also has three of the state's five metropolitan areas that boast a positive net in-migration of youth between the ages of 25 and 39 that were single and college educated.

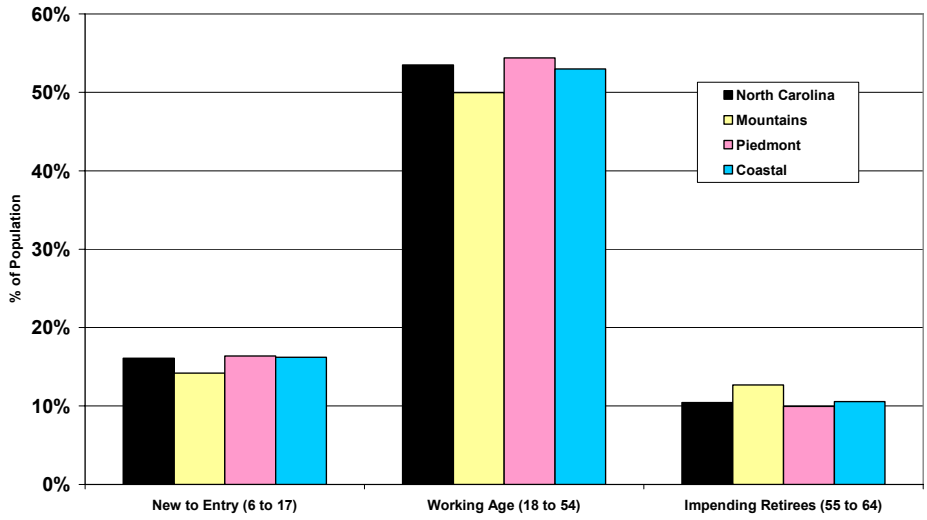
The largest portion (almost one third) of the working age population is the baby boomer generation. The population of the baby boomers can be broken into two age categories: the early and late boomers. The early boomers, born between 1946 and 1955, will begin reaching the traditional retirement age of 65 as early as 2011. North Carolina's early boomers represent more than one quarter of the working age population, all due to retire in just 13 years (by 2020).

The retirement of one-quarter of the workforce in such a short period has the potential to leave a gaping hole in the supply of workers during the next two decades. The impact of these retirements will likely be the greatest on the economies of the state's Mountain region and rural areas. Within ten years, these two parts of the state will have more older-than-65 seniors than school age youth.

Educational Attainment

More than one in five (21.8 percent) of the state's population older than 25 does not have a high school diploma (see Figure 24), 50 percent of all Hispanic adults older than 25 and 52 percent of Hispanic men have not completed high school. By comparison, 15 percent of non-Hispanic white adults

Figure 23
North Carolina's 2007 Population Distribution and Age Projection by Region



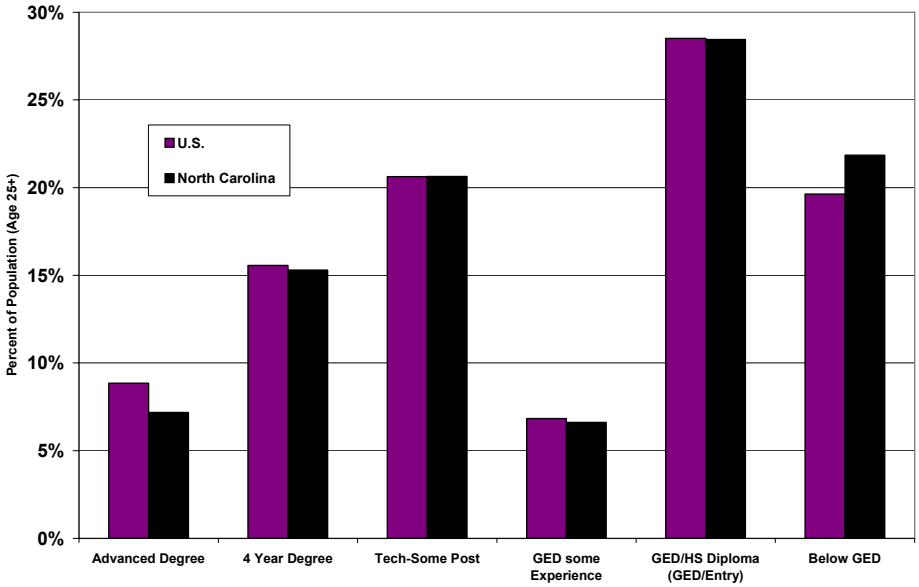
Source: North Carolina State Data Center, U.S. Census Bureau

and 22 percent of Black adults do not have a high school diploma. Some of the explanation can be attributed to the age composition of these groups. Older North Carolinians are less likely to have a high school degree. While 55 percent of the adult population is aged 45 or older, the Census Bureau reports that more than 64 percent of adults without a high school diploma is aged 45 or older.

North Carolina has been making tremendous strides during the past two decades in increasing the population's educational attainment level, and in 2005 its numbers more closely resembled the national educational attainment levels than they did in 1990. The proportion of North Carolina adults with a high

Figure 24

Distribution of Population 25+ by Educational Attainment Level, (2007 est.)



Source: U.S. Census Bureau, AGS Demographics

school degree was five percentage points less than the US rate in 1990, but by 2005 the state trailed the nation by only about 2 percentage points. Furthermore, the proportion of North Carolina's population with an Associate's Degree is actually higher than the national average, but North Carolina still trails the US in terms of the percentage of adults with a bachelor's degree or higher.

A snapshot of the 2004-2005 school year helps to illustrate the capacity of North Carolina's post-secondary and secondary systems to meet the needs of the state. There were roughly 850,000 people of all ages enrolled in post secondary degree programs including advanced degree, baccalaureate, and associate's degree programs as well as community college certification programs, occupational and industry specific training programs, and basic skills training programs.

Slightly less than 650,000 students are enrolled in the state's community colleges and nearly 200,000 are enrolled in the four-year universities. Also during 2004-2005, greater than 50,000 students graduated from the state's post-secondary institutions earning an associate's degree or higher.

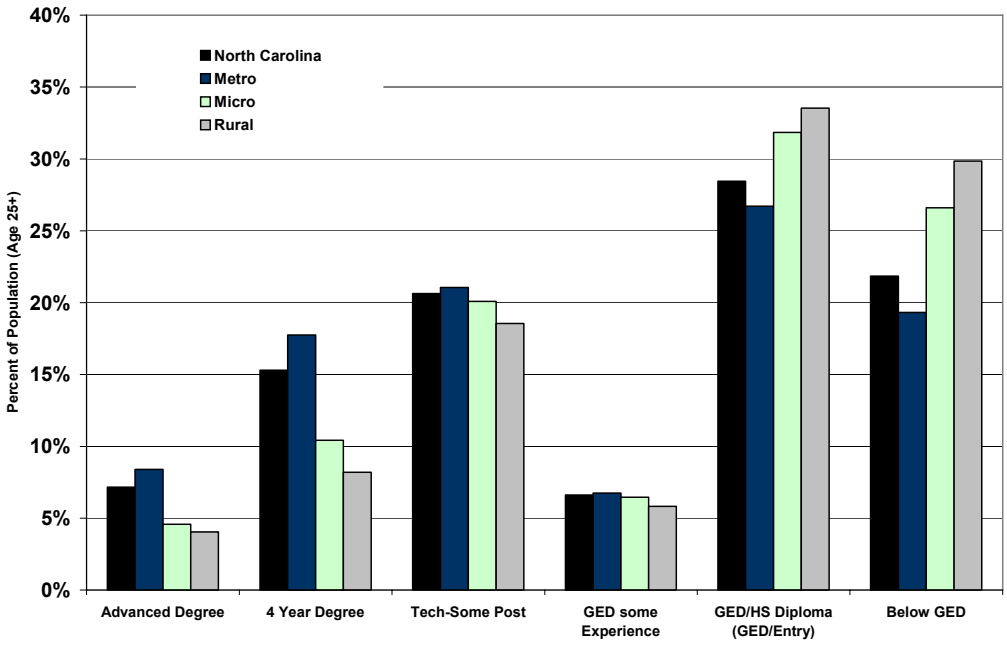
Meanwhile, at the secondary level, North Carolina had considerable enrollment in career and technical education (CTE) programs. In the 2003 to 2004 school year, there were more than 400,000 students of all ages enrolled in career and technical education courses. The highest enrollment in the secondary CTE courses were those related to business, family and consumer sciences, as well as vocational or trade programs.

Leading North Carolina's educational attainment improvement is the higher educational achievements of people in the metropolitan areas and the Piedmont region. The Piedmont counties exceed the state and nation in the proportion of the population with a Bachelor's degree or higher and has a lower percentage of the population with less than a high school diploma. While the Coastal and Mountain regions have increased the percent of residents with a Bachelor's Degree since 1990, the regions still have lower attainment levels relative to the rest of the state and nation.

While the Coastal, Mountain, and Piedmont regions demonstrate different attainment levels, Figure 25 illustrates that the most significant disparities appear linked to the metropolitan, micropolitan, and rural areas. Micropolitan and rural areas face the most significant challenges regarding educational attainment. Similar patterns emerge when considering high school dropout rates throughout the state.

Figure 25

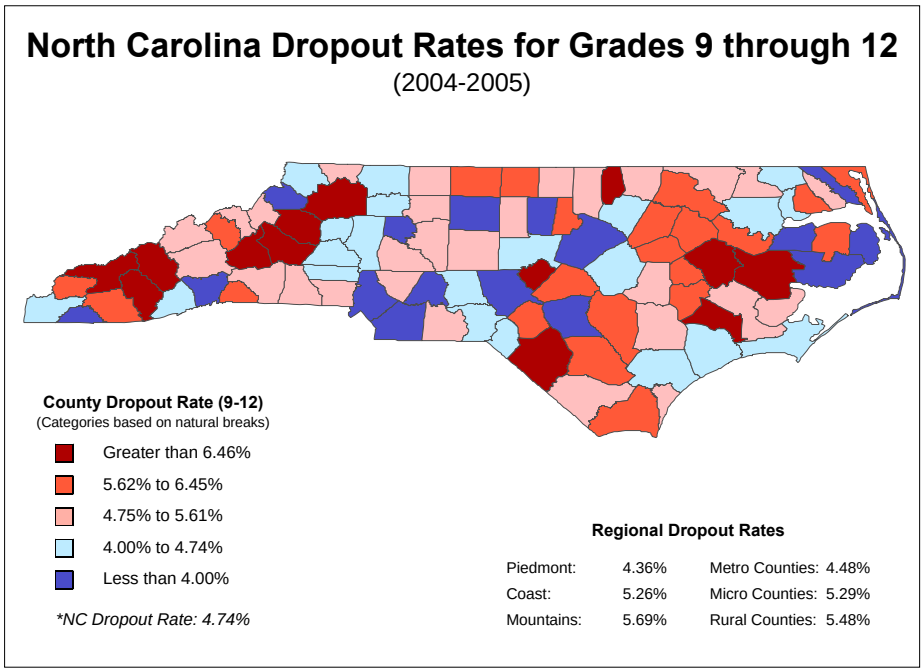
Distribution of Population 25+ by Educational Attainment, (2007 est.)



Source: U.S. Census Bureau, AGS Demographics

Figure 26 shows Grade 9 through 12 dropout rates by county. The state's largest metropolitan counties, including Mecklenburg, Wake, Guilford and Cumberland, all have relatively low dropout rates. Overall, the dropout rate for metropolitan counties is 4.48 percent. By comparison, the dropout rates for micropolitan and rural counties are 5.29 percent and 5.48 percent, respectively. High dropout rates are particularly germane for several areas in the Mountains region, particularly the Highlands and the Foothills areas. Even though gains have been made in the number of people with Bachelor's Degrees and the number of people without a high school diploma has decreased, the educational attainment gap in those areas has been slow in closing.

Figure 26



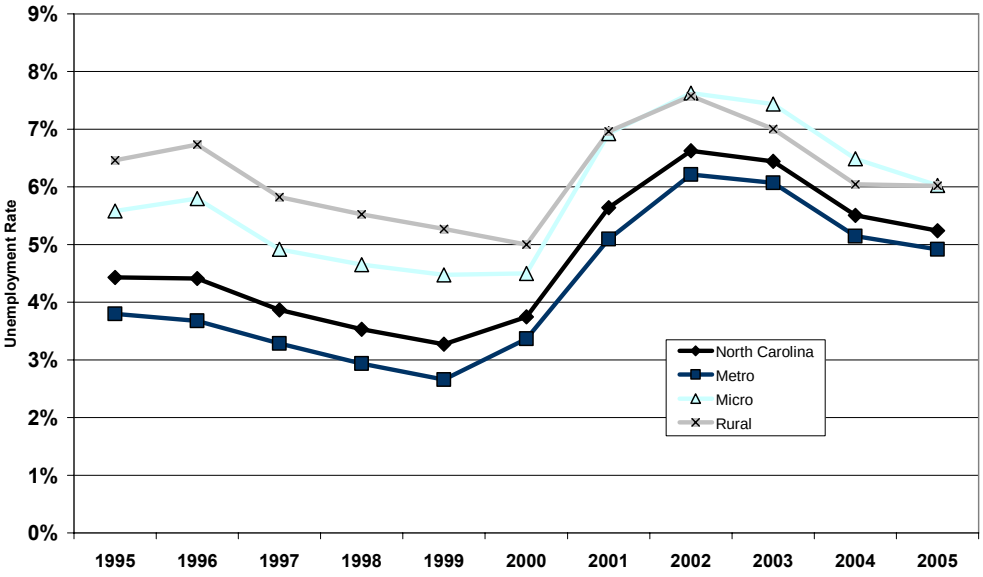
Source: **North Carolina Department of Public Instruction** **Center for Regional Economic Competitiveness**

Unemployment and Labor Force Participation

The unemployment rate, a measure of labor market performance, is one of the timeliest and most frequently used indicators of national, state, and local economic conditions. The unemployment rate has taken on great importance with public officials because they recognize it as a high profile measure of state and local economic well-being.

In 2005, according to the US Bureau of Labor Statistics, North Carolina's civilian unemployment rate was 5.2 percent compared to the national average of 5.1 percent. The unemployment rate in the state has been declining since it reached a ten-year high in 2002 of 6.6 percent (See Figure 27). The decrease in the unemployment rate is a sign of economic recovery and expansion. The unemployment rate varies greatly between regions, primarily related to population and job density. The micropolitan and rural areas of the state consistently have the highest unemployment rates.

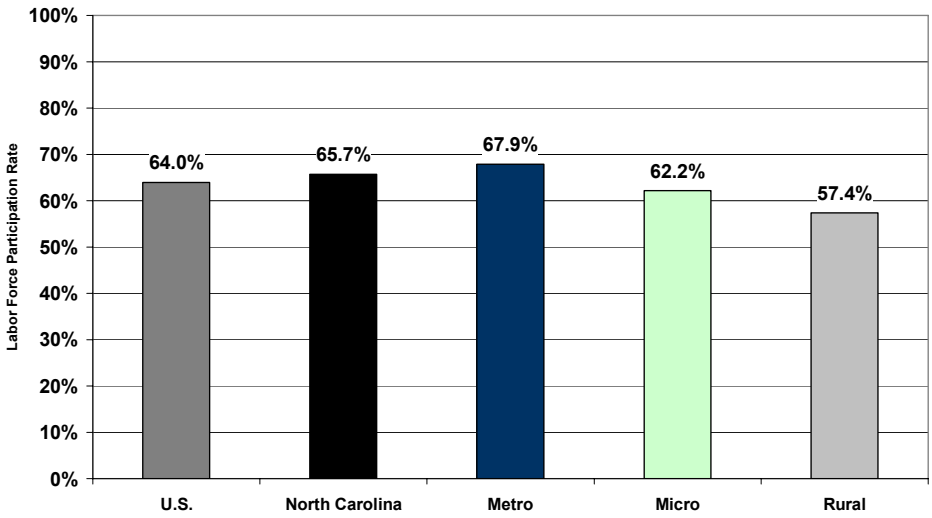
Figure 27
Annual Unemployment Rate, 1995 to 2005



The unemployment rate is based on the number of people who are not employed but are actively looking for jobs. Another measure of labor market performance is the ratio of the population in the labor force (employed, self-employed or unemployed and normally above 16 years of age) to total population, or the labor force participation rate. North Carolina's estimated labor force participation rate is 65.7 percent, which is higher than the nation as a whole. The Piedmont, particularly the metropolitan areas in

Figure 28:

Labor Force Participation Rate for Urban and Rural Areas, 2007 estimated



Source: U.S. Census Bureau, AGS Demographics, Employment Security Commission of North Carolina

that region, has the highest labor force participation rates in the state, substantially higher than the rates in micropolitan and rural counties, as illustrated in Figure 28.

Relatively lower labor force participation rates in the micropolitan and rural areas may reflect economic changes that have occurred over the last decade. Workers dislocated from jobs in industries that are no longer hiring may be leaving the labor force entirely. This is consistent with long-standing labor force patterns. Individuals tend to withdraw from the labor force during periods of reduced job opportunities or longer lasting shifts in the economy.

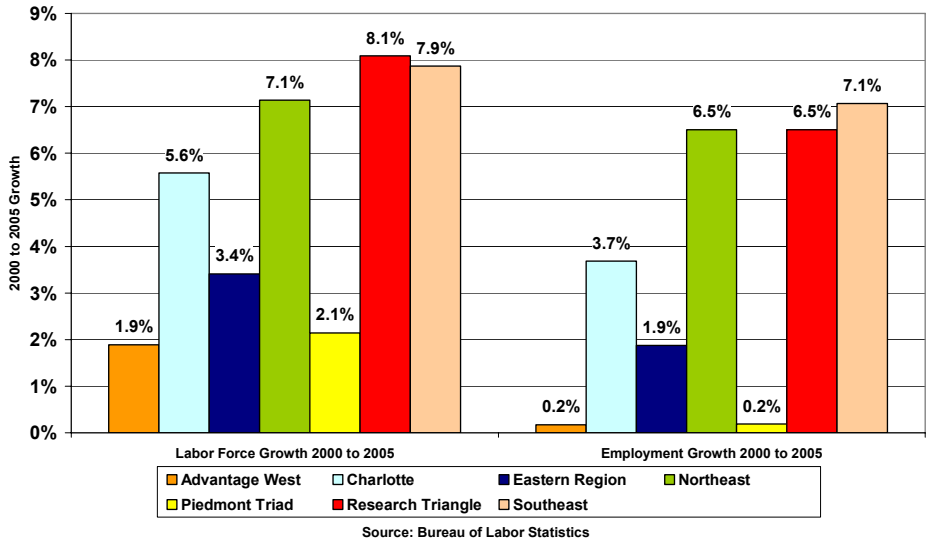
The economic shift from manufacturing to services may result in many people dropping out of the labor force because they cannot find an occupation that aligns with their current skill set. In some cases, they may enroll in community colleges to gain more education (which helps explain record levels of community college enrollment); they may leave the labor force entirely; or they may take retirement. Some may accept part-time or low wage jobs, but those individuals are counted as participating in the labor force even though they may be underemployed. The low level of labor force participation also means that the strict definition of the unemployment rate does not represent the total capable population available to work.

Labor Force and Employment Growth

During the past few years, the labor force has grown more rapidly than has employment as the worker supply in certain skill levels exceeded opportunities. To some degree, the lag in employment is a

Figure 30:

Labor Force and Employment Growth by Partnership Region, 2000-2005

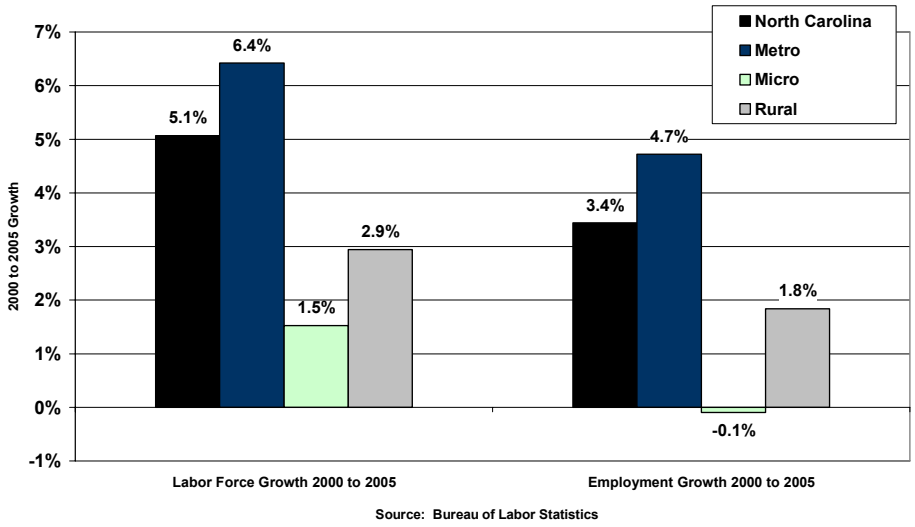


result of the substantial job losses occurring in key manufacturing sectors during the most recent recession. However, employment levels have stagnated in the Mountains and in the micropolitan communities. Figure 29 demonstrates that the metro areas have made the greatest strides in improving their employment and labor force prospects.

Figure 30 illustrates that The Piedmont Triad has not been as successful in new job creation as have Charlotte and Raleigh.

Figure 29:

Labor Force and Employment Growth, 2000 to 2005



Summary of Key Supply Analysis

North Carolina has benefited from being one of the nation's fastest growing states. But with growth comes change, sometimes dramatic in nature. The state is seeing change in its population's age structure, shifts in educational attainment levels, and increased ethnic diversity. In North Carolina, the opportunities and challenges vary from region to region. Regional differences in growth and migration patterns mean that each area faces unique challenges. Leaders in the Piedmont must manage significant growth and in-migration, particularly of working age adults. Meanwhile, the Mountain region is becoming dependent on in-migration for workforce and population growth, but it is gaining a substantial number of older residents. The Coastal region is facing a trend of out-migration, especially to the urban centers in the Piedmont region. Addressing these issues will mean taking advantage of opportunities offered by Hispanic population growth, efforts to retain youth and older workers in the state's workforce, and increasing the skills level of the current workers. These efforts will need to involve regional collaboration to achieve maximum success.

The working age population in North Carolina is multigenerational, aging, and varies dramatically between regions. Baby boomers now account for one third of the state's population and nearly half the labor force. It is impossible to know how long baby boomers will stay in the labor market after 2011 when the first wave reaches age 65. Their inevitable exit will dramatically impact the state for generations to come in the labor supply, changes in the workplace, and in the loss of skills and work experience to the state's economy.

In the Piedmont region, where the average age is lower than the rest of the state, the impacts may be less about filling supply gaps and more about a changing workplace. The multigenerational workforce brings with it varying beliefs, approaches, and actions regarding work. Compared to subsequent generations, boomers have tended to stay with a single employer for longer periods of time. Studies suggest that Generation-Xers move more easily between jobs while Generation-Y and the Millennial Generation adults tend to choose a more collaborative work environment and are more team-centric.

Growth in the Hispanic workforce offers a new asset in terms of workers who can fill the 700,000 net new jobs being created in the state during the next decade, but this demographic group may also pose new challenges for the state's workforce development leaders. The relatively sudden influx of low-wage earning ethnic-minority workers and their families has the potential to overwhelm smaller school systems, increase demand for social services, and contribute to income inequality and residential segregation. Many low-skill workers, especially among Hispanics, whose first language is not English, may create a drag on the state's economic growth and certainly the lower wages they earn will stymie growth in the state's overall standard of living. Efforts to acculturate this new immigrant community will be critically important to the state's economic success, helping it to compete effectively in the global knowledge economy.

Coupling the aging population and the lack of natural population growth, the Mountain region is more heavily dependent on in-migration to bolster labor force size, and the integration and utilization of the Hispanic workforce will become ever more critical in that region. In the Coastal region, the influx of Hispanic residents has brought some balance to the out-migration pattern which took place in the region at the beginning of the 21st century. Many of these new residents are taking low skill jobs in agriculture, food processing, and tourism that might otherwise go unfilled without their presence. The future

challenge will be to enhance the skills of the state's Hispanic workforce to meet increased demands from employers as they adopt new technologies and processes to compete globally. In addition, current challenges involve helping employers overcome barriers to hiring a culturally and linguistically diverse workforce.

Overall, North Carolina has improved its educational attainment levels, but the newly arrived Hispanic workforce has significantly below average levels of formal education. North Carolina continues to have a greater percentage of adults without a high school diploma than the rest of the nation, and increases in educational attainment levels have not been uniform throughout the state. Currently the Piedmont region has the highest educational attainment level, but the data reveals that urban areas have an advantage in attainment levels over their micropolitan and rural counterparts. The state's traditional dependence on moderate paying low-skilled manufacturing jobs has left many individuals in micropolitan and rural area unprepared for the economic shifts that occurred in the state. This lower attainment level of these displaced workers has hindered the state's shift from its traditional manufacturing base to a high value-added, knowledge-driven service economy.

Not surprisingly, either many of these lower skilled workers are losing out in the competition for higher wage jobs or they are giving up entirely in the face of greater skill demands from potential employers. High unemployment and low labor force participation rates reflect the inability of unskilled labor to regain decent, family sustaining employment. In micropolitan areas and rural areas, the unemployment rate has consistently been higher than in the metropolitan areas. While the low level of labor force participation is a challenge, it may also reveal a potential opportunity if the state makes investments aimed at improving the skills of this currently underutilized, but potentially valuable workforce.

Employer Demand & Workforce Supply Gap Analysis

Over the next decade, North Carolina projects adding nearly 700,000 new jobs and 1.3 million people. Both represent a 14 percent increase between 2007 and 2017. The state's population growth is expected to well outpace the national average of 6 percent, while job growth is projected to lag behind the national growth rate of 17 percent during the same period. **Even so, we can expect a talent shortage in North Carolina.** The state's economy is creating a substantial number of higher skilled jobs, demanding ever higher sets of skills and offering higher and better wages. Figure 31 illustrates the need for North Carolina's economy to continue growing to meet the anticipated talent gap. The challenge for North Carolina's workforce and education system will be to ensure that North Carolinians are prepared to take advantage of the better-paying, higher skill jobs, and preventing people from having to accept low pay jobs just because they are not prepared for the good job opportunities available in the state.

Figure 31:

Estimated Annual NC Labor Force Demand and Supply, 2007-2017

Changes in Workforce Demands	**Annual Number**
To Replace Retiring Workers	*60,795*
To Fill Projected Net New Jobs	*69,825*
Total Change in Workforce Demand	***130,620***
Changes in Workforce Supply	
New Young NC Talent	*91,253*
In-Migrants, aged 18-54 (assuming all join labor market)	*26,760*
Total Change in Workforce Supply	***118,013***
Talent Shortage	**-12,607**

Source: Calculations based on estimated annual employment increases and estimated workforce retirements as well as population projections by age cohort.

In analyzing where the shortages actually are in the state, the greatest number appear in the "new middle" and higher-end jobs that require post-secondary education and long-term on-the job training. Figure 32 illustrates the significant increases in capacity necessary to meet the growing demand for skilled workers in the state. For each of the next 10 years, the four-year and advanced degree programs need to increase their capacity to fill a gap in which the state's economy requires about 15,000 more four-year or advanced degree completers per year from among those currently graduating from the state's universities.

In addition, a preliminary assessment shows that the state's community colleges need to generate nearly 19,000 more program completers each year in order to meet the state's projected need for people with associate degrees and occupational licenses. One caveat on these estimates is that educated in-migrating workers will fill many of these higher end positions and that will somewhat mitigate the current talent shortage. Notably, many companies experiencing severe workforce shortages in selected occupations hire enrolled participants in education or training programs even before they complete all of their program requirements. This analysis cannot account fully for these partial completers who obtain jobs before they finish their education.

Figure 32:

North Carolina's Talent Shortage: 4-Year and Advanced Degrees & "New Middle Jobs"

Estimated Annual BA-and-Higher Educated Workforce Demand & Supply, New Middle Job Needs for North Carolina, 2007-2017	
North Carolina Employment (est. 2007)	5,150,000
Current Jobs Requiring a BA and higher	848,108
I. Annual Demand for Workers with a Bachelor's or Higher	
Total replacement (BA & Higher) required due to retirements during next 10 years	235,183
Total net new jobs to be created in the next 10 years (BA & Higher)	171,368
Total Replacement & New Jobs (Next 10 years)	406,551
Average Need--(Annual BA & Higher for next 10 years)	**40,655**
II. Annual Supply of New Workers with a Bachelors or Higher	
Current annual BA graduates from all UNC programs	27,000
Less current new in-state enrollment in UNC advanced degree programs	(16,694)
Current advanced degree graduates	10,100
Estimated annual NC grad retention by private & independent colleges	5,000
Average Available Workers (Annual BA & Higher Educated Workforce Entrants for next 10 years)*	**25,406**
Anticipated annual shortage of BA & higher educated	**(15,249)**

Estimated Annual 2-year, Some College & Long-Term Training Workforce Demand & Supply, New Middle Job Needs for North Carolina, 2007-2017	
North Carolina Employment (est. 2007)	5,150,000
Current Jobs Requiring an AA, Some College, or 1 year or More Training	1,188,300
I. Annual Demand for Workers with an AA, Some College, or One Year or More Training	
Total replacement ("New Middle Jobs") required due to retirements during next 10 years	286,386
Total net new jobs to be created in the next 10 years (New Middle Jobs)	148,433
Total Replacement & New Jobs (Next 10 years)	434,819
Average Annual Need -- Net New Middle Jobs for next 10 years	**43,482**
II. Annual Supply of New Workers with an Associate, Vocational Award or Long-term Training**	
Current annual AA, certificate, and diploma graduates all NCCCS programs (Related to "New Middle" Jobs)***	24,801
Average New Available Workers (with "New Middle" Jobs Training)	**24,801**
Anticipated annual shortage of Community College & Career Technical Training	**(18,681)**

*Assuming 100 percent remain in NC upon completion

**Excludes graduates from private/ind. 2-year colleges and university continuing ed. programs

***Excludes Students Who May Enroll but Not Receive a Degree or Certificate

Thus far, the analysis examined the broader issues of whether a talent gap exists and whether the current post-secondary educational system has the capacity to respond. It is also important to consider specific educational programming and industry employment demands to determine if skill shortages exist in particular occupational groupings.

Based on occupational projections and available data on post-secondary program completers from the state's public universities and community colleges, Figure 33 shows that employers will likely face difficulties filling both high end jobs and *new middle* jobs because the system simply cannot generate sufficient potential workers to meet projected industry needs. *If the University of North Carolina and the North Carolina Community College System, combined, were charged with meeting all of the anticipated*

Figure 33

Employment Supply and Demand Summary by Occupational Group

Occupational Group	Est. Annual Demand*	Avg Annual Supply**#	Est. Annual Need
Management, Business, Financial, & Administration Occupations			
High End Jobs	16,752	6,652	**-10,100**
New Middle Jobs	5,456	3,044	**-2,412**
Computer & Mathematics Occupations			
High End Jobs	3,763	1,112	**-2,651**
New Middle Jobs	891	2,411	1,520
Life, Physical, & Social Science Occupations			
High End Jobs	1,486	1,950	464
New Middle Jobs	275	18	**-257**
Community, Social Services, Personal Care Occupations			
High End Jobs	2,777	742	**-2,035**
New Middle Jobs	1,283	1,096	**-187**
Legal Occupations			
High End Jobs	540	345	**-195**
New Middle Jobs	340	338	**-2**
Education, Training, and Library Occupations			
High End Jobs	8,894	2,383	**-6,511**
New Middle Jobs	2,037	1,873	**-164**
Healthcare Practitioners, Support, & Technical Occupations			
High End Jobs	2,719	2,257	**-462**
New Middle Jobs	8,261	6,314	**-1,947**
Protective Service Occupations			
High End Jobs	0	639	639
New Middle Jobs	2,609	1,613	**-996**
Arts & Entertainment Occupations			
High End Jobs	1,327	1,324	**-3**
New Middle Jobs	4,007	375	**-3,632**
Sales & Related Occupations			
High End Jobs	900	759	**-141**
New Middle Jobs	4,678	533	**-4,145**
Construction and Extraction Occupations			
High End Jobs	0	0	0
New Middle Jobs	5,198	1,571	**-3,627**
Production, Installation, Maintenance, & Repair Occupations			
High End Jobs	0	0	0
New Middle Jobs	6,704	1,571	**-5,133**
Transportation & Material Moving Occupations			
High End Jobs	0	1	1
New Middle Jobs	988	512	**-476**
ALL OCCUPATIONS			
High End Jobs	40,654	20,406	**-20,248**
New Middle Jobs	43,482	23,865	**-19,617**

*Net New Jobs (ReDyn) and Replacement Jobs (EMSI)

**Completer data from UNC/NCCCS

#Does not included estimated annual 5,000 completers from privated and independent colleges and universities

needs, the two post-secondary educational systems would need to generate an additional 39,000 program completers per year during the next decade. Of course, other sources of educated workers

(e.g., private and independent colleges and universities, in-migrating workers, long-term incumbent worker training, and informal, on-the-job professional development) will also contribute to filling this pipeline but data are not readily available about the quantity of the supply from these sources.

The following analysis describes how several key occupational groups might be particularly affected by the skilled worker shortage and to what extent the state's public colleges and universities are producing completers that might be able to meet that demand. [14]

- The projected demand for people to fill high end jobs within management, business, financial and administration occupations far outstrips the current estimated supply. To meet projected demand, the post-secondary systems would need to generate about 10,000 more completers. This need is so substantial because these occupations are ubiquitous across industries and are projected to grow rapidly in the coming decade.
- North Carolina needs roughly 6,500 more completers – beyond the current levels – to meet its current annual demand in education, training and library occupations. The teacher shortage is one of the contributing factors to this great need. This represents a mid-point of other forecasts which projected a need for between 2,000 and 10,000 new teachers in the state.
- Construction and extraction occupations represent another set of jobs where demand will increase as the state continues growing. Relative to the current rates of education/training completers, the state will need another 3,600 workers who have completed technical training and long-term job experience to meet projected growth needs. This demand is particularly acute for first-line supervisors and the skilled trades (including experienced carpenters, electricians and plumbers).
- The healthcare occupations will need about 2,400 more completers annually than the educational system is currently providing. Most of those, approximately 2,000 per year, will require at least an associate's degree, technical training or formalized on-the-job training. In this occupational grouping, nurses and nurse's aides are two of the occupations where demand is greatest and will likely to continue growing.
- Many of the state's knowledge-driven industries also face a growing need for filling the computer and mathematics occupations. Statewide, there is an estimated demand for almost 3,800 people with at least a 4-year degree in computer and mathematics, but currently the university system is only producing around 1,100 annually. As a result, the state's economy requires 2,650 more computer and math workers than are available each year from the educational system.
- Even though the manufacturing sector is declining both nationally and statewide, these occupations still offer tremendous numbers of opportunities and manufacturers are already feeling the pinch as they struggle to find skilled, capable workers. In particular, the remaining manufacturing jobs are demanding increasingly higher levels of skills. Estimations show a projected need each year of 5,100 more people than are being supplied currently from the post-secondary education and training system to fill *new middle* jobs in production, installation, maintenance, and repair occupations.

In order to support its expanding economy North Carolina will not only need more workers, but it will also need the right kind of workers. The state will need to find an estimated 40,000 new workers capable of filling the demand for 'high end' and 'new middle' jobs. In some occupational categories the demand is more acute than others, for instance in management, healthcare or the construction trades. While increasing the capacity of University of North Carolina and North Carolina Community College System represents an important component in filling the gap between employer demand and workforce supply, it is not the only answer. Other sources of skilled workers, such as attracting in-migrants and long-term incumbent worker training programs, will also be necessary to meet these needs.

[14] Due to data limitations, this analysis assumes that there is a closed system. As a result, in this analysis North Carolina's higher education institutions provide the only source of new degreed workers. As a result, it does not take into consideration the in-migration of skilled workers into the state or out-migration of workers from the state. Moreover this analysis does not assume that workers without degrees and higher education will fill positions requiring these levels of educational attainment. Consequently, this analysis cannot present a complete picture of the state's worker shortages, but it does identify some of the important trends affecting the state's key occupational groups.

Conclusions

Brainpower and creativity increasingly outweigh "brawnpower and routine" as the most valued talents in the global knowledge economy. While the economy demands that more North Carolinians have these skills, many workers are not yet ready to compete. During the past two decades, the state has made rapid strides, but it is not quite keeping pace. Some areas of the state out-perform the US, and gain recognition as global centers of knowledge-driven activities. However, large segments of North Carolina are still transitioning from the 20th century industrial economy that once served as the state's primary economic foundation.

This report summarizes some of the key issues and challenges facing North Carolina as it moves forward. Those issues and challenges include:

- Many of North Carolina's traditional manufacturing industries continue to shed jobs as part of an on-going economic transition.
- North Carolina's traditional "middle jobs"—those that paid a family-sustaining wage and required minimal formal education or training—are disappearing as part of this transition.
- New job creation is concentrating in certain fast-growing metropolitan areas.
- Many areas of North Carolina are not prospering from the economic transformation.
- The future prosperity of all North Carolinians depends on achieving higher educational attainment levels for all citizens.
- Impending baby-boom retirements will exacerbate an emerging skills gap among experienced, skilled workers.
- High-skill in-migrants will help fill part, but not all, of this skills gap.
- Low-skill in-migrants present both opportunities and challenges in meeting the state's workforce needs.

Making generalizations about North Carolina's economic trends proves problematic because the regional differences can be so dramatic. For instance, although the state creates many high value-added financial, professional, and technical service jobs requiring four-year and more advanced degrees, these jobs are concentrating in the Research Triangle and Charlotte. Many other areas of the state are underperforming because of their traditional dependence on mature, declining industries such as apparel, textiles, furniture and computer electronics and their inability to find new economic niches. This is the fundamental issue driving the state's economic divide.

The economic divide is most apparent when one compares the Piedmont to other areas of the state. The micropolitan and rural economies are struggling to keep their best and brightest while Charlotte and the Research Triangle attract single, young, educated adults to meet their talent needs. The Coast and Mountain regions are among the state's poorest areas and many parts of them offer minimal prospects for new economic activity. In some cases, the communities have used tourism, retail, and retirement attraction as avenues for providing opportunities to local residents. However, many of the jobs associated with these industries are part-time, low paying, and often seasonal in nature. As a result, these disadvantaged regional economies are not creating the kinds of jobs that will retain the best talent. Workers must therefore choose between finding opportunities elsewhere or settling for underemployment.

Even in the Piedmont, all is not well. The Piedmont Triad economy looks much more like the economy of the state's micropolitan areas than that of Charlotte or the Research Triangle. Like the

Mountains and Coast, the Triad's success in attracting new migrants has focused primarily on those moving to North Carolina for retirement or recreational reasons rather than for economic opportunities. Many areas of the state are losing their working age adults as they struggle to retain their traditional middle jobs as an incentive to support those workers. In short, many parts of the state are seeing their human capital assets follow the employment opportunities concentrated in the state's two largest metropolitan areas. Understanding these more localized differences will be important in creating effective strategies tailored to the state's different regions.

Yet, the response to the challenge cannot focus on how the rest of the state is losing to Charlotte and the Research Triangle. On the contrary, even the strongest areas of North Carolina are falling behind the rest of the nation economically. Earnings for North Carolina workers are currently $5,000 less per year than the US average. Even in the Piedmont region, average earnings are below the national average and the mix of new jobs being created is likely to prevent the state's average earnings from gaining ground on the US. The lower skill jobs being created so rapidly in the state's economy pay well below average. The opportunities for North Carolina lie in creating more high-end jobs, but the state must have the talent to fill those jobs. For areas outside the Piedmont, this challenge is particularly problematic given the limited number of high-end jobs projected to be created in those regions.

During the next decade, most economic opportunities will continue to occur in North Carolina's metropolitan counties. While 74 percent of the state's jobs are found in these counties, 81 percent of new jobs are being created there. Many more of the higher skill, higher paying jobs will follow the people and concentrate in the state's metropolitan counties. The key issue will be how the state can either help micropolitan and rural areas better link their people and workers to the job opportunities becoming available in the metropolitan areas or create more opportunities for good jobs in the micro and rural areas.

The state's industry trends also suggest that manufacturing, while it continues to remain important to the economy, will create fewer new jobs than other sectors. However, manufacturing is no monolith and certain segments will do quite well while others continue to struggle. For instance, projections suggest that certain furniture and wood products industries may actually grow during the next decade, driven by construction and other activities that are not part of the traditional commodity furniture industry that served for so long as a critical part of the state's economy. However, key traditional manufacturing industries, especially apparel and tobacco production will continue shedding workers in the future.

Many of the fastest growing industries are in education, health care, and professional and business services. These industries require, on average, much greater education and a different set of skills than the state's traditional economic base. The resulting shift away from manufacturing and towards services will give North Carolina an economy that more closely resembles the US economy. As a result, the state's workforce must more closely reflect the US workforce, with many more high school and college graduates as well as a stronger commitment to workplace learning.

The data clearly show that the returns to education can be quite significant. Occupations with the highest education requirements pay well above the state average. For instance, over a 30 year period the average earnings for a person with a bachelor's degree is an estimated $1 million greater than the average person with a high school degree plus experience. That said, roughly 60 percent of the state workforce can be found in occupations that require no postsecondary education and minimal on-the-job

training. These are the jobs that were traditionally the targets of the state's workforce development efforts, but they are also the jobs that are at greatest risk to globalization and technological change. Workers in these jobs frequently face barriers that prevent them from investing the time necessary to get the training that would allow workers to move into more skilled jobs. As the economy continues to transition, the training needs will be longer-term and the challenges for unprepared workers seeking to achieve the necessary skills will be exponentially greater.

Since jobs requiring an education pay more, those workers who dropped out of school to take jobs in the state's traditional manufacturing industries are at great risk of falling further behind in terms of earning potential. As a consequence, the chasm is widening between the unskilled worker and the state's wide array of available economic opportunities. This is causing North Carolina's workforce to become increasingly polarized. The traditional 'middle jobs' – those that require relatively lower skills but offer near-average wages – are being lost to economic transformation. Meanwhile, the dislocated 'middle-job' workers are left with few options but to drift toward lower-skilled, lower paying jobs because they are simply not prepared for the more demanding and better-paying jobs that constitute the 'new middle jobs.'

The result of that squeeze will be more labor contending for fewer jobs in the traditional middle at the lower end of the skills range, driving down those wages ever lower. As a consequence, North Carolina may be left with a growing number of underemployed or unemployed workers competing for low wage jobs. To find jobs with a family-sustaining wage, these workers must invest significant time and money into training and education to become competitive in the workplace again. As the needs for longer term education and training rise, the workforce system may simply not be ready to respond.

Other challenges to the workforce system can also be found in the demographic make-up of the population left at the lower end of the education spectrum. To achieve a competitive workforce advantage, North Carolina will need all of its talent, but the group that may be in the greatest need of education and training is the state's rapidly growing Hispanic workforce. Many newly arrived Hispanic North Carolinians use English as their second language, and the large majority of this cohort of migrants are young adult men of working age. One-half of the state's estimated 276,000 Hispanic adults do not have a high school diploma or equivalency. This in turn poses significant challenges for the state's community college and public workforce system. This group represents an important opportunity for filling the state's labor force shortages, especially for skilled and semi-skilled professions. However more than one-third of this group speaks limited English, so education and training responses must be adapted to respond to the needs of a very different linguistic and cultural group.

Despite the influx of a large group of undereducated migrants, the Census Bureau shows that the state continues to make significant progress on its educational attainment levels. Since 1990, the proportion of the population without a high school degree has declined from 30 percent to 18 percent in 2005. Meanwhile the proportion of the population with a bachelor's degree or higher has risen from 17 percent in 1990 to 25 percent in 2005. However, North Carolina remains about 2 percentage points below the national average in both educational attainment levels. The greatest advances during the past 15 years has been in improving educational attainment levels in the state's metro areas as well as in the Piedmont region. In these areas, high school and college completion rates are now the same or higher than the national average.

Yet again, the labor force in the state's micropolitan and rural areas continue their struggle to adapt. In these smaller communities, labor force participation is declining. Many former mill workers have given up on the labor market and have settled for lives that rely on temporary jobs, family support, or public assistance. Compared with participation rates in metropolitan areas, the workforce participation rate in rural counties is 12 percent less. Even when they do remain in the labor force, these workers are more likely to be underemployed when compared to the salaries and positions they held in their former careers. Others are taking advantage of the state's extensive community college network to create their own new opportunities in the knowledge-driven economy. In increasing numbers, these and other North Carolinians are also turning to entrepreneurship as a way to control their own economic future.

Certainly, among the older members of the baby-boom generation, dislocated workers are more likely to opt for early retirement rather than to adapt to a new world of work. With baby boomers now accounting for one third of North Carolina's working age adults, their impending retirement during the next 10 to 20 years will mean dramatic shifts in the labor market and the workplace. As employers assess the impacts of the impending baby boomer retirement, they must look to replace the most experienced segment of their workforce.

Employers are finding that the outlook for a robust workforce pipeline is not encouraging. An analysis of the talent shortage suggests that the state's workforce has about 12,000 fewer new workers entering the state's labor market each year than it needs. That shortage is concentrated at the upper and "new middle" ends of the workforce, where the total shortages may be as high as 34,000 new workers. Shortages among workers with technical skills in business and management as well as health care and education are most significant, but the shortages exist across much of the state's economic spectrum.

Overall, fewer new people are entering the workforce; consequently, employers must better utilize their existing labor force to fill the future gaps created by a retiring generation of experienced workers and the creation of new higher skill jobs. For example, many employers will need to improve productivity dramatically through technological change because they will never be able to find all the workers they currently need. This shortage may also create opportunities for historically underutilized labor pools in the state's rural, micropolitan, Mountain, and Coastal areas if the state develops a strategy aimed at linking those areas to the job opportunities available in its fast-growing metropolitan economies.

In order to prosper, employers must adapt to a changing workforce by recognizing diversity, adopting new technologies, offering flexible hours, and responding to a new workplace culture, reflecting the values of the next generation. North Carolina must also find a way to position its ever changing workforce to respond to the myriad challenges—and take full advantage of the new opportunities—arising from a rapidly changing global knowledge economy. **As North Carolina's economy continues to change and create many new well paying jobs, business and industry will continue demanding an increasingly educated, skilled and adaptable workforce.**

Appendices

Appendix 1: Summary of Existing Economic and Workforce Developments Studies and Plans

Appendix 2: 200 Fastest Growing Industries in North Carolina

Appendix 3: NC Selected Occupational Employment Projections

Appendix 1: Summary of Existing Economic and Workforce Developments Studies and Plans

Economic and workforce development leaders have conducted many studies, each offering its own insight on a *part* of North Carolina's economy and workforce. Although a number of these studies are specific to certain counties, the most useful studies for the state Workforce Commission's purposes are those that tend to be more regional in scope. For instance, North Carolina's seven economic development partnerships recently completed regional vision plans. These plans highlight not only each region's identified targeted industry clusters, but also the workforce and education and training strategies that the respective regions seek to enact. In addition, a number of workforce studies have been commissioned throughout the state, each with their own recommendations and strategies for improving their respective region's workforce.

This appendix integrates the findings from the myriad of economic development and workforce studies to provide important context for our analytical efforts. As a result, we have identified common themes related to workforce development and education and training that run through many of these studies. This section discusses the target industries and strategies found within the regional vision plans as well as highlights the key themes found in many of the state's workforce studies.

Regional Vision Plans

North Carolina's regional economic development partnerships were created in the early-to-mid 1990s as a mechanism for developing customized responses to the challenges facing seven different regions throughout the state. Following the success of the visioning process that took place in the Research Triangle Partnership region in 2002-03, the North Carolina General Assembly passed House Bill 1414 in 2004 authorizing all of the regional partnerships to conduct regional economic vision plans. As part of the visioning process, each partnership used a cluster study to analyze its economy. These analyses led to the identification of targeted industry clusters for the regions to grow and develop. The last of the plans was completed by the Charlotte Partnership and North Carolina's Eastern Region Partnership in spring 2006.

Even before the vision plans were developed, the North Carolina Department of Commerce had selected specific clusters for focusing their investments, but these cluster targets were not widely publicized or formalized. The state is currently working to prepare a more formal set of targeted industry clusters. The regional vision plans are expected to serve as important building blocks for creating this list. The North Carolina Department of Commerce, with assistance from the Office of Economic Development at the University of North Carolina at Chapel Hill, plans to integrate those partnership strategies into a cohesive statewide plan in 2007.

At the time of this study, however, no formal statewide set of industry targets is widely accepted. As a result, the consulting team examined each vision plan and its associated cluster study in an attempt to provide a list of industry clusters currently being targeted throughout the state. Since each of the cluster studies were performed by different authors using different methodologies, they are not perfectly comparable. Even so, the identified clusters in one region are sometimes overlapping or similar to clusters identified by other regions. The project team reviewed each of the clusters carefully and, in some cases, contacted the regional partnerships to determine how they interpreted their identified clusters.

Appendix Figure 1 represents an attempt to square the circle by providing a brief summary comparing the key industry clusters that each regional partnership identified.

A number of the targeted clusters are common throughout the state. For instance, recreation and tourism are targeted clusters for six of the seven partnerships. Five of the regions identify healthcare as an important cluster. Distribution and logistics is another cluster targeted by a majority of the partnerships. Although mature manufacturing industries like textiles and furniture are shedding jobs, manufacturing remains an important target in many regions. Frequently, however, the manufacturing clusters, such as pharmaceuticals or food processing, are either higher value-added or relatively higher growth economic activities.

A number of the partnerships identified targets that are unique to their region. For instance, the Charlotte Regional Partnerships targeted motor sports R&D to take advantage of its central role in support of NASCAR auto racing. Two of the state's Coastal region partnerships are focused on the marine trades and boat building as a key to their future economic success. These clusters represent targets not only for economic development recruitment and retention efforts, but they should also serve as targets for the organizations and institutions involved in workforce development, education and training.

Vision Plan Strategies for Workforce, Education and Training

Appendix Figure 1:

Industry Cluster Targets by Regional Partnership

Identified Cluster Target	Advantage West	Charlotte Partnership	Piedmont Triad	Research Triangle	NC's Northeast Region	NC's Eastern Region	NC's Southeast Region
Advanced MFG	X	X		X		X	
Arts	X	X	X				
Aviation						X	
Commercial Machinery		X					
Construction Materials		X				X	X
Environmental Tech. & Services	X						
Financial Services		X	X				
Food Processing & Packaging	X		X			X	
Healthcare	X	X	X	X	X		
High Value-Added Agriculture	X				X	X	
Information Technology	X	X		X			
Life Sciences R&D		X		X			
Logistics & Distribution			X	X		X	X
Marine Trades					X	X	
Military Support & Spin-offs						X	X
Motorsports R&D		X					
Pharmaceuticals (Biotech)			X	X		X	
Plastics		X	X				
Recreation & Tourism	X	X	X		X	X	X
Retiree Attraction	X					X	
Security	X						
Transportation Equipment		X	X	X			X
Value-added Textiles		X	X				X
Wood Products & Furniture			X		X		

Source: Partnership Vision Plans

Even though each vision plan included a cluster analysis, not every vision plan included an agreed upon set of actions for improving their respective region's economic performance. Five plans did offer a clear set of strategies and actions for the regions to pursue. A full summary of the objectives and recommended actions addressing the role of education and workforce development in each region's

economic development strategy can be found in Appendix Figure 2. Several common themes are repeated throughout each of the regional vision plans.

Appendix Figure 2:

Integrating the Elements of Education and Workforce Development with Economic Development Strategies in North Carolina's Regional Vision Plans

Region	Goals or Objectives	Recommended Actions Related to Workforce Improvement
Advantage West	Grow and support several "clusters of innovation" in regional niches with education, infrastructure, services, and technology transfer	➢ Develop education curricula to support the region's clusters of innovation ➢ Attract and retain star faculty to lead innovation within clusters
	Change the culture of educational institutions (K-12, community colleges, and universities) and the expectations and skills of workers to meet the needs of growing companies in clusters of innovation.	➢ Work with state-level education boards to set policy that helps the economic competitiveness of Advantage West and other N.C. regions ➢ Work with the N.C. General Assembly to increase the budget flexibility for community colleges and public universities to assist them in achieving economic development goals. ➢ Change the culture within the region's educational institutions. ➢ Conduct ongoing public relations campaign to inform the expectations and skills development of workers and students.
Piedmont Triad	Improve student performance and instill confidence in the K-12 education system.	➢ Create a Regional Education Council that includes parents, teachers, administrators, workforce development providers, and business leaders from all counties in the region. ➢ Develop a teacher recruitment and retention program that includes rewards for improved academic performance. ➢ Increase parental involvement in student learning and parent-teacher interactions. ➢ Pool resources to fund innovative ways to prevent dropouts and increase graduation rates. ➢ Work with high schools and community colleges to develop progressive curricula that provide options for workforce preparedness (vocational preparation) and a smooth transition from high schools to community college programs. ➢ Increase efforts to elevate the performance of students who are recent immigrants. ➢ Expand the reach of pre-K programs, particularly to low-income and minority households.
	Work to increase educational attainment in the region, particularly for minorities, rural areas, and those under age 30.	➢ Initiate a Value of Education marketing effort to increase understanding about the need for higher levels of education attainment. ➢ Expand the reach and depth of career exploration and awareness programs. ➢ Create an incentive program for GED completion, and consider additional incentives to continue education beyond the GED. ➢ Ensure that higher education programs are aligned with the skills and knowledge that businesses need. ➢ Implement best-practice literacy programs. ➢ Increase online educational offerings to provide continuing education options for those who work or cannot attend classes in person. ➢ Establish support among businesses, community colleges, and universities region-wide for legislative change to allow undocumented residents to earn degrees and take classes at in-state tuition rates. ➢ Coordinate the training and workforce preparation efforts of community colleges, workforce development providers, and other non-profit service providers. ➢ Strengthen the relationships between the region's K-12 schools and the colleges and universities.

Appendix Figure 2:

Integrating the Elements of Education and Workforce Development with Economic Development Strategies in North Carolina's Regional Vision Plans

Region	Goals or Objectives	Recommended Actions Related to Workforce Improvement
	Provide the education, training, and job search support needed for older, displaced factory workers to achieve self-sufficiency through the remainder of their working years.	➢ Expand Guilford Technical Community College's Quick Jobs program to other counties in the region. ➢ Ensure that community colleges across the region are working more with companies that have announced mass layoffs. ➢ Establish support groups for displaced workers to convene and discuss their job search efforts. ➢ Be proactive about training and educating factory workers even before layoffs occur.
	Continue to develop and maximize the region's research capacity of its colleges and universities, and seek opportunities for collaborative efforts.	➢ Continue to apply for grants and research funding. ➢ Consider the formation of a Regional Research and Development Council, led by business in cooperation with universities and economic developers. ➢ Hire a business representative who acts as a liaison between universities and businesses interested in the universities' resources. ➢ Elevate awareness of the capacity of technology transfer offices.
	Develop and enhance education and training programs and strengthen the connections between businesses and higher education institutions to prepare the workforce for jobs in the target cluster areas.	➢ For each cluster, designate a few workforce development professionals to become cluster experts. ➢ Create industry training consortiums for each business cluster. ➢ Expand existing programs and develop new training and education programs to prepare the workforce in the target cluster areas.
Eastern	Develop a regional education policy and targets for increased educational attainment and a culture of learning	➢ Create a permanent Regional Education Forum with a long-term agenda to define challenges and promote education solutions. ➢ Organize 2006 baseline data on educational attainment for the region and by county that includes establishing metrics with mid-term and long-term improvement targets. ➢ Develop a professional communications program to "sell" the value of education, learning, and skills to families. ➢ Work with school systems, and the state Board of Education, to identify best practices and expand/implement promising new alternatives for improving math/science education and outcomes. ➢ Expand student mentoring programs, for adult and youth, to tap existing talent (especially in math and sciences), among retirees, military, and business community.
Eastern	Expand the existing base of "special-focus" education and training opportunities for adults consistent with regional industry clusters.	➢ Inventory and evaluate the region's information about existing adult education and training programs that support technical and high-skill occupations and industries related to the region's targeted clusters. ➢ Implement new programs to fill identified gaps in special-focus education/training (for targeted clusters), with leadership from East Carolina University's engineering program and related community college programs. ➢ Develop an aggressive regional cross-institutional recruitment program to increase participation in special-focus training programs for targeted clusters. ➢ Identify approaches, including apprenticeships, to encourage adults to move into skilled trades using apprenticeships.
Charlotte	To promote strong working relationships between regional manufacturing and technical services firms and the local colleges and universities	➢ Promote university programs, community college curricula and North Carolina Research Campus in support of the life sciences.

Appendix Figure 2:

Integrating the Elements of Education and Workforce Development with Economic Development Strategies in North Carolina's Regional Vision Plans

Region	Goals or Objectives	Recommended Actions Related to Workforce Improvement
	To support the existence of a regional entrepreneurs group that focuses on helping start-up and research and development-oriented companies move towards production	➢ Support Business Innovation & Growth (BIG) Council, BizHub and other regional efforts that focus upon entrepreneurs. ➢ Assist local universities and colleges to promote commercialization of technologies.
Research Triangle	Organize economic development strategies around industry clusters where the Research Triangle Region has a demonstrated or emerging competitive advantage.	➢ Develop community college strategy to support clusters. ➢ Develop a regional workforce coordination strategy to anticipate and support the changing needs of business.
	Integrate the region's higher education resources into all economic development efforts.	➢ Develop economic development portals and single points of contact for each institution of higher education. ➢ Develop higher education rapid - response teams for each targeted cluster. ➢ Develop demand-driven specialized cluster programs, expertise and services to be housed at the region's community colleges. ➢ Connect industry leaders with the higher education community to develop strategies for maintaining the region's national leadership in industry training and support.
	Develop creative, inclusive approaches to improve rural prosperity.	➢ Develop a training program for professionals in the economic development field (broadly defined) to provide continuing education on New Economy developments and new techniques to improve competitiveness.

Prepared by Center for Regional Economic Competitiveness, 2006

At the most basic level, the regional partnerships recognize that they must help improve the culture of education throughout the state. This involves helping citizens recognize the essential nature of education and lifelong learning. However, most of the strategies recognize that economic success will also involve moving greater proportions of their population into education and training programs. Previous generations chose to leave school early because they could go to work on the tobacco farms or the textile and furniture mills where they could earn a relatively decent living. But, these options are no longer available to the new generation of workers. Certainly, not everyone can (or should) become a doctor, lawyer or computer programmer, but employers are telling us that the emerging knowledge economy requires most workers to possess a basic set of math, English, IT and problem-solving skills. Today, these skills are needed for those working in factories, warehouses or retail as well as those working in office jobs or in technical careers. As a state, North Carolina must realize that every job—in some way, shape or form—is (or will become) a knowledge-driven job.

The vision plans also make clear that the entire workforce training and education system must become more demand driven. Neither the workforce nor education systems can succeed by preparing people for jobs that no longer exist or will be lost in the near future. These organizations must generate greater participation from the private sector to begin correcting the imbalances between supply and demand to meet the state's skills needs more effectively. The education and training system must also

become more nimble to provide people with the necessary skills to fill jobs that exist now, rather than two years from now. For the state and the respective regions to successfully grow and develop their targeted industry clusters, workforce and training efforts must also coordinate their efforts with economic development organizations. As a result, most vision plans indicate a need to greater align their region's education and training resources with the workforce and skill needs of their targeted industry clusters.

Another major current running through the regional vision plans is the need to strengthen and continue building North Carolina's entrepreneurial culture. While considerable energy and resources goes into industry recruitment, there is growing recognition that the state and its regions must grow its own businesses. Particularly for the state's more rural areas, employment growth and opportunities are more likely to come from a lot of five-person companies becoming ten-person companies than from local economic developers attracting a single large auto assembly plant. This involves not only providing financial and technical support for entrepreneurs, but also introducing entrepreneurialism into training and education curriculum at all levels—from the middle schools all the way through continuing education programs.

Selected Workforce Development Strategies Already in Place

During the past five years, several organizations have conducted studies separate from the regional economic development vision plans designed to look at the state of the state's workforce. A few of these projects have been statewide in nature, but most have focused on the needs of small areas, individual counties, workforce regions, or other multi-county areas. The North Carolina Justice Center and the Economic Policy Institute prepared a 2004 study, *The State of Working North Carolina*. The report noted that labor force growth and participation rates were both declining as workers stopped looking for work. The workers who could find jobs were settling for inferior jobs to the ones lost. The group cited the growing disparity in wages among different groups and the growing income gap that was creating "two North Carolinas." The group noted that the fastest growing parts of the labor force – new Hispanic workers, lower educated dislocated workers – were not prepared for future work. The authors noted that North Carolina is headed toward a potential crisis as companies demand higher skills for knowledge-based jobs, today's workers will not be ready.

Another statewide study of the workforce focused on the state's nursing shortage. The 2004 North Carolina Nursing Task Force consisted of a number of groups participating with the North Carolina Institute of Medicine, including the North Carolina Nurses' Association, North Carolina Center for Nursing, North Carolina Board of Nursing, North Carolina Area Health Education Centers Program, and the North Carolina Hospital Association. The task force determined that the state overall does not currently have an "extreme shortage" of nurses, but there are shortages in certain areas such as long-term care, certain rural communities, and nursing faculty. The group noted that the current NC nursing workforce situation could deteriorate, however, without concerted action to address an upcoming shortage caused by the aging of the nursing workforce, the declining growth rate in new Registered Nurses in NC, and the state's increasing reliance on attracting RNs educated outside the state. The group recommended increasing the capacity of nursing programs at the post-secondary level and attracting funding to support these education and training programs.

These two studies provide examples of the kinds of analysis done to date at the state level. Many of the economic development vision plans, highlighted earlier, identify and recommend workforce

development strategies to prepare the regions. In addition, a number of regional and local workforce organizations, especially the workforce boards, identified their own sets of challenges and strategies aimed at preparing the regional workforces for the global knowledge economy. The following section summarizes key aspects of those studies.

Workforce Strategies in the Mountain Region

In the Mountains region, the Appalachian Regional Commission published the most recent study in 2005, "Emerging Patterns of Population Redistribution and Migration in Appalachia," completed by researchers at Ohio State University. The study highlights the challenges facing the entire Appalachian region from an aging workforce and the continued out-migration of young adults. The study also identifies disparities throughout Appalachia with urban centers, such as Asheville, doing relatively well while the more isolated rural areas continue to lag the rest of the nation substantially.

Asheville, the largest economic engine of the Mountain region, developed a strategic economic development plan in 2003 that identified the need for building on the region's quality technical education and training programs. Regional leaders expressed concerns about labor productivity and the work ethic of its emerging labor force. Leaders also noted that they lacked the graduates and university research in science and engineering disciplines that the area would need for success.

In 2002, twelve counties in the Mountains and Foothills (including the Hickory, Statesville, and Lincolnton areas spanning the Advantage West and Charlotte Partnership region) came together to develop a strategic economic plan. The Future Forward strategy identified a broad array of issues related to the challenges facing dislocated workers and in finding new companies to replace those jobs. The strategy's workforce development efforts focused on improving the information exchange among jobseekers and employers, increasing access to two- and four-year educational programs in the region, and increasing public awareness about the importance of post-secondary education for economic success. Project leaders recently helped to raise about $1.5 million to fund and renovate a four-year degree granting engineering center. In addition, Future Forward leaders have worked to attract four-year programs in allied health, teacher education, and the liberal arts.

As early as 2001, Advantage West conducted a labor study and workforce development plan. The study noted that the region did not have a comprehensive workforce development system that could meet the needs of current and future workers. With the manufacturing downturn and an aging workforce, the plan suggested that the region needed to enhance the skills of its workforce and it needed a combined workforce and economic development strategy. That combined strategy was later realized with the completion of the Advantage West vision plan in 2003.

Workforce Strategies in the Piedmont Region

The Piedmont region has been replete with numerous workforce and economic development strategies developed to address the fundamental challenges facing the region. Among these strategies include comprehensive economic development efforts, such as the one completed in 2005 by the Northwest North Carolina Comprehensive Economic Development Strategy (CEDS). The Northwest NC CEDS, covering the Winston-Salem metro area and counties northwest, identified several challenges including the region's low attainment level and poor alignment of workforce skills with job opportunities. The strategy calls for improving access to the workforce and education system to help those hit hardest

by economic transformation. Reflecting the challenges facing many micropolitan and rural areas, the Northwest Piedmont workforce board also completed a state of the workforce report that highlighted the region's increased diversity, its aging workforce, its increasing poverty, and the region's growth in low-wage jobs that do not require an education.

The story for Charlotte was very different. The Centralina Workforce Development Board, serving the counties surrounding Mecklenburg, created their own State of the Workforce Report in 2003. The Charlotte economy is unique in North Carolina in that it is growing faster than the state and nation. The region seeks to develop more entrepreneurial strategies and become a leader in developing sector-specific strategies.

The Durham Strategic Workforce Development Plan, completed in May 2005, tells the story of two North Carolinas in one county. The strategy notes that employers are having a difficult time finding workers to fill high skill jobs while many jobseekers are facing barriers to employment caused by poverty. The Research Triangle Park, located in Durham County, saw substantial downsizing during the first part of the decade and many well educated workers lost their jobs, but the public workforce system was simply unable to respond. Today, the Park and surrounding areas are adding jobs very rapidly, but Durham's workforce system has not yet determined how best to adapt to a job market that requires high skill workers and relies more on technology to recruit workers. Fragmentation among service providers inhibits information sharing and slows the system's ability to respond to employer needs.

Workforce Strategies in the Coastal Region

Studies in the Coastal region have found that population and labor force growth have lagged the rest of the state and the nation. In the Economic and Demographic Profile of North Carolina's Eastern Region, completed in December 2003, study authors note a large increase in the age of Coastal residents. The study also noted that some counties in the region were experiencing negative population growth, despite the overall rapid population increases that the state is experiencing. While unemployment rates are dropping, labor force participation rates are declining in the region as well. The low educational attainment levels are creating further barriers to employment. Increasingly, the region is coming to rely on healthcare, services, and the military for jobs.

The State of the Workforce report, completed in 2006, for Eastern Carolina's Workforce Development Board found large growth in the region's Hispanic population and an aging workforce. In responding to the challenges, the report calls for increases in entrepreneurship and building on the cluster-based industry strategy developed as part of the Eastern Regional Partnership's vision plan.

In closing this section, the discussion of workforce and economic development studies is in no way meant to provide a complete inventory. Instead, the review is simply designed to provide a sample of the kinds of research that is being done and the findings from those studies. It is instructive to learn that this report's demand and supply analysis validate many of the findings about the workforce supply included in the various studies already prepared. Furthermore, the demand analysis done for this study provides additional detail about the job opportunities available to training and education participants.

Appendix 2: 200 Fastest Growing Industries in North Carolina

	Sector	Industry Name	Emp 2007	ΔEmp 07-17	Avg Earnings 2007
Exporting Industries	Professional & Business Services	Temporary Help Services	130,831	63,589	$22,964
	Other Services	Religious Organizations	107,698	20,649	$18,627
	Education & Health Services	Community Care Facilities for the Elderly	29,532	14,600	$22,815
	Transportation & Utilities	General Freight Trucking, Long-Distance	44,486	10,443	$39,648
	Professional & Business Services	Management of Companies and Enterprises	68,988	7,820	$80,047
	Leisure & Hospitality	Golf Courses and Country Clubs	27,408	7,757	$14,140
	Construction	Plumbing, Heating, and Air-Conditioning Contractors	55,018	6,828	$39,257
	Construction	Single Family Housing Construction	44,567	6,084	$36,797
	Professional & Business Services	Landscaping Services	24,589	5,489	$18,087
	Finance, Insurance & Real Estate	Commercial Banking	84,836	5,386	$54,363
	Manufacturing	Animal Slaughtering and Processing	30,928	4,539	$35,804
	Manufacturing	Household and Institutional Furniture Manufacturing	54,712	4,431	$36,156
	Wholesale & Retail Trade	Gasoline Stations with Convenience Stores	32,122	3,633	$25,797
	Education & Health Services	Medical and Diagnostic Laboratories	8,286	3,371	$45,256
	Transportation & Utilities	Specialized Freight (except Used Goods) Trucking, Local	12,263	2,893	$35,310
	Manufacturing	Pharmaceutical and Medicine Manufacturing	14,869	2,812	$104,102
	Leisure & Hospitality	Spectator Sports	9,829	2,248	$74,812
	Construction	Highway and Street Construction	18,255	2,232	$39,723
	Wholesale & Retail Trade	Home Centers	18,492	2,164	$27,411
	Construction	Masonry and Stone Contractors	15,959	2,009	$35,951
	Wholesale & Retail Trade	All Other General Merchandise Stores	15,148	1,733	$25,924
	Wholesale & Retail Trade	Furniture Stores	14,528	1,642	$27,359
	Wholesale & Retail Trade	Industrial Machinery and Equipment Wholesalers	14,776	1,632	$59,854
	Construction	Water, Sewer, and Pipeline Construction	11,491	1,434	$37,034
	Finance, Insurance & Real Estate	Consumer Electronics and Appliances Rental	4,262	1,371	$16,389
	Manufacturing	Veneer, Plywood, and Engineered Wood Product Manufacturing	8,372	1,333	$45,446
	Professional & Business Services	Exterminating and Pest Control Services	5,809	1,293	$17,265
	Wholesale & Retail Trade	Other Grocery and Related Products Wholesalers	11,887	1,273	$55,475
	Education & Health Services	Psychiatric and Substance Abuse Hospitals	9,772	1,265	$47,071
	Manufacturing	Millwork	6,547	1,189	$39,941
	Construction	Excavation Contractors	9,347	1,181	$35,742
	Construction	Land Subdivision and Land Development	7,313	1,059	$34,694

Appendix 2: 200 Fastest Growing Industries in North Carolina

	Sector	Industry Name	Emp 2007	ΔEmp 07-17	Avg Earnings 2007
	Manufacturing	All Other Wood Product Manufacturing	5,971	971	$40,636
	Construction	Power and Communication Transmission Line Construction	8,205	928	$40,801
	Information	Libraries and Archives	1,944	882	$69,786
	Wholesale & Retail Trade	Tire Dealers	8,045	870	$26,680
	Manufacturing	Unsupported Plastics Film, Sheet, and Bag Manufacturing	4,904	803	$56,525
	Other Services	Funeral Homes and Funeral Services	8,488	760	$28,596
	Finance, Insurance & Real Estate	Truck, Utility Trailer, and RV (Recreational Vehicle) Rental and Leasing	7,133	750	$24,171
	Manufacturing	Ready-Mix Concrete Manufacturing	4,299	745	$60,459
	Other Services	Dry cleaning and Laundry Services (except Coin-Operated)	13,172	704	$21,287
	Wholesale & Retail Trade	Used Car Dealers	5,437	604	$26,568
	Wholesale & Retail Trade	Fuel Dealers	5,687	602	$24,918
	Manufacturing	Urethane and Other Foam Product (except Polystyrene) Manufacturing	4,153	583	$51,422
	Transportation & Utilities	Other Support Activities for Air Transportation	4,349	578	$46,793
	Manufacturing	Pump and Compressor Manufacturing	3,282	563	$68,751
	Wholesale & Retail Trade	Other Chemical and Allied Products Wholesalers	4,835	551	$61,144
	Subtotal	**Exporting Industries—Top 200**	1,042,826	206,273	$37,427
		Exporting Industries—All	1,566,468	160,291	$43,029
Locally-Serving Industries	Government	state and Local Government, NEC	336,792	35,388	$44,327
	Professional & Business Services	Computer Systems Design and Related Services	46,450	23,531	$65,033
	Government	state and Local Government, Education	229,249	23,284	$44,379
	Education & Health Services	Offices of Physicians	64,520	21,808	$70,086
	Leisure & Hospitality	Full-Service Restaurants	136,476	19,226	$15,373
	Education & Health Services	General Medical and Surgical Hospitals	135,009	18,063	$47,298
	Leisure & Hospitality	Limited-Service Eating Places	126,770	17,096	$14,928
	Professional & Business Services	Management Consulting Services	25,240	12,779	$62,929
	Education & Health Services	Child Day Care Services	33,813	12,736	$17,522
	Education & Health Services	Nursing Care Facilities	51,375	12,208	$25,995
	Education & Health Services	Home Healthcare Services	29,464	11,801	$32,433
	Wholesale & Retail Trade	Supermarkets and Other Grocery (except Convenience) Stores	94,035	10,762	$26,628
	Education & Health Services	Colleges, Universities, and Professional Schools	35,932	9,391	$39,108
	Professional & Business Services	Accounting, Tax Preparation, Bookkeeping, and Payroll Services	39,685	8,794	$33,275
	Wholesale & Retail Trade	Department Stores	71,552	8,015	$27,008
	Professional & Business Services	Janitorial Services	36,346	7,674	$19,278

Appendix 2: 200 Fastest Growing Industries in North Carolina

Sector	Industry Name	Emp 2007	ΔEmp 07-17	Avg Earnings 2007
Education & Health Services	Offices of Dentists	20,758	7,011	$69,969
Professional & Business Services	Offices of Lawyers	36,772	6,625	$56,496
Finance, Insurance & Real Estate	Video Tape and Disc Rental	20,071	6,620	$13,828
Professional & Business Services	Employment Placement Agencies	13,491	6,519	$21,907
Leisure & Hospitality	Fitness and Recreational Sports Centers	22,746	6,195	$14,343
Leisure & Hospitality	Hotels (except Casino Hotels) and Motels	40,369	5,894	$22,917
Education & Health Services	Elementary and Secondary Schools	21,462	5,740	$27,088
Government	Federal Government, Non-Defense	49,250	5,658	$77,391
Information	Software Publishers	8,615	5,618	$97,706
Construction	Electrical Contractors	44,912	5,256	$38,050
Wholesale & Retail Trade	New Car Dealers	40,765	4,714	$27,359
Professional & Business Services	Investigation, Guard, and Armored Car Services	19,078	4,681	$23,401
Construction	Comm & Institutional Bldg Construction	36,541	4,566	$40,674
Transportation & Utilities	Couriers	15,736	4,177	$44,455
Finance, Insurance & Real Estate	Offices of Real Estate Agents and Brokers	34,075	4,098	$25,036
Professional & Business Services	Office Administrative Services	15,101	4,049	$50,095
Education & Health Services	Other Individual and Family Services	8,747	3,824	$26,426
Finance, Insurance & Real Estate	Real Estate Property Managers	32,911	3,685	$29,303
Other Services	Hair, Nail, and Skin Care Services	14,424	3,528	$20,208
Government	state and Local Government, Hospitals	34,395	3,427	$44,884
Professional & Business Services	All Other Support Services	13,388	3,343	$23,608
Other Services	Automotive Mechanical and Electrical Repair and Maintenance	22,031	3,055	$28,789
Finance, Insurance & Real Estate	Other Nondepository Credit Intermediation	18,978	2,939	$56,819
Professional & Business Services	Research and Development in the Physical, Engineering, and Life Sciences	14,592	2,903	$56,956
Education & Health Services	Residential Mental Retardation Facilities	12,152	2,779	$25,238
Wholesale & Retail Trade	Pharmacies and Drug Stores	24,793	2,762	$26,617
Professional & Business Services	Veterinary Services	15,242	2,728	$34,464
Wholesale & Retail Trade	Other Building Material Dealers	22,321	2,690	$27,326
Other Services	Civic and Social Organizations	16,072	2,596	$25,176
Manufacturing	Other Plastics Product Manufacturing	15,191	2,543	$51,008
Finance, Insurance & Real Estate	Construction, Transportation, Mining, and Forestry Machinery	6,533	2,401	$33,008
Transportation & Utilities	Scheduled Air Transportation	17,927	2,298	$64,339

Appendix 2: 200 Fastest Growing Industries in North Carolina

Sector	Industry Name	Emp 2007	ΔEmp 07-17	Avg Earnings 2007
Finance, Insurance & Real Estate	Insurance Agencies and Brokerages	17,804	2,220	$46,295
Education & Health Services	Other Residential Care Facilities	4,377	2,141	$23,243
Leisure & Hospitality	All Other Amusement and Recreation Industries	7,072	2,049	$14,483
Information	Other Information Services	4,778	2,025	$66,814
Finance, Insurance & Real Estate	Other Consumer Goods Rental	6,180	2,021	$15,599
Professional & Business Services	Other Scientific and Technical Consulting Services	3,673	1,942	$65,800
Wholesale & Retail Trade	Family Clothing Stores	16,054	1,892	$27,078
Other Services	Commercial and Industrial Machinery and Equipment (except Automotive and Electronic) Repair and Maintenance	11,721	1,868	$37,894
Finance, Insurance & Real Estate	General Rental Centers	5,749	1,852	$14,545
Transportation & Utilities	Postal Service	13,746	1,850	$77,391
Transportation & Utilities	Specialized Freight (except Used Goods) Trucking, Long-Distance	7,617	1,756	$37,772
Information	Cable and Other Program Distribution	5,499	1,729	$48,928
Other Services	Other Automotive Repair and Maintenance	12,075	1,702	$29,126
Construction	Drywall, Plastering, Acoustical, and Insulation Contractors	12,919	1,697	$42,364
Education & Health Services	Child and Youth Services	4,049	1,677	$26,451
Finance, Insurance & Real Estate	Lessors of Residential Buildings and Dwellings	16,189	1,652	$24,722
Finance, Insurance & Real Estate	Lessors of Nonresidential Buildings (except Miniwarehouses)	15,673	1,619	$27,944
Other Services	Automotive Body, Paint, Interior, and Glass Repair	11,464	1,579	$29,012
Construction	Concrete Contractors	12,172	1,579	$37,656
Transportation & Utilities	Used Household and Office Goods Moving	6,600	1,555	$36,777
Finance, Insurance & Real Estate	Passenger Car Rental and Leasing	10,528	1,512	$23,877
Wholesale & Retail Trade	Automotive Parts and Accessories Stores	13,296	1,499	$26,668
Construction	Roofing, Siding, and Sheet Metal Contractors	12,130	1,444	$37,246
Professional & Business Services	Waste Collection	5,890	1,421	$31,853
Transportation & Utilities	General Freight Trucking, Local	6,474	1,411	$35,900
Education & Health Services	Offices of Physical, Occupational and Speech Therapists, and Audiologists	4,088	1,402	$71,261
Construction	Painting and Wall Covering Contractors	11,218	1,392	$37,222
Leisure & Hospitality	Food Service Contractors	9,760	1,369	$15,896
Professional & Business Services	Environmental Consulting Services	2,648	1,359	$62,074
Education & Health Services	Offices of Optometrists	3,988	1,346	$66,543
Other Services	Business Associations	7,419	1,327	$30,733

Appendix 2: 200 Fastest Growing Industries in North Carolina

Sector	Industry Name	Emp 2007	ΔEmp 07-17	Avg Earnings 2007
Wholesale & Retail Trade	Women's Clothing Stores	11,198	1,321	$27,459
Construction	All Other Heavy Construction	10,033	1,297	$38,848
Information	Motion Picture and Video Exhibition	4,614	1,251	$22,219
Construction	Carpentry Contractors	9,570	1,245	$37,164
Construction	All Other Special Trade Contractors	9,616	1,217	$39,273
Wholesale & Retail Trade	Appliance, Television, and Other Electronics Stores	10,211	1,187	$27,946
Wholesale & Retail Trade	Computer and Computer Peripheral Equipment and Software Wholesalers	10,397	1,183	$68,111
Other Services	Grantmaking and Giving Services	5,814	1,146	$21,070
Transportation & Utilities	General Warehousing and Storage	4,390	1,135	$38,679
Education & Health Services	All Other Schools and Instruction	4,165	1,127	$24,492
Manufacturing	Ornamental and Architectural Metal Products Manufacturing	6,290	1,122	$54,384
Professional & Business Services	Engineering Services	25,338	1,061	$57,548
Information	Wired Telecommunications Carriers	30,769	978	$64,520
Education & Health Services	Offices of Chiropractors	2,765	939	$68,844
Professional & Business Services	Security Systems Services	3,574	931	$24,490
Manufacturing	All Other General Purpose Machinery Manufacturing	5,675	931	$70,793
Wholesale & Retail Trade	Shoe Stores	7,864	929	$27,551
Wholesale & Retail Trade	Gift, Novelty, and Souvenir Stores	7,233	920	$27,130
Education & Health Services	Community Housing Services	2,014	885	$26,147
Manufacturing	Plate Work and Fabricated Structural Product Manufacturing	5,180	873	$61,319
Education & Health Services	All Other Ambulatory Healthcare Services	1,979	872	$41,006
Wholesale & Retail Trade	Other Home Furnishings Stores	6,821	866	$28,570
Professional & Business Services	Photographic Services	4,679	863	$38,176
Wholesale & Retail Trade	Sporting Goods Stores	6,618	837	$27,363
Leisure & Hospitality	Museums	4,527	808	$17,631
Transportation & Utilities	Freight Transportation Arrangement	5,012	798	$48,379
Other Services	Social Advocacy Organizations	3,832	794	$19,840
Professional & Business Services	All Other Professional, Scientific, and Technical Services	4,123	765	$38,375
Professional & Business Services	Advertising Agencies	4,398	764	$53,568
Professional & Business Services	Business Service Centers	2,791	748	$24,846
Wholesale & Retail Trade	Jewelry Stores	6,418	741	$27,055
Wholesale & Retail Trade	Other Gasoline Stations	6,763	739	$25,865
Other Services	Other Personal Care Services	3,096	714	$19,560
Wholesale & Retail Trade	Other Electronic Parts and Equipment Wholesalers	6,784	707	$65,920
Education & Health Services	Offices, All Other	1,976	671	$71,005

Appendix 2: 200 Fastest Growing Industries in North Carolina

	Sector	Industry Name	Emp 2007	ΔEmp 07-17	Avg Earnings 2007
	Education & Health Services	Junior Colleges	2,500	651	$25,645
	Manufacturing	Ventilation, Heating, Air-Conditioning, and Commercial Refrigeration Equipment Manufacturing	5,977	643	$50,293
	Wholesale & Retail Trade	Nursery and Garden Centers	5,779	638	$26,037
	Education & Health Services	Fine Arts Schools	2,412	636	$28,146
	Leisure & Hospitality	Skiing Facilities	2,210	631	$13,793
	Professional & Business Services	Interior Design Services	2,323	630	$42,301
	Education & Health Services	Specialty (except Psychiatric and Substance Abuse) Hospitals	5,259	612	$46,135
	Other Services	Photofinishing	2,788	610	$27,052
	Wholesale & Retail Trade	Book Stores and News Dealers	4,933	598	$28,252
	Professional & Business Services	Other Services Related to Advertising	3,038	587	$43,633
	Information	Newspaper Publishers	13,179	578	$42,617
	Professional & Business Services	Packaging and Labeling Services	2,268	563	$24,711
	Wholesale & Retail Trade	Hardware Stores	4,528	559	$25,651
	Wholesale & Retail Trade	Office Supplies and Stationery Stores	4,801	533	$27,858
	Construction	Manufacturing and Industrial Building Construction	4,667	533	$39,061
	Wholesale & Retail Trade	Electrical Apparatus and Equipment, Wiring Supplies, and Construction Material Wholesalers	5,672	529	$54,798
	Other Services	All Other Personal Services	2,539	527	$23,013
	Subtotal	**Locally Serving Industries—Top 200**	2,826,395	482,792	$37,887
		Locally Serving Industries—All	3,336,825	495,660	$38,077
Requires Import	Professional & Business Services	Employee Leasing Services	13,116	6,872	$27,351
Requires Import	Education & Health Services	Other Outpatient Care Centers	9,560	3,877	$36,691
Requires Import	Education & Health Services	Vocational Rehabilitation Services	6,911	3,025	$25,479
Requires Import	Information	Data Processing Services	6,373	2,695	$70,268
Requires Import	Education & Health Services	Services for the Elderly and Persons with Disabilities	4,683	1,911	$25,878
Requires Import	Finance, Insurance & Real Estate	Other Commercial and Industrial Machinery and Equipment Rental and Leasing	4,287	1,582	$32,617
Requires Import	Professional & Business Services	Telephone Call Centers	5,662	1,475	$20,797
Requires Import	Wholesale & Retail Trade	Warehouse Clubs and Superstores	10,937	1,339	$26,803
Requires Import	Finance, Insurance & Real Estate	Securities Brokerage	6,732	1,023	$101,095
Requires Import	Other Services	Other Similar Organizations (except Business, Professional, Labor, and Political Organizations)	4,699	869	$28,873
Requires Import	Leisure & Hospitality	Bowling Centers	3,074	801	$13,114
Requires Import	Education & Health Services	Outpatient Mental Health and Substance Abuse Centers	1,809	713	$33,367
Requires Import	Wholesale & Retail Trade	Electronic Shopping & Mail Order	5,932	655	$28,070

Appendix 2: 200 Fastest Growing Industries in North Carolina

Sector	Industry Name	Emp 2007	ΔEmp 07-17	Avg Earnings 2007
Education & Health Services	Ambulance Services	1,559	638	$31,201
Professional & Business Services	Graphic Design Services	2,183	615	$41,660
Leisure & Hospitality	Amusement and Theme Parks	2,041	614	$15,419
Education & Health Services	Technical and Trade Schools	2,167	589	$25,958
Leisure & Hospitality	Drinking Places (Alcoholic Beverages)	4,069	575	$15,466
Professional & Business Services	Collection Agencies	2,267	571	$23,712
Professional & Business Services	Facilities Support Services	2,369	568	$48,146
Education & Health Services	Residential Mental Health and Substance Abuse Facilities	2,208	545	$27,046
Manufacturing	Metalworking Machinery Manufacturing	3,480	544	$65,287
Subtotals	**Importing Industries—Top 200**	106,118	32,098	$36,127
	Importing Industries—All	249,118	42,296	$45,735
Total Employment By Industry		**Employment**	**ΔEmp 07-17**	**Average Earnings**
	Total 200 Industries	**3,975,339**	**721,163**	**$37,719**
	All Industries	**5,152,411**	**698,247**	**$39,953**

Source: Regional Dynamics

Appendix 3: NC Selected Occupational Employment Projections

Educ Bands	Occupation Description	Estimated NC Emp 2007	Estimated NC Avg Earnings 2007	% of Est. US Avg Earnings 2007	∆Emp 2007-2017	Annual Growth Rate Emp 2007-17
Advanced Degree	Lawyers	11,538	$111,223	82.0%	**2,389**	1.9%
	Clergy	9,923	$47,704	105.0%	**2,164**	2.0%
	Health Specialties Teachers, Postsecondary	7,346	$107,734	110.4%	**1,959**	2.4%
	Pharmacists	8,045	$104,149	102.4%	**1,711**	1.9%
	Biochemists and Biophysicists	8,168	$88,034	99.0%	**1,706**	1.9%
	Physicians and Surgeons, All Other	5,710	$139,159	87.1%	**1,472**	2.3%
	Rehabilitation Counselors	5,285	$34,681	97.4%	**1,422**	2.4%
	Vocational Education Teachers, Postsecondary	5,303	$48,174	91.0%	**1,414**	2.4%
	Librarians	8,555	$55,149	95.0%	**1,315**	1.4%
	Family and General Practitioners	4,949	$176,173	108.1%	**1,276**	2.3%
	Physical Therapists	3,803	$74,676	98.7%	**1,167**	2.7%
	Instructional Coordinators	4,344	$56,939	92.3%	**1,071**	2.2%
	Mental Health and Substance Abuse Social Workers	3,970	$44,392	105.8%	**1,046**	2.4%
	Market Research Analysts	5,191	$87,294	110.2%	**1,035**	1.8%
	Business Teachers, Postsecondary	3,002	$83,312	103.2%	**801**	2.4%
	Art, Drama, and Music Teachers, Postsecondary	2,460	$58,484	88.6%	**656**	2.4%
	English Language and Literature Teachers, Postsecondary	2,410	$57,876	90.0%	**643**	2.4%
	Educational, Vocational, and School Counselors	3,996	$48,094	87.1%	**642**	1.5%
	Education Teachers, Postsecondary	2,022	$62,322	97.1%	**539**	2.4%
	Clinical, Counseling, and School Psychologists	2,242	$64,338	88.2%	**539**	2.2%
	Environmental Scientists and Specialists, Including Health	3,662	$61,241	91.3%	**510**	1.3%
	Postsecondary Teachers, All Other	1,855	$56,565	69.3%	**495**	2.4%
	Veterinarians	3,306	$91,214	108.8%	**480**	1.4%
	Mathematical Science Teachers, Postsecondary	1,780	$64,944	92.8%	**475**	2.4%
	Computer Science Teachers, Postsecondary	1,742	$64,372	88.5%	**464**	2.4%
	Mental Health Counselors	1,525	$44,391	104.9%	**462**	2.7%
	Dentists, General	1,826	$195,690	128.0%	**447**	2.2%
	Nursing Instructors and Teachers, Postsecondary	1,671	$63,013	93.7%	**446**	2.4%
	Total of fastest growing occupations in "educational band"	**125,633**			**28,746**	
	Total all occupations in "educational band"	**160,572**			**36,560**	
4-year college degree	General and Operations Managers	81,537	$116,703	104.3%	**14,957**	1.7%
	Elementary School Teachers, Except Special Education	33,875	$43,506	81.3%	**6,458**	1.8%
	Business Operations Specialists, All Other	28,388	$66,396	95.9%	**6,121**	2.0%
	Accountants and Auditors	30,541	$64,875	93.7%	**6,028**	1.8%
	Computer Software Engineers, Applications	11,824	$100,823	101.9%	**5,383**	3.8%
	Computer Software Engineers, Systems Software	13,688	$109,807	105.0%	**5,140**	3.2%

Appendix 3: NC Selected Occupational Employment Projections

Educ Bands	Occupation Description	Estimated NC Emp 2007	Estimated NC Avg Earnings 2007	% of Est. US Avg Earnings 2007	∆Emp 2007-2017	Annual Growth Rate Emp 2007-17
	Computer Systems Analysts	15,762	$88,531	102.9%	**4,950**	2.8%
	Teachers and Instructors, All Other	24,243	$34,060	87.4%	**4,850**	1.8%
	Financial Managers	24,365	$105,334	89.8%	**3,879**	1.5%
	Network Systems and Data Communications Analysts	7,217	$80,525	100.5%	**3,545**	4.1%
	Sales Managers	16,940	$113,192	96.4%	**3,423**	1.9%
	Network and Computer Systems Administrators	8,656	$76,597	99.4%	**3,057**	3.1%
	Secondary School Teachers, Except Special and Vocational Education	18,785	$44,941	79.8%	**2,970**	1.5%
	Middle School Teachers, Except Special and Vocational Education	18,554	$44,249	80.8%	**2,847**	1.4%
	Computer and Information Systems Managers	10,883	$124,929	98.9%	**2,805**	2.3%
	Employment, Recruitment, and Placement Specialists	6,676	$59,583	101.6%	**2,369**	3.1%
	Construction Managers	13,603	$80,235	87.7%	**2,270**	1.6%
	Management Analysts	9,394	$94,372	104.1%	**2,203**	2.1%
	Child, Family, and School Social Workers	9,574	$43,043	96.6%	**2,090**	2.0%
	Recreation Workers	8,512	$25,592	101.2%	**1,832**	2.0%
	Computer Programmers	13,284	$87,479	103.4%	**1,779**	1.3%
	Medical and Health Services Managers	7,917	$83,819	93.9%	**1,774**	2.0%
	Physician Assistants	4,350	$86,252	105.2%	**1,725**	3.4%
	Training and Development Specialists	7,673	$55,952	96.3%	**1,534**	1.8%
	Marketing Managers	6,684	$115,746	92.3%	**1,372**	1.9%
	Medical and Clinical Laboratory Technologists	5,366	$53,755	94.0%	**1,257**	2.1%
	Financial Analysts	6,451	$81,191	83.4%	**1,216**	1.7%
	Special Education Teachers, Preschool, Kindergarten, and Elementary School	5,515	$44,297	81.9%	**1,213**	2.0%
	Public Relations Specialists	4,906	$54,925	88.8%	**1,070**	2.0%
	Property, Real Estate, and Community Association Managers	5,180	$75,141	128.3%	**1,060**	1.9%
	Loan Officers	10,633	$66,847	95.1%	**1,048**	0.9%
	Database Administrators	2,914	$80,461	99.4%	**1,040**	3.1%
	Education Administrators, Preschool and Child Care Center/Program	3,158	$46,891	95.0%	**1,034**	2.9%
	Administrative Services Managers	5,387	$77,378	93.5%	**1,025**	1.8%
	Kindergarten Teachers, Except Special Education	4,478	$42,925	82.9%	**1,011**	2.1%
	Adult Literacy, Remedial Education, and GED Teachers and Instructors	4,057	$40,376	79.9%	**998**	2.2%
	Industrial Engineers	6,564	$78,731	97.8%	**983**	1.4%
	Social and Community Service Managers	3,340	$60,318	96.5%	**920**	2.5%
	Graphic Designers	4,353	$45,607	85.2%	**911**	1.9%
	Medical and Public Health Social Workers	3,428	$45,398	92.4%	**886**	2.3%
	Civil Engineers	7,104	$76,503	94.3%	**855**	1.1%
	HR, Training, and Labor Relations Specialists, Other	2,311	$64,214	109.0%	**676**	2.6%

Appendix 3: NC Selected Occupational Employment Projections

Educ Bands	Occupation Description	Estimated NC Emp 2007	Estimated NC Avg Earnings 2007	% of Est. US Avg Earnings 2007	∆Emp 2007-2017	Annual Growth Rate Emp 2007-17
	Chief Executives	3,709	$189,818	116.0%	**651**	1.6%
	Directors, Religious Activities and Education	2,431	$48,948	124.7%	**645**	2.4%
	Occupational Therapists	2,164	$68,180	100.3%	**636**	2.6%
	Engineering Managers	6,187	$116,681	93.0%	**627**	1.0%
	Education, Training, and Library Workers, All Other	2,275	$44,554	114.6%	**623**	2.5%
	Education Administrators, Elementary and Secondary School	5,109	$72,857	83.3%	**620**	1.2%
	Financial Specialists, All Other	4,711	$71,119	103.8%	**614**	1.2%
	Probation Officers and Correctional Treatment Specialists	4,549	$37,792	77.3%	**607**	1.3%
	Education Administrators, Postsecondary	3,160	$80,428	90.2%	**602**	1.8%
	Personal Financial Advisors	2,902	$83,590	68.1%	**602**	1.9%
	Community and Social Service Specialists, All Other	1,988	$41,402	103.3%	**583**	2.6%
	Environmental Engineers	2,705	$83,399	101.0%	**576**	1.9%
	Insurance Sales Agents	6,547	$59,292	87.4%	**569**	0.8%
	Mechanical Engineers	4,665	$79,494	96.5%	**554**	1.1%
	Compensation, Benefits, and Job Analysis Specialists	2,402	$61,265	97.9%	**548**	2.1%
	Special Education Teachers, Middle School	2,751	$44,146	76.2%	**522**	1.8%
	Securities, Commodities, and Financial Services Sales Agents	2,790	$98,809	81.4%	**501**	1.7%
	Compensation and Benefits Managers	1,970	$87,403	95.0%	**465**	2.1%
	Vocational Education Teachers, Secondary School	3,926	$49,269	88.3%	**460**	1.1%
	Special Education Teachers, Secondary School	2,540	$43,899	75.5%	**452**	1.7%
	Public Relations Managers	1,893	$85,742	80.4%	**439**	2.1%
	Chemists	5,142	$71,414	94.8%	**425**	0.8%
	Total of fastest growing occupations in "educational band"	594,585			124,880	
	Total all occupations in "educational band"	687,536			134,808	
Tech-Some Post Secondary	Registered Nurses	90,916	$61,347	93.2%	**24,308**	2.4%
	Preschool Teachers, Except Special Education	36,546	$22,098	77.1%	**13,214**	3.1%
	Computer Support Specialists	20,597	$54,023	101.5%	**5,353**	2.3%
	Automotive Service Technicians and Mechanics	28,480	$41,729	106.0%	**5,323**	1.7%
	Licensed Practical and Licensed Vocational Nurses	20,147	$40,764	97.7%	**4,430**	2.0%
	Bus and Truck Mechanics and Diesel Engine Specialists	10,938	$42,344	100.5%	**2,239**	1.9%
	Medical Secretaries	10,847	$31,015	93.3%	**2,207**	1.9%
	Fitness Trainers and Aerobics Instructors	7,579	$31,460	86.1%	**2,200**	2.6%
	Paralegals and Legal Assistants	7,639	$42,529	79.9%	**2,175**	2.5%
	Dental Hygienists	4,812	$68,526	96.9%	**2,124**	3.7%
	Real Estate Sales Agents	8,987	$63,681	102.0%	**1,766**	1.8%
	Medical Records and Health Information Technicians	6,436	$30,833	93.0%	**1,745**	2.4%
	Radiologic Technologists and Technicians	7,012	$54,492	99.1%	**1,739**	2.2%

Appendix 3: NC Selected Occupational Employment Projections

Educ Bands	Occupation Description	Estimated NC Emp 2007	Estimated NC Avg Earnings 2007	% of Est. US Avg Earnings 2007	∆Emp 2007-2017	Annual Growth Rate Emp 2007-17
	Medical and Clinical Laboratory Technicians	6,262	$38,406	97.9%	**1,666**	2.4%
	Hairdressers, Hairstylists, and Cosmetologists	6,202	$31,663	116.7%	**1,598**	2.3%
	Emergency Medical Technicians and Paramedics	6,360	$32,054	99.8%	**1,587**	2.3%
	Legal Secretaries	5,730	$39,267	80.7%	**1,189**	1.9%
	Veterinary Technologists and Technicians	4,524	$28,383	97.8%	**1,153**	2.3%
	Respiratory Therapists	3,288	$51,381	95.7%	**885**	2.4%
	Surgical Technologists	2,650	$38,921	93.1%	**733**	2.5%
	Medical Transcriptionists	2,913	$35,015	100.2%	**707**	2.2%
	Aircraft Mechanics and Service Technicians	6,002	$50,837	86.4%	**675**	1.1%
	Electrical and Electronic Engineering Technicians	6,474	$57,787	99.3%	**674**	1.0%
	Mobile Heavy Equipment Mechanics, Except Engines	4,982	$41,706	93.2%	**665**	1.3%
	Physical Therapist Assistants	1,820	$47,645	104.3%	**628**	3.0%
	Diagnostic Medical Sonographers	1,820	$72,031	111.3%	**618**	3.0%
	Cardiovascular Technologists and Technicians	2,052	$49,887	103.1%	**534**	2.3%
	Healthcare Practitioner and Technical Workers, All Other	2,359	$45,909	98.6%	**533**	2.1%
	Health Technologists and Technicians, All Other	2,022	$43,472	99.3%	**515**	2.3%
	Civil Engineering Technicians	4,823	$45,857	96.5%	**491**	1.0%
	Security and Fire Alarm Systems Installers	2,007	$41,654	100.8%	**463**	2.1%
	Biological Technicians	4,013	$44,491	104.2%	**457**	1.1%
	Appraisers and Assessors of Real Estate	2,866	$51,867	87.4%	**409**	1.3%
	Total of fastest growing occupations in "educational band"	340,104			85,005	
	Total all occupations in "educational band"	386,614			89,452	
GED/Some Experience	First-Line Supervisors/Managers of Retail Sales Workers	54,583	$39,119	91.3%	**7,487**	1.3%
	Carpenters	34,185	$34,495	80.2%	**6,428**	1.7%
	First-Line Supervisors/Managers of Construction Trades and Extraction Workers	37,950	$53,210	86.3%	**6,225**	1.5%
	First-Line Supervisors/Managers of Office and Administrative Support Workers	50,767	$50,632	94.5%	**5,776**	1.1%
	First-Line Supervisors/Managers of Food Preparation and Serving Workers	28,641	$31,652	99.3%	**5,205**	1.7%
	First-Line Supervisors/Managers of Mechanics, Installers, and Repairers	26,353	$59,838	96.0%	**3,815**	1.4%
	Electricians	25,808	$38,980	75.7%	**3,688**	1.3%
	Cooks, Restaurant	21,861	$21,949	93.3%	**3,665**	1.6%
	Police and Sheriff's Patrol Officers	23,495	$41,823	78.2%	**3,507**	1.4%
	Plumbers, Pipefitters, and Steamfitters	19,552	$39,896	80.4%	**2,882**	1.4%
	Heating, Air Conditioning, and Refrigeration Mechanics and Installers	14,392	$37,966	86.7%	**2,862**	1.8%
	First-Line Supervisors/Managers of Production and Operating	42,126	$53,094	94.6%	**2,497**	0.6%

Appendix 3: NC Selected Occupational Employment Projections

Educ Bands	Occupation Description	Estimated NC Emp 2007	Estimated NC Avg Earnings 2007	% of Est. US Avg Earnings 2007	∆Emp 2007-2017	Annual Growth Rate Emp 2007-17
	First-Line Supervisors/Managers of Transportation and Material-Moving Machine and Vehicle Operators	11,470	$53,776	91.1%	**2,408**	1.9%
	Fire Fighters	10,539	$36,328	79.9%	**2,203**	1.9%
	Self-Enrichment Education Teachers	7,603	$38,112	89.6%	**2,081**	2.4%
	Real Estate Brokers	12,672	$48,658	54.3%	**2,074**	1.5%
	First-Line Supervisors/Managers of Housekeeping and Janitorial Workers	8,966	$35,547	93.7%	**1,991**	2.0%
	First-Line Supervisors/Managers of Non-Retail Sales Workers	13,666	$79,709	90.0%	**1,642**	1.1%
	Welders, Cutters, Solderers, and Brazers	11,215	$36,010	98.2%	**1,602**	1.3%
	Brickmasons and Blockmasons	9,152	$36,485	78.9%	**1,585**	1.6%
	Machinists	12,977	$37,111	90.5%	**1,542**	1.1%
	Managers, All Other	12,183	$97,086	99.2%	**1,465**	1.1%
	Cabinetmakers and Bench Carpenters	11,740	$27,482	93.2%	**1,420**	1.1%
	Cost Estimators	6,854	$59,401	94.1%	**1,397**	1.9%
	First-Line Supervisors/Managers of Landscaping, Lawn Service, and Groundskeeping Workers	5,939	$42,186	94.8%	**1,230**	1.9%
	Lifeguards, Ski Patrol, and Other Recreational Protective Service Workers	4,929	$18,957	91.7%	**1,116**	2.1%
	First-Line Supervisors/Managers of Helpers, Laborers, and Material Movers, Hand	8,358	$45,002	94.8%	**1,086**	1.2%
	First-Line Supervisors/Managers of Personal Service Workers	3,634	$36,838	92.9%	**1,080**	2.6%
	Food Service Managers	5,609	$54,075	104.7%	**1,017**	1.7%
	Purchasing Agents, Except Wholesale, Retail, and Farm Products	10,248	$57,996	94.9%	**925**	0.9%
	Coaches and Scouts	3,241	$43,296	118.1%	**822**	2.3%
	First-Line Supervisors/Managers of Police and Detectives	5,815	$56,973	74.8%	**791**	1.3%
	Photographers	2,833	$47,776	128.8%	**694**	2.2%
	Telecommunications Equipment Installers and Repairers, Except Line Installers	6,216	$57,772	96.8%	**685**	1.1%
	Automotive Body and Related Repairers	5,521	$45,411	106.4%	**679**	1.2%
	Detectives and Criminal Investigators	4,861	$49,454	73.8%	**679**	1.3%
	Butchers and Meat Cutters	5,014	$27,797	90.3%	**655**	1.2%
	Water and Liquid Waste Treatment Plant and System Operators	3,606	$35,500	88.7%	**617**	1.6%
	Construction and Building Inspectors	3,520	$53,488	98.8%	**602**	1.6%
	Claims Adjusters, Examiners, and Investigators	4,445	$59,916	98.9%	**571**	1.2%
	Bakers	3,719	$25,296	96.4%	**545**	1.4%
	Etchers and Engravers	3,323	$29,546	96.8%	**537**	1.5%
	Telecommunications Line Installers and Repairers	3,975	$43,413	83.6%	**531**	1.3%
	First-Line Supervisors/Managers of Fire Fighting and Prevention	2,520	$56,736	81.3%	**469**	1.7%

Appendix 3: NC Selected Occupational Employment Projections

Educ Bands	Occupation Description	Estimated NC Emp 2007	Estimated NC Avg Earnings 2007	% of Est. US Avg Earnings 2007	∆Emp 2007-2017	Annual Growth Rate Emp 2007-17
	Chefs and Head Cooks	2,865	$43,315	104.6%	**467**	1.5%
	Wholesale and Retail Buyers, Except Farm Products	3,526	$53,601	92.1%	**456**	1.2%
	Transportation, Storage, and Distribution Managers	2,955	$83,842	94.9%	**454**	1.4%
	Compliance Officers, Except Agriculture, Construction, Health and Safety, and Transportation	5,134	$54,023	87.3%	**447**	0.8%
	Upholsterers	28,700	$35,616	113.9%	**408**	0.1%
	Athletes and Sports Competitors	1,316	$148,879	163.1%	**405**	2.7%
	Industrial Machinery Mechanics	13,220	$42,963	92.7%	**-519**	-0.4%
	Furniture Finishers	10,428	$26,178	93.7%	**-1,395**	-1.4%
	Textile Knitting and Weaving Machine Setters, Operators, and Tenders	70,926	$25,816	97.9%	**-38,051**	-7.4%
	Total of fastest growing occupations in "educational band"	650,575			93,415	
	Total all occupations in "educational band"	801,703			58,980	
GED/Entry	Truck Drivers, Heavy and Tractor-Trailer	78,832	$40,659	102.1%	**19,029**	2.2%
	Customer Service Representatives	71,484	$34,974	98.6%	**16,537**	2.1%
	Team Assemblers	82,118	$28,993	94.5%	**11,642**	1.3%
	Maintenance and Repair Workers, General	69,608	$38,413	101.8%	**10,644**	1.4%
	Executive Secretaries and Administrative Assistants	62,813	$40,934	90.9%	**9,408**	1.4%
	Bookkeeping, Accounting, and Auditing Clerks	68,613	$34,251	95.6%	**7,521**	1.0%
	Sales Representatives, Wholesale and Manufacturing, Except Technical and Scientific Products	46,986	$59,572	89.9%	**6,824**	1.4%
	Medical Assistants	10,703	$29,589	97.3%	**4,852**	3.8%
	Construction Laborers	34,250	$26,469	83.6%	**4,601**	1.3%
	Slaughterers and Meat Packers	22,162	$19,916	85.4%	**4,223**	1.8%
	Social and Human Service Assistants	12,730	$29,291	96.8%	**3,504**	2.5%
	Operating Engineers and Other Construction Equipment Operators	19,182	$35,360	84.3%	**3,034**	1.5%
	Dental Assistants	6,235	$38,846	112.6%	**2,669**	3.6%
	Sales Representatives, Services, All Other	10,554	$63,157	96.7%	**2,553**	2.2%
	Pharmacy Technicians	10,378	$27,156	93.7%	**2,433**	2.1%
	Sales Representatives, Wholesale and Manufacturing, Technical and Scientific Products	16,094	$79,448	93.9%	**2,403**	1.4%
	Secretaries, Except Legal, Medical, and Executive	63,576	$30,443	93.6%	**2,263**	0.4%
	Painters, Construction and Maintenance	11,227	$30,874	81.4%	**1,777**	1.5%
	Correctional Officers and Jailers	20,778	$32,238	77.7%	**1,671**	0.8%
	Payroll and Timekeeping Clerks	8,452	$34,866	94.1%	**1,599**	1.7%
	Sheet Metal Workers	10,952	$33,661	76.5%	**1,527**	1.3%
	Billing and Posting Clerks and Machine Operators	16,481	$33,372	98.7%	**1,463**	0.9%
	Cement Masons & Concrete Finishers	7,458	$31,319	82.8%	**1,384**	1.7%

Appendix 3: NC Selected Occupational Employment Projections

Educ Bands	Occupation Description	Estimated NC Emp 2007	Estimated NC Avg Earnings 2007	% of Est. US Avg Earnings 2007	∆Emp 2007-2017	Annual Growth Rate Emp 2007-17
	Laundry and Dry-Cleaning Workers	10,191	$20,270	96.3%	**1,364**	1.3%
	Pest Control Workers	4,477	$31,372	101.5%	**1,229**	2.5%
	Sales and Related Workers, All Other	4,288	$42,750	91.6%	**1,044**	2.2%
	Pipelayers	6,727	$27,833	80.8%	**1,022**	1.4%
	Roofers	6,086	$28,939	77.6%	**947**	1.5%
	Bus Drivers, Transit and Intercity	4,051	$29,498	80.4%	**782**	1.8%
	Cooks, Institution and Cafeteria	8,614	$22,101	94.1%	**769**	0.9%
	Data Entry Keyers	8,094	$29,702	98.1%	**761**	0.9%
	Assemblers and Fabricators, All Other	4,797	$33,933	96.8%	**751**	1.5%
	Dispatchers, Except Police, Fire, and Ambulance	4,854	$37,559	96.8%	**730**	1.4%
	Molding, Core making, and Casting Machine Setters, Operators, and Tenders, Metal and Plastic	6,533	$30,872	100.6%	**662**	1.0%
	Demonstrators and Product Promoters	2,301	$30,727	104.0%	**598**	2.3%
	Police, Fire, and Ambulance Dispatchers	3,780	$31,382	89.5%	**575**	1.4%
	Advertising Sales Agents	3,126	$58,497	89.0%	**570**	1.7%
	Drywall and Ceiling Tile Installers	3,193	$33,944	80.5%	**531**	1.6%
	Paving, Surfacing, and Tamping Equipment Operators	2,787	$29,320	81.7%	**500**	1.7%
	Psychiatric Technicians	3,604	$30,213	89.3%	**484**	1.3%
	Printing Machine Operators	6,315	$37,679	97.7%	**412**	0.6%
	Construction and Related Workers, All Other	1,079	$36,603	97.8%	**404**	3.2%
	Eligibility Interviewers, Government Programs	12,204	$33,142	88.2%	-400	-0.3%
	Fallers	3,474	$30,660	99.8%	**-458**	-1.4%
	Rail Transportation Workers, All Other	1,711	$39,768	94.2%	**-513**	-3.5%
	Computer Operators	4,152	$42,308	103.1%	**-822**	-2.2%
	Extruding and Forming Machine Setters, Operators, and Tenders, Synthetic and Glass Fibers	5,247	$33,202	99.3%	**-1,507**	-3.3%
	Textile Cutting Machine Setters, Operators, and Tenders	7,037	$27,022	105.0%	**-1,949**	-3.2%
	Sewing Machine Operators	36,152	$23,665	106.1%	**-7,830**	-2.4%
	Textile Bleaching and Dyeing Machine Operators and Tenders	25,361	$25,205	98.6%	**-11,821**	-6.1%
	Textile Winding, Twisting, and Drawing Out Machine Setters, Operators, and Tenders	86,856	$23,921	96.2%	**-34,514**	-4.9%
	Total of fastest growing occupations in "educational band"	856,562			137,697	
	Total all occupations in "educational band"	1,263,563			88,085	
Below GED	Retail Salespersons	140,341	$26,250	98.7%	**24,857**	1.6%
	Home Health Aides	45,742	$20,482	92.8%	**21,150**	3.9%
	Laborers and Freight, Stock, and Material Movers, Hand	99,475	$26,125	99.4%	**17,375**	1.6%
	Combined Food Preparation and Serving, Including Fast Food	93,141	$16,739	94.9%	**16,171**	1.6%
	Janitors and Cleaners, Except Maids and Housekeeping Cleaners	64,770	$21,936	89.3%	**13,728**	1.9%

Appendix 3: NC Selected Occupational Employment Projections

Educ Bands	Occupation Description	Estimated NC Emp 2007	Estimated NC Avg Earnings 2007	% of Est. US Avg Earnings 2007	∆Emp 2007-2017	Annual Growth Rate Emp 2007-17
	Nursing Aides, Orderlies, and Attendants	46,117	$23,555	93.2%	**13,115**	2.5%
	Cashiers	123,026	$18,396	95.2%	**12,917**	1.0%
	Waiters and Waitresses	65,921	$17,768	94.9%	**11,460**	1.6%
	Office Clerks, General	84,723	$27,830	97.7%	**10,628**	1.2%
	Truck Drivers, Light or Delivery Services	40,109	$33,178	105.6%	**9,206**	2.1%
	Landscaping and Grounds keeping Workers	37,845	$23,518	93.7%	**8,357**	2.0%
	Teacher Assistants	40,930	$21,270	88.9%	**8,059**	1.8%
	Receptionists and Information Clerks	34,010	$25,967	96.4%	**7,995**	2.1%
	Counter and Rental Clerks	26,176	$26,246	102.2%	**7,921**	2.7%
	Maids and Housekeeping Cleaners	34,905	$19,660	92.7%	**7,742**	2.0%
	Personal and Home Care Aides	17,125	$20,010	99.3%	**7,100**	3.5%
	Packers and Packagers, Hand	44,493	$21,901	100.6%	**5,928**	1.3%
	Food Preparation Workers	25,392	$19,494	95.3%	**5,317**	1.9%
	Child Care Workers	13,486	$21,072	100.8%	**4,343**	2.8%
	Security Guards	25,537	$26,687	98.3%	**4,168**	1.5%
	Amusement and Recreation Attendants	14,523	$17,872	91.3%	**4,135**	2.5%
	Helpers--Production Workers	29,882	$25,877	103.3%	**3,003**	1.0%
	Industrial Truck and Tractor Operators	29,681	$31,227	94.8%	**2,999**	1.0%
	Tellers	24,166	$28,577	111.8%	**2,984**	1.2%
	Driver/Sales Workers	18,812	$27,231	100.1%	**2,973**	1.5%
	Bill and Account Collectors	12,648	$36,192	101.2%	**2,817**	2.0%
	Cooks, Fast Food	13,995	$17,978	102.6%	**2,327**	1.6%
	Motor Vehicle Operators, All Other	8,414	$31,467	106.1%	**2,164**	2.3%
	Dishwashers	12,490	$17,885	98.9%	**2,142**	1.6%
	Shipping, Receiving, and Traffic Clerks	29,736	$30,415	97.9%	**1,945**	0.6%
	Counter Attendants, Cafeteria, Food Concession, and Coffee Shop	9,764	$17,765	95.7%	**1,920**	1.8%
	Helpers--Installation, Maintenance, and Repair Workers	9,873	$25,317	95.7%	**1,816**	1.7%
	Hosts and Hostesses, Restaurant, Lounge, and Coffee Shop	10,996	$17,952	95.1%	**1,810**	1.5%
	Packaging and Filling Machine Operators and Tenders	25,190	$30,734	106.7%	**1,749**	0.7%
	Meat, Poultry, and Fish Cutters and Trimmers	8,362	$18,808	86.2%	**1,720**	1.9%
	Dining Room and Cafeteria Attendants and Bartender Helpers	8,373	$17,189	93.6%	**1,486**	1.6%
	Healthcare Support Workers, All Other	6,797	$30,006	95.6%	**1,456**	2.0%
	Cooks, Short Order	9,414	$19,269	94.0%	**1,425**	1.4%
	Bus Drivers, School	9,041	$25,195	90.5%	**1,352**	1.4%
	Shampooers	5,141	$22,457	118.7%	**1,338**	2.3%
	Library Technicians	6,035	$34,555	110.6%	**1,329**	2.0%
	Interviewers, Except Eligibility and Loan	5,824	$29,074	93.2%	**1,282**	2.0%
	Bartenders	6,605	$20,646	102.6%	**1,207**	1.7%

Appendix 3: NC Selected Occupational Employment Projections

Educ Bands	Occupation Description	Estimated NC Emp 2007	Estimated NC Avg Earnings 2007	% of Est. US Avg Earnings 2007	∆Emp 2007-2017	Annual Growth Rate Emp 2007-17
	Helpers--Pipelayers, Plumbers, Pipefitters, and Steamfitters	7,649	$26,508	96.2%	**1,166**	1.4%
	Helpers--Carpenters	5,586	$22,923	89.0%	**1,068**	1.8%
	Hotel, Motel, and Resort Desk Clerks	6,698	$21,990	98.9%	**1,068**	1.5%
	Human Resources Assistants, Except Payroll and Timekeeping	5,838	$36,583	92.6%	**971**	1.6%
	Cleaners of Vehicles and Equipment	11,764	$22,079	98.8%	**966**	0.8%
	Postal Service Mail Carriers	5,712	$50,183	96.6%	**871**	1.4%
	Helpers--Electricians	10,251	$26,208	92.3%	**867**	0.8%
	Production, Planning, and Expediting Clerks	10,388	$44,368	96.7%	**816**	0.8%
	Taxi Drivers and Chauffeurs	3,012	$22,555	83.9%	**813**	2.4%
	Helpers--Brick masons, Block masons, Stonemasons, and Tile and Marble Setters	4,438	$24,212	82.3%	**755**	1.6%
	Refuse and Recyclable Material Collectors	4,391	$25,458	75.0%	**692**	1.5%
	Food Servers, Nonrestaurant	4,630	$20,628	95.9%	**680**	1.4%
	Library Assistants, Clerical	3,704	$23,920	90.4%	**659**	1.7%
	Veterinary Assistants and Laboratory Animal Caretakers	3,840	$21,237	95.1%	**650**	1.6%
	Cutters and Trimmers, Hand	5,030	$31,430	117.2%	**624**	1.2%
	Ushers, Lobby Attendants, and Ticket Takers	2,929	$17,182	84.8%	**621**	1.9%
	Office and Administrative Support Workers, All Other	3,349	$36,115	110.1%	**581**	1.6%
	Funeral Attendants	3,461	$26,106	115.3%	**574**	1.5%
	Grounds Maintenance Workers, All Other	1,703	$27,104	97.7%	**561**	2.9%
	Tire Repairers and Changers	5,255	$24,556	99.2%	**552**	1.0%
	Nonfarm Animal Caretakers	1,986	$21,995	99.3%	**473**	2.2%
	Service Station Attendants	4,014	$21,474	103.4%	**434**	1.0%
	Postal Service Mail Sorters, Processors, and Processing Machine Operators	2,739	$48,241	99.2%	**417**	1.4%
	Credit Authorizers, Checkers, and Clerks	1,565	$41,680	109.5%	**-455**	-3.4%
	Meter Readers, Utilities	1,978	$31,493	91.8%	**-633**	-3.8%
	Information and Record Clerks, All Other	8,559	$41,269	81.5%	**-725**	-0.9%
	Mail Clerks and Mail Machine Operators, Except Postal Service	3,203	$26,984	91.7%	**-832**	-3.0%
	File Clerks	3,657	$25,560	93.7%	**-861**	-2.7%
	Order Clerks	6,906	$33,834	104.6%	**-883**	-1.4%
	Textile, Apparel, and Furnishings Workers, All Other	3,381	$26,040	96.0%	**-999**	-3.4%
	Machine Feeders and Off bearers	10,246	$25,143	95.5%	**-1,097**	-1.1%
	Farm workers and Laborers, Crop, Nursery, and Greenhouse	14,963	$16,778	97.0%	**-1,454**	-1.0%
	Total of fastest growing occupations in "educational band"	1,537,393			281,796	
	Total all occupations in "educational band"	1,732,747			276,598	

NORTH CAROLINA
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