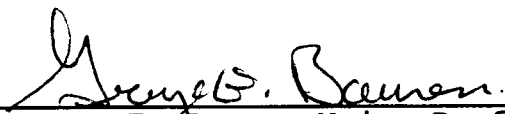


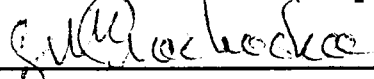
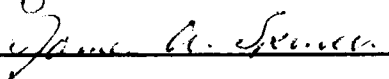
T125  
22

To the Graduate Council:

I am submitting herewith a thesis written by Ricky W. Barker entitled "The Relationship Between Ownership Patterns and Socioeconomic Conditions in Appalachian Communities." I have examined the final copy of this thesis for form and content and recommend that it be accepted in partial fulfillment of the requirements for the degree of Master of Science in Planning.

  
George E. Bowen, Major Professor

We have read this thesis  
and recommend its acceptance:

Accepted for the Council:

  
Vice Provost  
and Dean of the Graduate School

# STATEMENT OF PERMISSION TO USE

In presenting this thesis in partial fulfillment of the requirements for a Master's degree at The University of The University of Tennessee, Knoxville, I agree that the Library shall make it available to borrowers under rules of the Library. Brief quotations from this thesis are allowable without special permission, provided that accurate acknowledgment of the source is made.

Permission for extensive quotation from or reproduction of this thesis may be granted by my major professor, or in his absence, by the Head of Interlibrary Services when, in the opinion of either, the proposed use of the material is for scholarly purposes. Any copying or use of the material in this thesis for financial gain shall not be allowed without my written permission.

Signature Ricky W. Barber

Date August 14, 1986

THE RELATIONSHIP BETWEEN OWNERSHIP PATTERNS  
AND SOCIOECONOMIC CONDITIONS IN  
APPALACHIAN COMMUNITIES

A Thesis  
Presented for the  
Master of Science in Planning  
Degree  
The University of Tennessee, Knoxville

Ricky W. Barker

August 1986

## ACKNOWLEDGEMENTS

I would like to express gratitude to the faculty of the Graduate School of Planning at the University of Tennessee for their contribution to my education. It has been an enjoyable and beneficial experience.

Special thanks to the Appalachian Land Ownership Task Force for their invaluable information which was used in conducting this study and to John Gaventa for his assistance in completing this study.

I would also like to express my sincere appreciation for my family and friends: to my Dad for financial support and for making me a hard worker; to my Mom for her love and undying faith in my abilities; to Clara and Emmitt for their unselfish love and kindness; to the "Famers" for their great friendship and love and; for the constant inspiration to perform and complete this study, unfortunately, thanks must go to the many people of Appalachia who have suffered from injustices beyond their control.

## ABSTRACT

The purpose of this study was to determine if a relationship exists between ownership patterns and socioeconomic conditions in Appalachian communities. A Proposed Model of the relationship between land and resource ownership patterns and socioeconomic conditions was developed and tested.

The study determined that land and resource ownership patterns influence socioeconomic conditions in the counties studied. Specifically, high concentrations and absentee ownership of land and resources were found to be associated with a low tax base, low levels of economic diversity, and a low amount of land available for development. These characteristics, in turn, were found to be associated with other factors that directly influence socioeconomic conditions.

## TABLE OF CONTENTS

| CHAPTER                                           | PAGE |
|---------------------------------------------------|------|
| I. INTRODUCTION.....                              | 1    |
| Problem Statement.....                            | 2    |
| Purpose of the Study.....                         | 4    |
| Reason for the Study.....                         | 6    |
| Outline of the Remainder<br>of the Thesis.....    | 7    |
| II. LITERATURE REVIEW.....                        | 8    |
| Land and Resource Ownership<br>in Appalachia..... | 10   |
| III. THE PROPOSED MODEL.....                      | 20   |
| Ownership Patterns and<br>Their Effect.....       | 20   |
| IV. METHODOLOGY.....                              | 41   |
| Research Methodology.....                         | 41   |
| V. RESULTS.....                                   | 57   |
| Hypothesis 1.....                                 | 57   |
| Hypothesis 2.....                                 | 63   |
| Hypothesis 3.....                                 | 66   |
| Additional Test Performed.....                    | 68   |
| Discussion of the Results.....                    | 70   |
| VI. CONCLUSION.....                               | 76   |
| BIBLIOGRAPHY.....                                 | 79   |
| APPENDIX: DATA COLLECTED.....                     | 83   |
| VITA.....                                         | 100  |

# LIST OF TABLES

| TABLE                                                                   | PAGE |
|-------------------------------------------------------------------------|------|
| I. Summary of Variables.....                                            | 58   |
| II. Maximum R-Square Improvement for Dependent<br>Variable PROPTAX..... | 59   |
| III. Summary of Simple Regression Results.....                          | 61   |
| IV. Maximum R-Square Improvement for Dependent<br>Variable DIVERSE..... | 64   |
| V. Maximum R-Square Improvement for Dependent<br>Variable LAVAIL.....   | 67   |
| VI. Land and Resource Ownership<br>Indicators.....                      | 84   |
| VII. Income Indicators.....                                             | 86   |
| VIII. Average Annual Unemployment Rates<br>1979-81.....                 | 88   |
| IX. Migration 1970-80.....                                              | 90   |
| X. Infant Mortality Rates 1978-80.....                                  | 92   |
| XI. General Revenues 1980-81.....                                       | 94   |
| XII. Housing Indicators.....                                            | 96   |
| XIII. Data for Other Indicators Used in the<br>Study.....               | 98   |

## LIST OF FIGURES

| FIGURE                                                                                                                     | PAGE |
|----------------------------------------------------------------------------------------------------------------------------|------|
| 1. List of Survey Counties.....                                                                                            | 14   |
| 2. Proposed Model of the Relationship Between Land<br>and Resource Ownership Patterns and<br>Socioeconomic Conditions..... | 21   |
| 3. Revised Model of the Relationship Between Land<br>and Resource Ownership Patterns and<br>Socioeconomic Conditions.....  | 71   |

## CHAPTER I

### INTRODUCTION

Millions of federal and state dollars have been spent since the 1950's to improve economic and social conditions in the Appalachian Region (Appalachian Regional Commission [ARC], 1984, p. 1). Agencies such as the Appalachian Regional Commission and the Tennessee Valley Authority have sought to help develop the Region. Improved transportation systems have been constructed to improve access in the Region in order to attract economic development. Programs designed to improve education, health care, housing, and other social services have been implemented. Although conditions are improving throughout the Appalachian Region, poverty, sub-standard housing, low educational levels, limited job opportunities, and minimal levels of social services continue to characterize much of the Region. It has been suggested that this situation is deteriorating due to current economic conditions and the policies of the Reagan Administration (Appalachian Alliance, 1982, p. 1).

Federal assistance for low income people and local community services is being sacrificed to help reduce the national debt and support a stronger national defense (Appalachian Alliance, p. 1). Federal programs which had become essential to the well-being of the Region's poor and its struggling communities over the past 15 years, have

either disappeared entirely, been cut back, or are -- like the Appalachian Regional Commission -- scheduled to be phased out (Appalachian Alliance, 1982, p. 1).

It has been suggested by leading Appalachian scholars (Lewis, Johnson, and Askin, 1978) that the reason for the failure of federal programs is their inability to deal with the actual causes of the problems. The programs and improvements attacked only the existing conditions, not the causes of the conditions. This can be attributed to a lack of understanding of why the conditions exist. Without an understanding of the causes of the conditions, it is difficult to respond to problems with rational, consistent strategies.

#### PROBLEM STATEMENT

The Appalachian Region, because of its abundance of minerals and other assets, is one of the most resource-rich regions in the nation. In spite of this asset, a majority of the Appalachian people and communities are impoverished. Several explanations have been suggested by government officials, researchers, and Appalachian scholars for this inequality. One explanation is that the Region's problems are due to the deficiencies of the people and their culture (Lewis et al., 1978, p. 1). This theory suggests that the people are poor because they are primitive and cannot cope well in the modern world.

A second explanation is that the Region is underdeveloped. Underdevelopment stems from the Region's isolation, lack of transportation, lack of capital and programs to stimulate growth, lack of skilled labor, and lack of incentives for investments (Lewis et al., p. 2).

These explanations have been the basis for many of the programs that have been implemented throughout the Region. These programs, however, have not been very successful and have not significantly changed the conditions which plague the area (Appalachia Looks at its Future, 1975, p. 18).

In recent years, many Appalachian residents and scholars have shared the belief that three factors are responsible for the problems afflicting the Region: (1) the unequal distribution of ownership, (2) the misuse of land and resources, and (3) the profit-motivated actions of the owners. It has been documented (Appalachian Land Ownership Task Force [ALOTF] 1983, Miller 1975, Kaufman 1972, and Kirby 1969) that the ownership of land and minerals throughout the Region is concentrated in the hands of a few owners. However, very little research has been done on the impact this ownership has on the Region. Further studies need to be conducted to determine how ownership patterns interact to influence the existing socioeconomic problems.

## PURPOSE OF THE STUDY

The main goal of this study was to examine the relationship between ownership patterns (land and resources) and socioeconomic conditions in Appalachian communities. Specifically, the objectives of this research were:

1. To develop a model of the relationship between land and resource ownership patterns and socioeconomic conditions,
2. To test the model, and
3. To revise the model based on the outcome of statistical tests.

The purpose of the model was to assist in understand how land and resource ownership patterns affect socioeconomic conditions. Due to the complexity of the Region's problems, the model is a simplification of a complex set of phenomenon and relationships.

The Proposed Model was tested to determine if it helped explain the conditions which exist. The main hypothesis for the Model was:

Main Hypothesis: A relationship exists between land and resource ownership patterns and socioeconomic conditions in Appalachian communities.

Because of the inability to use a single variable or indicator to represent socioeconomic conditions, the main hypothesis was not directly tested. Instead, a series of

hypotheses based on expected relationships derived from the Model was tested.

These hypotheses dealt with three of the major factors that help explain the effect ownership patterns have on Appalachian communities. These hypotheses dealt with how land and resource ownership patterns influence the tax base, economic diversity and availability of land within communities.

It is proposed that land and resource ownership patterns adversely affect the tax base used to support community services.

Hypothesis 1: The higher the concentration and absentee ownership of land and minerals, the lower the tax base.

A lower tax base affects the funds available to be spent on such social services as education and health care. These services, in turn influence the level of education and health care within a community.

Economic diversity has also been suggested as being influenced by land and resource ownership patterns.

Hypothesis 2: The higher the concentration and absentee ownership of land and minerals, the lower the economic diversity.

Low levels of economic diversity lead to higher unemployment rates which, in turn, lead to out-migration and low income communities.

It has been suggested that land and resource ownership patterns reduce the land available for residential and other types of development.

Hypothesis 3: The higher the concentration and absentee ownership of land and minerals, the lower the amount of land available for development.

Lack of land for development leads to a limited housing supply which, in turn, leads to an older housing stock and the overcrowding of existing units.

A discussion of hypotheses is presented in Chapter III, The Proposed Model.

#### REASON FOR THE STUDY

A limited amount of information exist relating to land and resource ownership patterns and their effect on the Appalachian Region. It is hoped that this study will add to the existing knowledge of effects of land and resource ownership patterns. The study focused on determining if a relationship exist between land and resource ownership patterns and socioeconomic conditions.

The results of the study should be useful to those concerned with solving the problems in the Appalachian Region. In addition, this study will provide information that can be used to help understand the causes of the problems which exist. Through an understanding of the

causes of problems, successful responses to eliminate these problems can be formulated.

#### OUTLINE OF THE REMAINDER OF THE THESIS

The remainder of the thesis will deal with a review of related literature and research, the Proposed Model, methodology, results of the study, and conclusions and recommendations. Chapter II gives an overview of existing land and resource ownership studies and reviews relevant research methodology and statistical analyses used by these studies.

Chapter III presents and discusses the Proposed Model of the relationship between land and resource ownership patterns and socioeconomic conditions. Chapter III also presents the hypotheses that were derived from the model.

Chapter IV gives a description of the research methodology. This includes a discussion of the research design, operationalization of variables, and data processing and analysis.

In Chapter V the findings of the study are presented, analyzed, and evaluated. Revisions to the Model based on the test performed are also presented.

In Chapter VI conclusions are presented, along with recommendations for additional research.

## CHAPTER II

### LITERATURE REVIEW

With each passing generation, Americans know less and less about the land, its ownership and control. Even less are we aware of how this yawning ignorance affects our lives and fortune (ALOTF, 1983, p. ix).

Land and its products have been at the center of the American character -- the American dream -- since colonial times and the early independence era. All economic and social activity in the United States requires land in one way or another. As a whole, the population is still closely dependent on land for food, fiber, shelter, and the amenities it provides. The pursuit of private property has been a basic desire throughout the development of this nation. Land has been a means of earning a livelihood and of providing for one's family.

In many places, land has meant social position and political power as well as economic advantages. Tribes and nations have fought wars over land; social systems, laws, and customs have all been concerned with one aspect or another of land (Clawson, 1972, p. 1). Land permeates every society and economy.

Today, Americans are becoming concerned about the fairness and efficiency of domestic patterns of land distribution (Geisler and Popper, 1984, p. 3). The chief concern of many groups has been directed toward the

concentration and distribution of wealth in America (ALOTF, 1983, p. 1). This concern often involves land. More recently, controversy over the use of land, and the distribution of its benefits, have led to studies dealing with its ownership. The following quote suggests the fundamental link between land use and land ownership:

It is ownership - and the economics that surround ownership - that determines whether land is farmed or paved, strip-mined or preserved, polluted or reclaimed. It is ownership that determines where people live and where they work. And, to a great degree, it is ownership that determines who is wealthy in America and who is poor, who exploits and who gets exploited by others (ALOTF, 1983, p. 2).

A federally sponsored study of land ownership in the United States in 1978 concluded that the top 5 percent of all landowners owned 75 percent of the land, and the bottom 78 percent owned only 3 percent (Geisler and Popper, 1984, p. 8). Recent trends suggest that land ownership is becoming more concentrated as large corporate landowners are becoming part of larger multinational corporations.

It has been proposed that this land ownership pattern has contributed to a widening gap between the rich and the poor. Poverty has been associated with land tenure (Geisler and Popper, p. 8). Some of the nation's poorest people inhabit portions of our country's richest lands. This is especially apparent in the Appalachian Region, where nearly a century of land and resource transactions has left many of its people landless and in poverty.

## LAND AND RESOURCE OWNERSHIP IN APPALACHIA

With the War on Poverty in the Appalachian Region in the 1960s, the issue of ownership of the Region's land and mineral wealth became a primary focus for many of the studies that were performed. One of the earliest of these studies was carried out by Richard Kirby in 1969. Kirby set out to investigate why poverty existed amid land and resource richness. Kirby found 31 people and corporations owned approximately four-fifths of east Kentucky's coal. Eighty-six percent of the coal land was owned by absentee interest (ALOTF, 1983, p. 10). While the concentrated absentee interest commanded the wealth, they gave back little in the way of property taxes which provided for needed community services.

In the early 1970's, a public research team headed by David McAteer at the West Virginia University Law School, surveyed the top 14 coal-producing counties in the state and found that 25 landowners owned approximately 44 percent of the counties studied, yet paid only about one-tenth of the total real estate taxes (ALOTF, p. 11).

In 1971, a study by three Vanderbilt University students of the five major coal producing counties in northeastern Tennessee found that nine large corporations controlled 34 percent of the land surface and approximately 80 percent of the coal wealth. Yet in 1970, they accounted

for less than 4 percent of the property-tax revenue of these counties (ALOTF, 1983, p. 11).

Although many of these and other similar studies were done by different methods and at different times, they do consistently reveal an ownership pattern within the Region which is concentrated in the hands of a limited number of corporate and absentee owners. In addition, several of these studies suggest a close tie between the concentration of ownership and socioeconomic conditions within the Region. However, until recently, only a few studies have dealt directly with how this relationship impacts the Region at a community level.

#### The Appalachian Land Ownership Task Force Study

As long as coal, land, oil, gas, and timber are owned by a small number of private institutions, the economic future of Appalachia is out of our hands. . . . The point is that the destiny of millions of Appalachian people is an unplanned, uncontrolled, and unpredictable afterthought of American capitalism (Appalachia Looks at the Future, 1975, p. 14).

It was this belief that led to the formation of the Appalachian Alliance in April of 1977. This group, composed of hundreds of Appalachian residents, was established to focus public attention on land ownership distribution in the Region and how that distribution was bringing about the deterioration of their communities. From this group emerged a citizen Task Force on land. Funded by the Appalachian Regional Commission, the Task Force undertook the first

comprehensive study of the ownership of land and resources and the related impacts of ownership patterns on economic and community development (ALOTF, 1983, p. xi).

Information was gathered on over 55,000 parcels of property which represented over 13 million surface and 7 million mineral acres (ALOTF, p. 14). The information collected included ownership data as well as data on over one hundred socioeconomic indicators. The results of the 80 county, six state study showed in convincing detail what the Appalachian ownership patterns are and what they are doing to Appalachians.

According to the Task Force Study, only 1 percent of the local population, along with absentee holders, corporations, and government agencies, control at least 53 percent of the total land surface in the eighty counties. Of the 20 millions acres of land and minerals in the survey, 41 percent or over 8 million acres are held by only fifty private owners and ten government agencies. Of the 13 million acres of surface sampled, almost three-fourths were owned by absentee owners (defined as all owners living outside the county). Almost 40 percent of the land and 70 percent of the minerals in the Study area are corporately held. Also, of the top 50 owners, 46 were corporations. Overall, the study showed that the ownership of land and mineral resources is concentrated in the hands of a few

owners and that a majority of these owners are absentee corporations.

Methodology of the Task Force Study. A significant amount of the data used in this study will be taken from the Appalachian Land Ownership Task Force Study. Thus, the results of this study depend upon the reliability and validity of this data. It will be important to understand how the data was obtained, as well as the strengths and weaknesses of the Task Force Study.

The selection of the counties for the Task Force Study was based on two criteria: representativeness of the various types of land ownership and use patterns in the Region; and the existence of local citizen interest in developing, completing, and using the study. The Task Force selected counties that represented the coal, agricultural, and recreational areas of the Region because they felt that different ownership patterns would cause different impacts. The Task Force also wanted to ensure the participation of local citizens in all phases of the research process. A state by state breakdown gives the following number of counties surveyed in each state: Alabama (15), Kentucky (12), Tennessee (14), Virginia (12), and West Virginia (15) (see Figure 1).

The Task Force gathered only land ownership data on property lying in rural unincorporated areas of the counties. It was in those areas where the Task Force

**ALABAMA**

1. BLOUNT
2. CHEROKEE
3. CLEBURNE
4. CULLMAN
5. DEKALB
6. ETOWAH
7. FAYETTE
8. JACKSON
9. LAMAR
10. MARION
11. MARSHALL
12. SHELBY
13. TUSCALOOSA
14. WALKER
15. WINSTON

**KENTUCKY**

16. BELL
17. BREATHITT
18. FLOYD
19. HARLAN
20. JOHNSON
21. KNOTT
22. KNOX
23. LAUREL
24. LETCHER
25. MARTIN
26. PERRY
27. PIKE

**NORTH CAROLINA**

28. ALLEGHANY
29. ASHE
30. AVERY
31. BURKE
32. CLAY
33. HAYWOOD
34. HENDERSON
35. JACKSON
36. MADISON
37. MITCHELL
38. SWAIN
39. WATAUGA

**TENNESSEE**

40. ANDERSON
41. BLEDSOE
42. CAMPBELL
43. CUMBERLAND
44. FENTRESS
45. HAMILTON
46. MARION
47. MORGAN
48. RHEA
49. ROANE
50. SCOTT
51. SEQUATCHIE
52. VAN BUREN
53. WHITE

**VIRGINIA**

54. BLAND
55. BUCHANAN
56. DICKENSON
57. GRAYSON
58. LEE
59. RUSSELL
60. SCOTT
61. SMYTH
62. TAZEWELL
63. WASHINGTON
64. WISE
65. WHE

**WEST VIRGINIA**

66. BRAXTON
67. JEFFERSON
68. KANAWHA
69. LINCOLN
70. LOGAN
71. McDOWELL
72. MARION
73. MARSHALL
74. MINERAL
75. MINGO
76. OHIO
77. RALEIGH
78. RANDOLPH
79. SUMMERS
80. WAYNE

Figure 1 - List of Survey Counties.

expected to find a concentration of the types of ownership previously identified as contributing to the Region's problems. Thus, parcels within incorporated areas were not recorded regardless of size.

Due to time and resource constraints, the Task Force did not code every piece of property in each county. Instead, only property in excess of 250 acres and all corporate or absentee owner's holdings of twenty or more acres was recorded. The 250 acre limit insured the inclusion of the owners of large tracts, while the twenty acre limit took into account most of the expected absentee ownership even in relatively small parcels.

Each parcel was coded into one of four different ownership categories: individual, corporate, public, or private non-profit. Corporate ownership was defined as ownership by one or more persons who constituted a business organization. Public ownership was defined as ownership by either local, state, or federal government.

Parcels were also coded by absentee or resident ownership. Literature on land issues and previous studies in Appalachia point to absentee ownership as a key problem. The owners were coded into three different categories: in-county, out-of-county/in-state, and out-of-state.

Mineral ownership was also recorded; however, the ownership data for minerals was less complete than data for land. Many county tax rolls did not contain acreage figures

and assessments for minerals. Actual mineral ownership of particular tracts was also difficult to determine. In addition, the accuracy of the data depended upon the willingness of owners to disclose their holdings.

In order to make comparisons among counties and types of counties, land and resource ownership data from counties were summarized as follows: percentage of corporate ownership, percentage of public ownership, percentage of absentee ownership, and the concentration of ownership. Concentration indexes were used to measure the degree of concentration or dispersal of land and resource among owners. These indexes were obtained by dividing the percentage of land (or resources) owned by the top 25 percent of owners by the percentage of land (or resources) owned by the bottom 25 percent of owners. The higher the index, the greater the concentration; the lower the index, the lower the concentration.

Statistical Analysis of the Data. For each county in the Task Force Study over one hundred socioeconomic indicators were gathered (e.g., available housing, median income, and service expenditures) in order to examine the association between ownership characteristics and community well-being. Statistical correlations between certain land ownership characteristics and socioeconomic variables were examined for all 80 counties in the Study.

Data on the socioeconomic variables came from a variety of sources which included: Census of Governments (1977), County and City Data Book (1977), Census of Population (1970), Census of Housing (1970), and Appalachian Regional Commission Data Banks (1970, 1974, 1975, and 1977). A large majority of the land and resource ownership data was developed during the Task Force Study.

Ten land ownership characteristics were developed as independent variables in the Task Force Study to correlate with the socioeconomic or dependent variables. These ownership variables were:

1. Percentage of county in corporate ownership.
2. Percentage of county in public (government and private non-profit) ownership.
3. Percentage of county in corporate and public ownership.
4. Percentage of county owned by out-of-county, but in-state owners.
5. Percentage of county owned by out-of-state owners.
6. Percentage of county owned by non-local owners (4 + 5).
7. Percentage of county owned by absentee corporate and government owners.
8. Percentage of county owned by absentee + corporate + government owners (i.e., all owners coded, but local individuals).
9. Percentage of county owned by non-local individuals.

10. a. Concentration of ownership (percent of land owned by the top 25 percent divided by percent owned by the bottom 25 percent).
- b. Concentration of ownership (Gini coefficient).

The same variables were developed to test the impact of mineral ownership.

Pearson's R was used to measure the strength of the relationships between selected land and resource ownership variables and socioeconomic indicators. In other words, Pearson's R was used to measure the degree to which land and resource influences socioeconomic conditions within the counties surveyed. Pearson's R, the most stringent test for determining relationships between two variables, has values from -1 to +1. The higher the absolute value of Pearson's R the stronger the relationship.

In determining the significance of relationships tested in the Task Force Study, the following general criteria was used:

1. The Pearson's R correlation was deemed significant only if (a) the level of probability that the correlation was not random was less than .05 and (b) in general, if the strength of the relationship was greater than /.300/. Relationships in the /.300-.450/ range were considered significant, but weak; in the /.451-.600/ range strong; and over /.600/ to be very strong.

Even with these restrictions, significance of relationships drawn from the Task Force Study must still be qualified because of limitations in both the aggregate data and the courthouse records. Nevertheless, these

correlations do point out important impacts of land ownership and, when corroborated by case studies and other data, add substantially to the knowledge of such impacts in the Appalachian Region.

## CHAPTER III

### THE PROPOSED MODEL

The Proposed Model for this study is presented in Figure 2. A majority of the elements of the Model have been derived from the Appalachian Land Ownership Task Force Study (1983). Other elements are derived from economic theory.

This chapter discusses how land and resource ownership patterns can influence socioeconomic conditions and presents the test hypotheses that were derived from the Model.

#### OWNERSHIP PATTERNS AND THEIR EFFECT

As seen in the Model, land and resource ownership patterns are proposed to influence the tax base, economic diversity and land availability within communities. Each of these, in turn, influences other factors that directly affect socioeconomic conditions. For example, ownership patterns may influence the tax base for communities. This may affect the local funds available to be spent on social services such as education and health care which, in turn, may influence the level of education and health care in communities.

A discussion of land and resource ownership patterns and their influence on the tax base, economic diversity, and land availability follows.

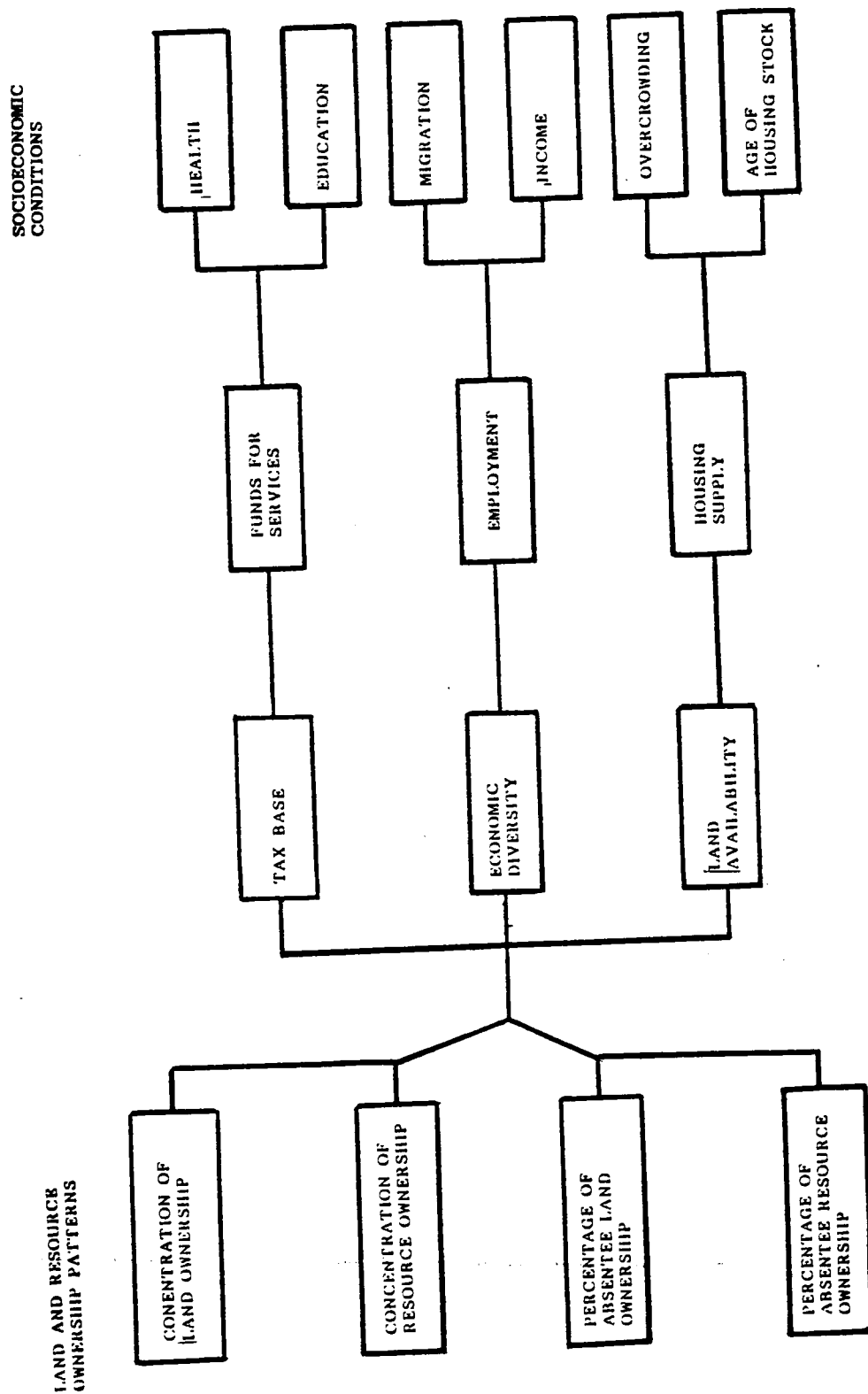


Figure 2. Proposed Model of the Relationship Between Land and Resource Ownership Patterns and Socioeconomic Conditions.

### Concentration of Land Ownership

The concentration or the degree to which land is held by relatively few owners, is perhaps the most significant measure of land ownership. Several studies (Lewis et al. 1978, Fellmeth 1973) have implied that the greater the concentration of land ownership in an area, the greater the ability of a few owners to dominate the area's development; the more dispersed the ownership, the more likely the economic power will be dispersed. Consequently, highly concentrated ownership and control of land means more political and economic power and greater ability to oppose contrary interest than do widely diffused ownership or control patterns (Fellmeth, 1973, p. 14). Therefore, the concentration of land ownership should have a substantial influence on factors that affect socioeconomic conditions.

### Concentration of Resource Ownership

A majority of the wealth produced in the Appalachian Region comes through the extraction and use of resources. Consequently, those who own or control the resources in the Region also control much of the wealth. The Task Force Study showed that 68 percent of the minerals in the counties surveyed were owned by a few corporations. It has been proposed that this inequitable distribution of resources and the profits derived from them influences on socioeconomic conditions.

### Absentee Ownership of Land

The residence of an owner can be significant in determining the impact of ownership patterns in a local community (ALOTF, 1983, p. 20). It has been shown by several studies (ALOTF 1983, Miller 1975, Kaufman 1972, and Kirby 1969) that much of the wealth obtained by absentee owners does not remain within the Region, but is transferred to other parts of the nation. This transference, in turn, has limited the availability of finances for public improvements, housing, and social services. It is reasonable to believe that this leads to deteriorating socioeconomic conditions in communities.

### Absentee Ownership of Resources

As stated previously, the majority of the Appalachian Region's wealth is derived from its resources. Since a majority of the resource owners are absentee, it is reasonable to believe any wealth which is retained in the Region is dependent upon the owner's use and the distribution of the profits obtained from the resources they extract and use.

It has been proposed that absentee owners of resources fail to reinvest in the community and people from which it is derived. Consequently, socioeconomic conditions in communities are influenced.

## Tax Base

Property taxation is the primary source of locally generated revenues for county governments in the Region (ALOTF, 1983, p. 95). With this revenue, county government officials provide the funding for public services such as education, roads, health, and welfare. In many counties throughout the Appalachian Region, the property tax system fails to provide adequate funds for the operation of local governments (ALOTF, p. 42). One reason why this failure occurs is directly related to the ownership patterns in these counties.

According to the Task Force Study, the ownership of a large percentage of land and resources (taxable property) is in the hands of a relatively few absentee owners. Through this ownership, owners are able to exert enough political pressure to keep their taxes low (Fellmeth, 1973). As a result, owners are able to export the Region's wealth while paying little or no taxes. County government are thereby unable to provide for needed community services. This in turn, results in deteriorating socioeconomic conditions within these counties.

The Task Force Study showed that large owners and absentee owners pay less taxes per acre of land than the small owners and local owners. In Alabama, for instance,

absentee corporations paid only \$0.42 per acre -- less than one-third of that paid by local corporations. In Virginia, absentee corporations pay \$0.53 per acre for their land, while local individuals and local corporation pay about twice that -- \$1.02 and \$1.12 respectfully. In addition, 34 percent of the owners with over 1,000 acres each paid under \$0.25 per acre in taxes, while only 23 percent paid more than \$1.00 per acre. In contrast, owners under 250 acres only 20 percent paid under \$0.25 per acre, while 36 percent paid more than \$1.00 per acre (ALOTF, 1983, p. 45). Overall, the top one percent of the owners own 22 percent of the land in the 80 counties, but paid only 4.7 percent of the property taxes (ALOTF, p. 58).

Based on this information, it appears reasonable to suppose that communities with a large amount of concentrated and absentee ownership of land and resource would have lower property taxes paid per acre and, in turn, a lower tax base.

Hypothesis 1: The higher the concentration and absentee ownership of land and mineral, the lower the tax base.

The relationship is assumed to be linear in the relevant range.

Funds for Services. Since property taxes are the primary source of locally generated revenue for county governments in the Region, lower property taxes paid per acre in communities may affect the local funds available to spend on social services. For example, Martin County,

Kentucky's largest coal producing county, received only 14 percent of its tax base from local sources. It seems plausible that communities with a lower tax base would have a lower amount of funds for local services.

Hypothesis 1.1: The lower the tax base, the lower the amount of funds for local services.

The relationship is assumed to be linear in the relevant range.

Education. One of the most important services affected by inadequate property taxation is public education. According to the 1977 Census of School Finances, 51 percent of school revenues in the nation come from county or parent government sources; 68 percent of the local funding for schools comes from property taxes (ALOTF, 1983, p. 60). School systems across the nation face financial crisis. Their predicament is due, in part, to inadequate property taxation. This is especially true in the Appalachian Region where school financing is often lacking in communities with the most land and mineral resources. For example, the largest owner in Martin County, Pocahontas-Kentucky, a subsidiary of Norfolk and Western Railroad, owns one third of the county surface and 81,333 acres of mineral rights. Yet the property taxes on its surface land are hardly enough to buy a bus for the county school system, and the \$76 it

pays on its mineral rights would not even buy the bus a new tire (ALOTF, 1983, p. 60).

The following quote from the Task Force Study suggests a relationship between education and ownership patterns.

. . . In twenty-nine counties with a higher than average concentration of ownership, twenty one or 72 percent had a lower than average level of education. By contrast, in the 43 counties with low level of concentration of ownership, only twenty-one or 49 percent had lower than average education levels. Put another way, of the 30 counties with high education levels, 22 (73 percent) were in counties with low levels of concentration of landownership (ALOTF, p. 62).

While a number of elements affect educational levels (e.g., family background, economic opportunity), a key component is the ability of a school system to supply a quality education for its students. With a low level of local funds, many counties are struggling to provide a decent education for their students.

Hypothesis 1.1a: The lower the amount of funds for local services, the lower the educational levels.

The relationship is assumed to be linear in the relevant range.

Health Care. Despite dramatic improvements in health care in the Appalachian Region, 32 counties reported infant mortality rates 50 percent higher than the national average (Flannery, 1982, p. 19). One reason for this is the non-existence in most Region communities of such conditions and amenities (e.g., schools, water supply, recreation and

culture) which induce physicians and their families to reside in the Region.

It has been implied that land and resource ownership patterns have contributed to the lack of needed services throughout the Region. It would seem logical to expect that communities with low tax revenue levels to have less funds available for health services. These deficiencies, in turn, may influence the level of health care in communities.

Hypothesis 1.1b: The lower the amount of funds for local services, the lower the level of health care.

The relationship is assumed to be linear in the relevant range.

Additional Effects of Lower Tax Base. A lower tax base may have additional influences on communities. Not only does the tax base effect social services, but it also effects the needed infrastructure and services to attract economic development. The relationship between a community's tax base and economic development was not examined directly in this study; however, the way in which land and resource ownership affect economic diversity was analyzed.

### Economic Diversity

Appalachia has long been viewed as an economically underdeveloped area when compared to other regions or the

nation as a whole. Unlike these other areas, a mature and stable economy has not been developed within the Region.

Isolation, topography, a poorly trained work force, and lack of transportation and service infrastructure have been suggested by development agencies as the reasons for the lack of economic diversity. Land and resource ownership patterns have also been proposed as important factors contributing to the lack of economic diversity (ALOTF, p 68). The external monopoly of land and natural resources, limits diversified growth and prevents areas from establishing the necessary prerequisites (e.g., financing, infrastructure) for economic development.

The Task Force Study suggests two reasons for the lack of economic diversification in the Region: (1) problems with the availability of land, and (2) lack of an adequate infrastructure to attract and retain diversified industry. Many large landowners withhold their properties from market transactions due to speculations of higher land values and future energy extraction. This makes land unavailable for other forms of economic development.

In Tennessee's Campbell and Claiborne counties, a local development group has been unable to obtain land for industry (ALOTF, 1983, p. 69). In Mingo County, West Virginia, the largest manufacturing employer in the county is reportedly leaving because there is no room for expansion (ALOTF, p. 69).

Among the other important factors considered in the location decisions of industries is the presence of a good infrastructure. Years of absentee and corporate ownership of large portion of many of the Region's counties have contributed to the lack of water, sewer, transportation, health, and educational facilities (ALOTF, p. 69). This failure can be attributed to the lack of local revenues to develop these infrastructures. The minimal tax revenues received have scarcely met the immediate needs of local communities, much less provided the additional resources required for developing new services.

Another reason for the lack of economic diversification is related to the limited amount of local capital. Usually associated with absentee ownership, the lack of local capital prevents communities from underwriting industry and business costs, and constructing needed services and facilities.

Furthermore, a majority of the owners do not reinvest in the community and people from which the wealth was derived. As a result, a majority of the Region's wealth flows directly to outside areas. Writing in the New Republic, Paul Kaufman observed that "West Virginia is notorious not for the money it gets, but for the money that corporation take out of it" (ALOTF, 1983, p. 10). In

addition, many communities have become dominated by large and powerful owners who prevent economic diversification from occurring.

The Appalachian Region has been described as a political system based on an economic hierarchy in which owners of land and resources are at the top (Lewis, Johnson, and Askins, 1978). The basis of economic and political power in the Region is through ownership of land and resources. The greater the concentration of ownership in an area, the greater the ability of a few owners to dominate the area's development (Fellmeth, 1973). By controlling employment they have the power to control the economic and political system and exploit the Region's natural wealth for their own individual gain (Appalachian Alliance, 1982, p. 7).

Through the owners' political and economic power, they are able to control the development occurring within the Region. They are also able to discourage economic development which will jeopardize their domination (Lewis et al., 1978, p. 6). Economic diversity is thus limited to developments that compliment the industries already existing.

It then follows, that communities with a higher concentration of absentee ownership would be less economically diverse than those with lower concentrations of ownership.

Hypothesis 2: The higher the concentration and absentee ownership of land and resources, the lower the economic diversity.

The relationship is assumed to be linear in the relevant range.

Dependency upon a single industry can have a variety of effects on local communities. This has been reflected in Region-wide higher than average unemployment rates especially during periods of economic recessions. It has been proposed that high unemployment rates are associated with high out-migration and lower income levels.

Employment. While the nation as a whole seems to have recovered from the 1982-83 recession, the Appalachian Region -- particularly central and northern parts of the Region -- has not recovered at all. The average unemployment rate in 1984 for the Region was 10.5 percent compared to a national rate of 7.5 percent (ARC, 1984, p. 5). At the county level, in the same year, 31 percent of the Region's counties had unemployment rates more than twice the national rate. These areas are plagued by chronic and persistent unemployment (ARC, 1984, p. 5).

One of the major reasons for the Region's persistently higher unemployment rates compared to the nation's is that Appalachia still has disproportionately high levels of coal mining and manufacturing employment and a disproportionately low levels of employment in the service sector, which seems

more immuned to the ups and downs of the business cycle. Through their overdependence on a limited number of industries, communities are inadequately protected against economic recessions or faltering markets for these industries.

Coal and manufacturing activities are particularly subject to foreign competition and are usually affected by any overall decline in economic activity nationally (ARC, 1984, p. 5). The decline in overall demand for coal -- coupled with the stockpiling during 1982 and 1983 -- also contributes to a depressed employment situation in coal mining areas.

It would seem logical to expect communities with lower levels of economic diversity to have lower levels of employment for their workforce.

Hypothesis 2.1: The lower the level of economic diversity the lower the level of employment.

The relationship is assumed to be linear in the relevant range.

Migration. From 1940 to 1970, the Appalachian Region lost over four million people through out-migration. High unemployment and limited job opportunities in many communities throughout the Region, have lead many people to leave the area in search of employment. According to the Task Force Study, Harlan, Bell, Knox, and Laurel counties of the Cumberland River basin lost 100,000 people between 1950

and 1972 (ALOTF, 1983, p. 73). For all the coal counties surveyed, the average rate of out-migration from 1960 to 1970 was 19.5 percent.

Where landownership patterns limit economic diversification, few other jobs are available, thus, less people are likely to migrate into the county.

Hypothesis 2.1a: The lower the level of employment, the lower the net migration rate.

The relationship is assumed to be linear in the relevant range.

Income. Land and its resources provide one of the main sources of wealth in this country. In the Appalachian Region, ownership of land and its resources is concentrated in the hands of a few people (ALOTF, 1983), leaving the majority of the Region's people to gain their personal wealth through employment.

Low wage levels, cyclical employment, and limited opportunities characterize much of the employment found throughout the Region, leading to lower levels of income in the Region. The mean income of Appalachia remains below that of the rest of the nation (ARC, 1984, p. 4). Several counties have mean incomes of less than one-half that of the nation (ARC, 1984, p. 4).

It is reasonable to assume that communities with low levels of employment may also have a overall lower level of income .

Hypothesis 2.1b: The lower the level of employment,  
the lower the level of income.

The relationship is assumed to be linear in the relevant range.

### Land Availability

The land shortage in Appalachia is, in part, attributed to coal companies, railroads, and other corporations owning much of the coal-rich acreage. With future plans to mine their holdings, companies prevent their unimproved properties from being developed (ALOTF, p. 95).

As stated earlier, many large landowners tend to keep their land off the market due to expectations of increased land values and future energy extraction rather than making it available for development. Case Studies, performed by the Task Force, reported that land for industry and/or housing is often scarce in many counties, partly as a consequence of this continuing underdevelopment of vast areas of land. In Pike County, Kentucky, most of the coal-related corporations have not seen fit to sell their land for industrial or commercial development. In Martin County, West Virginia, the landholdings of Pocahontas Kentucky, the dominant owner in the county, remains undeveloped except for coal mining (ALOTF, 1983, p. 69).

It would seem logical to assume communities with high concentration and absentee ownership of land and resources would to have less land available for development.

Hypothesis 3: The higher the concentration and absentee ownership of land and resources, the lower the amount of land available for development.

The lack of land available for development has a lasting effect on Appalachian communities. Economic development, economic expansion, and residential development are just a few of the factors effected by limited land opportunities.

Housing Supply. Housing in Appalachia has long been recognized as a national disgrace. The lack of available land, inadequate levels of government housing programs, and the unwillingness of the majority of local banks to make funds available to low and moderate income families all contribute to the severe housing problem. Even by the most conservative estimates, there is an immediate need for at least 150,000 housing units within the 85 counties of Central Appalachia alone (Appalachian Alliance, 1982, p. 36). A considerable percentage of the housing available is more than 40 years old and is considered substandard (ALOTF, 1983, p. 95).

Logically, it would appear that Appalachia has an abundance of land for its housing needs. In 1970, in the average rural county in the sample there was only one house per every thirty-five acres of land (ALOTF, p. 96). Much of this abundant land however, lies vacant and inaccessible to the Region's people. Over one-half of it is owned by

absentee owners, corporations, government agencies and large holders who hold it for its speculative value. Other land is uninhabitable, or used for farmland, roads, schools, and industry. The result is a land shortage in a land-rich region. Land for housing is often simply unavailable for purchase.

In Campbell County, Tennessee, there was a shortage of 6,269 units in the 1980 housing supply, 52 percent of the total number of households now in the county (ALOTF, p. 96). In neighboring Claiborne County, a nonprofit citizen's group was prevented from purchasing a small tract of land to build needed housing for the local population by American Association Inc. -- a company which owns tens of thousands of acres (ALOTF, p. 96).

The scarcity of land for housing created by the concentration of ownership in large blocks also escalates the price of land available for sale. In Martin County, Kentucky, the demand for housing is so high that only 0.3 percent of the housing is unoccupied. Consequently, the price of housing here has more than doubled in the last five years (ALOTF, 1983, p. 96).

Mineral rights ownership further limits the possibility for residential development. There is extensive detachment of mineral from surface ownership throughout the coalfields. Residents who own surface land without the underlying mineral rights are subject to many uncertainties: companies

may show up to strip-mine the land at any time; conflicts may develop over title (ALOTF, p. 97). In addition, title companies will not insure land without the ownership of the mineral rights beneath it. Without title insurance, lending institutions, including the Department of Housing and Urban Development and the Farmers' Home Administration, will not make loans, or first or second mortgages available to these property owners.

It seems reasonable to assume that communities with a lower amount of land available would have a limited housing supply.

Hypothesis 3.1: The lower the land available for development, the lower the available housing supply.

The relationship is assumed to be linear in the relevant range.

A limited housing supply can lead to a variety of problems within communities including the deterioration of existing housing stock through aging and/or overcrowding.

Age of Housing. According to the Task Force Study, a considerable percentage of the available housing is more than 40 years old. Much of this housing, is related to the limited land available for the construction of new housing. For example, in Mingo County, West Virginia, corporate ownership of land and minerals equals over 80 percent of the

county's surface acreage, 83.2 percent of the housing was built before 1950 (ALOTF, 1983, p. 101).

It follows that communities with insufficient housing supply would have a greater proportion of older homes.

Hypothesis 3.1a: The lower the available housing supply, the higher the proportion of older homes.

The relationship is assumed to be linear in the relevant range.

Overcrowding. In the Task Force Study, the average county in the Study had 12.4 percent of its housing units overcrowded (with more than 1.01 persons per room), compared to the national average of only 8 percent overcrowded housing. Communities with limited housing supplies would experience a higher number of overcrowded housing units than would communities with an adequate housing supply.

Hypothesis 3.1b: The lower the available housing supply, the higher the number of overcrowded units.

The relationship is assumed to be linear in the relevant range.

This chapter has discussed how land and resource ownership patterns influence socioeconomic conditions. These influences were illustrated through a discussion of ownership patterns and their influence on the tax base, economic diversity, and land availability. Hypothesis that

reflected expected relationships derived from the Proposed Model were also presented.

The next chapter will present the research methodology of the study, including a discussion of the selection of indicators for the conceptual variables as well as how the data was collected processed and analyzed.

## CHAPTER IV

### METHODOLOGY

As stated in Chapter I the objectives of this study were:

1. To develop a model of the relationship between land and resource ownership patterns and socioeconomic conditions,
2. To test the model, and
3. To revise the model based on the outcome of the statistical test.

The first objective has been achieved in the preceeding chapter. In order to accomplish the last two objectives, a series of statistical tests was used in which existing data was analyzed to test hypotheses developed from the model.

This chapter will deal with the research methodology. This will include a discussion on the operationalization of the variables used, and data processing and analyses.

#### RESEARCH METHODOLOGY

The Appalachian Land Ownership Task Force Study was used as a guide for not only the development of the Proposed Model, but also in the selection of the research methodology used in this study. Although many adjustments have been made, the general research designs of both are similar.

In the Task Force Study over 100 different socioeconomic variables were statistically tested against land and resource ownership patterns to determine if significant relationships exist. Significant relationships existing between many of socioeconomic variables and ownership patterns tested were discovered. Several of these relationships have been tested in this study. Others were used in this study to develop the Proposed Model.

The socioeconomic data collected by the Task Force for its analyses were at the county level to facilitate testing between them and the land ownership data. Much of the information was compiled from data files of the Appalachian Regional Commission, while other information came from sources such as the Census of Governments (1977), Census of Population (1970), and the Census of Housing (1970). However, much of this information was dated because the researchers were limited to 1970 Census data. This data did not adequately corresponded to the 1979 land and resource ownership data that was collected and used for comparative analyses.

This study has used the data collected by the Task Force as indicators of land and resource ownership patterns, while the Census of Population and Housing (1980), the Census of Governments (1982), the County and City Data Book (1983), and several other supplementary sources provided the

data needed for comparative analyses of socioeconomic conditions.

Four main indicators (variables) of land and resource ownership patterns were used in this study: (1) the concentration of land ownership, (2) the concentration of mineral ownership, (3) the percentage of absentee land ownership, and (4) the percentage of mineral ownership. These four variables were selected based on previous studies in which they are suggested as having the largest effect on socioeconomic conditions in the Appalachian Region.

This study has focused on "how" land and resource ownership can affect socioeconomic conditions. The broadness of the Task Force Study limited the amount of analyses performed on the impacts of ownership patterns. Due to the lack of research in this area, no model was used to derive or test the relationships examined by the Study. Instead, the Task Force attempted to determine if significant relationships existed between ownership patterns and socioeconomic conditions in the counties surveyed.

This study has gone one step further and has proposed a model of the relationship between land and resource ownership patterns and socioeconomic conditions. From this Model, hypotheses were developed which reflected expected relationships. The concepts used in the hypothesis (e.g., housing supply, income) were then operationalized or translated into specific indicators (e.g., housing units per

family, percentage of families with incomes below the poverty level) for the actual statistical testing.

Data was collected and if needed, changed to percentages to reflect the specific indicators chosen. Significant levels, or the level at which the relationships were determined to be significant, were set before the hypotheses were tested. A series of statistical correlations were then carried out to test each hypothesis.

If the relationship tested was deemed significant then no further tests were performed. If the relationship proved insignificant, then additional tests were conducted to assist in revising the Proposed Model.

#### Operationalization of Variable

Operationalization of variables refers simply to a specification of the steps, procedures, or operations that must be carried out in actually measuring and identifying the variables to be studied (Babbie, 1983, p. 29). Operationalization of variables is often a burdensome task due to the difficulty in selecting an indicator for a concept.

First, numerous possible indicators for a given concept often exist. The basis for deciding which one of the indicators, or which combination of indicators, will best depict a concept is not always obvious.

Second, even though theory frequently provides some help in the selection of an appropriate indicator, many conceptual social theories have not yet been developed to the point that they are helpful in the selection. Often the selection of an indicator is simply at the discretion of the researcher.

Third, for this research, the units of analyses were counties. This limited the choice of indicators to census data. For these reasons many indicators were not available at the county level. In spite of these difficulties, suitable indicators were selected based on their use in other studies, their availability, and how well they measure the variables to be tested.

Each concept and associated variable is presented below, followed by a discussion of the indicator used to measure it, the source of the data used, justification for its selection, and where appropriate, a restatement of the hypothesis.

#### Conceptual Variables.

1. Concentration of Land Ownership: A concentration index, developed by the Task Force, was used to measure the degree of concentration or dispersal of land among owners. The index was obtained by dividing the percentage of land owned by the top 25 percent of owners by the percentage of land owned by the bottom 25 percent of owners. The measurement reflected the concentration of land ownership:

the higher the index, the greater the concentration of land ownership; the lower the index, the lower the concentration.

2. Concentration of Resource Ownership: The concentration index developed for land ownership by the Task Force was also used as a measure of the degree of concentration or dispersal of minerals among owners. The higher the index, the greater the concentration of mineral ownership found in the county; the lower the index, the lower the concentration.

3. Percentage of Absentee Land Ownership: The percentage of total county land surface owned by out-of-county owners was used to measure the amount of absentee ownership of land. The higher the percentage of land owned by out-of county owners, the higher the absentee ownership of land and visa-versa. This measurement was developed by the Task Force.

4. Percentage of Absentee Resource Ownership: The percentage of total minerals in the county owned by out-of-county owners was used as a measure of the amount of resources owned by absentee owners. The higher the percentage of minerals owned by out-of-county owners, the higher the absentee ownership of minerals and visa-versa. This measurement was also developed by the Task Force.

5. Tax Base: The measurement of a county's tax base used in this study was the property taxes paid per acre.

This measure was obtained by taking the total amount of property taxes paid in the county in fiscal year of 1981-82 divided by the total surface acres in the county. Information for the property taxes was taken from the Census of Governments (1982). The total surface acreage of the county was taken from Volumes II-VII of the Appalachian Land Ownership Task Force Study. Since property taxation is the primary source of revenues for counties throughout the Region, property taxes paid per acre should be reflective of the county's tax base. It is hypothesized then, that the higher the concentration and absentee ownership of land and minerals, the lower the property taxes paid per acre.

6. Funds for Services: The percentage of the total general revenue raised locally was used as a measurement of funds for services. It was obtained by taking the general revenues derived from local sources divided by the total general revenue for the 1981-82 fiscal year. The information needed to calculate the percentage of locally raised funds was taken from the Census of Governments (1982). The measurement was used to measure the funds for services because it reflected the ability of local governments to provide for local services. General expenditures per capita was not used because of the distortion of the high proportion of funds spent on highway and road development. The specific hypothesis is that the

lower the property taxes paid per acre, the lower the percentage of funds raised locally.

7. Health: Two indicators were selected for this variable: the average infant mortality rate and the number of physicians per 100,000 resident population. The average infant mortality rate was calculated by taking the average of the infant mortality rates for 1978, 1979, and 1980. Infant mortality rates were determined by taking the number of infant deaths under one year old divided by the number of live births for the same year multiplied by 1,000. The data used to determine infant mortality rates was taken from the Vital Health Statistics of the United States (1978-80). The number of physicians per 100,000 was taken from the County and City Data Book (1983). Infant mortality rates and the number of physicians per 100,000 resident population have been used by many different government agencies to measure the level of health care in communities. An average infant mortality rate should be a more accurate reflection of the level of health care. The hypotheses are that the lower the percentage of funds raised locally, the higher the infant mortality rate; and the lower the percentage of funds raised locally, the lower the number of physician per 100,000 resident population.

8. Education: The percentage of the people 25 years and older with 12 or more years of education was used as a measure of the level of education within counties. It was

taken from the County and City Data Book (1983). The higher the percentage of people with 12 or more years of education found in counties, the higher the level of education and visa-versa. The specific hypothesis is that the lower the percentage of funds raised locally, the lower the percentage of people 25 years and older with 12 or more years of education.

9. Economic Diversity: The percentage of the total civilian labor force employed in the major sector of the county in 1980 was used as a measure of economic diversity. The major economic sector was defined as the sector of the economy employing the largest percentage of the labor force. This percentage was taken from the County and City Data Book (1983). A high percentage of the labor force employed in the major sector, should reflect an economy in which employment is concentrated in one or more sectors. A low percentage of the labor force employed in the major sector should reflect an economy in which employment is distributed among several different sectors. It is hypothesized that the higher the concentration and absentee ownership of land and resources, the higher the percentage of the labor force employed in the major economic sector.

10. Employment: The measure of the level of employment within counties in this study is the average unemployment rate for 1979-81. The unemployment rate was an annual average and was taken from Employment and

Unemployment in States and Local Areas from the U.S. Department of Labor Statistics. The unemployment rate is used with considerable frequency to measure the level of employment within areas. The specific hypothesis is the higher the percentage of the workforce in the major economic sector, the higher the average unemployment rate.

11. Migration: The net migration rate between 1970 and 1980 was used as a measurement of migration. It was calculated by first, determining the natural increase. This was done by subtracting the total number of deaths from 1970-1979. The natural increase was then subtracted from the total population change between 1970 and 1980 to obtain the change due to migration. This total was then divided by the 1980 population and multiplied by 1,000 to derive the net migration rate from 1970-1980. The information needed to calculate this measurement was taken from: the Vital Statistics of the United States (1970-79), the County and City Data Book (1977), and the Census of Population (1980). The higher the net migration rate found in the county, the higher the level of migration into the county and visa-versa. The hypothesis is that the higher the average unemployment rate, the lower the net migration rate.

12. Income: The percentage of families with incomes below the poverty level was used as a measure of income levels. It was taken from the County and City Data Book (1983) and is based on family income in 1979. This

measurement reflects, to a degree, socioeconomic conditions in a community. The hypothesis is that the higher the average unemployment rate, the higher the percentage of families with incomes below the poverty level.

13. Land Availability: The percentage of the total land in the county individually owned was used to measure land availability. It was obtained from the Task Force Study by adding the percentage of the total land in the county owned by government, corporations, and absentee owners over 250 acres and subtracted from 100 percent. It was selected as an appropriate indicator of land availability because a majority of the land transactions that take place within the Region are among individual owners. The hypothesis is that the higher the concentration and absentee ownership of land and resources the lower the percentage of land individually owned.

14. Housing Supply: The number of year-round housing units per families was used as a measurement of housing supply. It was obtained by taking the total number of year-round housing units divided by the total number of families as of 1980. The data needed to calculate this was taken from the County and City Data Book (1983). A higher number of housing units per family should reflect a more adequate supply of housing than a lower number of housing units per family which should reflect a more limited supply. The hypothesis is that the lower the percentage of land

individually owned, the lower the number of housing units per family.

15. Overcrowding: The percentage of year-round housing unit with 1.01 or more persons per room was used as an indicator of overcrowding. This was taken from the County and City Data Book (1983). The measure is used by many housing agencies and authorities as a measurement of overcrowding. The specific hypothesis is that the lower the number of units per family, the higher the percentage of housing units with 1.01 or more persons per room.

16. Age of Housing Stock: The percentage of housing units built in 1939 or earlier was used as the measure of the age of the existing housing stock. The measure was taken from the County and City Data Book (1983). The higher the percentage of houses built in 1939 or earlier, the older the housing stock; the lower the percentage, the newer the housing stock. The hypothesis is that the lower the number of housing units per family, the higher the percentage of units built in 1939 or earlier.

#### Data Processing and Analysis

Data was collected on over 30 different characteristics for the 80 survey counties used in this study. Much of the data collected was adjusted to reflect the specific indicators chosen for this study. For example, to obtain the net migration rate the following data was used: 1970

population, 1980 population, total deaths 1970-1979, and total births 1970-79. The specific indicators for the 80 counties were then used to test the hypotheses set forth in this study.

The hypotheses were tested through regression analysis. This form of analysis is used to describe the relationship between two or more variables. Two types of regression analysis were used in the study: linear and multiple linear regression. Linear or simple regression was used to describe the relationship between two variables (e.g., tax base and funds for services). Multiple regressions were used to describe the relationship between one dependent variable (e.g., tax base) and two or more independent variables (e.g., land and resource ownership patterns).

Stepwise multiple linear regressions were performed to test Hypotheses One, Two, and Three which dealt with the effects of land and resource ownership patterns on the tax base, economic diversity, and land availability respectfully.

These hypotheses suggest that the tax base, economic diversity, and land availability are each dependent upon the concentration and absentee ownership of land and minerals (independent variables). Each dependent variable was correlated against the independent variables of land and resource ownership. The results of the stepwise multiple regressions revealed the degree of effect each indicator of

land and resource ownership patterns had on the dependent variable tested. This was important in determining the land and resource indicator or combination of indicators that affected the dependent variable the most. For example, the concentration of mineral ownership may have a greater impact on economic diversity in counties than the concentration of land owned.

The results of the stepwise multiple regressions produced a multiple correlation coefficient, a coefficient of multiple determination, and an F-ratio. The multiple correlation coefficient or R was used to measure the association between each dependent variable (e.g., tax base, economic diversity, and land availability) and the indicators of land and resource ownership patterns. This coefficient ranges in value from 0 to 1 and has many of the same properties as Pearson's R (the higher the value, the greater the association).

The coefficient of determination or R-Square was used to determine which variable or combination of land and resource ownership had the greatest impact on the dependent variable tested. For example, an R-Square for a multiple regression between tax base and the concentration of land ownership and the concentration of resource ownership may be larger than the R-Square for the regression of tax base on the percentage of absentee land ownership and the percentage of absentee resource ownership. In other words, R-Square is

used to more fully explain the relationship between the dependent variable and the independent variables of land and resource ownership. The higher the R-Square, the larger the amount of variation in the dependent variable that is explained through the use of the independent variables (Agresti and Agresti, 1979, p. 333). The addition of related variables should explain more of the variation in the dependent variable and thus produce a higher R-Square value.

An F-ratio was used to determine whether the four ownership patterns had a statistically significant (results were not due to sampling error alone) effect on the dependent variables tested (tax base, economic diversity, land availability). The significant level was taken to be the probability of obtaining an F as high or higher by chance alone, if there was no association between the variables tested. The required level of significance for this study was set at .05.

Simple regressions were performed to test the remainder of the hypotheses in the study. These regressions showed the effect of an independent variable on a dependent variable. For example, the level of education was proposed to be dependent on the funds for local services. The simple regression measured the degree to which funds for services (independent variable) affected the level of education (dependent variable) in counties.

The results of the simple regression analyses revealed a measure of the strength of relationships between variables and a measure of statistical significance. In this study Pearson's R, was used to measure the degree to which land and resource ownership influences socioeconomic conditions within the counties surveyed. Pearson's R, the most stringent test for determining relationships between two variables, has values from -1 to +1. The higher the absolute value of Pearson's R, the stronger the relationship.

T-Values were used to determine whether the independent variable had statistically significant effects on the dependent variables. The attained significance level was taken to be the probability of obtaining a T-Value above the observed T-Value, when no association exist between the variables tested. The required significance level was also set at .05.

This chapter has dealt with the research methodology used in this study. In explaining the methodology a discussion of the operationalization of the variables used, and data processing and analysis was presented.

The next chapter deals with a discussion of the results of the study. This will include revising and reconstructing the Proposed Model to reflect the results of the test performed.

## CHAPTER V

### RESULTS

The results of the regression analysis that were used to test the hypothesis set forth in this study are presented in this chapter. A discussion of the results and their significance are preceded by a listing of the hypothesis that were tested. The original hypothesis have been changed to reflect the indicator variables used in the analysis.

In order to interpret the results, it may prove helpful to refer to Table I which contains a list of the measures that were used to test the hypothesis, as well as the abbreviations used in the tables.

#### HYPOTHESIS 1

The higher the concentration and absentee ownership of land and minerals, the lower the property tax paid per acre.

The results of the stepwise maximum R-Square multiple linear regression using the four ownership pattern indicators on the property taxes paid per acre (PROPTAX) are presented in Table II. All of the four best models were significant at the required .05 level. A "best model" is one that has the highest R-Square of those combinations of variables in the complete four variable model. The model is limited to a specific number of variables. In this case there was a 1 variable, 2 variable, 3 variable, and 4

TABLE I  
SUMMARY OF VARIABLES

| ABBREVIATION | INDICATOR VARIABLE                                                          | CONCEPTUAL VARIABLE                 |
|--------------|-----------------------------------------------------------------------------|-------------------------------------|
| CROWDING     | percentage of housing units 1.01 or more persons per room.                  | OVERCROWDING                        |
| DIVERSE      | percentage of labor force employed in the major sector of the economy.      | ECONOMIC DIVERSITY                  |
| DOCTORS      | number of physicians per 100,000 resident population.                       | HEALTH                              |
| EDUCAT       | percentage of people 25 years and older with 12 or more years of education. | EDUCATION                           |
| INFANT       | average infant mortality rate 1978-1980.                                    | HEALTH                              |
| LANDA        | percentage of land absentee owned.                                          | ABSENTEE LAND OWNERSHIP             |
| LAVAIL       | percentage of land individually owned.                                      | LAND AVAILABILITY                   |
| LINDEX       | concentration of ownership index for land.                                  | CONCENTRATION OF LAND OWNERSHIP     |
| LOCFUNDS     | percentage of general revenue raised locally.                               | FUNDS FOR SERVICES                  |
| MIGRAT       | net migration rate 1970-1980.                                               | MIGRATION                           |
| MINDEX       | concentration of ownership index for minerals.                              | CONCENTRATION OF RESOURCE OWNERSHIP |
| MINERALA     | percentage of minerals absentee owned.                                      | ABSENTEE MINERAL OWNERSHIP          |
| POVERTY      | percentage of families with income below the poverty level.                 | INCOME                              |
| PROPTAX      | property tax paid per acre.                                                 | TAX BASE                            |
| UNEMPLOY     | average annual unemployment rate 1979-1981.                                 | EMPLOYMENT                          |
| UNITAGE      | percentage of housing units built before 1939.                              | AGE OF HOUSING STOCK.               |
| UNITSPER     | number of housing units per family.                                         | HOUSING SUPPLY                      |

TABLE II

MAXIMUM R-SQUARE IMPROVEMENT FOR DEPENDENT VARIABLE PROPTAX

|                                                                      | DF | Sum of Squares | Mean Square | F-Ratio | Prob (>F) |
|----------------------------------------------------------------------|----|----------------|-------------|---------|-----------|
| <u>Step 1 Variable LANDA Entered</u> R-SQUARE = 0.103172* R = 0.3212 |    |                |             |         |           |
| Regression                                                           | 1  | 9572.8921      | 9572.8921   | 9.9732  | .0023     |
| Error                                                                | 77 | 73909.5390     | 959.864     |         |           |
| Total                                                                | 78 | 83482.4320     |             |         |           |

The above model is the best 1 variable model found.

|                                                                      |    |            |           |       |       |
|----------------------------------------------------------------------|----|------------|-----------|-------|-------|
| <u>Step 2 Variable LINDEX Entered</u> R-SQUARE = 0.152881 R = 0.3909 |    |            |           |       |       |
| Regression                                                           | 2  | 14576.2400 | 7288.1200 | 8.038 | .0010 |
| Error                                                                | 76 | 68906.1920 | 906.6600  |       |       |
| Total                                                                | 78 | 83482.4320 |           |       |       |

The above model is the best 2 variable model found.

|                                                                        |    |            |           |       |       |
|------------------------------------------------------------------------|----|------------|-----------|-------|-------|
| <u>Step 3 Variable MINERALA Entered</u> R-SQUARE = 0.176157 R = 0.4191 |    |            |           |       |       |
| Regression                                                             | 3  | 17436.0130 | 5812.0040 | 5.704 | .0020 |
| Error                                                                  | 63 | 64191.6000 | 1018.9140 |       |       |
| Total                                                                  | 66 | 81627.6120 |           |       |       |

The above model is the best 3 variable model found.

|                                                                      |    |            |           |       |       |
|----------------------------------------------------------------------|----|------------|-----------|-------|-------|
| <u>Step 4 Variable MINDEX Entered</u> R-SQUARE = 0.222027 R = 0.4712 |    |            |           |       |       |
| Regression                                                           | 4  | 11034.0740 | 2758.5180 | 4.005 | .0020 |
| Error                                                                | 52 | 28714.4890 | 552.2020  |       |       |
| Total                                                                | 56 | 39748.5630 |           |       |       |

The above model is the best 4 variable model found.

\*All R-SQUARES adjusted for degrees-of-freedom.

Note: Slopes for these associations were negative.

variable model. LANDA, or the percentage of absentee land ownership, represented the strongest association among the other ownership variables, with property taxes paid per acre.

The model with all 4 independent variables (concentration index for land and minerals and the percentage of absentee land and mineral ownership) represents a test of the relationship stated in Hypothesis 1. This model [ $\text{Prob } (>F) = 0.002$ ] was significant at the required .05 level and revealed a correlation coefficient or R of 0.4712. This, along with the corresponding negative slope, represented a relatively strong association between the concentration and absentee ownership of land and minerals and the property tax paid per acre.

#### Hypothesis 1.1

The lower the property tax paid per acre, the lower the percentage of funds raised locally.

The summary of the results of the simple regressions are presented in Table III. The results of the simple regression between the percentage of funds raised locally (LOCFUNDS) and the property taxes paid per acre (PROPTAX) unveiled a high Pearson's R of 0.505. This signified a strong statistically significant (Probability Level = 0.000) association between LOCFUNDS and PROPTAX. In other words,

TABLE III

## SUMMARY OF THE SIMPLE REGRESSION RESULTS

| DEPENDENT | VARIABLES<br>INDEPENDENT | PEARSON'S R | T-VALUE | PROB.<br>LEVEL |
|-----------|--------------------------|-------------|---------|----------------|
| LOCFUNDS  | PROPTAX                  | 0.505131    | 5.1359  | 0.000          |
| EDUCAT    | LOCFUNDS                 | 0.613102    | 6.8541  | 0.000          |
| INFANT    | LOCFUNDS                 | 0.025084    | 0.2216  | 0.825          |
| DOCTORS   | LOCFUNDS                 | 0.297637    | 2.7535  | 0.007          |
| UNEMPLOY  | DIVERSE                  | -0.086026   | -0.7626 | 0.448          |
| MIGRAT    | UNEMPLOY                 | -0.047717   | -0.4219 | 0.674          |
| POVERTY   | UNEMPLOY                 | 0.297610    | 2.7532  | 0.007          |
| UNITSPER  | LAVAIL                   | -0.014279   | -0.1253 | 0.901          |
| UNITAGE   | UNITSPER                 | -0.020622   | -0.1822 | 0.856          |
| CROWDING  | UNITSPER                 | -0.420201   | -4.0897 | 0.000          |
| MIGRAT    | DIVERSE                  | -0.102140   | -0.9068 | 0.367          |
| POVERTY   | DIVERSE                  | -0.259529   | -2.3734 | 0.020          |
| UNITAGE   | LAVAIL                   | 0.201579    | 1.8059  | 0.074          |
| CROWDING  | LAVAIL                   | -0.333778   | -3.1071 | 0.003          |

low property taxes paid per acre are associated with low percentages of fund raised locally.

HYPOTHESIS 1.1a.

The lower the percentage of funds raised locally, the lower the percentage of people 25 years and over with 12 or more years of education.

The results of the simple regression between the percentage of funds raised locally (LOCFUNDS) and the percentage of people 25 years and over with 12 or more years of education (EDUCAT) revealed a high Pearson's R of 0.613. This indicated a strong statistically significant (Probability Level = 0.000) association between the LOCFUNDS and EDUCAT. Accordingly low percentages of funds raised locally were associated with low percentages of people 25 years and over with 12 or more years of education.

HYPOTHESIS 1.1b.

The lower the percentage of funds raised locally, the higher the infant mortality rate.

The lower the percentage of funds raised locally, the lower the number of physicians per 100,000 resident population.

The results of the regression between the percentage of funds raised locally (LOCFUNDS) and the infant mortality rate (INFANT) revealed a Pearson's R of 0.025. This association was not statistically significant at the required .05 level.

The results of the regression between the LOCFUNDS and the number of physicians per 100,000 resident population

(DOCTORS) revealed a Pearson's R of 0.298. This denoted a statistically significant (Probabilty Level = 0.007) association between LOCFUNDS and DOCTORS. Consequently, low percentages of funds raised locally were associated with low numbers of physicians per 100,000 resident population.

## HYPOTHESIS 2

The higher the concentration and absentee ownership of land and resources, the higher the percentage of the labor force employed in the major economic sector.

The results of the maximum R-Square multiple linear regression using the four ownership pattern indicators on the percentage of the labor force employed in the major economic sector (DIVERSE) are presented in Table IV. All of the four best models were significant at the required .05 level, except for the 1 variable model. LANDA or the percentage of absentee land ownership variable represented the strongest association, among the other ownership variables, with DIVERSE.

The 4 variable model represented a test of the relationship stated in Hypothesis 2. This model [Prob (>F) = 0.0276] was significant at the required .05 level and revealed a R of 0.3516. This signified a relatively strong association between the concentration and absentee ownership of land and minerals and DIVERSE. Hence, high concentrations and absentee ownership of land and minerals

TABLE IV

MAXIMUM R-SQUARE IMPROVEMENT FOR DEPENDENT VARIABLE DIVERSE

|                                                                       | DF | Sum of Squares | Mean Square | F-Ratio | Prob (>F) |
|-----------------------------------------------------------------------|----|----------------|-------------|---------|-----------|
| <u>Step 1 Variable LANDA Entered</u> R-SQUARE = 0.0351491* R = 0.1875 |    |                |             |         |           |
| Regression                                                            | 1  | 330.6924       | 330.6943    | 3.8415  | .0536     |
| Error                                                                 | 77 | 6628.4691      | 86.0840     |         |           |
| Total                                                                 | 78 | 6959.1615      |             |         |           |

The above model is the best 1 variable model found.

|                                                                      |    |           |          |        |       |
|----------------------------------------------------------------------|----|-----------|----------|--------|-------|
| <u>Step 2 Variable LINDEX Entered</u> R-SQUARE = 0.089434 R = 0.2991 |    |           |          |        |       |
| Regression                                                           | 2  | 784.8679  | 392.4337 | 4.8305 | .0106 |
| Error                                                                | 76 | 6174.2941 | 81.2407  |        |       |
| Total                                                                | 78 | 6959.1515 |          |        |       |

The above model is the best 2 variable model found.

|                                                                      |    |           |          |        |       |
|----------------------------------------------------------------------|----|-----------|----------|--------|-------|
| <u>Step 3 Variable MINDEX Entered</u> R-SQUARE = 0.138945 R = 0.3728 |    |           |          |        |       |
| Regression                                                           | 3  | 842.4993  | 280.8331 | 4.0122 | .0120 |
| Error                                                                | 53 | 3709.7611 | 69.9955  |        |       |
| Total                                                                | 56 | 4552.2604 |          |        |       |

The above model is the best 3 variable model found.

|                                                                        |    |           |          |        |       |
|------------------------------------------------------------------------|----|-----------|----------|--------|-------|
| <u>Step 4 Variable MINERALA Entered</u> R-SQUARE = 0.123592 R = 0.3516 |    |           |          |        |       |
| Regression                                                             | 4  | 847.5984  | 211.8996 | 2.9743 | .0276 |
| Error                                                                  | 52 | 3704.6619 | 71.2435  |        |       |
| Total                                                                  | 56 |           |          |        |       |

The above model is the best 4 variable model found.

\*All R-SQUARES Adjusted for degrees-of-freedom.

were associated with a high percentage of the labor force employed in the major economic sector.

### Hypothesis 2.1

The higher the percentage of the labor force employed in the major economic sector, the higher the average unemployment rate.

The results of the regression between DIVERSE and the average unemployment rate (UNEMPLOY) revealed a Pearson's R of 0.086. This association was not statistically significant at the required .05 level.

#### HYPOTHESIS 2.1a

The higher the average unemployment rate, the lower the net migration rate.

The results of the regression between UNEMPLOY and the net migration rate revealed a Pearson's R of -0.048. This association was not statistically significant at the required .05 level.

#### HYPOTHESIS 2.1b.

The higher the average unemployment rate, the higher the percentage of families with incomes below the poverty level.

The regression between UNEMPLOY and the percentage of families below the poverty level (POVERTY) revealed a Pearson's R of 0.260. This denoted a statistically significant (Probability Level = 0.007) association between UNEMPLOY and POVERTY. In other words, high average

unemployment rates were associated with high percentages of families with income below the poverty level.

### HYPOTHESIS 3

The higher the concentration and absentee ownership of land and minerals, the lower the percentage of land individually owned.

The percentage of land individually owned (LAVAIL) was derived from using data on land ownership. Therefore, a higher concentration of land ownership should result in a lower LAVAIL. Consequently, the regression should reveal a high association between LAVAIL and the two indicators of land ownership; the percentage of land in absentee ownership (LANDA) and the concentration index for land (LINDEX).

The results of the stepwise maximum R-Square multiple linear regression using the two ownership pattern indicators on LAVAIL are presented in Table V. This model [Prob (>F) = 0.000] was significant at the required .05 level and had an R of 0.906. This, along with the corresponding negative slope, represented an extremely strong negative association between LAVAIL and LANDA and LINDEX.

#### Hypothesis 3.1

The lower the percentage of land individually owned, the lower the number of housing units per family.

TABLE V

## MAXIMUM R-SQUARE IMPROVEMENT FOR DEPENDENT VARIABLE LAVAIL

|                                      | DF | Sum of Squares | Mean Square | F-Ratio              | Prob (>F)  |
|--------------------------------------|----|----------------|-------------|----------------------|------------|
| <hr/>                                |    |                |             |                      |            |
| <u>Step 1 Variable LANDA Entered</u> |    |                |             |                      |            |
|                                      |    |                |             | R-SQUARE = 0.781494* | R = 0.8840 |
| Regression                           | 1  | 20553.7600     | 20553.7600  | 279.97               | .0000      |
| Error                                | 77 | 5652.8839      | 73.4141     |                      |            |
| Total                                | 78 | 26206.6440     |             |                      |            |

The above model is the best 1 variable model found.

|                                       |    |            |            |                     |            |
|---------------------------------------|----|------------|------------|---------------------|------------|
| <u>Step 2 Variable LINDEX Entered</u> |    |            |            |                     |            |
|                                       |    |            |            | R-SQUARE = 0.821318 | R = 0.9063 |
| Regression                            | 2  | 21644.0640 | 10822.0320 | 180.27              | .0000      |
| Error                                 | 76 | 4562.5796  | 60.0339    |                     |            |
| Total                                 | 78 | 26206.6440 |            |                     |            |

The above model is the best 2 variable model found.

\*All R-SQUARES adjusted for degrees-of-freedom.

Note: Slopes for these associations were negative.

The regression between LAVAIL and the number of housing units per family (UNITSPER) produced a Pearson's R of -0.014. This association was not significant at the required .05 level.

#### HYPOTHESIS 3.1a.

The lower the number of housing units per family, the higher the percentage of housing units built before 1939.

The regression between UNITSPER and the percentage of housing units built before 1939 (UNITAGE) produced a Pearson's R of -0.021. This association was not significant at the required level of .05.

#### HYPOTHESIS 3.1b.

The lower the number of housing units per family, the higher the percentage of units with 1.01 or more persons per room.

The regression between UNITSPER and the percentage of housing units with 1.01 or more persons per room (CROWDING) produced a Pearson's R of -0.420. This represented a significant (Probability Level = 0.000) negative association between UNITSPER and CROWDING. Hence, low number of housing units per family were associated with high percentages of housing units with 1.01 or more persons per room.

#### ADDITIONAL TEST PERFORMED

Additional simple regressions were performed for those relationships that proved insignificant. This was done to determine other significant relationships between variables.

The results of these regressions were used to assist in revising the Proposed Model.

#### Migration and Economic Diversity

The results of the simple regression between the net migration rate 1970-1980 (MIGRAT) and the percentage of the labor force employed in the major sector of the economy (DIVERSE) revealed a Pearson's R of -0.102. This represented a weak negative association between MIGRAT and DIVERSE and was not significant at the required .05 level.

#### Income and Economic Diversity

The results of the simple regression between the percentage of families with incomes below the poverty level (POVERTY) and DIVERSE produced a Pearson's R of -0.260. This number indicated a weak, but significant (Probability Level = 0.020) negative association between POVERTY and DIVERSE. Accordingly, high percentages of the labor force employed in the major sector were associated with a lower percentage of families with incomes below the poverty level.

#### Age of Housing Stock and Land Availability

The results of the simple regression between the percentage of housing units built before 1939 (UNITAGE) and the percentage of land individually owned (LAVAIL) revealed

a Pearson's R of 0.202. This number represented a weak and insignificant relationship between UNITAGE and LAVAIL.

#### Overcrowding and Land Availability

The results of the simple regression between the percentage of housing units with 1.01 or more persons per room (CROWDING) and LAVAIL revealed a Pearson's R of -0.334. This number denoted a significant (Probability Level = 0.003) negative association between CROWDING and LAVAIL. In other words, low percentages of land individually owned were associated with high percentages of housing units with 1.01 or more persons per room.

#### DISCUSSION OF THE RESULTS

The empirical results of the performed test showed that many of the relationships between land and resource ownership patterns and socioeconomic conditions (as derived from the Proposed Model) were statistically significant. Although some of the relationships are relatively weak, they do show that associations exist between ownership patterns and socioeconomic conditions.

The Proposed Model of the relationship between land and resource ownership patterns and socioeconomic conditions was revised to reflect the results of the analyses performed. In the Revised Model (displayed in Figure 3) some of the

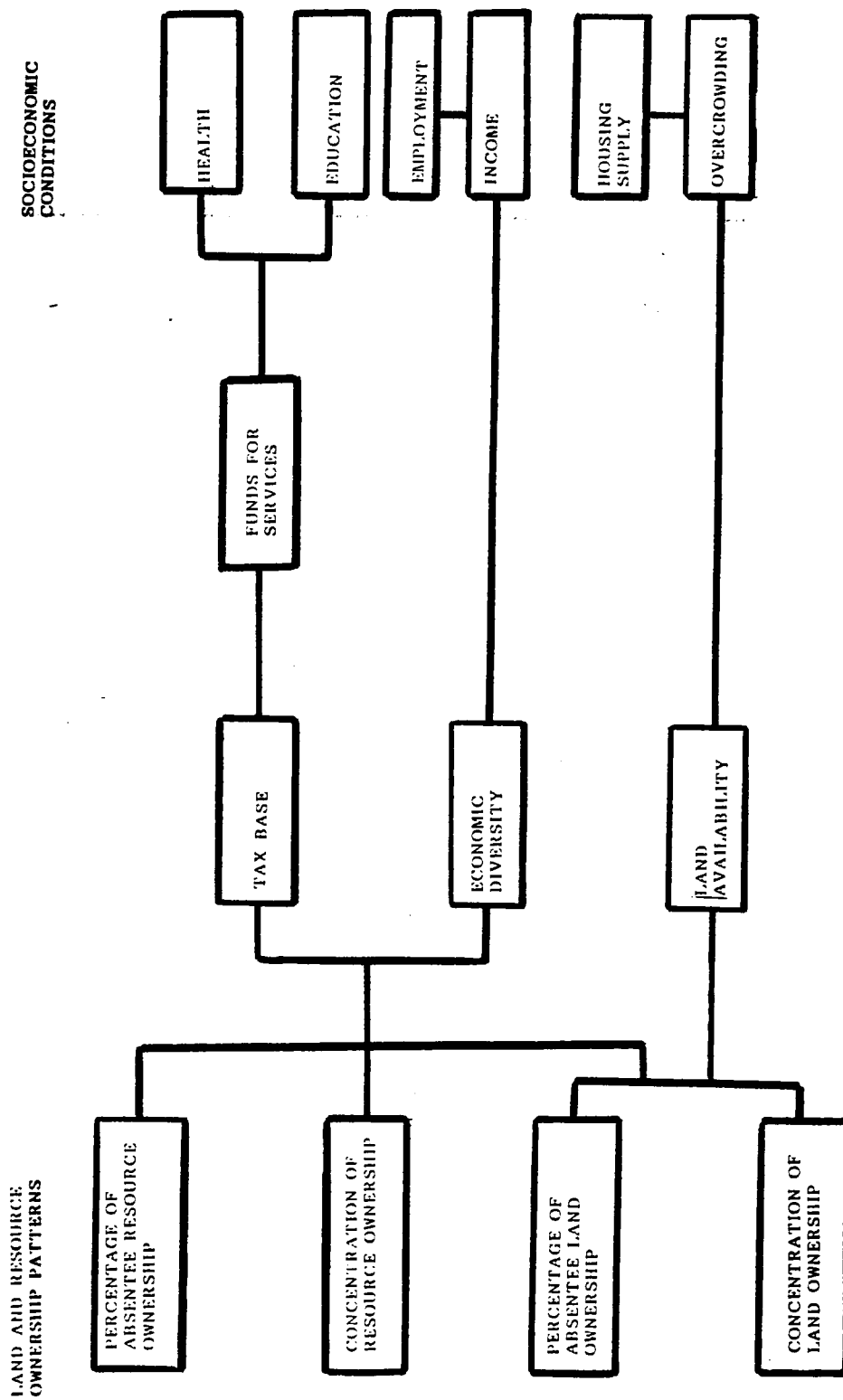


Figure 3. Revised Model of the Relationship Between Land and Resource Ownership Patterns and Socioeconomic Conditions.

Proposed Model's elements have been shifted to reflect the results of additional test carried out.

In the analysis, employment was found to have an insignificant association with economic diversity. In other words, high levels of unemployment were not associated with high percentages of the labor force employed in the major sector of the economy. High levels of unemployment were also not associated with low net migration rates. However, high levels of unemployment were found to be associated with high percentages of families with incomes below the poverty level. In addition, economic diversity was found to be associated with income; the higher the percentage of the labor force employed in the major sector, the lower the percentage of families with incomes below the poverty level.

Also in this analysis, housing supply was found to have an insignificant association with land availability. In other words, lower numbers of housing units per family were not associated with low percentages of land individually owned. Low numbers of housing units per family were also not associated with high percentages of housing units built before 1939. However, low numbers of housing units per family were associated with high percentages of housing units with 1.01 or more persons per room. In addition, lower percentages of land owned by individuals were associated with high percentages of housing units with 1.01 or more persons per room.

As seen in the Revised Model, only a few alterations were made to the Proposed Model. Most of the relationships that were derived from the Model were found to exist. It must be kept in mind that revising the Proposed Model does not necessarily reflect its inaccuracy, but only the adjustments made based on the analyses that were performed. Analyses were carried out through the use of indicators or measures of the conceptual variables contained in the Proposed Model. These indicators may not have been adequate measures of the conceptual variables. Thus, the results of the analysis may have been different if other indicators were used to measure the variables in the Model. For example, an alternative measure for housing supply may have revealed a stronger association with land availability.

Insignificant associations between the relationships tested do not necessarily mean they do not exist. Other factors may have been involved that influenced the strength and direction of the relationships. For example, past trends have suggested that areas with high percentages of the labor force employed in the major sector of the economy would have high unemployment rates. In other words, less diverse areas would be more susceptible to high unemployment rates due to over-reliance on a few sectors of the economy. However, in this analysis, this was not the case. Other factors such as stable dominant sector industries may

explain the difference between them and what was statistically significant in this study.

During the period between 1970 and 1980, the coal industry in the Appalachian Region was at its peak. The Region became one of the nation's leading coal-producing areas. It was not until the early 1980's that declines in the demand for coal led to unusually high unemployment rates. Since many of the counties in the survey were high coal-producing areas (areas with predominant employment in mining activities and related fields), the proposed association may be distorted.

Also, based on economic theory, areas with high unemployment should have less people moving into the area (a lower net migration rate). However, according to this analysis, this was not the case in this area. Other factors, such as the urban-to-rural movement, may explain the divergence between theory and the area.

For the past 10 to 20 years there has been a noticeable shift of the nation's population to rural areas. This has largely been due to preference of people to live in more rural areas. A significant proportion of this population have been older people who moved to rural areas for retirement. In other words, people may have migrated into areas with high unemployment rates for purposes other than employment. This may explain why an association did not exist between unemployment rates and net-migration.

In summary, although the Revised Model is simple, it does provide a better understanding of the dynamics involved with ownership patterns. More in-depth research is needed to more fully understand how ownership patterns affect socioeconomic conditions in the Appalachian Region.

## CHAPTER VI

### CONCLUSION

Although progress has been made in improving the socioeconomic conditions in Appalachia, poverty, substandard housing, low educational levels, limited job opportunities, and minimal levels of social services continue to characterize much of the Region. The failure of many programs to substantially improve these conditions has resulted in re-examining the causes.

Appalachian residents and scholars have suggested that the distribution of ownership of land and resources is responsible for the problems in the Region. The Appalachian Land Ownership Task Force Study, documented that the ownership of land and minerals throughout the Region is highly concentrated in the hands of a few owners. However, very little research has been carried out on how this ownership pattern affects the Region.

The main goal of this study was to determine if a relationship exists between patterns of ownership and socioeconomic conditions. In order to examine this relationship, a model was developed. The Model illustrated the relationship between ownership patterns and socioeconomic conditions. The relationships were first logically derived and then statistically tested to determine

their significance. The results from the statistical tests were then used to construct a revised model.

The analyses demonstrated that ownership patterns are significantly associated with socioeconomic conditions. Specifically, it was determined that a high concentration and absentee ownership coincides with a low tax base, a low level of economic diversity, and a low amount of land available for development.

In areas with a low tax base, a low amount of taxes are locally raised. Low levels of education and health care are found in those areas with a low amount of locally raised resources. Counties with high concentrations of absentee ownership tended to have a low tax base to fund local services. This lack of funds, in turn, influenced the level of education and health care within the counties.

A low level of economic diversity in an area is accompanied by a low percentage of poverty families. High percentages of poverty families usually occurred in areas with high levels of unemployment. Counties with high concentration and absentee ownership were less economically diverse. Less economically diversified counties tended to have less poverty families. High levels of unemployment coincide with high percentages of poverty families.

Overcrowding of housing units was found in counties with a low amount of land available for development and a low number of housing units per family. Counties with high

concentration and absentee ownership tended to have less land available for residential development. This influenced overcrowding of existing housing.

Although a relationships between ownership patterns and socioeconomic conditions was established, it was not proven that ownership patterns caused the socioeconomic problems. The results do suggest, however, that ownership patterns are factors that influence socioeconomic conditions.

More analyses of the relationship between ownership patterns and socioeconomic conditions need to be conducted. Case studies of counties throughout the Region may prove useful in understanding other factors which influence these conditions (e.g., political and power structures, tax systems).

Appalachian communities can approach their problems with the hope of solution once they understand why the problems exist. This study has highlighted some of the relationships that exist; however, more research is needed to uncover the causes.

## BIBLIOGRAPHY

## BIBLIOGRAPHY

- Agresti, A. & Agresti, F. (1979). Statistical methods for the social sciences. San Francisco: Dellen.
- Appalachian Alliance. (1982). Appalachia in the eighties: A time for action. New Market, TN: Highlander Center.
- Appalachian Land Ownership Task Force. (1983). Who owns appalachia?: Landownership and its impact. Lexington, KY: University Press of Kentucky.
- Appalachia looks at the future. (1975, June). A regional forum conducted by the American County Life Association, Johnson City, TN.
- Appalachian Regional Commission. (1977). Appalachia: Goals, objectives and development strategies. Washington D.C.: U.S. Government Printing Office.
- Appalachian Regional Commission. 1984 Annual Report. Washington, D.C.: U.S. Government Printing Office.
- Appalachian Regional Commission. (1968). The appalachian region: A statistical appendix of comparative socioeconomic indicators. Washington D.C.: U.S. Government Printing Office.
- Babbie, E. (1983). The practice of social research. (3rd ed.). Belmont, CA: Wadsworth.
- Bingham, E. (1972, Fall-Winter). Appalachia: Underdeveloped, overdeveloped, or wrongly developed? The Virginia Geographer, pp. 9-12.
- Blake, V. & Dickinson, T. (1969). Socio-economic analysis of demographic trends in St. Louis County, Missouri. St. Louis County, MO: St. Louis County Department of Planning.
- Caudill, H. (1962). Night comes to the cumberland: A biography of a depressed area. Boston: Atlantic Monthly Press.
- Chandler, A. N. (1945). Land title origins: A tale of force and fraud. New York: Robert Schalkenback Foundation.

- Clawson, M. (1972). America's land and its uses. Baltimore: John Hopkins Press.
- Eller, R. D. (1982). Miners, millhands, and mountaineers. Knoxville, TN: The University of Tennessee Press.
- Fellmeth, R. C. (1973). Politics of land: Ralph Nader's study group report on land use in California. New York: Grossman.
- Fisher, S. (Ed.). (1979). A landless people in a rural region: A reader on land ownership and property taxation in appalachia. New Market, TN: Highlander Center.
- Flannery, M. (1982, March-April). Appalachia health care: The struggle to reach remote areas. Appalachia Journal, pp. 17-24.
- Flax, M. J. (1972). Study in comparative urban indicators. Washington D.C.: The Urban Institute.
- Gaventa, J. (1980). Power and powerlessness: Quiescence and rebellion in an appalachian valley. Oxford: Clarendon Press.
- Geisler, C. C. & Popper, F. J. (Eds.). (1984). Land reform, american style. Totowa, NJ: Rowman and Allanheld.
- Josephson, M. (1934). The robber barons: The great american capitalists, 1861-1901. New York: Harcourt.
- Kaufman, P. J. (1972, December 2). Poor rich West Virginia. New Republic, pp. 12-15.
- Kirby, R. M. (1969 October). Kentucky coal: Owners, taxes, profits. A study in representation without taxation. Appalachian Lookout 1, pp. 19-27.
- Lewis, H. M., Johnson, L. & Askins, D. (Eds.). (1978). Colonialism in modern america: The appalachia case. Boone, NC: Appalachia Consortium Press.
- Lieu, B. C. (1976). Quality of life indicators in u. s. metropolitan areas: A statistical Analysis. New York: Praeger.
- Miller, T. D. (1975). Who owns west virginia? Huntington, WVa: The Huntington Publishing Company.

- Newfville, J. I. (1975). Social indicators and public policy. New York: Elsevier Scientific Publishing Company.
- Power, T. M. (1980). The economic value of the quality of life. Boulder, CO: Westview Press.
- Sakolske A. M. (1932). The great america land bubble: The amazing story of land grabbing, speculations, and booms from colonial days to the present time. New York: Harper.
- United States Department of Commerce, Bureau of Census. 1980 census of population and housing. Washington D.C.: U. S. Government Printing Office.
- United States Department of Commerce, Bureau of Census. 1983 county and city data book. Washington D.C.: U. S. Government Printing Office.
- United States Department of Commerce, Bureau of Census. 1977 county and city data book. Washington D.C.: U. S. Government Printing Office.
- United States Department of Commerce, Bureau of Census. 1982 census of governments. Washington D.C.: U. S. Government Printing Office.
- United States Department of Health and Human Services, Public Health Service. (1970-80). Vital statistics of the united states. Washington D.C.: U. S. Government Printing Office.
- United States Department of Labor, Bureau of Labor Statistics. (1979-81). Employment and unemployment in states and local areas. Washington D.C.: U. S. Government Printing Office.
- Walls, D. S. & Stephenson, J. B. (1972). Appalachia in the sixties. Lexington, KY: The University Press of Kentucky.
- Whisnant, D. (1970). Modernizing the mountaineer: People, power, and planning in appalachia. New York: Burt Franklin.
- Young, J. A. & Newton, J. M. (1980). Capitalism and human obsolescence: Corporate control verses individual survival in rural america. Montclair, NJ: Allanheld, Osmun.

## APPENDIX

### DATA COLLECTED

TABLE VI  
LAND AND RESOURCE OWNERSHIP INDICATORS

| COUNTIES              | LINDEX | MINDEX | LANDA | MINERALA |
|-----------------------|--------|--------|-------|----------|
| <u>ALABAMA</u>        |        |        |       |          |
| 1. BLOUNT             | 19.17  | 55.82  | 29.29 | 23.31    |
| 2. CHEROKEE           | 27.56  | 32.64  | 47.40 | 7.05     |
| 3. CLEBURNE           | 37.58  | 100.70 | 62.87 | 9.11     |
| 4. CULLMAN            | 36.53  | 140.96 | 18.11 | 16.04    |
| 5. DEKALB             | 14.67  | 81.94  | 23.73 | 39.57    |
| 6. ETOWAH             | 23.69  | 77.59  | 14.45 | 15.67    |
| 7. FAYETTE            | 24.69  | 89.94  | 45.42 | 44.75    |
| 8. JACKSON            | 40.57  | 124.05 | 38.24 | 9.45     |
| 9. LAMAR              | 19.45  | 24.99  | 35.12 | 1.84     |
| 10. MARION            | 28.02  | 83.94  | 25.05 | 22.50    |
| 11. MARSHALL          | 40.57  | 11.58  | 36.95 | 6.99     |
| 12. SHELBY            | 44.03  | 56.39  | 58.16 | 14.52    |
| 13. TUSCALOOSA        | 56.31  | 37.24  | 28.07 | 25.11    |
| 14. WALKER            | 56.60  | 187.29 | 29.07 | 45.35    |
| 15. WINSTON           | 36.92  | 75.85  | ----- | -----    |
| <u>KENTUCKY</u>       |        |        |       |          |
| 16. BELL              | 86.50  | 37.67  | 48.31 | 14.03    |
| 17. BREATHITT         | 20.84  | 14.34  | 45.99 | 48.03    |
| 18. FLOYD             | 29.78  | 150.67 | 85.70 | 49.19    |
| 19. HARLAN            | 115.96 | -----  | 57.56 | -----    |
| 20. JOHNSON           | 23.92  | 65.72  | 28.54 | 16.94    |
| 21. KNOTT             | 31.74  | -----  | 57.54 | -----    |
| 22. KNOX              | 22.19  | 58.04  | 20.82 | 29.11    |
| 23. LAUREL            | 45.87  | 133.63 | 39.31 | 1.67     |
| 24. LETCHER           | 34.24  | -----  | 44.86 | 51.00    |
| 25. MARTIN            | 38.15  | 57.65  | 57.22 | 90.86    |
| 26. PERRY             | 29.29  | 205.74 | 40.57 | 61.00    |
| 27. PIKE              | 33.42  | 33.04  | 26.43 | 26.19    |
| <u>NORTH CAROLINA</u> |        |        |       |          |
| 28. ALLEGHANY         | 11.88  | -----  | 30.48 | -----    |
| 29. ASHE              | 9.65   | -----  | 24.43 | -----    |
| 30. AVERY             | 61.00  | 23.71  | 50.23 | 8.50     |
| 31. BURKE             | 26.70  | -----  | 38.85 | -----    |
| 32. CLAY              | 10.10  | -----  | 63.58 | -----    |
| 33. HAYWOOD           | 18.96  | -----  | 30.83 | -----    |
| 34. HENDERSON         | 19.20  | -----  | 27.08 | -----    |
| 35. JACKSON           | 27.88  | -----  | 55.28 | -----    |
| 36. MADISON           | 19.20  | 3.94   | 37.53 | 42.61    |
| 37. MITCHELL          | 65.00  | 906.25 | 36.92 | 42.15    |
| 38. SWAIN             | 150.21 | -----  | 93.98 | -----    |
| 39. WATAUGA           | 11.11  | -----  | 32.61 | -----    |

TABLE VI (continued)

| COUNTIES             | LINDEX | MINDEX | LANDA | MINERALA |
|----------------------|--------|--------|-------|----------|
| <u>TENNESSEE</u>     |        |        |       |          |
| 40. ANDERSON         | 59.35  | -----  | 53.00 | 15.88    |
| 41. BLEDSOE          | 42.38  | 365.33 | 56.83 | 63.50    |
| 42. CAMPBELL         | 82.53  | -----  | 58.31 | 7.15     |
| 43. CUMBERLAND       | 48.70  | 117.81 | 29.24 | 11.23    |
| 44. FENTRESS         | 3.51   | 134.68 | 39.75 | 18.46    |
| 45. HAMILTON         | 5.23   | -----  | 9.43  | 5.58     |
| 46. MARION           | 62.06  | 408.91 | 62.95 | 4.41     |
| 47. MORGAN           | 52.89  | 61.73  | 55.93 | 4.07     |
| 48. RHEA             | 45.7   | -----  | 39.93 | 22.95    |
| 49. ROANE            | 19.83  | 13.57  | 27.78 | 1.92     |
| 50. SCOTT            | 77.49  | 59.92  | 52.05 | 5.41     |
| 51. SEQUATCHIE       | 102.75 | 79.83  | 81.09 | 51.31    |
| 52. VAN BUREN        | 86.04  | -----  | 66.79 | 0.03     |
| 53. WHITE            | 55.35  | -----  | 24.41 | 0.01     |
| <u>VIRGINIA</u>      |        |        |       |          |
| 54. BLAND            | 37.47  | -----  | 52.12 | 0.00     |
| 55. BUCHANAN         | 37.60  | 172.46 | 43.45 | 68.36    |
| 56. DICKENSON        | 60.61  | 570.84 | 60.64 | 69.36    |
| 57. GRAYSON          | 24.16  | -----  | 33.69 | 0.02     |
| 58. LEE              | 22.79  | 98.74  | 27.06 | 3.58     |
| 59. RUSSELL          | 11.71  | 83.74  | 17.26 | 7.83     |
| 60. SCOTT            | 17.29  | 149.76 | 29.10 | 7.73     |
| 61. SMYTH            | 45.32  | -----  | 49.49 | 0.00     |
| 62. TAZEWELL         | 40.60  | 71.30  | 32.26 | 4.00     |
| 63. WASHINGTON       | 23.88  | 6.51   | 20.45 | 0.51     |
| 64. WISE             | 108.01 | 154.45 | 54.64 | 35.27    |
| 65. WYTHE            | 50.75  | 23.17  | 41.26 | 4.79     |
| <u>WEST VIRGINIA</u> |        |        |       |          |
| 66. BRAXTON          | 60.41  | 28.23  | 26.42 | 7.35     |
| 67. JEFFERSON        | 11.03  | -----  | 8.77  | -----    |
| 68. KANAWHA          | 114.86 | 49.77  | 23.67 | 24.24    |
| 69. LINCOLN          | 15.76  | 248.45 | 12.93 | 123.98   |
| 70. LOGAN            | 88.57  | 71.45  | 51.36 | 70.67    |
| 71. McDOWELL         | 95.95  | 61.75  | 79.34 | 112.94   |
| 72. MARION           | 13.73  | 52.74  | 5.52  | 85.23    |
| 73. MARSHALL         | 48.36  | 145.87 | 22.23 | 77.23    |
| 74. MINERAL          | 9.34   | 35.72  | 14.94 | 9.21     |
| 75. MINGO            | 65.96  | 82.95  | 67.87 | 103.58   |
| 76. OHIO             | 11.53  | 49.29  | 9.29  | 76.76    |
| 77. RALEIGH          | 134.55 | 89.05  | 45.92 | 60.74    |
| 78. RANDOLPH         | 16.95  | 23.63  | 51.11 | 34.01    |
| 79. SUMMERS          | 34.18  | 50.85  | 38.63 | 5.09     |
| 80. WAYNE            | 20.03  | 37.59  | 6.52  | 25.04    |

Source: Appalachian Land Ownership Task Force Study, 1983.

TABLE VII  
INCOME INDICATORS

| COUNTIES              | POVERTY<br>1979 | PER CAPITA<br>1981 | MEDIAN FAMILY<br>1979 |
|-----------------------|-----------------|--------------------|-----------------------|
| <u>ALABAMA</u>        |                 |                    |                       |
| 1. BLOUNT             | 15.3            | 5470               | 14701                 |
| 2. CHEROKEE           | 15.1            | 6378               | 14036                 |
| 3. CLEBURNE           | 13.7            | 5820               | 14642                 |
| 4. CULLMAN            | 15.4            | 7115               | 14119                 |
| 5. DEKALB             | 16.4            | 6391               | 13901                 |
| 6. ETOWAH             | 12.9            | 8171               | 16275                 |
| 7. FAYETTE            | 15.9            | 6903               | 14664                 |
| 8. JACKSON            | 13.7            | 7701               | 15706                 |
| 9. LAMAR              | 14.3            | 7445               | 14958                 |
| 10. MARION            | 13.7            | 6640               | 14228                 |
| 11. MARSHALL          | 13.9            | 7712               | 14757                 |
| 12. SHELBY            | 9.9             | 7489               | 20514                 |
| 13. TUSCALOOSA        | 14.6            | 7819               | 17166                 |
| 14. WALKER            | 19.4            | 8327               | 15817                 |
| 15. WINSTON           | 15.6            | 6875               | 13793                 |
| <u>KENTUCKY</u>       |                 |                    |                       |
| 16. BELL              | 26.0            | 7276               | 11913                 |
| 17. BREATHITT         | 31.4            | 5783               | 10796                 |
| 18. FLOYD             | 18.4            | 6604               | 14374                 |
| 19. HARLAN            | 22.1            | 7500               | 12209                 |
| 20. JOHNSON           | 19.7            | 7049               | 12085                 |
| 21. KNOTT             | 27.3            | 6049               | 10425                 |
| 22. KNOX              | 31.4            | 5300               | 13390                 |
| 23. LAUREL            | 18.7            | 6282               | 12702                 |
| 24. LETCHER           | 22.9            | 6177               | 15646                 |
| 25. MARTIN            | 23.4            | 7365               | 14087                 |
| 26. PERRY             | 21.4            | 7465               | 14087                 |
| 27. PIKE              | 16.7            | 7700               | 15436                 |
| <u>NORTH CAROLINA</u> |                 |                    |                       |
| 28. ALLEGHANY         | 16.2            | 6726               | 12486                 |
| 29. ASHE              | 19.6            | 6166               | 11835                 |
| 30. AVERY             | 14.5            | 5727               | 13022                 |
| 31. BURKE             | 7.6             | 7985               | 16449                 |
| 32. CLAY              | 19.4            | 5363               | 11896                 |
| 33. HAYWOOD           | 12.7            | 8035               | 15469                 |
| 34. HENDERSON         | 9.3             | 9299               | 16503                 |
| 35. JACKSON           | 14.8            | 6646               | 13640                 |
| 36. MADISON           | 14.4            | 5954               | 11072                 |
| 37. MITCHELL          | 14.2            | 6863               | 13779                 |
| 38. SWAIN             | 23.3            | 6504               | 10982                 |
| 39. WATAUGA           | 14.1            | 6682               | 14532                 |

TABLE VII (continued)

| COUNTIES             | POVERTY<br>1979 | PER CAPITA<br>1981 | MEDIAN FAMILY<br>1979 |
|----------------------|-----------------|--------------------|-----------------------|
| <u>TENNESSEE</u>     |                 |                    |                       |
| 40. ANDERSON         | 11.3            | 10443              | 18621                 |
| 41. BLEDSOE          | 21.4            | 5222               | 12218                 |
| 42. CAMPBELL         | 21.1            | 6183               | 12079                 |
| 43. CUMBERLAND       | 17.8            | 5998               | 12686                 |
| 44. FENTRESS         | 29.7            | 4559               | 9438                  |
| 45. HAMILTON         | 10.2            | 9503               | 18578                 |
| 46. MARION           | 16.3            | 6953               | 14901                 |
| 47. MORGAN           | 21.6            | 4657               | 12331                 |
| 48. RHEA             | 15.6            | 7953               | 14682                 |
| 49. ROANE            | 10.1            | 6198               | 17594                 |
| 50. SCOTT            | 23.9            | 5544               | 11403                 |
| 51. SEQUATCHIE       | 20.5            | 3952               | 12636                 |
| 52. VAN BUREN        | 13.9            | 3952               | 12258                 |
| 53. WHITE            | 13.5            | 5347               | 13468                 |
| <u>VIRGINIA</u>      |                 |                    |                       |
| 54. BLAND            | 11.2            | 5911               | 15554                 |
| 55. BUCHANAN         | 15.9            | 9066               | 16716                 |
| 56. DICKENSON        | 15.8            | 7059               | 15399                 |
| 57. GRAYSON          | 11.4            | 6321               | 13691                 |
| 58. LEE              | 21.3            | 6078               | 12174                 |
| 59. RUSSELL          | 13.5            | ----               | 15597                 |
| 60. SCOTT            | 19.6            | ----               | 12576                 |
| 61. SMYTH            | 10.7            | 6573               | 14381                 |
| 62. TAZEVELL         | 12.2            | 8783               | 16431                 |
| 63. WASHINGTON       | 12.2            | 6445               | 15114                 |
| 64. WISE             | 31.9            | 8942               | 16942                 |
| 65. WYTHE            | 27.7            | 7403               | 15004                 |
| <u>WEST VIRGINIA</u> |                 |                    |                       |
| 66. BRAXTON          | 21.4            | 6128               | 12072                 |
| 67. JEFFERSON        | 9.6             | 7750               | 17577                 |
| 68. KANAWHA          | 8.2             | 10751              | 20367                 |
| 69. LINCOLN          | 20.6            | 5777               | 13758                 |
| 70. LOGAN            | 14.4            | 7824               | 16564                 |
| 71. McDOWELL         | 41.8            | 7591               | 14124                 |
| 72. MARION           | 23.0            | 8854               | 17723                 |
| 73. MARSHALL         | 29.6            | 8079               | 20179                 |
| 74. MINERAL          | 35.9            | 6765               | 16660                 |
| 75. MINGO            | 45.9            | 7602               | 14885                 |
| 76. OHIO             | 30.2            | 10394              | 19482                 |
| 77. RALEIGH          | 27.0            | 8575               | 17744                 |
| 78. RANDOLPH         | 34.0            | 7404               | 15264                 |
| 79. SUMMERS          | 36.1            | 6108               | 13277                 |
| 80. WAYNE            | 37.0            | 7078               | 16053                 |

Source: County and City Data Book, 1983.

TABLE VIII

## AVERAGE ANNUAL UNEMPLOYMENT RATES 1979-81

| COUNTIES              | 1979 | 1980 | 1981 | AVERAGE (1979-81) |
|-----------------------|------|------|------|-------------------|
| <u>ALABAMA</u>        |      |      |      |                   |
| 1. BLOUNT             | 6.6  | 8.9  | 11.9 | 9.1               |
| 2. CHEROKEE           | 5.7  | 5.6  | 6.7  | 6.0               |
| 3. CLEBURNE           | 6.0  | 6.6  | 8.7  | 7.1               |
| 4. CULLMAN            | 7.7  | 10.2 | 12.1 | 10.0              |
| 5. DEKALB             | 6.3  | 8.8  | 9.9  | 8.3               |
| 6. ETOWAH             | 7.5  | 9.6  | 12.9 | 10.0              |
| 7. FAYETTE            | 6.6  | 7.2  | 7.5  | 7.1               |
| 8. JACKSON            | 8.1  | 10.8 | 12.6 | 10.5              |
| 9. LAMAR              | 5.7  | 7.0  | 7.9  | 6.9               |
| 10. MARION            | 9.3  | 11.2 | 13.1 | 11.2              |
| 11. MARSHALL          | 7.5  | 10.2 | 12.8 | 10.2              |
| 12. SHELBY            | 5.8  | 7.8  | 8.4  | 7.3               |
| 13. TUSCALOOSA        | 6.1  | 8.5  | 10.0 | 8.2               |
| 14. WALKER            | 8.5  | 10.4 | 13.0 | 10.6              |
| 15. WINSTON           | 11.4 | 13.9 | 16.3 | 13.9              |
| <u>KENTUCKY</u>       |      |      |      |                   |
| 16. BELL              | 7.8  | 9.9  | 8.7  | 8.8               |
| 17. BREATHITT         | 7.9  | 8.8  | 9.0  | 8.6               |
| 18. FLOYD             | 7.8  | 9.7  | 10.5 | 9.3               |
| 19. HARLAN            | 8.7  | 9.7  | 8.5  | 9.0               |
| 20. JOHNSON           | 6.7  | 9.4  | 9.8  | 8.6               |
| 21. KNOTT             | 9.9  | 13.2 | 12.7 | 11.9              |
| 22. KNOX              | 7.3  | 9.9  | 9.6  | 8.9               |
| 23. LAUREL            | 5.9  | 8.1  | 7.4  | 7.1               |
| 24. LETCHER           | 14.4 | 15.1 | 13.0 | 11.0              |
| 25. MARTIN            | 3.9  | 4.0  | 4.1  | 4.0               |
| 26. PERRY             | 8.4  | 10.0 | 8.8  | 9.1               |
| 27. PIKE              | 6.5  | 6.3  | 9.5  | 7.4               |
| <u>NORTH CAROLINA</u> |      |      |      |                   |
| 28. ALLEGHANY         | 3.8  | 4.4  | 4.2  | 9.9               |
| 29. ASHE              | 5.1  | 10.4 | 9.5  | 8.3               |
| 30. AVERY             | 6.4  | 8.8  | 7.3  | 7.5               |
| 31. BURKE             | 4.9  | 6.7  | 5.7  | 5.8               |
| 32. CLAY              | 6.6  | 9.3  | 10.7 | 8.9               |
| 33. HAYWOOD           | 4.9  | 9.0  | 8.3  | 7.4               |
| 34. HENDERSON         | 3.3  | 4.5  | 5.0  | 4.7               |
| 35. JACKSON           | 4.6  | 8.4  | 7.9  | 7.0               |
| 36. MADISON           | 3.9  | 6.7  | 7.1  | 5.9               |
| 37. MITCHELL          | 4.5  | 6.6  | 8.3  | 6.5               |
| 38. SWAIN             | 7.2  | 11.8 | 16.2 | 11.7              |
| 39. WATAUGA           | 4.8  | 7.4  | 5.8  | 6.0               |

TABLE VIII (continued)

| COUNTIES             | 1979 | 1980 | 1981 | AVERAGE (1979-81) |
|----------------------|------|------|------|-------------------|
| <u>TENNESSEE</u>     |      |      |      |                   |
| 40. ANDERSON         | 4.5  | 5.9  | 7.5  | 6.0               |
| 41. BLEDSOE          | 8.9  | 10.0 | 13.8 | 10.9              |
| 42. CAMPBELL         | 13.3 | 14.9 | 16.2 | 14.8              |
| 43. CUMBERLAND       | 11.3 | 13.4 | 15.3 | 13.3              |
| 44. FENTRESS         | 13.6 | 14.2 | 16.1 | 14.6              |
| 45. HAMILTON         | 4.9  | 6.3  | 8.5  | 6.6               |
| 46. MARION           | 6.8  | 7.8  | 9.9  | 8.2               |
| 47. MORGAN           | 7.2  | 9.7  | 11.0 | 9.3               |
| 48. RHEA             | 8.0  | 9.3  | 12.0 | 9.8               |
| 49. ROANE            | 8.8  | 10.8 | 11.9 | 10.5              |
| 50. SCOTT            | 10.8 | 14.5 | 13.5 | 12.9              |
| 51. SEQUATCHIE       | 6.6  | 8.7  | 10.1 | 8.5               |
| 52. VAN BUREN        | 10.5 | 16.6 | 28.7 | 18.6              |
| 53. WHITE            | 6.1  | 9.0  | 10.7 | 8.6               |
| <u>VIRGINIA</u>      |      |      |      |                   |
| 54. BLAND            | 5.1  | 6.4  | 9.9  | 7.1               |
| 55. BUCHANAN         | 8.8  | 5.9  | 6.6  | 7.1               |
| 56. DICKENSON        | 11.9 | 10.9 | 11.7 | 11.5              |
| 57. GRAYSON          | 8.3  | 7.4  | 9.1  | 8.3               |
| 58. LEE              | 8.7  | 9.3  | 11.5 | 9.5               |
| 59. RUSSELL          | 9.1  | 8.8  | 9.7  | 9.2               |
| 60. SCOTT            | 4.3  | 5.4  | 7.0  | 5.6               |
| 61. SMYTH            | 8.9  | 10.0 | 12.0 | 10.3              |
| 62. TAZEWELL         | 6.7  | 6.9  | 7.9  | 7.2               |
| 63. WASHINGTON       | 5.0  | 6.7  | 7.4  | 3.9               |
| 64. WISE             | 6.5  | 7.7  | 8.6  | 7.6               |
| 65. WYTHE            | 5.2  | 8.1  | 9.8  | 7.7               |
| <u>WEST VIRGINIA</u> |      |      |      |                   |
| 66. BRAXTON          | 15.1 | 16.4 | 20.5 | 17.3              |
| 67. JEFFERSON        | 4.8  | 6.3  | 7.1  | 6.1               |
| 68. KANAWHA          | 4.6  | 7.2  | 8.4  | 6.7               |
| 69. LINCOLN          | 12.2 | 14.3 | 18.2 | 14.9              |
| 70. LOGAN            | 9.9  | 8.6  | 9.9  | 9.5               |
| 71. McDOWELL         | 10.7 | 13.0 | 14.7 | 12.8              |
| 72. MARION           | 8.2  | 9.9  | 12.0 | 10.0              |
| 73. MARSHALL         | 7.1  | 11.9 | 9.6  | 9.5               |
| 74. MINERAL          | 6.5  | 8.0  | 9.8  | 8.1               |
| 75. MINGO            | 9.3  | 9.6  | 11.7 | 10.2              |
| 76. OHIO             | 4.8  | ---  | 8.1  | 6.5               |
| 77. RALEIGH          | 8.5  | 9.9  | 10.9 | 9.8               |
| 78. RANDOLPH         | 7.2  | 9.8  | 12.8 | 9.9               |
| 79. SUMMERS          | 9.3  | 13.1 | 16.0 | 12.8              |
| 80. WAYNE            | 6.5  | 9.5  | 12.2 | 9.4               |

Source: Employment and Unemployment in States and Local Areas, 1979-81.

TABLE IX

## MIGRATION 1970-80

| COUNTIES              | POPULATION CHANGE<br>1970-1980 | NATURAL INCREASE<br>1970-1980 | MIGRATION<br>1970-1980 |
|-----------------------|--------------------------------|-------------------------------|------------------------|
| <u>ALABAMA</u>        |                                |                               |                        |
| 1. BLOUNT             | 9606                           | 1669                          | 7937                   |
| 2. CHEROKEE           | 3154                           | 606                           | 2548                   |
| 3. CLEBURNE           | 1629                           | 573                           | 1056                   |
| 4. CULLMAN            | 9197                           | 3196                          | 6001                   |
| 5. DEKALB             | 11672                          | 2560                          | 9112                   |
| 6. ETOWAH             | 8913                           | 3234                          | 5679                   |
| 7. FAYETT             | 2557                           | 332                           | 2225                   |
| 8. JACKSON            | 12205                          | 3622                          | 8679                   |
| 9. LAMAR              | 2118                           | 621                           | 1497                   |
| 10. MARION            | 6253                           | 1127                          | 5126                   |
| 11. MARSHALL          | 11411                          | 3549                          | 7862                   |
| 12. SHELBY            | 28271                          | 4981                          | 23290                  |
| 13. TUSCALOOSA        | 21512                          | 4025                          | 17187                  |
| 14. WALKER            | 12406                          | 3427                          | 8979                   |
| 15. WINSTON           | 5299                           | 1201                          | 4098                   |
| <u>KENTUCKY</u>       |                                |                               |                        |
| 16. BELL              | 3209                           | 1864                          | 1345                   |
| 17. BREATHITT         | 2783                           | 1553                          | 1230                   |
| 18. FLOYD             | 12875                          | 4057                          | 8818                   |
| 19. HARLAN            | 4519                           | 2916                          | 1603                   |
| 20. JOHNSON           | 6893                           | 1330                          | 5563                   |
| 21. KNOTT             | 3293                           | 1717                          | 1525                   |
| 22. KNOX              | 6550                           | 2120                          | 4430                   |
| 23. LAUREL            | 11596                          | 2663                          | 8933                   |
| 24. LETCHER           | 7522                           | 2582                          | 4940                   |
| 25. MARTIN            | 4549                           | 1421                          | 3118                   |
| 26. PERRY             | 7504                           | 3329                          | 4175                   |
| 27. PIKE              | 20054                          | 6884                          | 13170                  |
| <u>NORTH CAROLINA</u> |                                |                               |                        |
| 28. ALLEGHANY         | 1453                           | 59                            | 1394                   |
| 29. ASHE              | 2754                           | 782                           | 1972                   |
| 30. AVERY             | 1749                           | 786                           | 963                    |
| 31. BURKE             | 12140                          | 4390                          | 7750                   |
| 32. CLAY              | 1439                           | 175                           | 1264                   |
| 33. HAYWOOD           | 4785                           | 1634                          | 395                    |
| 34. HENDERSON         | 15776                          | 1610                          | 14166                  |
| 35. JACKSON           | 4218                           | 1119                          | 3099                   |
| 36. MADISON           | 824                            | 322                           | 502                    |
| 37. MITCHELL          | 981                            | 353                           | 628                    |
| 38. SWAIN             | 1448                           | 690                           | 758                    |
| 39. WATAUGA           | 8264                           | 1549                          | 6715                   |

TABLE IX (continued)

| COUNTIES             | POPULATION CHANGE<br>1970-1980 | NATURAL INCREASE<br>1970-1980 | MIGRATION<br>1970-1980 |
|----------------------|--------------------------------|-------------------------------|------------------------|
| <u>TENNESSEE</u>     |                                |                               |                        |
| 40. ANDERSON         | 7046                           | 2338                          | 4708                   |
| 41. BLEDSOE          | 1835                           | 433                           | 1402                   |
| 42. CAMPBELL         | 8878                           | 2007                          | 4708                   |
| 43. CUMBERLAND       | 7943                           | 1588                          | 6355                   |
| 44. FENTRESS         | 2233                           | 955                           | 1278                   |
| 45. HAMILTON         | 32663                          | 9483                          | 23180                  |
| 46. MARION           | 3839                           | 1409                          | 2430                   |
| 47. MORGAN           | 2985                           | 113                           | 2872                   |
| 48. RHEA             | 7033                           | 1599                          | 4806                   |
| 49. ROANE            | 9544                           | 2227                          | 7317                   |
| 50. SCOTT            | 4497                           | 1569                          | 2928                   |
| 51. SEQUATCHIE       | 4847                           | 665                           | 4182                   |
| 52. VAN BUREN        | 970                            | 294                           | 676                    |
| 53. WHITE            | 3238                           | 540                           | 2698                   |
| <u>VIRGINIA</u>      |                                |                               |                        |
| 54. BLAND            | 926                            | 72                            | 854                    |
| 55. BUCHANAN         | 5968                           | 4057                          | 1911                   |
| 56. DICKENSON        | 3729                           | 1409                          | 2320                   |
| 57. GRAYSON          | 1140                           | 245                           | 895                    |
| 58. LEE              | 5635                           | 553                           | 5082                   |
| 59. RUSSELL          | 7228                           | 1804                          | 5424                   |
| 60. SCOTT            | 692                            | 793                           | -101                   |
| 61. SMYTH            | 2017                           | 1676                          | 341                    |
| 62. TAZEWELL         | 10695                          | 3311                          | 7384                   |
| 63. WASHINGTON       | 10454                          | 2449                          | 8005                   |
| 64. WISE             | 7916                           | 3244                          | 4672                   |
| 65. WYTHE            | 3383                           | 870                           | 2513                   |
| <u>WEST VIRGINIA</u> |                                |                               |                        |
| 66. BRAXTON          | 1228                           | 370                           | 858                    |
| 67. JEFFERSON        | 9022                           | 1136                          | 7886                   |
| 68. KANAWHA          | 1899                           | 8580                          | -6681                  |
| 69. LINCOLN          | 4763                           | 1623                          | 3140                   |
| 70. LOGAN            | 4410                           | 4654                          | -244                   |
| 71. McDOWELL         | -767                           | 4741                          | -5508                  |
| 72. MARION           | 4433                           | 1581                          | 2852                   |
| 73. MARSHALL         | 4010                           | 1766                          | 2244                   |
| 74. MINERAL          | 4125                           | 1374                          | 2751                   |
| 75. MINGO            | 4556                           | 3631                          | 925                    |
| 76. OHIO             | 1106                           | 788                           | 318                    |
| 77. RALEIGH          | 16741                          | 4379                          | 15598                  |
| 78. RANDOLPH         | 4138                           | 1143                          | 2995                   |
| 79. SUMMERS          | 2662                           | 220                           | 2442                   |
| 80. WAYNE            | 8440                           | 2675                          | 5765                   |

Sources: Vital Statistics of United States, 1970-79 and; the County and City Data Book, 1977 and 1983.

TABLE X

## INFANT MORTALITY RATES 1978-80

| COUNTIES              | 1978 | 1979 | 1980 | AVERAGE (1978-80) |
|-----------------------|------|------|------|-------------------|
| <u>ALABAMA</u>        |      |      |      |                   |
| 1. BLOUNT             | 17.7 | 21.5 | 6.7  | 15.3              |
| 2. CHEROKEE           | 31.7 | 22.3 | 7.3  | 20.4              |
| 3. CLEBURNE           | 6.0  | 5.7  | 21.6 | 11.1              |
| 4. CULLMAN            | 18.3 | 20.9 | 11.1 | 16.8              |
| 5. DEKALB             | 18.9 | 13.7 | 14.5 | 15.6              |
| 6. ETOWAH             | 13.0 | 11.0 | 28.0 | 17.3              |
| 7. FAYETTE            | 8.8  | 24.5 | 15.1 | 16.1              |
| 8. JACKSON            | 13.9 | 12.7 | 17.6 | 14.7              |
| 9. LAMAR              | 7.7  | 13.0 | 11.9 | 10.8              |
| 10. MARION            | 24.8 | 15.1 | 17.6 | 18.1              |
| 11. MARSHALL          | 4.6  | 12.3 | 11.8 | 9.6               |
| 12. SHELBY            | 14.3 | 8.5  | 9.0  | 10.6              |
| 13. TUSCALOOSA        | 4.8  | 10.4 | 26.8 | 14.0              |
| 14. WALKER            | 19.5 | 16.0 | 23.8 | 19.8              |
| 15. WINSTON           | 8.6  | 22.8 | 27.1 | 19.5              |
| <u>KENTUCKY</u>       |      |      |      |                   |
| 16. BELL              | 27.5 | 21.6 | 21.4 | 23.5              |
| 17. BREATHTT          | 6.5  | 16.4 | 14.3 | 12.4              |
| 18. FLOYD             | 10.5 | 13.9 | 13.7 | 12.7              |
| 19. HARLAN            | 24.9 | 16.1 | 6.6  | 15.9              |
| 20. JOHNSON           | 14.6 | 15.8 | 7.1  | 12.5              |
| 21. KNOTT             | 14.0 | 6.5  | 17.1 | 12.5              |
| 22. KNOX              | 16.0 | 9.4  | 14.1 | 13.2              |
| 23. LAUREL            | 6.4  | 11.1 | 7.8  | 8.4               |
| 24. LETCHER           | 14.0 | 7.4  | 12.6 | 11.3              |
| 25. MARTIN            | 1.5  | 12.0 | 20.8 | 11.4              |
| 26. PERRY             | 12.0 | 5.9  | 18.7 | 12.2              |
| 27. PIKE              | 11.6 | 10.8 | 12.4 | 11.6              |
| <u>NORTH CAROLINA</u> |      |      |      |                   |
| 28. ALLEGHANY         | 8.1  | ---- | 27.5 | 17.8              |
| 29. ASHE              | 10.5 | 17.6 | 36.7 | 21.6              |
| 30. AVERY             | 14.1 | 14.7 | 5.2  | 11.3              |
| 31. BURKE             | 9.8  | 13.3 | 16.4 | 13.2              |
| 32. CLAY              | ---- | 13.9 | 14.3 | 14.1              |
| 33. HAYWOOD           | 11.4 | 14.9 | 16.0 | 14.1              |
| 34. HENDERSON         | 14.9 | 9.6  | 9.7  | 11.4              |
| 35. JACKSON           | 16.9 | 18.7 | 12.9 | 16.2              |
| 36. MADISON           | 18.9 | ---- | 5.4  | 12.2              |
| 37. MITCHELL          | 11.8 | 18.1 | 17.2 | 15.7              |
| 38. SWAIN             | 26.3 | 6.1  | 12.0 | 14.8              |
| 39. WATAUGA           | 15.3 | 3.1  | 6.1  | 8.2               |

TABLE X (continued)

| COUNTIES             | 1978 | 1979 | 1980 | AVERAGE (1978-80) |
|----------------------|------|------|------|-------------------|
| <u>TENNESSEE</u>     |      |      |      |                   |
| 40. ANDERSON         | 19.7 | 9.6  | 14.7 | 14.7              |
| 41. BLEDSOE          | 14.6 | ---- | 25.6 | 20.1              |
| 42. CAMPBELL         | 16.2 | 9.3  | 5.6  | 10.4              |
| 43. CUMBERLAND       | 12.4 | 16.4 | 18.1 | 15.6              |
| 44. FENTRESS         | 26.9 | 19.6 | 9.3  | 18.6              |
| 45. HAMILTON         | 7.8  | 7.6  | 5.1  | 6.8               |
| 46. MARION           | 9.3  | 13.3 | 9.1  | 10.6              |
| 47. MORGAN           | 21.3 | 8.9  | 7.9  | 12.7              |
| 48. RHEA             | 17.9 | 19.4 | 10.4 | 15.9              |
| 49. ROANE            | 16.3 | 9.2  | 9.9  | 11.8              |
| 50. SCOTT            | 14.5 | 8.8  | 9.1  | 10.8              |
| 51. SEQUATCHIE       | 7.2  | 31.0 | 8.4  | 15.5              |
| 52. VAN BUREN        | 12.7 | ---- | 14.1 | 13.4              |
| 53. WHITE            | 7.4  | 21.7 | 10.8 | 13.3              |
| <u>VIRGINIA</u>      |      |      |      |                   |
| 54. BLAND            | 17.5 | 30.3 | 24.4 | 24.1              |
| 55. BUCHANAN         | 32.6 | 9.9  | 22.6 | 21.7              |
| 56. DICKENSON        | 10.2 | 8.8  | 16.6 | 11.9              |
| 57. GRAYSON          | 12.4 | 24.0 | 5.7  | 14.0              |
| 58. LEE              | 10.5 | 22.3 | 16.1 | 16.3              |
| 59. RUSSELL          | 21.0 | 25.5 | 9.2  | 18.6              |
| 60. SCOTT            | 10.6 | 17.1 | 24.1 | 17.3              |
| 61. SMYTH            | 16.8 | 15.0 | 18.9 | 16.9              |
| 62. TAZEWELL         | 7.7  | 15.5 | 23.9 | 15.7              |
| 63. WASHINGTON       | 14.3 | 19.7 | 14.4 | 16.1              |
| 64. WISE             | 22.3 | 18.5 | 23.5 | 21.4              |
| 65. WYTHE            | 29.6 | 15.9 | 6.2  | 17.2              |
| <u>WEST VIRGINIA</u> |      |      |      |                   |
| 66. BRAXTON          | 11.3 | 15.0 | 15.2 | 13.8              |
| 67. JEFFERSON        | 10.9 | 10.0 | 17.5 | 13.0              |
| 68. KANAWHA          | 8.9  | 20.6 | 14.6 | 14.7              |
| 69. LINCOLN          | 2.5  | 7.4  | 10.3 | 6.7               |
| 70. LOGAN            | 19.7 | 9.6  | 9.3  | 12.9              |
| 71. McDOWELL         | 15.0 | 22.4 | 17.0 | 18.1              |
| 72. MARION           | 14.0 | 5.3  | 12.3 | 10.5              |
| 73. MARSHALL         | 15.5 | 7.4  | 7.8  | 10.2              |
| 74. MINERAL          | 5.2  | 11.8 | 9.9  | 9.0               |
| 75. MINGO            | 12.5 | 17.2 | 6.7  | 12.1              |
| 76. OHIO             | 47.9 | 4.4  | 9.5  | 20.6              |
| 77. RALEIGH          | 17.9 | 11.4 | 11.1 | 13.5              |
| 78. RANDOLPH         | 6.7  | 12.4 | 11.9 | 10.3              |
| 79. SUMMERS          | 37.5 | 24.8 | 20.2 | 27.5              |
| 80. WAYNE            | 8.4  | 6.8  | 6.8  | 7.3               |

Source: Vital Statistics of the United States, 1978-80.

TABLE XI

## GENERAL REVENUES 1980-81

| COUNTIES              | % LOCAL<br>REVENUE | % INTERGOVERNMENT<br>REVENUE | INTERGOVERNMENT<br>SUBSIDY PER CAPITA<br>(\$) |
|-----------------------|--------------------|------------------------------|-----------------------------------------------|
| <u>ALABAMA</u>        |                    |                              |                                               |
| 1. BLOUNT             | 60.0               | 40.0                         | 298                                           |
| 2. CHEROKEE           | 65.2               | 34.8                         | 347                                           |
| 3. CLEBURNE           | 31.6               | 68.4                         | 383                                           |
| 4. CULLMAN            | 66.4               | 33.6                         | 350                                           |
| 5. DEKALB             | 51.5               | 48.6                         | 330                                           |
| 6. ETOWAH             | 61.3               | 38.7                         | 327                                           |
| 7. FAYETTE            | 39.3               | 60.7                         | 356                                           |
| 8. JACKSON            | 56.7               | 43.3                         | 316                                           |
| 9. LAMAR              | 36.8               | 63.2                         | 430                                           |
| 10. MARION            | 54.7               | 45.3                         | 382                                           |
| 11. MARSHALL          | 48.1               | 51.9                         | 346                                           |
| 12. SHELBY            | 73.6               | 26.4                         | 253                                           |
| 13. TUSCALOOSA        | 74.2               | 25.8                         | 304                                           |
| 14. WALKER            | 57.9               | 42.1                         | 327                                           |
| 15. WINSTON           | 38.1               | 61.9                         | 459                                           |
| <u>KENTUCKY</u>       |                    |                              |                                               |
| 16. BELL              | 37.3               | 62.7                         | 427                                           |
| 17. BREATHITT         | 14.1               | 85.9                         | 510                                           |
| 18. FLOYD             | 26.5               | 73.5                         | 325                                           |
| 19. HARLAN            | 26.5               | 73.7                         | 435                                           |
| 20. JOHNSON           | 11.8               | 88.2                         | 493                                           |
| 21. KNOTT             | 15.6               | 84.4                         | 461                                           |
| 22. KNOX              | 59.0               | 41.0                         | 432                                           |
| 23. LAUREL            | 48.9               | 51.1                         | 425                                           |
| 24. LETCHER           | 17.3               | 82.7                         | 381                                           |
| 25. MARTIN            | 23.9               | 76.1                         | 526                                           |
| 26. PERRY             | 25.7               | 74.3                         | 392                                           |
| 27. PIKE              | 32.7               | 67.3                         | 393                                           |
| <u>NORTH CAROLINA</u> |                    |                              |                                               |
| 28. ALLEGHANY         | 28.2               | 71.8                         | 457                                           |
| 29. ASHE              | 32.2               | 67.8                         | 392                                           |
| 30. AVERY             | 35.2               | 64.8                         | 396                                           |
| 31. BURKE             | 35.0               | 65.0                         | 495                                           |
| 32. CLAY              | 25.4               | 74.6                         | 393                                           |
| 33. HAYWOOD           | 55.8               | 44.2                         | 434                                           |
| 34. HENDERSON         | 54.9               | 45.1                         | 396                                           |
| 35. JACKSON           | 31.5               | 68.5                         | 483                                           |
| 36. MADISON           | 22.0               | 78.0                         | 481                                           |
| 37. MITCHELL          | 30.0               | 70.0                         | 562                                           |
| 38. SWAIN             | 26.5               | 73.5                         | 533                                           |
| 39. WATAUGA           | 40.6               | 59.4                         | 390                                           |

TABLE XI (continued)

| COUNTIES             | % LOCAL<br>REVENUE | % INTERGOVERNMENT<br>REVENUE | INTERGOVERNMENT<br>SUBSIDY PER CAPITA<br>(\$) |
|----------------------|--------------------|------------------------------|-----------------------------------------------|
| <u>TENNESSEE</u>     |                    |                              |                                               |
| 40. ANDERSON         | 53.5               | 46.5                         | 317                                           |
| 41. BLEDSOE          | 58.0               | 42.0                         | 379                                           |
| 42. CAMPBELL         | 41.1               | 58.9                         | 405                                           |
| 43. CUMBERLAND       | 51.4               | 48.6                         | 294                                           |
| 44. FENTRESS         | 62.8               | 37.2                         | 329                                           |
| 45. HAMILTON         | 87.1               | 12.9                         | 292                                           |
| 46. MARION           | 46.1               | 53.9                         | 323                                           |
| 47. MORGAN           | 40.6               | 59.4                         | 382                                           |
| 48. RHEA             | 62.9               | 37.1                         | 281                                           |
| 49. ROANE            | 48.4               | 51.6                         | 279                                           |
| 50. SCOTT            | 58.8               | 41.2                         | 354                                           |
| 51. SEQUATCHIE       | 40.1               | 59.9                         | 368                                           |
| 52. VAN BUREN        | 27.3               | 72.7                         | 815                                           |
| 53. WHITE            | 40.5               | 59.5                         | 281                                           |
| <u>VIRGINIA</u>      |                    |                              |                                               |
| 54. BLAND            | 30.2               | 6.8                          | 341                                           |
| 55. BUCHANAN         | 59.4               | 40.6                         | 406                                           |
| 56. DICKENSON        | 52.5               | 47.5                         | 409                                           |
| 57. GRAYSON          | 32.7               | 67.3                         | 329                                           |
| 58. LEE              | 25.6               | 74.4                         | 439                                           |
| 59. RUSSELL          | 47.0               | 53.0                         | 408                                           |
| 60. SCOTT            | 31.6               | 68.4                         | 373                                           |
| 61. SMYTH            | 43.4               | 68.6                         | 388                                           |
| 62. TAZEWELL         | 43.4               | 56.6                         | 353                                           |
| 63. WASHINGTON       | 34.2               | 65.8                         | 353                                           |
| 64. WISE             | 50.5               | 49.5                         | 403                                           |
| 65. WYTHE            | 36.3               | 63.7                         | 348                                           |
| <u>WEST VIRGINIA</u> |                    |                              |                                               |
| 66. BRAXTON          | 56.0               | 44.0                         | 547                                           |
| 67. JEFFERSON        | 75.7               | 24.3                         | 339                                           |
| 68. KANAWHA          | 82.6               | 17.4                         | 379                                           |
| 69. LINCOLN          | 21.3               | 78.7                         | 497                                           |
| 70. LOGAN            | 55.2               | 44.8                         | 380                                           |
| 71. McDOWELL         | 49.5               | 50.5                         | 468                                           |
| 72. MARION           | 68.8               | 31.2                         | 409                                           |
| 73. MARSHALL         | 72.7               | 22.3                         | 334                                           |
| 74. MINERAL          | 61.2               | 38.8                         | 426                                           |
| 75. MINGO            | 59.7               | 40.3                         | 559                                           |
| 76. OHIO             | 84.5               | 15.5                         | 331                                           |
| 77. RALEIGH          | 74.2               | 25.8                         | 378                                           |
| 78. RANDOLPH         | 60.0               | 40.0                         | 428                                           |
| 79. SUMMERS          | 60.5               | 39.5                         | 344                                           |
| 80. WAYNE            | 65.1               | 34.9                         | 394                                           |

Source: Census of Governments, 1982.

TABLE XII  
HOUSING INDICATORS

| COUNTIES              | UNITS PER | UNITAGE | CROWDING |
|-----------------------|-----------|---------|----------|
| <u>ALABAMA</u>        |           |         |          |
| 1. BLOUNT             | 1.30      | 16.3    | 4.1      |
| 2. CHEROKEE           | 1.36      | 18.2    | 4.9      |
| 3. CLEBURNE           | 1.31      | 23.3    | 4.9      |
| 4. CULLMAN            | 1.31      | 16.3    | 3.9      |
| 5. DEKALB             | 1.33      | 19.5    | 4.0      |
| 6. ETOWAH             | 1.37      | 18.9    | 3.5      |
| 7. FAYETTE            | 1.41      | 21.8    | 4.8      |
| 8. JACKSON            | 1.32      | 16.2    | 4.8      |
| 9. LAMAR              | 1.38      | 18.8    | 5.2      |
| 10. MARION            | 1.33      | 15.5    | 3.6      |
| 11. MARSHALL          | 1.36      | 12.7    | 3.6      |
| 12. SHELBY            | 1.35      | 10.0    | 4.2      |
| 13. TUSCALOOSA        | 1.50      | 12.0    | 2.6      |
| 14. WALKER            | 1.36      | 19.3    | 4.7      |
| 15. WINSTON           | 1.33      | 13.7    | 4.3      |
| <u>KENTUCKY</u>       |           |         |          |
| 16. BELL              | 1.32      | 29.0    | 8.7      |
| 17. BREATHTITT        | 1.26      | 20.3    | 10.3     |
| 18. FLOYD             | 1.29      | 23.7    | 7.6      |
| 19. HARLAN            | 1.32      | 34.7    | 7.9      |
| 20. JOHNSON           | 1.32      | 25.7    | 6.4      |
| 21. KNOTT             | 1.25      | 19.0    | 11.0     |
| 22. KNOX              | 1.34      | 21.2    | 8.8      |
| 23. LAUREL            | 1.30      | 13.0    | 6.2      |
| 24. LETCHER           | 1.28      | 35.1    | 8.7      |
| 25. MARTIN            | 1.22      | 15.3    | 10.3     |
| 26. PERRY             | 1.26      | 23.5    | 10.6     |
| 27. PIKE              | 1.25      | 19.1    | 7.2      |
| <u>NORTH CAROLINA</u> |           |         |          |
| 28. ALLEGHANY         | 1.51      | 18.6    | 3.2      |
| 29. ASHE              | 1.36      | 22.9    | 3.5      |
| 30. AVERY             | 1.61      | 19.0    | 4.7      |
| 31. BURKE             | 1.35      | 16.4    | 4.0      |
| 32. CLAY              | 1.48      | 16.7    | 3.6      |
| 33. HAYWOOD           | 1.43      | 21.6    | 3.8      |
| 34. HENDERSON         | 1.40      | 15.5    | 2.8      |
| 35. JACKSON           | 1.72      | 13.9    | 3.7      |
| 36. MADISON           | 1.51      | 29.3    | 4.4      |
| 37. MITCHELL          | 1.33      | 22.6    | 3.6      |
| 38. SWAIN             | 1.62      | 15.3    | 5.6      |
| 39. WATAUGA           | 1.84      | 13.2    | 2.6      |

TABLE XII (continued)

| COUNTIES             | UNITSPER | UNITAGE | CROWDING |
|----------------------|----------|---------|----------|
| <u>TENNESSEE</u>     |          |         |          |
| 40. ANDERSON         | 1.36     | 10.9    | 3.8      |
| 41. BLEDSOE          | 1.36     | 21.9    | 5.9      |
| 42. CAMPBELL         | 1.36     | 18.6    | 6.6      |
| 43. CUMBERLAND       | 1.32     | 12.6    | 5.3      |
| 44. FENTRESS         | 1.36     | 14.4    | 6.1      |
| 45. HAMILTON         | 1.41     | 17.9    | 3.7      |
| 46. MARION           | 1.32     | 18.4    | 5.2      |
| 47. MORGAN           | 1.31     | 19.5    | 5.6      |
| 48. RHEA             | 1.36     | 16.2    | 5.2      |
| 49. ROANE            | 1.33     | 15.2    | 3.8      |
| 50. SCOTT            | 1.27     | 21.6    | 8.5      |
| 51. SEQUATCHIE       | 1.30     | 11.8    | 6.1      |
| 52. VAN BUREN        | 1.27     | 13.0    | 5.8      |
| 53. WHITE            | 1.32     | 20.6    | 4.3      |
| <u>VIRGINIA</u>      |          |         |          |
| 54. BLAND            | 1.61     | 27.7    | 3.5      |
| 55. BUCHANAN         | 1.24     | 13.5    | 8.3      |
| 56. DICKENSON        | 1.26     | 21.0    | 7.2      |
| 57. GRAYSON          | 1.36     | 26.8    | 3.8      |
| 58. LEE              | 1.33     | 30.8    | 2.7      |
| 59. RUSSELL          | 1.27     | 24.2    | 5.1      |
| 60. SCOTT            | 1.33     | 28.4    | 5.6      |
| 61. SMYTH            | 1.30     | 25.6    | 4.0      |
| 62. TAZEWEEL         | 1.28     | 24.3    | 4.3      |
| 63. WASHINGTON       | 1.36     | 23.9    | 3.9      |
| 64. WISE             | 1.30     | 26.0    | 5.8      |
| 65. WYTHE            | 1.35     | 32.0    | 4.3      |
| <u>WEST VIRGINIA</u> |          |         |          |
| 66. BRAXTON          | 1.45     | 40.1    | 5.2      |
| 67. JEFFERSON        | 1.20     | 30.0    | 4.8      |
| 68. KANAWHA          | 1.05     | 26.5    | 3.0      |
| 69. LINCOLN          | 1.27     | 21.5    | 8.7      |
| 70. LOGAN            | 1.32     | 32.6    | 8.0      |
| 71. McDOWELL         | 1.26     | 44.6    | 9.6      |
| 72. MARION           | 1.45     | 47.7    | 3.0      |
| 73. MARSHALL         | 1.36     | 41.8    | 3.2      |
| 74. MINERAL          | 1.34     | 36.1    | 2.8      |
| 75. MINGO            | 1.28     | 25.6    | 9.4      |
| 76. OHIO             | 1.52     | 55.1    | 2.5      |
| 77. RALEIGH          | 1.34     | 25.7    | 4.6      |
| 78. RANDOLPH         | 1.40     | 36.8    | 4.1      |
| 79. SUMMERS          | 1.51     | 40.0    | 5.5      |
| 80. WAYNE            | 1.29     | 25.3    | 5.0      |

Source: County and City Data Book, 1983.

TABLE XIII

## DATA FOR OTHER INDICATORS USED IN THE STUDY

| COUNTIES              | DIVERSE | PROPTAX | LAVAIL | EDUCAT |
|-----------------------|---------|---------|--------|--------|
| <u>ALABAMA</u>        |         |         |        |        |
| 1. BLOUNT             | 28.7    | 4.77    | 70.13  | 46.1   |
| 2. CHEROKEE           | 46.9    | 2.51    | 51.96  | 43.2   |
| 3. CLEBURNE           | 53.4    | 1.64    | 36.79  | 38.3   |
| 4. CULLMAN            | 31.6    | 4.42    | 77.33  | 46.6   |
| 5. DEKALB             | 42.7    | 4.92    | 75.35  | 42.7   |
| 6. ETOWAH             | 33.5    | 20.57   | 85.24  | 54.9   |
| 7. FAYETTE            | 45.1    | 2.37    | 61.09  | 43.6   |
| 8. JACKSON            | 38.5    | 3.56    | 59.90  | 47.8   |
| 9. LAMAR              | 49.0    | 2.52    | 61.59  | 43.0   |
| 10. MARION            | 47.1    | 2.28    | 60.74  | 42.3   |
| 11. MARSHALL          | 32.7    | 7.94    | 62.01  | 50.1   |
| 12. SHELBY            | 22.2    | 12.51   | 40.88  | 63.6   |
| 13. TUSCALOOSA        | 32.9    | 10.63   | 56.11  | 60.1   |
| 14. WALKER            | 19.0    | 6.98    | 68.88  | 45.6   |
| 15. WINSTON           | 41.3    | ----    | -----  | 42.9   |
| <u>KENTUCKY</u>       |         |         |        |        |
| 16. BELL              | 21.3    | 8.19    | 48.68  | 36.2   |
| 17. BREATHITT         | 24.0    | 2.57    | 53.84  | 37.0   |
| 18. FLOYD             | 27.8    | 6.13    | 66.93  | 39.9   |
| 19. HARLAN            | 35.7    | 5.12    | 35.96  | 38.2   |
| 20. JOHNSON           | 25.2    | 9.14    | 69.90  | 42.8   |
| 21. KNOTT             | 33.8    | 2.16    | 41.80  | 36.2   |
| 22. KNOX              | 19.5    | 4.03    | 78.62  | 36.0   |
| 23. LAUREL            | 24.7    | 5.60    | 59.84  | 42.5   |
| 24. LETCHER           | 40.3    | 5.54    | 52.18  | 37.9   |
| 25. MARTIN            | 50.1    | 5.88    | 42.78  | 34.5   |
| 26. PERRY             | 25.9    | 7.32    | 57.12  | 32.3   |
| 27. PIKE              | 37.6    | 7.40    | 72.35  | 38.3   |
| <u>NORTH CAROLINA</u> |         |         |        |        |
| 28. ALLEGHANY         | 42.9    | 6.32    | 67.80  | 38.5   |
| 29. ASHE              | 46.0    | 8.18    | 74.18  | 41.0   |
| 30. AVERY             | 28.7    | 6.55    | 42.50  | 49.6   |
| 31. BURKE             | 48.9    | -----   | 60.83  | 46.0   |
| 32. CLAY              | 35.3    | 4.15    | 36.09  | 46.4   |
| 33. HAYWOOD           | 36.0    | 21.55   | 65.46  | 51.6   |
| 34. HENDERSON         | 34.2    | 34.06   | 64.14  | 61.6   |
| 35. JACKSON           | 31.7    | 10.20   | 40.80  | 52.7   |
| 36. MADISON           | 33.7    | 5.53    | 61.78  | 41.6   |
| 37. MITCHELL          | 41.5    | 15.03   | 40.33  | 43.1   |
| 38. SWAIN             | 29.1    | 2.30    | 5.85   | 44.5   |
| 39. WATAUGA           | 33.4    | 22.90   | 65.76  | 60.1   |

TABLE XIII (continued)

| COUNTIES             | DIVERSE | PROPTAX | LAVAIL | EDUCAT |
|----------------------|---------|---------|--------|--------|
| <u>TENNESSEE</u>     |         |         |        |        |
| 40. ANDERSON         | 22.0    | 70.34   | 50.79  | 62.2   |
| 41. BLEDSOE          | 31.1    | 4.04    | 41.45  | 39.6   |
| 42. CAMPBELL         | 23.0    | 11.45   | 31.54  | 37.6   |
| 43. CUMBERLAND       | 25.4    | 7.91    | 53.87  | 44.4   |
| 44. FENTRESS         | 37.7    | 2.89    | 45.01  | 33.6   |
| 45. HAMILTON         | 24.0    | 212.32  | 85.32  | 63.7   |
| 46. MARION           | 32.5    | 6.67    | 31.14  | 42.1   |
| 47. MORGAN           | 32.4    | 6.16    | 43.61  | 40.5   |
| 48. RHEA             | 40.7    | 13.71   | 57.73  | 47.2   |
| 49. ROANE            | 29.8    | 19.93   | 54.36  | 54.1   |
| 50. SCOTT            | 22.6    | 4.95    | 44.51  | 37.7   |
| 51. SEQUATCHIE       | 29.6    | 6.60    | 18.11  | 39.2   |
| 52. VAN BUREN        | 56.9    | 2.39    | 27.03  | 30.1   |
| 53. WHITE            | 47.3    | 7.62    | 71.50  | 41.8   |
| <u>VIRGINIA</u>      |         |         |        |        |
| 54. BLAND            | 32.4    | 2.72    | 47.43  | 46.9   |
| 55. BUCHANAN         | 45.4    | 20.38   | 52.03  | 33.4   |
| 56. DICKENSON        | 45.0    | 15.62   | 32.59  | 33.5   |
| 57. GRAYSON          | 53.7    | 4.59    | 35.09  | 38.3   |
| 58. LEE              | 23.1    | 9.61    | 71.08  | 34.3   |
| 59. RUSSELL          | 32.9    | 12.34   | 78.51  | 39.1   |
| 60. SCOTT            | 38.8    | 6.48    | 70.80  | 36.7   |
| 61. SMYTH            | 34.4    | 11.50   | 49.23  | 37.4   |
| 62. TAZEWELL         | 25.9    | 21.64   | 64.18  | 43.9   |
| 63. WASHINGTON       | 29.2    | 15.32   | 78.94  | 44.3   |
| 64. WISE             | 30.4    | 17.80   | 38.92  | 40.8   |
| 65. WYTHE            | 32.3    | 10.28   | 57.14  | 45.3   |
| <u>WEST VIRGINIA</u> |         |         |        |        |
| 66. BRAXTON          | 20.9    | 5.00    | 71.30  | 45.1   |
| 67. JEFFERSON        | 23.6    | 29.24   | 83.74  | 56.7   |
| 68. KANAWHA          | 21.5    | 83.42   | 63.07  | 65.0   |
| 69. LINCOLN          | 16.6    | 10.08   | 85.76  | 40.9   |
| 70. LOGAN            | 34.6    | 21.10   | 32.43  | 45.1   |
| 71. McDOWELL         | 41.8    | 19.63   | 18.36  | 35.9   |
| 72. MARION           | 21.0    | 53.52   | 92.10  | 61.8   |
| 73. MARSHALL         | 25.1    | 56.95   | 76.74  | 60.7   |
| 74. MINERAL          | 28.0    | 15.82   | 75.18  | 60.0   |
| 75. MINGO            | 36.4    | 19.46   | 30.19  | 39.4   |
| 76. OHIO             | 24.3    | 182.68  | 81.41  | 65.4   |
| 77. RALEIGH          | 23.6    | 28.08   | 34.34  | 53.6   |
| 78. RANDOLPH         | 23.5    | 4.62    | 45.80  | 52.8   |
| 79. SUMMERS          | 24.0    | 7.89    | 59.47  | 48.1   |
| 80. WAYNE            | 23.6    | 14.69   | 90.69  | 50.6   |

Sources: County and City Data Book, 1983 and; the Census of Governments, 1982.

## VITA

Ricky W. Barker was born in Dante, Virginia on September 2, 1962. He graduated from Saint Paul High School in June 1980. The following September he entered Emory and Henry College, and in May 1984 he received a Bachelor of Arts in Geography. In the fall of 1984 he accepted a graduate assistantship at the University of Tennessee, Knoxville in Planning and has since been pursuing a Master of Science Degree in Planning.