

RURAL NON-FARM POPULATION GROWTH IN
EASTERN NORTH CAROLINA

A Thesis

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by

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Richard C. Gordon. RURAL NON-FARM POPULATION GROWTH IN EASTERN NORTH CAROLINA. (Under the direction of Dr. Jonathan Bascom) Department of Geography, May 1996.

The purpose of this thesis is to determine if the population trends of eastern North Carolina (Coastal Plain and Tidewater regions) reflect trends found at the national level and to examine the factors contributing to these trends. There are three main hypotheses: 1) cross-over employment is occurring from the growth of industries in rural areas which has allowed a shift in occupation of rural residents from farming to manufacturing; 2) commuting patterns suggests that increased commuting (both in distance and proportion) has allowed people to work in nearby urban areas while maintaining rural residency; and 3) coastal orientation of population growth is occurring from an increase in immigration to the coastal counties due to interest in recreation, resort, and retirement. Population, employment, and commuting data were broken down by county into groups based on urban and rural characteristics. The county groups were used to determine what patterns in population, commuting, and industry are taking place for the study area. Rural population growth was taking place in certain rural areas within the non-farm population. The farm population was on the decline for the study area, and urban was on the increase for most counties of the study area. The service

industry has become an important source of employment for all counties while manufacturing was important only in the rural counties. Overall patterns indicate that crossover employment was taking place in rural counties due to manufacturing, but service industry was the most important source. Long distance commuting was found in rural counties having no large urban areas. Coastal orientation of population was resulting from in-migration to most of the coastal counties for retirement and recreation.

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CHAPTER 1

INTRODUCTION

Eastern North Carolina (the 41 counties which comprise the Tidewater and Coastal Plain) has traditionally lost population from the rural areas, particularly from the rural farm sector. Most of these rural out-migrants left for urban areas. This has been the dominant trend for agricultural regions throughout the United States and other countries as well. There have been few large urban areas in eastern North Carolina that offer employment opportunities. Other than in agricultural activities, the bulk of employment came from the larger metropolitan areas in the Piedmont region of the state. This resulted in an outflow of people from the rural areas of eastern North Carolina to the Piedmont where there are large cities with better employment opportunities.

Eastern North Carolina has been known primarily as an agricultural region. Increasingly, however, agriculture is playing less of a role as the major source of employment in eastern North Carolina. The small family farm has now been replaced by large

corporate and commercial farms. Manufacturing plants have been located in the region, both in the rural and urban areas. These manufacturing industries have found that it is cost effective to locate in these rural areas as opposed to larger cities in the northern U.S. which have been the traditional home of manufacturing. There are many incentives such as lower tax rates, large inexpensive tracts of land, improved infrastructure, and a large non-union labor force that have encouraged industry to locate in eastern North Carolina.

Eastern North Carolina offers an excellent example of an agricultural rural area making the transition to an industrial-based economy, although agriculture has remained as a major economic activity for the area. According to Davis and Clifford (1973, 3) "Agriculture continues to have a major impact in the state. But the increasing importance of urban influences throughout the state which has the potential of reducing this difference or modifying it to one of urban dominance is becoming more evident." An increase in tourism and the recent popularity of the area among the retired and wealthy has created an upswell of service employment opportunities, primarily along the coast line which has also helped to counteract the out-migration from rural counties to the metropolitan areas. Service industries

have now become the predominant source of employment for the region of eastern North Carolina as a whole especially in the Tidewater region and the metropolitan counties.

Eastern North Carolina also has an improved infrastructure which has allowed transportation and communication to prosper. This has increased the ability of goods and people to be dispersed throughout the region. Commuting is now easier and has encouraged people to live in areas of preference (rural areas). The availability of transportation for commodities through the rail system, trucking, and airways has also attracted industry to the area. All of these factors have contributed to a trend of growth in the rural non-farm sector of the population for the area. Meanwhile, these new employment opportunities and the mechanization of agriculture have resulted in a change in classification of many residents in eastern North Carolina from that of rural farm to rural non-farm or urban. This study will examine the growth of the rural non-farm population in eastern North Carolina between 1950 and 1990.

LITERATURE REVIEW

Beginning in the late 1960s, a dramatic demographic change occurred in the United States; the older metropolitan areas began growing at a slower rate than rural counties. This had never occurred in the past history of the United States. Many studies have shown that this is true for the United States as a whole. Several things have led to these patterns. The decentralization of industry which took place in the late 1960s and early 1970s resulted in branch plants moving into rural areas of the South in search of cheap, non-union labor. Improved infrastructure in the form of interstate highways built in the 1950s and early 1960s literally helped pave the way for industry in the South. The increased opportunity for employment in these rural areas has resulted in fewer people leaving the rural areas for urban ones in search of employment. In addition, rural areas have claimed new permanent and part time residents. Burby (1979, 1) maintains that,

The phenomenal growth in demand for second homes and recreational land has increased the development potential of rural areas in the coastal, Piedmont, and mountain sections of North Carolina and the Southeast. The benefits of recreational land development--

increased recreational opportunities, jobs and improved local business, increased tax revenues, and a market for marginal farm land--are widely recognized.

Demographic Characteristics of the South

Heavy concentrations of urban population are found primarily in the northeast and western regions of the United States and relatively small concentrations in the south and north central regions. Within the southern region, the South Atlantic states continue to show a dominant rural pattern of population distribution (Davis and Clifford 1973, 2). The Southeast has a large percentage of rural inhabitants comprising its total population but has also seen a wave of industrialization which had previously occurred in the large urbanized areas of the U. S. According to Lonsdale and Browning (1971), the South has increasingly been the recipient of the nation's new industrial plants. "The lack of a big-city orientation is one of the most fundamental characteristics of Southern manufacturing" (Lonsdale and Browning 1971, 260). Bunce (1982, 171) states, "In the South, the effect of the dramatic increase in non-metropolitan manufacturing has been to shift agricultural workers to industrial employment with a

concomitant proliferation of commuting and residential development in rural areas." The Southeast is a popular region for locating industrial branch plants. Gade and Stillwell (1986, 268) note that, "Rather than moving entire operations, firms are choosing to expand or locate new branch plants in the Southeast while remaining based in the traditional industrial belt." "One-fourth" of all manufacturing plants located in urban areas in the South are in places under 5,000 in population, but the share is much higher in North Carolina -- "34.9 percent" (Lonsdale and Browning 1971, 263). It is clear that the Southeast in general has changed from a largely agrarian society to a mixed economy with the onset of new industry. This has contributed to a significant change in population trends.

Reversal of Rural Population Loss

Prior to 1970, rural counties in the United States generally lost people to metropolitan counties. The loss of rural-farm people began in the agricultural heartland of the Great Plains and Corn Belt and eventually spread to the Southern Coastal Plains and the Mississippi Delta (Johnson 1985). During the early 1970's, however, this long-standing pattern began to

reverse; migration to rural areas exceeded that of metropolitan ones (Tucker 1976). Johnson (1985, 101), in a study of the impact of business activity in rural America, found that, "almost 80 percent of all non metropolitan counties gained population between 1970 and 1977, compared to 47 percent between 1960 and 1970." In the 1970's, the rate of growth in urbanized areas was only marginally higher than the rate in non-urbanized areas, which was due to rapid growth in areas that had been considered rural in 1970 (Long and DeAre 1983, 35). Williams and Sofranko (1979, 240) noted that, "Out migration from metropolitan areas currently exceeds migration to metropolitan areas, and non-metropolitan areas are, overall, now growing faster than metropolitan ones."

Evidence has shown that this non-metropolitan growth is not simply an occurrence of urban spill-over. Phillips and Brunn (1978) found net in-migration to all types of rural counties ranging from those adjacent to Standard Metropolitan Statistical Areas (SMSA's) to the most remote rural ones. Garkovich (1989, 129) notes, "The growth in non metro population was widespread, from the most remote non metro counties to those contiguous to metro areas..." According to Long (1982, 1113), "Census data indicate not so much a revival of small

towns as a surge of population growth in settings outside of incorporated cities, towns, or villages." During the 1980's growth has continued to shift to non-metropolitan counties.

Reasons for Reversal

The reasons for this new trend in population growth and migration are varied. The explanations given range from improvements in transportation and communication, to the decentralization of industry, personal preferences, retirement, and a search for quality of life. Preference for non-metropolitan locations are realizable because of increased employment and service opportunities, and relatively inexpensive private transportation in non-metropolitan areas (Fisher and Mitchelson 1981). Long and DeAre (1983, 38) state that, "The new rural demographic concentrations appear to represent small centers of urban culture transplanted to the countryside and enabled to survive by recent advances in communications, transportation, and methods of industrial production." Three of the top arguments for reasons of population reversal trends are discussed below.

1. Decentralization of Industry

The decentralization of industry, particularly manufacturing, is one key reason for the turn-around in migration trends. Fisher and Mitchelson (1981) contend that the dispersion of industry from the national core to the periphery is a major force in non-metropolitan growth. An even more notable shift in manufacturing employment has been from metropolitan to smaller towns and rural areas (Gade and Stillwell 1986, 267). According to Bunce (1982) There is little doubt that the rapid expansion of non-metropolitan manufacturing in the 1960s had the potential for making a significant contribution to the revival of rural employment opportunities and therefore to the reversal of rural out-migration.

Between 1967 and 1973 manufacturing employment in non-metropolitan areas rose at a rate of 11.3 percent, while metropolitan areas had a decline of 3.2 percent (Fisher and Mitchelson 1981, 304). Hart (1989) suggests that the blue-collar commuter zone is now spilling across county lines into neighboring non-metropolitan areas. New factories and increased employment in manufacturing are becoming the norm in small towns and

rural areas (Hart 1989). Lower labor, land and tax costs of rural areas are key factors in the location of branch plants, especially those that emphasize a high level of mechanization and assembly line-lower skill-production workers in their manufacturing process (Gade and Stillwell 1986). "Industrial firms were attracted to non metropolitan counties by inexpensive land, low taxes, and the large pool of low-wage nonunion workers, and later by inducements of local government" (Johnson 1985, 153). Thus, a new location calculus has been built on land costs and wage rates associated with less urban locations (Long 1982).

Lonsdale and Browning (1971, 262) stress that, locations beyond town limits offer such advantages as avoidance of city taxes, ample space, lower land costs, less congestion, and more direct access to rural labor markets. "Continued and considerable improvements in the transportation system, favoring the movement of goods by the trucking industry, has also aided the rural location of plants that are bound to national instead of regional markets" (Gade and Stillwell 1986, 268). In short, industry has been relocating to the periphery of urban communities and to rural areas because it is cost-efficient.

Changing production factors, improved transportation, and dispersed markets have emerged as major considerations in industrial-location shifting the advantage to peripheral areas (Fisher and Mitchelson 1981). Between 1962 and 1978, 56 percent of the increase in the United States' manufacturing jobs occurred in non-metropolitan and rural areas and 50 percent of all non-metropolitan manufacturing expansion occurred in the South (Bunce, 1982).

2. Personal Preference

Many studies also have shown that personal preference plays a role in the movement of people (Bunce 1982, Fisher and Mitchelson 1981, Fugiutt and Brown 1990, Phillips and Brunn 1978, Ploch 1978, Schwarzweller 1979, and Tucker 1976). In 1972 the President's Commission on Population Growth and the American Future determined that the great majority of Americans preferred to live in small towns and rural communities as opposed to large metropolitan centers (Garkovich 1989). Technological advances have enabled people to move to areas which they would rather live. "The desire for open space, privacy, pleasant landscape and property has resulted in the strong preference for rural

residences set on large lots and dispersed in open countryside" (Bunce 1982, 159).

In general, residential preference leans toward the rural environment. A study of in-migration to Maine, for example, showed that most in-migrants moved in an effort to enhance their quality of life rather than because of other imperatives (Ploch 1978). Schwarzweller (1979) argues that Americans generally, perhaps a majority, would prefer to live in relatively small cities, towns, and rural areas. According to Tucker (1976, 440), "Recent popular accounts of return to countryside and the revival of rural growth imply that young adults and their families are seeking freedom and respite from 'the urban rat race', vice, and environmental pollution." Fuguitt and Brown (1990, 590) note that, "...residential preference surveys conducted in the 1970's made it clear that there were many millions of people living in large-scale urban and suburban places in this country who preferred a rural or small-town residence, especially within commuting range of larger cities." Phillips and Brunn (1978, 282) contend that, "Many Americans increasingly perceive of their cities as crowded, dangerous, and dirty; the countryside and small towns are viewed as open, clean, and safe." The desire for a heightened sense of

community is also encouraging the flow of people to non-metropolitan areas (Fisher and Mitchelson 1981).

Through advanced technology it is possible to obtain the same services and goods in rural areas as one would find in urban areas. Rural residents have access to the same standardized consumer goods and services as urban residents. This has encouraged people to leave the undesirable urban areas for the desirable rural areas with little or no inconvenience. Personal preference for rural environments has encouraged the locating of branch plants in rural areas. "For North Carolina, a state where personal preference for rural living is very strong, the locating of manufacturing plants in rural settings receives additional encouragement" (Gade and Stillwell 1986, 268).

3. Rural Resorts and Retirement

It has also been shown that rural areas are popular among retirees and the wealthy. The idealization of rural life continues to persist in American society among the many older, wealthier people who are building vacation homes and moving to desirable recreational areas located in rural settings. Clearly many of the more rapidly growing rural areas are those that for one

reason or another have had a special appeal to retirees and vacationers. (Schwarzweiler 1979, 11) "Ex urbanites are also upwardly mobile and are predominantly from the professional, executive and managerial middle-class groups." (Bunce 1982, 156) These former metropolitan residents have moved to small towns and rural areas in search of community. All of the factors mentioned above play a role in population trends.

PROBLEM STATEMENT

Past studies have shown that there was a turnaround in rural population growth for the United States. Many factors are involved in the re-population of rural areas throughout the United States. This study will determine if this trend is taking place in eastern North Carolina. Census data for the decades 1950 to 1990 suggests an overall increase in the rural non-farm (See Appendix A) population of rural counties throughout eastern North Carolina. The study area represents the largest agglomeration of rural counties east of the Appalachian Mountains. This study examines those factors that contribute to the growth of the rural non-farm population using eastern North Carolina as a case study.

MAJOR HYPOTHESIS

1. CROSS-OVER EMPLOYMENT

The growth of industrial branch plants in rural areas outlying urban centers and smaller urban areas in rural counties has allowed the declining farm population to shift occupations without changing their residential location.

Prior to the late 1960s rural farm inhabitants migrated from rural areas to urban areas in search of alternate forms of employment. Due to the decentralization of industry from large urban center, rural environments provide a large labor pool to exploit allowing branch plants as well as new industry to located in eastern North Carolina. Rural farm residents have been displaced by farm mechanization and they provide a large, non-unionized labor force. It is cost effective for industry to locate plants in small towns and rural areas. An increase in service industry has also opened the door for former rural farm inhabitants. Less people are migrating to larger cities from the rural areas because of new employment opportunities in or near the rural areas.

2. COMMUTING PATTERNS

Increased commuting (both in distance and proportion) has allowed people to maintain their personal preference for homes in a rural environment as opposed to living in urban areas closer to their place of employment.

Economical forms of transportation and an improved highway infrastructure have made it easier for rural residents to commute to their place of employment. The rural environment offers a much lower cost of living than urban areas which provides more incentive for locating homes in rural environments than just personal preference. People are willing to commute farther distances for higher paying jobs available in the large urban areas in and around the eastern North Carolina. There are more service and white collar industries in urban areas adjacent to the rural counties which rural residents are willing to commute to as well as large manufacturing branch plants.

3. COASTAL ORIENTATION

The rural non-farm population of counties along the coast has grown due to the predominance of in-migrants

to the area for recreation and retirement (particularly to the barrier islands that line the coast).

"In the Tidewater Region the Barrier Islands and the coastline to the south exhibit a distribution of small towns like beads on a string. All of these towns are affected by seashore related leisure activities and have experienced dramatic recent growth" (Gade and Stillwell 1986, 53). Service industries are also growing in these areas because of the increasing demand of the new residents and visitors that come to these counties. Coastal development is on the increase by land developers and real-estate companies. New industries have come to the area. There is an increase of exclusive resort developments for the wealthy. The coastal counties also offer many historical and natural attractions. All of these factors make the coastal counties appealing for settlement and have contributed to the growth of the non-farm population for the study area.

CHAPTER 2 DESCRIPTION OF STUDY AREA

In 1990, North Carolina had a total population of over 6.6 million people. The Tidewater region had the least population of the four state regions (Mountain, Piedmont, Coastal Plain, and Tidewater) with slightly more than 660,000 residents. The Coastal Plain region ranked second with nearly 1,400,000 inhabitants. North Carolina is composed of one hundred counties in all. This study focuses on the forty-one counties that comprise eastern North Carolina (Figure 2.1). These counties form roughly the eastern most half of the state.

Only three counties -- New Hanover, Cumberland, and Onslow -- were classified as metropolitan the 1990 census for eastern North Carolina. The federal Office of Management and Budget defines metropolitan areas as consisting of a central city with a population of 50,000 or more, the county in which it is located, and other contiguous counties that are metropolitan in character and are socially and economically integrated with the central city. Cumberland County is located in the southwestern corner of the Coastal Plain and has the only large urban area within 50 miles. The other two

metropolitan counties are on the southern edge of the Tidewater on the coastline. These two counties are separated from each other by Pender County which is predominantly rural and has no urban component of any size. The remainder of the counties in the Tidewater and Coastal Plain regions are classified as rural by the Census Bureau. Some of these rural counties contain urban areas which have populations from 2,500 up to nearly 50,000 residents. In the Coastal Plain and Tidewater where agriculture and dispersed rural settlement have persisted for centuries, an almost even distribution of urban places exists, dominated by small towns and a few medium-sized cities (Gade and Stillwell 1986). The counties with significant urban areas (between 25,000 and 50,000 residents) are Pitt (Greenville), Nash and Edgecombe (Rocky Mount), Wayne (Goldsboro), Wilson (Wilson), and Craven (New Bern and Havelock). Some of the rural counties which do not have any areas designated as urban do contain small incorporated and un-incorporated communities with under 2,500 residents.

Physical Landscape

The Coastal Plain has a surface configuration which is flat to gently rolling. The "Tidewater" or Lower

Coastal Plain is characterized by poorly drained areas, sand flats, bays and sounds (Gade and Stillwell 1986). North Carolina has a tidal shoreline of over 3000 miles, ranking it sixth in the nation, and has over 300 miles of wide beach on the barrier islands (Gade and Stillwell 1986). The predominant soil type are Ultisols in both the Coastal Plain and the Tidewater. Extractable resources such as peat, phosphate, and oil are found in the study area, particularly in the eastern most portion. The climate of eastern North Carolina falls into the Humid Sub-tropical climatic region and thereby, is well suited for agricultural production of crops such as tobacco, cotton, soybean, peanut, and corn. The physical setting of the Coastal Plain is generally favorable for vegetative growth: a long frost-free season, ample moisture, good soils and flat terrain (Gade and Stillwell 1986). Many rivers dissect the Coastal Plain and empty into the sounds along the coast. The Tar River, Cape Fear River, Alligator River, Nuese River, and the Trent River have provided trade routes for boats in past centuries. Many river towns developed in the 18th and 19th centuries in the area along these rivers. These river towns were primarily involved in the tobacco, cotton, and indigo trade.

Forests are the most wide-spread and characteristic environmental feature of North Carolina, comprising about two-thirds of the land cover, or about 17 million acres (Gade and Stillwell 1986, 21). There are large expanses of timberland consisting of mixed deciduous forest in the Tidewater portion of the state. Early settlement in the Coastal Plain resulted in wide-spread clearing for agriculture (Gade and Stillwell 1986). Most of the land which is not periodically inundated with water has been cleared for agricultural purposes. Many logging and paper industries have developed to exploit this resource.

The Tidewater also has numerous wetland and marshland areas as well as barrier islands. Several types of marine species can be found in the Tidewater area which are commercially harvested. North Carolina has two official civilian ports. Wilmington, in New Hanover County, is the largest. Another port is found in Carteret County at Moorehead City. Due to the wetland nature of the eastern-most portion of the state the coast line has been difficult to reach. Before an elaborate system of roads and bridges were built the only way was by boat. (This is still the only access for several islands along the coastline.)

Economic Structure

Historically, most towns and cities in eastern North Carolina, have functioned as service centers for a predominantly agriculturally-based economy. Agricultural products which are raised or grown in eastern North Carolina include: tobacco, sweet potato, cotton, corn, peanut, soybean, cucumber, wheat, chicken, hogs, horses, cattle, and turkeys. In 1980, North Carolina ranked first in turkeys, fourth in broilers, and seventh in egg production. Eastern North Carolina is the nation's leader in tobacco production and sweet potatoes, third in peanut production, and seventh in the number of hogs. Hog farming is growing especially fast in eastern North Carolina (NCARS 1983). At the current rate of growth within the hog industry, North Carolina will be ranked much higher.

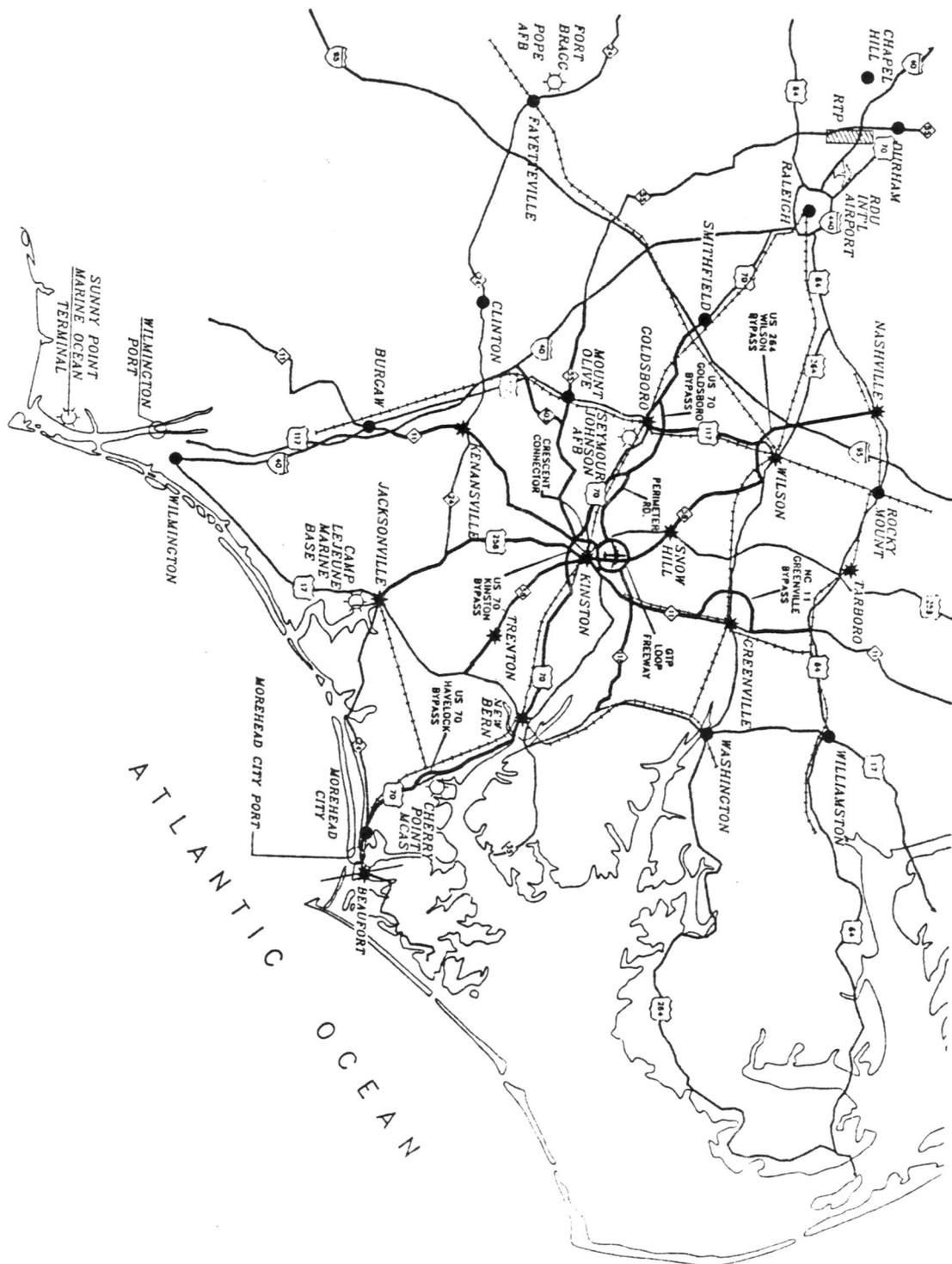
There are several US and State highways in the State which connect all the major towns and cities of eastern North Carolina with each other and to other cities in the state. Two limited access, interstate highways run through the region; I-40 runs east to west from Wilmington across the United States to California, and I-95 runs north to south along the eastern seaboard.

Nearly all of these major routes are four lane highways (Figure 2.2).

By 1990, only five counties had total urban populations over 50,000 residents -- the metropolitan counties of Cumberland, New Hanover, and Onslow. and the counties of Wayne and Pitt, which are both designated as rural, but have urban areas of between 25 and 50 thousand residents. Cumberland, Onslow, and Wayne counties each have military bases located within them. Pitt and New Hanover counties have state universities in their major urban areas. These factors contribute to the large populations of these counties in relation to their counterparts throughout the region.

Figure 2.2 INFRASTRUCTURE OF EASTERN NORTH CAROLINA

SOURCE: N. C. Department of Transportation 1994



CHAPTER 3 METHODOLOGY

County Divisions

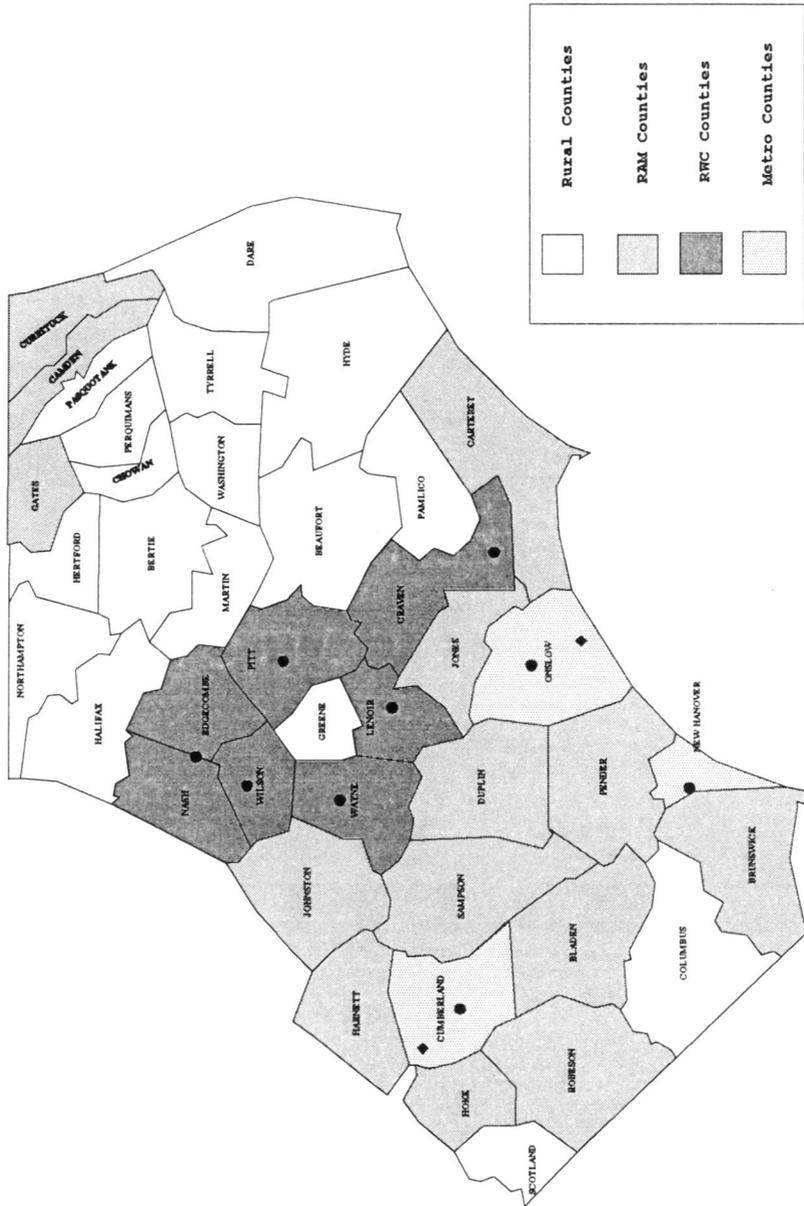
The forty-one counties of the study area have been divided into four groups based on certain criteria (Figure 3.1). Johnson (1985, 37) suggests a set of useful distinctions.

Because metropolitan adjacency and size of largest place affect a county simultaneously, their combined impact must be considered. Counties that have large urban places and are adjacent to metropolitan areas have been particularly prone to growth, whereas non adjacent counties with no significant urban places have been the most likely candidates for decline.

For this reason the counties of the study area have been divided into four categories based on size of urban areas contained within them and adjacency to metropolitan areas as reported in the 1990 census.

The four categories are as follows. (1.) Metropolitan counties (Metro) are based on the following census definition: areas as consisting of a central city

Figure 3.1 Study Area by County Catagorization



with a population of 50,000 or more, the county in which it is located, and other contiguous counties that are metropolitan in character and are socially and economically integrated with the central city. (2.) RAM counties which are considered rural by the census but are bordering any metropolitan county whether the metropolitan county is in the study area or not. (3.) Rural counties having a city with a population of 25,000 - 50,000 are referred to as rural with large cities (RWC). (4.) Extremely rural counties (Rural) do not meet any of the above criteria. The census only recognizes metropolitan counties and rural counties. This further division of the counties will help in understanding the patterns of population distribution, out-migration, in-migration, and other population characteristics.

Another distinction is between the two regions of the Tidewater counties and the Coastal Plain counties which make up eastern North Carolina.

The Tidewater, Coastal Plain, Piedmont and Mountain regions are much more than just physically distinct areas. Each region, as a result of its own cultural identity with varying patterns of social, economic and

political activity. The forces of change that are influencing development in the state affect these regions in various ways and result in different economic and social responses. (NCREDC 1992, 5)

North Carolina Census of Population

Census records, are used to determine specific changes in the population for the study area from 1950 to 1990. Rates of growth and decline can be established on a county-wide scale for rural non-farm residents, rural farm residents, and urban residents (See Appendix A for definitions). The specific patterns of growth and decline for each component is compared among the county groups in the study area. By doing this, it is possible to determine if there is a significant increase in the rate of growth for the rural non-farm sector of the population and how it relates to other sectors of the population for eastern North Carolina. This is used to aid in determining which sectors of the population are losing or gaining population for each region and county group.

Journey to work data is available from the census for 1980 and 1990. The active work-force (individuals

which are physically able to work and are between the ages of 16 and 65) are divided into categories based on travel time to work and are given for each county. The categories are as follows: 1) less than 10 minutes; 2) 10 to 19 minutes; 3) 20 to 29 minutes; 4) 30 to 44 minutes; and, 5) 45 or more minutes. These times are based on one way journeys to work. Percentages of the work-force that fit each category have been calculated and compared for the four county divisions listed previously to determine if any patterns exist. The percentages for each year were also compared to see if any changes have occurred between this time period in commuting patterns.

Employment Security Commission

Employment Security Commission (ESC) data provide the number of people employed in non-agricultural industry in both manufacturing and service sectors for the counties in the study area from 1970 to 1992 by place of employment. Industrial development is reflected in an increase in the total number of industrial employees. If industry has been on the increase in this area it is probable that it is related to the recent trend of decentralization of industry and the locating of branch plants to rural and small urban

small urban areas. The percentage of the total population which each employment category comprised is calculated for each county group. In this study, ESC data on employment is combined with the total population data from the census for the decades of 1970, 1980, and 1990. By examining the percentage of the population which was employed in each industrial sector, a better understanding of industrial growth and decline can be achieved. The data were also combined with county divisions to determine patterns of change.

East Carolina University Survey Resources Laboratory

A telephone survey was conducted by the East Carolina University Survey Resources Laboratory in the forty-one counties that make up the study area. One thousand residents were randomly selected from the counties of the study. Twenty questions were asked of the respondents to obtain demographic and socio-economic information. In addition to the twenty demographic questions are questions which are specifically geared towards this study. One question concerns journey-to-work times.

Distance traveled to work is a useful indicator of personal preference for residential location and an

indicator of the degree of commuting which is taking place. If rural non-farm inhabitants are commuting long distances to their place of employment it is likely that they prefer the rural environment to the urban environment and choose to live in the rural environment. The survey asks for the average time traveled to work each day. The time categories of the survey are the same which were used by the census. This can determine the distances people are willing to travel to get to work. By comparing the data obtained from the survey and the census data, a general indication of the amount of commuting can be made for each county group to see if any patterns exist.

The survey responses are distributed proportionately between the four county groupings. Each county group had between 20 percent to 29 percent representation of the total sample in the responses (Table 3.1).

Table 3.1 Sample Distribution of Telephone Survey,
Based on County Divisions.

	Frequency in survey (number of samples)	Percent occurring
METRO	230	23.0%
RAM	277	27.5%
RWC	288	28.8%
RURAL	205	20.5%
TOTAL	1000	99.3%

CHAPTER 4 FINDINGS

Rural non-farm residents

From 1950 to 1990 the absolute number of rural non-farm residents decreased in only two counties within the study region -- New Hanover and Cumberland. Both counties are metropolitan counties. Hence, their loss of rural non-farm population was largely the result of urban expansion and annexation of formerly rural areas. Even in these counties, however, there remains a sizable proportion of residents classified as rural.

Between 1950 and 1990, four counties experienced a negative change in the proportion of the rural non-farm population -- (Cumberland, New Hanover, Onslow, Dare). Dare County, a coastal county which had no areas designated as urban until the 1990 census, is the only one of the four which is not classified as metropolitan. Much of its rural non-farm population was reclassified as urban when the new urban designation was given.

The remaining thirty-seven counties had a positive percent change in the number of rural non-farm residents. Thirty-four of the forty-one counties have

over 50 percent of their population classified as rural and the majority of the rural population are comprised of rural non-farm inhabitants.

Percent change for the rural non-farm population in the decades of 1950 to 1990 were as follows. Two counties had a percent drop of more than 50 percent and another fell between 25 to 50 percent. These three counties are all Metropolitan ones (Onslow and New Hanover-Tidewater, Cumberland-Coastal Plain). Onslow and Cumberland counties both have large military installations. One county had a negative percent change in its rural non-farm population. This was Dare county which had the new urban designations for 1990 explaining its loss of rural non-farm population.

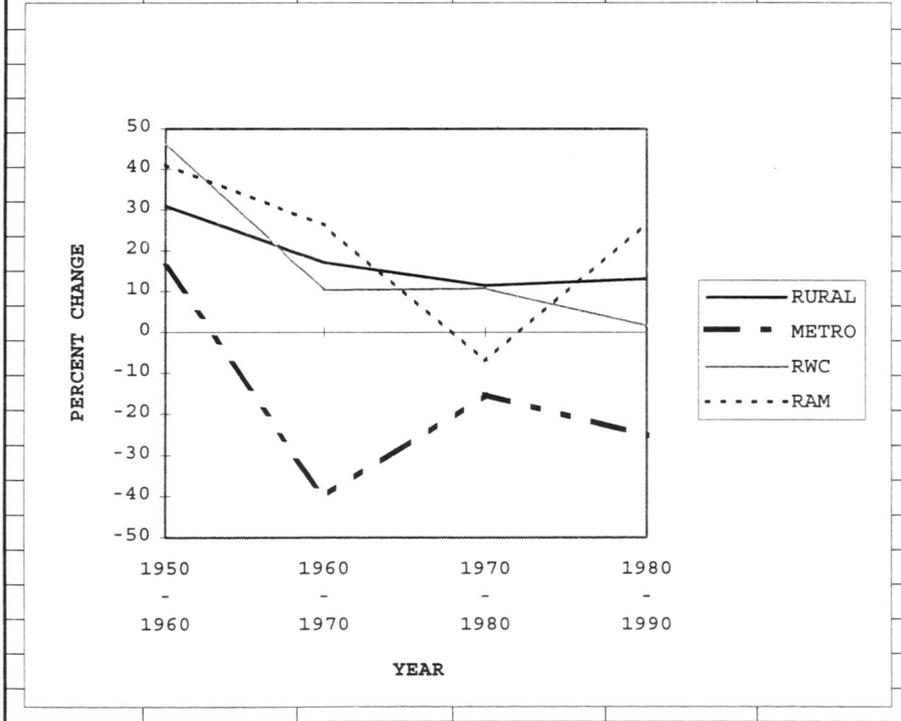
The remaining thirty-seven counties experienced a positive change. Three Tidewater counties had 0.01 to 50 percent change (Carteret-RAM, Pamlico-Rural, and Craven-RWC). There are twelve counties with 50 to 100 percent change. Seven of these are in the Tidewater (Hyde, Tyrrell, Perquimans, Pasquotank-Rural and, Camden, Currituck, Brunswick-RAM). None of these have urban areas containing over 25,000 residents. The other five counties are in the Coastal Plain (Scotland, Halifax, Hertford-Rural, and Pitt, Wayne-RWC). Twenty-

one counties had between 100 percent and 300 percent increase. Five of these counties are in the Tidewater (Pender, Jones-RAM, and Beaufort, Washington, Chowan-Rural). The other sixteen counties are located in the Coastal Plain (Columbus, Scotland, Northampton, Martin, Bertie-Rural, and Robeson, Hoke, Bladen Sampson, Duplin, Harnett, Johnston, Gates-RAM, and Lenoir, Wilson, Nash, Edgecombe-RWC). One county had an increase of over 300 percent. This county is Greene, a county designated as Rural but is surrounded by counties which are all RWC -- Pitt, Wilson, Wayne and Lenoir (Figure 4.1). This shows that there was an increase in rural non-farm inhabitants for the majority of the counties in the study area (Table 4.1 and Figure 4.2). The largest percentage of change occurred in the Coastal Plain. The RAM and Rural counties had the largest increase in change. In the Metro counties, the rural non-farm loss was the result of new urban and annexation by existing urban areas and reclassification of rural non-farm and rural farm residents to urban residents.

For the Rural county group the percentages of the total population which was comprised of rural non-farm inhabitants increased for each decade. Each decade showed a 10 percent increase over the previous one. The Metro counties showed an increase in percentage from

Table 4.1 and Figure 4.2 Percent Change Rural Non-farm in Eastern North Carolina, 1950 to 1990.

	1950 - 1960	1960 - 1970	1970 - 1980	1980 - 1990	1950 - 1990
RURAL	30.99	17.17	11.45	13.07	93.44
METRO	16.06	-40.02	-15.18	-25.11	-55.78
RWC	46.64	10.34	10.7	1.62	82.02
RAM	41.13	26.3	-6.95	26.85	110.39



SOURCE: North Carolina Census of Population 1950 - 1990.

1950 to 1960, but a decrease in percentage was experienced for the following three decades. The RWC counties had an increase for each decade. The largest percentage increase took place from 1950 to 1960 with slightly over a 10 percent gain. The following decades showed a small percent increase for each decade. The RAM counties had a dramatic increase in the percentage of rural non-farm residents from 1950 to 1970. A slight decrease in percentage took place by 1980, but a large increase occurred again by 1990 (Table 4.2).

Urban population

From 1950 to 1980, the number of counties in which the urban portion of the population grew increased. In 1980 there were more counties with a higher percentage of urban residents than any other decade examined in this study. However, a decline occurred by 1990; that is, the number of counties with 25 to 50 percent and 50 to 75 percent of their population consisting of urban had fallen (Table 4.3).

The census data revealed the following pattern of change on a decade-by-decade basis. By 1960, a slight increase occurred in the urban proportion of the

Table 4.2 Percent Rural Non-farm Residents in Eastern North Carolina, 1950 to 1990.

county name	1950	1960	1970	1980	1990
RURAL					
Beaufort	27.37	46.04	59.30	59.41	66.22
Bertie	36.44	52.21	67.44	87.36	94.53
Chowan	15.60	31.00	43.70	51.15	57.03
Columbus	32.37	45.62	65.43	71.09	83.86
Dare	98.59	97.73	70.05	51.69	81.16
Duplin	34.30	50.44	59.76	65.95	76.61
Gates	39.34	61.56	75.34	85.33	90.71
Greene	17.41	38.09	58.98	77.99	92.85
Halifax	30.07	36.78	47.20	59.37	59.54
Hertford	35.79	37.97	50.91	63.29	66.46
Hyde	58.37	69.94	82.23	83.91	92.27
Martin	24.76	30.56	51.82	60.98	72.40
Northampton	36.93	59.43	87.45	99.80	95.08
Pamlico	71.27	83.47	76.80	87.56	98.43
Pasquotank	34.28	37.11	41.07	42.98	52.12
Perquimans	59.37	69.83	69.82	76.18	92.81
Scotland	35.81	49.33	56.26	54.05	64.64
Tyrrell	56.24	68.14	74.72	89.01	94.09
Washington	28.88	47.38	48.31	55.53	64.76
AVERAGE	40.69	53.30	62.45	69.61	78.71
METRO					
Cumberland	44.43	46.04	21.25	12.73	12.93
New Hanover	26.07	30.46	28.96	24.68	11.38
Onslow	56.15	70.51	37.95	37.38	31.71
AVERAGE	42.22	49.00	29.39	24.93	18.67
RWC					
Craven	46.45	61.00	34.81	37.03	47.31
Edgecombe	17.06	28.36	36.36	44.26	47.72
Lenoir	20.02	33.05	43.72	45.61	48.10
Nash	23.99	34.03	47.28	54.51	48.92
Pitt	21.78	28.77	35.36	37.31	38.04
Wayne	23.02	38.82	40.65	42.92	36.06
Wilson	16.27	23.17	34.58	40.27	40.68
AVERAGE	24.08	35.31	38.96	43.13	43.83
RAM					
Bladen	40.64	58.14	76.35	77.86	82.10
Brunswick	48.13	71.82	86.72	63.50	85.64
Camden	56.98	73.13	91.89	87.22	96.83
Carteret	52.24	67.57	67.74	54.48	75.60
Currituck	53.65	81.17	93.61	58.22	97.28
Harnett	30.22	46.12	58.55	57.12	73.50
Hoke	37.27	45.68	60.22	61.24	82.61
Johnston	28.69	38.70	53.36	56.88	71.41
Jones	30.83	50.93	79.00	85.38	94.58
Pender	41.77	68.73	80.38	75.95	97.16
Robeson	35.18	37.18	52.34	53.47	75.49
Sampson	23.79	37.38	54.39	63.88	76.35
AVERAGE	39.95	56.38	71.21	66.26	84.05

SOURCE: North Carolina Census of Population 1950 to 1990.

Table 4.3 Distribution of Counties Based on Proportion of Urban Population.

<u>Year</u>	<u>No urban</u>	<u>< 25%</u>	<u>25-50%</u>	<u>50-75%</u>	<u>>75%</u>
1950	17	10	12	2	0
1960	15	8	16	2	0
1970	15	7	13	5	1
1980	12	9	11	7	2
1990	10	12	10	5	2

No county had an urban area with a population large enough to declare the county as metropolitan in 1950 or 1960.

Source: North Carolina Census of Population 1950 - 1990.

population. The percentage of urban residents increased in six of the counties. Five of the six were RAM counties and the other was a Rural county. Three of the counties had no urban population in the preceding decade.

By 1970, the same fifteen counties as in 1960 had no urban population. Five counties experienced a significant growth in their urban populations. One county fell in its percentage of the urban population.

By 1980, counties with 50 percent or more residents classified as urban fell into the RWC category. Three counties which had no urban populations in previous decade had gained urban residents by this time.

By 1990, five counties lost ground in terms of urban percentage. All of which are RAM counties. This was the largest decline in percentage urban that made up the total population for the decades considered in this study. Meanwhile, three counties experienced an increase, but two of these had no urban residents until this census.

By 1990, seven counties had gained urban populations when they had no communities with

populations greater than 2,500 in 1950. Six were RAM counties: Hoke, Bladen, Brunswick, Pender, Duplin, and Camden. The other county to receive urban was Dare. Both Camden and Pender counties had less than a total urban population of 2,500 people. Hoke, Bladen, and Dare counties all had between 2,500 and 5,000 total urban residents. Brunswick and Duplin counties both had a total urban population of between 5,000 and 10,000 people (Table 4.4). These counties are predominantly rural and have communities and villages which have gained enough residents to be classified as urban (i.e. a population of 2,500 or more residents).

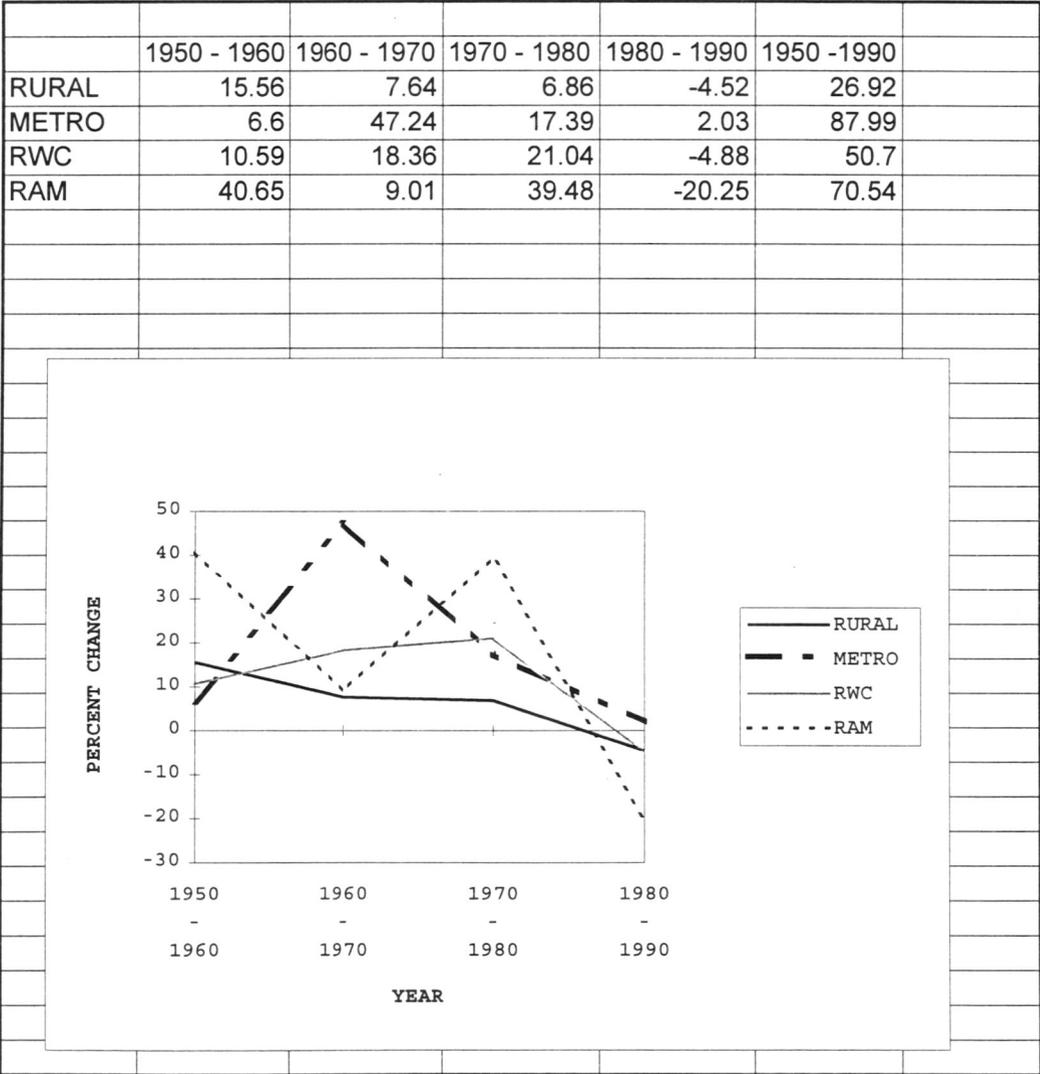
The total percentages of urban residents for each county grouping increased between 1950 and 1980. In 1990, however, percentages dropped from the previous decade (Table 4.5 and Figure 4.3). This was the only decade in the study period to experience a decline in the percentage of the population which was made up of the urban sector. That all county groups fell except the Metro ones, indicates that the percentage of the population which is rural non-farm has increased from the decade between 1980 and 1990 at the expense of urban and rural farm in the Rural, RWC, and RAM counties. Both of these sectors had declines in the percentage of the population which they composed. These three county

Table 4.4 Percent Urban Residents by County Group for Eastern North Carolina, 1950 to 1990.

county name	1950	1960	1970	1980	1990
RURAL					
Beaufort	32.92	27.60	24.91	23.40	30.65
Bertie	0.00	0.00	0.00	0.00	0.00
Chowan	35.63	38.01	44.28	49.77	39.00
Columbus	8.37	9.56	8.94	17.63	10.24
Dare	0.00	0.00	0.00	0.00	18.63
Duplin	0.00	0.07	15.32	15.23	14.50
Greene	0.00	0.00	0.00	0.00	0.00
Halifax	24.08	32.69	36.80	38.10	38.51
Hertford	16.68	31.81	34.17	33.55	31.26
Hyde	0.00	0.00	0.00	0.00	0.00
Martin	17.81	25.51	26.57	24.90	21.94
Northampton	0.00	0.00	0.00	0.00	0.00
Pamlico	0.00	0.00	0.00	0.00	0.00
Pasquotank	52.10	54.87	51.83	52.21	45.57
Perquimans	0.00	0.00	0.00	0.00	0.00
Scotland	27.09	32.73	32.60	43.26	34.47
Tyrrell	0.00	0.00	0.00	0.00	0.00
Washington	34.04	34.59	34.01	32.56	30.92
AVERAGE	13.82	15.97	17.19	18.37	17.54
METRO					
Cumberland	39.73	47.29	76.14	86.43	86.64
New Hanover	71.19	69.04	69.12	86.84	88.62
Onslow	18.22	21.35	57.44	64.70	67.52
AVERAGE	43.05	45.89	67.57	79.32	80.93
RWC					
Craven	32.39	26.74	55.20	56.32	51.35
Edgecombe	40.67	42.85	47.15	49.12	49.88
Lenoir	39.90	44.90	45.05	51.41	49.06
Nash	24.73	28.40	32.24	45.47	48.69
Pitt	30.83	42.84	49.81	60.63	60.02
Wayne	39.19	40.85	46.65	73.11	61.69
Wilson	42.22	49.82	51.05	59.88	55.90
AVERAGE	35.70	39.48	46.73	56.56	53.80
RAM					
Bladen	0.00	0.00	0.00	13.41	12.92
Brunswick	0.00	0.00	0.00	17.74	12.99
Camden	0.00	0.00	0.00	0.00	0.27
Carteret	36.24	27.49	27.19	25.90	23.64
Currituck	0.00	0.00	0.00	0.00	0.00
Gates	0.00	0.00	0.00	0.00	0.00
Harnett	20.29	22.28	22.46	27.50	23.29
Hoke	0.00	18.70	19.35	21.62	14.85
Johnston	12.46	19.89	23.07	30.67	23.73
Jones	0.00	0.00	0.00	0.00	0.00
Pender	0.00	0.00	0.00	0.08	0.06
Robeson	10.47	20.28	27.31	35.02	21.40
Sampson	8.87	15.54	15.91	16.80	17.35
AVERAGE	6.79	9.55	10.41	14.52	11.58

SOURCE: North Carolina Census of Population 1950 to 1990

Table 4.5 and Figure 4.3 Percent Change Urban Population in Eastern North Carolina, 1950 to 1990.



SOURCE: North Carolina Census of Population 1950 - 1990.

groups had gained in the percentage of the population which was composed of the rural non-farm sector.

Rural farm population

The rural farm population in Eastern North Carolina shrunk over 80 percent between 1950 and 1990. A decline in the numbers of rural farm residents took place for each decade in all the counties of the study area. The reduction in the numbers of farms and farmers is partially due to the move to larger, more specialized and more profitable farm enterprises (Bunce 1982). This would be an indication that less people were living on farmsteads by 1990 than in 1950. "The land available for sale or rent has been scattered at ever greater distances from their original farmsteads, and some have succumbed to the temptation to move into nearby towns and become 'sidewalk farmers' when their former farmsteads are no longer central to their farm operations" (Hart and Chestang 1978, 435). A common method of expanding acreage in recent years has been the acquisition of non-contiguous parcels of land. These may be purchased or rented, often from farmers who are retiring or who cannot compete in the modern agricultural economy and decide to sell their land (Bunce 1982).

A significant loss in the number of farms should be reflected in a changing economic structure. The loss can be attributable to out-migration or the reclassification of the residents into either rural non-farm or the urban sector. Although there is some discrepancy about the definition changes for rural farm used in the census, a time series was constructed showing the decline of the rural farm population both in percentage and actual numbers. Due to the definition changes summarized in Appendix A, a gap exists between 1970 and 1980. From 1950 to 1970, however, there was a decline for each decade. Considerable decline also occurred from 1980 to 1990 with the employment of the new definition. The changing of the definition created similar gaps in the rural non-farm data. An examination of the existing time series, however, suggests minimal change associated with the definitional distinction (Table 4.6 and Figure 4.4).

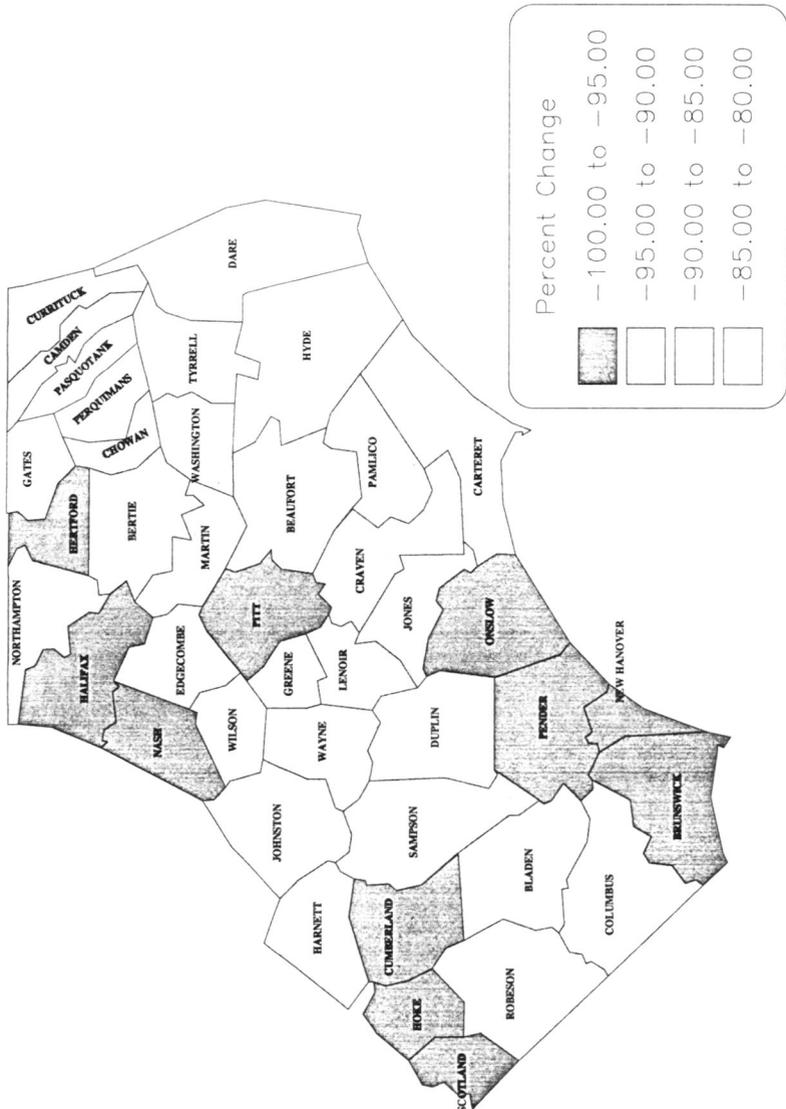
By 1990, all forty-one counties had less than 25 percent rural farm inhabitants. A significant decline also occurred in the proportion of the population composed of rural farm residents, in all counties and all decades. This indicates an increase in the

Table 4.6 Percent Rural Farm Residents in Eastern North Carolina by County Group, 1950 to 1990.

county name	1950	1960	1970	1980	1990
RURAL					
Beaufort	39.71	26.36	15.80	7.54	3.13
Bertie	63.56	47.79	32.56	10.28	5.47
Chowan	48.77	30.99	12.02	6.19	3.96
Columbus	59.26	44.82	25.63	12.66	5.90
Dare	1.41	2.27	29.95	0.61	0.21
Greene	82.59	61.91	41.02	14.87	7.15
Halifax	45.85	30.53	16.00	3.50	1.95
Hertford	47.53	30.23	14.92	2.99	2.28
Hyde	41.63	30.06	17.77	10.95	7.73
Martin	57.43	43.92	21.61	9.00	5.65
Northampton	63.07	40.57	12.55	6.51	4.92
Pamlico	28.73	16.53	23.20	3.49	1.57
Pasquotank	13.62	8.02	7.10	2.42	2.31
Perquimans	40.63	30.17	30.18	11.86	7.19
Scotland	37.11	17.94	11.14	2.19	0.89
Tyrrell	43.76	31.86	25.28	6.74	5.91
Washington	37.08	18.03	17.68	7.06	4.32
AVERAGE	41.76	28.44	19.69	6.60	3.92
METRO					
Cumberland	5.28	6.68	2.61	0.84	0.43
New Hanover	2.74	0.49	1.93	0.09	0.00
Onslow	25.62	8.15	4.61	1.53	0.77
AVERAGE	11.21	5.11	3.05	0.82	0.40
RWC					
Craven	21.16	12.26	9.99	2.42	1.33
Edgecombe	42.27	28.79	16.49	5.15	2.40
Lenoir	40.07	22.05	11.24	5.10	2.84
Nash	51.29	37.57	20.47	5.15	2.39
Pitt	47.39	28.39	14.83	3.84	1.94
Wayne	37.79	20.33	12.70	4.03	2.25
Wilson	41.51	27.02	14.37	4.31	3.42
AVERAGE	40.21	25.20	14.30	4.28	2.37
RAM					
Bladen	59.36	41.86	23.65	8.98	4.98
Brunswick	51.87	28.18	13.28	4.21	1.36
Camden	43.02	26.87	8.11	6.33	2.90
Carteret	11.52	4.94	5.07	1.52	0.76
Currituck	46.35	18.83	6.39	4.69	2.72
Duplin	65.70	49.49	24.92	12.66	8.89
Gates	60.66	38.44	24.66	10.72	9.29
Harnett	49.49	31.60	18.99	7.53	3.22
Hoke	62.73	35.63	20.43	3.80	2.54
Johnston	58.85	41.40	23.57	10.39	4.85
Jones	69.17	49.07	21.00	15.38	5.42
Pender	58.23	31.27	19.62	5.75	2.78
Robeson	54.36	42.54	20.35	7.23	3.11
Sampson	67.34	47.08	29.70	12.21	6.30
AVERAGE	54.19	34.80	18.55	7.96	4.22

SOURCE: North Carolina Census of Population 1950 - 1990.

Figure 4.4 Percent Change Rural Farm Population in Eastern North Carolina, 1950 to 1990.



SOURCE: North Carolina Census of Population 1950 - 1990.

percentage of urban and/or rural non-farm residents, or, a loss in total population as a result of out-migration (Table 4.7).

The percent changes for rural farm population from 1950 to 1990 shows that all the counties had a decrease of 75 to 100 percent (Figure 4.5). The large shift in the percentage of rural farm residents which make up the total population coincides with a strong decline in the actual numbers of the rural farm residents (Table 4.8 and Figure 4.6).

Total population change

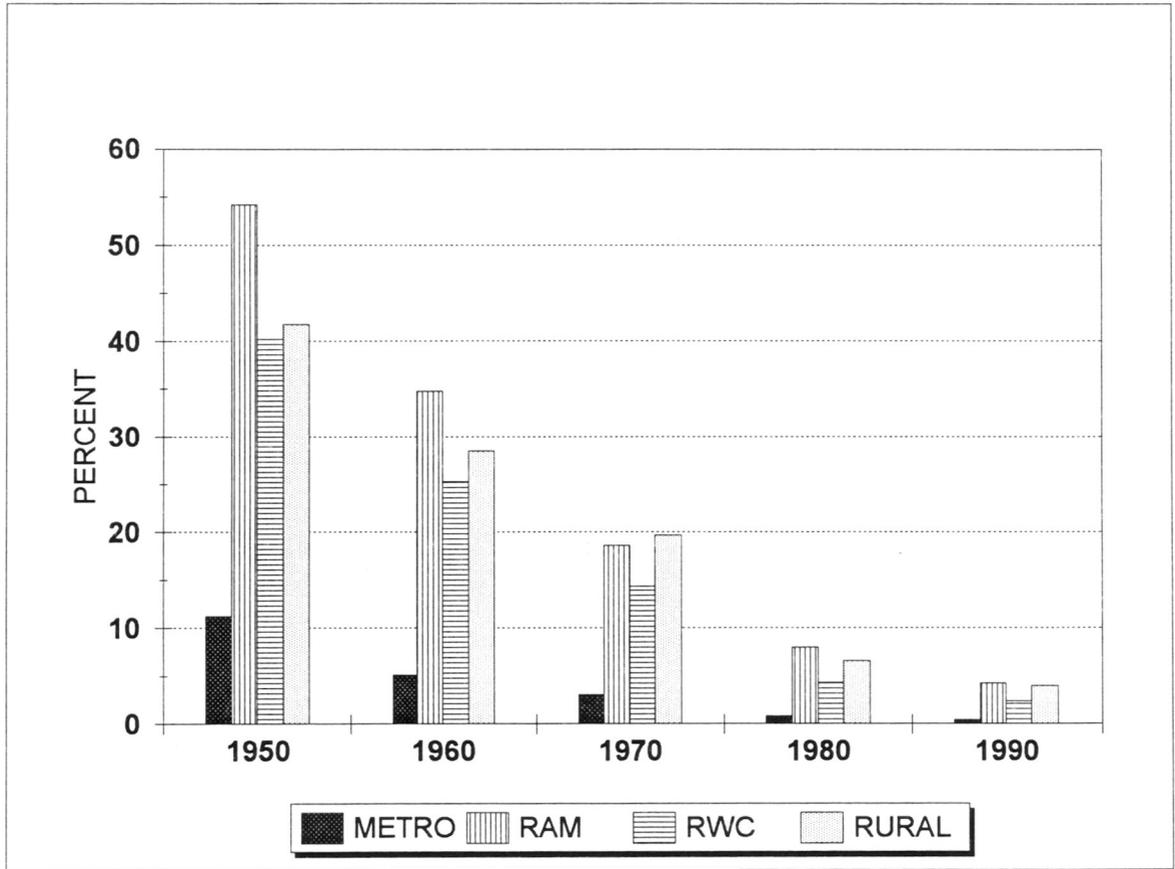
Thirteen counties had a decline in population growth during the last four decades. Although they all were in the Coastal Plain (Columbus, Greene, Halifax, Northampton, Martin, Bertie, Bladen Sampson, Duplin, and Gates), none of them had significant urban areas. The remaining three counties are in the Tidewater (Jones, Hyde, and Tyrrell). All the counties with a negative percent change in total population, are very rural in character and have no urban areas with populations exceeding 25,000 residents. Even though these counties

Table 4.7 Distribution of Counties Based on Proportion of Rural Farm Population.

<u>Year</u>	<u>< 25%</u>	<u>25-50%</u>	<u>50-75%</u>	<u>>75%</u>
1950	6	19	15	1
1960	13	27	1	0
1970	34	7	0	0
1980	41	0	0	0
1990	41	0	0	0

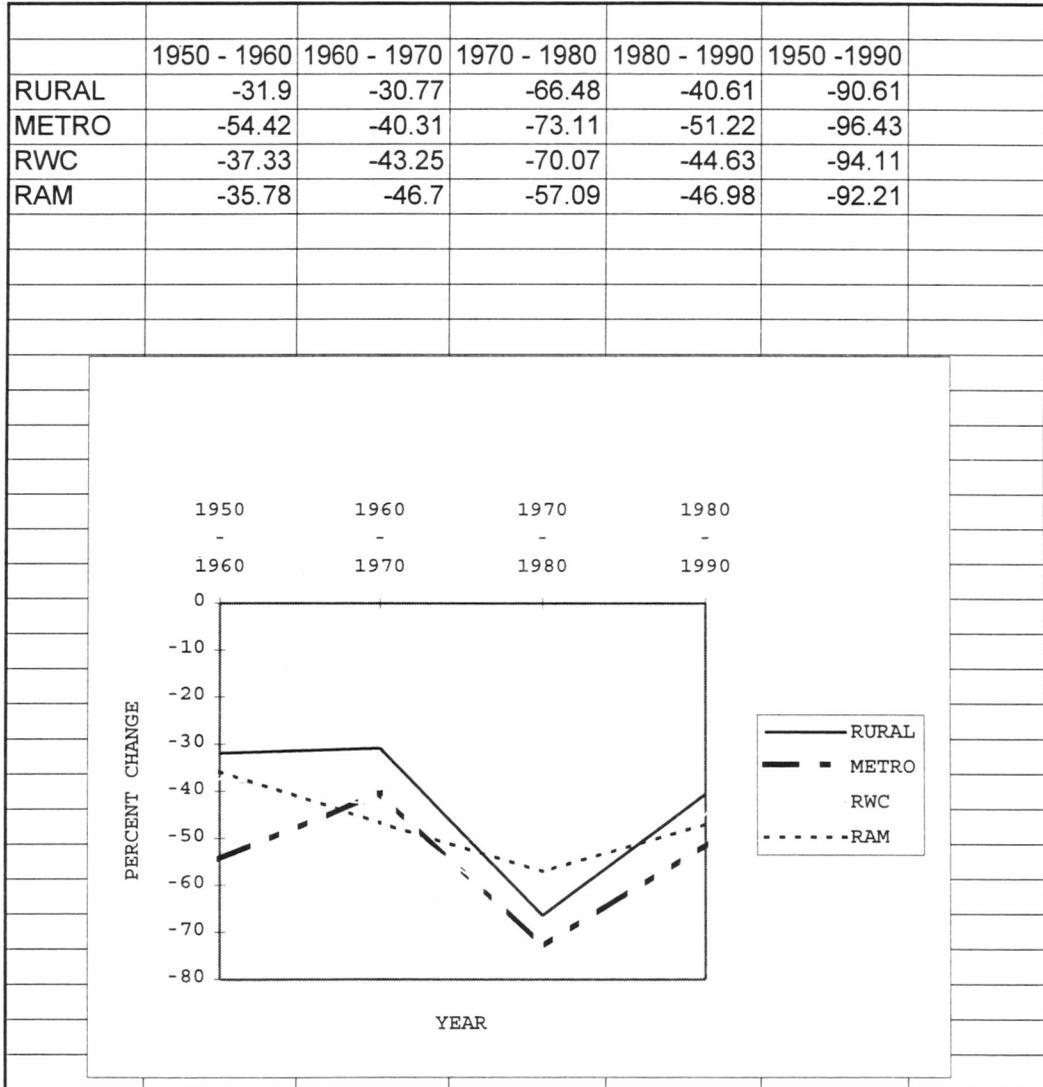
Source: North Carolina Census of Population 1950 - 1990.

Figure 4.5 Percent Rural Farm by County Group, 1950 to 1990.



SOURCE: North Carolina Census of Population 1950 - 1990.

Table 4.8 and Figure 4.6 Percent Change Rural Farm in Eastern North Carolina, 1950 to 1990.



SOURCE: North Carolina Census of Population 1950 - 1990.

lost population overall they gained in rural non-farm numbers and rural non-farm percentage of the total population. This would indicate that the loss occurred in the rural farm and/or urban population. Six of the counties had no urban population (Bertie, Northampton, Pamlico, Perquimans, Hyde, Tyrrell, and Greene), so the loss did take place in their rural farm sector. All of the coastal counties, except for Hyde have had a 50 percent change or greater in their total population. Five of the coastal counties (Brunswick, Onslow, Carteret, Dare, and Currituck) had over 100 percent change in their population (Figure 4.7). The coastal and metropolitan counties had the largest percentage of growth in the study area. This indicates a large amount of in-migration is taking place in these counties.

The total number of people living in the Rural county group declined from the decades of 1950 to 1970 with a loss of 24,039 residents. Between 1970 and 1990, however, the total number of residents increased in the number to 20,635 residents. The Metro counties experienced an increase of 343,363 residents from 1950 to 1990, and thereby, more than doubled their population. Like the Metro counties, the RWC counties had increases in each decade, but these increases were not as significant in number as those of the Metro

counties. The RWC counties had a total increase of 161,884 residents. The RAM counties had a very slight increase from 1950 to 1960. A small decline in population took place from 1960 to 1970 with a moderate increase in numbers for 1980 to 1990. The increase that took place overall was 133,577 for the four decades. The 1990 census reported the largest overall population for any of the decades. Overall, the largest number of people were in the RAM counties, followed by RWC counties, and then Metro counties, and Rural counties (Table 4.9). Thus, the census demonstrates that: (1) the Metro counties have grown the most; and, (2) less growth has occurred in rural counties with cities in them as well as rural counties which are adjacent to metropolitan areas. Rural counties without large urban areas or located adjacent to metropolitan areas experienced a decline from 1950 to 1970, but then showed a slight increase in population from 1980 to 1990.

Rural population total

In 1950, just twelve counties had 50 to 75 percent rural inhabitants. Twenty seven counties had 75 percent to 100 percent of its population classified as rural. By 1990, however, seven counties had less than 50 percent of their populations classified as rural. All

Table 4.9 Total Population of Eastern North Carolina, 1950 to 1990.

county name	1950	1960	1970	1980	1990
RURAL					
Beaufort	37134	36014	35980	40355	42283
Bertie	26439	24350	20528	21024	20388
Chowan	12540	11729	10764	12558	13506
Columbus	50621	48973	46937	51037	49587
Dare	5405	5935	6995	13377	22746
Greene	18024	16741	14967	16117	15384
Halifax	58377	58956	53884	55286	55516
Hertford	21453	22718	23529	23368	22523
Hyde	6479	5765	5571	5873	5411
Martin	27938	27139	24730	25948	25078
Northampton	28432	26811	24009	22584	20798
Pamlico	9993	9850	9467	10398	11372
Pasquotank	24347	25630	26824	28462	31298
Perquimans	9602	9178	8351	9486	10447
Scotland	26336	25183	26929	32273	33754
Tyrrell	5048	4520	3806	3975	3856
Washington	13180	13488	14038	14801	13997
TOTAL	381348	372980	357309	386922	397944
METRO					
Cumberland	96006	148418	212042	247160	274566
New Hanover	63272	71742	82996	103471	120284
Onslow	42047	82706	103126	112784	149838
TOTAL	201325	302866	398164	463415	544688
RWC					
Craven	48823	58773	62554	71043	81613
Edgecombe	51634	54226	52341	55988	56558
Lenoir	45953	55276	55204	59819	57274
Nash	59919	61002	59122	67153	76677
Pitt	63789	69942	73900	90146	107924
Wayne	64267	82059	85408	97054	104666
Wilson	54506	57716	57486	63132	66061
TOTAL	388891	438994	446015	504335	550773
RAM					
Bladen	29703	28881	26477	30491	28663
Brunswick	19238	20278	24223	35777	50985
Camden	5223	5598	5453	5829	5904
Carteret	23059	30940	31603	41092	52556
Currituck	6201	6601	6976	11089	13736
Duplin	41074	40270	38015	40952	39995
Gates	9555	9254	8524	8875	9305
Harnett	47605	48236	49667	59570	67822
Hoke	15756	16356	16436	20383	22856
Johnston	65906	62936	61737	70599	81306
Jones	11004	11005	9779	9705	9414
Pender	18423	18508	18149	22215	28855
Robeson	87769	89102	84842	101610	105179
Sampson	49780	48013	44954	49687	47297
TOTAL	400593	435978	400358	477383	535210

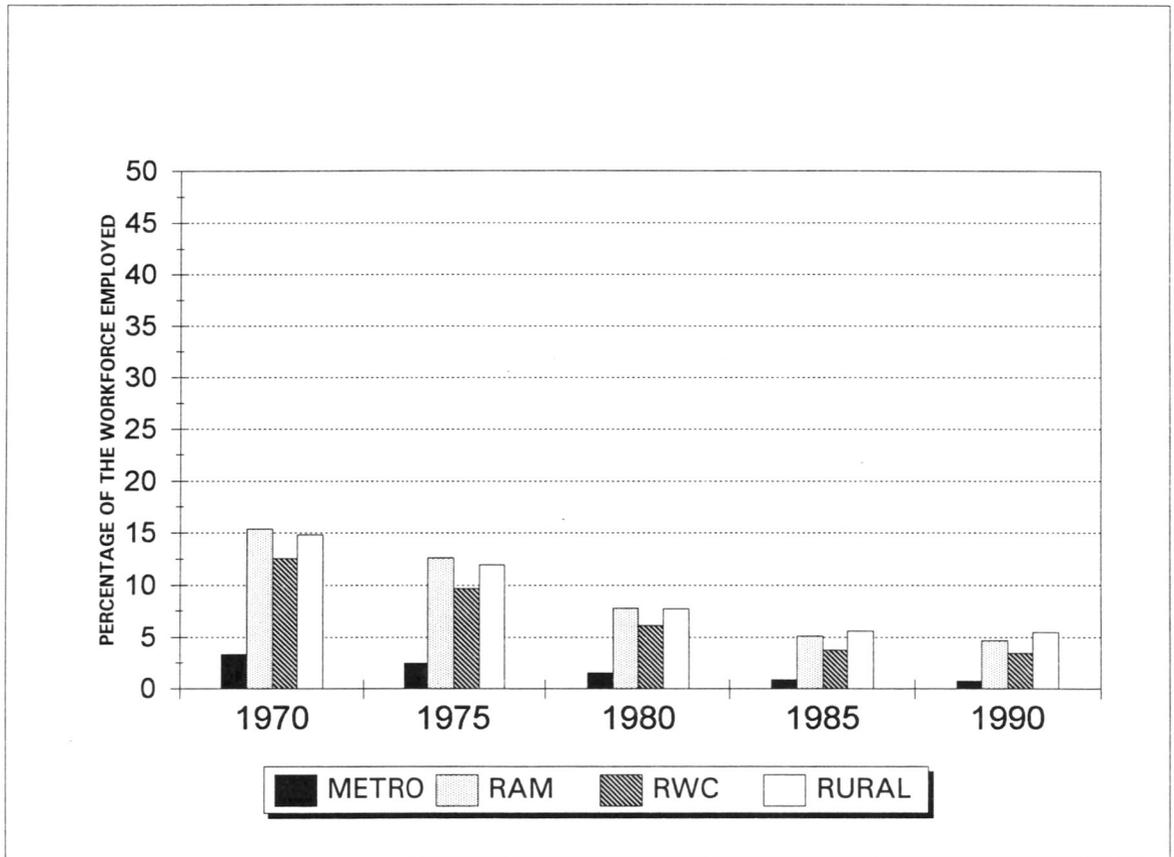
SOURCE: North Carolina Census of Population 1950 - 1990.

seven contained urban areas with at least 25,000 residents. Ten counties (rather than twelve) had between 50 percent and 75 percent of their populations classified as rural. Twenty four counties (rather than twenty-seven) had between 75 percent and 100 percent rural inhabitants. Hence, the study area is comprised of mostly rural residents. While the relative proportion of rural residents has dropped during the last four decades, the majority of the residents in the study area are still rural inhabitants.

Increase in the number of industrial employees

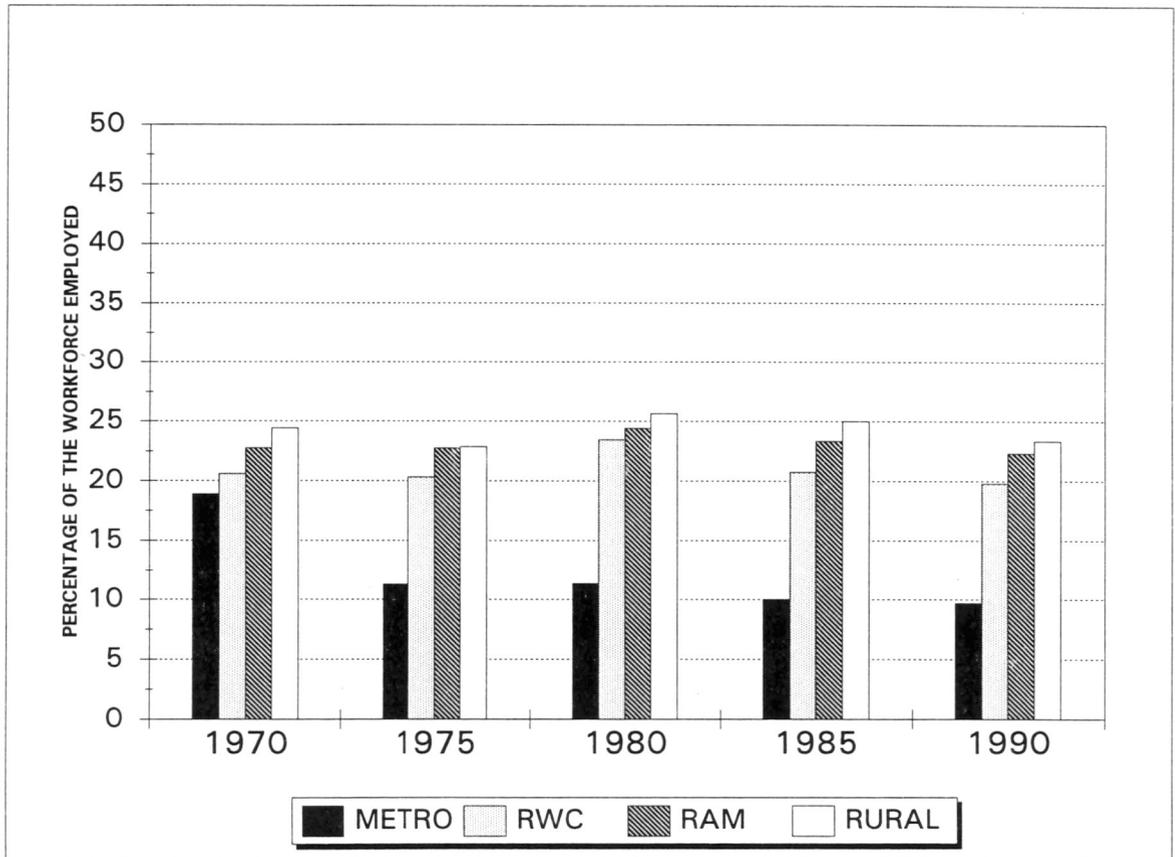
Recent employment data show that, the number of industrial employees in the region has increased for both the manufacturing and service sectors since 1970. Meanwhile, the percentage of the civilian work-force employed in the agricultural sector declined (Figure 4.8) for all county groups from 1970 to 1990, (It never comprised more than around 15 percent of total employment). The percentage of the civilian work-force employed in manufacturing industry remained fairly stable for the RWC, RAM, and Rural county groups. All of these groups maintained a percentage of 20 percent to 25 percent employment in manufacturing (Figure 4.9). Significantly, however, the percentage of manufacturing

Figure 4.8 Percent of the Workforce Empolyed in Agricultural by County Group, 1970 to 1990.



SOURCE: Employment Security Commission.

Figure 4.9 Percent of the Workforce Employed in Manufacturing by County Group, 1970 to 1990.



SOURCE: Employment Security Commission.

employees for Metro counties declined sharply in the early 1970s from 1970 at 18.88 percent to 11.31 percent in 1975 (Table 4.10). The percent of the civilian work-force employed in the service industry showed an increase for all county groups from 1970 to 1990 (Figure 4.10). Metro counties have over 70 percent of their work-force employed in this sector, including a high of 77.61 percent in 1990 (Table 4.10).

Large employment increases in the service sector for the other three county groups shows the growing importance of this sector for employment. Increased industrial employment in conjunction with the increased size of rural non-farm populations in rural counties suggest a significant occupation shift among the rural farm population. Agricultural employment decreased dramatically between 1976 and 1988. Beginning in 1977 there was a steady decline from 62,000 employees to 25,000 employees by 1987. A slight increase, associated with the extension of citizenship to illegal aliens which were employed as migrant workers, occurred from 1988 to 1991. Overall patterns show that the agricultural sector is becoming less important as a source of employment and that manufacturing is less important to Metro counties but remains a large source of employment for the counties classified as Rural, RAM,

Table 4.10 Percent of the Workforce by Occupation in each County Group, 1970 to 1990.

AGRICULTURE

	1970	1975	1980	1985	1990
METRO	3.33	2.49	1.55	0.86	0.78
RAM	15.35	12.64	7.79	5.06	4.65
RWC	12.54	9.71	6.15	3.75	3.45
RURAL	14.82	11.95	7.74	5.6	5.44

MANUFACTURING

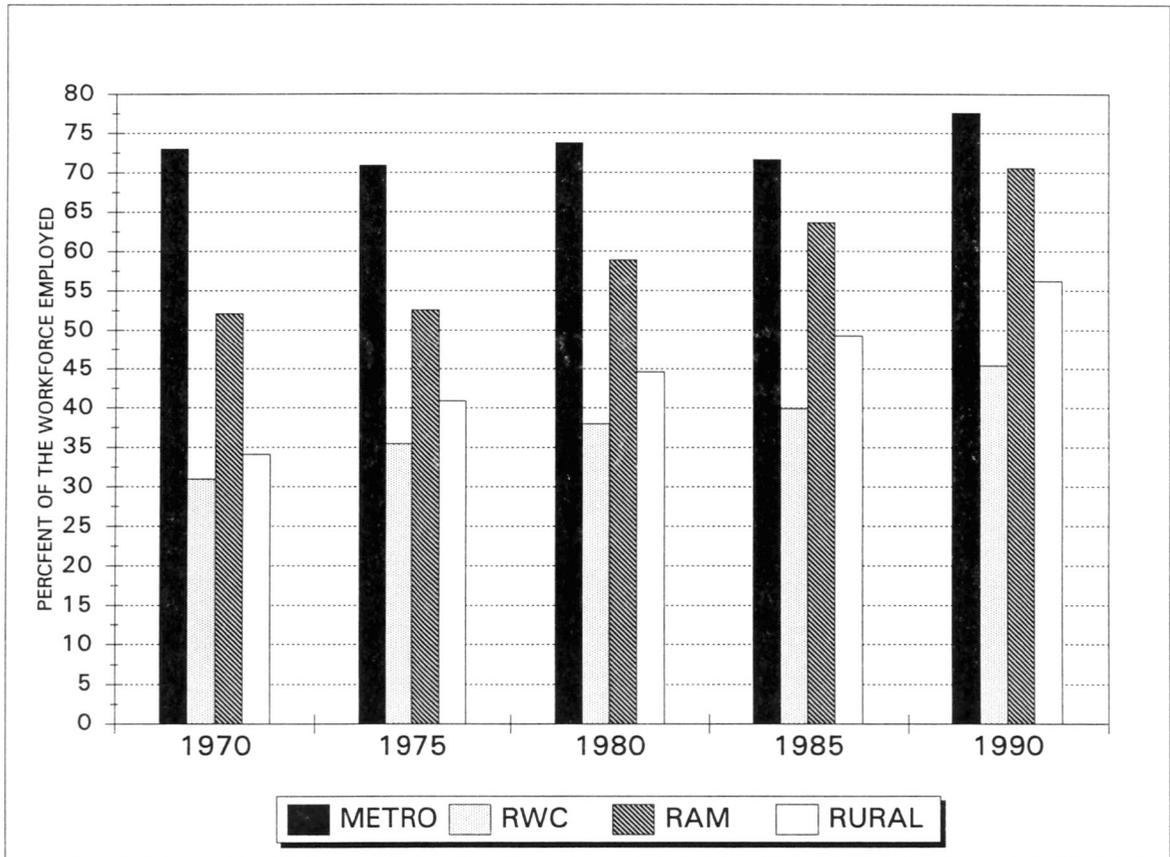
	1970	1975	1980	1985	1990
METRO	18.88	11.31	11.37	10.02	9.73
RWC	20.61	20.35	23.45	20.76	19.82
RAM	22.75	22.82	24.44	23.33	22.38
RURAL	24.42	22.91	25.7	25.05	23.37

SERVICE

	1970	1975	1980	1985	1990
METRO	72.96	70.83	73.74	71.63	77.61
RWC	31	35.52	37.98	39.92	45.34
RAM	52.14	52.54	58.87	63.65	70.59
RURAL	34.07	40.86	44.61	49.23	56.2

SOURCE: Employment Security Commission.

Figure 4.10 Percent of the Workforce Employed in the Service Industry by County Group, 1970 to 1990.



SOURCE: Employment Security Commission.

or RWC. The service sector provides the bulk of employment for all county groups in the study area.

The number of manufacturing employees has varied the most since 1950. Employment reached its lowest point in 1970 and 1971. A steady rise took place from 1970 to 1980, despite a drastic drop in 1975. Renewed growth occurred from 1983 to a peak in 1989. Numbers fell slightly from the peak in 1990 and 1991 with a slight rise in 1992. The Metro counties (as opposed to the total study area) had a drop in 1977, 1983, 1987 and 1992. The RWC counties had the same sequence of rises and falls as the entire region, but declines were not as severe. In 1975, for example, very little decline took place as compared to other county groups. Apart from fluctuations during the 1980s, the rural areas follow roughly the same patterns as the whole region.

Increased occurrence of commuting

Bunce (1982) stressed that,

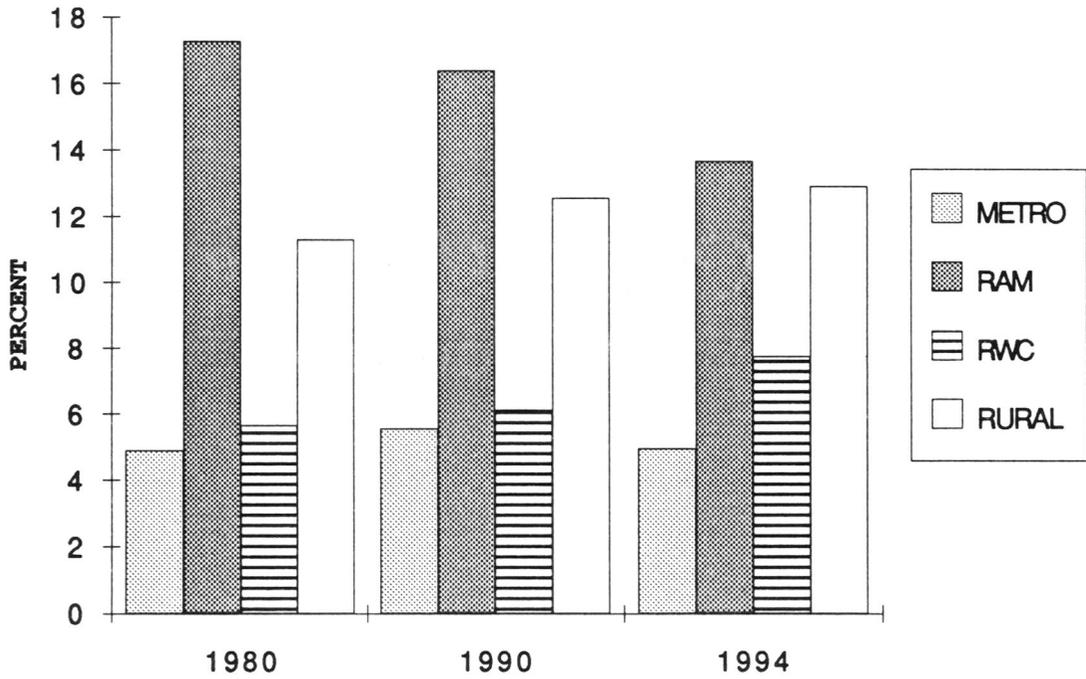
"A significant proportion of rural residential growth is associated with retired people. Outward movement by urbanities into rural areas is one factor in the trend towards residential specialization. But its origins

can be traced also to the increase in commuting to urban jobs on the part of the rural population, including the established rural non-farm population and growing numbers of farmers and farm residents who engage in off-farm work. In fact, recent trends suggest that an expansion of manufacturing and other non-farm jobs in non-metro and rural areas has provided new opportunities for rural residents beyond the immediate urban hinterland (Bunce 1982, 152).

People residing in counties designated as Rural or RAM are making longer and longer journeys to work. Data from both the telephone survey and census reports demonstrate this. A larger percentage of the work-force for the RAM counties and Rural county groups traveled over 45 minutes, one way, to their place of employment than for the RWC and Metro county groups (Figure 4.11). This would indicate that a larger percentage of workers in the Rural and RAM counties as compared to RWC and Metro ones are employed in places which are at least 20 or more miles from their place of residence. .

The results of the 1980 and 1990 journey to work data from the North Carolina census of the population

Figure 4.11 Percent of the Workforce Traveling Over 45 Minutes to Work by County Group.



SOURCE: Employment Security Commission, and Research Development Institute.

show that for the total study area, the percentage of the work-force that traveled in longer time intervals to work increased since 1980. The highest percentage of workers fell into the 10 to 19 minute range (Table 4.11). In the Coastal Plain there are no major natural features such as mountains or large bodies of water which seriously influence the general geographic patterns of commuting (Lonsdale 1966).

During the last decade, the proportion of the work-force traveling less than 10 minutes decreased for all county groups (Table 4.11). The Rural, Metro, and RAM counties experienced the largest decrease (an average of 4 percent). Those counties designated as RWC had the least loss (less than 1 percent).

Table 4.11 Journey to Work Data for Eastern North Carolina by County Group, 1980, 1990, and 1994.

METRO			
<u>Time to work</u>	<u>1980</u>	<u>1990</u>	<u>1994</u>
Less than 10 minutes	23.43%	19.12%	28.40%
10 to 19 minutes	38.56%	38.80%	32.70%
20 to 29 minutes	21.20%	22.50%	24.05%
30 to 44 minutes	11.92%	14.02%	9.90%
45 or more minutes	4.89%	5.56%	4.95%

RAM			
<u>Time to work</u>	<u>1980</u>	<u>1990</u>	<u>1994</u>
Less than 10 minutes	19.61%	15.58%	31.55%
10 to 19 minutes	28.92%	29.84%	26.10%
20 to 29 minutes	16.25%	17.64%	13.65%
30 to 44 minutes	18.31%	20.48%	15.10%
45 or more minutes	17.26%	16.37%	13.65%

RWC

<u>Time to work</u>	<u>1980</u>	<u>1990</u>	<u>1994</u>
Less than 10 minutes	20.05%	19.27%	38.40%
10 to 19 minutes	44.17%	45.05%	25.55%
20 to 29 minutes	18.16%	17.36%	14.15%
30 to 44 minutes	11.96%	12.20%	14.15%
45 or more minutes	5.65%	6.12%	7.75%

RURAL

<u>Time to work</u>	<u>1980</u>	<u>1990</u>	<u>1994</u>
Less than 10 minutes	26.12%	22.20%	36.20%
10 to 19 minutes	33.20%	34.52%	29.50%
20 to 29 minutes	14.78%	15.76%	13.25%
30 to 44 minutes	14.60%	14.98%	8.10%
45 or more minutes	11.30%	12.55%	12.90%

Source: North Carolina Census of the Population, 1980 and 1990, and 1994 East Carolina Survey Resources Laboratory Telephone Survey.

Out of state in-migrants and retirees at coastal and resort counties

Large numbers of retirees and out-of-state residents are located in recreational areas and counties along the Atlantic coastline. The percent change in the total population was very high for all coastal counties except Hyde. Coastal counties without a major metropolitan center enjoyed large increases in the size of their rural non-farm populations.

CHAPTER 5 DISCUSSION

While many rural people have emigrated permanently from rural areas when employment opportunities and community attractiveness declined, there is a growing tendency for those within reach of urban employment to commute to this (source of employment in urban area) from their rural homes. In addition, the revival of the population in the urban fringe has created new economic opportunities for rural residents. Improved employment opportunities have extended into rural areas beyond the fringe, with resultant increases in non-farm population and the stimulation of local residential development. (Bunce 1982, 166-167)

The Tidewater area of eastern North Carolina encountered higher population growth than any other region in the state. The urban population grew 24.9 percent and the rural population increased 18.4 percent. By contrast, however, the Coastal Plain had the lowest overall percent change in population. The rural population increased 4.9 percent and the urban

population increased 11.1 percent. More significantly, however, the Coastal Plain was the only region in the state to experience net out-migration from 1980 to 1990.

All of the counties along the coastline experienced in-migration and strong population growth, with the exclusion of Hyde county. Hyde county, unlike the other coastal counties, does not have easily accessible coastal areas. Excluding Hyde county, all the coastal counties with small or no urban populations are growing as well as metropolitan coastal counties of Onslow and New Hanover. The counties with accessible coastlines have become popular areas for recreation and tourism in recent decades. Many beach houses have been built on the barrier islands off the North Carolina coast. Gade and Stillwell (1986, 108) summarize population growth in the Tidewater counties:

While a population boom continues in several of the counties with the Atlantic Ocean on their doorstep (Brunswick, 4.63 percent per year; Dare, 4.49 percent, Currituck, 4.16 percent; and Carteret, 3.34 percent), some of the counties more distant from the coast are either growing at a rate much slower than the state average (Camden, 0.14 percent per year; Pasquotank, 0.16 percent; Jones 0.18 percent;

and Chowan and Hyde at 0.37 percent), or they are losing people (Washington, minus 0.41 percent per year).

In recent years, the Tidewater area has enjoyed the highest percentage change in the number of employees. This is probably due to the growing employment need within the service industry which is booming from a new interest in tourism. Both rural and urban employment increased by nearly 40 percent. No other regions in North Carolina have had comparable growth (Table 5.1). Despite strong employment growth, manufacturing jobs, constitute less than 15 percent of total employment in the Tidewater region. Instead, employment consists mostly of service and white collar industry. Service industries are on the rise in the coastal counties to serve people that have come to enjoy the resources that the coast of North Carolina has to offer. Comparatively speaking, the Coastal Plain area far more dependent on the manufacturing industries for employment. Although service-based employment is growing rapidly as well.

Table 5.1 Percent Change in the Number of Employed from 1980 to 1990 for the Regions of North Carolina.

	<u>Percent change in number employed 1980-1990</u>
<u>North Carolina Total</u>	24.18
Rural	18.74
Urban	28.25
<u>Tidewater</u>	38.59
Rural	38.45
Urban	38.85
<u>Coastal Plain</u>	18.17
Rural	15.65
Urban	33.33
<u>Piedmont</u>	26.06
Rural	15.98
Urban	28.45
<u>Mountain</u>	17.37
Rural	17.62
Urban	16.82

SOURCE: N.C.Rural Profile 1992

Changing Farm Trends

Morrison and Wheeler (1976, 21) contend that, decentralization of manufacturing is a major factor in non-metropolitan growth. According to Hart (1989), Small town factories have facilitated the shift from field to factory for many farm people by giving them an alternative source of employment and income. A wide range of industries are found in eastern North Carolina, most of which are labor-intensive. A recent report entitled Persistent Poverty in Rural America (1993, 140), notes that "...rural manufacturers absorbed workers displaced by mechanization in farming and other extractive activities and served as an important source of off-farm incomes." In the case of eastern North Carolina, the rural farm portion of the population has declined since 1950.

As Hart and Chestang (1978, 456) note, "A boom in manufacturing employment in eastern North Carolina coincided with the mechanization of tobacco in the area." Today the majority of people living on farms receive their primary income from other sources of employment.

The total number of farms in North Carolina declined steadily after 1950. Gade and Stillwell (1986) found that the average farm size increased from 84 acres in 1960 to 124 acres by 1980. Perrin and Sappie (1990, 15) report that the number of farm operators, which defines the number of farms, has declined by about 75 percent since 1950, and the total land in farms has declined by about 50 percent." From 1960 to 1980 North Carolina had a decline in agricultural employment of 418,000 to 147,000 people (Gade and Stillwell 1986). Of the state, the Tidewater and Coastal Plain had the largest decrease in percent change from 1982 to 1987, according to the North Carolina Rural Profile 1990. Average farm sizes are the largest in the Tidewater and the Coastal Plain portions of the state. In North Carolina as a whole, the average farm size, measured in acres per farm, has more than doubled since 1950 (Perrin and Sappie, 1990).

Larger farm sizes along with the decrease in the number of farms is associated with the tremendous growth of corporate farming. Over 300,000 acres of former wetlands are being developed in the Pamlico peninsula, and another 44,000 acres in eastern Carteret County as large corporate farms (Gade and Stillwell 1986, 103-106). Two of the four have Italian and Japanese

ownership. Many small agricultural land holdings have been purchased or rented by large agricultural corporations. Hart and Chestang (1978,451) conclude, "the introduction of new farm machines almost inevitably results in farm enlargement, because the real cost of a piece of farm equipment is closely related to the amount of ground that it can and does cover." Not surprisingly in 1987 the average market value of products sold per farm in 1987 was twice as high for the Coastal Plain and Tidewater regions compared to the rest of the state. Thirty-seven percent of the farmers in the Tidewater and Coastal Plain regions, reported their principal occupation as other than farming. Rates were much higher elsewhere in the state of North Carolina.

Rapid decline, both in absolute number and percentage, occurred among the rural farm sector of the population. By 1990, rural farm residents consisted of less than 2.5 percent of the population. The Rural counties even experienced large losses in this sector of the population.

Rural Non-farm Trends

In the Rural, RAM, and RWC county groups, the rural non-farm portion of the population increased markedly

between 1950 and 1990 (Table 5.2). By 1990, all counties designated as rural by the census had more than 50 percent of their populations comprised of the rural non-farm sector. By contrast, the expansion of urban areas and subsequent reclassification reduced the number and percentage of the rural non-farm residents for Metro counties like Onslow and New Hanover.

Urban Population Trends

As a whole, either the urban population of eastern North Carolina has increased or has maintained its size. Ninety percent of the numerical increase (in urban population) which occurred during the decade of the sixties is due to the addition of areas annexed (Davis and Clifford 1973, 25). Urban areas in the Metro counties have their borders extending into the counties with a small urban population as a result of urban expansion creating a situation where urban residents live in counties with no urban areas of their own. Annexation is the most important factor in urban population growth regardless of size of place category" (Davis and Clifford 1973). This phenomenon is still widespread today.

Table 5.2 Percentage of Rural Non-farm Population for Each County Group During the Decades Between 1950, 1960, 1970, 1980, and 1990.

	<u>1950</u>	<u>1960</u>	<u>1970</u>	<u>1980</u>	<u>1990</u>
METRO	42.22%	49.00%	29.39%	19.45%	18.67%
RAM	39.95%	56.38%	71.21%	66.26%	84.05%
RWC	24.08%	35.31%	38.96%	43.13%	43.83%
RURAL	40.69%	53.30%	62.45%	69.61%	78.71%

SOURCE: North Carolina Census of Population 1950 - 1990

1. CROSS-OVER EMPLOYMENT

The growth of industrial branch plants in rural areas outlying large urban centers and smaller urban areas in rural counties has allowed the declining farm population to shift occupations without changing their residential location.

Crossover Employment Trends

A large, non-unionized labor force is one key attraction for industry to locate in eastern North Carolina. Tax considerations and large inexpensive tracts of land on which to locate a plant are also incentives to open plants in the region. Hart and Chestang (1978, 475) stress that there is no question that branch plants of national corporations were attracted to the area of eastern North Carolina by the availability of a cheap labor force.

Many large industries have moved to the region. "The availability of a large labor force, emancipated from the land by the new farm machines, has attracted many new factories to the tobacco districts and eastern North Carolina has made the transition from agriculture to a mixed economy..." (Hart and Chestang 1978, 435-

436). In their study of southern manufacturers, Lonsdale and Browning (1971, 260) maintain that,

The very character of Southern manufacturing-labor intensive, low profit margin, the achievement of labor economies often essential to maintain a competitive market position-tends to discourage many manufacturers from "concentrating" in larger cities because of tighter labor markets and higher wages, despite some of the obvious advantages an urban location offers.

The leading branches of manufacturing which are found in North Carolina are food products, textiles, apparel, wood products, and chemical (Lonsdale 1966). The presence of state colleges, military establishments and above all, industrial development is a major factor in stimulating population growth (Bunce 1982). Large manufacturing industries in eastern North Carolina include Weyerhaeuser in Craven County, Dupont in Lenoir County, General Electric in New Hanover County, and Glaxco-Wellcome in Pitt County.

Most of the counties have designated areas as industrial parks. These parks are generally located near major transportation routes such as railroads, highways, and airports. Towns improve their

infrastructure and offer incentives to attract new industry. Common incentives include, "city services, tax-free revenue bonding, and an 'unofficial' promise not to annex the area containing the plant site" (Lonsdale and Browning 1971, 262). Because, new manufacturing plants and industrial parks are becoming a widespread phenomenon it comes as no surprise that they are increasingly dispersed into rural areas (Gade and Stillwell 1986).

The percentage of industrial employees within the population has fluctuated from decade to decade and from county group to county group. The RAM counties, the RWC counties, and the Rural counties had their lowest in-group percentage in 1970. Metro counties had the lowest in-group percentage in 1990, although the percentage varied less than 1 percent in the last three censuses.

Metro counties had the lowest overall percentages of their populations employed in manufacturing industry among the county groups, ranging between 4.5 percent to 5.5 percent for each decade. RWC counties and the Rural counties had the highest percentages of the groups with averages of 9 percent and 11.3 percent respectively. The RAM counties had between 8.5 percent and 10.1 percent of their populations employed in manufacturing

industry. This indicates that manufacturing industry is more of a factor in employment rates for rural county groups than the metropolitan based counties.

In terms of manufacturing employment, RWC counties showed the least amount of fluctuation during the last four decades. All county groups experienced a decline in 1975. The rural adjacent and extreme rural county groups experienced another period of decrease in 1981. In 1982, a decline began among counties designated as metropolitan and rural with notable urban centers. Although the changing economy affected each group's manufacturing employment in different ways, rural counties with urban areas were least affected by the economy *vis a' vis* manufacturing employment. Branch plants have been an important source of employment in rural areas.

The population percentage which was employed in the service sector (non-manufacturing industry) increased each decade for all four county groups. The highest percentages occurred in the RWC category and the group had a significantly higher proportion of the population employed in the service industry than the other county groups. The Metro county group had the next highest overall percentage. RAM counties had the lowest

percentage employed in non-manufacturing industry of the county groups.

In New Hanover county, Wilmington has a growing movie production industry. Pitt County has the East Carolina School of Medicine which has fostered the growth of the medical and pharmaceutical industries in the area. The coastal counties have many resort and vacation facilities as well as retirement communities. "For reasons of good politics, favorable land deals, and an accommodating climate North Carolina has emerged with one of the nation's largest concentrations of military personnel and activities" (Gade and Stillwell 1986, 128). There are several military bases in the area which generate local civilian employment (Fort Bragg and Pope Air Force Base-Cumberland County, Camp Lejuene and New River Air Station-Onslow County, Seymour Johnson Air Force Base-Wayne County, Cherry Point Air Station-Craven County, and Military Ocean Terminal, Brunswick County). In addition to fostering many service industries, the military installations employ thousands of civilians. Two major state universities are in the region: East Carolina University (Greenville), and the University of North Carolina (Wilmington). There are several other smaller universities and colleges located throughout the study area.

The largest increase in non-manufacturing industrial employment took place in the RWC group. The most continuous growth occurred in the RAM counties. The Rural counties experienced the least continuous growth of the county groups. During two periods of stagnation - 1980 to 1983 and 1989 to 1992 - no increases in service industry employment took place.

All county groups decreased in the percentage of the total population employed in agriculture from 1970 to 1990. All county divisions demonstrated the same patterns of increase and decline for agricultural employment. From 1970 to 1976, the numbers of employees fluctuated lightly, but remained fairly constant. A steady decline occurred from 1976 to 1987. This decline was the result of new technologies which lessen the number of workers needed in labor intensive agriculture such as tobacco production. The rate of decrease was about the same for all county groups. The lowest number of agricultural employees for all county groups was in 1987. According to the Rural Sociological Society Task Force on Persistent Rural Poverty (1993, 1-2) in the late 1960s and through the 1970s, "Manufacturing employment and service sector growth more than offset the continued decline in agriculture and other resource based employment." Hence, the effects of the economy

were felt to a relatively equal degree for all county groups.

The increase in the number of agricultural workers that occurred from 1987 to 1991 did not take place due to a boom in agriculture. It was the result of changing government policy regarding illegal aliens. A period of amnesty was allowed for migrant workers and illegal aliens allowing them to register for citizenship in the United States. This allowed many workers who were not citizens to enter the country and be recognized by the employment survey of the Employment Security Commission, the chief monitoring agency.

2. COMMUTING PATTERNS

Increased commuting (both in distance and proportion) has allowed people to maintain their personal preference for homes in a rural environment as opposed to living in urban areas closer to their place of employment.

Commuting Patterns

The advantages of cheap labor, inexpensive land, and low taxes have been reinforced by improved communications, development of regional airline service, and deregulation of the trucking industry (Hart 1989). "Large numbers of (industrial) plants are in rural settings. Whether rural or small town, many plants take advantage of the willingness of rural residents to commute long distances to factory employment, and tap largely rural labor markets" (Lonsdale and Browning 1971, 261). In eastern North Carolina this is particularly true of commuters in many counties adjacent to the Piedmont region of the state. The Piedmont is made up of large metropolitan centers and is home to numerous large industries. A study conducted by Davis and Clifford (1973, 26) on rural-urban population change in North Carolina found, "It appears that rural places near large cities are growing more rapidly than the large cities themselves." The Research Triangle Park provides opportunities for employment in high tech industry and is within driving distance of many counties within eastern North Carolina. The Research Triangle Park (RTP) is probably the country's largest and best known industrial research park. By 1985, the RTP had

forty private and governmental research and development laboratories which employ over 20,000 people with an annual payrolls exceeding \$500 million (Gade and Stillwell 1986). Many rural residents also commute to the metropolitan counties of the Tidewater and Coastal Plain as well as to several of the mid-sized cities of these regions.

"The impact of nearly universal automobile ownership in permitting a longer journey-to-work for factory workers was not widely felt in the South until after World War II" (Lonsdale and Browning 1971, 262). Improved transportation infrastructure allows eastern North Carolinians to commute to jobs in metropolitan areas, yet maintain their homes in a rural setting. "Crisscrossed by rail and a dense, well maintained system of highways, including Interstate 95, the Coastal Plains' numerous towns and medium sized cities have excellent transportation access to each other and to the remainder of the state" (Gade and Stillwell 1986, 135). Accessibility to good roads is critical (Johnson 1985). The decade from 1960 to 1970 showed that small rural communities which grew fastest were to a large extent suburban residence centers (Davis and Clifford 1973). In 1980, for example, almost 3500 residents of Pender County had commuted to work in the adjacent metropolitan

county of New Hanover (Gade and Stillwell 1986). Lonsdale (1966) stressed that in rural areas out-migration proceeded more slowly than might be expected in view of the limited economic opportunities in many of these areas. He concludes that,

"Given an opportunity to work in a nearby industrial plant, rural and small-town dwellers have shown a marked propensity to maintain their established place of residence and a willingness to commute great distances to work. Thus industries often draw their labor from remarkably broad geographic areas."
(Lonsdale 1966, 115)

In eastern North Carolina, the highest proportion of workers traveling less than ten minutes to their place of employment occurs in the category designated as Rural counties. These counties have no large urban areas located within them and have small populations which are spread over a wide area. Some employment is associated with agriculture. However, this also reflects the fact that industries located in these counties provide jobs for local residents. Because most of the large new factories lie outside municipal boundaries, industrialization has not been associated

with urbanization (Hart and Chestang 1978). They spew massive loads of traffic onto the overcrowded highways at the end of each shift, because many of their workers commute great distances from highway side homes in rural areas" (Hart and Chestang 1978, 457).

The percentage of the work-force traveling less than ten minutes to work is the lowest for the RAM counties. In these counties there are less sources of employment located in close proximity to the residents of these counties. Moreover, the RAM counties have the highest percentage of people traveling over forty-five minutes to their place of employment. These counties border Metro counties which contain many potential sources of employment so that many residents can work in the Metro counties, but maintain their place of residence in the adjacent counties. This would explain the high percentage of people traveling long distances to work and the low percentages of people working close to their place of residence.

In 1994, over 20 percent of the work-force from RWC counties traveled over 30 minutes to their place of employment. This suggests that many residents are living in the rural areas of the county and work in

service or manufacturing industries in the principal cities within these counties.

3. COASTAL ORIENTATION

The rural non-farm population of counties along the coast has grown due to the predominance of in-migrants to the area for recreation and retirement (particularly to the barrier islands that line the coast).

Coastal Orientation

The Tidewater has the fastest growing population of any region in the state. The coastal counties have experienced the greatest population increases and heaviest influx of in-migration of the study area. Burby's (1979, 10) study of second homes in North Carolina found that, by 1976, the coastal area had attracted an estimated 83,690 recreational properties. The number of recreational properties has nearly doubled since then. Approximately 37 percent of the barrier islands are now developed for residential and recreational use (Gade and Stillwell 1986). All of the barrier islands which are easily accessible have experienced large amounts of development and is especially concentrated in counties with barrier island

ocean beaches (Burby 1979, 24-25). The largest increase in employment, for both rural and urban areas, has occurred in the Tidewater. According to Johnson (1985, 153),

Counties rich in climate and recreational amenities...attracted migrants from the swelling ranks of affluent and mobile retirees, and were popular with the vacationing public; the resulting increased demand for goods and services reduced the outflow of residents by providing jobs locally.

New Hanover and Brunswick counties both have islands with exclusive housing developments. Figure Eight Island and Bald Head Island are private and a toll must be paid to enter the island by non-residents. Every coastal county in North Carolina, except one, has a substantial amount of development. Hyde is the only one that is not easily accessible and does not have extensive development. It is the only coastal county which has not experienced any recent growth in population. Many resort hotels and golf courses are located in the coastal areas. Private homes, rental homes, high-rise condominiums, and hotels line the roads of the barrier islands. Elsewhere, however, beach front property is in such demand that development is taking

place on lots which are prone to ocean over-wash during storm events such as hurricanes and northeasters which occur regularly in the spring, summer, and fall months. The village of Holden Beach, for example, was completely destroyed by Hurricane Hazel in 1954 only to be rebuilt with greater density of homes than before (Gade and Stillwell 1986).

The Tidewater has more waterfront areas besides those found at the coast. Gade and Stillwell (1986, 94) note that,

“Coastal water features of the sounds, estuaries and waterways cover 4650 square miles.... They are among the most valuable resources in the state serving as inexpensive transportation routes, sources of water for industrial use, natural environments for a great variety of biota, and prime recreational areas.”

The Coastal Plain, like the Tidewater, has many recreational attractions. Many are attracted to the mild climates and numerous waterfront settings. Several towns have historic districts which have been rejuvenated and 'gentrified' making these desirable areas to live in. Examples

include many older renovated houses around the downtown areas of Wilmington, New Bern, Washington, and Tarboro. Many of the counties of eastern North Carolina are popular among retired military personnel. These retirees have access to amenities which are available through the many military bases of the area such as low cost medical care and the commissaries (Gade and Stillwell 1986).

CHAPTER 6 CONCLUSION

This study found that there has been an increase in the number of residents which live in rural counties in eastern North Carolina. Much of this increase has been in the rural non-farm sector of the population and is the result of in-migration to the Tidewater and reclassification of rural farm residents in the Coastal Plain. The Tidewater has grown at a much faster rate than the Coastal Plain. The county groupings show that the amount of increase depended largely on the proximity of the rural county to urban areas or coastal development zones.

CROSS-OVER EMPLOYMENT

Manufacturing accounts for a small portion of the work-force but is significant none the less. Around 10 percent of the total population of the study area is employed in manufacturing. An increase occurred from 1970 to 1980 with a slight decline in percentage from 1980 to 1990. The percentages employed in manufacturing remained fairly steady, but was effected by changes in the economy from time to time (notable in times of economic recession. Overall, the Coastal Plain is more

dependent on manufacturing as a source of employment than the Tidewater.

A much larger percentage of the population is employed in service industries (i.e. about 27 percent of the population in 1990). The percentages have increased dramatically for the entire area. Service industries now provide the bulk of employment for the entire study area in each county group. This growth is attributable to the various activities (universities, military bases, and manufacturing industry) that require the use of services, and the growth of certain areas as resort and tourist attractions (Tidewater). The growth of this employment sector is indicative of a changing economic base.

Agriculture is on the decline as an employment source. Beginning as early as the late 1960s, manufacturing became a major source of employment for the study area. The service industries have escalated in importance since the late 1970s. This is especially true of the counties on the coastline or those with large urban areas or military bases. It is obvious that with the decline of the rural farm population and the increase in rural non-farm residents that there is a change in employment taking place. The only logical

conclusion is that this change is a shift from farming to industry, both manufacturing and service, and that agriculture is becoming less labor intensive.

Recent employment data, like the population data, indicates a general decline in the number and proportion of the rural farm residents and a concomitant increase of the rural non-farm residents. This phenomenon can only be explained in one of two ways; either changes associated with reclassification or with changes associated with out-migration of rural farm inhabitants. Reclassification occurs through change in occupation from farm to the service sector or to manufacturing. With the increase in the percentage of employees in services, it is likely that farmers are changing their occupation to that sector most often, although manufacturing has and is still playing an important role in reclassification.

COMMUTING PATTERNS

Census data shows that the percentage of the workforce that commutes is increasing in eastern North Carolina. The percentage of people traveling less than ten minutes is decreasing for all the county groups while the percentage of workers traveling longer

distances is rising. Both the census data and the telephone survey data show that most long distance commuters originate in the RAM counties and in Rural ones. Thus, many rural non-farm residents are living in rural areas, but often in a county other than the one they are employed in. A large percentage of the workforce in the RWC counties commutes 20 to 40 minutes. Lonsdale (1966, 124) concludes that, "The farm wages are lower and the alternate job opportunities are more limited in North Carolina: perhaps this partially explains greater commuting distances in North Carolina." Undoubtedly, personal preference for living in a rural setting is another major factor associated with long distance commuting patterns in eastern North Carolina. This trend also demonstrates that the population of the study area is becoming increasingly mobile.

COASTAL ORIENTATION

From 1950 to 1990, the coastal counties within the study area experienced the largest rate of population increase for the entire study area. In-migration contributed to population growth especially in the rural non-farm sector of all rural counties in the Tidewater region. Strong growth in non-manufacturing employment occurred as a result of new development, new residents,

and increased tourism. The coastal counties are one of the fastest growing areas within North Carolina and is an important economic resource within the study area.

APPENDIX A

URBAN RESIDENTS 1950:

All persons living in (A) places of 2,500 inhabitants or more incorporated as cities, villages, boroughs, and towns, (B) unincorporated places of 2,500 inhabitants or more, and (C) other territory, incorporated or unincorporated, included in urbanized areas.

URBAN RESIDENTS 1960:

Same as above.

URBAN RESIDENTS 1970:

Same as above, except excluding those persons living in the rural portion of extended cities.

URBAN RESIDENTS 1980 AND 1990:

Same as for 1970.

RURAL FARM 1950:

Persons living on places of 10 or more acres from which sales of farm products amounted to \$50 or more in the preceding calendar year or on places of fewer than 10 acres from which sales of farm products amounted to \$250 or more in the preceding year. This includes urban and rural residents.

RURAL FARM 1960 AND 1970:

Same as above definition except only rural residents are included.

RURAL FARM 1980 AND 1990:

Identified only in rural areas and includes all persons living on places of one acre or more from which at least \$1,000 worth of agricultural products were sold during 1979.

RURAL NON-FARM 1950 TO 1990:

All persons living in areas not classified as urban, that do not meet the defined requirements for rural farm.

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