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ECONOMICS
INFORMATION
REPORT

**THE
RURAL REAL
ESTATE MARKET
IN
NORTH CAROLINA**

LEON E. DANIELSON

GIANNINI FOUNDATION OF
AGRICULTURAL ECONOMICS

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THE RURAL REAL ESTATE MARKET IN NORTH CAROLINA

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ABSTRACT

This paper discusses the market for farmland in North Carolina and presents the results of the 1980 North Carolina Rural Real Estate Market Survey. Land value data that are currently available from the U.S. Department of Agriculture and the U.S. Department of Commerce are discussed and trends in real and nominal land values in North Carolina and the nation are examined. Several agricultural and nonagricultural factors that influence demand for North Carolina farmland for farm use and for conversion to nonfarm use are identified. Results of the 1980 survey provide information on (1) the nature and extent of farmland market activity in North Carolina based upon the judgment of survey respondents, and (2) average land values for actual sales of farmland both remaining in farming and being converted to nonfarm use. Considerable emphasis is given to the influence of nonfarm factors on land values and the land market.

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THE RURAL REAL ESTATE MARKET IN NORTH CAROLINA

INTRODUCTION¹

The land market and the value of land have captured the interest of landowners and nonlandowners alike. Interest in the land market has accelerated in recent years, due in large part to rapid increases in land values and due to concerns expressed by many for the loss of farmland to nonfarm uses.

Rising land values affect many people, but the magnitude and direction of the impact vary greatly. Owners of land are encouraged by rapid appreciation in value, at least until estate or capital gains taxes must be paid, or until county revaluation dramatically increases the assessed valuation of the land. By law, reappraisal of real estate property for tax purposes in North Carolina must be made at least every eight years. Hence, county-by-county, there is a surge of interest in the value of land every eight years when the new assessment becomes the basis for calculating landowner property tax bills (Neuman and Pasour, 1981).

Appraisers obviously have a vested interest in keeping abreast of land market trends. Knowledge of current land values and rates of value appreciation over a period of many years are also important in estate planning. Consumers have a special interest since higher land values

¹This report presents general information about the North Carolina land market including data that are based upon an aggregation of land values across large areas and varying local conditions. Thus, data do not reflect the price of a particular tract and should not be used for that purpose except as a general guide. Additional reports of a more analytical nature will be published at a later date.

may lead to higher land rents and other costs of production that may, in turn, lead to higher food prices. If land costs were to be incorporated in price support loan rates, a cost of production spiral could result for some commodities (Morris, 1978).

Interest in the land market has also been stimulated since the early 1970s by an increased concern for how farmland, especially high quality farmland, is used and the rate at which it is converted to non-farm use. Studies at the national, state and local level have attempted to estimate the future demand for farmland, the acreage of farmland currently available for cropland production and the potential for adding to that cropland base. While the value of farmland for use in farming has increased, nonfarm value is greater and creates economic incentives for land to flow out of farming into commercial, industrial and residential use. The value of farmland in these alternative uses is at least a partial measure of the pressure for conversion.

However, there is little overall information about the farmland market in North Carolina. How strong is the demand for farmland? Are sales increasing or decreasing compared to previous years? Does the value of land differ between regions? What is the quality of farmland being sold for nonfarm purposes? Does quality of farmland sold vary by region? How is value affected by variation in land quality. Is non-farm demand higher than in previous years?

The structure of landownership may also play a role in determining land use and land value. For example, who is buying and selling farmland? Where are the sales occurring? Does the buyer live nearby or far away? Does the structure of ownership influence whether farmland is converted to nonfarm use?

The general purpose of this study is to provide information that will lead to greater understanding of the market for farmland in North Carolina. To accomplish this, a survey was conducted that provides (1) land market information based upon the respondent's general knowledge and experience, and (2) detailed information on actual sales of individual tracts of farmland for farm and nonfarm use. This report summarizes that survey, identifies and examines selected land market data that are available, and discusses farm and nonfarm factors that

influence the value of farmland and the rate at which land is converted to more intensive use.

LAND VALUES, STUDIES AND SOURCES OF DATA

Farmland value data are collected and published by the federal government, primarily by the U.S. Department of Agriculture and the Bureau of Census, U.S. Department of Commerce, by several Federal Reserve Districts and by some individual states throughout the United States. Because of its widespread use, it is useful to know how this information is collected and analyzed.

Studies and Sources of Data

U.S. Department of Agriculture - Economics and Statistics Service

In the past, land value data have been published in two forms by the U.S. Department of Agriculture. Data collected for the two reports are obtained from two different surveys conducted with the assistance in each state of the Statistical Reporting Service. The Statistical Reporting Service conducts monthly Farm Report surveys of farm producers, primarily to obtain information about farmers' production plans. However, the February, March and November surveys have historically contained land value questions as well. Currently, about 1,500 North Carolina farmers and ranchers are sent forms and about 500 forms are returned.² In February of each year North Carolina producers are asked to estimate, for the land they operate, the following farmland values on an average per acre basis: (1) all farmlands with improvements (i.e., with buildings), (2) all farmlands without improvements and (3) all cropland (excluding building value). In March, estimates of cash rents and land values are obtained. In November, land value estimates are obtained on farmland with improvements included. In each of these surveys, respondents are instructed to delete from consideration value of tracts affected by nonfarm influences. Data are

²Personal communication with the North Carolina Crop Reporting Service personnel.

tabulated on a Crop Reporting District basis without weighting. State-wide estimates are obtained by weighting Crop Reporting District land value averages by the farm acreage estimated in the U.S. Census of Agriculture (Walker and Jones, 1979). An index of value for the current year is then calculated through comparison with the land value estimate of a base period (currently March 1, 1977). Land value estimates for publication in the two reports are obtained by applying the index of value described above to the land value estimate obtained in the most recent Agriculture Census. Thus, indexes are the main output of the Farm Report surveys. The actual land values are linked back to the Agriculture Census. When new Agriculture Census data become available, the value estimates between Census years are revised to maintain consistency. No effort is made to ensure that the percent changes represented by the index exactly parallel the changes in value (Walker and Jones, 1979; USDA, 1971).

A biennial Farm and Rural Land Market Survey is also conducted in March and October of each year to collect a wider variety of land market data than that provided by the Farm Report. Surveys are sent out by the North Carolina state office of the Crop Reporting Service to approximately 375 brokers, realtors, farmers, Federal Land Bank and Production Credit Association employees and others familiar with the land market. Approximately 180 surveys are normally returned. Judgment estimates are requested for changes in the demand and supply of farmland and the number of sales for farming purposes taking place. Detailed information is also requested for the five most recent voluntary sales of farmland with which the respondent is familiar that are equal to or greater than 10 acres in size.

These two surveys, the Farm Report and Farm and Rural Land Market Survey, provide the data for the two U.S. Department of Agriculture's land value publications. It is the data from these publications that receive widespread coverage. Farm Real Estate Market Developments, published in the summer of each year, combines data from both surveys and is a broad summary of land values, land value indexes, estimates of rates of transfer, financing methods, cash rents, the importance of non-farm influences and similar information. Two supplements to this annual report have been published in recent years in March and May based upon

the Farm Report surveys in November and February, respectively. They contain indexes showing the semiannual change in farm real estate values. However, in February 1980, USDA announced that due to "a steady decline in the quality and quantity of the November survey data, estimates of land values based on that survey and published in March will be discontinued" (USDA, 1981).

The importance of the indexes of value and their use in constructing estimates of land value deserves further emphasis. Given an estimate of value on February 1 of any year, the index of value change is used to calculate the next (annual or semiannual) estimate of value, i.e., the value is derived from the survey-estimated index of change in value and not vice versa. These estimated values are then revised upon receipt periodically of land value estimates from the U.S. Census of Agriculture to maintain consistency of value between the two estimates. As a result, for example, Supplement Number 1 to CD85, March 1981 (Jeremias and Jones, 1981a) presents revised land value estimates for 1977-80 based upon 1978 Census of Agriculture data. Additional revisions for 1971 and 1976-81 were made in CD86, August 1981 (Jeremias and Jones, 1981b) for some states.

Other publications, such as Farm Real Estate Historical Series Data: 1850-1970 (Clifton and Crowley, 1973) containing a time-series of data on land values, land in farms, numbers of farms, farm debt and farm real estate taxes per \$100 by state and for the nation, are published occasionally. For additional information concerning land value and farm finance data series, see USDA (1971).

U.S. Census of Agriculture

The U.S. Census of Agriculture, usually conducted every five years, the last time in 1978, requests separate estimates of the "current market value" of land and building (1) owned, (2) operated or (3) leased by the respondent to others. In contrast to the USDA farm real estate value surveys, Agriculture Census respondents are not instructed to exclude from consideration those lands whose values are influenced by nonfarm factors. The estimated values by these three categories are published in Agriculture Census reports.

For purposes of the 1978 Agriculture Census, a farm was defined as "any place from which \$1,000 or more of agricultural products were sold or normally would have been sold during the census year"(U.S. Department of Commerce, 1980). Definitions previously used (since 1959) were less restrictive income-wise, and more places would have been counted as farms. At any rate, the mail survey from which Agriculture Census land value estimates are obtained are sent to operators of farms (landownership is not required) that qualify using the definition of a farm in acceptance at the time the survey is taken.

The reason for describing in some detail these two series is that the U.S. Department of Agriculture and Agriculture Census estimates of value are not directly comparable because the respondent populations from which they sample are different. As discussed above, depending on the survey, respondents include (1) farmers and ranchers, (2) brokers, realtors, farmers, Federal Land Bank and Production Credit Association employees, and (3) farm operators as defined for the most recent Census of Agriculture: Different weighting procedures are also used with U.S. Department of Agriculture weights (i.e., farmland acreage) being constant for several years in succession while Agriculture Census weights vary each census year.

For these reasons, no attempt is made by the U.S. Department of Agriculture to adjust its land value indexes to agree with land values derived from the Agriculture Census. They are expected to be different. However, the U.S. Department of Agriculture land values themselves are adjusted to be in line with the estimated Agriculture Census values. The indexes of value changes are thought to be better estimators of land value changes than are the Agriculture Census because of the reasons cited above (USDA, 1971).

Other Land Value Data

The two series described above, while they provide most of the data for discussion of farmland values in the United States, are not the only nonprivate studies being conducted. The Federal Land Bank computerizes data from selected farmland sales and uses the information internally. Their sales data are made available to University faculty upon request for study of various land economics issues. Federal

Reserve District surveys are conducted for the Chicago, Minneapolis, Dallas and Richmond areas (Walker, undated).

Researchers in several state universities around the United States also conduct analyses of land values in their own states. Some conduct their own surveys while others use data available from, for example, the Federal Land Bank or state affiliates of the Society of Farm Managers and Rural Appraisers. These studies are generally of one or two types: (1) a detailed analysis of the demand for land, or (2) a more general summary of land value and land market data for the study area. Most survey forms used by individual researchers are one or two pages in length and ask general judgmental questions about the strength of the land market and the value of farmland. Few collect data on actual sales. An exception is the annual series of analyses conducted by Philip Raup at the University of Minnesota (Landwehr and Raup, 1981).

Land Value Trends

The land value data receiving the greatest attention and publicity are published yearly by the U.S. Department of Agriculture in Farm Real Estate Market Developments and supplements to that report. Appendix Table A.1 shows that nominal North Carolina land values have increased from \$25 per acre in 1915 to \$1,331 per acre in 1981. The increase has not been steady and continuous, however. After reaching a value of \$54 per acre in 1920, land values declined and did not reach that level again until 1944. Values then increased at a moderate rate until the early 1970s with value declining only in the years 1954 and 1970. Since the early 1970s values have increased more rapidly.

Appendix Table A.2 presents additional information on land values for the United States and in North Carolina for the period 1971-81. During that period average land value in North Carolina increased from \$371 per acre to \$1,331 per acre, an average compounded rate of 13.6 percent; whereas average value over the entire United States increased from \$203 per acre to \$796 per acre, an average compounded appreciation rate of 14.6 percent. Yearly increases in land value ranged from a low of 7 percent to a high of 27 percent for North Carolina, and from a low of 8 percent to a high of 23 percent for the United States.

The index of land value, perhaps a better measure of the yearly increase in farmland value as discussed earlier, rose from 52 to 155 for North Carolina, an average compounded rate of 11.5 percent, and from 43 to 158 for the United States, an average compounded rate of 13.9 percent (Appendix Table A.2). The bar chart portion of Figure 1 shows yearly variation in the percentage increase of the index of farmland value for North Carolina and the United States. The yearly increase of the North Carolina index lagged behind the United States index in the middle 1970s. However, since 1978-79 the North Carolina land value index has equaled or exceeded the United States index.

The estimates of value cited above and the rates of change are all in dollar values unadjusted for inflation. In reality it is important for current landowners and prospective investors to know whether money invested in land has yielded a greater return in the past than could have been earned elsewhere. Although there are many factors such as leverage and the marginal tax rate of the investor that play a role in such calculations for a specific investor, a starting point for such an evaluation might be comparison of the rate of land value appreciation with the rate of inflation.

The most commonly used and reported index of inflation is the Consumer Price Index (CPI). The CPI measures the change in cost of a fixed bundle of consumption goods from one period to another. A second index, the Gross National Product Implicit Price Deflator (GNIPID), is calculated allowing quantities of specific goods in the bundle to vary in response to price changes. The CPI is thus a "fixed weight" index whereas the GNIPID is referred to as a "variable weight" index. On conceptual grounds the GNIPID is more realistic because it accounts for the fact that consumers normally adjust their purchases when relative prices change.

Appendix Table A.3 presents CPI and GNIPID indexes for the years 1972 to 1981 adjusted to 1972 as base year for ease of comparison. Nominal land values (actual values unadjusted for inflation) are also included as are calculated real values of land (nominal land values times 100 divided by the CPI) over the 1972-81 period. Figure 2 diagrams these nominal and real values over time and shows the large difference between nominal land value and value after adjustment for

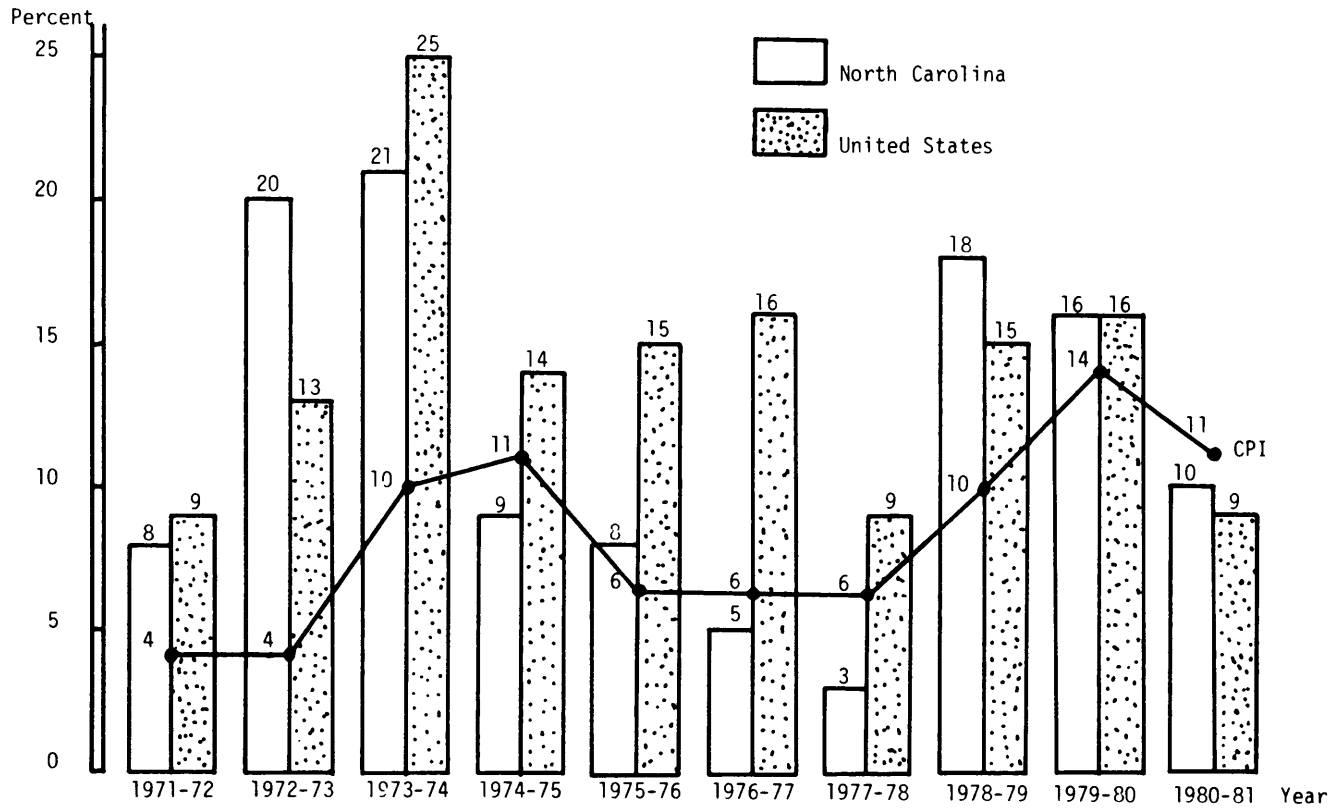


Figure 1. Percent Change in Index of Farmland Value, North Carolina and United States, and Percent Change in Consumer Price Index: 1971-72 to 1980-81

Source: Appendix Tables A.2 and A.3.

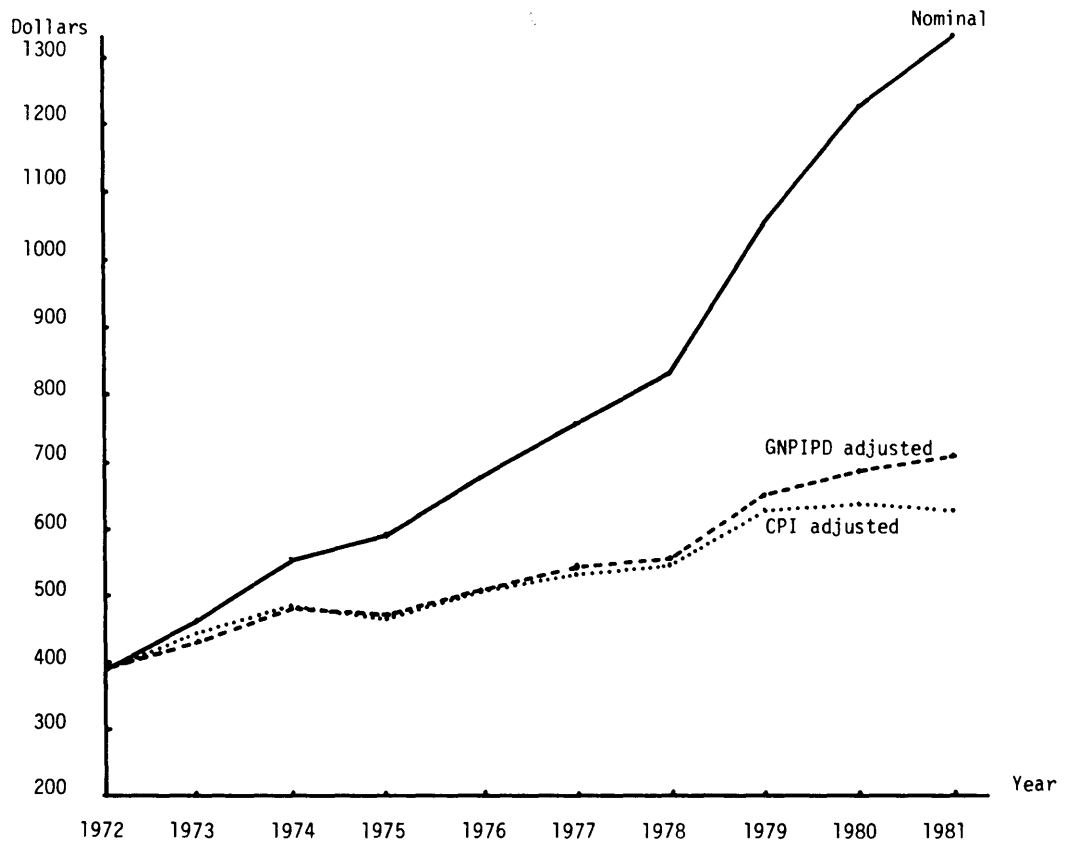


Figure 2. Nominal and Real Value of North Carolina Farmland: 1972-81

Source: Appendix Table A.3.

inflation. The impact of the measure of inflation chosen is dwarfed by the difference between nominal and real value. The nominal value of North Carolina farmland increased an average of 14.8 percent annually between 1972 and 1981. However, after adjusting for inflation as measured by the CPI, the real rate of return averaged only 5.2 percent per year. Using the GNPDP to deflate nominal value yielded an annual rate of return of 6.7 percent. Figure 1, which displays year-to-year percent increases in the index of land values, also includes a plot of the rate of change in the CPI. This allows for direct evaluation of land as a hedge against inflation. For the United States, during the 1971-81 period, land values increased more rapidly than did inflation as measured by the CPI in every year except 1980-81. However, in North Carolina, the rate of change in the CPI exceeded the change in the index of land value in 4 of the last 10 years (1974-75, 1976-77, 1977-78, 1980-81).³

In summary, while the value of land has increased rapidly in the last 10 years and has received a lot of publicity, the value adjusted for inflation has increased very little. In some years, the real value of land has often declined.

FACTORS INFLUENCING RURAL REAL ESTATE VALUES IN NORTH CAROLINA

Agricultural Factors

Geography

North Carolina is a diverse state geographically, ranging from the mountains in the west to the sand dunes and sandy beaches in the east.

³The fact that the change in the CPI has not exceeded the change in the index of value in several years in the last 10 does not mean that land necessarily has been a poor hedge against inflation. Between 1972 and 1981 the CPI increased by a factor of 2.1; whereas the land value index increased by a factor of 2.6. In addition, circumstances surrounding the investment, such as leverage and the investors' marginal tax as mentioned earlier, greatly influence the merits of investment in North Carolina land. In Figure 2, the flatness of the CPI-adjusted real value of land curve also demonstrates that land values and the CPI have increased at nearly the same rate in the 1972-81 period. Note that Figure 2 uses the nominal value of land data while Figure 1 is based upon the value index. Figure 2 dramatically shows that the rapid increase in land values in recent years has only approximately kept pace with the inflation rate.

From an agricultural standpoint, geography is an important factor in determining land value because it affects the agricultural income potential of the land.

North Carolina is commonly divided into three distinct geographical regions: Coastal Plain, Piedmont and Mountain (Figure 3). Within these regions, the soil, climate and drainage factors are similar and have contributed to distinct patterns of agricultural production, population growth and population distribution. The Coastal Region is comprised of four major land resource areas designated by the Soil Conservation Service:⁴ the Carolina and Georgia Sandhills, the Southern Coastal Plain, Atlantic Coast Flatwoods and the Tidewater area. Along the coast, soils having restricted drainage dominate. Large areas of tidal marsh consisting of both organic and mineral soils are found there extending inland along streams and rivers. Bog soils are also common. Most of this land is in forests. With drainage and management, much of the land, especially the mineral soil, is highly productive. A large amount of the wet soils in this area have been converted to cropland in recent years through drainage. Further inland, poor drainage becomes less of a problem, elevation rises and the soils become more sandy. A high proportion of the land is in farms, and while woodland acreage predominates, the western portion of the Coastal Plain has the highest percentage of land in cropland of any region in North Carolina. The value of land for agricultural use is expected to be higher in the Coastal Plain than elsewhere in the state.

The Piedmont area is more hilly, with elevation ranging from about 300 feet on the eastern edge to 1,000 feet on the western edge. Various red clay soils dominate, and the area is cut by many perennial streams and smaller streams that are dry part of the year. Although most of the land is in farms, the percentage of woodland increases while the percentage of cropland decreases compared to the Coastal Plain. The value of land for agricultural use is below that of the Coastal Plain, but nonfarm demands are great and push the average value of farmland above agricultural value.

⁴This discussion is based upon Austin (1965).

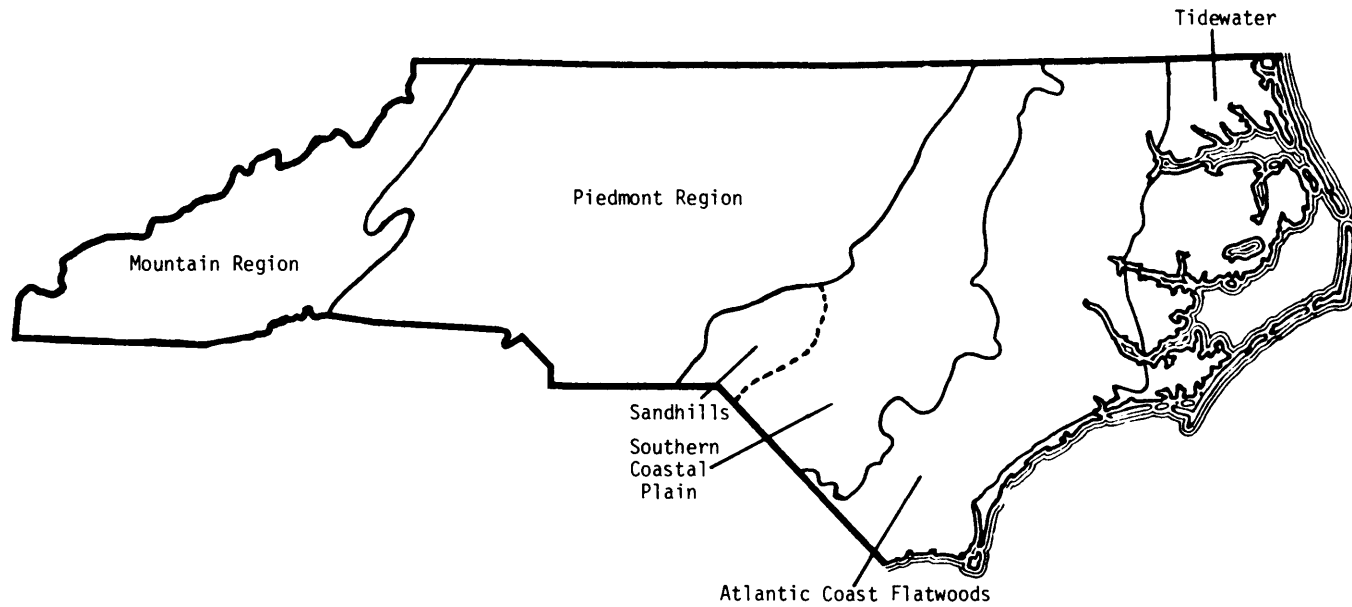


Figure 3. Major Land Resource Areas in North Carolina as Defined by the USDA

The Mountain Region becomes more rugged moving westward and the terrain changes from moderately hilly to steep slopes, sharp crests and narrow valleys that make agricultural production difficult. Soils are thin and rocky on the steep slopes while the valley soils can be deep and highly productive. The overall percentage of the area in cropland declines moving westward. Forestland predominates, with much in National Forests and Parks. The value of cropland can be high because of speciality crops and the limited supply of cultivable land, but overall value is influenced greatly by nonfarm demand.

Net Farm Income

Real estate appraisers use one or more of the following approaches to estimate the price at which they believe a tract of land should sell: (1) earnings or income capitalization, (2) sales comparison or market data and (3) inventory or cost of replacement (Suter, 1980). The income capitalization approach requires that the annual net income potential of the land be known, with land value rising as net income per acre increases. There are many reasons for agricultural income per acre to vary between tracts, counties or regions. One factor is the percentage of the land that is tillable. The value of cropland typically exceeds the value of farmland not cropped. Preliminary reports for the 1978 Census of Agriculture show that cropland as a percentage of all land in farms was 42 percent in the Mountain Region, 51 percent in the Piedmont Region and 62 percent in the Coastal Region. Appendix Table A.4 presents similar data for each county.

Given the ratio of cropland to total land in farms, additional factors determine the ability of the land to produce income in crop production or livestock production. High value allotment crops such as tobacco and peanuts are grown best in certain areas of the state. Fraser fir can only be grown at high elevation in the Mountain Region. Other areas are more suitable for production of livestock and poultry but require large amounts of labor and capital (Pasour, 1973).

Thus, the amount of labor and capital, together with the quality of land, influences the enterprise mix in each area. In turn, enterprise mix affects the income produced from the land and the value of

land in the marketplace. Figure 4 shows the value of all agricultural income per acre of land in farms for each county of the state (forestry income is not included). On a regional basis, average agricultural product value per acre of land in farms was \$222 per acre in the Mountain Region, \$245 per acre in the Piedmont and \$304 per acre on the Coast (based on 1978 Census of Agriculture data).

In Appendix Table A.4 additional detail is presented on the importance of enterprise mix through dividing the value of all agricultural products sold into its components, value of crops produced and value of livestock and poultry products produced. Data presented for each county include the value of crops produced per acre of cropland, and value of livestock and poultry products produced per acre of land in farms. In the Coastal Region, sales of crops generate a large proportion of agricultural products sales value; whereas sales of livestock and poultry products are much more important in the Piedmont and Mountain Region.

Other Factors

Many other factors influence the value of farmland. The level of exports of specific crops and export policy in general affect product price and, hence, net incomes from crops that are exported. Price support and allotment policies, especially for North Carolina, play an important role in certain areas of the state. Technological developments affect areas differently. For example, development of larger tractors and implements capable of covering more acres per day may be useful in level areas in the Coastal Region but may contribute little in the other regions of the state where farms and fields are smaller. Income per acre, as discussed in the previous section, serves as a proxy for many factors such as those mentioned in this section.

Nonagricultural Factors

Conversion of Land to More Intensive Uses

Conversion of farmland to nonfarm uses is an issue of concern across the nation because of possible impacts on food prices and food supply and because of factors such as rural character, open space and

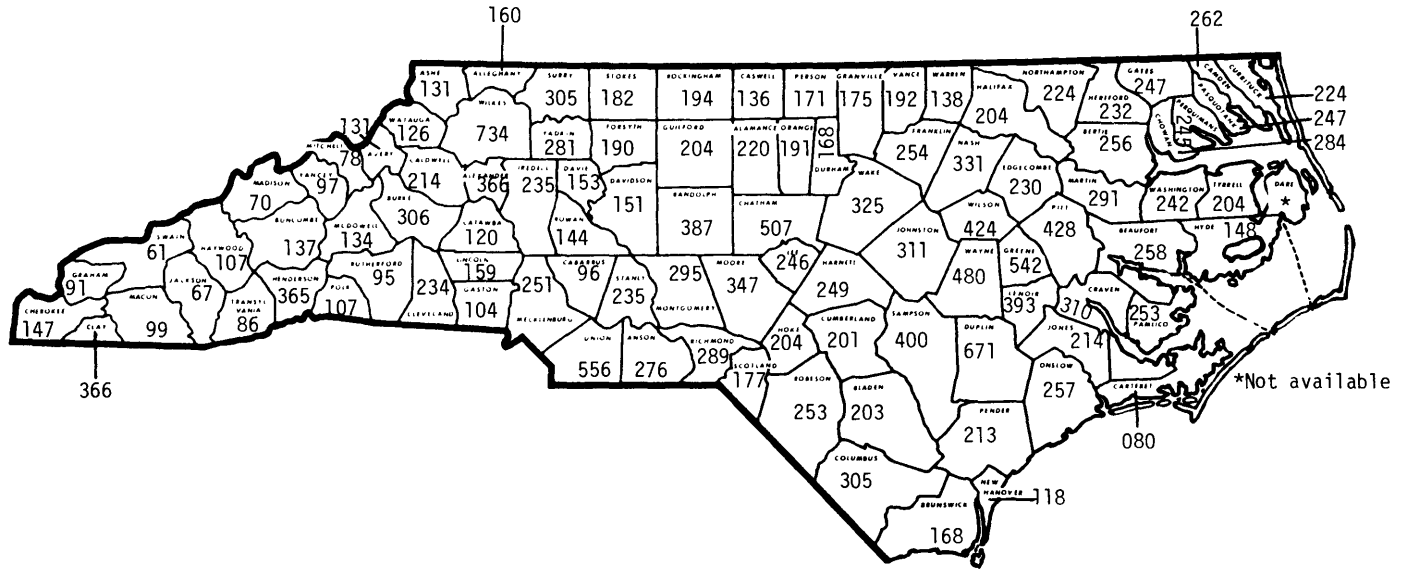


Figure 4. Value of Crops, Livestock and Livestock Products, Poultry and Poultry Products per Acre of Land in Farms, by County (dollars per acre)

Source: Preliminary Report, 1978 Census of Agriculture.

the viability of the agricultural economy. Land of all classes has potential for being used more intensively as growth and development proceeds. Thus, drainage of poorly drained soils may lead to increased acreage of forestland. Clearing and drainage of forestland may cause loss of forestland but will increase the supply of farmland. And, land currently in nonfarm uses is often converted to more intensive nonfarm uses. For purposes of this study, conversion to all more intensive uses is important because it increases the value of the land converted and the surrounding or nearby land as well.

Population⁵

Land values are typically higher in areas with high nonfarm development potential. Such potential might be generated by development activity in or near urban centers or urban-type development outside of urban centers. The value of North Carolina farmland is influenced by both types of development, but because of the high density of population in rural areas, growth outside of urban centers is more important than it is in many other agricultural areas of the United States where population is more highly concentrated in the urban centers.

Analyses of population trends are often based on the classification of counties according to whether they are in, or adjacent to, Standard Metropolitan Statistical Areas (SMSAs). SMSAs are integrated economic and social units, including both industrial and residential areas, between which there is a large volume of daily travel and communication.⁶ Figure 5 shows those counties in North Carolina that are classified as SMSA, adjacent to SMSA or non-SMSA counties. Currituck County is a part of the Norfolk-Virginia Beach-Portsmouth SMSA in Virginia.

⁵Population data presented here are mostly preliminary and are subject to revision by the U.S. Department of Commerce.

⁶SMSA counties must include either (1) a city with 50,000 or more inhabitants, or (2) a city having a population of at least 25,000 which (a) with the addition of the population of contiguous places has a density of at least 1,000 persons per square mile; (b) constitutes, for general economic and social purposes, a single community with a combined population of at least 50,000; and (c) includes a total population of at least 75,000 in the county or counties in which the city and contiguous places are located (U.S. Department of Commerce, Bureau of the Census).

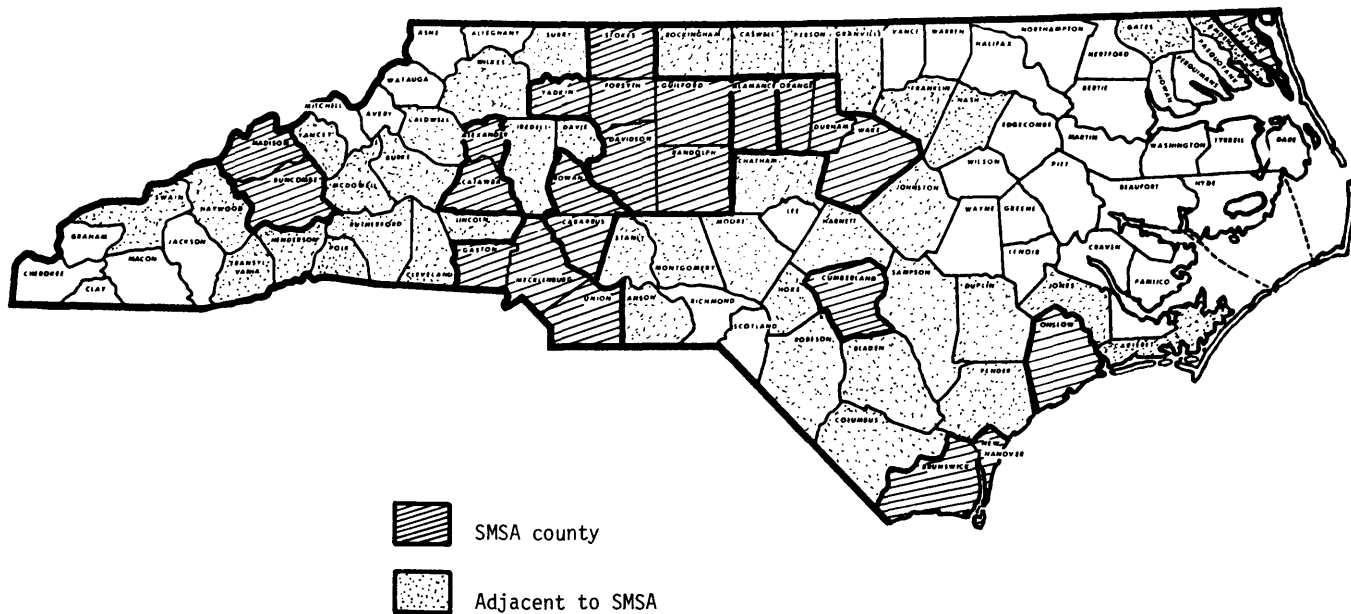


Figure 5. Standard Metropolitan Statistical Areas and Adjacent Counties: North Carolina, 1981

Source: Bureau of Census, U.S. Department of Commerce.

Another classification is metropolitan/nonmetropolitan. Metropolitan counties and SMSA counties are defined the same. In this classification scheme all remaining counties are classified as nonmetropolitan (i.e. the sum of both adjacent and nonadjacent counties in SMSA, non-SMSA terms).

Preliminary 1980 U.S. Census data confirmed results of mid-decade research which concluded that the trend toward greater urbanization was declining and in some cases reversing. Between 1970 and 1980 (preliminary data), the population of metropolitan counties grew by 9.8 percent in the United States while the growth rate in nonmetropolitan counties was 15.9 percent (Beale, 1981a). In contrast, during the 1960s, metropolitan growth was 17.7 percent, while nonmetropolitan growth was 4.4 percent. Thus, while metropolitan county growth in the United States was 4 times the nonmetropolitan rate in the 1960s, in the 1970s nonmetropolitan growth was nearly twice the metropolitan rate.

The same trend was evident in those counties adjacent to metropolitan counties where suburban growth typically gives rise to high population growth that greatly exceeds that of more rural counties. Nationally, these rates were nearly equal during the decade of the 1970s, with adjacent counties growing by 17.5 percent and nonadjacent counties growing by 14.2 percent (Beale, 1981a). Thus, while counties adjacent to metropolitan counties are continuing to grow, the key change shown by preliminary 1980 census data is that those more outlying counties have gained in terms of relative population growth.⁷ In the South, growth appears to be spread more evenly across all counties, and while nonmetropolitan growth increased, metropolitan growth still exceeded nonmetropolitan growth during the decade of the 1970s (Beale, 1981b). The growth in the nonmetropolitan counties of North Carolina continues to place increased nonfarm demands on rural land.

Appendix Table A.5 provides 1980 population data for North Carolina counties. Between 1970 and 1980 the population of North

⁷There are at least five definitions being used to differentiate between rural and urban counties. Care must be exercised in using, interpreting and comparing population growth data and reports.

Carolina grew from 5,084,411 to 5,874,429 people, an increase of 15.5 percent.⁸ Column 3 of Appendix Table A.5 shows the percent change in population by county. Counties classified as SMSAs grew by 16.3 percent whereas adjacent and nonadjacent counties grew by 16.5⁹ and 11.8⁹ percent, respectively. On a metropolitan, nonmetropolitan basis, population growth was 16.3 and 14.7 percent, respectively. Thus, population growth in North Carolina in the decade of the 1970s did not reverse itself as it did outside the South. Growth was generally spread over counties irrespective of their classification with respect to urbanness, although there was great variation in individual county growth rates within these categories.

The population density of a county is also used as a proxy for nonfarm development pressures upon rural land, those counties with highest population densities generally having the highest average land values. The average density of population for the entire state of North Carolina was 120 persons per square mile in 1980. Densities using the SMSA categorization were 256 per square mile in SMSA counties, 78.87 persons per square mile in counties adjacent to SMSA counties, and 72.68 persons per square mile in the remaining counties. Using the metropolitan/nonmetropolitan categorization, density was 256 persons per square mile in the metropolitan counties and 76 persons per square mile in the nonmetropolitan counties. Land-value data from the North Carolina Rural Real Estate Survey would be expected to vary directly with the density of population in the surrounding area.

Another commonly used measure of nonfarm development pressures on rural land is the percentage of population in rural areas that is classified as nonfarm. The last four columns of Appendix Table A.5 provide data on the distribution of population by county. Figure 6 more dramatically shows how the distribution of North Carolina population has shifted over time. The population in urban areas has greatly increased while, in rural areas, population has been relatively stable but has become more nonfarm oriented.

⁸The source of the 1980 estimate is an August 31, 1981, press release of the U.S. Department of Commerce, Bureau of the Census.

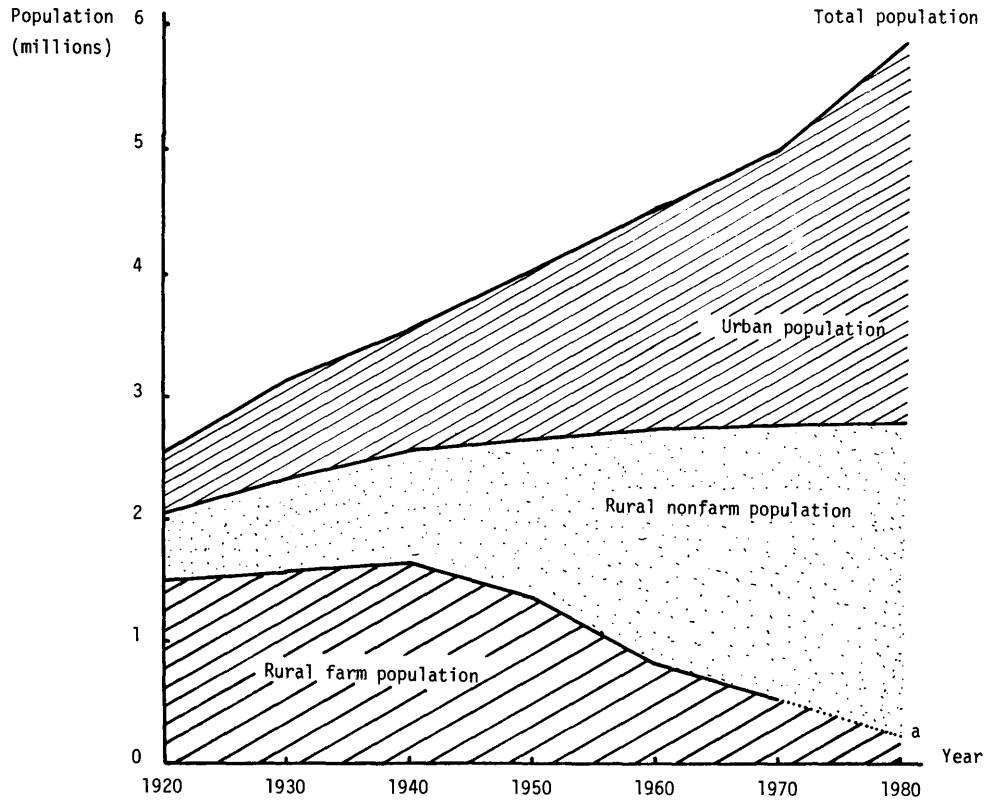


Figure 6. Distribution of Population in North Carolina: 1920-80

^aNot available.

Source: U.S. Department of Commerce, Bureau of Census.

Access to Public Services

Provision of development-oriented services not previously available increases the demand for land that benefits from the service. Conversely, land not benefiting from the service may suffer a reduction in demand. Land values are expected to vary directly with the change in demand. A good example is the provision of public water and sewer to areas needing those services for suitable housing developments. New or improved roads may also increase the demand for nearby land.

Expectations of Inflation

During inflationary periods, citizens have historically benefited from keeping their money in real assets (land, precious metals, antiques, etc.) rather than currency, bank accounts and similar money investments. Gertel and Lewis (1980) found that in the period 1972-79, farmland values in the United States increased 166 percent, while the Standard and Poor Index for 500 Common Stocks declined 6 percent. However, the 1970s were a unique period and represent an extreme case. Healy and Short (1981) present data adapted from Gertel and Lewis showing that during the period 1940-79 returns from cash-rented farmland in selected areas of Montana, Illinois, Kansas and Mississippi averaged 12.9 percent per year, while returns on stocks as measured by the Standard and Poor's index averaged 10.7 percent per year. In each case returns include current income (dividends and cash rents) plus price appreciation.⁹

To evaluate land as a hedge against inflation requires that the rate of inflation be compared with the rate of return to ownership of these assets. In the 1940-79 period, price inflation averaged 4.5 percent per year (Healy and Short, 1981) indicating returns net of inflation were positive for both farmland in these selected states and the

⁹Comparative returns vary greatly depending upon the period chosen. For example, the returns to farmland and common stocks using these measures of current income averaged 14 and 8 percent per year, respectively, in the period 1940-50, 10.2 and 19.5 percent per year in the period 1950-60, 8.9 and 7.7 percent per year in 1960-70, and 16.1 and 4.3 percent per year in 1970-79 (Healy and Short, 1981).

500 stocks included in the Standard and Poor's index. Investment in farmland was generally a better hedge against inflation than stocks because net returns above inflation were higher in the 1940s and 1970s, two periods of general inflation. Returns to farmland have exceeded inflation in all decades since 1940; whereas inflation exceeded returns to common stocks in the decade of the 1970s as noted above.

Land has also been a good hedge against inflation in North Carolina as shown in Table 1 (Pasour, 1980). If investors believe that purchase of land will also be a good hedge against inflation in the future, their willingness to bid higher prices increases the value of land. Lins and Aukes (1979) found in a cash-flow-farmland-income model that, with a 30-year planning horizon, 6 percent desired rate of return and 28 percent marginal income tax rate, the net present value of an acre of land increased by over 35 percent when yearly inflation expectation was increased from 4 percent to 5 percent. The evidence clearly supports the importance of inflation expectations as a factor influencing land values.

Other Factors

There are many other factors that affect land values. A major class of factors that should be identified falls under the category of tax policy. Musser, Tew and Clifton (1980), in a study of irrigation profitability, explicitly evaluate several: investment tax credit on expenditures for capital equipment, depreciation allowances, interest deductibility and salvage value. Federal and state reforestation incentives legislation also provides for cost reimbursement and accelerated amortization of reforestation expenses. These income tax related factors all work to make investment in agriculture and forestry more profitable. To the extent that land values are influenced or determined by net profits from production, these factors work to increase the value of the land. Major shifts, such as the reforestation act, or changes in the rate at which capital equipment can be depreciated, would be expected to affect appreciation of land values in a similar fashion.

Table 1. Average Annual Changes in the Consumer Price Index and the Value of North Carolina Farm Real Estate

Period	Average annual rate of return to farm real estate	Average annual change in consumer price index
1949-59	6.1	2.0
1959-69	6.9	2.3
1969-79	9.3	6.6

Source: Pasour (1980).

EMPIRICAL RESULTS

The Survey

To obtain additional information on the market for farmland in North Carolina, a Rural Real Estate Survey was mailed statewide during May, June and July 1980, to brokers, realtors, appraisers, bankers, tax supervisors, loan representatives and others knowledgeable of farm sales. There were four sections to the survey. Part I asked respondents to estimate the value of farmland and the extent of buyer/seller activity for land that will remain in farming; Part II asked the same basic questions for land that is expected to be converted to nonfarm use. The reference point for the estimate of land values in Parts I and II was April 1, 1980. Parts III and IV requested information on actual sales of farmland for future farm and nonfarm use, respectively, between October 1, 1979, and March 31, 1980.¹⁰

An effort was made to identify those individuals in North Carolina who might have been involved in farmland sales during the sampling period by consulting numerous agencies, societies and associations that are involved in rural real estate. Because of the detail requested about each individual sale, it is likely that only the person involved in the sale could respond to the questionnaire. However, since a complete list of brokers, agents and others involved in farm real estate sales was impossible to obtain, and since not all those contacted responded, it should be emphasized that data presented herein, like other statewide studies of this nature, are based upon a sample of farm real estate transactions.

Three hundred and eighty-three responses to Parts I and II of the survey (the market assessment portion) were received. The occupations of respondents were as follows: brokers - 16 percent; realtors - 12 percent; appraisers - 5 percent; bankers - 13 percent; county officials - 13 percent; loan representatives - 21 percent; farmers - 1 percent; banker-appraisers - 1 percent; other occupations - 17 percent. The number of actual sales documented in Part III of the survey for tracts

¹⁰This period was chosen because realtors indicated it was the time of the year of greatest sales activity for farmland.

staying in farming was 317; for tracts sold for nonfarm purposes and documented in Part IV, the number was 126.¹¹

Most data in this report are presented as averages. The reader should interpret these numbers as estimates about which there is a range in which the true average will fall with a certain probability. Data at the state level are more reliable than at the district or regional level.¹²

Respondents' Judgment Concerning the North Carolina Rural Real Estate Market

The information discussed in this section was obtained from Parts I and II of the survey and reflects the respondents' judgment concerning several aspects of the land market in North Carolina. Data are presented for eight districts and three geographical regions of the state. Figure 7 shows the eight crop reporting district boundaries used by the N.C. Crop Reporting Service and in this study. Also for this study, three geographical regions were formed by aggregating the Northern and Western Mountain Crop Reporting Service districts; the Northern, Southern and Central Piedmont districts; and the Northern, Central and Southern Coastal districts.

Farmland Staying in Farm Use: Market Activity

Respondents' opinions regarding the strength of the market for farmland during the sampling period October 1, 1979, to March 31, 1980,

¹¹ It is not known how many persons in the state were involved in farmland sales during the sampling period so a response rate in Parts I and II cannot be estimated. However, the number responding was more than twice that of the USDA Farm and Rural Land Market Survey. In Parts III and IV the data are based upon a sampling rate estimated to be 11 percent. Jeremias and Jones (1981b) estimate a title transfer rate of 41.8 per 1,000 farms for the year ending February 1, 1980, and the number of North Carolina farms to be 93,000. The product of the two, an estimate of the total number of farms sold during that period, is 3,887. The 443 documented sales in this study are thus approximately 11 percent of the farms sold during the year.

¹² These comments are not made to unduly raise questions about the validity of the data. Any sample-based average value or quantity should be interpreted with similar caution.

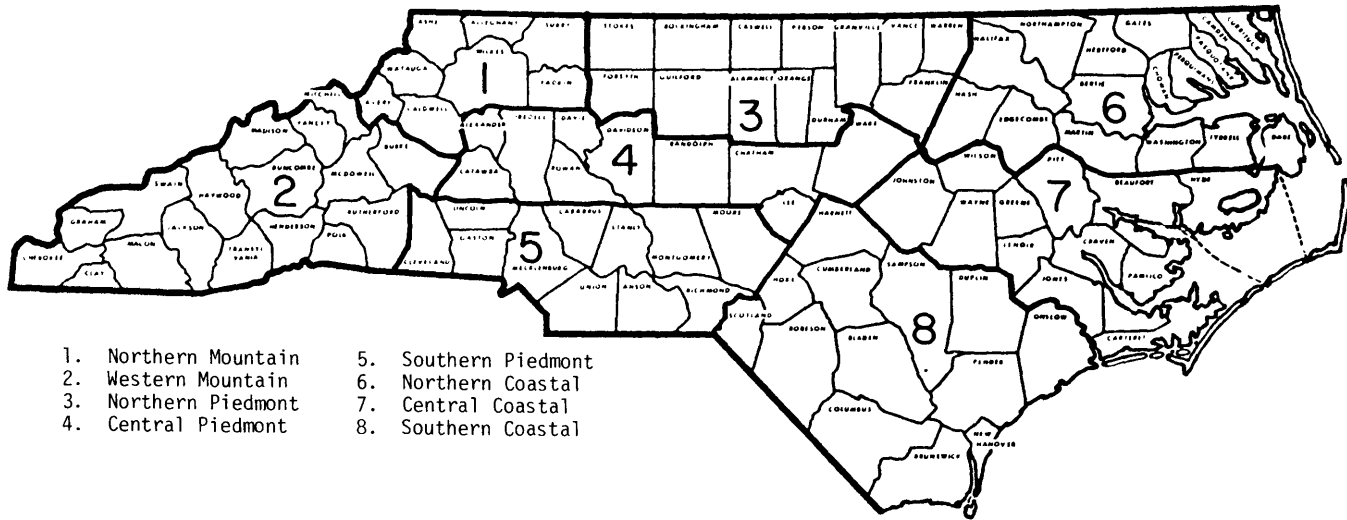


Figure 7. North Carolina Land Value Districts^a

^aThe land value districts have the same boundaries as districts of the North Carolina Crop Reporting Service.

varied greatly. The statewide response to the market strength question was as follows: weak or very weak - 39 percent; average - 18 percent; strong or very strong - 43 percent. Regionally, market strength was expressed for the mountain areas, especially, the Northern Mountain section, the Northern Piedmont and the Southern Coastal area. Weakness in the market for farmland was indicated in the Northern Coastal area and the Central and Southern Piedmont area. Seventy percent of the respondents indicated that actual sales of farmland in their county was unchanged during October 1, 1979, to March 31, 1980, compared to the same period a year earlier. Eight percent thought sales in their county increased at an average increase of 13 percent. Twenty-two percent of the respondents felt the number of sales declined in their county between these two periods. They estimated the decline to be nearly 29 percent. Actual sales by the respondents themselves were down 6 percent during the October 1, 1979, to March 31, 1980, period compared to the same period a year earlier, although in the Northern Coastal, Central Coastal and Central Piedmont districts respondents' sales were up. Sales were unchanged in the Southern Coastal district but in all other districts, respondents' sales declined.

Most respondents (77 percent) thought the number of farms listed for sale remained unchanged during the sampling period this year as compared to a year earlier. Thirteen percent felt the number of listings had increased and 10 percent felt the number of listings had decreased. There was very little regional variation within the state.

Statewide, farmers and farmer-investors were indicated to be the primary buyers of farmland kept in farming (Figure 8). Respondents listed the primary buyers as follows: full-time farmers - 28 percent; farmer-investors - 28 percent; investors - 13 percent; hobby farmers - 4 percent; other categories - 27 percent. Regionally, full-time farmers were especially dominant in the Northern Coastal area but were a small part of the market in the Western Mountain district. Investors play a major role in the Piedmont districts.

In summary, land market activity for land staying in farm use was mostly unchanged compared to the year prior to the survey. Strength is shown by investors in the Piedmont and by full-time farmers in the

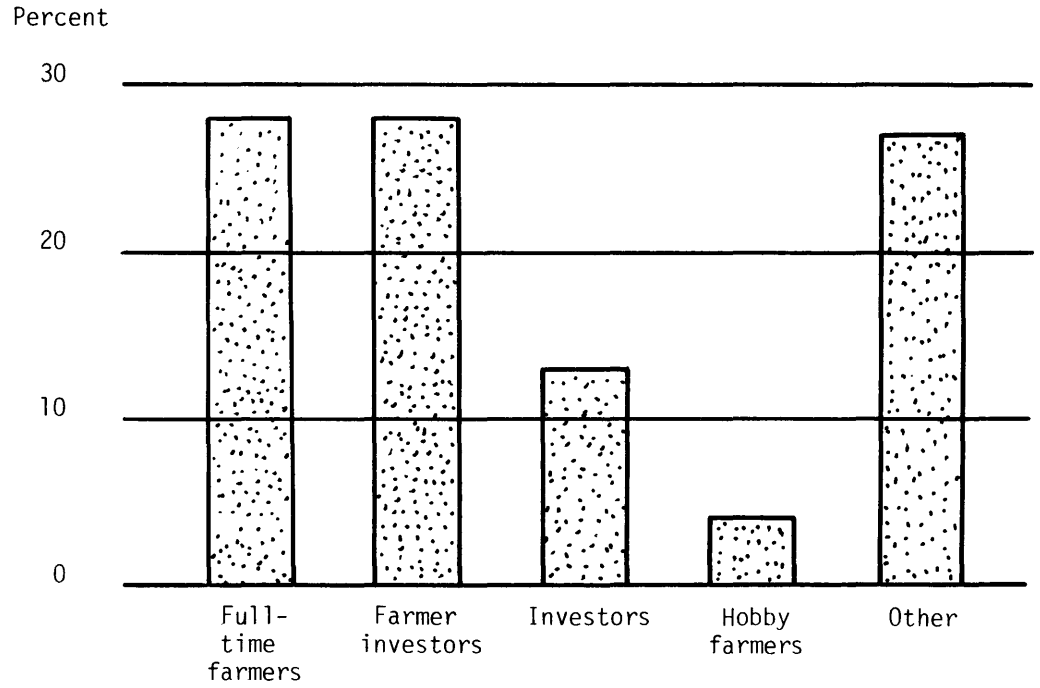


Figure 8. Primary Buyers of Farmland for Farm Use

Source: 1980 North Carolina Rural Real Estate Market Survey.

Northern Coastal district. Relative strength is also demonstrated in the Mountain districts and the Southern Coastal district.

Farmland Staying in Farm Use: Market Value¹³

The Rural Real Estate Market Survey asked two questions regarding the value of farmland sold for farm use: (1) as of April 1, 1980, what is the value per acre of farms of average size and quality in your county? (2) for average size farms in your county, what are the average values per acre for land of high quality, medium quality and low quality as of April 1, 1980? Responses to each question therefore include any allotment values and perhaps nonfarm values that a tract may have. However, because a separate section of the survey addressed nonfarm sales, the estimates presented here should be affected to only a minor degree by nonfarm factors.

Estimated farmland values for land kept in farming are presented in Table 2 by Crop Reporting Service district, and in Table 3 by geographical region. Although care must be exercised in using regional data because of higher standard errors than at the state level, it is presented here because statistical tests of the data have been made showing that a significant difference in average value of farmland exists by district. This suggests that presentation of state averages alone without the regional variation is inappropriate. However, it should also be understood that the possibility of estimation error increases with the added detail.

Tables 2 and 3 highlight variation in the value of land for farm use between areas of the state and over land quality. The next to last column of each table presents land value estimates weighted by land quality whereas the last column (based on question number 1 above) does not. Except for district 2 in Table 2, there is close agreement between these estimates derived using different procedures. The most

¹³The land values reported in this section are estimates based upon the responses to the 1980 North Carolina Rural Real Estate Market Survey. As discussed earlier, it is appropriate to think in terms of a range of values around these estimates rather than the point estimates themselves.

Table 2. Respondent's Estimate of Average per Acre Value of North Carolina Farmland for Farm Use by Crop Reporting District, April 1, 1980

District ^a	Value based on quality of land ^b				Per acre value of average size farm ^d
	High quality	Medium quality	Low quality	Weighted average over quality ^c	
(dollars)					
Mountain: Northern	1,711	1,037	799	1,172	1,150
Western	2,348	1,436	831	1,481	1,578
Piedmont: Northern	1,420	1,100	722	1,058	1,034
Central	1,431	1,074	768	1,163	1,197
Southern	1,338	922	604	954	964
Coastal: Northern	1,852	1,291	860	1,317	1,342
Central	2,067	1,598	1,082	1,644	1,655
Southern	1,649	1,197	840	1,290	1,237
North Carolina ^e	1,718	1,213	822	1,266	1,270

^aAll district values are calculated by weighting county values by the amount of farmland in the counties comprising the district.

^bBased upon responses to question: "For average size farms in your county, what are the average values per acre for land of high quality, medium quality and low quality as of April 1, 1980?"

^cWeighted by percent of land of each quality in each county.

^dBased upon responses to question: "As of April 1980, what is the average value per acre of farms of average size and quality in your county?"

^eState averages are weighted by the amount of farmland in each district.

Source: 1980 North Carolina Rural Real Estate Market Survey.

Table 3. Respondent's Estimate of Average per Acre Value of North Carolina Farmland for Farm Use by Geographical Region, April 1, 1980

Region ^a	Value based on quality of land ^b				Per acre value of average size farm
	High quality	Medium quality	Low quality	Weighted average over quality	
	(dollars)				
Mountain	2,016	1,252	816	1,333	1,373
Piedmont	1,404	1,039	697	1,062	1,066
Coastal	1,845	1,344	930	1,406	1,398
North Carolina ^e	1,718	1,213	822	1,266	1,270

^aAll region values are calculated by weighting county values by the amount of farmland in the counties comprising the district.

^bBased upon responses to question: "For average size farms in your county, what are the average values per acre for land of high quality, medium quality and low quality as of April 1, 1980?"

^cWeighted by percent of land of each quality in each county.

^dBased upon responses to question: "As of April 1980, what is the average value per acre of farms of average size and quality in your county?"

^eState averages are weighted by the amount of farmland in each district.

Source: 1980 North Carolina Rural Real Estate Market Survey.

striking result from the land value data is that value of high quality farmland is estimated to be roughly double that of poor quality land in all areas of the state. Among regions, Piedmont farmland ranks below the value of farmland in other areas, with Coastal farmland valued most highly. Over the entire state, average value of the state's farmland for farm use was estimated to be \$1,270 per acre as of April 1, 1980.

Farmland for Nonfarm Use: Market Activity

Nonfarm demand for farmland greatly influences the value of rural land in North Carolina. Respondents estimated that 34 percent of all farmland sold statewide is for nonfarm use (Tables 4 and 5). On a district basis the range of nonfarm sales was from a low of 26 percent in the Northern Coastal area to 45 percent in the Southern Coastal area (Table 4). On a regional basis, the Piedmont is estimated to have the highest percentage sold for nonfarm use, 39 percent, with 30 percent sold for nonfarm use in the Mountain Region and 34 percent in the Coastal Region (Table 5).

Statewide, 51 percent of the survey respondents indicated that nonfarm uses of land were the primary determinant of farmland values in their county (Tables 4 and 5). Forty-nine percent felt agricultural uses were the primary influence. However, there was great regional variation. Nonfarm uses were rated as the primary determinant of land values by 65 percent of the respondents in the Piedmont Region and by 73 percent in the Mountain Region (Table 5). Conversely, 76 percent of the respondents in the Coastal Region rated agriculture as the primary determinant of farmland value. On a district basis, the high nonfarm influence in the Central Piedmont and Western Mountain areas and the very high farm influence in the Northern Coastal and Central Coastal areas are noteworthy (Table 4).

Survey respondents differed in their assessment of the strength of nonfarm demand for farmland: weak or very weak - 38 percent; strong or very strong - 44 percent; average - 18 percent. This rating is nearly identical to that of the farm use demand for farmland presented earlier. There was some regional variation, with greater market strength reported in the Mountain Regions and the Northern Piedmont and weakness noted in the Northern Coastal area.

Table 4. Primary Influence on Rural Land Values and Percentage of Farmland Sold for Nonfarm Use: North Carolina and by District

District	Sales for nonfarm use	Primary influence on rural land values	
		Agriculture	Nonfarm use
(percent)			
Mountain: Northern	30	44	56
Western	30	16	84
Piedmont: Northern	42	46	54
Central	38	17	83
Southern	36	34	66
Coastal: Northern	26	87	13
Central	29	83	17
Southern	45	60	40
North Carolina	34	49	51

Table 5. Primary Influence on Rural Land Values and Percentage of Farmland Sold for Nonfarm Use: North Carolina and by Geographical Region

Geographical region	Sales for nonfarm use	Primary influence on rural land values	
		Agriculture	Nonfarm use
(percent)			
Mountain	30	27	73
Piedmont	39	35	65
Coastal	34	76	24
North Carolina	34	49	51

Source: 1980 North Carolina Rural Real Estate Market Survey.

In cases where nonfarm factors were felt to be the primary influence on land value, respondents also indicated the specific nonfarm use having the greatest impact. The factors cited most often were: rural development/home sites - by 41 percent of the respondents; and recreation or vacation homes - by 18 percent of the respondents. The number of people looking for rural property was relatively unchanged for the survey period compared with a year earlier. Fifty-six percent of the survey respondents indicated there was no change, while the remaining respondents were nearly equally split between an increased number of people looking (25 percent) and a decreased number (19 percent). The Central Piedmont and Southern Coastal areas showed somewhat more strength than other areas of the state. The number of farm listings suitable for nonfarm use was judged unchanged by 68 percent of the respondents, increased by 12 percent and decreased by 20 percent. There was little regional variation. Fifty-seven percent of all respondents indicated the number of farms sold in the state during the survey period, compared to the year previous, was unchanged. Thirteen percent indicated the number sold had increased while 30 percent indicated the number sold had decreased. The Southern Coastal area showed slightly greater market strength than other areas of the state.

Farmland for Nonfarm Use: Market Value

Relative to most of the United States, rural North Carolina contains a high density of population, a high percentage of nonfarm residents and a large amount of industry. As a result, farmland values are heavily influenced by nonfarm potential in nearly every county of the state. To obtain an estimate of the impact of nonfarm demand on market value of farmland, the survey contained questions regarding the value of land for each of the following categories of use: rural residence, recreation, holding for future development, commercial or industrial, forest and other (marsh, mineral, etc.). The results of the survey are presented in Tables 6 and 7. Values by district and region were obtained by weighting county values by the amount of land in each category of nonfarm use.

As expected, estimated value of land for industrial or commercial purposes exceeds that of all other nonfarm uses except for recreation

Table 6. Respondent's Estimate of Average per Acre Value of North Carolina Farmland Sold for Nonfarm Use, April 1, 1980

District ^a	Categories of nonfarm use					
	Rural residence	Recreation	Holding for future development	Commercial or industrial	Forest	Marsh, mineral, etc.
	(dollars)					
Mountain: Northern	3,095	1,880	1,592	6,951	623	266
Western	3,248	2,767	1,773	9,299	852	652
Piedmont: Northern	3,327	2,558	1,573	5,608	826	524
Central	3,736	2,132	2,098	4,728	840	296
Southern	2,291	5,306	1,468	3,370	621	507
Coastal: Northern	4,378	6,060	2,357	5,903	713	392
Central	4,081	10,541	2,356	7,617	610	222
Southern	3,173	7,341	2,443	6,631	544	278
North Carolina ^b	3,417	5,429	1,924	6,356	695	374

^aDistrict values are calculated by weighting county values by the percentage of nonfarm land that is of each use category in the counties comprising the district.

^bState averages are weighted by the appropriate district percentages.

Source: 1980 North Carolina Rural Real Estate Market Survey.

Table 7. Respondent's Estimate of Average per Acre Value of North Carolina Farmland Sold for Nonfarm Use by Geographical Region, April 1, 1980^a

Geographical region ^b	Categories of nonfarm use					
	Rural residence	Recreation	Holding for future development	Commercial or industrial	Forest	Marsh, mineral, etc.
	(dollars)					
Mountain	3,211	2,453	1,728	8,681	804	517
Piedmont	3,207	3,803	1,654	4,421	737	483
Coastal	3,750	8,761	2,404	6,822	604	289
North Carolina ^c	3,417	5,429	1,924	6,356	695	374

^aRegions are aggregated as follows: Mountain Region - Northern and Western Mountain districts; Piedmont Region - Northern, Central and Southern Piedmont districts; Coastal Region - Northern, Central and Southern Coastal districts.

^bRegion values are calculated by weighting county values by the percentage of nonfarm land that is of each use category in the counties comprising the region.

^cState averages are weighted by the appropriate region percentages.

Source: 1980 North Carolina Rural Real Estate Market Survey.

property in the Southern and Central Coastal region and in the Southern Piedmont. The value of land being held for development is approximately 50 percent above the average value of farmland which was estimated to be \$1,270 per acre in Part I (Tables 2 and 3). Forest, marsh and mineral lands were valued considerably less than land for all other uses. Figure 9 diagrams value per acre for selected nonfarm uses and reflects "highest and best use" hierarchy in an economic sense. Although estimated values are high for recreation and commercial/industrial uses, the amount of land in, or expected to be in, these categories is small. For example, respondents estimated that, of all nonfarm land in the state, an average of only 6 percent is in recreation use and 8 percent is in commercial and industrial use. In contrast, they estimated over 28 percent of the nonfarm land was in the rural residence category and over 38 percent was in forest. Thus, although some categories of nonfarm use have high values per acre, relatively little farmland is being converted to those uses.

Land Value, Land and Land Sale Characteristics Based Upon Farmland Sales

The data presented in this section are based upon actual sales of farmland as documented in Parts III and IV of the 1980 North Carolina Rural Real Estate Survey. Part III contained data for sales of farmland staying in farm use, while Part IV contained data where farmland was converted to nonfarm use. Data will not be presented by districts because the number of observations of actual sales was not adequate to provide sufficient reliability at that level of detail.

Average Sale Price per Acre

The statewide average sale price per acre for farmland and improvements was \$1,398 per acre for land staying in farming and \$1,875 per acre for land being converted to nonfarm use (Table 8).¹⁴ This compares with a farmland value of \$1,270 based upon respondents judgment

¹⁴For land staying in farming the standard deviation was \$889, the standard error of the mean was \$51 and the coefficient of variation was 63. The respective numbers for land being converted to nonfarm use were \$1,651, \$149 and 88.

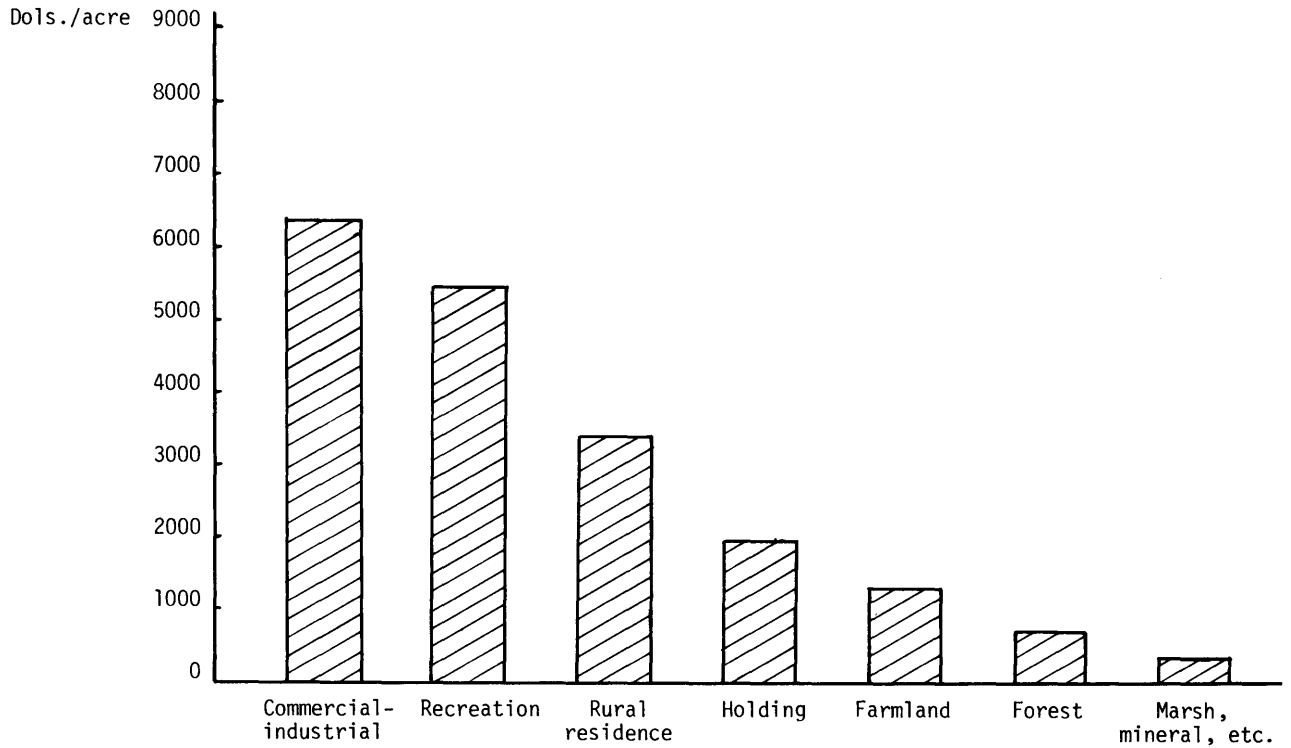


Figure 9. Respondents' Estimate of Average per Acre Value of Farmland Sold for Nonfarm Use, April 1, 1980

Source: 1980 North Carolina Rural Real Estate Market Survey.

Table 8. Average Sale Price per Acre of North Carolina Farmland and Improvements by Use Category and Region, 1979-80

Region	Farm use		Nonfarm use	
	Number sales	Value per acre	Number sales	Value per acre
		(dollars)		(dollars)
Mountain	51	1,567	28	1,649
Coastal	144	1,522	29	2,236
Piedmont	108	1,146	58	1,791
North Carolina	306	1,398	122	1,875

Source: 1980 North Carolina Rural Real Estate Market Survey.

(Part I of the survey). For nonfarm use, the category "holding for future development," with a statewide average estimated value of \$1,924 per acre, comes closest to the actual sale price of \$1,875 per acre. There was some regional variation. Piedmont area average value per acre was below that of the Mountain and Coastal regions for land staying in farming. Nonfarm value in the Mountain Region was nearly identical to farm value, whereas nonfarm values were 47 and 56 percent higher than farm value in the Coastal and Piedmont regions. The influence of nonfarm development and a high population density in the rapidly growing Piedmont is being reflected in the value of tracts with nonfarm potential. Coastal values are high also with the influence of nonfarm factors being concentrated around a few cities and near the ocean or sounds.

Distance from Urban and Built-Up Area

As discussed earlier in this report, land values are expected to be influenced by their proximity to nonfarm developments. While the influence may be greater for land that is purchased for nonfarm use, the value of land remaining in farming will also be higher because of the nonfarm potential.

The average distance of tracts sold from towns or cities over 500 in population was 6 miles for farm use and 6.3 miles for nonfarm use. There was little regional variation for land staying in farming. Distance for land going out of farming was 6.7 miles in the Mountain Region, 5.8 miles in the Piedmont and 7.2 miles on the Coast. Table 9 presents the value per acre and percent of sales by range of distance to the nearest town or city with over 500 population. A relatively low percentage of the sales was within 2 miles of the nearest town, but for both farm and nonfarm use, the average value per acre generally declined with distance.

Average distance to the second-nearest town or city over 500 population was 11.8 miles for tracts staying in farm use and 13.2 miles for nonfarm tracts. However, value per acre did not exhibit the expected smooth relationship for the nonfarm sales as did the distance to the nearest town, thus suggesting the difficulty of estimating "urban potential" based upon distance measures alone. For example, the third

Table 9. Average Sale Price per Acre of North Carolina Farmland and Improvements by Distance from Nearest City over 500 Population, 1979-80

Miles	Farm use			Nonfarm use		
	Number sales	Percent sales	Value per acre	Number sales	Percent sales	Value per acre
			(dollars)			(dollars)
No response	14	-	1,325	9	-	2,819
1-2	56	19	1,707	19	17	2,303
3-5	116	40	1,359	35	31	1,931
6-10	91	31	1,366	47	42	1,604
11+	29	10	1,090	12	10	1,392
	<u>306</u>	<u>100</u>		<u>122</u>	<u>100</u>	

Source: 1980 North Carolina Rural Real Estate Market Survey.

nearest town may actually have the greatest impact on land value yet be in the opposite direction of nearer towns. In this case, land values would increase as distance to the nearest towns declines (and distance to the most influential town decreases).

Average Tract Size

Tract size averaged 114 acres statewide for land staying in farming. Regional tract sizes were 41.4 acres in the Mountain Region, 79.6 acres in the Piedmont and 164.8 acres on the Coast. For tracts being converted to nonfarm use, average size was 77.2 acres statewide, 48.8 acres in the Mountains, 47.3 acres in the Piedmont and 178.7 acres on the Coast.

Table 10 presents land value by tract size class. With three exceptions, value per acre declined for all sales as tract size increased. The range of values, as a function of tract size, was great. For example, tracts for farm use averaged \$1,884 per acre for the 1-9 acre tract size, but only \$741 per acre for the over 640 acre class. This may partially be due to the greater influence of the value of buildings in tracts of smaller size but is perhaps caused mostly by a reduction in demand for tracts of larger size. Over 50 percent of all nonfarm-use tracts were under 20 acres in size, while only 11 percent of the farm-use tracts were that small.

Percent of Land under Cultivation

Land selling as farmland might be expected to be comprised of more cropland than woodland. From an agricultural production standpoint, land currently under cultivation is worth more to the farmland purchaser unless soil productivity differs or value of the timber on the non-cultivated land is great. Costs of converting the land to cropland can be high. The survey showed that statewide, and in the Mountain Region, farm tracts contained nearly equal amounts of cropland and woodland. However, in the Piedmont, tracts contained more woodland than cropland, while in the Coastal area, a larger proportion of the tracts were under cultivation. Throughout the state, tracts sold for nonfarm use were about three-fourths woodlands.

Table 10. Average Sale Price per Acre of North Carolina Farmland and Improvements by Tract Size, 1979-80

Tract size (acres)	Farm use			Nonfarm use		
	Number	Percent	Value per acre (dollars)	Number	Percent	Value per acre (dollars)
1-9	10	3.3	1,884	26	21.3	2,233
10-19	26	8.5	1,931	36	29.5	2,076
20-39	73	23.9	1,694	15	12.3	2,174
40-79	76	24.8	1,368	21	17.2	1,276
80-159	66	21.6	1,141	11	9.0	1,259
160-319	37	12.1	1,075	9	7.4	2,161
320-639	9	2.9	1,019	3	2.5	1,027
640+	9	2.9	741	1	0.8	200
	<u>306</u>	<u>100.0</u>		<u>122</u>	<u>100.0</u>	

Source: 1980 North Carolina Rural Real Estate Market Survey.

Allotments

Of the 317 tracts sold as farmland, 27 had peanut allotments. Respondents indicated 19 had peanut allotments averaging 11 acres in size, and 8 had allotments averaging 20,793 pounds. There were 141 farms with tobacco allotments, with an average allotment of 8,023 pounds.

Distance between Buyer's Residence and Tract Location

An oft-heard claim is that land is being purchased by outsiders (*i.e.*, nonlocals). Data from the survey support that claim for the Mountain Region but do so to a lesser degree for the remainder of the state (Table 11). Statewide, the average distance between the buyer's residence and the tract was 55 miles for farm use and 157 miles for nonfarm use. However, the Mountain Region raises this state average greatly with an average distance of 101 miles for farm use and 418 miles for the nonfarm-use tracts. In the Coastal Area the respective distances are 27 miles and 19 miles, while in the Piedmont, they are 63 and 35 miles. Data summarized in Table 12 show that purchasers of nonfarm tracts systematically reside further away than do purchasers of farm tracts. Twenty-one percent of farm tracts are purchased by persons living within 2 miles of the tract and 56 percent live within 9 miles. In contrast, only 6 percent of the purchasers of nonfarm tracts live within 2 miles of the tract and 36 percent live within 9 miles. Data from the survey also suggest that tract price per acre does not vary systematically with distance to the residence of the purchaser (Table 12).

Type Access

Type access is generally considered to be an important determinant of land value, especially for nonfarm use. Table 13 shows that average price per acre for tracts staying in farming is fairly uniform over type access, whereas there was considerable variation for tracts sold for nonfarm use. In the latter case average price per acre was lowest for tracts with access to a dirt road and highest for those with four-lane paved road access. There is a large difference in value between

Table 11. Average Distance between North Carolina Tract and Buyer's Residence, 1979-80

Region	Average distance	
	Farm	Nonfarm
	(miles)	
Mountain	101	418
Piedmont	63	35
Coastal Plain	27	19
North Carolina	55	157

Table 12. Percent of Sales and Relationship of Average Sale Price per Acre of Farmland and Improvements to Distance between Tract and Buyer's Residence, 1979-80

Miles	Farm		Nonfarm	
	Percent	Value per acre	Percent	Value per acre
		(dollars)		(dollars)
No resp.	-	1,280	-	2,322
1-2	21.4	1,471	6.6	1,998
3-9	34.6	1,555	29.7	2,186
10-19	21.4	1,437	27.5	1,492
20+	22.6	1,211	36.2	1,470
	100.0		100.0	

Source: 1980 North Carolina Rural Real Estate Market Survey.

Table 13. Average Sale Price per Acre of North Carolina Farmland and Improvements by Type Access, 1979-80

Type access	Farm			Nonfarm		
	Number sales	Percent sales	Average value per acre	Number sales	Percent sales	Average value per acre
			(dollars)			(dollars)
No resp.	21	-	831	3	-	3,176
No access	20	7.0	1,413	4	3.4	1,500
Dirt road	55	19.4	1,336	44	37.0	1,234
Two-lane paved	207	72.6	1,470	68	57.1	2,223
Four-lane paved	3	1.0	1,368	3	2.5	2,591
	<u>306</u>	<u>100.0</u>		<u>122</u>	<u>100.0</u>	

Source: 1980 North Carolina Rural Real Estate Market Survey.

tracts with paved and unpaved two-lane access. However, the number of observations is low for tracts without road access and with four-lane paved access. No access appears to reduce the value of tracts for non-farm use greatly while it does not for tracts intended for farm use.

Quality of Buildings

A problem with the data from this survey is that a good measure of the value of buildings is not available. Per acre land values of a tract with valuable buildings are biased upward, especially for smaller tracts. Nevertheless, it is highly unlikely that a reliable dollar value of buildings on a tract could be obtained in the type of survey conducted here. Rather, the choice was made to rate building quality good, average and poor. This is easier information to obtain and still allows quantification of any relationship between building value and land value. The survey did not show that buildings were important in determining land value of those tracts included in the survey. Most tracts had no buildings or they were of poor quality. Land values closely approximated the overall statewide average of all tracts sold, and having better buildings appears to have affected land values very little.

Quality of Soil

The points made regarding quality of buildings can also be made for quality of soil. Soil quality ratings are difficult to obtain without a detailed analysis of the soils in the tract. In North Carolina, a detailed analysis is required because of the large variation in soil quality. Such detail is not possible in this type of survey. Instead, respondents were asked to rate the soil quality good, average or poor. Results in Table 14 show that average value per acre varies directly with soil quality. This was true for tracts staying in farming as well as those sold for nonfarm use. The old cliché, "land for farming is also good for development," is supported by the data.

Table 14. Average Sale Price per Acre of North Carolina Farmland and Improvements by Quality of Soil, 1979-80

Soil quality	Farm		Nonfarm	
	Percent	Value per acre	Percent	Value per acre
		(dollars)		(dollars)
No resp.	-	988	-	2,369
Good	34.7	1,738	18.8	2,275
Average	53.7	1,262	56.4	1,971
Poor	11.6	1,153	24.8	1,269
	<u>100.0</u>		<u>100.0</u>	

Source: 1980 North Carolina Rural Real Estate Market Survey.

Other Factors Affecting Land Quality

Respondents were also asked to identify tracts whose value was positively or adversely affected by other factors such as poor drainage, erosion hazard and location. Over 50 percent of the tracts were not identified as being influenced by these factors, while roughly 15 percent were identified as having erosion and drainage problems. Average land values per acre were lower by several hundred dollars per acre because of these factors for land converted to nonfarm use but were unchanged for land staying in farming. Location affected land values positively, but the number of observations was low. Poor soil was also identified, and the few tracts so identified had a very low average value per acre.

The Impact of Community Services and Development

The availability of community water facilities or the existence of rural housing projects and rural industry are expected to influence the use of farmland because they would tend to stimulate nonfarm development. If this is in fact the case, then the demand for land for nonfarm purposes is shifted to the right when such services are provided or developments are sited and land values will increase.

Table 15 shows the impact of these systems and developments on average land values in the survey. All three factors greatly increase average value per acre, with values roughly doubling for land going to nonfarm use, and increasing by as much as 84 percent for land remaining in farm use.

Seller Information

Several questions in the survey addressed characteristics of the seller and reasons for sale of the tract. Other studies, for example, Burby, Donnelly and Weiss (1973), have found that certain seller characteristics influenced sale price of the land. Table 16 summarizes several reasons for selling the tracts of land included in the survey. Seller information was available for 256 tracts remaining in farming and 107 tracts converted to nonfarm use. Nearly 30 percent of the tracts remaining in farming and 17 percent of those sold for nonfarm

Table 15. Number Sales and Average Sale Price per Acre of North Carolina Farmland and Improvements as Influenced by Community Water, Rural Industry and Rural Housing Project

Factor	Farm		Nonfarm	
	Number sales	Average value per acre	Number sales	Average value per acre
		(dollars)		(dollars)
Community water system:				
No response	32	1,009	5	2,446
With	40	1,708	14	4,245
Without	234	1,398	103	1,526
Rural industry:				
No response	33	1,050	5	4,306
With	20	2,005	12	3,025
Without	253	1,395	105	1,628
Rural housing project:				
No response	31	929	11	4,135
With	27	2,469	27	2,312
Without	248	1,340	84	1,439

Source: 1980 North Carolina Rural Real Estate Market Survey.

Table 16. Percent of Sales and Average Sale Price per Acre of North Carolina Farmland and Improvements by Reason for Selling, 1979-80

Reason	Farm use		Nonfarm use	
	Percent	Average value per acre	Percent	Average value per acre
		(dollars)		(dollars)
No response	-	1,172	-	2,713
Death	29.7	1,663	16.8	1,172
Retired	20.3	1,387	14.0	2,027
Another job	8.6	1,518	9.4	1,436
Moved farm	5.1	1,340	1.9	2,250
Financial problems	10.9	1,496	18.7	1,686
Held for investment	4.7	1,507	19.6	2,137
Settle estate	5.5	1,115	2.8	1,067
Other	15.2	1,132	16.8	1,997
	<u>100.0</u>		<u>100.0</u>	

Source: 1980 North Carolina Rural Real Estate Market Survey.

use were sold because of death of the owner. Over 19 percent of the sales to nonfarm use were being "held for investment" and price per acre was above average, although there may be other factors such as location that cause the value to be high. A surprisingly high number of tracts were sold because of financial problems. Values for land sold because of the death of the owner or to settle estates appears to be below average in all cases except for tracts remaining in farming that were sold because of death of the owner.

Table 17 shows the percentage of sales and land values by level of education of the seller. Over 50 percent of the sellers of farmland had a high school education whereas 50 percent of the sellers of land for nonfarm use had a college level education. Average value did not vary systematically by education level of a seller for farmland remaining in farmland, but average value per acre did rise with education for land to be converted to nonfarm use. In this latter case, average prices for grade school, high school and college level education were \$1,414, \$1,763 and \$2,240 per acre, respectively. Perhaps those individuals with higher levels of education have better information regarding the nonfarm potential of their tracts.

Information was also obtained for age of the seller. Forty-two percent of the owners of land sold for farm use were 60 years of age or older while 26 percent of the owners of land sold for nonfarm use were in that age group. Remaining sales were spread fairly evenly over the age groups above 25 years, although the age distribution of sellers of farmland that remained in farming was slightly older. Land value did not vary systematically with age of the seller.

Use of Land before and after Sale

Conversion of farmland to nonfarm use is a topic of interest and concern in North Carolina and throughout the nation. Hence, a major objective of this study was to obtain information on the extent to which land use changed upon sale of the farmland tract.

Tables 18 and 19 contain data on how land was held prior to sale. There are major differences depending on whether land stayed in farming upon sale of the tract or whether it was converted to nonfarm use. Owner-operators sold 44 percent of the land staying in farm use and

Table 17. Percent of Sales and Average Sale Price per Acre for North Carolina Farmland and Improvements by Educational Level of the Seller, 1979-80

Education level	Farm		Nonfarm	
	Percent	Average value per acre (dollars)	Percent	Average value per acre (dollars)
No response	-	1,374	-	1,577
Grade school	18.4	1,647	10.6	1,414
High school	52.2	1,282	39.4	1,763
College	29.4	1,488	50.0	2,240
	<u>100.0</u>		<u>100.0</u>	

Table 18. Percent of Sales and Average Sale Price per Acre by Method in which Land Was Held by Seller, Farm Use, 1979-80

How held	Percent	Average value per acre (dollars)
No response	-	1,080
Owner-operator	44.2	1,589
Landlord (former farmer)	27.7	1,404
Investor (nonfarmer)	20.7	1,312
Other	7.4	1,306
	<u>100.0</u>	

Source: 1980 North Carolina Rural Real Estate Market Survey.

Table 19. Percent of Sales and Average Sales Price per Acre by Method in which Land Was Held by Seller, Nonfarm Use, 1979-80

How held	Percent	Average value per acre (dollars)
No response	-	1,448
Owner-operator	13.8	2,231
Landlord (former farmer)	17.4	1,680
Investor (nonfarmer)	54.1	1,978
Home site	5.5	2,000
Other	<u>9.2</u>	1,584
	<u>100.0</u>	

Source: 1980 North Carolina Rural Real Estate Market Survey.

13 percent of the tracts sold for nonfarm use. Conversely, 54 percent of the tracts sold for nonfarm use were owned by nonfarm investors. That group sold only 20 percent of the land staying in farming. If land is converted to nonfarm use, it appears to be primarily the non-farm investor who does the converting rather than the farmer owner-operator. Land values varied mainly by the future use of the land (farm, nonfarm) rather than by how the land was held.

Tables 20 and 21 provide data on how land staying in farming will be used and held. Most tracts of farmland were sold to full-time farmers. Only 18 percent of the tracts were purchased for use as a part-time farm. Forty-five percent of the farmland tracts were purchased as add-on acreage to farmland already owned. Operating farmers purchased over 63 percent of the tracts, whereas landlords or investors purchased under 37 percent of the tracts staying in farming (Table 21). Contrary to what many would expect, highest prices were paid for tracts that were added on to other farms (Table 20) and that were purchased by operating farmers in contrast to landlords or investors (Table 21).

Tables 22 and 23 provide information on pre- and post-sale use of tracts sold for nonfarm purposes. Forty-nine percent of the tracts were used primarily for forest use before sale and 20 percent were idle (Table 22). Less than 13 percent of the tracts were used primarily as cropland and only 8 percent were in pasture. After sale, 39 percent of the tracts went into rural residences, while 35 percent were held for development (Table 23). Only 3 percent went into high-valued commercial and industrial use. Highest average prices were paid for cropland and pastureland. Land value estimates provided by respondents (Table 6) closely approximate actual sales values for the categories holding for development and commercial/industrial. However, sale prices of land going into rural residences, recreation, forest, and the other category are below the estimated values.

Financing of Land Purchase

Most tracts were purchased by assuming a mortgage: 61 percent of the tracts staying in farming and 45 percent of the tracts converted to

Table 20. Percent of Sales and Average Sale Price per Acre by Category of Intended Use of Land, Farm, 1979-80

How used	Percent	Average value per acre
		(dollars)
No response	-	1,011
Complete unit	23.5	1,412
Add-on	45.1	1,544
With rented land	4.5	1,294
Part-time farm	18.7	1,370
Development	.4	1,000
Other	7.8	1,358
	<u>100.0</u>	

Table 21. Percent of Sales and Average Sale Price per Acre by how Buyer Will Hold Land, Farm Use, 1979-80

How held	Percent	Average value per acre
		(dollars)
No response	-	1,077
Operating farmer	63.4	1,489
Landlord or investor	36.6	1,363
	<u>100.0</u>	

Source: 1980 North Carolina Rural Real Estate Market Survey.

Table 22. Percent of Sales and Average Sale Price per Acre by Category of Land Use before Sale into Nonfarm Use, 1979-80

Major use before sale	Percent	Average value per acre
		(dollars)
No response	-	1,786
Forest	49.1	1,688
Cropland	12.9	2,673
Idle	20.4	1,879
Pasture	8.3	2,503
Home site	2.8	1,689
Other	6.5	1,139
	<u>100.0</u>	

Table 23. Percent of Sales and Average Price per Acre of North Carolina Farmland by Category of Intended Use after Sale to Nonfarm Use, 1979-80

Major use after sale	Percent	Average value per acre
		(dollars)
No response	-	1,564
Rural residence	39.4	1,788
Recreation	5.8	1,018
Holding for development	35.6	1,722
Commercial or industrial	3.8	7,000
Forest	5.8	1,452
Other	9.6	2,077
	<u>100.0</u>	

Source: 1980 North Carolina Rural Real Estate Market Survey.

nonfarm use. Similarly, for land staying in farming 25 percent were purchased with cash and 4 percent with a land contract. For land converted to nonfarm use, 30 percent were purchased with cash while 13 percent were purchased with a land contract.

Buyer Information

Nearly 85 percent of all buyers of tracts kept in farming were individuals; 6 percent were partnerships and 8 percent were corporations. Less than 1 percent of the tracts were sold to foreign citizens.

Buyers of nonfarm tracts resided mostly in cities having a population of over 10,000 persons. Seventy-five percent of tract purchasers were individuals, under 8 percent were partnerships and nearly 17 percent were corporations.

SUMMARY

Several estimates of farmland value are available for the United States and its regions attesting to the widespread interest in the value of land. However, the results of these studies also demonstrate the difficulty of estimating value of land because the results obtained often vary considerably. The most widely used land value data are collected by the U.S. Department of Agriculture and are reported in Farm Real Estate Market Developments. In the decade of the 1970s, land values increased greatly but adjusted for inflation, land values have risen only slightly. North Carolina land values, while above average compared to the rest of the nation, have not increased at the national pace.

North Carolina is a diverse state geographically. Demand for land for alternative uses varies greatly from one region to another. Quality of the land for agriculture is high in the Coastal Region, while urban demand is slight due to the lack of rapidly growing cities. In the Piedmont, land values are greatly influenced by urban and industrial development, while in the Mountain Region second-home demand for land is high. Pressures to convert land to nonfarm use are great in these two regions because of the potential capital gains associated with sale of land for nonfarm purposes.

The 1980 North Carolina Rural Real Estate Market Survey, the source of most of the data provided in this report, collected data on the land market for the period October 1, 1979, to March 31, 1980. The survey was designed to collect information on (1) the strength and characteristics of the land market, and (2) the average value and circumstances surrounding the sale of tracts of land both kept in agriculture and converted or expected to be converted to nonfarm use. Three hundred and eight-three responses to the market strength section were usable. The sales data are based upon 443 sales, 317 tracts remaining in farming and 126 tracts converted to nonfarm use.

The level of activity in the land market was generally unchanged from the previous year, although there was considerable variation perceived in the strength of the market. There was also variation among regions of the state.

Respondent's Assessment of the Farmland Market

A major reason for conducting the survey was to obtain information about the conversion of farmland to nonfarm uses. In the section of the survey requesting respondents' judgment regarding the status of the land market, respondents indicated that 34 percent of all land sold went into nonfarm uses. Fifty-one percent of the respondents thought nonfarm uses were the primary determinant of farmland values, whereas 49 percent thought that agriculture was the primary determinant of land value. However, there was great regional variation, with two-thirds of the respondents in the Piedmont Region and three-fourths of the respondents in the Mountain Region indicating that nonfarm factors were the primary influence in determining land values. In contrast, three-fourths of the respondents in the Coastal Region thought agriculture was the primary determinant of land values. In the judgment of respondents, farmers and farmer-investors were the main buyers of farmland while "hobby" farmers purchased few tracts.

Respondents were also asked to give their judgment concerning the value of land. In the case of farmland remaining in agriculture, high quality land was valued on the average at \$1,718 per acre, whereas low quality land was valued at \$822 per acre. The average value of all

land staying in agriculture was \$1,270 per acre. Land for farm purposes varied considerably by region. The estimated value of farmland in the Mountain Region was \$1,373 per acre and in the Coastal Region \$1,398 per acre. In the Piedmont Region land for farming was valued at \$1,066 per acre. The value of land for nonfarm purposes was estimated to be considerably higher than the value of land for farm purposes, and ranged from \$6,356 per acre for commercial-industrial land to \$374 per acre for marsh, mineral and related land.

Data Based on Sales of Farmland

Another section of the 1980 North Carolina Rural Real Estate Market Survey was used to collect data on actual sales of farmland. Differentiation was made between farmland that remained in farming and land that was converted to nonfarm use. For the entire state, average sale value of tracts staying in farming was \$1,398 per acre whereas for land being converted to nonfarm use, value was \$1,875 per acre. Both of these average sale values were considerably above the values expected by respondents in the judgment portion of the survey.

The average distance of the tract sold from a town or city with 500 or more people was approximately 6 miles. Land values varied inversely with distance from the population center. Average land value in the 1- to 2-mile range was nearly double the value for those tracts located more than 11 miles from the population center. Average land value also fell as tract size increased, although the lack of observations in some size classes contributed to some roughness in this trend. Distance between the tract and the buyer's residence was high, being 57 miles per farm for land staying in farming and 157 miles for land converted to nonfarm use. Average distance for converted land in the Mountain Region was 418 miles. As might be expected, purchasers of land for nonfarm use lived further away from the tract than did purchasers of farm tracts. Type access appeared to affect the value of land for nonfarm use but did not affect the value of land for farm use.

Since the value of land for nonfarm purposes is above the value for farm purposes, provision of services such as central water and sewer is expected to shift the demand for farmland to the right.

Survey results found that when community water service was available, or where value was influenced by rural housing or rural industry, land values were approximately double the value of land not influenced by these factors.

Of the land expected to be converted to nonfarm use, 54 percent was purchased by nonfarm investors. Owner-operators sold most of the land expected to remain in farming, and only 20 percent was sold by nonfarm investors. Operating farmers purchased most of the land that remained in farming. Twenty-three and one-half percent of the tracts sold as complete farming units while 45.1 percent of the tracts were added on to existing farms. Only 18.7 percent of the tracts were sold to part-time farmers.

A question of great current interest is the use of the land prior to sale for nonfarm purposes. Of the tracts sold for nonfarm purposes, 49 percent was primarily forest, 20 percent was idle, 12.9 percent was primarily cropland and 8.3 percent was primarily in pasture. After sale, 39.4 percent was used as a site for a rural residence and sold at an average sales price of \$1,788 per acre; 35.6 percent was held for development and sold at an average price of \$1,722 per acre; 3.8 percent was sold for commercial-industrial use at an average price of \$7,000 per acre.

Of the farmland purchased with the estimated intention of being kept in farming, 85 percent was purchased by individuals, 6 percent was purchased by partnerships and 8 percent was purchased by corporations. Of the farmland expected to be used for nonfarm purposes, 75 percent was purchased by individuals, 8 percent was purchased by partnerships and 17 percent was purchased by corporations.

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APPENDIX

Appendix Table A.1. Nominal per Acre Value of Land and Buildings:
North Carolina, 1915-81

Year	Dollars per acre	Year	Dollars per acre	Year	Dollars per acre
1915	25	1937	38	1959	177
1916	27	1938	40	1960	186
1917	31	1939	39	1961	197
1918	36	1940	39	1962	216
1919	42	1941	38	1963	227
1920	54	1942	43	1964	245
1921	48	1943	46	1965	258
1922	41	1944	55	1966	273
1923	50	1945	64	1967	292
1924	50	1946	76	1968	314
1925	50	1947	88	1969	337
1926	50	1948	93	1970	333
1927	49	1949	98	1971	371
1928	49	1950	99	1972	396
1929	48	1951	108	1973	461
1930	47	1952	122	1974	551
1931	40	1953	128	1975	590
1932	34	1954	125	1976	676
1933	26	1955	130	1977	759
1934	30	1956	139	1978	830
1935	33	1957	153	1979	1,051
1936	35	1958	165	1980	1,215
				1981	1,331

Sources: Clifton and Crowley (1973) and various issues of USDA, Farm Real Estate Market Developments.

Appendix Table A.2. Nominal Land Values, Index of Value and Percent Change: North Carolina and United States, 1971-81

Year	Nominal value of land				Index of value			
	North Carolina value	Percent change	U.S. value	Percent change	North Carolina	Percent change	U.S.	Percent change
	(dollars)		(dollars)		(dollars)		(dollars)	
1971	371	-	203	-	52	-	43	-
1972	396	7	219	8	56	8	47	9
1973	461	16	246	12	67	20	53	13
1974	551	20	302	23	81	21	66	25
1975	590	7	340	13	88	9	75	14
1976	676	15	397	17	95	8	86	15
1977	759	12	474	19	100	5	100	16
1978	830	9	531	12	103	3	109	9
1979	1,051	27	628	18	122	18	125	15
1980	1,215	16	725	15	141	16	145	16
1981	1,331	10	796	10	155	10	158	9

Source: Various issues of USDA, Farm Real Estate Market Developments but primarily August 1981, CD-86.

Appendix Table A.3. Measures of Inflation, Nominal and Real Values of Farmland: North Carolina, 1972-81

Year	Nominal value of farmland (dollars)	Inflation measures		Real value of farmland (dollars)	
		CPI Index (1972=100)	GNP Implicit Price Deflator (1972=100)	CPI adjusted	GNPIPD adjusted
1972	396	100.0	100.0	396	396
1973	461	103.9	105.7	444	436
1974	551	114.3	114.9	482	480
1975	590	127.0	125.6	464	470
1976	676	135.0	132.1	501	512
1977	759	143.1	139.8	530	543
1978	830	152.2	150.0	545	553
1979	1,051	167.3	162.8	628	646
1980	1,215	191.0	177.4	636	685
1981	1,331	212.6	188.1	626	708

Sources: Various issues of USDA, Farm Real Estate Market Developments.

CPI and GNPIPD from Survey of Current Business, U.S. Department of Commerce, Office of Bus. Econ., Dec. 1971, 1972, 1973, 1974; Nov. 1976; Dec. 1976, 1978, 1979, 1980; Apr. 1981.

Appendix Table A.4. Percent of Land in Cropland and Value of Crops, Livestock and Poultry, by County, 1978

County	Percent cropland	Value of crops per acre of land in cropland ^a	Value of livestock and poultry per acre land in farms
		(\$/acre)	(\$/acre)
Alamance	53	152	140
Alexander	50	124	304
Alleghany	55	36	140
Anson	56	141	197
Ashe	42	59	106
Avery	39	322	24
Beaufort	73	281	52
Bertie	52	368	63
Bladen	52	306	43
Brunswick	43	330	24
Buncombe	37	126	90
Burke	48	66	274
Cabarrus	58	51	66
Caldwell	38	124	166
Camden	84	199	95
Carteret	51	147	5
Caswell	37	311	20
Catawba	62	51	89
Chatham	42	90	469
Cherokee	29	54	132
Chowan	70	270	94
Clay	44	44	346
Cleveland	65	102	167
Columbus	60	451	33
Craven	61	368	84
Cumberland	56	240	66
Currituck	75	184	86
Dare	-	-	-
Davidson	57	124	80
Davie	55	61	120
Duplin	58	306	494
Durham	39	363	28
Edgecombe	57	346	32
Forsyth	54	259	50
Franklin	48	357	83

Appendix Table A.4. (continued)

County	Percent cropland	Value of crops per acre of land in cropland ^a	Value of livestock and poultry per acre land in farms
		(\$/acre)	(\$/acre)
Gaston	57	37	83
Gates	63	202	120
Graham	27	218	32
Granville	37	377	36
Greene	68	512	195
Guilford	52	274	9
Halifax	56	270	54
Harnett	56	395	29
Haywood	32	145	60
Henderson	51	524	99
Hertford	57	355	30
Hoke	57	250	62
Hyde	70	164	32
Iredell	58	49	207
Jackson	32	122	28
Johnston	59	396	78
Jones	55	348	22
Lee	46	385	70
Lenoir	65	456	94
Lincoln	58	72	117
McDowell	38	101	96
Macon	38	58	77
Madison	35	136	22
Martin	58	416	50
Mecklenburg	56	262	102
Mitchell	37	138	26
Montgomery	37	136	244
Moore	35	294	243
Nash	54	468	79
New Hanover	36	277	17
Northampton	55	252	86
Onslow	57	332	67
Orange	52	140	118

Appendix Table A.4. (continued)

County	Percent cropland	Value of crops	Value of livestock
		per acre of land in cropland ^a	and poultry per acre land in farms
		(\$/acre)	(\$/acre)
Pamlico	70	320	27
Pasquotank	81	267	30
Pender	54	249	80
Perquimans	77	200	91
Person	42	353	23
Pitt	69	472	101
Polk	42	59	83
Randolph	50	121	327
Richmond	52	215	176
Robeson	68	341	21
Rockingham	39	444	22
Rowan	64	54	110
Rutherford	48	51	70
Sampson	63	333	192
Scotland	55	189	74
Stanly	66	104	166
Stokes	37	429	23
Surry	47	390	122
Swain	-	-	36
Transylvania	43	85	49
Tyrrell	77	165	77
Union	69	114	477
Vance	39	457	16
Wake	52	480	75
Warren	44	262	24
Washington	79	160	116
Watauga	36	116	84
Wayne	69	367	225
Wilkes	38	103	695
Wilson	61	553	85
Yadkin	60	273	118
Yancey	35	170	38

^aDoes not include forestry or forest products.

Source: Based upon Preliminary Report, 1978 Census of Agriculture.

88 Table A.5. North Carolina Population Data

County	1980 population ^a	1970-1980 ^{a,b} population change		Land area ^b (sq. mi.)	1980 population per sq. mile	1970 Population distribution ^b			
		No. Persons	Percent			Percent urban	Percent rural	Percent rural	
								Percent farm	Percent nonfarm
Alamance	99,136	2,634	2.7	428	231.6	52.7	47.3	7.5	39.8
Alexander	24,999	5,533	28.4	259	96.5	0	100.0	14.6	85.4
Alleghany	9,587	1,453	17.9	225	42.6	0	100.0	28.7	71.3
Anson	25,562	2,074	8.8	533	48.0	16.9	83.1	8.2	74.9
Ashe	22,325	2,754	14.1	426	52.4	0	100.0	34.3	65.7
Avery	14,409	1,754	13.9	245	58.8	0	100.0	12.7	87.3
Beaufort	40,266	4,286	11.9	826	48.7	25.0	75.0	16.6	58.4
Bertie	21,024	496	2.4	698	30.1	0	100.0	32.4	67.6
Bladen	30,448	3,971	15.0	883	34.5	0	100.0	24.4	75.6
Brunswick	35,767	11,544	47.6	856	41.8	0	100.0	14.3	85.7
Buncombe	160,934	15,878	10.9	657	245.0	52.3	47.7	8.2	39.5
Burke	72,504	12,140	20.1	511	141.9	28.5	71.5	5.2	66.3
Cabarrus	85,895	11,266	15.1	363	236.6	64.0	36.0	4.4	31.6
Caldwell	67,746	11,047	19.5	469	144.4	31.0	69.0	5.3	63.7
Camden	5,829	376	6.9	239	24.4	0	100.0	5.6	94.4
Carteret	41,092	9,489	30.0	536	76.7	27.3	72.7	5.3	67.4
Caswell	20,705	1,650	8.6	428	48.4	0	100.0	33.5	66.5
Catawba	105,208	14,335	15.8	394	267.0	42.9	57.1	4.3	52.8
Chatham	33,415	3,861	13.1	709	47.1	15.9	84.1	14.9	69.2
Cherokee	18,933	2,603	15.9	452	41.9	0	100.0	4.9	95.1
Chowan	12,558	1,794	16.7	173	72.6	44.3	55.7	11.6	44.1
Clay	6,619	1,439	27.8	209	31.7	0	100.0	19.5	80.5
Cleveland	83,435	10,879	15.0	468	178.3	33.6	66.4	5.3	61.1
Columbus	51,037	4,100	8.7	945	54.0	8.9	91.1	25.9	65.2
Craven	71,043	8,489	13.6	699	101.6	55.2	44.8	10.5	34.3
Cumberland	247,160	35,118	16.6	654	377.9	76.3	23.7	2.5	21.2
Currituck	11,089	4,113	59.0	246	45.1	0	100.0	4.4	95.6
Dare	13,377	6,382	91.2	391	34.2	0	100.0	29.3	70.7
Davidson	113,162	17,535	18.3	549	206.1	36.9	63.1	10.5	52.6
Davie	24,599	5,744	30.5	265	92.8	13.4	86.6	15.4	71.2
Duplin	40,952	2,937	7.7	815	50.2	15.1	84.9	24.2	60.7
Durham	152,785	20,104	15.2	295	517.9	75.9	24.1	3.0	21.1
Edgecombe	55,988	3,647	7.0	510	109.8	47.1	52.9	16.6	36.3
Forsyth	243,683	28,565	13.3	419	581.6	69.1	30.9	3.1	27.8
Franklin	30,055	3,235	12.1	491	61.2	11.0	89.0	33.3	55.7

Table A.5. (continued)

County	1980 population ^a	1970-1980 ^{a,b} population change		Land ^b area (sq. mi.)	1980 population per sq. mile	1970 Population distribution ^b			
		No. Persons	Percent			Percent urban	Percent rural	Percent rural	
								Percent farm	Percent nonfarm
Gaston	162,568	14,153	9.5	356	456.6	60.2	39.8	4.5	35.3
Gates	8,875	351	4.1	337	26.3	0	100.0	24.1	75.9
Graham	7,217	655	10.0	292	24.7	0	100.0	21.6	78.4
Granville	33,995	1,233	3.8	537	63.3	32.7	67.3	23.1	44.2
Greene	16,117	1,150	7.7	267	60.4	0	100.0	39.6	60.4
Guilford	317,154	28,509	9.9	655	484.2	76.2	23.8	3.9	19.9
Halifax	55,286	1,402	2.6	734	75.3	36.7	63.3	15.9	47.4
Harnett	59,570	9,903	19.9	603	98.8	22.4	77.6	18.5	59.1
Haywood	46,495	4,785	11.5	551	84.4	27.8	72.2	11.0	61.2
Henderson	58,580	15,776	36.8	378	155.0	28.4	71.6	7.0	64.6
Hertford	23,368	-1,071	-4.4	353	66.2	34.7	65.3	14.3	51.0
Hoke	20,383	3,947	24.0	389	52.4	19.4	80.6	19.4	61.2
Hyde	5,873	302	5.4	613	9.6	0	100.0	19.7	80.3
Iredell	82,538	10,341	14.3	572	144.3	44.2	55.8	8.8	47.0
Jackson	25,811	4,218	19.5	491	52.6	0	100.0	9.5	90.5
Johnston	70,599	8,862	14.4	797	88.6	23.0	7.7	23.3	53.7
Jones	9,705	-74	-0.8	467	20.8	0	100.0	20.4	79.6
Lee	36,718	6,251	20.5	256	143.4	38.0	62.0	8.1	53.9
Lenoir	59,819	4,615	8.4	400	149.5	45.0	55.0	11.0	44.0
Lincoln	42,372	9,690	29.6	297	142.7	16.0	84.0	10.1	73.9
McDowell	35,135	4,487	14.6	436	80.6	31.0	69.0	2.3	66.7
Macon	20,178	4,390	27.8	513	39.3	0	100.0	10.7	89.3
Madison	16,827	824	5.1	450	37.4	0	100.0	52.0	48.0
Martin	25,948	1,218	4.9	455	57.0	26.6	73.4	22.0	51.4
Mecklenburg	404,270	49,614	14.0	530	762.8	79.8	20.2	1.9	18.3
Mitchell	14,428	981	7.3	215	67.1	0	100.0	16.6	83.4
Montgomery	22,469	3,202	16.6	488	46.0	0	100.0	12.8	87.2
Moore	50,505	11,457	29.3	704	71.7	15.4	84.6	16.0	68.6
Nash	67,153	8,031	13.6	544	123.4	32.2	67.8	20.2	47.6
New Hanover	103,471	20,475	24.7	185	559.3	69.0	31.0	2.1	28.9
Northampton	22,584	-515	-2.2	536	42.1	0	100.0	12.2	87.8
Onslow	112,784	9,658	9.4	765	147.4	57.4	42.6	4.5	38.1
Orange	77,055	19,488	33.8	400	192.6	50.3	49.7	8.6	41.1
Pamlico	10,398	931	9.8	338	30.8	0	100.0	23.6	76.4
Pasquotank	28,462	1,638	6.1	228	124.8	51.7	48.3	7.8	40.5

28 Table A.5. (continued)

County	1980 population ^a	1970-1980 ^{a,b} population change		Land area ^b (sq. mi.)	1980 population per sq. mile	1970 Population distribution ^b			
		No. Persons	Percent			Percent urban	Percent rural	Percent rural	
								Percent farm	Percent nonfarm
Pender	22,215	4,066	22.4	871	25.5	0	100.0	19.1	80.9
Perquimans	9,486	1,135	13.6	246	38.6	0	100.0	30.5	69.5
Person	29,164	3,250	12.5	401	72.7	20.7	79.3	20.3	59.0
Pitt	83,651	9,751	13.2	655	127.7	49.6	50.4	14.7	35.7
Polk	12,984	1,249	10.6	239	54.3	0	100.0	14.6	85.4
Randolph	91,861	15,503	20.3	798	115.1	29.8	70.2	12.3	57.9
Richmond	45,481	5,592	14.0	475	95.7	33.5	66.5	7.6	58.9
Robeson	101,577	16,735	19.7	949	107.0	27.3	72.7	20.8	51.9
Rockingham	83,426	11,024	15.2	569	146.6	44.8	55.2	15.3	39.9
Rowan	99,186	9,151	10.2	523	189.6	42.1	57.9	7.7	50.2
Rutherford	53,787	6,450	13.6	563	95.5	30.2	69.8	4.7	65.1
Sampson	49,687	4,733	10.5	945	52.6	15.7	84.3	29.2	55.1
Scotland	32,273	5,344	19.8	319	101.2	32.7	67.3	11.2	56.1
Stanly	48,517	5,695	13.3	398	121.9	26.1	73.9	10.9	63.0
Stokes	33,086	9,304	39.1	457	72.4	0	100.0	34.4	65.6
Surry	59,449	8,034	15.6	536	110.9	24.9	75.1	15.9	59.2
Swain	10,283	1,448	16.4	524	19.6	0	100.0	17.3	82.7
Transylvania	23,417	3,704	18.8	382	61.3	27.3	72.7	4.4	68.3
Tyrrell	3,975	169	4.4	390	10.2	0	100.0	25.2	74.8
Union	70,380	15,666	28.6	639	110.1	25.4	74.6	17.8	56.8
Vance	36,748	4,057	12.4	249	147.6	42.0	58.0	15.0	43.0
Wake	300,833	71,827	31.4	858	350.6	69.3	30.7	6.3	24.4
Warren	16,232	422	2.7	424	38.3	0	100.0	36.5	63.5
Washington	14,801	763	5.4	343	43.2	34.0	66.0	16.3	49.7
Watauga	31,678	8,274	35.4	317	99.9	37.4	62.6	17.4	45.2
Wayne	97,054	11,646	13.6	557	174.2	46.7	53.3	12.8	40.5
Wilkes	58,657	9,133	18.4	757	77.5	6.9	93.1	16.0	77.1
Wilson	63,132	5,646	9.8	375	168.4	51.1	48.9	14.4	34.5
Yadkin	28,439	3,840	15.6	336	84.6	0	100.0	27.7	72.3
Yancey	14,934	2,305	18.2	312	47.9	0	100.0	33.5	66.5
North Carolina	5,874,429	792,370	15.5	48,798	120.4	45.0	55.0	7.4	47.6

Sources: ^aU.S. Department of Commerce (1981); ^bU.S. Department of Commerce (1973), County and City Data Book, 1977.

